



SERVICE MANUAL

HSM515AV

51CM CTV

Hisense UOC 2004-10-15

21" & 14" Color TV Service Manual

Catalogue

1. Technology Specification and Feature.....	Page 1
2. The IC list	Page 2
3. Signal process.....	Page 2
4. The horizontal and vertical circuit.....	Page 3
5. Power supply.....	Page 3
6. Appendix 1.....	Page 4
7. Appendix 2.....	Page 9

1 . Technology Specification and Feature

I²C Bus Control

Auto Search

Off/On Timer

Rated Voltage: AC 140V-250V 50Hz/60Hz

Sound output: 5 W×2

Screen size Picture tube 54 cm

System: Color Sound

RF PAL B.G

AV NTSC

Channel coverage: VHF Low channel (VL) =48.25 to 147.25 MHz

VHF high channel (VH) =154.25 to 463.25 MHz

UHF channel U) =471.25 to 863.25 MHz

IF 38.9MHz

External input/output Video/Audio(L/R)2 set input

S-Video input

YUV input

Video/Audio(L/R) 1 set output

2. IC list

Table 1, the main IC and functions

Number	Function	IC	Remark
1	Power supply	KA5Q0765RT	N611
2	CPU + SIGNAL PROCESSER	OM8370/TDA9370	N301
3	Field driver	STV9302A	N401
4	Sound driver	AN7522N	N161
5	AV SWITCH	TC4052BP	N801 (Video) N121(sound)
6	Memory	AT24C08	N702
7	Photo-coupler	HS817B	N504
8	IR-receiver	HS0038A	N1503
9	8V Regulator	L7808CV	N503
10	5V Regulator	L7805CV	N505

3. Signal process

The TV signal enters into tuner (A201) from cable or antenna. Pin 10 and pin 11 of N301 are combined to select the band. Pin 4 of N301 outputs PWM tuning signal. The 38.9MHz IF signal is coupled to V308 (pre-amplify) and then to SAWF (Z301). After processed in the SAWF, the 38.9MHz signal gets to pin 23 and pin 24 of OM8370. The IF circuit in OM8370 includes such unit as the AGC amplifying circuit, 38.9MHz oscillator, PLL video demodulator, video amplifier, IF identify circuit and AFT circuit. The demodulated signal (CVBS) comes from the pin 38 of OM8370, the sound signal comes from the pin 44.

The internal CVBS signal needs norm identification then outputs from pin 38 of OM8370, via the trap circuit (composed of the V351, Z351, Z354,V352 and so on) feeds back to the pin 40 of OM8370. The RGB signal comes from pin51, Pin52, Pin53 of OM8370, and outputs to the CRT board.

The internal sound signal comes from pin 44 of OM8370 and then input to pin 1 and pin 12 of HEF4052BP. The sound signals from RF and AV are selected in it. The selected signal is output from Pin 3 and pin13, then input AN7522N(sound emplifier) or output from AV terminals.

4. Horizontal and vertical circuit:

Through Synchronous separating circuit, the video signal is divided into horizontal-Synchronizing signal and Vertical-Synchronizing signal. The horizontal-Sync pulse coming from pin 33 is transferred to the horizontal-drive transistor.

The cathode driving voltage 180V vertical drive voltage +15V and –15V are all generated from FBT.

The vertical sawtooth waveform is generated on the pin 21 and 22, and then enters the vertical amplifier STV9302A.

STV9302A is a 7 pins vertical deflection circuit (2 Amperes) for DC-coupled 90° or 110° deflection systems with frame frequencies from 50 up to 120 Hz. one supply voltage for the scanning and second voltage supply for the flyback are needed.

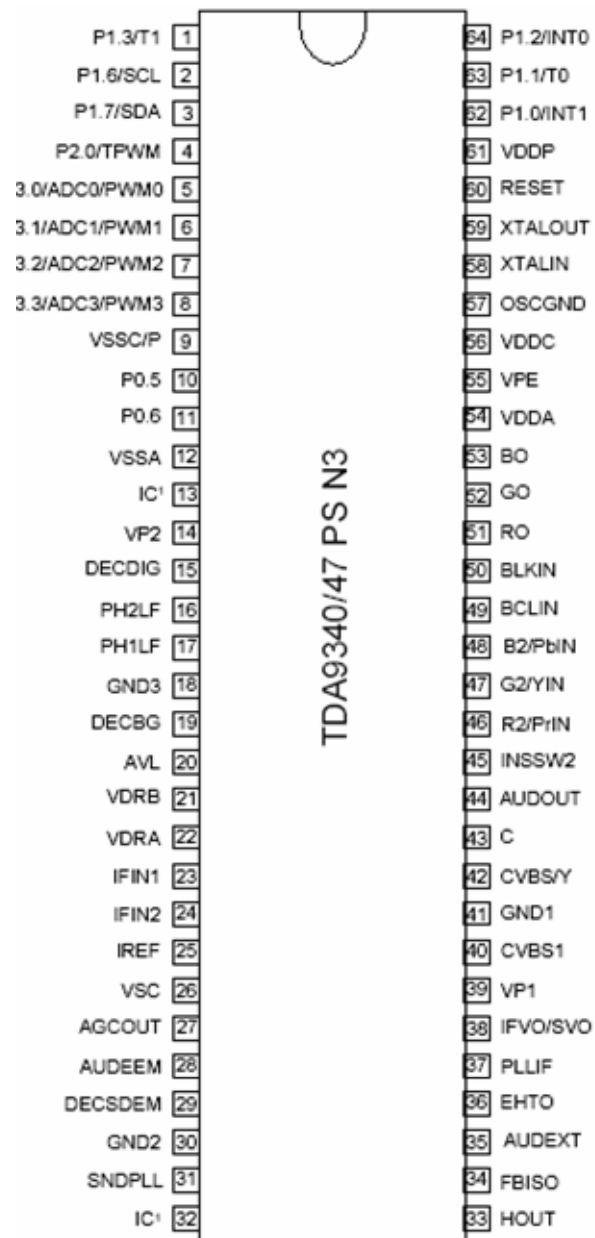
The vertical drive currents of OM8370 pins 21 and 22 are connected to input pins 1 and 7 of STV9302A. The vertical scanning output is coming from pin 5 and feed back to pin 1 by R405. The supply voltage is $\pm 15\text{V}$ at pin 2 and pin 4. C406 is the pump capacitor.

