COLOUR TELEVISION

SERVICE MANUAL

Models

29FV6H

Features

Stage curtain for open and close effect
218 programs stored
Multi-picture modes and sound modes selection
On/Off timer

Contents

TECHNICAL SPECIFICATION & S PRECAUTIONS

POWER SUPPLY: AC 150~250V, 50/60 Hz

Tuning system: frequency synthesized type auto-search fine tuning s

IF: 38.9MHz ;

Power consumption: ≤ 140W ;

Antenna input impedance: 75Ω ;

Receiving system:

a) Color system: PAL BG ; AV NTSC3.58/4.43MHz ;

b) Broadcast TV system: B/G ;

Language displayed: English ;

Audio power: main channels 5W+5W ;

Power supply working range : AC 150V ~ 250V , 50/60Hz ;

Video input: 1.0V $_{P\text{-}P}$ (75Ω) ;

Video output: 1.0V $_{P\text{-}P}$ (75Ω) ;

Audio input: 436m Vrms (40KΩ) ;

Audio output: 436m Vrms (more than 600Ω) ;

SAFETY PRECAUTIONS

INPORTANT SAFETY NOTICE

An Isolation Transformer should always be used during the servicing of a rece whose chassis is not isolated from the AC power line. Use a transformer of adequ power rating as this protects the technician from accidents that might result in personal injury caused by electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that might be inadvertently introduced during service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with a specified one.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to the high vacuum and large surface area of the picture tube, extreme c should be taken in handling the Picture Tube. Do not lift the Picture Tube by its N

X-RAY Radiation

Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section the Picture Tube.

For continued X-RAY RADIATION protection, the replacement tube must be o same type as specified in the Replacement Parts List.

Always perform an AC leakage current check on the exposed metallic parts o cabinet, such as antennas, terminals, etc., to make sure that the set is safe to operate without any danger of electrical shock.

II. SERVICING PRECAUTIONS

Warning and Cautions

1. When you clean the TV set, please pull out the power plug from AC outlet. Don't clean the cabinet and the screen with benzene, petrol and other chemicals.

2. In order to prolong the using life of the TV set, please place it on a ventilated place.

3. Don't place the T V set i n t h e sunshine or near heat source.

4. To prevent the TV set from fi electric shock, don't make the TV set rain or moisture.

5. Don't open the back cover, oth possible to damage the compon TV set and harm you.

6. When the TV set isn't going to for long time or it is in thunder a lightening, please pull out the plu outlet and the antenna plug from of the TV set.

any cleanser. If using hard cloth, the tube surface will be damaged.

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the SAFETY PRECAUTIONS.

NOTE: If unforeseen circumstances create conflict between the following serv precautions and any of the safety precautions, always follow the safety preca Remember : Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:

   a. Removing or reinstalling any component, circuit board module or any c assembly of the receiver.

   b. Disconnecting or reconnecting any receiver electrical plug or other elec connection.

   c. Connecting a test substitute in parallel with an electrolytic capacitor in receiver.

      CAUTION: A wrong substitution part or incorrect installation polarity c electrolytic capacitors may result in an explosion hazard.

   d. Discharging the picture tube anode.

2. Test high voltage only by measuring it with an appropriate high voltage met other voltage-measuring device (DVM, FETVOM, etc.) equipped with a su high voltage probe. Do not test high voltage by "drawing an arc".

3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system sl the point where the picture tube socket ground lead is connected, and then touch the other end of the insulated clip lead to the picture tube anode but using an insulating handle to avoid personal contact with high voltage.

4. Do not spray chemicals on or near this receiver or any of its assemblies.

5. Unless specified otherwise in this service manual, clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tip stick or comparable nonabrasive applicator; 10% (by volume) Acetone and (by volume) isopropyl alcohol (90%-99% strength)

8. Always connect the test receiver ground lead to the receiver chassis groun
before connecting the test receiver positive lead.

Always remove the test receiver ground lead last.

9. Use with this receiver only the test fixtures specified in this service manual.

CAUTION: Do not connect the test fixture ground strap to any heat sink in
receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static el
Such components are usually called Electrostatically Sensitive (ES) Devices.
Examples of typical ES devices are integrated circuits and some field effect
transistors and semiconductor "chip" components. The following techniques s
be used to help reduce the incidence of component damage caused by static
electricity.

