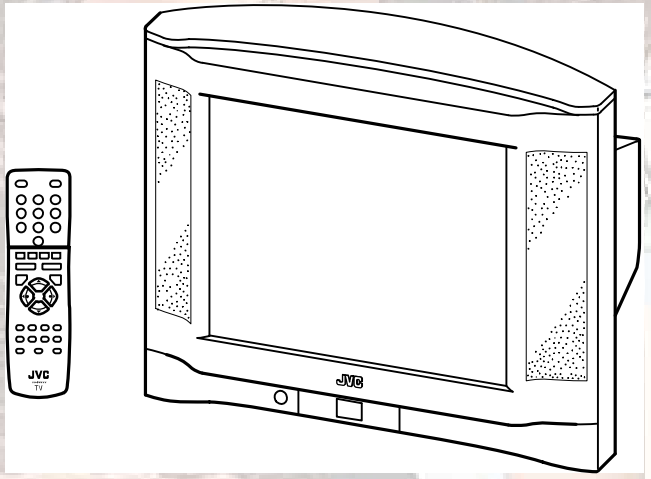
SERVICE MANUAL

COLOUR TELEVISION

AV-29FH1BUG, AV-29FH1SUG



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No.YA008
2003/9

SPECIFICATION

Items		Contents	
		AV-29FH1BUG	**AV-29FH1SUG**
Dimensions (W × H × D)		81.2cm × 60.1cm × 52.2cm	
Mass		40kg	
TV RF System		CCIR (B/G, D/K, I , L/L')	
Colour System		PAL / SECAM / NTSC (Only in EXT mode)	
Stereo System		A2 (B/G, D/K) / NICAM (B/G, I, D/K, L)	
Teletext System		Fastext (UK system)	
		TOP (German system)	
		WST(World standard system)	
Receiving Frequency	VHF	47MHz ~ 470MHz	
	UHF	470MHz ~ 862MHz	
	French CATV	116MHz ~ 172MHz / 220MHz ~ 469MHz	
Intermediate Frequency	VIF Carrier	38.9MHz (B/G, D/K, I , L) / 33.95MHz (L')	
	SIF Carrier	33.4MHz (5.5MHz:B/G) / 32.9MHz (6.0MHz:I) / 32.4MHz (6.5MHz:L, D/K) / 40.45MHz (6.5MHz:L')	
Colour Sub Carrier Frequency	PAL	4.43MHz	
	SECAM	4.40625MHz / 4.25MHz	
	NTSC	3.58MHz / 4.43MHz	
Power Input		AC220V ~ AC240V, 50Hz	
Power Consumption		84W, standby : 3W	
Aerial Input Terminal		75Ω unbalanced, coaxial	
Picture Tube		Visible size : 68cm (Measured diagonally)	
Audio Power Output		7W + 7W	
EXT-1 / EXT-2 (Input / Output)		21-pin Euro connector (SCART socket × 2)	
EXT-3 (Input)	Video	1V(p-p) 75Ω (RCA pin jack × 1)	
	Audio (L/R)	500mV(rms) (-4dBs), High impedance (RCA pin jack × 2)	
Headphone Jack		Stereo mini jack (Ø3.5mm) × 1	
Remote Control Unit		RM-C1514B (AAA/R03 dry battery × 2)	RM-C1514 (AAA/R03 dry battery × 2)

Design & specifications are subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS

(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) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 POWER SUPPLY check).

(6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

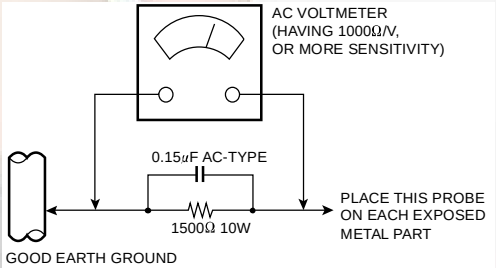
(8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement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

(9) **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.).



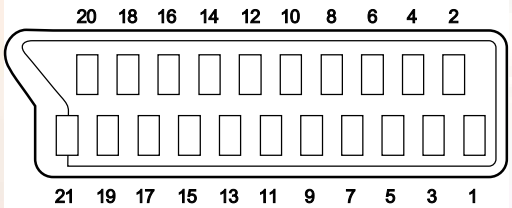
SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 21-pin Euro connector (SCART) : EXT-1/EXT-2

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

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

[Pin assignment]



SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

3.1.1 REMOVING THE REAR COVER

(1) Unplug the power cord.
(2) Remove the 8 screws **[A]**.
(3) Remove the 1 screw **[B]**.
(4) Withdraw the REAR COVER toward you.

3.1.2 REMOVING THE SIDE SPEAKER

- Remove the REAR COVER.
  (1) Remove the 4 screws **[D]**, attaching the SPEAKER.
  (2) Follow the same steps when removing the other hand SPEAKER.

3.1.3 REMOVING THE PFC FILTER PWB

- Remove the REAR COVER.
  (1) Remove the 2 screws **[C]** as shown in the figure.
  (2) Take off the 2 connectors linking chassis to PFC FILTER PWB and withdraw the PFC FILTER PWB.

3.1.4 REMOVING THE MAIN PWB

- Remove the REAR COVER.
  (1) Slightly raise the both sides of the MAIN PWB by hand and withdraw the MAIN PWB backward.
  (If necessary, take off the wire clamp, connectors etc.)

3.1.5 CHECKING THE PW BOARD

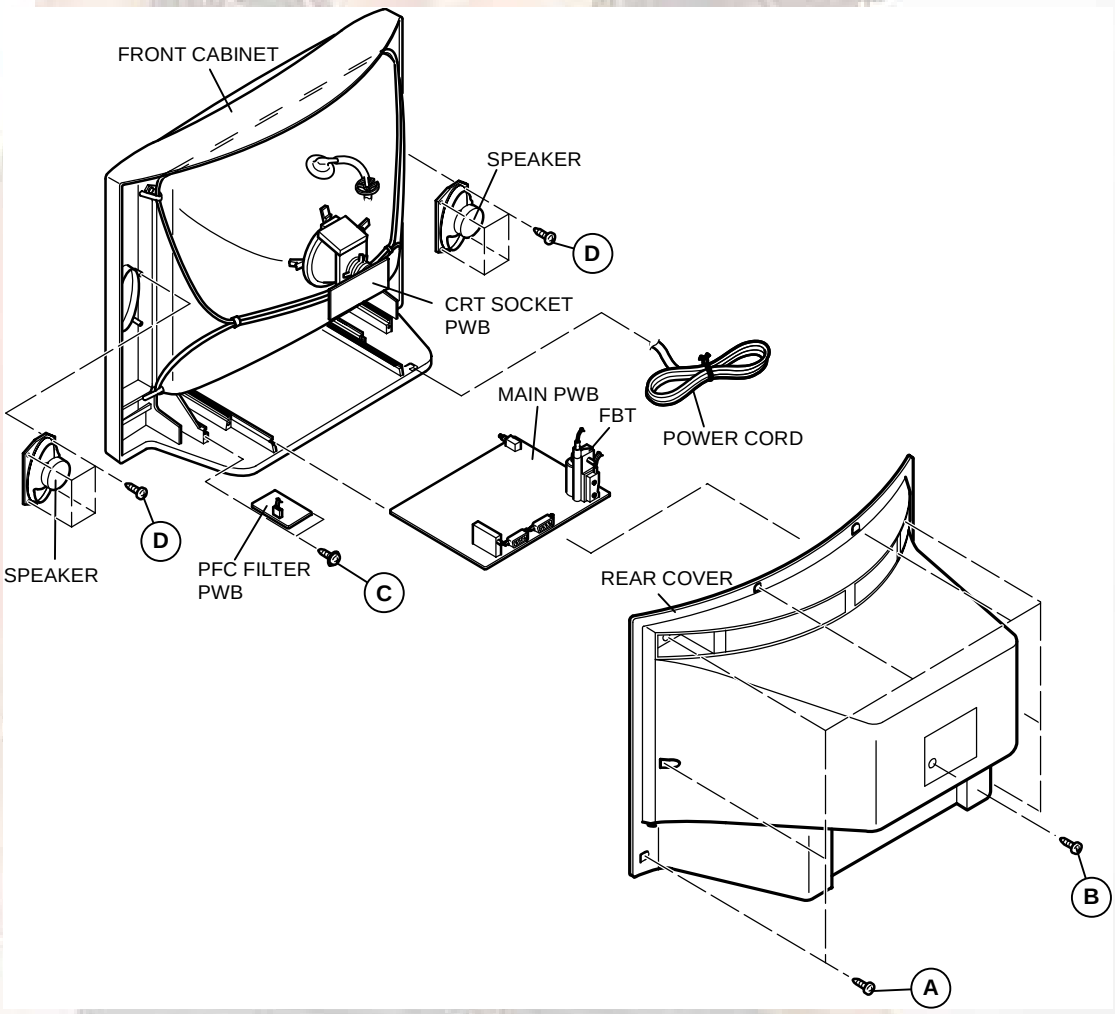
- To check the back side of the PW Board.
  (1) Pull out the MAIN PWB. (Refer to REMOVING THE MAIN PWB).
  (2) Erect the MAIN PWB vertically so that you can easily check the back side of the PW Board.

3.1.6 CAUTION

- When erecting the MAIN PWB, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PW board.

3.1.7 WIRE CLAMPING AND CABLE TYING

(1) Be sure to clamp the wire.
(2) Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.



3.2 REPLACEMENT OF MEMORY IC

3.2.1 MEMORY IC

This TV use memory IC. In the memory IC, there are memorized data for correctly operating the video and deflection circuits. When replacing memory IC with a blanking memory IC, the set is automatically memorized following SERVICE MANU initial data.

3.2.2 SERVICE MENU ADJUSTMENT ITEMS

There are 21 SERVICE ADJUSTMENT ITEMS. After replacing memory IC, automatically memorized following initial data.

No.	Adjustment item
1	HOR CEN
2	RED GAIN
3	GRN GAIN
4	BLUE GAIN
5	RED BIAS
6	GRN BIAS
7	AGC LEVEL
8	G2-SCREEN
9	AFT
10	OPTION1
11	OPTION2
12	AVL
13	PARABOLA
14	HOR WIDTH
15	CORNER T
16	CORNER B
17	HOR PARAL
18	V. LINEAR
19	EW TRAPEZ
20	S CORRECT
21	VERT CENT
22	VERT SIZE
23	SHIPPING

3.2.3 FACTORY SETTING

3.2.3.1 FRONT BUTTON SETTING AND INITIAL SEETING

Item	Value
MAIN POWER	OFF(SUB POWER ON)
PR POSITION	01
INPUT MODE	TV

3.2.3.2 USER MENU SETTING

Item	Value
PICTURE	
BRIGHTNESS	Center
CONTRAST	Center
COLOUR	Center
SHARPNESS	Center
TINT	Center
NOISE RED.	WEAK
SOUND	
VOLUME	18
BALANCE	Center
BASS	Center
TREBLE	Center
FEATURES	
CHILD LOCK	OFF
WAKE TIME	OFF
WAKE PROG.	01
CLOCK	--:--
CLOCK PROG	01
PROG. INFO	ON
ZOOM AUTO	4:3
LANGUAGE	GB
INSTALL	
ATSS	Others
EDIT	
SYSTEM	EURO
CHANNEL	C 02
FREQUENCY	048. 25
NAME	-------
PROGRAM	01
STORE TO	01

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

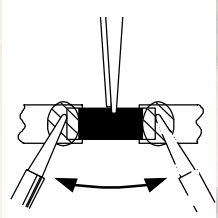
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

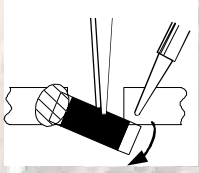
1. How to remove Chip parts

[Resistors, capacitors, etc.]

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

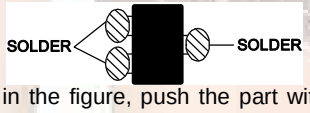


(2) Shift with the tweezers and remove the chip part.

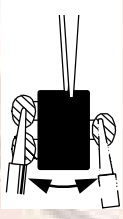


[Transistors, diodes, variable resistors, etc.]

(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.



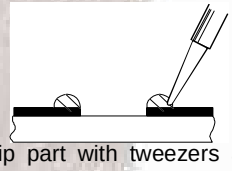
NOTE :

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

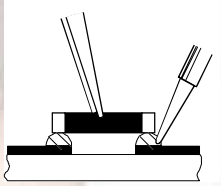
2. How to install Chip parts

[Resistors, capacitors, etc.]

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

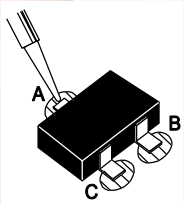


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

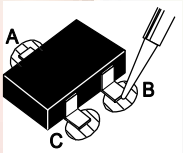


[Transistors, diodes, variable resistors, etc.]

(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

4.1 ADJUSTMENT PREPARATION

(1) There are 2 ways of adjusting this TV : One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
(2) Make sure that connection is correctly made AC to AC power source.
(3) Turn on the power of the TV and measuring instruments for warning up for at least 30 minutes before starting adjustments.
(4) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(5) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

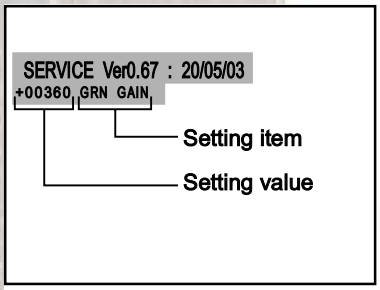
4.2 MEASURING INSTRUMENT AND FIXTURES

(1) DC voltmeter (or digital voltmeter)
(2) Signal generator (Pattern generator : PAL / SECAM / NTSC)
(3) Remote control unit.

4.3 BASIC OPERATION OF SERVICE MENU

4.3.1 TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

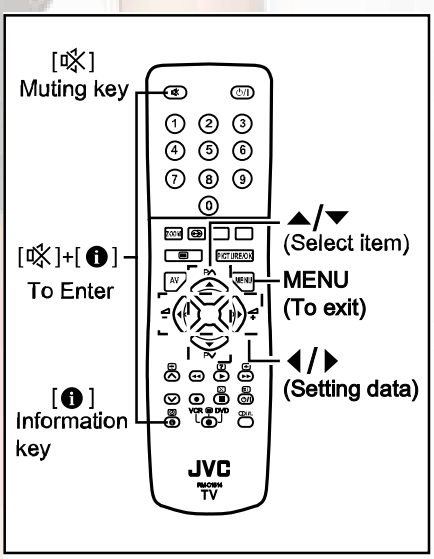


SERVICE MENU SCREEN

4.3.2 SERVICE ADJUSTMENT ITEMS

There are 23 adjustment items.

No.	Adjustment item	No.	Adjustment item
1	HOR CEN	13	PARABOLA
2	RED GAIN	14	HOR WIDTH
3	GRN GAIN	15	CORNER T
4	BLUE GAIN	16	CORNER B
5	RED BIAS	17	HOR PARAL
6	GRN BIAS	18	V. LINEAR
7	AGC LEVEL	19	EW TRAPEZ
8	G2-SCREEN	20	S CORRECT
9	AFT	21	VERT CENT
10	OPTION1	22	VERT SIZE
11	OPTION2	23	SHIPPING
12	AVL		



REMOTE CONTROL UNIT

4.3.3 HOW TO ENTER SERVICE MENU

(1) Press [i](Information) key and [🔇](Muting) key same time then enter SERVICE MENU.
(2) Adjust sharpness to minimum and exit all menus.
(3) Within 2 seconds press the key sequence [RED]-[GREEN]-[MENU]key.

4.3.4 SELECTION OF MENU SCREEN

(1) Press [▲] / [▼] keys of the REMOTE CONTROL UNIT and select adjustment item.

4.3.5 SETTING VALUE OF ADJUSTMENT ITEMS

(1) Press [◀] / [▶] keys of the REMOTE CONTROL UNIT and setting value of adjustment items.

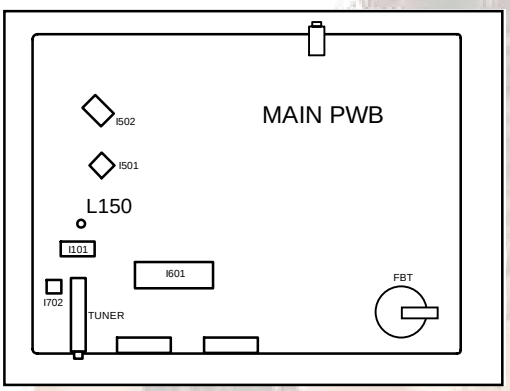
4.3.6 HOW TO EXIT SERVICE MENU

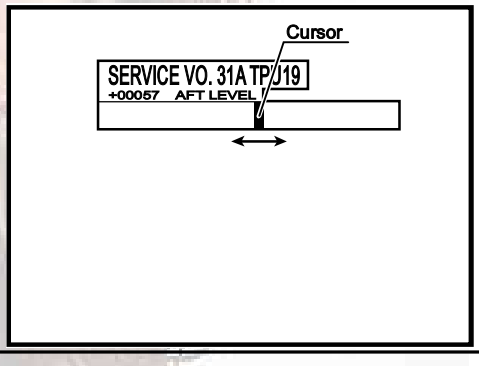
(1) Press [MENU] key, then exit SERVICE MENU.

4.4 ADJUSTMENT PROCEDURE

4.4.1 LOCAL OSCILLATOR ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
AFT adjustment	Signal generator Remote control unit		AFT AFT coil : (L150) [MAIN PWB]	(1) Receive a colour bar pattern signal. (2) The frequency of the signal carrier must be accurate (Max +/-10kHz deviation from the nominal channel frequency). (3) Select < AFT >. (4) Adjust the AFT coil (L150) to bring the cursor to central poison.