5. Power supply

The IC of KA5Q0765RT is adapted in this chassis; it is the product of Fairchild. It supplies four DC voltages, one is the $+B = 110\text{V}$, another is $H_{cc} = 26\text{V}$, the third is 13V (the sound drive voltage), the fourth is +16V. The +16V can generate the +8V, +5V and +3.3V by the special generators.

Appendix 1: IC illustration

Fig.1 OM8370 illustration



Pin1: Standby control,“ 1” is on,“ 0” is off.

Pin2: SCL.

Pin3: SDA.

Pin4: Tuning PWM output.

Pin5: Auto AV control SW, connected with the SCART 8th pin. Input. The rising edge or the falling edge operates.

Pin6: Key board input.

Pin7: Volume

Pin8: Mute control, “ 1 ” is mute, “ 0 ” is off.

Pin9: Pin12、 Pin18、 Pin30、 Pin35、 Pin41、 Pin55: GND.

Pin10: BAND1 control output.

Pin11: BAND2

Pin13: SECAM PLL, connected with a capacitance (No use in this type).

Pin14: +8V power source supply.

Pin15: Using a capacitor of 220n in series to GND, This pin decouples the internal digital supply voltage of the video processor and minimizes the disturbance to the sensitive analogue parts.

Pin16: Phase-2 control loop, this pin requires a capacitor at 2.2nF (C) in series to GND.

Pin17: Phase-1 control loop, the loop filter connected to pin 17 is suitable for various signal conditions like strong/weak and VCR signal. This is achieved by switching of the loop filter time constant by changing the Phase-1 output current.

Pin18: GND.

Pin19: Bandgap decoupling, the bandgap circuit provides a very stable and temperature independent reference voltage. This reference voltage (4.0 V) ensures optimal performance of the analogue video processor part of the OM8370 and is used in almost all functional circuit blocks.

Pin20: East-west pillow signal output.

Pin21: Pin22 : Vertical drive output.

Pin23: Pin24 : IF input.

Pin25: Reference current, This pin requires a resistor to ground. The optimal reference current is 100mA which is determined by this resistor. The 100mA reference current should not be changed because the geometry processor is optimised for this current. Furthermore the output current of vertical drive and EW are proportional to this current.

Pin26: Vertical sawtooth, This pin requires a capacitor to ground of 100nF

Pin27: AGC output. This output is used to control (reduce) the tuner gain for strong RF signals.

Pin28: Audio de-emphasis.

Pin29: Sound decoupling. This pin requires a capacitor connected to ground. The pin acts as a low pass filter needed for the DC feedback loop.

Pin30: GND.

Pin31: Sound loop filter.

Pin32: AVL filter.

Pin33: Horizontal drive signal output, needs a resistor in series to +8V.

Pin34: Sandcastle output/flyback input,

Pin35: External audio input, this pin should be grounded in this chassis.

Pin36: EHT tracking/ overvoltage protection. If something is wrong, the anode high voltage rises, the heater voltage will rise too. When the rising voltage arrive some limit, the V406 works, the voltage of pin 36 will exceed 3.9V, the OM8370 will stop working.

Pin37: PLL loop filter.

Pin38: CVBS output. Monitor or RF videos can be selected.

Pin39: +8V supply source.

Pin40: CVBS input

Pin42: Y signal input.

Pin43: C signal input.

Pin44: Main audio output, this pin is connected to the TDA9859.

Pin45: RGB signal input blanking.

Pin46, Pin47, Pin48: RGB signal input.

Pin49: ABL. It means beam current limiter input. R410 is the control resistor.

Pin50: Beam current input from the CRT board.

Pin51, Pin52, Pin53: RGB drive signal output to the CRT board.

Pin54: +3.3V.

Pin55: GND.

Pin56: +3.3V.

Pin57, Pin58, Pin59: 12MHz crystal.

Pin60: Reset, NC in this chassis.

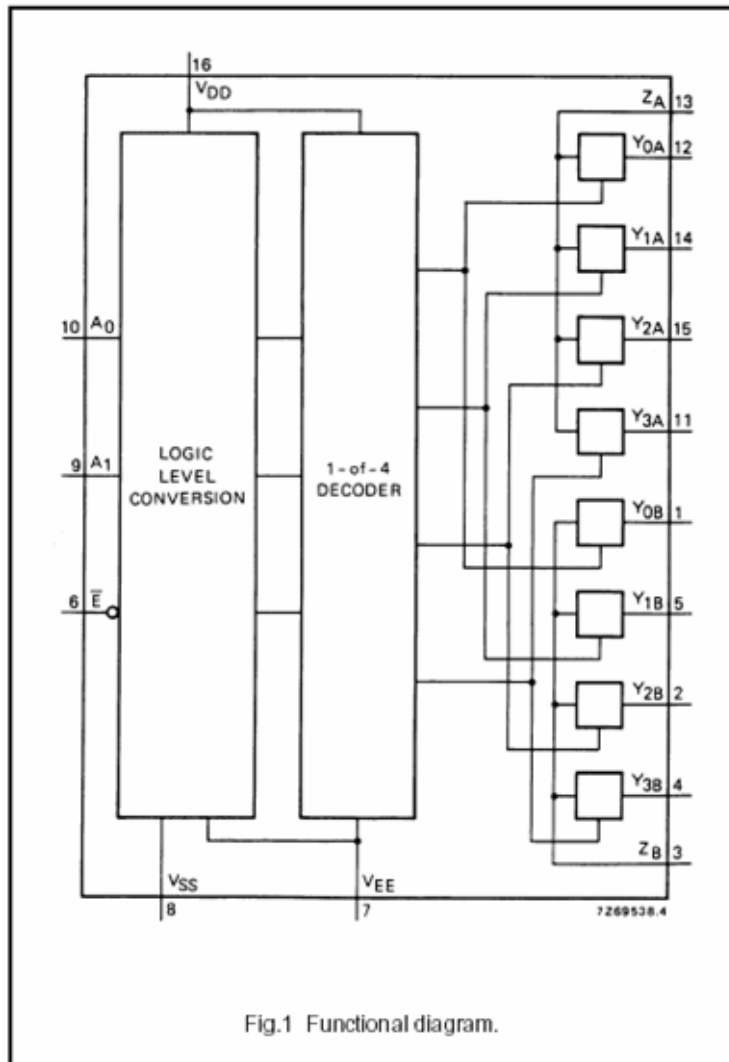
Pin61: +3.3V

Pin62: NC.

Pin63: This pin is connected to the HEF4094, Functions expanding.

Pin64: IR signal input.