1. Immediately before handling any semiconductor component or semicond
equipped assembly, drain off any electrostatic charge on your body by tou
known earth ground. Alternatively, obtain and wear a commercially availab
discharging wrist strap device, which should be removed to prevent potent
shock prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place t
assembly on a conductive surface such as aluminum foil, to prevent electr
charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static type folder removal device. Some solder removal
not classified as "anti-static" can generate electrical charges sufficient to d
ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical cha
sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package unt
immediately before you are ready to install it. (Most replacement ES devic
packaged with leads electrically shorted together by conductive foam, alum
foil or comparable conductive material).

your clothes' fabric or lifting of your foot from a carpeted floor might genera
static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and
shape that will maintain tip temperature within the range of 500 °F to

2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts
parts lead.

3. Keep the soldering iron tip clean and well tinned.

4. Thoroughly clean the surfaces to be soldered. Use a mall wire bristle (0.5 inch,
1.25cm) brush with a metal handle. Do not use freon-propelled spay-on clean

5. Use the following unsoldering technique

   a. Allow the soldering iron tip to reach normal temperature.(500 °F

   b. Heating the component lead until the solder melts.

   c. Quickly draw the melted solder with an anti-static, suction-type solder re
   device with solder braid.

      CAUTION: Work quickly to avoid overheating the circuit board printed foil

6. Use the following unsoldering technique

   a. Allow the soldering iron tip to reach normal temperature.(500 °F

   b. First, hold the soldering iron tip and solder the strand against the compo
   lead until the solder melts.

   c. Quickly move the soldering iron tip to the junction of the component lead
   the printed circuit foil, and hold it there only until the solder flows onto
   around both the component lead and the foil.

      CAUTION: Work quickly to avoid overheating the circuit board printed foil

   d. Closely inspect the solder area and remove any excess or splashed sol
   with a small wire-bristle brush.

Remove /Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC

(or with solder braid) before removing the IC.

Replacement

Carefully insert the replacement IC in the circuit board.

Carefully bend each IC lead against the circuit foil pad and solder it.

Clean the soldered areas with a small wire-bristle brush.(It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor
Removal/Replacement

Remove the defective transistor by clipping its leads as close as possible to the component body.

Bend into a "U" shape the end of each of three leads remaining on the circuit boa

Bend into a "U" shape the replacement transistor leads.

Connect the replacement transistor leads to the corresponding leads extending the circuit board and crimp the "U" with long nose pliers to insure metal to me contact then solder each connection.

Power Output, Transistor Device
Removal/Replacement

Heat and remove all solder from around the transistor leads.

Remove the heat sink mounting screw (if so equipped).

Carefully remove the transistor from the heat sink of the circuit board.

Insert new transistor in the circuit board.

Solder each transistor lead, and clip off excess lead.

Replace heat sink.

Diode Removal/Replacement

Remove defective diode by clipping its leads as close as possible to diode body.

Bend the two remaining leads perpendicularly to the circuit board.

Observing diode polarity, wrap each lead of the new diode round the corresp lead on the circuit board.

2. Securely crimp the leads of replacement component around notch at stake top

3. Solder the connections

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive compone temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken t adhesive that bonds foil to the circuit board causing the foil to separate from c "lift-off" the board. The following guidelines and procedures should be followe whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedur install a jumper wire on the copper pattern side of the circuit board.(Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the e of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp i around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and le overlap the previously scraped end of the good copper pattern. Solder th overlapped area and clip off any excess jumper wire.

At other connections

Use the following technique to repair the defective copper pattern at connecti other than IC Pins. This technique involves the installation of a jumper wire on component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife.

Remove at least 1/4 inch of copper, to insure that a hazardous condition w exist if the jumper wire opens.

components or sharp edges.