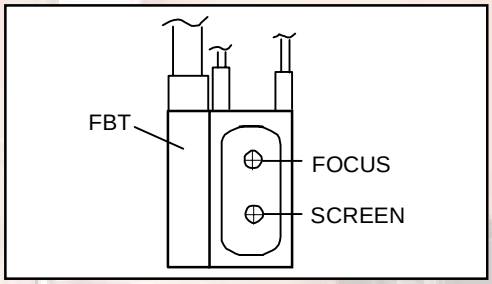


4.4.2 AGC

Item	Measuring instrument	Test point	Adjustment part	Description
AGC adjustment	Signal generator Remote control unit		AGC	(1) Receive a colour bar pattern signal. (2) Select < AGC >. (3) Press the [OK] key and wait until AGC level stabilize to the optimum value.

4.4.3 FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS adjustment	Signal generator Remote control unit		FOCUS VR [On FBT]	(1) Receive a cross-hatch signal. (2) Adjust the FOCUS volume on the FBT to have the best resolution on the screen.



4.4.4 SCREEN ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
SCREEN adjustment	Signal generator Remote control unit		G2-SCREEN SCREEN VR [On FBT]	(1) Receive a colour bar pattern signal. (2) Select < G2-SCREEN >. (3) Adjust the SCREEN VR on the FBT to bring the cursor to central position.

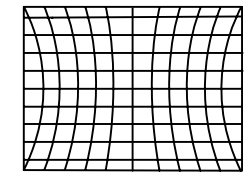
4.4.5 WHITE BALANCE ADJUSTMENT

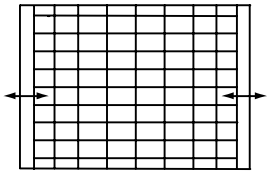
Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE adjustment	Signal generator Remote control unit		RED BIAS GRN BIAS RED GAIN GRN GAIN BLUE GAIN	(1) Receive a black and white pattern signal (colour off). (2) Select < RED BIAS >, < GRN BIAS > and adjust the screen until the black portion in the screen becomes black. (3) Select < RED GAIN >, < GRN GAIN >, < BLUE GAIN > and adjust the screen until the white portion in the screen become white.

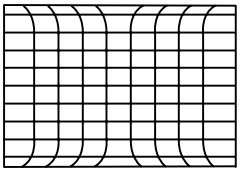
4.4.6 DEFLECTION CIRCUIT ADJUSTMENT

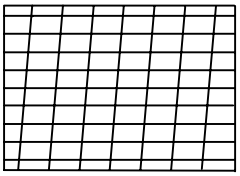
Item	Measuring instrument	Test point	Adjustment part	Description
VERTICAL GEOMETORY adjustment	Signal generator Remote control unit		V. LINEAR S CORRECT VERT SIZE VERT CENT	(1) Receive a circle pattern signal. (2) Select < V. LINEAR >(Veretical linearity), < S CORRECT > (S correction), < VERT SIZE >(Vertical size), < VERT CENT >(Vertical center) respectively. (3) Adjust to compensate for vertical distortion.
HORIZONTAL POSITION adjustment	Signal generator Remote control unit		HOR CEN	(1) Receive a circle pattern signal. (2) Select < HOR CEN >(Horizontal center). (3) Adjust to have the picture in the center of the screen.

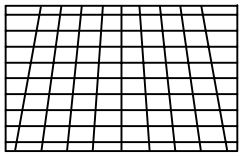
Item	Measuring instrument	Test point	Adjustment part	Description
HORIZONTAL GEOMETORY adjustment	Signal generator Remote control unit		PARABOLA HOR WIDTH CORNER HOR PARAL EW TRAPEZ	(1) Receive a cross-hatch pattern signal. (2) Select < PALABOLA >(Side pin), < HOR WIDTH > (Horizontal width), < CORNER >(Top/bottom corner), < HOR PARAL >(Horizontal parallel), < EW TRAPEZ >(Trapezium). (3) Adjust these items to compensate for geometrical distortion.


PARABOLA


HOR WIDTH

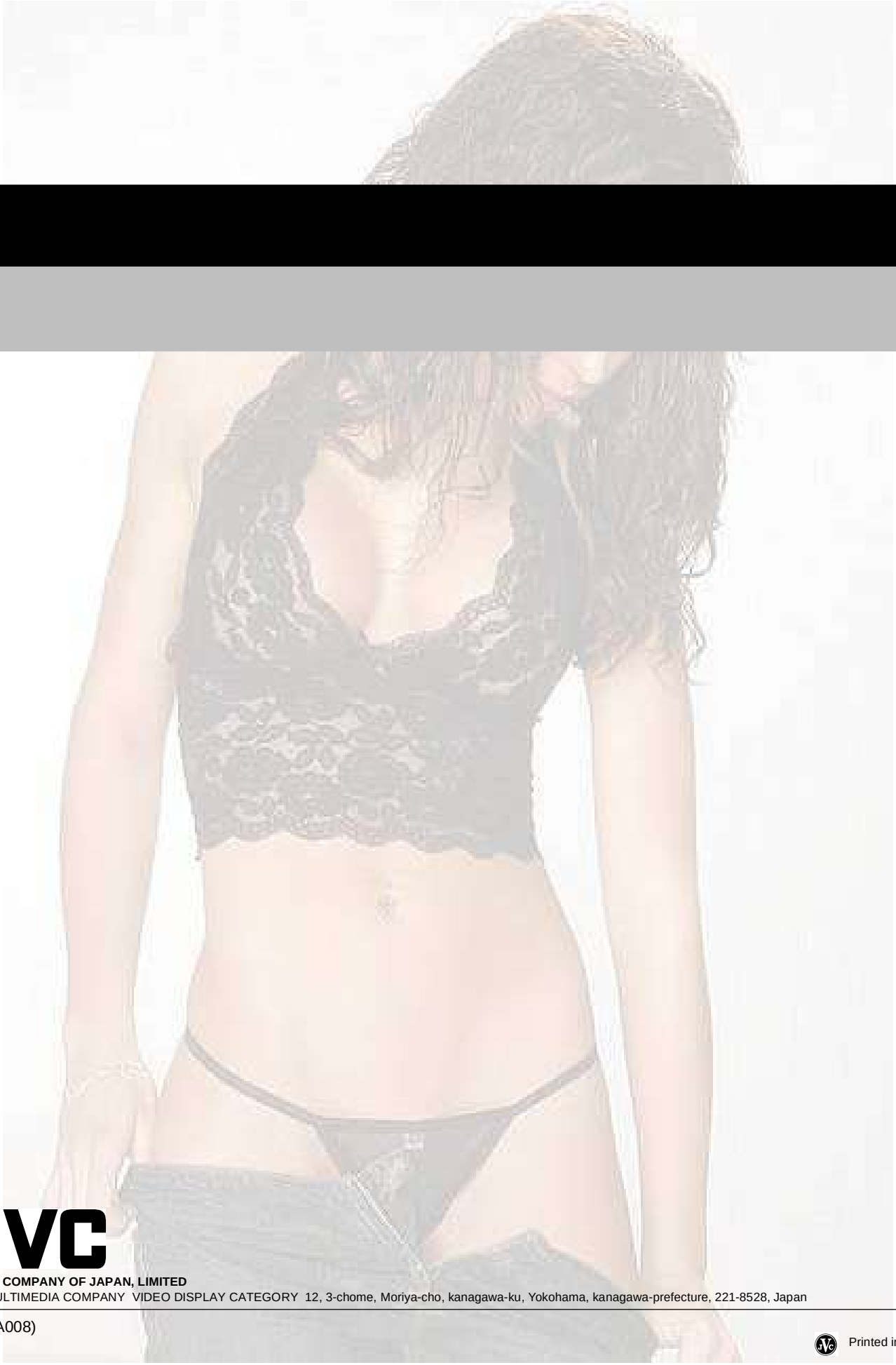

CORNER


HOR PARAL


EW TRAPEZ

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.



VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY VIDEO DISPLAY CATEGORY 12, 3-chome, Moriya-cho, kanagawa-ku, Yokohama, kanagawa-prefecture, 221-8528, Japan

(No.YA008)

Printed in Japan
WPC

JVC

ENGLISH
DEUTSCH
FRANÇAIS
NEDERLANDS
CASTELLANO
ITALIANO

InteríArt T-V LINK

AV-29FH1SUG
AV-29FH1BUG

COLOUR TELEVISION INSTRUCTIONS

FARBFERNSEHGERÄT	BEDIENUNGSANLEITUNG
TELEVISEUR COULEUR	MANUEL D'INSTRUCTIONS
KLEURENTELEVISIE	GEBRUIKSAANWIJZING
TELEVISOR A COLOR	MANUAL DE INSTRUCCIONES
TELEVISORE A COLORI	ISTRUZIONI
TELEVISOR A CORES	INSTRUÇÕES

Thank you for buying this JVC colour television.
To make sure you understand how to use your new TV, please read this manual thoroughly before you begin.

ENGLISH

IMPORTANT SAFEGUARDS

1. WATER AND MOISTURE

The apparatus shall not be exposed to dripping or splashing water and no object filled with liquids, such as vases , should be placed on the apparatus.

2. HEAT

Never place the set near heat sources.
Never put a naked flame, such as a candle, on the top of TV set.

3. VENTILATION

Do not cover the ventilation openings in the cabinet and never place the set in a confined space such as in a bookcase or built-in cabinet unless proper ventilation is provided. Leave a minimum 10 cm gap all around the unit.

4. OBJECT ENTRY

Do not insert foreign objects, such as needles and coins, in the ventilation openings.

5. LIGHTNING STRIKE

You should disconnect the set from the mains and the aerial system during thunderstorms.

6. CLEANING

Unplug the set from the mains while cleaning.

7. AFTER MOVING THE SET

If the set is moved or turned, the MAIN POWER button must be switched off for at least 15 minutes in order to take out colour patches on the screen.

8. CAUTION

There is danger of choking or suffocation if the cap which is removed from the TV is accidentally swallowed by children. Store the cap out of the reach of children.

CONTENTS

IMPORTANT SAFEGUARDS 1
IDENTITY OF LOCAL & REMOTE CONTROL 2
SETTING UP 3
START UP 3
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TV-LINK FUNCTION 7
DAILY USE 8
TELETEXT 12
CONNECTING EXTERNAL EQUIPMENT 14
TROUBLESHOOT NG 15
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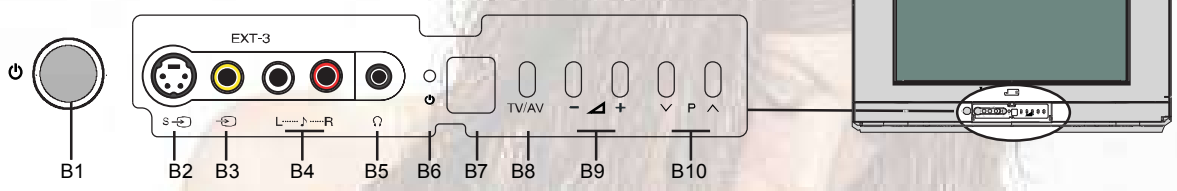
IDENTITY OF LOCAL & REMOTE CONTROL

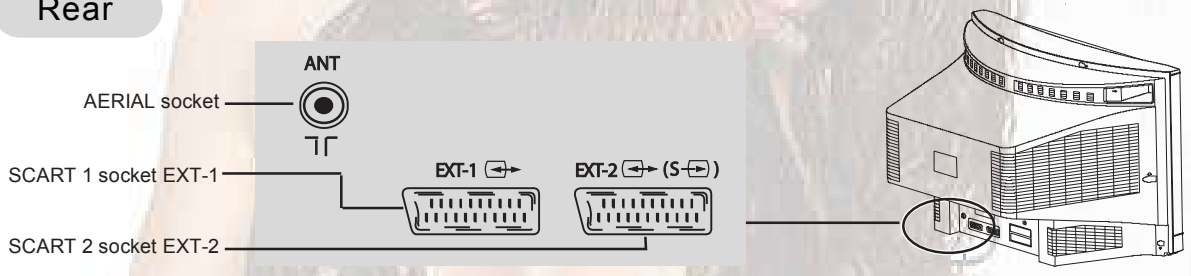
LOCAL CONTROL

Front

B1 MAIN POWER button
B2 FRONT S-VIDEO INPUT socket Ext-3
B3 FRONT VIDEO INPUT socket Ext-3
B4 FRONT AUDIO INPUT socket Ext-3
B5 HEADPHONE socket
B6 STAND-BY indicator
B7 REMOTE sensor
B8 TV / AV button
B9 VOLUME UP/DOWN buttons
B10 PROGRAM UP/DOWN buttons



Rear

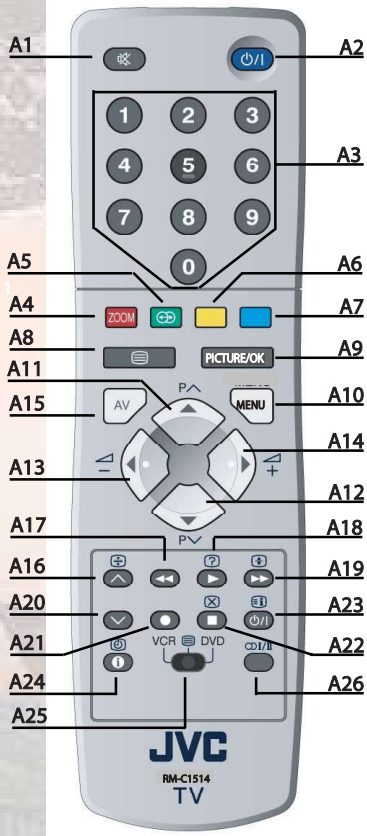


REMOTE CONTROL

TV mode

A1 SOUND MUTE
A2 POWER
A3 0 - 9 NUMBER 0..9
A4 ZOOM / SKIP
A5 SOUND EFFECT / MOVE
A6 SLEEP / DELETE
A7 Not used
A8 TV > TELETEXT
A9 PICTURE / OK
A10 MENU
A11 PROGRAM UP (CURSOR UP)
A12 PROGRAM DOWN (CURSOR DOWN)
A13 VOLUME DOWN (CURSOR LEFT)
A14 VOLUME UP (CURSOR RIGHT)
A15 TV / AV
A16 Not used
A17 Not used
A18 Not used
A19 Not used
A20 Not used
A21 Not used
A22 Not used
A23 Not used
A24 INFORMATION
A25 V D VCR / TELETEXT / DVD switch
A26 I / II MODE Stereo/Mono
Dual language I / II

RM-C1514

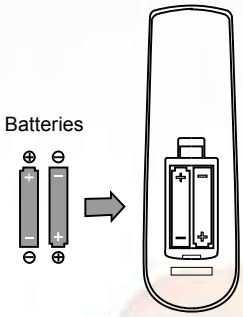


TELETEXT mode

A1 SOUND MUTE
A2 POWER
A3 0 - 9 NUMBER 0..9
A4 RED
A5 GREEN
A6 YELLOW
A7 CYAN
A8 TELETEXT > TV
A9 Not used
A10 VOL/BRIGHTNESS/CONTRAST MENU SELECTION
A11 PAGE UP
A12 PAGE DOWN
A13 VOL/BRIGHTNESS/CONTRAST DOWN
A14 VOL/BRIGHTNESS/CONTRAST UP
A15 Not used
A16 PAGE HOLD
A17 Not used
A18 REVEAL
A19 DOUBLE SIZE
A20 Not used
A21 Not used
A22 CANCEL
A23 INDEX
A24 SUBPAGE
A25 VCR / TELETEXT / DVD switch
A26 Not used

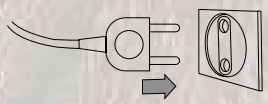
ENGLISH

SETTING UP

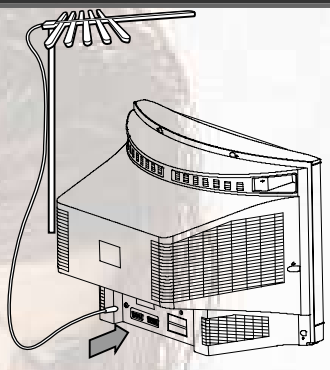


Open remote control battery compartment (at the rear) and insert two 1.5V type AA / R6 batteries.

Warning: be careful to respect battery polarities.



Insert the main plug into a 220 - 240V 50Hz AC power socket.



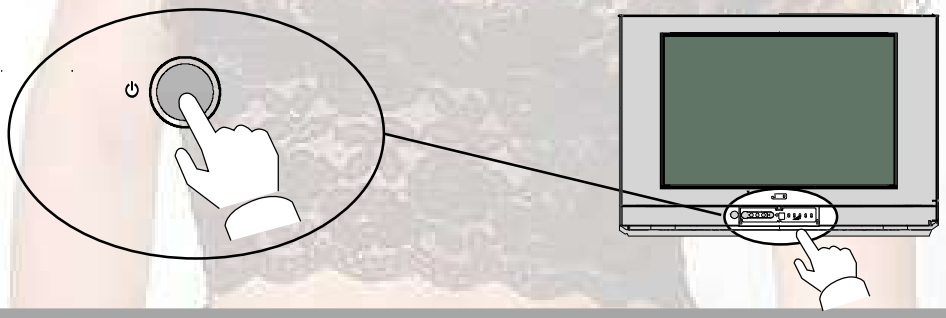
Connect aerial to aerial jack. It is usually connected by means of a 75 ohm cable.