Fig.2 HEF4052BP illustration



FUNCTION TABLE

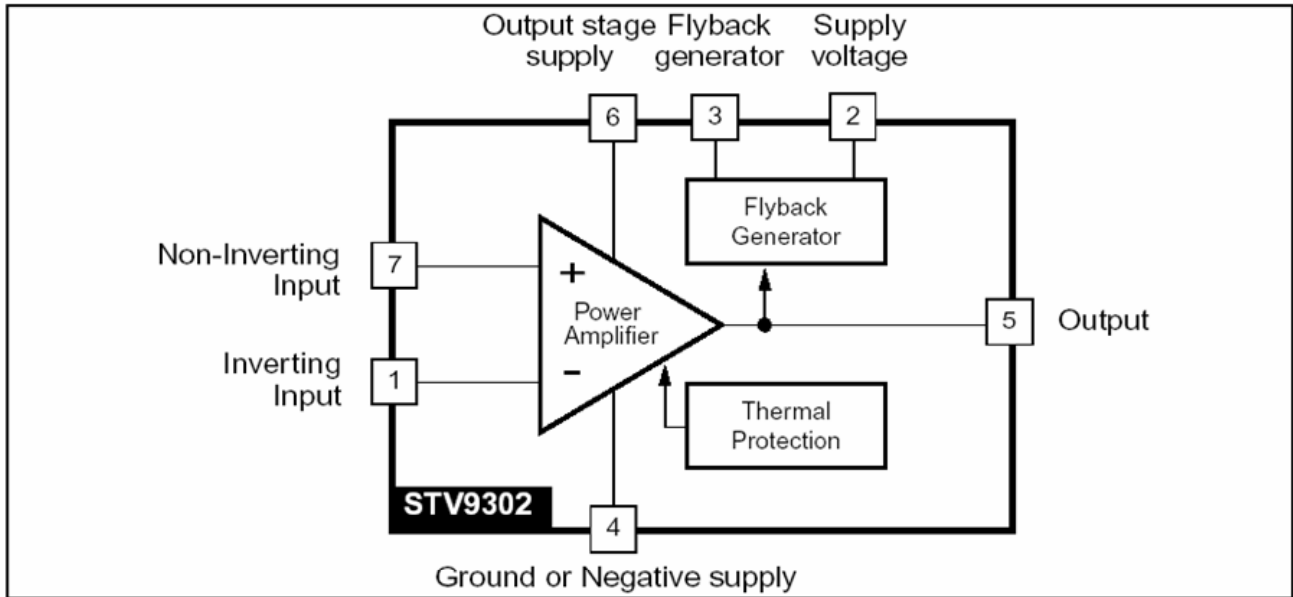
INPUTS			CHANNEL ON
\bar{E}	A_1	A_0	
L	L	L	$Y_{0A}-Z_A; Y_{0B}-Z_B$
L	L	H	$Y_{1A}-Z_A; Y_{1B}-Z_B$
L	H	L	$Y_{2A}-Z_A; Y_{2B}-Z_B$
L	H	H	$Y_{3A}-Z_A; Y_{3B}-Z_B$
H	X	X	none

Notes

1. H = HIGH state (the more positive voltage)
L = LOW state (the less positive voltage)
X = state is immaterial

Fig. 3 STV9302A illustration

BLOCK DIAGRAM



- | | | | |
|---|-----------------|---|------------------|
| 1 | INVERTING INPUT | 5 | VER OUTPUT |
| 2 | Vcc | 6 | OUTPUT STAGE VCC |
| 3 | PUMP UP OUT | 7 | NON INV.PUT |
| 4 | GND | | |