III. FUNCTIONS & LOCATION OF CONTRO

Preset of 218 programs. Curtain-drawing type of display when powered

Various kinds of picture modes and sound modes;

Screen display of menu in English ;

I^2C bus control with digital technology;

Timer on/off; sleep timer off; preset timer channel;

Children proof lock system;

1 Side-set AV input , 2 rear AV input, 1 rear DVD input, 1 rear S-VIDEO terminal , 1 rear AV output;

Game;

Remote Controller

REMOTE CONTROLLER GUIDE

Remote controller functio

TV/AV exchan ging bu t

Mu te bu tton

Numeric butto n

On e/two/th ree digi tal bu

Pictu re mo de selecti on

Volu me u p/d wo n butto n

Program play-forwar

Surround sound selec

Game background selec

Game exit button

Game start or restart b

Program play-backw

Volume mode selecti

Display button

Calendar display butt

System preset button

Scan button

Lock preset button

DC standby button

Sleep timer

IV. DISASSEMBLY INSTRUCTIONS

A. Important note

This set is disconnected from the power supply through the converter transfo
An isolating transformer is necessary to service operations on the primary side of
converter transformer.

Back Cabinet Removal

Remove the screw residing on the back cabinet and carefully separate the ba
cabinet from the front cabinet.

B. Picture tube handling caution

Due to high vacuum and large surface area of picture tube, great care must b
exercised when handling picture tube. Always lift picture tube by grasping it fi
around faceplate.

NEVER LIFT TUBE BY ITS NECK! The picture tube must not be scratched or
subjected to excessive pressure as fracture of glass may result in an implosio
considerable violence which can cause personal injury or property

V. SPECIFIC INFORMATIONS

A. Principle integrated circuits

This new generation large screen color television is based on the latest 2in1 chip HAIER8829A-V1.0 developed by Toshiba and haier, integrate with other advance ICs, high performance and simpler circuit are realized by using I bus to communicate with all the other ICs.

1. Circuit composition

Core Chip CPU(the MCU): HAIER8829A-V1.0
SAWF: D38.9
Audio Processor: NNJW1136L—NZ
Audio Power Amplifier: TA8256BH
Vertical output: LA7841
AV switcher: TC90L01N
Power supply (thick-film): STR-G9656
FBT: FBT-B-19

2. IF amplifier circuit：

RF signal received from antenna, first processed by HF tuner U101 to ge 38.9MHz IF signal, then amplified by V101 via R102, L102, C102, and R105 to compensate the inset loss caused by SAWF. Amplified signal enters SAWF Z101 (D38.9) via C105 from the collector of V101 to get the 38.9MHz IF signal with higher S/N; high gain with 6MHz bandwidth, then enters Pin 41 and 42 of HAIER8829A-V1.0. Video demodulator and amplifier are utilized within HAIER8829A-V1.0. Video IF and AFT voltage are all controlled via I2C bus without external alignment. RF AGC is controlled via bus as well. The capacitor C233 at Pin 39 of HAIER8829A-V1.0 determines the time constant of AGC, RF AGC voltage from pin 43 of HAIER8829A-V1.0 sends to tuner to

signal at pin 9 and pin 10 which come from N201(HAIER8829A-V1.0), the desired video signal will be available at pin 3, and then sends to AV switcher N802 (TC90L01N) after emitter follower V207 and V214.

The pin 31 of HAIER8829A-V1.0 output SIF signal. It will go back into th pin 33 of HAIER8829A-V1.0 after C225. It is very good that the 4.5; 5.5; 6.0; 6.5 MHz filters which are used in second sound IF filter circuit are all integrated into HAIER8829A-V1.0. So there's no need to add this part of the circuit at external.

After processed by internal limiter; discriminating and pre amplification i HAIER8829A-V1.0, audio signal will be available at pin 38, and then sends to AV switcher N802 (TC90L01N) after emitter follower V210.

4. Luminance and chrominance signal circuit

The luminance signal or video signal comes from pin 18 of AV switcher N802 (TC90L01N) will be sent to pin 20 or pin 24 of HAIER8829A-V1.0 via emitter follower V808. matrix circuit via internal clamping; trapping; smoothi black level extension; delay circuit. The chrominance signal comes from pin 45 enters auto system recognition and 1 H delay line circuit consist of APC and VCO circuit via chrominance BPF and chrominance ACC circuit R-Y and B-Y after decoding, result in color difference signal which enters th matrix circuit. TB1240N has integrated 1H delay line, the external VCO color sub carrier oscillator is single frequency type working at 4.43MHz, will be used for both PAL (4.43M) /NTSC (3.58M) .