ENGLISH

START UP

SWITCHING ON

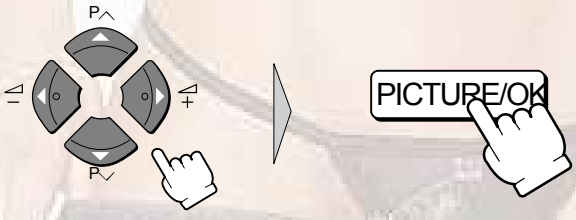
Switch the TV set on with the **MAIN POWER** button (B1).

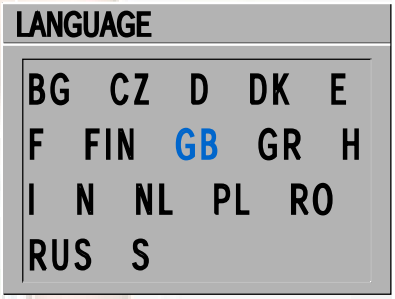


LANGUAGE MENU

The very first time that you turn on the TV, the **LANGUAGE** menu will appear on the screen. Its purpose is to enable you to select the language that will be used for all the OSD (On Screen Display) menus. The user must enter a choice of language before proceeding further.

The descriptions used in the menu are those of the country code (e.g. GB = English, NL = Holland etc).





Selection is made by use of the remote control **CURSOR UP** (A11) / **CURSOR DOWN** (A12) buttons and **CURSOR LEFT** (A13) / **RIGHT** (A14) buttons. Once you are satisfied with your selection, push the **OK** button (A9) to confirm your choice, and then the menu will disappear.
The language entered at this stage can still be modified at any later time, by entering the **LANGUAGE** selection (accessed from the **FEATURES** menu page 11).

Note : The languages shown are subject to modification without prior notice.

INSTALLATION

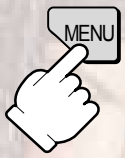
AUTO TUNING SYSTEM

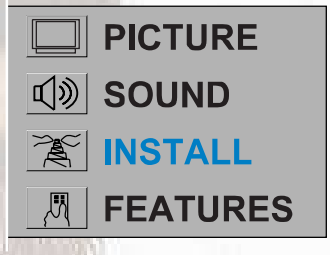
MENU SELECTION

Press remote control **MENU** button (A10) to display the **MAIN MENU**.

Move the cursor to INSTALL by using the remote control CURSOR UP (A11),DOWN(A12) buttons.
Then press the remote control OK button (A9).

Note: All menus are removed within 60 seconds if you don't press any button.



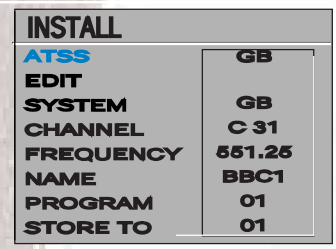


COUNTRY SELECTION

Position the cursor at **ATSS** Menu and select country code where TV is used by pressing the remote control **CURSOR LEFT** (A13), **RIGHT(**A14) buttons.

The following countries can be selected.

A, B, CH, CZ, D, DK
E, F, FIN, GB, H, I, IRL,
N, NL, P, PL, S, SK, Others



ATSS - Auto Tuning and Sorting System

After selecting country code, press and hold OK button for 3 - 4 seconds until "**Please wait!**" is displayed, then auto program tuning starts searching all the available TV stations in your area. When auto tuning and sorting is completed, the **EDIT** menu with the recorded programs appears on the screen.

You can proceed to edit the the program numbers using the EDIT functions. For details, see "EDIT MENU" below.
If you do not need to use the EDIT functions, go to next step to download the data to VCR with the T-V LINK function.

To exit the **EDIT** menu, press **MENU** button 3 times, then the menu display will disappear from TV screen. Now you can select program using the remote control **UP** (A11) or **DOWN** (A12) buttons.

EDIT MENU

The **EDIT** menu shows you the programme position assignment. When using the **AUTO TUNING** method, the broadcasts may not be found and stored in the order you desired. For example, BBC1 may not be allocated to programme number 01, and BBC2 may not be allocated to programme number 02, etc. The **EDIT** menu enables you to change the programme position assignment according to your personal preference.

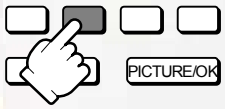
To reach the **EDIT** menu you have to first select **INSTALL** menu from the **MAIN** menu.

EDIT

PR	NAME	CH	SKIP
06	CH 5	C46	
05	S4C	C39	
04	CH 4	C05	
03	ITV	C31	
02	BBC2	C34	
01	BBC1	C37	
00	- - - - -	C21	✓

CHANGING ORDER OF CHANNELS

Position the cursor to the programme number you want to move and press the remote control **GREEN** (A5) **MOVE** button. The programme turns to red colour. Then use the **UP** (A11) or **DOWN** (A12) buttons to move the programme number you wish to store it to and press **MOVE** button again to confirm the operation. Press **MENU** to return to **INSTALL** menu.

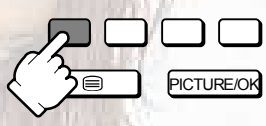


DELETE PROGRAMME POSITION DATA

Position the cursor to the programme number you wish to delete using the remote control **UP** (A11) or **DOWN** (A12) buttons. Press the **YELLOW/DELETE** (A6) button.

The delete programme is instantly moved to programme N° 99. The programme which was located at N° 99 will automatically move to N° 98.

SKIPPING THE CHANNELS



Position the cursor to the programme number you wish to skip, then press the **RED** (SKIP) (A4) button. A skipped programme is marked with the sign " ✓ " at its right end. The channel corresponding to a skipped programme will not appear on screen when changing channels using **PROGRAM UP** (A11) / **DOWN** (A12) buttons.

USING THE DECODER (EXT -2) FUNCTION WITH T-V LINK:

When connecting a T-V IINK 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.

Position the cursor to the channel capable of being unscrambled with the decoder on EXT-2, then press the "**CYAN**" (A7) button. A channel functioning with a decoder is marked with the icon of a key beside the program number.

Even if the decoder is functioning a scrambled picture appears at this time. The decoded signal won't be visible until you exit **EDIT** and **INSTALL** menus.

DOWNLOADING THE DATA TO VCR WITH T-V LINK

In the **EDIT** menu, you can transmit the latest Program number data to the VCR with the **T-V LINK** function. To start the data transfer, you must press and hold OK button for 3-4 seconds until "**TV** → **VCR**" is displayed flashing in the header of **EDIT** menu.

Caution : This operation will only be succesful if a T-V LINK compatible VCR is connected to the EXT-2 terminal, and if the VCR is ON.

Once the data transmission ends, the "**TV** → **VCR**" indicator disappear and the EDIT menu vanishes after 3 sec.

Note : If the TV is unable to transfer the data, the feature not available is displayed in the header of EDIT menu in red to indicate an error. In such case, ensure the following three items are correct.

- Has the T-V LINK compatible VCR been connected to the EXT-2 terminal?
- Has the VCR power been turned ON?
- Does the SCART cable that is connected to the EXT-2 terminal to T-V LINK compatible VCR have all proper connections?

If above is OK, then press and hold 3-4 seconds again.

MANUAL CHANNEL TUNING

Tuning by **ATSS** (Auto Tuning Sorting System) is recommendable, as it is the easiest tuning method. But Manual Tuning is also possible using the following procedure.

BROADCASTING SYSTEM SELECTION

INSTALL	
ATSS	GB
EDIT	
SYSTEM	GB
CHANNEL	C 49
FREQUENCY	551.25
NAME	BBC1
PROGRAM	01
STORE TO	01

Select **INSTALL m**enu and using the remote control **CURSOR UP** (A11) / **DOWN** (A12) buttons, move the cursor to **SYSTEM** menu and select the appropriate system by the **LEFT** (A13) or **RIGHT** (A14) button.

"FRANCE"	France SECAM L/L'
"GB"	Great Britain / Ireland PAL-I/I'
"EURO"	Westen Europe PAL-SECAM B/G
"E/EURO"	Eastern Europe PAL-SECAM D/K

ACTIVATING MANUAL TUNING

Move the cursor to **FREQUENCY** (channel frequency) menu and press and hold for more than 2 seconds the remote control **CURSOR LEFT** (A13) or **RIGHT** (A14) buttons. When one channel is tuned, the corresponding station name is indicated automatically in **NAME** menu.

To tune the next channel, press the remote control **CURSOR LEFT** (A13) or **RIGHT** (A14) buttons again.

CHANNEL AND FREQUENCY MENU

If you know the channel or frenquency number you want to search, enter the data by 0...9 buttons. TV will tune that channel quickly.

PERFORM FINE TUNING

If you are unable to obtain good picture or reasonable sound volume due to poor reception it is possible to perform fine tuning.
- Select the "**FREQUENCY**" menu.
- Press for less than 2 seconds, the remote control **CURSOR LEFT** (A13) and **CURSOR RIGHT** (A14) buttons to activate **FINE TUNING** in steps of 0.05 MHz(50kHz).

STORING CHANNEL NAME

When one channel is tuned, the corresponding station NAME will be detected automatically. But in some cases, NAME will not be detected due to the broadcasting situation. You may put in the channel NAME yourself.

Position the cursor to **NAME** menu and press the remote control **CURSOR RIGHT**(A14) button. A cursor appears on the left end of NAME line ("-----"). Then press **CURSOR UP** (A11) or **DOWN** (A12) buttons untill you get the right letter or symbol. Move the cursor to the next position by using **CURSOR LEFT** (A13) or **RIGHT** (A14) buttons and repeat the operation. Press **OK** (A9) button to store the NAME.

PROGRAM MENU

The number on the right side of the **PROGRAM** menu indicates the program number of the currently displayed channel.

STORE TO MENU

Select **STORE TO** menu and select the program number by 0....9 buttons or **CURSOR LEFT** (A13) or **RIGHT** (A14) buttonsto which you want to store the currently displayed channel then press **OK** button.

Warning ! If you store the number already programmed, the previous programmes will be erased automatically.

CAUTION TO T-V LINK COMPATIBLE VCR USER :

After any channel arrangement modification you must also update the data memorised in your VCR. This can be done easily with the T-V LINK. See page 5 : DOWNLOADING THE DATA TO VCR.

T-V LINK FUNCTIONS

When a T-V LINK compatible VCR is 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 is necessary.

The VCR must be connected to the EXT-2 terminal on the TV by a fully wired SCART cable.

Note: A "T-V LINK compatible VCR means a JVC VCR with the T-V LINK logo or a VCR with one of the following logos. However, these VCRs may support some or all of the features described below. For details, refer to your VCR insturction 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)

ENGLISH

PRE-SET DOWNLOAD

Download the registred data on the TV channels from the TV to the VCR.

The Preset Download function must be used when the initial setting is complete or whenever the AUTO PROGRAM or EDIT/MANUAL operations are performed.

Note: This function can be operated via VCR operation.

When "TV → VCR" is displayed in red :

If "TV → VCR" is displayed in red, the download was not performed correctly. Before trying to download again, ensure the following :

- The VCR power is turned on.
- The VCR is T-V LINK compatible
- The VCR is connected to the EXT-2 terminal
- The SCART cable is fully wired.

If all points are OK, please press and hold OK button 3-4 seconds.

DIRECT REC.

"What You See is What You Record"

You can record to VCR the images that you are currently viewing on TV by a simple operation.

For detalis, read the manual for your VCR.

The recording is initialed by the VCR.

Caution: When recording images from an external device connected to the TV, the VCR will stop recording if the TV is turned off or if the input is switched.

The direct recording is not possible under following condition :

- When INSTALL or EDIT menu are on screen.
- When watching teletext

Note: - Operation via the TV is not possible

- Generally, the VCR cannot record a TV channel that cannot be received properly by the VCR's tuner, even though you can view that TV channel on the TV. However, some VCR's can record a TV channel by using the TV's output if that channel can be viewed on the TV, even though the TV channel cannot be received properly by the VCR's tuner. For details, refer to your VCR instruction manual.
- When the signal source is RGB, direct recording function may not operate properly. To check if the TV signal source is RGB, press 'i' key, the program status display will indicate "EXT-1 RGB".

TV AUTO POWER ON/VCR IMAGE VIEW

When the VCR starts playing, the TV automatically turns on and the images from EXT-2 terminal are displayed on the screen.
When the VCR menu is operated, th TV automatically turns on and the image from EXT-2 terminal are displayed on the screen.

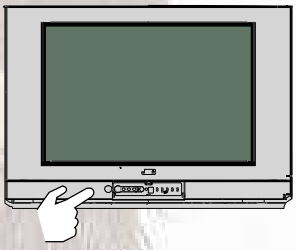
Note: This function does not operate if your TV's main power is turned off. Set your TV's main power to on (standby mode).

DAILY USE

SWITCHING ON AND OFF TV SET

SWITCHING ON

If stand-by indicator (B6) is not lit, then the TV set is powered off.
Switch the set ON with **POWER (ON/OFF)** Button ⏻ (B1), then, stand-by indicator turns to red.
Press again **PROGRAM UP** or **DOWN** buttons (B10) on the front of the set, or **POWER** button (A2) or **UP/DOWN** button (A11) or, one of the NUMBER 0...9 button on the remote control, then stand-by indicator turn to green and picture appears on the screen.



If **stand-by indicator** (B6) is flashing red and green, TV set is in **CHILD LOCK** mode. To deblock CHILD LOCK, press the remote control **POWER** button (A2) or one of NUMBER 0...9 buttons (A3) or **PROGRAM UP** (A11) / **DOWN** (A12) buttons.

Note : The front panel **PROGRAM UP** or **DOWN (**B10) button will not function when CHILD LOCK is ON.

SWITCHING OFF

Press **POWER** button (A2) on the remote control to return the set to its **STAND BY** mode. If you don't use the set for an extanded period of time, turn it off with **MAIN POWER** button (B1) on the set.

PROGRAM SELECTION (FROM 0 TO 99)

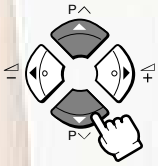
11	-------
10	-------
09	-------
08	-------
07	-------
06	CHANNEL 5
05	S4C
04	CHANNEL 4
03	ITV
02	BBC2
01	BBC1
00	-------
99	-------
98	-------
97	-------
96	-------
95	-------
94	-------
93	-------
92	-------
91	-------

Direct selection

Use the remote control NUMBER 0..9 buttons (A3). For two digit program numbers, enter the second digit within 2 seconds.

Up / Down selection

Use the remote control PROGRAM UP (A11) / DOWN (A12) buttons or the TV set front panel PROGRAM UP / DOWN buttons (B10).



LIST menu

Press on the **CYAN** button (A7) to display the **LIST** menu. Then use the **CURSOR UP** (A11) or **DOWN** (A12) buttons to browse the list and find a program, with the aid of the program numbers plus associated names (see section Manual Channel Tuning pages 5/6 for how to add or modify program names).

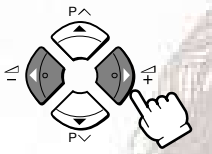
When you have found a program you want to select (the highlighted line in the middle of the menu), press on the **OK** button (A9) to tune this program. The **LIST** menu will disappear at the same time.

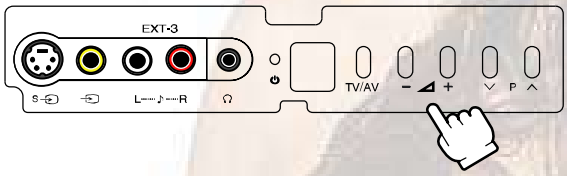
If you decide to keep the current program, the menu can be cancelled at any time by pressing on the **CYAN** button (A7).

SOUND CONTROL

Volume adjustment

Use the remote control **VOLUME UP** (A14) / **DOWN** (A13) buttons or the TV set front panel **VOLUME UP / DOWN** buttons (B9).





Mono forcing, dual language

- If you are unable to get good sound quality for a program due to poor reception, you can force a change from stereo to mono transmission by pressing the remote control **MODE** button (A26). Then the program status display will indicate "**MONO**" with a ( ) icon.

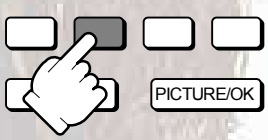
- On the other hand, during a program with dual language transmission, the **MODE** button (A26) allows you to toggle between the first and second language. The program status display will indicate "DUAL 1" or "DUAL 2" (plus NICAM according to the received signal) instead of Stereo or Mono.
- To return to initial state, press again the **MODE** button (A26).

Mute

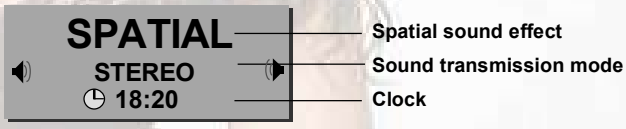
- Mute the sound by pressing the remote control **SOUND MUTE** button (A1).
- Then, logo is displayed. The previous sound setting is returned after pressing the same button a second time.
- If a sound related function is used (e.g. VOLUME,) then the **MUTE** will also be cancelled.

Sound effects

A SPATIAL sound effect is available, by using the remote control (A5) button.

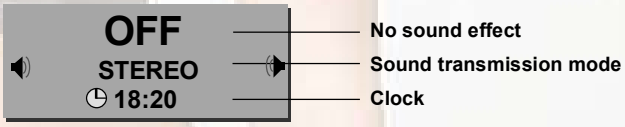


The following display appears:



To return to initial sound effect, press again the (A5) button.

The following display appears:

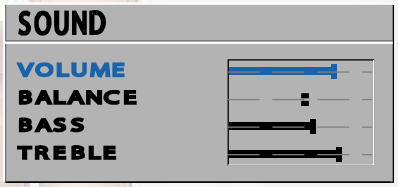


For other adjustments such as BALANCE, BASS or TREBLE use the **SOUND** menu (here under).