Fig. 4 AN7522N illustration

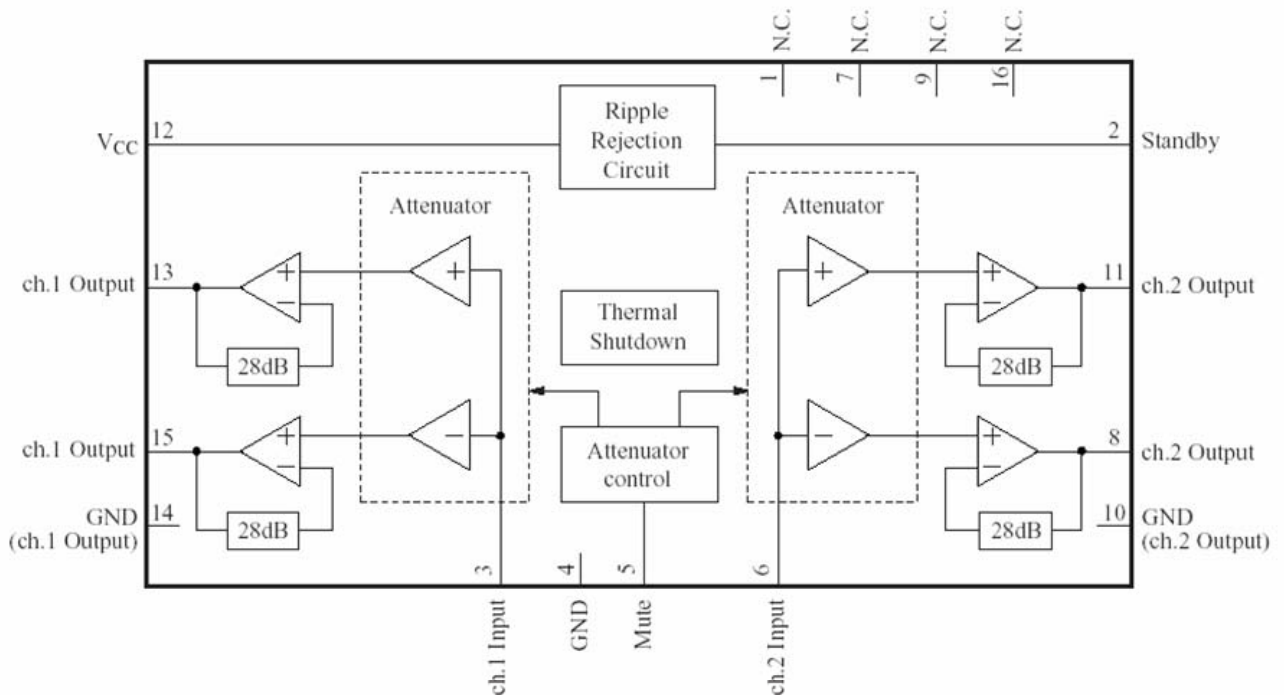
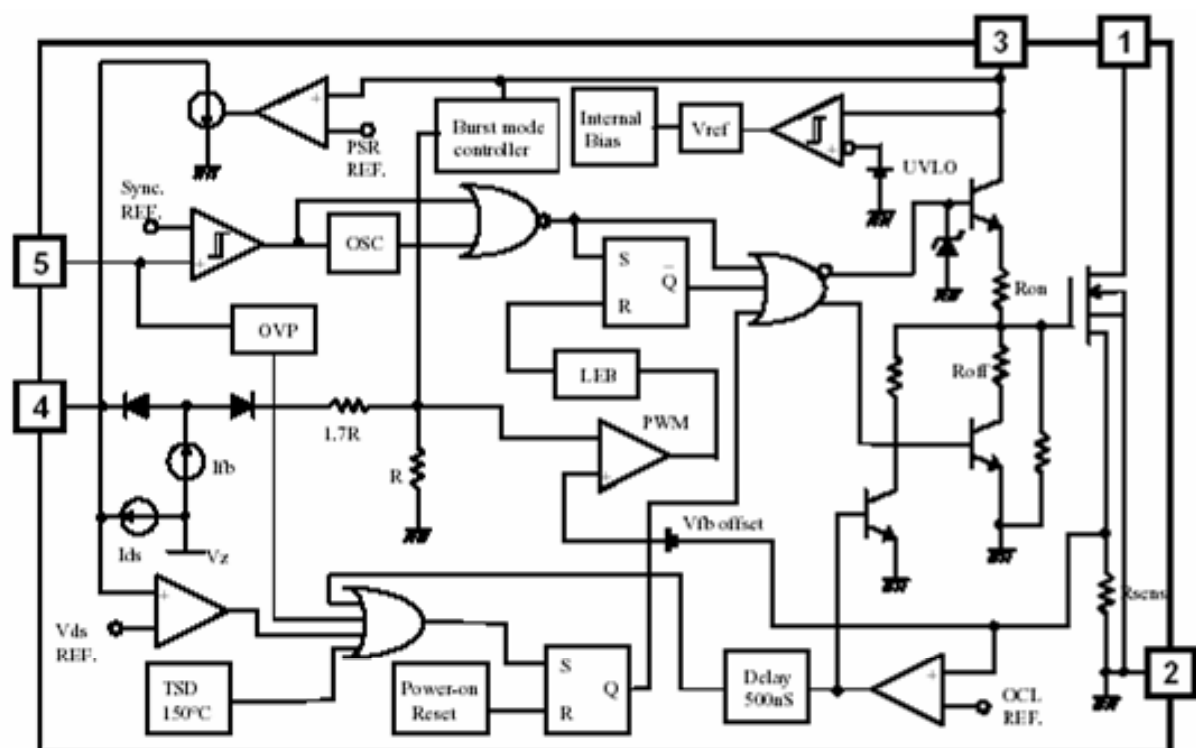


Fig. 5 KA5Q0765RT illustration



Appendix 2: ADJUST METHOD

6.1 Main power +B setting

Receive standard color pattern RF signal , set picture to “ Standard Mode” . Adjust VR501 , to get +B (VD542 -) voltage =110 V

6.2 I²C bus control adjustment method:

How to enter and exit factory mode(with customer's remote controller)

- 1.Press [menu] key → display picture menu
- 2.Press digital key “ 6” “ 4” “ 8” “ 3” → display “ M” .

Push [standby] key **one time** to exit factory mode and return to normal.

How to select menus in factory mode:

In factory mode (“M” mode), there are ten menus totally. Menu1 to Menu4 can be selected directly, but Menu 5 to Menu0 must be select by these steps:

1. Press “CALL ”key, to call “M”.
2. Press “LOCK” key, then press any one numeric key from 5 to 0.

For example, to select Menu 7, you should press “call” key and LOCK key in turns, then press the numeric key 7.

Menu function introduction:

Menu 1

ITEM	Preset value		Definition
	50Hz	60Hz	
V SLOPE	32	32	Vertical linearity
V SHIFT	32	32	Vertical position
V SIZE	32	32	Vertical size
V SC	32	32	Vertical S correction
H SHIFT	32	32	Horizontal position

Menu2

ITEM	Preset value	Definition
RF AGC	20	RF AGC adjust, when the signal is poor, you can decrease the value to increase the gain
SHIPPING		For factory use

Menu3

ITEM	Preset value	Definition
BT	75	Bright in W/B mode
CT	75	Contrast in W/B mode
SC		Screen mode (press VOL+/- or CH+/- key to enter or exit). Adjust Screen knob on FBT to adjust the bright of the line
RB	32	Red bias adjust
GB	32	Green bias adjust
RD	32	Red drive adjust
GD	32	Green drive adjust
BD	32	Blue drive adjust
SB	40	Sub-bright adjust

Note:

1.BT/CT can not be remembered.

2.RB/GB/RD/GD/BD/SB can be remembered.

Menu4

ITEM	Preset value		Definition
	50Hz	60Hz	
OSD V	32		OSD vertical position
OSD H	32		OSD horizontal position

Menu5

ITEM	Preset value	Definition
MODE	STANDARD	Picture mode selection You can select four modes: STANDARD, VIVID, MILD and USER
BRIGHT	75	Preset Bright value for the mode you have selected above
CONTRAST	75	Preset contrast value
COLOR	50	Preset color value
SHARP	50	Preset sharpness value f
SC BRIGHT	20	Preset bright value for screen mode
COOL	10	The offset in cool mode
WARM	10	The offset in bright mode
Y DELAY PAL	8	Y signal delay in PAL system
Y DELAY NTSC	8	Y signal delay in NTSC system
Y DELAY AV	8	Y signal delay in AV mode

Menu6

ITEM	Preset value	Definition
OSO	1	Overscan Switch Off. 0: not available 1: available
AGC SPEED	1	0:slow AGC action. IF-AGC capacitor is 3.1uF. 1: normal. IF-AGC capacitor is 2.2uF. 2:fast AGC action. 3 times speed than normal 3:fast AGC action. 6 times speed than nomal.
FFI	0	Fast Filter IFPLL. 0:Normal, 1: Fast
FSL	0	
FMWS	0	FM search Window width 0:±225KHz 1: ±450KHz
RPO	1	
NTSC MATRIX	0	0: JAPAN 1: USA
IFS REDUCE	0	0: Decrease the sensitivity of If while search 1:Not decrease the sensitivity of IF while search
VOL PIN	0	0: OC gate output 1 : PULL-PUSH output
SOFT CLIP	0	
PEAK WHITE	0	
CORING	0	