5. AV Switch circuit

In this TV set, we make use of the TC90L01, which is designed by TOSHIBA ELECTONICS for AV switch circuit. The TC90L01 is controlled by the I2C bus. There are 3 series input ports and 2 series output ports and it have the ALC function. The 3 series input ports are respectively used as: inner video\audio signal, video\audio signal of AV1,video\audio signal of AV2.The 2 series output ports are respectively used as: inner video\audio signal and video\audio signal of AV out.

The TC90L01 is controlled by the HAIER8829A-V1.0 through the I2C bus. Pin 13 and 14 are the input ports of the I2C bus, which control the function of the TC90L01.According to data of the I2C bus, the TC90L01 select the right video and audio signal from 3 series of input ports and output the

Pin 13 and 14 are the I2C bus ports.
Pin 16 and 17 are the audio output ports to the audio processor.
Pin 18 is the video output port to the MCU.
Pin 22, 23, 24 are the video and audio output ports to the AV out.

6. Audio processing

The audio signal is select by the N802(TC90L01). The L audio signal comes from pin 17 and through R815, R802, R646, C642, the signal goes into pin 1 of N602(NJW1136L). The R audio signal come from pin 16 of the N802 and through R816, R801, R647, C643, the signal goes into pin 32 of N602. The audio signal is processed by N602. The processed audio signal comes out of N602 at pin 8 and 26. At the XP608, audio signal can be obtained at pin 3 and 4. There is one shield line, which transfers the audio signal to the small audio amplifier printed circuit which is placed at the right side of the main printed circuit uprightly. The L audio signal is received by N601(LA4282) at pin 5.The R audio signal is received by N601(LA4282) at pin 2. After being amplified, the L audio signal comes out of the N601 from pin 7 and the R audio signal from pin 11. At XS602, the audio signal is transferred to the loudhailers by one wire.

7. Horizontal sync and horizontal scan output circuits

Horizontal sync signals are separated in N201 and output from pin 13 of N20
R211, C207, C208 connected to N201 (14) realize H-PFC function.
pumping signals are transmitted from (13) of N201 to horizontal promotion tra
V402 (2482), and then drive the H-DRIVE transformer T402. After being ampl
switches power transistor V404 (2SD2539) to control the horizontal scan of th
electronic-beam. C430 is a horizontal S correction capacitor and L441(TLN20
for horizontal linear inductor. T401 is a horizontal output transformer. The hori
return pulse output from pin 7 of T401 is transmitted to pin (27) of N201 who cont
ABCL circuits. ABCL avoid high-voltage over rated value that will cause X-ray
affect your health.

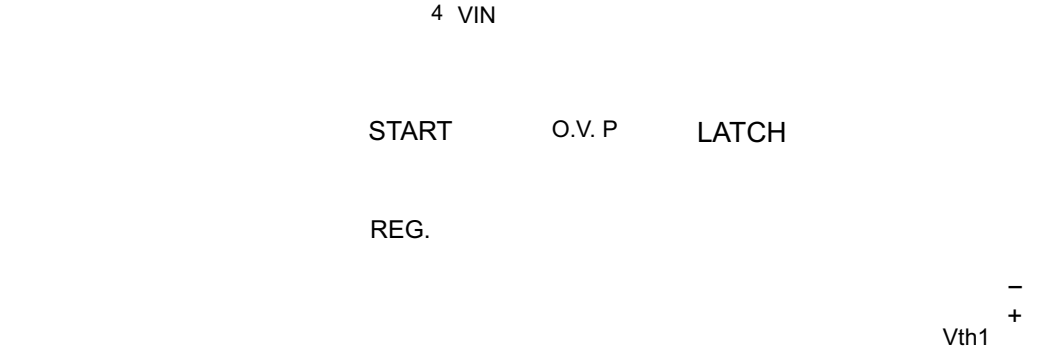
8. Vertical sync and vertical scan output circuits

in Table 4. (Use a fluke 87III digital multi-meter or other digital multi-meter.)
Table 4

No.	Function	Working Voltage (V)
1	GROUND	0
2	VERTICAL SCAN WAVE OUTPUT	13.66
3	POWER VCC2	25.5
4	REFERENCE	3.28
5	VERTICAL RAMP WAVE INPUT	3.28
6	POWER VCC1	25.2
7	PUMP UP OUT	2.38