SOUND MENU

Select **SOUND** menu from the **MAIN** menu.

- Select **VOLUME** function to adjust the volume level.
- Select **BALANCE** function to adjust sound balance between the left and right speakers. If the indicator is highlighted in red, then the central balance position has been found.
- Select the **BASS** and **TREBLE** functions to adjust the tone levels.



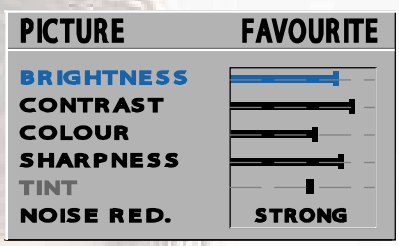
ENGLISH

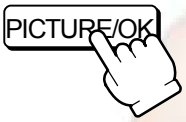
PICTURE CONTROL

Select **PICTURE** menu from the **MAIN** menu.

- Select and adjust the level of each function: **BRIGHTNESS, CONTRAST, COLOUR, SHARPNESS, TINT** (if available) and **NOISE REDUCTION**.
- The above modified values are automatically stored in FAVOURITE mode.
- **NOISE REDUCTION** feature has 4 levels according to your preference.
- The FAVOURITE preset contains the settings that you lastly entered.

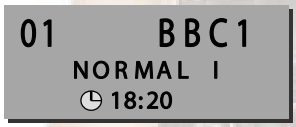
If the NTSC standard is detected (eg from VHS player connected to EXT-1), then TINT will be available. Otherwise, TINT will be displayed but not selectable.

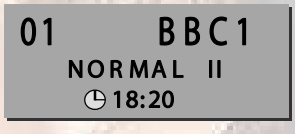




You can select three pictures settings, by pressing repeatedly the remote control PICTURE/OK button (A9) :

- **NORMAL I** (standard hard picture)
- **NORMAL II** (standard soft picture)
- **FAVORITE.**





PROGRAM STATUS DISPLAY (INFORMATION)

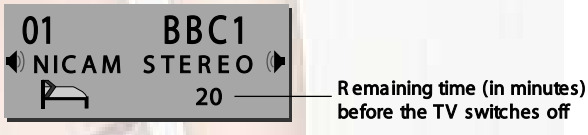
Use the remote control (i) button (A24) to display (for 4 seconds only) program status information. This display appears also after a program selection or after switching on the TV set.

SLEEP FUNCTION

The set will turn off (to stand-by mode) after a period of time that you can select. By pressing repeatedly the remote control **YELLOW** button (A6), you can enter one of the following settings :

OFF > 20 min > 40 min > 60 min > 80 min > 100 min > 120 min > OFF

The **SLEEP** time remaining (before TV turn-off) can be seen again at any time by one touch on the remote control **YELLOW** button (A6). A second touch (while the status display is on screen) will modify the SLEEP time remaining.



FORMAT SELECTION

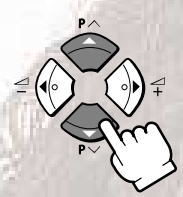
AUTO setting: If picture format signalling data is received, then the most appropriate ZOOM format will be automatically selected.
Otherwise, the preferred mode of the user can be forced by repeated pressing of the remote control ZOOM button (A4): The following picture formats are available:

AUTO > 14:9 > 16:9 > FULL SCREEN > AUTO.

FEATURES MENU

Select the FEATURES MENU from the main MENU as follows :

Press on the button MENU



Position cursor on FEATURES menu

Press on the **OK** button

FEATURES menu content the following sub-menus.

1. When switched to ON:
   Prevents the use of the TV set without remote control.

2. **Wake up function**
   This function is only selectable when the clock is set. The TV set turns on from stand-by at the WAKE TIME and with the programme entered on the WAKE PROG. line. Put the TV set on stand-by with the remote control.

3. Shared with WAKE TIME.

4. **TV clock setting**
   This function allows user to enter the time manually.

   Note : If you turn off the set with the main power button, the clock setting is lost. An automatic attempt is made to set the clock again at power on.

5. Programme Information function
   This status information is under the editorial control of the transmitting station, and can contain the programme title.

6. This function is only selectable when the default picture format is currently active (see also FORMAT SELECTION, AUTO setting, page 8). This selects the default format to be used only when the format selected with the ZOOM button (A4) is AUTO, and no picture format signalling data is received.

7. **LANGUAGE** menu entry

FEATURES	
CHILD LOCK	OFF
WAKE TIME	OFF
WAKE PROG.	04
CLOCK	--:--
CLOCK PROG	01
PROG. INFO	ON
ZOOM AUTO	4:3
LANGUAGE	GB

1. Adjust this value ON or OFF.
   - In stand-by mode, the stand-by indicator flashes red and green to indicate the CHILD LOCK is set.
   - The front panel TV buttons (B7, B8, B9) become inactive and the TV will only respond to the remote control.

2. - Switch the WAKE UP function 'OFF' or 'ON' (the time will be shown e.g. 07:15) with the remote control CURSOR LEFT (A13) / RIGHT (A14) buttons.
   - Enter the wake up time with the remote control 0..9 NUMBER (A3) buttons.

3. Adjust TV turn-on program number.

4. Adjust TV clock. Clock will start at 00 seconds upon entry of the 4th figure.
   The prog. no. which is used to automatically seize the time at turn on should be entered here.

5. Adjust this value ON or OFF.
   - When ON, the information (if available) is displayed upon change of channel.
   - When OFF, no information is displayed.

6. Choose your preferred default format with the remote control CURSOR LEFT (A13) / RIGHT (A14) buttons.

   Note: FULL SCREEN is represented here by 4:3.

7. The currently selected LANGUAGE is displayed. Press the OK button (A9) to access the menu and change the selection.

LANGUAGE MENU

Select **LANGUAGE** menu from the FEATURES menu.

- Select the preferred **LANGUAGE** by use of the **CURSOR LEFT** (A13), **RIGHT** (A14) buttons, and the **CURSOR UP** (A11) or **DOWN** (A12) buttons.
- Press the **OK** button (A9) to confirm the selection (the choice will be highlighted in red).

Note : The languages shown are subject to modification without prior notice.

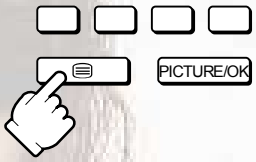
LANGUAGE

BG CZ D DK E
F FIN GB GR H
I N NL PL RO
RUS S

ENGLISH

TELETEXT

ENTERING/LEAVING TELETEXT MODE



- Set the VCR / ▤ / DVD switch (A25) to the ▤ (teletext) position.
- Press the remote control **TELETEXT** (▤) button (A8) to select teletext mode.
- To return to TV mode, press again the **TELETEXT** (▤) button (A8).
- **Note** : Some of the buttons may not work if the VCR / ▤ / DVD) switch is not set to the ▤ (teletext) position.

PAGE SELECTION

- You can directly enter the 3 figure page number by using the remote control **NUMBER 0..9** buttons (A3).
- You can sequentially select teletext pages by pressing the remote control **PAGE UP** (A11) / **DOWN** (A12) buttons.

COLOUR buttons FOR TELETEXT

- A red, green, yellow, and blue field is shown at the bottom of the screen. If TOP or FLOF teletext (FASTTEXT) is transmitted by the station, pressing the corresponding colour button on the remote controller, you can select the desired page easily.

Once a request is made, the page number is shown in the extreme top left corner of the screen. If the requested page is not immediately available the rolling header will be active until the page arrives.

USEFUL TELETEXT FUNCTIONS

INDEX button (A23):

Allows you to return directly to the initial teletext page.

PAGE HOLD button (A16)

Several sub pages can be combined under a page number and are scrolled at an interval determined by the television station. The presence of sub pages is indicated by, for example, 3/6 beneath the time, which means that you are looking at the 3rd page of a total of 6 pages. If you want to look at a subpage for a longer period of time, press the **HOLD** button. " " appears at the top of the screen and the contents of the subpage shown are kept on the screen and no longer updated or switched to other subpages. Pressing the **HOLD** button again, the current subpage appear

SUBPAGE button (A24):

Allows you to request a specific subpage:

- Press the **SUBPAGE** button. At the base of the screen a **SUBPAGE** menu will appear. This has a red subpage minus link, a green subpage plus link, plus a white background showing (example for page 110), 110 / 0001. This is ready to accept the subpage number.
- Enter directly the subpage number you want with the remote control **NUMBER 0..9** buttons (A3): for example to request the 2nd subpage, type 0002.
- Alternatively, use the red subpage minus link or the green subpage plus link.
- The subpage number entered is shown at the base of the screen.
- If the requested page is not immediately available the rolling header will be active until the page arrives.

Warning: If the subpage is not available (does not exist), then the header will roll continuously and no new page will be found.

- To exit subpage mode, press the **SUBPAGE** button (A24) again.

Note: Teletext specification allows for subpage numbers 0000 to 3979 (the first figure is limited to the range 0..3, and the third figure 0..7).

DOUBLE SIZE button (A19)

Repeadly pressing the **SIZE** button doubles the character size in the following order :

Upper half of the page > Lower half of the page > Return to normal size

If the page is in **UP** or **DOWN** mode, then normal size is automatically set if
- A new page request is made (e.g CYAN, INDIX or PAGE UP /DOWN).
- A **CANCEL** mode (A22) function is used.
- **VOLUME** menu is activated with the **MENU** button (A10)

Note ; The menu at the base of the screen is always visible.

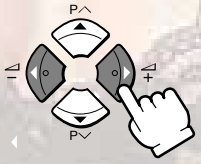
REVEAL ANSWER button (A18)

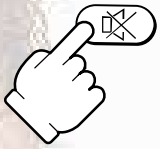
This fonction can be used on certain pages to reveal the solution of riddles. Press the **REVEAL** button to reveal a hidden answer and press again to hide it.

VOLUME, BRIGHTNESS & CONTRAST CONTROL

VOLUME (and sound MUTE), **BRIGHNESS** and **CONTRAST** controls are all possible in teletext mode. The **BRIGHTNESS** and **CONTRAST** controls are dedicated to the teletext display.

- Access the **VOLUME** control by pressing the **MENU** button (A10) in teletext mode. A bargraph will appear in the lower part of the screen (as in TV mode). If **MUTE** is active, a mute icon is also shown.
- A second press on the **MENU** button (A10) will access the **BRIGHTNESS** control, and a third press the **CONTRAST** control.
- The active bargraph will timeout after 3-4 seconds (as in TV mode VOLUME control) or by pressing on the **MENU** button (A10) a fourth time (after CONTRAST control).

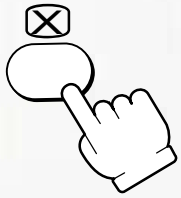




- Each control can be adjusted by using the remote control **CURSOR LEFT** (A13) / **RIGHT** (A14) buttons.
- Mute can always be activated by pressing the **SOUND MUTE** button (A1).
- Any change to the **VOLUME** level will cancel the **SOUND MUTE**.

WATCHING TV WHILE PAGE SEARCHING

The **CANCEL** function can be used to make the teletext page transparent, thus revealing the TV picture:
- To enter cancel mode, press the **CANCEL** button (A22) while in teletext mode. The TV program will reappear on the screen, while only the teletext page number remains at the top and left corner of the screen.
- You can enter a new page number in this mode only by using the remote control **NUMBER 0..9** buttons (A3), or with the **INDEX** button (A23).
- If a page has been requested, but has not yet arrived, "???" flashing characters will be displayed until the page arrives. Otherwise, the same characters will be displayed without flashing until the next arrival of the page in the transmission cycle. Once arrived the page number will be displayed.
- The teletext page can be made visible again by pressing the **CANCEL** button (A22).
- It should be noted that the TV program cannot be changed while in cancel mode.

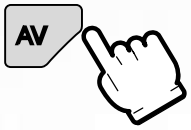


WATCHING TV WITH TELETEXT SUBTITLES

If the actual teletext page is a news flash or subtitle page, then most of the TV picture becomes visible. In this situation the ZOOM format chosen in TV mode is reactivated, where possible.

CONNECTING EXTERNAL EQUIPMENT

The rear Scart EXT-1, Scart EXT-2 sockets, the front EXT -3 socket are three dedicated sockets to connect audio-video equipment.



TV/AV SELECTION

Allows to switch between TV and external modes. By repeatedly pressing the remote control **AV** (A15) or the TV front panel **TV /AV** button (B8), the on-screen display is changed as shown :

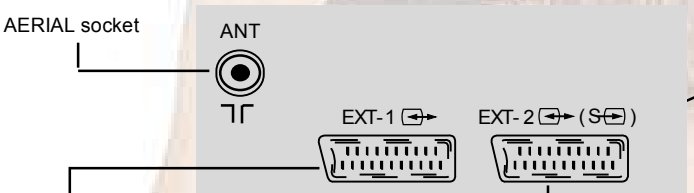
EXT-1 > EXT-2 > EXT-2 S > EXT-3 > EXT-3 S > TV

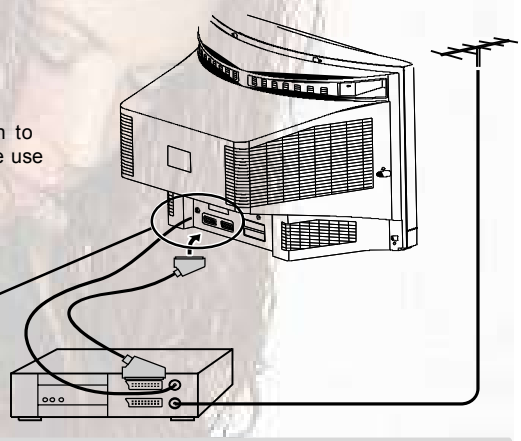
Remark: If the signal source from the rear SCART socket (EXT-1) is RGB (e.g.normally from a DVD player) then EXT-1 RGB will be displayed. You can return to TV mode also by pressing number buttons or PROGRAM UP/DOWN buttons

Rear

VCR / DVD / Video Game / Pay-TV decoder

Important: If your video equipment does not have SCART socket(s), or if you wish to use only the aerial (RF) connection (not recommended), then you should make use of program number 00 on the TV set for best performance.





REAR SCART SOCKET (EXT-1)

This socket has video / audio inputs and outputs. It is recommended to connect to this socket automatic AV switching equipment such as pay-TV decoders, video games, DVD players and most VCR's.

This SCART socket doesn't support T-V LINK function. For correct operation, you should not connect any T-V LINK compatible device to this terminal.
In most cases, when connecting powered equipment to this socket, the TV set switches automatically to AV mode. If not, then use the **AV** buttons (A15 or B8) to select **EXT-1**.

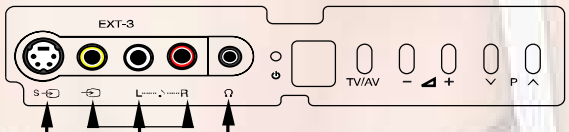
REAR SCART SOCKET (EXT-2)

This socket has video / audio inputs and outputs. Automatic AV switching equipment (for example most VCR's) can be connected to this socket. In most cases, when connecting powered equipment to this socket, the TV set switches automatically to AV mode. If not, then use the **AV** buttons (A15 or B8) to select **EXT-2**.
You can also receive an **S-VHS** signal by selecting **EXT-2 S** with the **AV** buttons (A15 or B8).
RGB mode is not available on this SCART T-V LINK compatible device must be connected to this terminal.
When a decoder is connected to a T-V LINK compatible VCR, set the DECORDER function to ON. For details,
see "Using the DECORDER (EXT-2) function" on page 5
Otherwise, you will not be able to view scambled channels.

Front

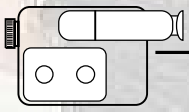
FRONT AV SOCKET (EXT-3)

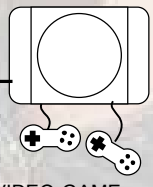
The front AV socket has audio and video inputs. To switch from TV to these inputs, use the AV buttons (A15 or B8) and select **EXT-3**.



FRONT S-VHS JACK

The front S-VHS jack (B2) has video inputs only. It is necessary to connect the audio inputs to socket (B4) in order to have audio and video. To watch S-VHS from these inputs, use the AV buttons (A15 or B8) and select **EXT-3 S**.





CAMCORDER OR VIDEO GAME

HEADPHONE SOCKET

To hear TV sound with headphones, insert a 3.5mm headphone plug into the headphone socket. The speaker's sound will be automatically cut off.

TROUBLESHOOTING

● If the plug is disconnected from the AC socket, or the TV aerial has problems, you may think there is a problem with the TV itself. Be sure to check the following before calling for service.

IMPORTANT

● Review all instruction in this manual

	PROBLEM	ACTION
■ GENERAL	The TV cannot be turned on.	● Insert the plug in an AC socket. ● Turn the main power on. (See page 3) ● The buttons on the front panel of the TV will not work if the CHILD LOCK is operating (see FEATURES menu, on page 11). Use the POWER button on the remote control to turn the TV on.
	No picture or sound.	● Check aerial connections. (See page 3). ● Select the correct input source (See page 14). ● Change the SYSTEM setting manually (see Manual Channel Tuning on pages 5/6).
	The TV shuts off automatically.	● Did you set the SLEEP function? (See page 10). ● If the broadcast signal is not present for about 30 minutes, the set will be automatically turned off. ● For safety reasons, the TV will automatically turn off if no operations are made within approximately 3 hours after the TV is turned on with the WAKE UP function.
	The TV turns on automatically.	● Did you set the WAKE UP function? (See page 11).
	Inoperable remote control.	● Replace the batteries. (See page 3). ● Insert the batteries correctly. (See page 3). ● Use the remote control within about 7 metres of the TV.
■ PICTURE	Poor colour.	● Change the SYSTEM setting manually (see Manual Channel Tuning on pages 5/6).
	Lines or streaks in picture (interference)	● Move any external equipment away until the interference is eliminated. ● Reposition the aerial.
	Spots (crosstalk)	● Reposition the aerial. ● Replace with an aerial with better directionality.
	Double pictures (ghosts)	● Reposition the aerial. ● Replace with an aerial with better directionality.
	Snowy pictures (noise)	● Check aerial connections. ● Redirect the aerial. ● Replace or repair the aerial.
■ SOUND	No sound from the TV's speakers	● Disconnect the headphones.