Menu7

ITEM	Preset value	Definition
IFFS	38.9MHz	IF Frequency Selection
DK	OFF	DK system selection
I	OFF	I system selection
BG	ON	BG system selection
M	OFF	M system selection
SIF PRI	ON	SIF Priority
AV2	ON	AV2 selection
S-VIDEO	ON	S-video selection
YUV	ON	YUV selection
VOL ADJ POINT	1	VOL curve point selection
VOL ADJ VALUE	10	VOL curve value adjusting on the selected point

Menu8

ITEM	Preset value	Definition
CATHODE	4	Cathode adjusting. From 0 to 15
UOC VOL	0	Must be 0. When set 1, AV volume will be abnormal
FM ATT	45	UOC output volume adjusting. From 0-63
CHINESE	1	Chinese OSD selection

Menu9

ITEM	Preset value	Definition
BAND	2	Must be 2 according to the TUNER
START ON	0	0: Last memory mode: TV_mode 1 : Power on standby mode
LOGO	OFF	No use
ON DELAY	10	Power on delay time adjust
ON DELAY M	5	Preset on delay time
CURTAIN	OFF	
OSD FORM	0	From 0 to 3
AV MEM	0N	AV memory
BLUE SCREEN	ON	Off: Black screen On: Blue screen
S-VHS SW	1/0	S-VHS switch 0: S-VHS is independent 1: S-VHS is paralleled to AV1
OFF-SET	32	IF demodulator OFF-SET value. The default value is 32.

Menu0

ITEM	Preset value	Definition
SUB CON	63	SUB CONTRAST
SUB COLOR	63	
SUB SHARP	63	
SUB TINT	63	
FS MODE	0	FS TUNER (No use)
FS-VL-H	0	Frequency point setting in FS MODE (No use)
FS-VL-L	0	Frequency point setting in FS MODE (No use)
FS-VH-H	0	Frequency point setting in FS MODE (No use)
FS-VH-L	0	Frequency point setting in FS MODE (No use)

SN.	NAME	TYPE	QTY.	UNIT	LOCATION
1	MAIN PCB	PX20030-4C	1	PC	△A1/A2
2	CARBON FILM RESISTOR	RT13-1/6W-300R-J	1	PC	R913
3	CARBON FILM RESISTOR	RT13-1/6W-22R-J	1	PC	R914
4	CARBON FILM RESISTOR	RT13-1/6W-3K3-J	1	PC	R735
5	CARBON FILM RESISTOR	RT13-1/6W-10K-J	1	PC	R396
6	CARBON FILM RESISTOR	RT14-1/4W-100R-J	1	PC	R486
7	FUSE RESISTOR	RF10-1/2W-1R0-J	1	PC	R473B
8	FUSE RESISTOR	RF10-1W-R27-J	3	PC	R555 R565 R566
9	FUSE RESISTOR	RF10-1W-1R8-J	1	PC	△R480
10	FUSE RESISTOR	RF10-1W-R47-J	3	PC	△R165 R470 R472
11	METAL OXIDE FILM RESISTOR	RY26-1W-1K0-J	1	PC	R466
12	METAL OXIDE FILM RESISTOR	RY26-1W-1R2-J	1	PC	R406
13	METAL OXIDE FILM RESISTOR	RY26-1W-22R-J	1	PC	R300A
14	METAL OXIDE FILM RESISTOR	RY27-2W-5R6-J	1	PC	R941
15	METAL OXIDE FILM RESISTOR	RY27-2W-56R-J	1	PC	R530
16	METAL OXIDE FILM RESISTOR	RY27-2W-270R-J	2	PC	R454 R546
17	METAL OXIDE FILM RESISTOR	RY27-2W-10K-J	2	PC	R467 R703
18	METAL OXIDE FILM RESISTOR	RY27-2W-12K-J	3	PC	R915 R925 R935
19	METAL OXIDE FILM RESISTOR	RY27-2W-22K-J	1	PC	R556
20	METAL OXIDE FILM RESISTOR	RY27-6-5W-3R9-J	1	PC	R458
21	VARIABLE RESISTOR	WI06-2-2-20K	1	PC	VR501
22	CERAMIC CAPACITOR	CT1-50V-B-330p-K	1	PC	C911
23	CERAMIC CAPACITOR	CT1-50V-B-1000p-K	2	PC	C402 C481
24	CERAMIC CAPACITOR	CT1-50V-F-10n-Z	3	PC	C162 C302 C312
25	CERAMIC CAPACITOR	CT1-500V-B-100p-K	1	PC	C482

26	CERAMIC CAPACITOR	CT1-500V-B-1000p-K	1	PC	C452
27	CERAMIC CAPACITOR	CT1-500V-B-3900p-K	1	PC	C451
28	CERAMIC CAPACITOR	CT7-AC400V-B-470p-K	2	PC	△C515A C598
29	CERAMIC CAPACITOR	CT7-AC400V-E-1000p-M	1	PC	△C515
30	CERAMIC CAPACITOR	CT81-1KV-B-470p-K	1	PC	C529
31	CERAMIC CAPACITOR	CT81-1KV-B-1000p-K	4	PC	C503 C504 C505 C506
32	CERAMIC CAPACITOR	CT81-2KV-B-470p-K	2	PC	C543 C456
33	CERAMIC CAPACITOR	CT81-2KV-B-680p-K	1	PC	C527
34	CERAMIC CAPACITOR	CT81-2KV-E-1000p-K	2	PC	C512 C943
35	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-10u-M	2	PC	C307 C751
36	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-47u-M	1	PC	C723A
37	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-100u-M	1	PC	C361
38	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-25V-100u-M	1	PC	C471
39	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-25V-470u-M	1	PC	C161
40	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-25V-1000u-M	1	PC	C522
41	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-25V-2200u-M	1	PC	C524
42	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-35V-330u-M	1	PC	C530
43	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-1u0-M	3	PC	C153 C813 C825
44	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-2u2-M	1	PC	C755
45	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-160V-10u-M	1	PC	C458
46	ALUMINUM ELECTROLYTIC CAPACITOR	CD288-160V-100u-M	1	PC	C528B
47	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-250V-10u-M	2	PC	C477 C941
48	ALUMINUM ELECTROLYTIC CAPACITOR	CD293-400V-150u-M	1	PC	C507
49	POLESTER CAPACITOR	CL21X-63V-100n-J	1	PC	C338
50	POLESTER CAPACITOR	CL21X-63V-220n-J	3	PC	C331 C334 C404
51	POLESTER CAPACITOR	CL21X-100V-3n3-J	1	PC	C321