9. Power circuit

The installed switching mode power source is a typical autonomous pulse switc
power source. The circuits are comprised of power hybrid IC N501 (STR-G965
switching mode transformer T501 (Bridge-rectifier components).
power switch is on, the pulse voltage of the 220V voltage rectified by VD502,
which is the same function as the Bridge-rectifier circuit, is filtered by the
capacitor C507 to obtain +300V direct current, which is added through (3)-(7) o
the switching mode transformer T501 to the drain polar of IC N501.Primary coil
1-2 provides a power supply to pin 4. The coupler N503 (HS817B/C) functions
control voltage, and the voltage tolerance information from C561 are transmitte
to pin 5 of N501 to control the switch velocity and hold the output voltage normal.
The pulse voltage output from the secondary of the switching mode transforme
T501, rectified and filtered by diodes and capacitor to come into being a serial
direct current voltages. The main supply voltage output from pin 9 is 125~130V
The 13V voltage output from pin 12 is regulate by V556, N504 and N505 to come
into being 9V and 5V. The voltage of VT(33V DC) comes from the main voltage
through R570.
The inner part of the STR-G9656 are as follows:



The video amplifying circuits supply voltage output from pin 10 of the T401(FBT-E is 180V~200V. After VD406 and C462, 180V is transmitted to the CRT printed circ board by one shield wire.

The vertical scan supply voltage for N301 output from pin 8 of T401(FBT- is 27V.

At the left side of the main printed board, there is one small printed board, wh is the second power circuit. This circuit supplies 32V DC power for audio amplifier N601(LA4282). From the main printed board at XP505 to the CA60 the left small printed board, there is one line, supplying the 300V DC pow the small print board. The left small printed board works basically the sam the main printed board's power circuit, but it uses STR-G6353, not STR-G The STR-G6353 works the same as the STR-G9656. Every pin is the sam definition as the STR-G9656. Please refer to the STR-G9656.

The left small printed board provides 32V and 36V DC power. The 32V is N601 (LA4282), which is used to amplify L and R audio signal, and the 36 is N602(LA4282), which is used to amplify bass signal. In the 29F9K (Indian only have N601(LA4282), the bass signal is not demand, so only 32V DC po is necessary. If the 36V DC at RA609 is hang in the air, the voltage will rise to more than 50 V, which will result in the damage of the STR-G6353. So, we u one resistor (1/2W-10K) to connect the DC power and the GND.

10. E-W output circuit：

HAIER8829A-V1.0 provide E-W control signal at pin 28. Parabolic waveform signal from pin 28 will be send to output circuit consist with V426, V421, v423, L421.All the horizontal distortion alignment will be implement via I2c bus.

B. Chip introduction

1. Definition of every pin of HAIER8829A-V1.0

Step	Function

9	+5 VCC
10	GND
11	SIGNAL GND
12	HORIZONTAL SYNC SIGNAL INPUT
13	HORIZONTAL PULSE SIGNAL OUTPUT
14	HORIZONTAL AFC
15	VERTICAL SIGNAL PRODUCE LOCATION
16	VERTICAL PULSE SIGNAL OUTPUT
17	HORIZONTAL VCC
18	GND
19	Cb SIGNAL INPUT
20	Y SIGNAL INPUT
21	Cr SIGNAL INPUT
22	TV GND
23	COLOR SIGNAL INPUT
24	EXTERIOR VEDIO SIGNAL INPUT
25	TV VCC
26	NC
27	AUTOMATIC BRIGHT CONTROL
28	E-W SIGNAL OUTPUT
29	IF VCC
30	TV OUTPUT
31	SECOND AUDIO OUTPUT
32	EFT
33	SECOND AUDIO SIGNAL INPUT
34	DC FEEDBACK
35	PIF PLL
36	+5 VCC
37	FLITE RIPPLE
38	AUDIO SIGNAL OUTPUT
39	IF AGC
40	IF GND
41	IF INPUT
42	IF INPUT
43	RF AGC
44	Y/C VCC +5
45	SVM SWITCH CIRCUIT
46	BLACK EXTEND
47	APC FILTER