The following are normal and are NOT malfunctions:

● When touching the picture tube surface, you might feel a slight charge of static electricity. This is because the picture tube contains static electricity; it does not affect the human body.

● The TV may emit a crackling sound due to a sudden change of temperature. There is no problem unless the picture or sound is abnormal.

● When a still, bright image (of a white dress, for example) appears on the screen, the image may be coloured. This problem occurs in all picture tubes, and as the bright image disappears, the colour also disappears.

● This TV is equipped with a microcomputer that may operate abnormally due to interference from external equipment. If this happens, turn off the main power and disconnect the power cord from the AC socket. Then reconnect the power cord to the AC socket and turn on the main power again.

SPECIFICATIONS

Item \ Model	AV-29FH1SUG / AV-29FH1BUG
Broad casting systems	CCIR B/G, I ,D/K, L/L'
Colour systems	PAL, SECAM The EXT terminals also support the NTSC 3.58/4.43 MHz system.
Channels and frequencies	* E2-E12, E21-E70, S1-S41, X, Y, Z, Z+1, Z+2, ITALY A-H, ITALY H+1, ITALY H+2, F2-F10, F21-F70, R1-R12, R21-R70 * French cable TV channel of broadcast frequencies 116 - 172 MHz and 220 - 469 MHz
Sound-multiplex systems	A2 (B/G, D/K), NICAM (B/G, D/K, I, L) systems
Teletext systems	FLOF (Fastext) / TOP / WST (World standard system)
Power requirements	AC 220-240V, 50 Hz
Power consumption	84W, stand-by 3W
Picture tube size	Visible area 68cm (measured diagonally)
Audio output	Rated Power output: 7W + 7W
Ext-1 terminal	Euroconnector (21-pin, SCART) * 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) * Video input, S-VIDEO (Y/C) input, Audio L/R inputs are available * Video and Audio L/R outputs are available * T-V LINK functions are available
Ext-3 terminal	RCA connerctors x 3 S-VIDEO connector x 1 * Video input, S-VIDEO (Y/C) input and Audio L/R inputs are available.
Headphone jack	Stereo mini-jack (3.5mm in diameter)
Dimensions (W x H x D)	812 mm x 600 mm x 522 mm
Weight	40 kg
Remote control unit	RM-C1514, battery AA / R6 x 2

Design and specifications are subject to change without notice

Pictures displayed on the screen using this TV's image processing functions should not be shown for any commercial or demonstration purpose in public places (tearooms and halls in hotels, etc.) without the consent of the owners of copyright of the original picture sources, as this constitutes an infringement of copyright.

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.

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- EXPLODED VIEW PARTS LIST ····· 3-2
- EXPLODED VIEW ····· 3-3
- PRINTED WIRING BOARD PARTS LIST ····· 3-4
- PACKING / PACKING PARTS LIST ····· 3-8

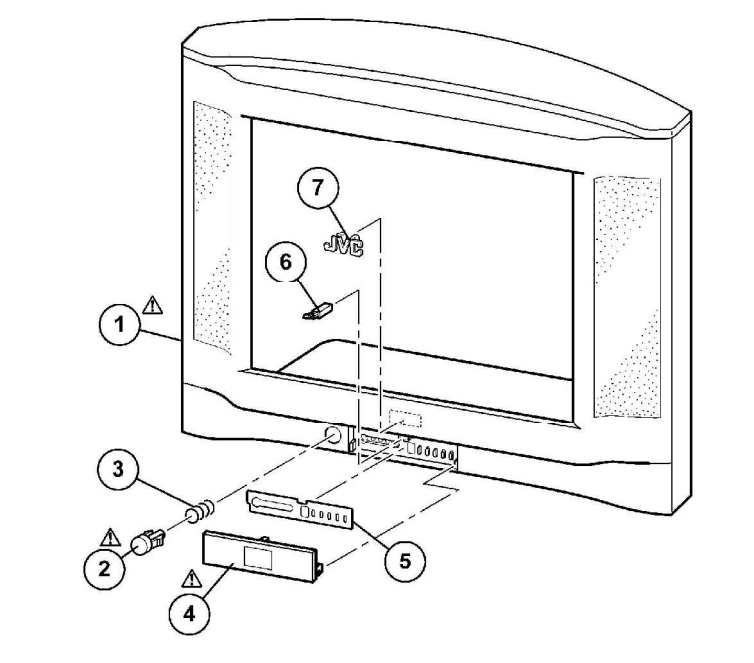
USING P.W. BOARD AND REMOTE CONTROL UNIT

Model / PWB ASS'Y	AV-29FH1BUG	AV-29FH1SUG
MAIN PWB	4859808593	←
CRT SOCKET PWB	4859829013	←
PFC FILTER PWB	4859813824	←
REMOTE CONTROL UNIT	48BC1514-- (RM-C1514)	48BC1514B- (RM-C1514B)

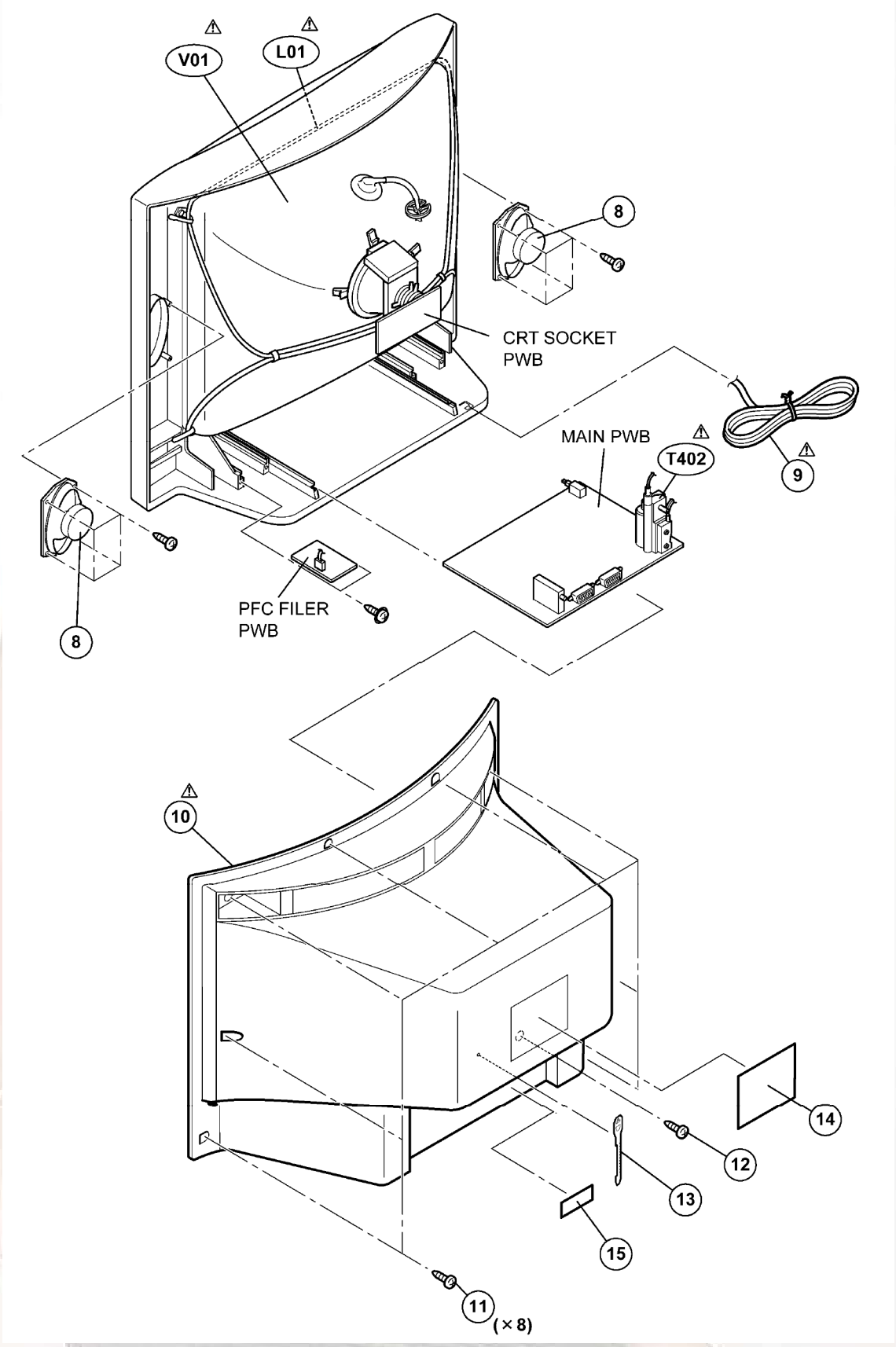
EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
⚠	V01	4859640560	CRT (PHILIPS 29")	Inc.DEF YOKE, PC MAGNET
⚠	L01	58G0000149	COIL DEGAUSSING	
⚠	T402	50H0000260	FBT	
⚠	1	4852086101	MASK FRONT	AV-29FH1BUG
⚠	1	4852086111	MASK FRONT	AV-29FH1SUG
⚠	2	4854866801	BUTTON POWER	AV-29FH1BUG
⚠	2	4854866811	BUTTON POWER	AV-29FH1SUG
	3	4856716000	SPRING	
⚠	4	4851951001	DOOR ASSY	AV-29FH1BUG
⚠	4	4851951011	DOOR ASSY	AV-29FH1SUG
	5	485506084001	DECO CTRL	
	6	4857923300	DOOR LOCK	
	7	48556243SD02	MARK BRAND	AV-29FT1BUG
	7	48556243SD01	MARK BRAND	AV-29FH1SUG
	8	4858315210	SPEAKER	(×2)
⚠	9	4859903511	CORD POWER	
⚠	10	4852164301	COVER BACK	AV-29FH1BUG
⚠	10	4852164311G	COVER BACK	AV-29FH1SUG
	11	7172401612	SCREW TAPPING	(×8)
	12	7178301212	SCREW TAPPITE	
	13	4853535600	HOLDER CORD	
⚠	14	4855415800	S/PLATE	
	15	485580002207	LABEL SERIAL	

EXPLODED VIEW



EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

⚠	Symbol No.	Part No.	Part Name	Description
	I101	1TDA4470M-	IC IF	TDA4470-M
	I301	1TDA8358J-	IC VERTICAL	TDA8358J
	I501	1VSP9402AQ	IC CHIP VIDEO	VSP9402
	I502	1DDP3315CQ	IC CHIP	DDP3315CQ
	I601	1MSP3410V3	IC SOUND	MSP3410G-V3
	I602	1TDA8946J-	IC AUDIO	TDA8946J
	I701	1SDA555XFL	IC MICOM OTP	SDA555XFL
	I702	1AT24C16PC	IC MEMORY	AT24C16-10PC
	I703	1TSOP1238W	IC PREAMP	TSOP1238WI1
	I801	1STRF6654-	IC SMPS	STR-F6654
⚠	I804	1KP1010C--	IC PHOTO COUPLER	KP-1010C
	I806	1DP130----	IC ERROR AMP	DP130
	I810	TX0202DA--	THYRISTOR	X0202DA
	I820	1L7805CV--	IC REGULATOR	L7805CV
	I821	1LD1117V33	IC REGULATOR	LD1117AV33 3.3V TO-220
	I822	1L7808CV--	IC REGULATOR	L7808CV
	I823	1LD1117V50	IC REGULATOR	LD1117AV50 5.0V TO-220
	I824	1LD1117V18	IC REGULATOR	LD1117AV18 1.8V TO-220
	I826	1LD1117V33	IC REGULATOR	LD1117AV33 3.3V TO-220
	I827	1LD1117V25	IC REGULATOR	LD1117AV25 2.5V TO-220
	I901	1TDA6108JF	IC VIDEO	TDA6108JF
	Q103	T2SC5343Y-	TR	2SC5343Y
	Q104	T2SC5343Y-	TR	2SC5343Y
	Q110	T2SC5343Y-	TR	2SC5343Y
	Q150	T2SC5343Y-	TR	2SC5343Y
	Q151	T2SC5343Y-	TR	2SC5343Y
	Q333	T2SC5343Y-	TR	2SC5343Y
	Q334	T2SC5343Y-	TR	2SC5343Y
⚠	Q401	TST2310DH1	TR	ST2310DHI
	Q402	T2SD1207T-	TR	2SD1207-T (TAPPING)
	Q501	T2SA1980Y-	TR	2SA1980Y
	Q502	T2SC5343Y-	TR	2SC5343Y
	Q542	T2SA1980Y-	TR	2SA1980Y
	Q543	T2SA1980Y-	TR	2SA1980Y
	Q544	T2SA1980Y-	TR	2SA1980Y
	Q550	T2SC5343Y-	TR	2SC5343Y
	Q601	T2SA1980Y-	TR	2SA1980Y
	Q701	T2SC5343Y-	TR	2SC5343Y
	Q702	T2SA1980Y-	TR	2SA1980Y
	Q720	TH2N7000--	TR	H2N7000
	Q721	TH2N7000--	TR	H2N7000
	Q730	T2SC5343Y-	TR	2SC5343Y
	Q731	T2SC5343Y-	TR	2SC5343Y
	Q733	T2SC5343Y-	TR	2SC5343Y
	Q734	T2SC5343Y-	TR	2SC5343Y
	Q780	T2SC5343Y-	TR	2SC5343Y
	Q807	T2SC5343Y-	TR	2SC5343Y
	Q808	T2SC5343Y-	TR	2SC5343Y
	Q809	T2SC5343Y-	TR	2SC5343Y
	Q810	T2SC5343Y-	TR	2SC5343Y
	Q811	T2SC5343Y-	TR	2SC5343Y
	Q921	TBF423----	TR	BF423 TO-92
	Q922	TBF423----	TR	BF423 TO-92
	Q923	TBF423----	TR	BF423 TO-92
	D100	DTZX33B---	DIODE ZENER	TZX33B (TAPPING)
	D101	DBAT85----	DIODE	BAT85 (TAPPING)
	D103	DBA282----	DIODE	BA282
	D313	DRGP15J---	DIODE	RGP15J
	D360	DTZX22C---	DIODE ZENER	TZX22C (TAPPING)
	D361	DTZX33B---	DIODE ZENER	TZX33B (TAPPING)
	D362	DTZX33B---	DIODE ZENER	TZX33B (TAPPING)
	D367	DTZX33B---	DIODE ZENER	TZX33B (TAPPING)
	D404	DFMP3FU---	DIODE	FMP3FU
	D405	D1N4937G--	DIODE	1N4937G
	D406	DRGP15J---	DIODE	RGP15J
	D407	DRGP15J---	DIODE	RGP15J
	D408	D1N4937G--	DIODE	1N4937G
	D410	D1N4937G--	DIODE	1N4937G
	D414	D1N4004S--	DIODE	1N4004S
	D415	D1N4937G--	DIODE	1N4937G
	D530	D1N4148---	DIODE	1N4148 (TAPPING)
	D531	D1N4148---	DIODE	1N4148 (TAPPING)
	D535	D1N4148---	DIODE	1N4148 (TAPPING)
	D540	D1N4148---	DIODE	1N4148 (TAPPING)
	D541	D1N4148---	DIODE	1N4148 (TAPPING)
	D550	D1N4148---	DIODE	1N4148 (TAPPING)
	D551	D1N4148---	DIODE	1N4148 (TAPPING)
	D602	D1N4148---	DIODE	1N4148 (TAPPING)
	D720	DTZX2V7A--	DIODE ZENER	TZX2V7A (TAPPING)
	D730	DTZX7V5C--	DIODE ZENER	TZX7V5C (TAPPING)
	D733	DTZX7V5C--	DIODE ZENER	TZX7V5C (TAPPING)
	D777	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	D781	DBAT85----	DIODE	BAT85 (TAPPING)