52	POLESTER CAPACITOR	CL21X-100V-33n-J	1	PC	C510
53	POLESTER CAPACITOR	CL21X-100V-100n-J	1	PC	C707
54	POLYPROPYLENE CAPACITOR	CBB62-AC250V-100n-J	1	PC	△C501 △C502
55	POLESTER CAPACITOR	CBB81-2KV-9n1-J	1	PC	C455
56	POLYPROPYLENE CAPACITOR	CBB21A-400V-470n-J	1	PC	C467
57	INDUCTOR	LGA0305-3u9-K	1	PC	L351
58	INDUCTOR	ZZ0008	2	PC	L450 L505
59	HORIZONTAL LINEAR INDUCTOR	AC0037	1	PC	L452
60	POWER FILTER	LCLI-5	1	PC	△L501
61	POWER FILTER	LCLII-5	1	PC	△L502
62	degaussing resistance	PTDCA1BF7R0Q200	1	PC	△PS501
63		NTC5D-15	1	PC	△R502
64	DIODE	1N4148	1	PC	VD911
65	DIODE	BAV21	3	PC	VD912 VD922 VD932
66	DIODE	FR105	1	PC	VD524
67	DIODE	FR204	1	PC	VD521
68	TRANSISTOR	2SA1015Y	1	PC	V171
69	TRANSISTOR	2SB1443 TV2 Q	1	PC	V542
70	TRANSISTOR	BF422	2	PC	V912 V932
71	TRANSISTOR	2SC2482	3	PC	V911 V921 V931
72	TRANSISTOR	TT2140	1	PC	V451
73	IC	AN7522N	1	PC	N161
74	IC	AT24C08	1	PC	N702
75	IC	CW574CS	1	PC	N703
76	IC	HEF4052BP	1	PC	N801
77	OPTO- COUPLER	HS817B	1	PC	△N504

78	IC	KA5Q0765RT	1	PC	N501
79	IC	L7805CV	1	PC	N505
80	IC	L7808CV	1	PC	N503
81	IC	STV9302	1	PC	N401
82	IC	TDA9370A---3NB	1	PC	N301
83	IC	HEF4052	1	PC	N121
84	TUNER	TELE4-823A	1	PC	A101(EMC)
85	FUSE	RT1-20-2.5A	1	PC	△F501
86	OSC	JA12D	1	PC	X761
87	SAW FILTER	HJ2909	1	PC	Z301(EMC)
88	CERAMIC FILTER	XT6.5M	1	PC	Z351
89	CERAMIC FILTER	XT5.5M	1	PC	Z354
90	CRT SOCKET	GZS10-2-AC3DR	1	PC	△XS901
91	HORIZONTAL DRIVE TRANSFORMER	TD-0004(BCT-5D)	1	PC	T450
92	FLYBACK TRANSFORMER	JF0501-19959	1	PC	△T451
93	POWER TRANSFORMER	BCK-70-01UB	1	PC	△T501
94	AV TERMINAL	S4	1	PC	XS861
95	AV TERMINAL	AV9-LY1	1	PC	XS801
96	BRACKET	EZ0106A	2	PC	F501A F501B
97	CONNECTOR	TJC3B-5Y-500	1	PC	XS902 XS903
98	SLOT	TJC1-10-2A	2	PC	XS501A XR502
99	SLOT	TJC2-7.5--2A	1	PC	XS502
100	SLOT	TJC2-5A-2	1	PC	XS403
101	SLOT	TJC3-5A	2	PC	XS402 XS301
102	SLOT	TJC3-6A	1	PC	XS895 (
103	SLOT	TJC3-4A	1	PC	XS161
104	SLOT	TJC3-3A	1	PC	U701

105	SLOT	TJC3-2A	1	PC	XS702
106	SLOT	TJC3-4A	2	PC	XS751
107	SLOT	TJC2-1A	1	PC	XS904
108	HEAT SINK	RSR7.308.0214	1	PC	N505
109	HEAT SINK	RSAG7.308.044	1	PC	N161
110	HEAT SINK	RSAG7.308.050	1	PC	H-N503
111	HEAT SINK	RSAG5.861.070	1	PC	H-V451
112	HEAT SINK	RSAG5.861.014-1	1	PC	H-N501
113	SCREW	SJ2832-87 ST3X8	1	PC	
114	SCREW	GB818 M2.5X12	1	PC	
115	SCREW	SJ2836-87 M3X12	2	PC	
116	SCREW	SJ2836-87 M3X8	3	PC	
117	SCREW	GB97.1-85 Φ 2.5	1	PC	
118	SCREW	GB6170-2000 M3	5	PC	
119	SCREW	GB6170-86 M2.5	1	PC	
120	CARBON FILM RESISTOR	RT13-1/6W-10R-J	3	PC	R312 R801 R871
121	CARBON FILM RESISTOR	RT13-1/6W-22R-J	2	PC	R924 R934
122	CARBON FILM RESISTOR	RT13-1/6W-33R-J	1	PC	R398 R806
123	CARBON FILM RESISTOR	RT13-1/6W-47R-J	5	PC	R368 R708 R911 R921 R931
124	CARBON FILM RESISTOR	RT13-1/6W-56R-J	1	PC	R355
125	CARBON FILM RESISTOR	RT13-1/6W-100R-J	19	PC	R301 R302 R354 R363
					R365 R366 R381 R382 R383 R401
					R402 R452 R723 R724 R743 R815
					R824 R861 R862
126	CARBON FILM RESISTOR	RT13-1/6W-68R-J	1	PC	R304
127	CARBON FILM RESISTOR	RT13-1/6W-75R-J	1	PC	R805
128	CARBON FILM RESISTOR	RT13-1/6W-82R-J	1	PC	R313