57	I^2C SERIAL BUS DATA LINE SDA1
58	I^2C SERIAL BUS COLOCK LINE SCL1
59	SDA2
60	NC
61	SCL2
62	VIDEO SYNC SIGNAL INPUT
63	REMOTE CONTROL INPUT
64	SLEEP CONTROL

2. Definition of every pin of the LA7841

No.	Function	Workin Voltage
1	GROUND	0
2	VERTICAL SCAN WAVE OUTPUT	13.66
3	POWER VCC2	25.5
4	REFERENCE	3.28
5	VERTICAL RAMP WAVE INPUT	3.28
6	POWER VCC1	25.2
7	PUMP UP OUT	2.38

3. Definition of every pin of the TC90L01

STEP	FUNCTION	STEP	FUNCTION
1	Inner audio L signal input	13	SDA
2	Inner video signal input	14	SCL
3	Inner audio R signal input	15	GND
4	AV1 video signal input	16	Inner audio R signal output
5	AV1 audio L signal input	17	Inner audio L signal output
6	S-video C signal input	18	Y signal/video output
7	AV1 audio R signal input	19	Color system select switch

4. Definition of every pin of the TA8256BH

STEP	FUNCTION	STEP	FUNCTION
1	IN(W)	7	MUTE T.C
2	IN(R)	8	OUT(L)
3	PRE-GND	9	VCC
4	IN(L)	10	POWER-GND
5	MUTE	11	OUT(W)
6	RIPPLE-FILTER	12	OUT(R)

5. Definition of every pin of the 24LC08

STEP	FUNCTION	STEP	FUNCTION
1	A0	5	SDA
2	A1	6	SCL
3	A2	7	TEST
4	VSS	8	VCC

C Service mode menu alignment structure

1. Factory adjustment information

Press CH- and CH+ buttons to select items for adjustment.

Press VOL- and VOL+ buttons to adjust selected items.

Press the button (POWER) to switch off the appliance and go back
normal state.

Maintenance menu

Item	Specifications	
OSD	OSD	0
OPT	OPTION，	2
RCUT	R CUT OFF	2
GCUT	G CUT OFF	2
BCUT	B CUT OFF	2
GDRV	G DRIVE	4
BDRV	B DRIVE	4
CNTX	SUB CONTRAST MAX	3
BRTC	SUB BRIGHT CENTER	4
COLC	SUB COLOR CENTER FOR NTSC	4
TNTC	SUB TINT CENTER	4
COLP	SUB COLOR CENTER FOR PAL	0
COLS	SUB COLOR CENTER FOR SECAM	4
DCOL	DVD	
SCOL	Cr input gain up 000-111：0dB；1.1 dB；1.9 dB；2.5 dB； 3.0 dB；3.3 dB；3.6 dB；3.9 dB；	
SCNT	Y-SUB CONTRAST	0
CNTC	SUB CONTRASRT CENTER	2
CNTN	SUB CONTRASRT MINIMUM	0
BRTX	SUB BRIGHT MAX	2
BRTN	SUB BRIGHT MINIMUM	2
COLX	SUB COLOR MAX	3
COLN	SUB COLOR MINIMUM	0
TNTX	SUB TINT MAX	2
TNTN	SUB TINT MINIMUM	2
ST3	SUB SHARP CENTER NTSC3.58 IN TV	2
SV3	SUB SHARP CENTER NTSC3.58 IN VIDEO	2
ST4	SUB SHARP CENTER OTHER COLOR SYSTEM IN TV	2
SV4	SUB SHARP CENTER OTHER COLOR SYSTEM IN VIDEO	2
SVD	SUB SHARP CENTER IN DVD (00-3F)	1
ASSH	ASYMMETRY – SHARPNESS	0
SHPX	SUB SHARPNESS MAX POINTS FROM CENTER VALUE	1