⚠	Symbol No.	Part No.	Part Name	Description
⚠	D801	DLT2A05G--	DIODE	LT2A05G
⚠	D802	DLT2A05G--	DIODE	LT2A05G
⚠	D803	DLT2A05G--	DIODE	LT2A05G
⚠	D804	DLT2A05G--	DIODE	LT2A05G
	D805	DRGP15J---	DIODE	RGP15J
	D806	DRGP15J---	DIODE	RGP15J
	D808	DRGP15J---	DIODE	RGP15J
	D809	DRGP15J---	DIODE	RGP15J
	D811	DTZX6V2---	DIODE ZENER	TZX6V2B (TAPPING)
	D820	DBYW76----	DIODE	BYW76
	D821	DRGP15J---	DIODE	RGP15J
	D824	D1N4148---	DIODE	1N4148 (TAPPING)
	D825	D1N4148---	DIODE	1N4148 (TAPPING)
	D830	DRGP15J---	DIODE	RGP15J
	D831	DRGP15J---	DIODE	RGP15J
	D840	D1N4004S--	DIODE	1N4004S
	D841	D1N4004S--	DIODE	1N4004S
	D860	DBYW76----	DIODE	BYW76
	D870	DRGP15J---	DIODE	RGP15J
	D911	D1N4004S--	DIODE	1N4004S
	D912	D1N4004S--	DIODE	1N4004S
	D913	D1N4004S--	DIODE	1N4004S
	D921	D1N4004S--	DIODE	1N4004S
	D922	D1N4004S--	DIODE	1N4004S
	D923	D1N4004S--	DIODE	1N4004S
	D997	DLT2A05G--	DIODE	LT2A05G
	DA11	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	DA16	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	DA17	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	DA20	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	DA27	DTZX5V6B--	DIODE ZENER	TZX5V6B (TAPPING)
	C101	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)
	C102	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C106	CEXF1H221V	C ELECTRO	50V RSS 220MF (10X16) TP
	C117	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
	C118	CMXL1J474J	C MYLAR	63V 0.47MF MKT
	C121	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C150	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C152	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C153	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
	C157	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C161	CCZB1H220K	C CERA	50V B 22PF K (AXIAL)
	C164	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C188	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C301	CMXM2A224J	C MYLAR	100V 0.22MF J BULK
	C305	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP
	C313	CMXM2A104J	C MYLAR	100V 0.1MF J TP
	C315	CEXF1H101V	C ELECTRO	50V RSS 100MF (8*11.5) TP
	C320	CBXF1H104Z	C CERA SEMI	50V F 0.1MF Z (TAPPING)
	C350	CCXF1H223Z	C CERA	50V F 0.022MF Z (TAPPING)
	C351	CCXF1H223Z	C CERA	50V F 0.022MF Z (TAPPING)
	C370	CCXF1H473Z	C CERA	50V F 0.047MF Z (TAPPING)
	C401	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
⚠	C404	CMYH3C113J	C MYLAR	1.6KV 0.011MF J
	C405	CMYE2J183J	C MYLAR	630V PU 0.018MF J
	C408	CMYE2G334J	C MYLAR	400V 0.33MF J
	C411	CEXF2C339V	C ELECTRO	160V RSS 3.3MF (8X16) TP
	C415	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP
	C416	CCYR3D471K	C CERA	HIKR 2KV 470PF K 125C
	C417	CMYE2G103J	C MYLAR	400V PU 0.01MF J
	C418	CEYD1H689W	C ELECTRO	50V RHD 6.8MF (16X35.5)
	C424	CMXM2A333J	C MYLAR	100V 0.033MF J TP
	C425	CCXB1H472K	C CERA	50V B 4700PF K (TAPPING)
	C500	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C501	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C502	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C503	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C504	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C505	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
	C508	CCZB1H473K	C CERA	50V B 0.047MF K (AXIAL)
	C509	CCZB1H473K	C CERA	50V B 0.047MF K (AXIAL)
	C510	CCZB1H473K	C CERA	50V B 0.047MF K (AXIAL)
	C515	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C516	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C517	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C518	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C519	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C524	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C530	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C532	CCZB1H103K	C CERA	50V B 0.01MF K (AXIAL)
	C534	CCZB1H103K	C CERA	50V B 0.01MF K (AXIAL)
	C536	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
	C537	CCZB1H103K	C CERA	50V B 0.01MF K (AXIAL)
	C538	CCZB1H103K	C CERA	50V B 0.01MF K (AXIAL)

⚠	Symbol No.	Part No.	Part Name	Description
	C540	CCZB1H333K	C CERA	50V B 0.033MF K (AXIAL)
	C550	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C551	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C553	CCZB1H103K	C CERA	50V B 0.01MF K (AXIAL)
	C557	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C558	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C560	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C561	CEXF1H339V	C ELECTRO	50V RSS 3.3MF (5X11) TP
	C568	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C578	CCZB1H561K	C CERA	50V B 560PF K (AXIAL)
	C579	CCZB1H561K	C CERA	50V B 560PF K (AXIAL)
	C589	CCZB1H561K	C CERA	50V B 560PF K (AXIAL)
	C590	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C602	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP
	C604	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
	C605	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C608	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C610	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C611	CEXF1H339V	C ELECTRO	50V RSS 3.3MF (5X11) TP
	C612	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C613	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C614	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C615	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C616	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C623	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C624	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
	C625	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C626	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C630	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C634	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C636	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C641	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C642	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C650	CZSL1H680J	C CERA	50V SL 68PF J (AXIAL)
	C660	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C661	CMXM2A224J	C MYLAR	100V 0.22MF J BULK
	C662	CMXM2A224J	C MYLAR	100V 0.22MF J BULK
	C666	CBXF1H104Z	C CERA SEMI	50V F 0.1MF Z (TAPPING)
	C668	CMXM2A224J	C MYLAR	100V 0.22MF J BULK
	C669	CMXM2A224J	C MYLAR	100V 0.22MF J BULK
	C690	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5*11) TP
	C691	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5*11) TP
	C709	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C711	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C712	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C713	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C730	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C733	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
	C737	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C742	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C744	CEXF1E100V	C ELECTRO	25V RSS 10MF TP
	C770	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C803	CCXF3A472Z	C CERA	1KV F 4700PF Z (T)
	C804	CCXF3A472Z	C CERA	1KV F 4700PF Z (T)
	C805	CEYN2G181P	C ELECTRO	400V LHS 180MF (25X35)
	C806	CEXF1H330V	C ELECTRO	50V RSS 33MF (6.3X11) TP
	C807	CCXF1H473Z	C CERA	50V F 0.047MF Z (TAPPING)
	C808	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5*11) TP
	C809	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)
	C811	CCYR3D221K	C CERA	2KV R 220PF K 125C
⚠	C812	CH1BFE472M	C CERA AC	AC400V 4700PF M U/C/V
	C813	CEXF2E101V	C ELECTRO	250V RSS 100MF 18X35.5
	C814	CEYF2E470V	C ELECTRO	250V RSS 47MF (16X25
	C820	CCYR3A471K	C CERA	1KV 470PF K 125C
	C821	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)
	C823	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
	C824	CCXB3A471K	C CERA	1KV B 470PF K (T)
	C830	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)
	C831	CCXB3A471K	C CERA	1KV B 470PF K (T)
	C832	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
	C835	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C840	CEXF1C332V	C ELECTRO	16V RSS 3300MF
	C841	CEXF1C222V	C ELECTRO	16V RSS 2200MF(13X25)TP
	C844	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C845	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
	C846	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C850	CCXB1H821K	C CERA	50V B 820PF K (TAPPING)
	C861	CEXF1E102C	C ELECTRO	25V RUS 1000MF 13X20 TP
	C863	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C866	CCYR3A471K	C CERA	1KV 470PF K 125C
	C870	CCXB3A471K	C CERA	1KV B 470PF K (T)
	C871	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
	C876	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP
	C880	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C888	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
	C900	CCXB3D102K	C CERA	2KV B 1000 PF K (TAPPING)
	C902	CMXL2E104K	C MYLAR	250V 0.1MF K MEU TP
	C910	CEXF2E479V	C ELECTRO	250V RSS 4.7MF (10X16)TP

⚠	Symbol No.	Part No.	Part Name	Description
	C921	CMXM2A102J	C MYLAR	100V 1000PF J TP
	C922	CMXM2A102J	C MYLAR	100V 1000PF J TP
	C923	CMXM2A102J	C MYLAR	100V 1000PF J TP
	C997	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP
	CA20	CCZB1H222K	C CERA	50V B 2200PF K (AXIAL)
	CC01	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC02	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC03	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC04	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC05	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC06	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC07	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC08	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC10	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC13	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC14	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC15	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC16	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC17	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC18	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC19	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC20	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC21	HCBK471KCA	C CHIP CERA	50V X7R 470PF K 2012
	CC30	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC31	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC32	HCBK222KCA	C CHIP CERA	50V X7R 2200PF K 2012
	CC101	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC103	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC110	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC111	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC112	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC115	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC117	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC119	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC120	HCQK150JCA	C CHIP CERA	50V CH 15PF J 2012
	CC127	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC129	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC136	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC158	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC160	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC166	HCQK470JCA	C CHIP CERA	50V CH 47PF J 2012
	CC177	HCQK470JCA	C CHIP CERA	50V CH 47PF J 2012
	CC501	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC502	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC503	HCFK334ZCA	C CHIP CERA	50V Y5V 0.33MF Z 2012
	CC504	HCQK150JCA	C CHIP CERA	50V CH 15PF J 2012
	CC505	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC506	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC507	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC508	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC509	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC511	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC512	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC513	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC514	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC515	HCQK470JCA	C CHIP CERA	50V CH 47PF J 2012
	CC516	HCQK470JCA	C CHIP CERA	50V CH 47PF J 2012
	CC517	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC518	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC521	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC522	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC523	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC524	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC526	HCQK220JCA	C CHIP CERA	50V CH 22PF J 2012
	CC527	HCQK220JCA	C CHIP CERA	50V CH 22PF J 2012
	CC528	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC549	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC550	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC551	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC552	HCQK270JCA	C CHIP CERA	50V CH 27PF J 2012
	CC553	HCQK270JCA	C CHIP CERA	50V CH 27PF J 2012
	CC556	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC560	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC561	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC567	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC568	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC569	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC570	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC601	HCBK472KCA	C CHIP CERA	50V X7R 4700PF K 2012
	CC602	HCBK472KCA	C CHIP CERA	50V X7R 4700PF K 2012
	CC617	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC620	HCQK309CCA	C CHIP CERA	50V CH 3PF C 2012
	CC621	HCQK309CCA	C CHIP CERA	50V CH 3PF C 2012
	CC622	HCQK680JCA	C CHIP CERA	50V CH 68PF J 2012
	CC629	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC631	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC635	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC665	HCBK472KCA	C CHIP CERA	50V X7R 4700PF K 2012

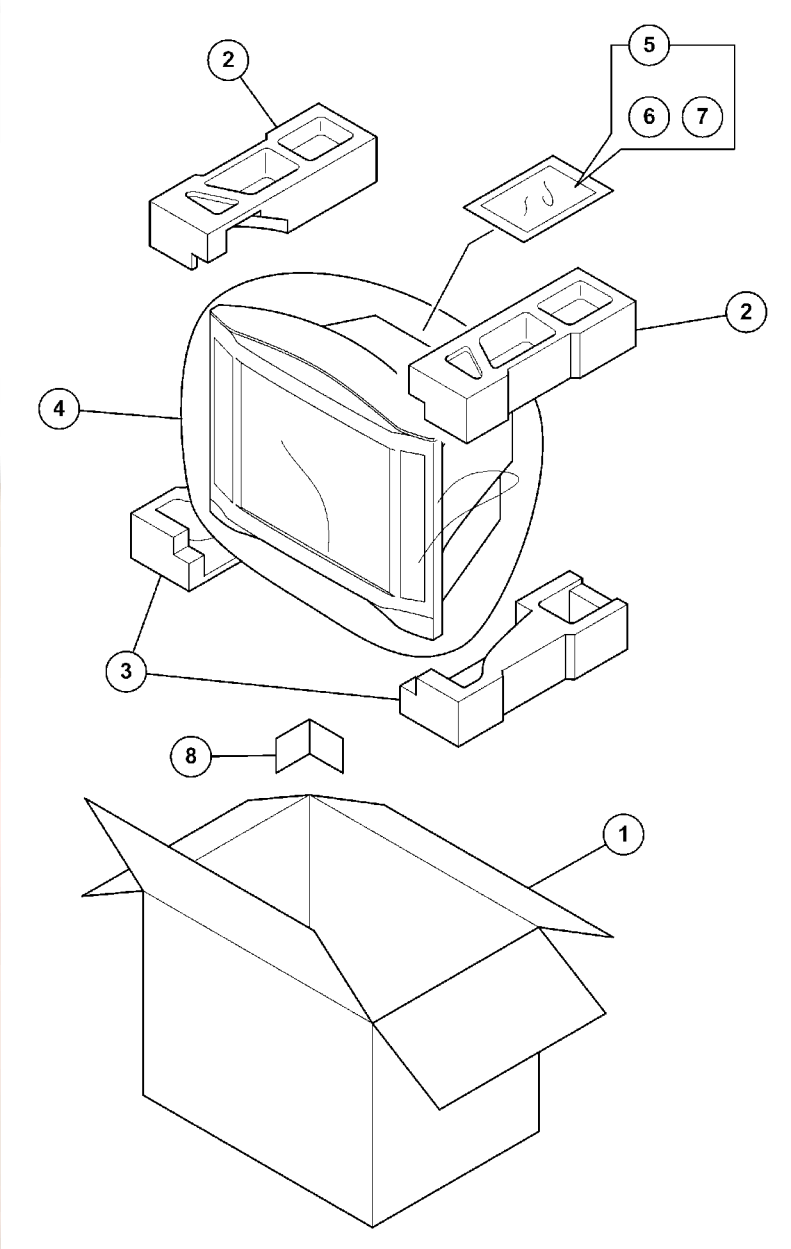
⚠	Symbol No.	Part No.	Part Name	Description
	CC667	HCBK472KCA	C CHIP CERA	50V X7R 4700PF K 2012
	CC680	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC701	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC709	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC711	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC712	HCQK151JCA	C CHIP CERA	50V CH 150PF J 2012
	CC713	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC715	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC716	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC720	HCFK103ZCA	C CHIP CERA	50V Y5V 0.01MF Z 2012
	CC726	HCQK330JCA	C CHIP CERA	50V CH 33PF J 2012
	CC727	HCQK330JCA	C CHIP CERA	50V CH 33PF J 2012
	CC730	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC737	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC742	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC744	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012
	CC777	HCBK104KCA	C CHIP CERA	50V X7R 0.1MF K 2012
	CC782	HCBK221KCA	C CHIP CERA	50V X7R 220PF K 2012
⚠	CF802	CL1UC3474M	C LINE ACROSS	0.47MF 1J(UCVSNDF/SV
	R103	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J
	R110	RN-4Z1502F	R METAL FILM	1/4 15K OHM F
	R111	RD-AZ133J-	R CARBON FILM	1/6 13K OHM J
	R150	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
	R151	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R152	RD-AZ271J-	R CARBON FILM	1/6 270 OHM J
	R154	RD-AZ470J-	R CARBON FILM	1/6 47 OHM J
	R155	RD-AZ751J-	R CARBON FILM	1/6 750 OHM J
	R162	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
	R163	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J
	R164	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J
	R190	RD-AZ221J-	R CARBON FILM	1/6 220 OHM J
	R191	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
	R301	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J
	R310	RD-AZ432J-	R CARBON FILM	1/6 4.3K OHM J
	R311	RD-AZ432J-	R CARBON FILM	1/6 4.3K OHM J
	R331	RS01Y201J-	R M-OXIDE FILM	1W 200 OHM J
	R333	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
	R334	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
	R345	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J
	R350	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
	R351	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
	R370	RD-4Z159J-	R CARBON FILM	1/4 1.5 OHM J
	R388	RW02Y508FS	R WIRE WOUND	2W 0.5 OHM F SMALL
	R394	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
	R395	RD-4Z564J-	R CARBON FILM	1/4 560K OHM J
	R396	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
	R397	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J
	R399	RS02Y829JS	R M-OXIDE FILM	2W 8.2 OHM J SMALL
	R401	RS02Y820JS	R M-OXIDE FILM	2W 82 OHM J SMALL
	R402	RN02B750JS	R METAL FILM	2W 75 OHM J SMALL
	R410	RN02B473JS	R METAL FILM	2W 47K OHM J SMALL
	R414	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J
	R415	RS02Y561JS	R M-OXIDE FILM	2W 560 OHM J SMALL
	R416	RD-4Z471J-	R CARBON FILM	1/4 470 OHM J
	R420	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
	R424	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J
	R430	RD-4Z152J-	R CARBON FILM	1/4 1.5K OHM J
	R444	RS02Y330JS	R M-OXIDE FILM	2W 33 OHM J SMALL
	R501	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R502	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R504	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R507	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
	R509	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R510	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R511	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R512	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R513	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R514	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
	R515	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
	R518	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	R519	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	R520	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	R524	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
	R525	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R533	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
	R534	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
	R535	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
	R537	RD-AZ301J-	R CARBON FILM	1/6 300 OHM J
	R538	RD-AZ301J-	R CARBON FILM	1/6 300 OHM J
	R540	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R545	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	R551	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
	R563	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R564	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R566	RD-AZ220J-	R CARBON FILM	1/6 22 OHM J
	R570	RD-AZ271J-	R CARBON FILM	1/6 270 OHM J
	R576	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J

