

# Service Manual

## TV / VCR Combination

CHASSIS : CN-081

MODEL : DVQ-13H1FCN

DVQ-19H1FCN

DVQ-13H2FCN

DVQ-19H2FCN



### SPECIFICATIONS

ITEM	MODEL	DVQ-13/19H1FCN, DVQ-13/19H2FCN
TV SECTION	STANDARD	NTSC-M
	TUNING SYSTEM	Frequency Synthesizer(FS) Tuning System
	TUNING RANGE	VHF:2-13(12) UHF:14-69(56) CATV:1-125(125)
	ANTENNA INPUT IMPEDENCE	75ohm Unbalanced
VIDEO SECTION	AUXILIARY INPUT TERMINAL	Front : Video, Audio
	FORMAT	VHS NTSC Standard
	VCR SYSTEM	Rotary 2-Head Helical Scanning Monaural System
	AUDIO RECORDING SYSTEM	Monaural
	TAPE SPEED	SP:33.35mm/sec;EP:11.12mm/sec LP:16.67mm/sec PLAY ONLY
	INPUT	Video: 1Vp-p, 75 Ohm Audio:3.8dBm, over 100K Ohm
	TIMER PROGRAMING	6Event/1 Month
GENERAL	POWER INPUT	AC 120V 60Hz
	POWER CONSUMPTION	13~60W
	SOUND OUTPUT	1.3W
	SPEAKER	3W 8OHM
	OPERATION TEMPERATURE	5 C° to 40 C°
	REMOTE CONTROL	RC-39A02
	SPECIAL FUNCTION	3-Language OSD With CAPTION Parental Control K-50MECHA One Touch Record Repeat Play Energy Star Power(Stand-By : 2W Under)

DAEWOO ELECTRONICS CO., LTD

<http://svc.dwe.co.kr>

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# SAFETY INSTRUCTION

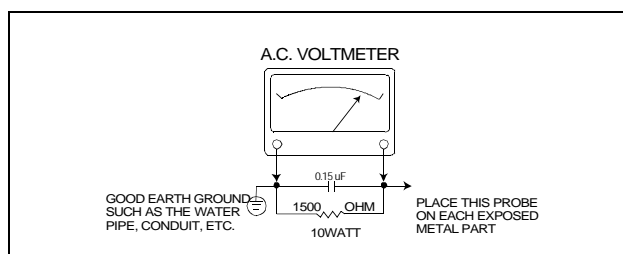
**CAUTION** : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY. SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER. WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

## SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED, A CHECK SHOULD BE MADE OF THE FOLLOWING:

### SUBJECT: FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE, THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OF SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS, FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD), AND REPLACE IF NECESSARY. FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTOR, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES. DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET. (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS, HANDLE AND SCREWS) TO BE SURE THE SET IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN A.C. VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER : CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD. 150V A.C. TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME. MEASURE THE A.C. VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED .75 VOLTS R.M.S THIS CORRESPONDS TO 0.5 MILLIAMPS A.C. ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



### SUBJECT : GRAPHIC SYMBOLS



THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.



THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION ON SERVICE LITERATURE.