CLVD	The data when YVU mode & SOUND SYS = M	4
OPT2	IF:38.9	1
AKB	00:AKB off;01:ACB (cut off : align to targets);10:ADB(drive : align to targets);11:AKB (cut off / drive : align to targets)	0
SECD	Secam mode BIT0:S-ID Sens ; BIT1:Bell fo ; BIT2:S-ID Mode ; BIT3:S-GP phase	0
HPOS	50HZ HORIZONTAL PHASE 50HZ	1
VP50	50 HZ VERTICAL PHASE 50HZ	0
HIT	50HZ VERTICAL AMPLITUDE 50HZ	2
HPS	SHIFT DAT OF 60HZ HORIZONTAL PHASE	0
VP60	60HZ VERTICAL PHASE	0
HITS	SHIFT DATA OF 50/60 HZ HORIZONTAL PHASE	0
VLIN	V-LINEARITY	0
VSC	V-S CORRECTION	6
VLIS	V-LINEARITY	F
VSS	V-S CORRECTION	
DPC	50HZ E-W PARABOLA	0
DPCS	60HZ E-W PARABOLA	0
KEY	50HZ TRAPEZIUM	0
KEYS	60HZ TRAPEZIUM	0
WID	50HZ PICTURE WIDTH	0
WIDS	60HZ PICTURE WIDTH	0
ECCT	EW-CORNER CORRECTION(TOP)	
ECCB	EW-CORNER CORRECTION(BOTTOM)	
VEHT		0
HEHT		0
SBY	SECAM B-Y	0
SRY	SECAM R-Y	0
BRTS	SUB BRIGHT	0

Attention: The default value is not inevitably right. If you need the right data, please contac
our overseas market service department.
If not inevitable, please do not change the data in the D mode.

D . The schedule of the main circuit :

VI. ELECTRICAL ADJUSTMENT

A. Safety precautions

1. It is safe to adjust after using insulating transformer between the power sup
   line and chassis input to prevent the risk of electric shock and protect the
   instrument.

2. Never disconnect leads while the TV receiver is on.

3. Don't short any portion of circuits while power is on.

4. The adjustment must be done by the correct appliances. But this is change
   in view of productivity.

B. Adjustment procedure

The chassis of this TV set uses Toshiba single chip IC with the latest digital bu
processing technology. The adjustment points are fewer and the adjustment is
simpler. The adjustment method is as follows:

1. Screen VR adjustment

1) Receive special.

2) Press picture select on remote controller to enter dynamic pattern.

3) Adjust screen vr until bright is suitable.

2. Adjustment of vertical and horizontal positions

1) Receiver PAL system "MONO SCOPE" signal.

2) Adjust "HPOS" bus data to make horizontal position in the center of the screen

3) Adjust "VP50" bus data to make vertical position in the center of the screen.

3. Adjustment of vertical and horizontal ampl

1) Receive PAL system "MONO SCOPE" signal.

2) Adjust "WID" bus data to make "MONO SCOPE" signal vertical weight rate is "

5. CUT OFF adjustment

1) Receiver PAL system "MONO SCOPE" signal, warm up the TV set for 15 min.

2) The control terms of adjustment are as follows: color=0; bright=50; contras
gradient=100.

3) Confirm bus data: RCUT=20; BCUT=20; GCUT=20; GDRV-40; BDRV=40.

4) Press RGB VP button on factory remote controller to let the horizontal line
appears.

5) Adjust SCREEN VR to make the solid color horizontal line just appears.

6) According this color as benchmark, adjust other two colors bus data (CUT
to make horizontal line turn to white.

6. White balance adjustment

1) Receive white-up and black-down signal.

2) Set color=0; bright=50; contrast gradient=100.

4) Warm up the TV set over 7 minutes.

5) Paste white balance probe on the center of screen tightly.

6) Adjust bus data RCUT, BCUT, GCUT, BDRV, GDRV to receive benchmark
demand.

7. Adjustment of frame linearity and frame "S" correcting

1) Receive square signal.

2) Set bright=50; contrast gradient =50.

3) Adjust bus data to make frame nonlinear distortion be less than eight perce
(PAL system VLIN; NTSC system VLIS).

4) Adjust bus data VSC to make frame "S" distortion reduce to undermost.

8. Adjustment of frame center and ampl

1) Receive "MONO SCOPE' signal.

2) Set bright=50; contrast gradient=100;

3) Adjust bus data to make frame center deviation be less than one percent (

1) Receive "STAR STEP" signal.

2) Set color=50; contrast gradient=100; bright=50.

3) Adjust bus "BRTC" data to make "STAIR STEP" fore four paragraphs just not b
distincted.

4) Vice bright after adjustment should satisfy to make "STAIR STEP" black cla
be in 4±1.5 clause.

11. Adjustment of pincushion distortion

1) Receive "MONO SCOPE" signal.