⚠	Symbol No.	Part No.	Part Name	Description
	R577	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
	R578	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R579	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R580	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R588	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R589	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
	R590	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R593	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
	R594	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R595	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R599	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
	R605	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R606	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R608	RD-2Z151J-	R CARBON FILM	1/2 150 OHM J
	R609	RD-2Z151J-	R CARBON FILM	1/2 150 OHM J
	R614	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R615	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R620	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J
	R621	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R622	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R641	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R642	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R646	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R647	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R649	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R650	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R651	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R652	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R660	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R666	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R680	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
	R700	RD-2Z332J-	R CARBON FILM	1/2 3.3K OHM J
	R701	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R702	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R703	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R704	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R708	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R709	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R710	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R716	RD-AZ113J-	R CARBON FILM	1/6 11K OHM J
	R718	RN-AZ3902F	R METAL FILM	1/6 39K OHM F
	R720	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J
	R733	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
	R741	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R748	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R750	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
	R781	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
	R784	RD-AZ221J-	R CARBON FILM	1/6 220 OHM J
	R786	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R787	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R788	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R789	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R790	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R791	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R802	RS02Y753JS	R M-OXIDE FILM	2W 75K OHM J SMALL
⚠	R804	RF01Y158K-	R FUSIBLE	1W 0.15 OHM K
	R805	RD-2Z100J-	R CARBON FILM	1/2 10 OHM J
	R806	RD-2Z472J-	R CARBON FILM	1/2 4.7K OHM J
	R807	RD-2Z272J-	R CARBON FILM	1/2 2.7K OHM J
	R808	RD-2Z821J-	R CARBON FILM	1/2 820 OHM J
	R810	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J
⚠	R811	RC-2Z565KP	R CARBON COMP	1/2 5.6M OHM K
	R817	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
	R819	RX10B339JN	R CEMENT	10W 3.3 OHM J BENCH 4P
	R820	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
	R821	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J
	R823	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J
	R829	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
	R830	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
	R841	RD-2Z470J-	R CARBON FILM	1/2 47 OHM J
	R850	RS02Y129JS	R M-OXIDE FILM	2W 1.2 OHM J SMALL
	R854	RS02Y569JS	R M-OXIDE FILM	2W 5.6 OHM J SMALL
	R855	RD-4Z225J-	R CARBON FILM	1/4 2.2M OHM J
	R870	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
	R901	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R902	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R903	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
⚠	R906	RF01Y629JA	R FUSIBLE	1W 6.2 OHM J A CURVE
	R911	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R912	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R913	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
	R921	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K
	R922	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K
	R923	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K
	R931	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
	R932	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
	R933	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
	R996	RD-2Z105J-	R CARBON FILM	1/2 1M OHM J

⚠	Symbol No.	Part No.	Part Name	Description
	R997	RD-2Z102J-	R CARBON FILM	1/2 1K OHM J
	RA01	RD-AZ220J-	R CARBON FILM	1/6 22 OHM J
	RA15	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	RA16	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	RA32	RD-AZ680J-	R CARBON FILM	1/6 68 OHM J
	RA35	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	RA77	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	RA88	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
	RC102	HRFT561JCA	R CHIP	1/10 560 OHM J 2012
	RC106	HRFT101JCA	R CHIP	1/10 100 OHM J 2012
	RC107	HRFT101JCA	R CHIP	1/10 100 OHM J 2012
	RC109	HRFT104JCA	R CHIP	1/10 100K OHM J 2012
	RC112	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC114	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012
	RC116	HRFT243JCA	R CHIP	1/10 24K OHM J 2012
	RC117	HRFT243JCA	R CHIP	1/10 24K OHM J 2012
	RC118	HRFT151JCA	R CHIP	1/10 150 OHM J 2012
	RC119	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012
	RC153	HRFT470JCA	R CHIP	1/10 47 OHM J 2012
	RC159	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012
	RC160	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012
	RC161	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC169	HRFT222JCA	R CHIP	1/10 2.2K OHM J 2012
	RC177	HRFT562JCA	R CHIP	1/10 5.6K OHM J 2012
	RC179	HRFT222JCA	R CHIP	1/10 2.2K OHM J 2012
	RC501	HRFT101JCA	R CHIP	1/10 100 OHM J 2012
	RC506	HRFT750JCA	R CHIP	1/10 75 OHM J 2012
	RC513	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC516	HRFT471JCA	R CHIP	1/10 470 OHM J 2012
	RC527	HRFT333JCA	R CHIP	1/10 33K OHM J 2012
	RC530	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC532	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC550	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC551	HRFT471JCA	R CHIP	1/10 470 OHM J 2012
	RC560	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC568	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC569	HRFT151JCA	R CHIP	1/10 150 OHM J 2012
	RC580	HRFT821JCA	R CHIP	1/10 820 OHM J 2012
	RC581	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC582	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC583	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC584	HRFT821JCA	R CHIP	1/10 820 OHM J 2012
	RC585	HRFT911JCA	R CHIP	1/10 910 OHM J 2012
	RC586	HRFT911JCA	R CHIP	1/10 910 OHM J 2012
	RC587	HRFT821JCA	R CHIP	1/10 820 OHM J 2012
	RC591	HRFT393JCA	R CHIP	1/10 39K OHM J 2012
	RC595	HRFT271JCA	R CHIP	1/10 270 OHM J 2012
	RC598	HRFT271JCA	R CHIP	1/10 270 OHM J 2012
	RC602	HRFT104JCA	R CHIP	1/10 100K OHM J 2012
	RC661	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC662	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC712	HRFT101JCA	R CHIP	1/10 100 OHM J 2012
	RC713	HRFT181JCA	R CHIP	1/10 180 OHM J 2012
	RC715	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC718	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC720	HRFT101JCA	R CHIP	1/10 100 OHM J 2012
	RC721	HRFT151JCA	R CHIP	1/10 150 OHM J 2012
	RC722	HRFT241JCA	R CHIP	1/10 240 OHM J 2012
	RC723	HRFT391JCA	R CHIP	1/10 390 OHM J 2012
	RC724	HRFT102JCA	R CHIP	1/10 1K OHM J 2012
	RC725	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC729	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC730	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC731	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC732	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC733	HRFT473JCA	R CHIP	1/10 47K OHM J 2012
	RC734	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC735	HRFT223JCA	R CHIP	1/10 22K OHM J 2012
	RC736	HRFT103JCA	R CHIP	1/10 10K OHM J 2012
	RC737	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012
	RC738	HRFT000-CA	R CHIP	1/10 0 OHM 2012
	RC739	HRFT000-CA	R CHIP	1/10 0 OHM 2012
	RC740	HRFT000-CA	R CHIP	1/10 0 OHM 2012
	RC741	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012
	RC742	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012
	RC743	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012
	RC750	HRFT183JCA	R CHIP	1/10 18K OHM J 2012
	RC770	HRFT332JCA	R CHIP	1/10 3.3K OHM J 2012
	RC780	HRFT000-CA	R CHIP	1/10 0 OHM 2012
	RC781	HRFT273JCA	R CHIP	1/10 27K OHM J 2012
	RC782	HRFT104JCA	R CHIP	1/10 100K OHM J 2012
	RC783	HRFT221JCA	R CHIP	1/10 220 OHM J 2012
	RC784	HRFT393JCA	R CHIP	1/10 39K OHM J 2012

⚠	Symbol No.	Part No.	Part Name	Description
	RC790	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012
	RC799	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012
	RCA77	HRFT750JCA	R CHIP	1/10 75 OHM J 2012
	L101	5CPX479K--	COIL PEAKING	4.7UH K RADIAL
	L105	5CPZ479K02	COIL PEAKING	4.7UH 3.5MM K (LAL02TB)
	L150	58E0000041	COIL AFT	TRF-A005
	L153	5CPZ120K02	COIL PEAKING	12UH 3.5MM K (LAL02TB)
	L380	58C0000120	COIL CHOKE	CH-100Q
	L381	58C0000120	COIL CHOKE	CH-100Q
	L401	58H0000054	COIL H-LINEARITY	TRL-040F
	L402	5MC0000100	COIL BEAD	MD-5 (HC-3550)
	L403	58C0000118	COIL CHOKE	CH-191A
	L501	5CPX479K--	COIL PEAKING	4.7UH K RADIAL
	L502	5CPX479K--	COIL PEAKING	4.7UH K RADIAL
	L506	5CPZ479K04	COIL PEAKING	4.7UH 10.5MM K (LAL04TB)
	L507	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L524	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L551	5CPZ479K04	COIL PEAKING	4.7UH 10.5MM K (LAL04TB)
	L568	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L601	5CPZ479K02	COIL PEAKING	4.7UH 3.5MM K (LAL02TB)
	L602	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L603	5CPZ479K02	COIL PEAKING	4.7UH 3.5MM K (LAL02TB)
	L605	5CPZ479K02	COIL PEAKING	4.7UH 3.5MM K (LAL02TB)
	L650	5MC0000100	COIL BEAD	MD-5 (HC-3550)
	L709	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L711	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L713	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L730	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L737	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L742	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L744	5CPZ100K02	COIL PEAKING	10UH 3.5MM K (LAL02TB)
	L801	5MC0000100	COIL BEAD	MD-5 (HC-3550)
	L802	58CX430599	COIL CHOKE	AZ-9004Y 940K TP
	LA01	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA02	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA03	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA04	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA06	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA07	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA08	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	LA09	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)
	T401	50D25A2---	TRANS DRIVE	TD-25A2
⚠	T402	50H0000260	FBT	1362.5039
⚠	T801	50M4936B4-	TRANS SMPS	2094.0074B
⚠	F801	5FSCB4022R	FUSE CERA	SEMKO F4AH 4A 250V MF51
	F801A	4857415001	CLIP FUSE	PFC5000-0702
	F801B	4857415001	CLIP FUSE	PFC5000-0702
	G900	4SG0DY0001	SPARK GAP	SSG-102-A1(1.0KV) BULK
	G901	4SG0DY0001	SPARK GAP	SSG-102-A1(1.0KV) BULK
	G902	4SG0DY0001	SPARK GAP	SSG-102-A1(1.0KV) BULK
	G903	4SG0DY0001	SPARK GAP	SSG-102-A1(1.0KV) BULK
	JP01	4859102130	JACK EARPHONE	YSC-1537
	JPA1	4859200401	SOCKET RGB	SR-21A1 (ANGLE TYPE)
	JPA2	4859200401	SOCKET RGB	SR-21A1 (ANGLE TYPE)
	JPA3	4859108450	JACK PIN BOARD	YSC03P-4120-14A
	JPA4	4859106740	SVHS JACK	PH-SJ-9505A
⚠	LF100	5PLF24A1--	FILTER LINE	LF-24A1
⚠	LF200	5PS2901N2-	FILTER PFC CHOKE	B82991-S2901-N2
	M351	4858900002	HOLDER LED AS	LH-3P
⚠	RF801	DPC7R0M290	POSISTOR	96709 (BC)
⚠	SCT1	4859303530	SOCKET CRT	PCS629-03C
	SF1	5PK3953M--	FILTER SAW	K3953M
	SF2	5PK9650M--	FILTER SAW	K9650M
	SW700	5S50101090	SW TACT	SKHV17910A
	SW701	5S50101090	SW TACT	SKHV17910A
	SW702	5S50101090	SW TACT	SKHV17910A
	SW703	5S50101090	SW TACT	SKHV17910A
	SW704	5S50101090	SW TACT	SKHV17910A
⚠	SW801	5S40101143	SW PUSH	PS3-22SP (P.C.B)
	U100	4859724930	TUNER VARACTOR	UV1316/A I-4
	X501	5XE20R250E	CRYSTAL QUARTZ	HC-49/U 20.2500MHZ 30PPM
	X502	5XEX5R000E	CRYSTAL QUARTZ	HC-49/U 5.00MHZ 30PPM
	X601	5XE18R432E	CRYSTAL QUARTZ	HC-49/U 18.43200MHZ 30PPM
	X701	5XE6R0000C	CRYSTAL QUARTZ	HC-49/U 6.0000 MHZ 20PPM
	Z153	5PYXT5R5MB	FILTER CERA	XT5.5MB
	Z603	5PXF1B471M	FILTER EMI	CFI 06 B 1H 470PF
	Z604	5PXF1B471M	FILTER EMI	CFI 06 B 1H 470PF
	ZA20	5PXF1B471M	FILTER EMI	CFI 06 B 1H 470PF
	ZA21	5PXF1B471M	FILTER EMI	CFI 06 B 1H 470PF

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
	1	GPBJV6B3022	BOX	
	2	4858199X00UP	PAD UP	2pcs in 1set
	3	4858199X00DN	PAD DOWN	2pcs in 1set
	4	4858215601	POLY BAG 25"-28"	
	5	4858213801	BAG INSTRUCTION	
⚠	6	PMJV6B3522	MANUAL	Eng, Fre, Ger, Ita, Psa, Dut, Por
⚠	6	PMJV3B3322	MANUAL	Pol, Cze, Rom, Hun, Bul
	7	48BC1514B-	TRANSMITTER REMOCON	(RM-C1514B) [AV-29FH1BUG]
	7	48BC1514--	TRANSMITTER REMOCON	(RM-C1514) [AV-29FH1SUG]
	8	AV29FH1BUG	BOX LABEL	[AV-29FH1BUG]
	8	AV29FH1SUG	BOX LABEL	[AV-29FH1SUG]
	--	BT-54013-6L	WARRANTY CARD	

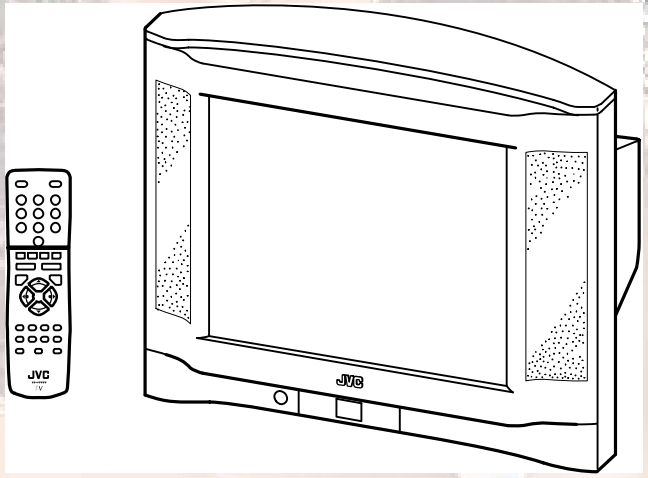
JVC

SCHEMATIC DIAGRAMS

COLOUR TELEVISION

AV-29FH1BUG, AV-29FH1SUG

CD-ROM No.SML200310



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No.YA008
2003/9

AV-29FH1BUG, AV-29FH1SUG
STANDARD CIRCUIT DIAGRAM

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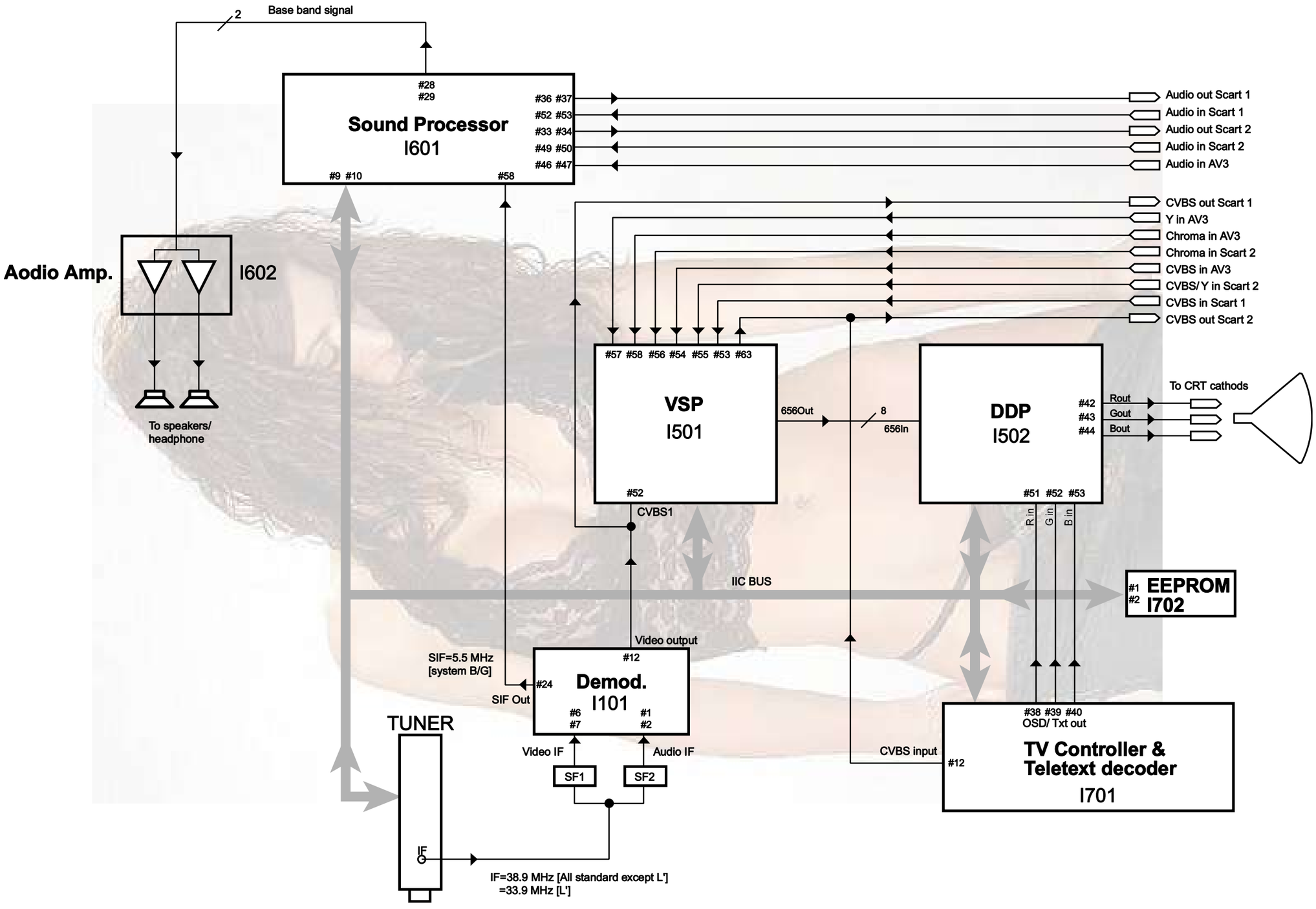
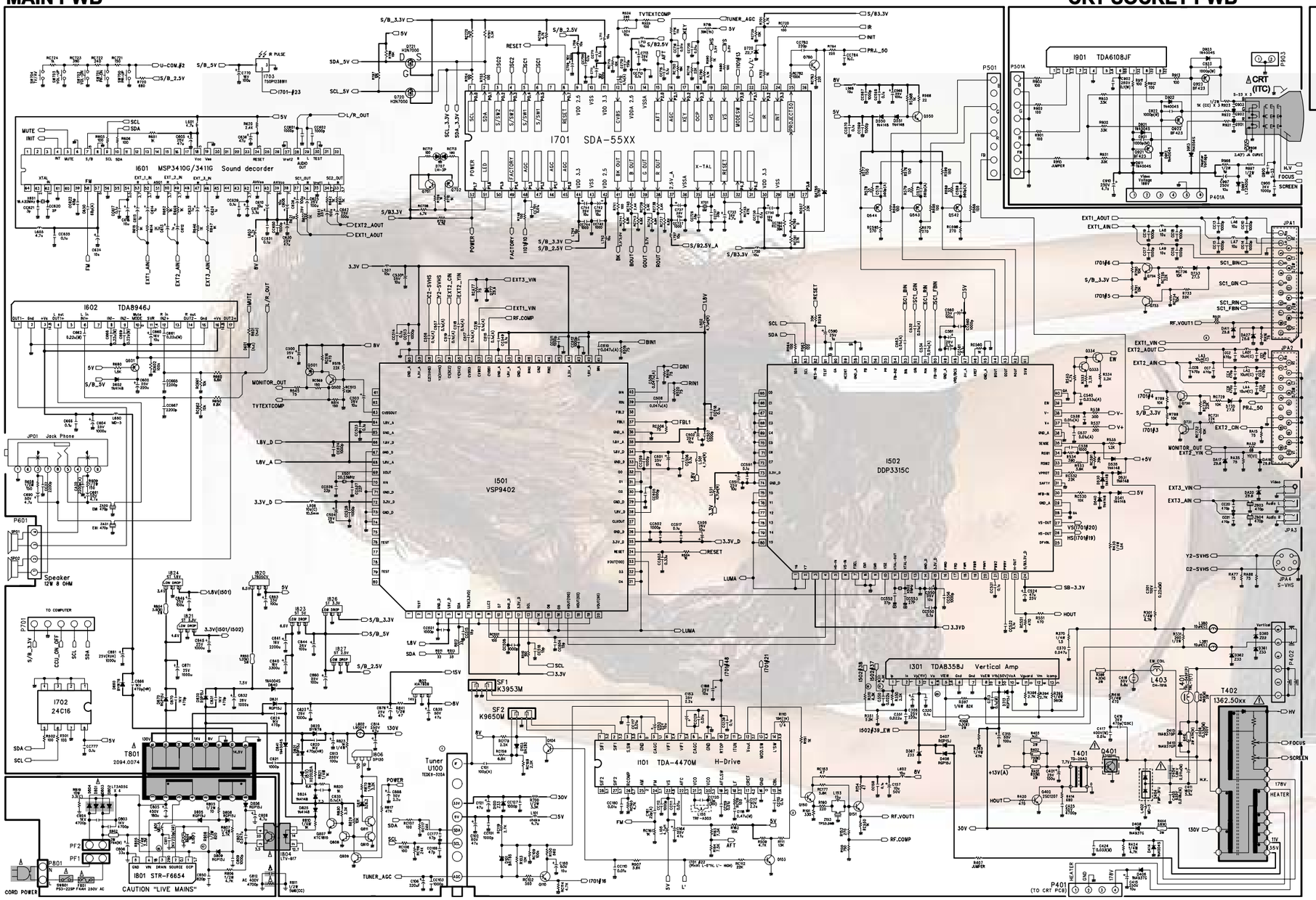
MEMO