### SUBJECT : X-RADIATION

1. BE SURE PROCEDURES AND INSTRUCTIONS TO ALL SERVICE PERSONNEL COVER THE SUBJECT OF X-RADIATION. THE ONLY POTENTIAL SOURCE OF X-RAYS IN CURRENT T.V. RECEIVERS IS THE PICTURE TUBE. HOWEVER, THIS TUBE DOES NOT EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATION AT HIGHER VOLTAGES MAY CAUSE A FAILURE OF THE PICTURE TUBE OR HIGH VOLTAGE SUPPLY AND, UNDER CERTAIN CIRCUMSTANCES, MAY PRODUCE RADIATION IN EXCESS OF DESIRABLE LEVELS.
2. ONLY FACTORY SPECIFIED C.R.T ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS X-RAY SHIELD IN COLOR SETS. ALWAYS RE-INSTALL THEM.
3. IT IS ESSENTIAL THAT SERVICE PERSONNEL HAVE AVAILABLE AN ACCURATE AND RELIABLE HIGH VOLTAGE METER. THE CALIBRATION OF THE METER SHOULD BE CHECKED PERIODICALLY AGAINST A REFERENCE STANDARD. SUCH AS THE ONE AVAILABLE AT YOUR DISTRIBUTOR.
4. WHEN THE HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EVERY TIME A COLOR CHASSIS IS SERVICED, THE BRIGHTNESS SHOULD BE RUN UP AND DOWN WHILE MONITORING THE HIGH VOLTAGE WITH A METER TO BE CERTAIN THAT THE HIGH VOLTAGE DOES NOT EXCEED THE SPECIFIED VALUE AND THAT IT IS REGULATING CORRECTLY. WE SUGGEST THAT YOU AND YOUR SERVICE ORGANIZATION REVIEW TEST PROCEDURES SO THAT VOLTAGE REGULATION IS ALWAYS CHECKED AS A STANDARD SERVICING PROCEDURE, AND THAT THE HIGH VOLTAGE READING BE RECORDED ON EACH CUSTOMER'S INVOICE.
5. WHEN TROUBLESHOOTING AND MAKING TEST MEASUREMENTS IN A PRODUCT WITH A PROBLEM OF EXCESSIVE HIGH VOLTAGE, AVOID BEING UNNECESSARILY CLOSE TO THE PICTURE TUBE AND THE HIGH VOLTAGE SUPPLY. DO NOT OPERATE THE PRODUCT LONGER THAN IS NECESSARY TO LOCATE THE CAUSE OF EXCESSIVE VOLTAGE.
6. REFER TO HV, B+ AND SHUTDOWN ADJUSTMENT PROCEDURES DESCRIBED IN THE APPROPRIATE SCHEMATIC AND DIAGRAMS (WHERE USED).

### SUBJECT : IMPLSION

1. ALL DIRECT VIEWED PICTURE TUBES ARE EQUIPPED WITH AN INTEGRAL IMPLSION PROTECTION SYSTEM. BUT CARE SHOULD BE TAKEN TO AVOID DAMAGE DURING INSTALLATION. AVOID SCRATCHING THE TUBE. IF SCRATCHED REPLACE IT.
2. USE ONLY RECOMMENDED FACTORY REPLACEMENT TUBES.

### SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE, OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT, MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS. A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM. BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERALLY APPROVED FOR USE WITH T.V.S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

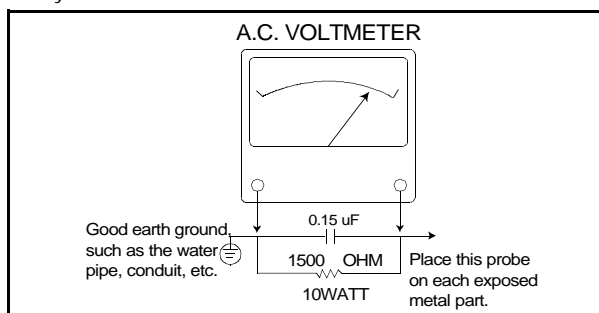
**CAUTION :** Do not attempt to modify this product in any way. Unauthorized modifications will not only void the warranty, but may lead to your being liable for any resulting property damage or user injury. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise, increases the risk of potential hazards and injury to the user.

### SAFETY CHECKS

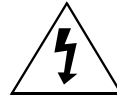
After the original service problem has been corrected, a check should be made of the following:

#### SUBJECT : FIRE & SHOCK HAZARD

1. Be sure that all components are positioned in such a way as to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers, shields, strain reliefs, and other hardware have been reinstalled per original design.
3. Soldering must be inspected to discover possible cold solder joints, frayed leads, damaged insulation (including A.C. cord), solder splashes or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, and replace if necessary follow original layout, lead length and dress.
5. No leads or components should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. All critical components such as fuses, flameproof resistors, capacitors, etc. must be replaced with exact factory types. Do not use replacement components other than those specified or make unrecommended circuit modifications.
7. After re-assembly of the set always perform an A.C. leakage test on all exposed metallic parts of the cabinet, (the channel selector knob, antenna terminals, handle and screws) to be sure the set is safe to operate without danger of electrical shock. Do not use a line isolation transformer during this test. Use an A.C. voltmeter, having 5000 ohms per volt or more sensitivity, in the following manner : connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd. 150V A.C. type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the A.C. voltage across the combination of 1500 ohm resistor and 0.15 MFD capacitor. Reverse the A.C. plug and repeat A.C. voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts R.M.S. This corresponds to 0.5 milliamp A.C. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



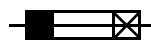
#### GRAPHIC SYMBOLS :



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the service personnel to the presence of uninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the service personnel to the presence of important safety information in service literature.