2) Set bright=50; contrast gradient=100.

3) Adjust bus data to make line weight rate be "5" (PAL system "WID"; NTSC
system "WIDS").

4) Receive square signal.

5) Set bright=50; contrast gradient=50.

6) Adjust bus including pulvinar (PAL system "DPC"; NTSC system "DPCS "),
trapezium (PAL system "KEY"; NTSC system "KEYS"),vertex angle (CNR) re
data to make vertical geometric distortion reduce to undermost.

7) Check to see if line size receive demand.

11. Check NICAM and German stereo/double accompanying sound

1) Receive "Philips color card" signal, check to see if NICAM be normal.

2) Receive square signal, check to see if German stereo/double accompanying s
normal.

VII. INFORMATION OF RESISTORS CAPACITORS

RESISTORS & CAPACITORS-PARTS NO.CODE

Notes: 1.part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2.The unit of resistance is Ω(ohm).K=1000Ω,M=1000KΩ
3.The unit of capacitance is μF(microfarad). P=10^{-6}μF.

Numbering system of Capacitor

Example

CL42 ----- 17 ---- 50V ---- 2F4 ---- 104 * ---- Z
Type Voltage Value(PF) Toleance
CL21X ---- 100V ---- 223 * ---- J
Type Voltage Value(PF) Toleance
CL110X ---- 25V ---- 100μF ± 20%
Type Voltage Value Toleance * 104 =1
$\times 10^{3}$

Numbering system of Capacitor

Eaxmple

RY17S ---- 2W ---- 390 ---- J ---- 05-E-A
Type Wattage Value(Ω) Toleance
RS11 ---- 1/2W ---- 1.8K ---- K
Type Wattage Value Toleance

ABBREVIATION OF PART NAME AND DESCRIPTION

CAPACITOR

	PART NAME & DESCRIPT		
	TYPE		ALL
C	Ceramic	J	±5%
T	Ceramic	K	±10%
L	Film	L	±15%
D	Electroytic	M	±20%
A	Tantalum	P	+100

RESISTOR

PART NAME & DESCRIPTION

TYPE		ALLOWANCE	
T	Carbon	F	±1%
S	Solid	J	±5%
J	Metal	K	±10%
Y	Oxide	M	±20%
F	Fuse	G	±2%

Terminal view of transistors

E C B

2SC4544----B-A
2SB1569A-E----B-A EXPORT
2SP2400A-E----B-A EXPORT
2SC3853(2SC3852)----E-A
3DD2553----B-A
3CA688----E-A
2SC3853(2SC3852)----B-A

2SD18887YD

B C E

KSR1010TA
KSR2010TA

2SC1815-Y------
2SA1015-Y------
2SC752GTM-Y-
2SC2878-A(TE
RN1204(DTC14
2SA562TM-Y----
2SC3355------F

VIII DAMAGEABLE PARTS LIST

Part specialized code	Name of part	Type name	Circuit diagram
0094005099	CRT	A68QCP693X001	CRT
0094000230	POWER SWITCH	KDC-A04-8A	SW601
0090400437	POWER LINE	JPRVVZ252DJBQ	
0094101090	RESISTOR	RS11-1/2W-12MΩ ±20%	R532
0094101290	RESISTOR	RF10-1W-1Ω±5%	R566
0094101340	RESISTOR	RF10-2W-4.7Ω±5%	R327
0094102506	RESISTOR	RF10-2W-2.2Ω±5%	R929
0094201331	CAPACITANCE	2200pF-M-AC400V-10	C533
0094200840	CAPACITANCE	DE0910E102M-KX-10	CD10
0094500943	FBT	FBT-B-19	T401
0094500858	SWITCH TRANSFORMER	BCK-08A6D	T501
0094000012	FUSE	T4A/250V	F501
0091801012	THE MAIN PRINTED BOARD	PA-2018-----Q	
0094501314	DEMAGNETIZE WINDING	HXC-74J	
0090205448	THE OUTSIDE COVER	MTAA3152AC--Q	
0094200105	CAPACITANCE	ECQU2A104MV-15	C501,C502
0094400036	optoelectronic coupler	PC817B	N503,ND03
0094300290	CRT outlet	GZS10-2-AC2-DG	XS904

Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road