129	CARBON FILM RESISTOR	RT13-1/6W-150R-J	3	PC	R815A R848 R852
130	CARBON FILM RESISTOR	RT13-1/6W-180R-J	1	PC	R353
131	CARBON FILM RESISTOR	RT13-1/6W-220R-J	4	PC	R311 R917 R927 R937
132	CARBON FILM RESISTOR	RT13-1/6W-300R-J	2	PC	R923 R933
133	CARBON FILM RESISTOR	RT13-1/6W-330R-J	3	PC	R916 R926 R936
134	CARBON FILM RESISTOR	RT13-1/6W-390R-J	1	PC	R322
135	CARBON FILM RESISTOR	RT13-1/6W-470R-J	1	PC	R308
136	CARBON FILM RESISTOR	RT13-1/6W-680R-J	2	PC	R316 R482
128	CARBON FILM RESISTOR	RT13-1/6W-1K0-J	18	PC	R369 R460 R464 R481 R531 R541
					R544 R701 R734 R802 R803 R807
					R816 R818 R825 R827 R128 R129
129	CARBON FILM RESISTOR	RT13-1/6W-1K2-J	2	PC	R305 R560
130	CARBON FILM RESISTOR	RT13-1/6W-1K5-J	2	PC	R397 R732
131	CARBON FILM RESISTOR	RT13-1/6W-1K8-J	2	PC	R403 R405
132	CARBON FILM RESISTOR	RT13-1/6W-2K2-J	4	PC	R351 R371 R451 R804
133	CARBON FILM RESISTOR	RT13-1/6W-2K4-J	1	PC	R515
134	CARBON FILM RESISTOR	RT13-1/6W-2K7-J	3	PC	R321 R512 R540
135	CARBON FILM RESISTOR	RT13-1/6W-3K3-J	10	PC	R154 R158 R463 R721 R722 R728
					R736 R737 R741 R742
136	CARBON FILM RESISTOR	RT13-1/6W-3K9-J	2	PC	R455 R462
137	CARBON FILM RESISTOR	RT13-1/6W-4K7-J	4	PC	R306 R733 R131 R133
138	CARBON FILM RESISTOR	RT13-1/6W-5K6-J	1	PC	R370
139	CARBON FILM RESISTOR	RT13-1/6W-8K2-J	3	PC	R562 R153A R157A
140	CARBON FILM RESISTOR	RT13-1/6W-10K-J	24	PC	R163 R380 R434 R461 R543 R126 R127
					R548 R551 R704 R705 R706 R707
					R709 R816A R818A R825A R827A

					R851A R852A R912 R922 R932 R395
141	CARBON FILM RESISTOR	RT13-1/6W-15K-J	1	PC	R331
142	CARBON FILM RESISTOR	RT13-1/6W-22K-J	2	PC	R384 R162
143	CARBON FILM RESISTOR	RT13-1/6W-27K-J	2	PC	R484 R487
144	CARBON FILM RESISTOR	RT13-1/6W-33K-J	4	PC	R171 R175 R317 R385
145	CARBON FILM RESISTOR	RT13-1/6W-47K-J	3	PC	R172 R732A R745
146	CARBON FILM RESISTOR	RT13-1/6W-68K-J	1	PC	R173
147	CARBON FILM RESISTOR	RT13-1/6W-100K-J	3	PC	R483 R802A R803A
148	CARBON FILM RESISTOR	RT13-1/6W-150K-J	1	PC	R318
149	CARBON FILM RESISTOR	RT13-1/6W-270K-J	1	PC	R174
150	CARBON FILM RESISTOR	RT13-1/6W-560K-J	1	PC	R465
151	CARBON FILM RESISTOR	RT14-1/4W-1R0-J	1	PC	R404
152	CARBON FILM RESISTOR	RT14-1/4W-2R7-J	1	PC	R468
153	CARBON FILM RESISTOR	RT14-1/4W-8R2-J	1	PC	R513
154	CARBON FILM RESISTOR	RT14-1/4W-27R-J	1	PC	R561
155	CARBON FILM RESISTOR	RT14-1/4W-2K2-J	1	PC	R161
156	CARBON FILM RESISTOR	RT14-1/4W-10K-J	1	PC	R485
157	CARBON FILM RESISTOR	RT14-1/4W-51K-J	2	PC	R539 R539A
158	CARBON FILM RESISTOR	RT14-1/4W-330K-J	1	PC	R942
159	CARBON FILM RESISTOR	RT15-1/2W-270R-J	1	PC	R407
160	CARBON FILM RESISTOR	RT15-1/2W-1K0-J	1	PC	R453
161	CARBON FILM RESISTOR	RT15-1/2W-68K-J	2	PC	R507 R508
162	GLASS GLAZED RESISTOR	RI40-1/2W-1K5-K	3	PC	R918 R928 R938
163	GLASS GLAZED RESISTOR	RI40-1/2W-24M-K	1	PC	△R519
164	GLASS GLAZED RESISTOR	RJ13-1/6W-39K-F	1	PC	R411
165	CERAMIC CAPACITOR	CC1-50V-CH-33p-J	2	PC	C761 C762

166	CERAMIC CAPACITOR	CT1-50V-B-330p-K	2	PC	C921 C931
167	CERAMIC CAPACITOR	CT1-50V-B-470p-K	8	PC	C513 C732 C803 C805 C812 C814 C824 C826
168	CERAMIC CAPACITOR	CT1-50V-B-560p-K	1	PC	C381
169	CERAMIC CAPACITOR	CT1-50V-B-820p-K	1	PC	C323
170	CERAMIC CAPACITOR	CT1-50V-B-1000p-K	5	PC	C308 C311 C401 C721 C861
171	CERAMIC CAPACITOR	CT1-50V-B-2200p-K	1	PC	C335
172	CERAMIC CAPACITOR	CT1-50V-B-4700p-K	2	PC	C324 C336
173	CERAMIC CAPACITOR	CT1-50V-F-10n-Z	12	PC	C309 C313 C332 C362 C472 C475 C535 C703A C723 C744 C752 C756
174	CERAMIC CAPACITOR	CT1-500V-B-220p-K	1	PC	C405
175	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-10V-100u-M	1	PC	C548
176	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-10u-M	10	PC	C163A C172 C301 C322 C363 C364 C367 C807 C841 C871
177	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-22u-M	1	PC	C745
178	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-47u-M	7	PC	C171 C333 C352 C561 C811 C823 C116
179	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-100u-M	1	PC	C743
180	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-470u-M	3	PC	C525 C532 C801
181	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-25V-100u-M	4	PC	C406 C471A C474 C474A
182	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-35V-47u-M	1	PC	C453
183	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-u47-M	4	PC	C121 C123 C372 C374
184	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-1u0-M	8	PC	C157 C163 C337 C804 C806 C815 C827 C862
185	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-2u2-M	1	PC	C339
186	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-4u7-M	5	PC	C303 C304 C325 C340 C464