Fuse symbol is printed on pcb adjacent to the fuse, with "RISK OF FIRE REPLACE FUSE AS MARKED". The symbol is explained in the service manual with the following wording or equivalent.

**"CAUTION :** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE (6.3A, 250V)" and **"ATTENTION:** AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET DE "6.3A, 250V".

#### SUBJECT : X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of X-rays in current T.V. receivers is the picture tube. However, this tube does not emit X-rays when the high voltage is at the factory specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high voltage supply and, under certain circumstances, may produce radiation in excess of desirable levels.
2. Only factory specified C.R.T. anode connectors must be used. Degaussing shields also serve as X-ray shield in color sets. Always re-install them.
3. It is essential that the serviceman has available an accurate and reliable high voltage meter. The calibration of the meter should be checked periodically against a reference standard. Such as the one available at your distributor.
4. When the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly. We suggest that you and your service organization review test procedures so that voltage regulation is always checked as a standard servicing procedure. And that the high voltage reading be recorded on each customer's invoice.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage compartment. Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.
6. Refer to HV, B+ and Shutdown adjustment procedures described in the appropriate schematic and diagrams (where used).

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## SAFETY INSTRUCTION

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### SUBJECT : IMPLOSION

1. All direct viewed picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage during installation. Avoid scratching the tube. If scratched, replace it.
2. Use only recommended factory replacement tubes.

### SUBJECT : TIPS ON PROPER INSTALLATION

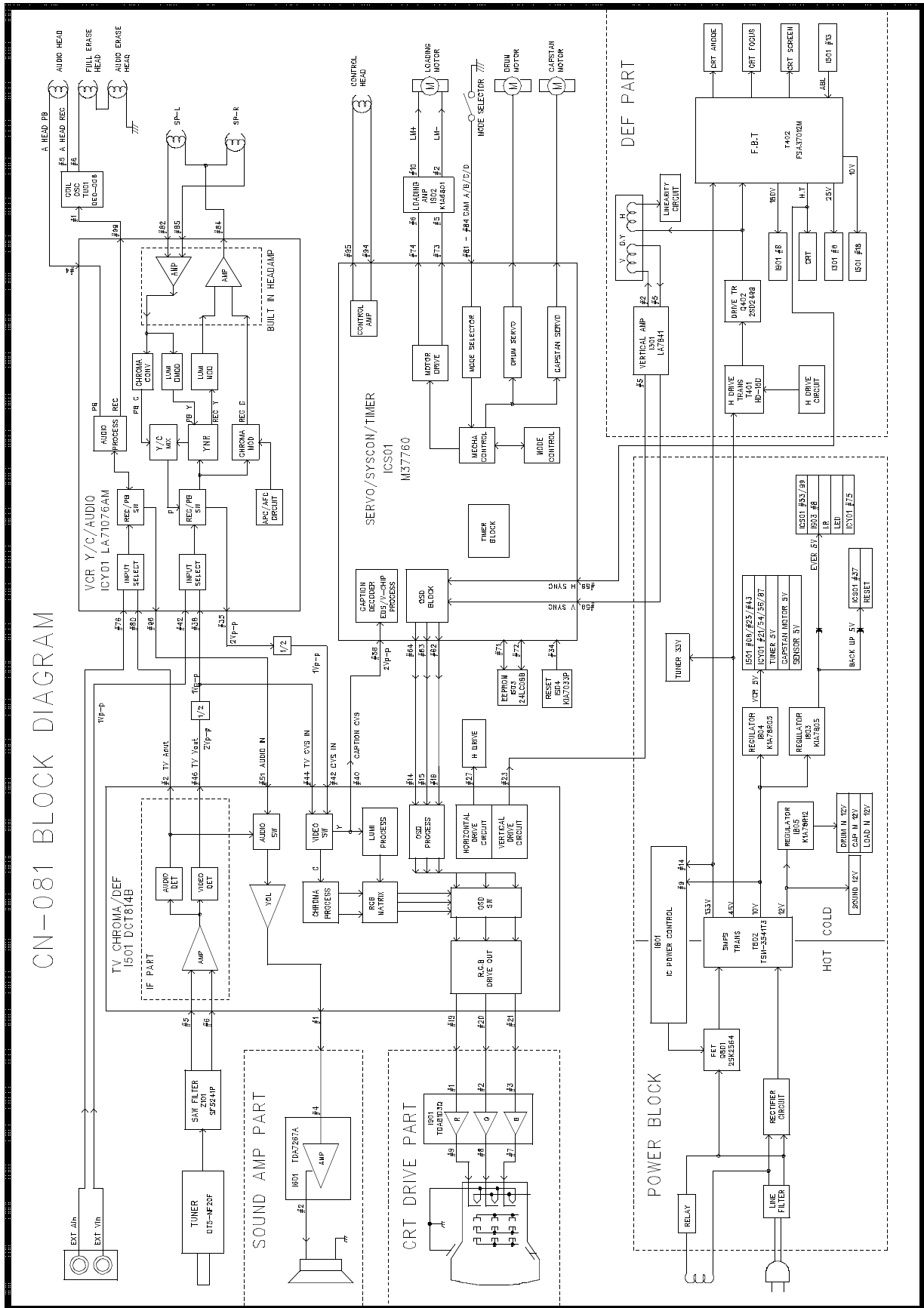
1. Never install any receiver in closed-in recess, cubbyhole or closely fitting shelf space over, or close to heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as : Outdoor patio installations where dew is a factor. Near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct rear venting. The customer should also avoid the use of decorative scarves or other coverings which might obstruct ventilation.
4. Wall and shelf mounted installations using a commercial mounting kit, must follow the factory approved mounting instructions. A receiver mounted to a shelf or platform must retain its original feet(or the equivalent thickness in spacers) to provide adequate air flow across the bottom, bolts or screws used for fasteners must not touch and parts or wiring. Perform leakage test on customized installations.
5. Caution customers against the mounting of a receiver on sloping shelf or a tilted position, unless the receiver is properly secured.
6. A receiver on a roll-about cart should be stable on its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against the use of a cart or stand which has not been listed by underwriters laboratories, inc. For use with their specific model of television receiver or generically approved for use with T.V.'s of the same or larger screen size.