BLOCK DIAGRAM



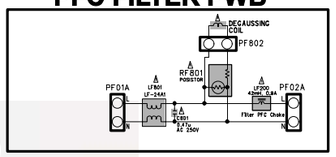
CIRCUIT DIAGRAMS *MAIN & CRT SOCKET & PFC FILTER PWB CIRCUIT DIAGRAM*

MAIN PWB



CRT SOCKET PWB

PFC FILTER PWB



NOTE:
1. RESISTANCE IS SHOWN IN OHM. K=1000, M=1000000
2. UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITOR VALUES ARE EXPRESSED IN uF
3. VOLTAGES READ WITH "VTVM" FROM POINT INDICATED TO CHASSIS GROUND USING A COLOR BAR SIGNAL WITH ALL CONTROLS AT NORMAL LINE 230V AC VOLTAGE READINGS SHOWN ARE NORMAL VALUES AND MAY VARY +20% EXCEPT H.V
4. THIS CIRCUIT DIAGRAM IS A STANDARD ONE CIRCUIT PRINTED MAY BE SUBJECT TO CHANGE FOR PRODUCT IMPROVEMENT WITHOUT PRIOR NOTICE

WARNING:
BEFORE SERVICING THE CHASSIS, READ "X-RAY RADIATION", "SAFETY PRECAUTION", AND "PRODUCT SAFETY NOTICE" IN SERVICE MANUAL

CAUTION TO SERVICE TECHNICIANS:
BEFORE RETURNING THE RECEIVER TO CUSTOMER, LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHOULD BE PERFORMED TO DETERMINE THAT EXPOSED PARTS ARE PROPERLY INSULATED FROM THE SUPPLY CIRCUIT.

RESISTOR

CARBON FILM	-W-	
R M-OXIDE	-W-	(R)
CARBON COMP	-W-	(CC)
FUSIBLE	-W-	(F)
CEMENT	-W-	(C)

CAPACITOR

ELECTRO		~~
CERAMIC		-|-
CERAMIC CH		-|- (CH)
ELECTRO NONPOLAR		(NP)
MYLAR		-|- (M)

COIL

PEAKING	-/\/\-	
CHOKE	-/\/\-	(C)
BEAD	-/\/\-	(B)

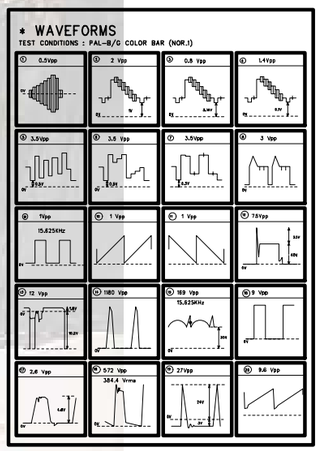
THE DIFFERENT PARTS FOR CRT

MAKER	LG Philips		Thomson		Samsung	
Aspect	4:3	16:9	4:3	16:9	4:3	16:9
VDR1	ABUE7E020444	ABUE7E020344	ABUE4D1V01	ELC01V001	DCP853V903	DCE853V902
C404	1.8KV 0.01NF	1.8KV 0.01NF	1.5KV 0.01NF			
C408	400V 0.33NF	400V 0.27NF	400V 0.33NF			
L401	TEL-04SF	NEW SPL.	NEW SPL.			
R388	2W 0.3(1W)	2W 0.85(1W)	2W 0.3(1W)			
R306	6.2(7) JA	3.9(7) JA	3.7(7) JA			
R823	1/4 1K	1/4 3.9K	1/4 1K			
R331	1W 200	1W 200	2W 100			
C418	3KV 470PF(K)	3KV 470PF(K)	3KV 680PF(K)			
R385	1/4 560K	1/4 390K	1/4 390K			
T402	1362.5039	1362.5022	1363.5041			

THE DIFFERENT PARTS FOR Virtual dolby Surround

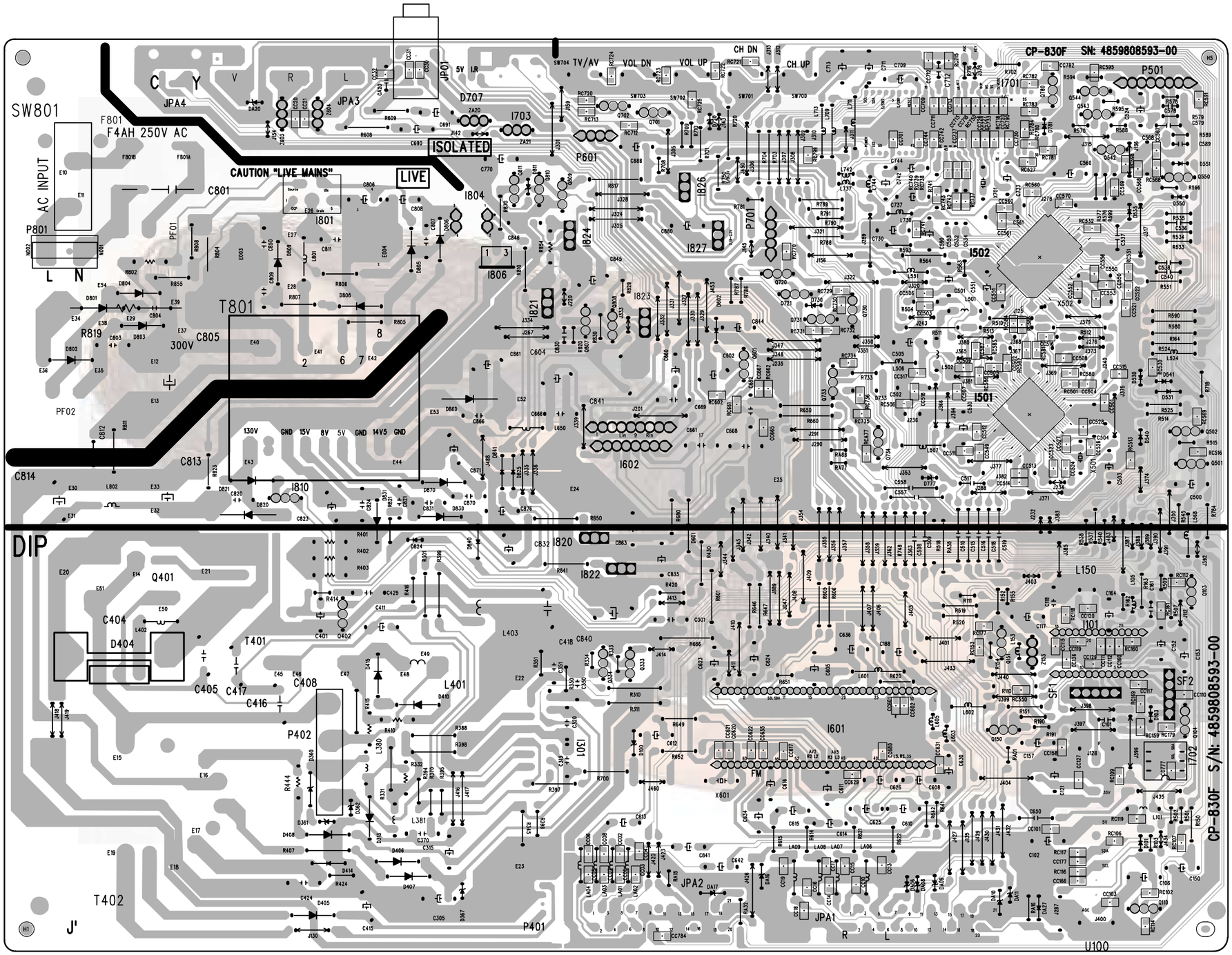
LOC.	w/o VDS model	with VDS model
IC01	MSP3410G	MSP3410
CC601	50V X7R 4700PF	50V X7R 1000PF
CC602	50V X7R 4700PF	50V X7R 1000PF
CC686	50V X7R 4700PF	50V X7R 2200PF
CC687	50V X7R 4700PF	50V X7R 2200PF

* WAVEFORMS
TEST CONDITIONS : PAL-B/G COLOR BAR (NOR.I)



PRODUCT SAFETY NOTE :
THE COMPONENTS MARKED WITH ⚠ ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET AND SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL OR SPECIFIED ONE IN THE PART LIST. DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

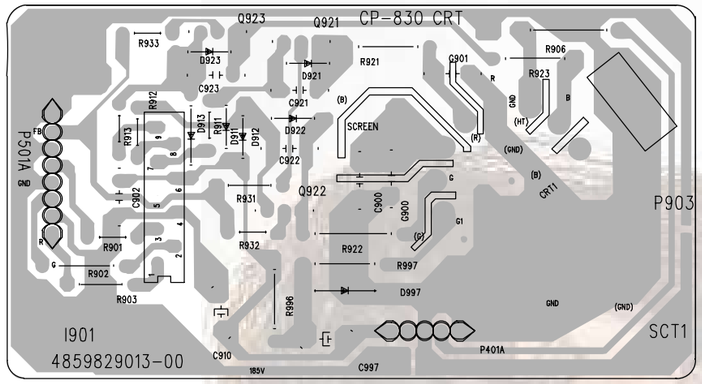
PATTERN DIAGRAMS *MAIN PWB PATTERN*



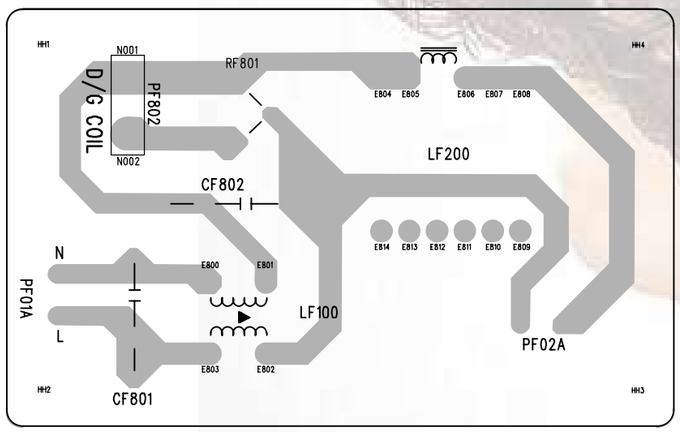
CRT SOCKET & PFC FILTER PWB PATTERN

TOP

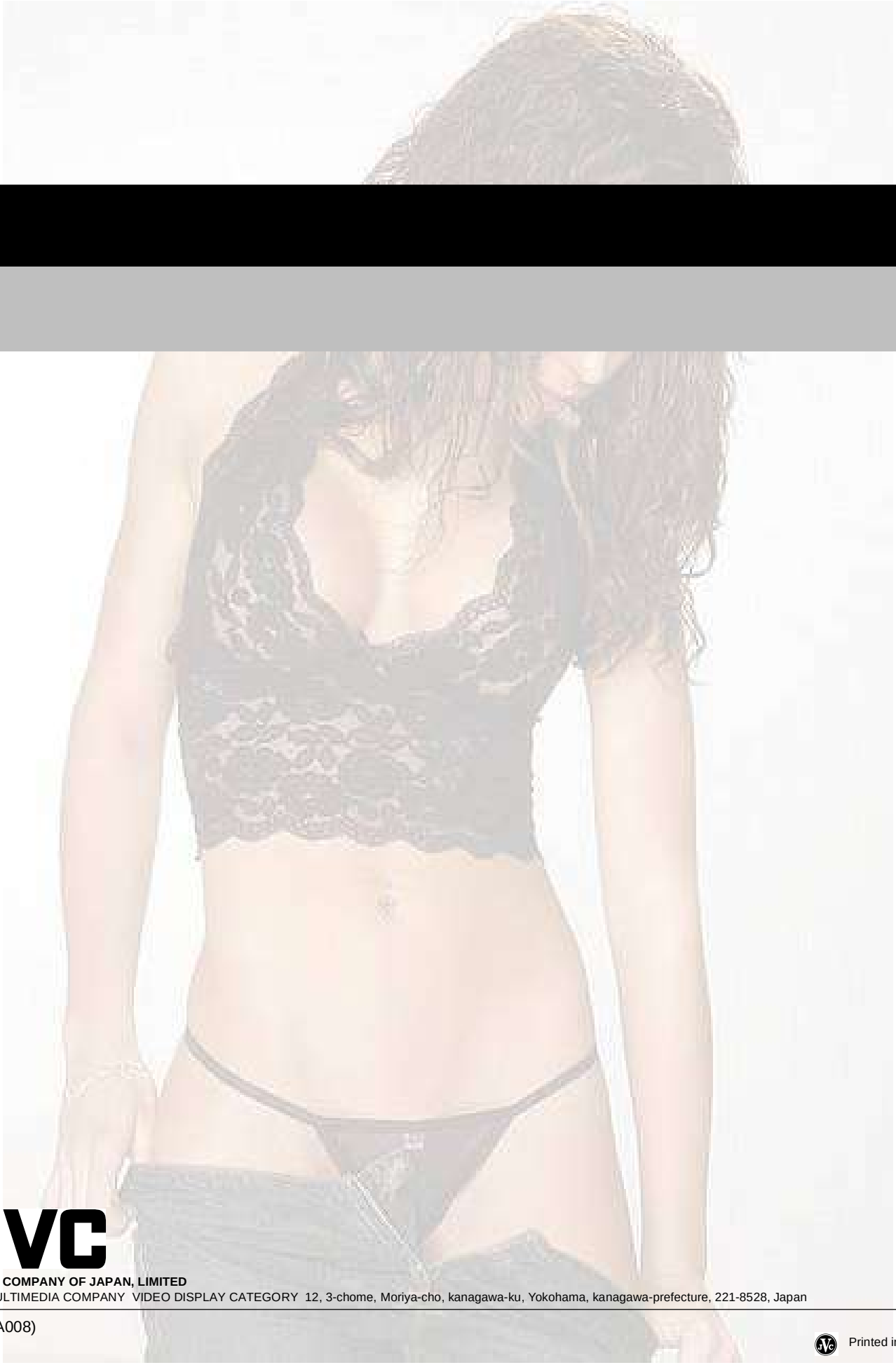
CRT SOCKET PWB



PFC FILTER PWB



FRONT



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