187	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-22u-M	1	PC	C703
188	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-50V-47u-M	2	PC	C462 C517
189	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-160V-4u7-M	1	PC	C466
190	POLESTER CAPACITOR	CL21X-63V-100n-J	4	PC	C326 C365 C411 C511
191	POLESTER CAPACITOR	CL21X-63V-470n-J	1	PC	C461
192	POLESTER CAPACITOR	CL21X-100V-5n6-J	2	PC	C154 C158
193	POLESTER CAPACITOR	CL21X-100V-33n-J	2	PC	C403 C544
194	POLESTER CAPACITOR	CL21X-100V-100n-J	3	PC	C460 C705 C706
195	INDUCTOR	LGA0305-1u0-K	1	PC	L302
196	INDUCTOR	LGA0305-10u-K	5	PC	L331 L361 L751 L752 L753
197	INDUCTOR	LGA0305-22u-K	1	PC	L401
198	SWITCH DIODE	1N4148	11	PC	VD171A VD461 VD462
					VD482 VD511 VD544 VD561 VD562
					VD734 VD921 VD931
199	DIODE	FR104	7	PC	VD401 VD470 VD471 VD510 VD512
					VD522 VD525
200	RECTIFY DIODE	FR105	2	PC	VD436 VD472
201	RECTIFY DIODE	FR204	1	PC	VD543
202	RECTIFY DIODE	RM11C	5	PC	VD503 VD504 VD505 VD506 VD508
203	DIODE	05W22B	1	PC	VD481
204	DIODE	05W3.3C	1	PC	VD564
205	DIODE	05W3.6B	1	PC	VD509
206	DIODE	05W5.1A	1	PC	VD300A
207	DIODE	05W7.5B	3	PC	VD381 VD382 VD383
208	DIODE	05W8.2B	5	PC	VD460 VD483 VD822 VD861A VD941
209	TRANSISTOR	2SC1815Y	8	PC	V173 V351 V352 V504 V801 V395 V121 V122

210	TRANSISTOR	BF423	3	PC	V913 V923 V933
211	TRANSISTOR	BF422	1	PC	V922
212	TRANSISTOR	2SC388	1	PC	V308
213	TRANSISTOR	2SC2383Y	1	PC	V450
214	TRANSISTOR	PH2369	1	PC	V701
215	TRANSISTOR	KA431AZ	1	PC	V540
216	JUMPER	5mm	8	PC	W265 W266 W391 W486 W791 W582 W684 W901
217	JUMPER	7.5mm	57	PC	W021 W051 W122 W131 W552 W553 W662
					W168 W231 W242 W243 W663
					W244 W245 W264 W311 W356 W358
					W368 W373 W381 W385 W401 W442
					W443 W466 W467 W471 W493 W531
					W532 W554 W555 W562 W563 W564
					W571 W581 W652 W675 W721 W760 W875
					W763 W764 W771 W773 W774 W786 W876
					W821 W822 W841 W861 W862 W863 W881
218	JUMPER	10mm	34	PC	L911 L912 L913 VD1561 W153
					W251 W148 W152 W154 W166 W171
					W241 W263 W341 W342 W343 W361
					W411A W420 W421 W435 W472
					W484 W485 W643 W650 W653 W655
					W741 W751 W752 W900 W921 W922
219	JUMPER	12.5mm	18	PC	W142 W159 W253 W331 W432
					W454 W551 W621 W665 W673 W674
					W681 W682 W731 W781 W872 W873

					W930
220	JUMPER	15mm	21	PC	R520 W355 W451 W162
					W163 W164 W221 W369 W412 W672
					W434 W452 W453 W463 W464 W840
					W465 W641 W642 W644 W656
221	JUMPER	17.5mm	10	PC	W362 W363 W364 W365 W366 W367
					W461 W462 W671 W761
222	JUMPER	20mm	5	PC	W156 W494 W561 W661 W664
223	HOLLOW RIVET	XRY1.6*2.8BD	18	PC	L452-1 L452-2 L501-1 L501-2
					L501-3 L501-4 PS501-1 PS501-2
					PS503-3 T451-1 T451-10 T451-2
					T451-5 T451-8 T501-3 T501-7
					V451-C V451-E
224	HOLLOW RIVET	XRY2.5*3.5BD	2	PC	C507-1 C507-2
1	KEY /AV PCB	E/RSAG7.820.391A/344A	1	PC	△ A3/A4
2	CARBON FILM RESISTOR	RT13-1/6W-1K2-J	1	PC	R1712
3	CARBON FILM RESISTOR	RT13-1/6W-3K3-J	1	PC	R1713
4	CARBON FILM RESISTOR	RT13-1/6W-6K8-J	1	PC	R1714
5	CARBON FILM RESISTOR	RT13-1/6W-12K-J	1	PC	R1715
6	CARBON FILM RESISTOR	RT13-1/6W-15K-J	1	PC	R1716
7	JUMPER	7.5mm	1	PC	R1711
8	CONNECTOR	TJC3-2Y-SCNW-300	1	PC	XP1701
9	CONNECTOR	TJC3B-6Y-450	1	PC	XP1601
10	AV TERMINAL	AV3-L	1	PC	XS1611
11	SWITCH	KAN-C202-5	4	PC	SW1701 SW1702 SW1703 SW1704
12	SWITCH		2	PC	SW1705 SW1706

1	REMOTE CONTROL PCB	E/RSAG7.820.266A	1	PC	△ A5
2	CARBON FILM RESISTOR	RT13-1/6W-47R-J	1	PC	R1534
3	CARBON FILM RESISTOR	RT13-1/6W-1K0-J	1	PC	R1535
4	ALUMINUM ELECTROLYTIC CAPACITOR	CD110-16V-10u-M	1	PC	C1501
5	LED	BT-204L-31	1	PC	VD1501
6	RECEIVER	HS0038A2	1	PC	N1503
7	CONNECTOR	TJC3-3Y-SCNW-300	1	PC	XP1502
8	CONNECTOR	TJC1-2Y-250-10	1	PC	XP1501
9	SLOT	TJC1-10-2A	1	PC	XS1504
10	power wire	RVVZ-2Y-EAU	1	PC	
11	power switch	PS6E-B-030	1	PC	
1	POWER CORDS	RVVZ-2Y-FAU	1	pcs	△XS601
2	POWER SWITCH	KDC-A06	1	pcs	
3	DEGAUSSING COIL	HIXC-54A1	1	pcs	△L801
4	CRT	A51JXS098X96	1	pcs	△V901
5	SPEACKER	YDT513-5W8R-N	2	pcs	B601 B602