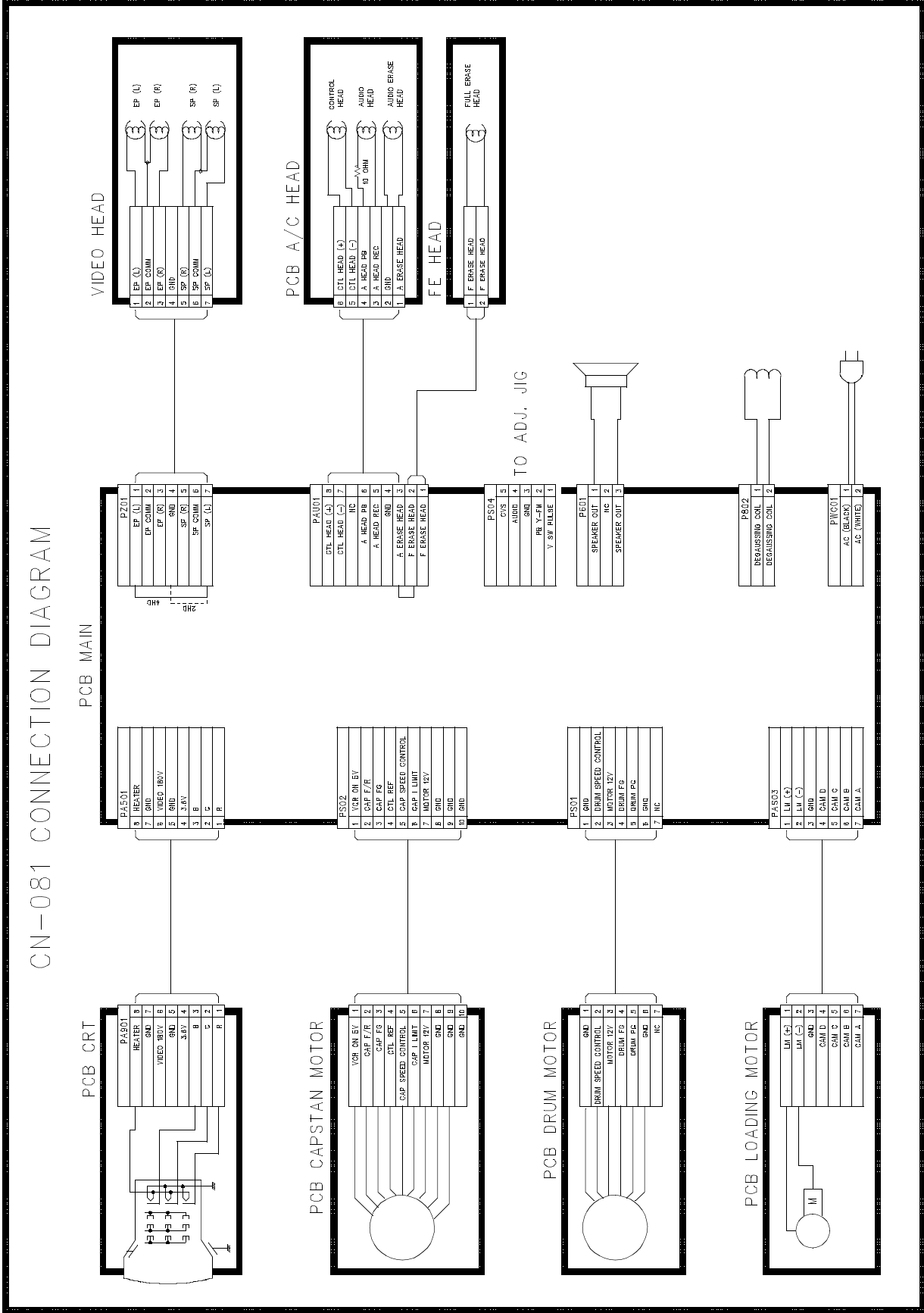
# SPECIFICATION

ITEMS	MODEL	DVQ-13/19H1FCN, DVQ-13/19H2FCN	REMARK
TV SECTION	STANDARD	NTSC-M	
	TUNING SYSTEM	Frequency Synthesizer(FS) Tuning System	
	TUNING RANGE	VHF : 2 - 13(12) UHF : 14 - 69(56) CATV : 1-125(125)	
	ANTENNA INPUT IMPEDENCE	75 ohm Unbalanced	
	AUXILIARY INPUT TERMINAL	Front : Video, Audio	
VIDEO SECTION	FORMAT	VHS NTSC Standard	
	VCR SYSTEM	Rotary 2-Head Helical Scanning Monaural System	
	AUDIO RECORDING SYSTEM	Monaural	
	TAPE SPEED	SP:33.35mm/sec; EP:11.12mm/sec LP:16.67mm/sec PLAY ONLY	
	INPUT	Video :1Vp-p,75 Ohm Audio :3.8dBm, over 100K Ohm	
	TIMER PROGRAMING	6 Event/1 Month	
GENERAL	POWER INPUT	AC 120V 60Hz	
	POWER CONSUMPTION	13~60W	
	SOUND OUTPUT	1.3W	
	SPEAKER	3W 8 OHM	
	OPRATING TEMPERATRE	5 °C to 40 °C	
	REMOTE CONTROL	R-39A02	
	SPECIAL FUNTION	3-Language OSD With CAPTION Parental Control K-50MECHA One Touch Record Repeat Play Energy Star Power (Stand-By:2W Under)	

# CIRCUIT BLOCK DIAGRAM

CN-081 BLOCK DIAGRAM







# ALIGNMENT INSTRUCTIONS

## 1. SERVICE MODE ADJUSTMENTS

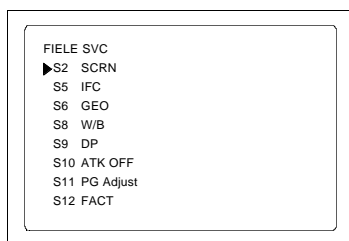
Follow the steps below whenever service adjustment is required. See Table-A. and Table-B to determine if service adjustments are required.

1)How to enter the service mode using the user remote control.

- ◆ Turn the set on.
- ◆ Direct the remote control to the reception window of your TV/VCR
- ◆ Push buttons of remote control in sequence as follows.

**1 → MUTE → RECALL → MUTE**

- ◆ Then, the screen will appear as follows.



- ◆ Using the channel up ( ▲ ) or down ( ▼ ) buttons, select the item you wish to adjust..  
The cursor ( ▶ ) move you wish to adjust item.
- ◆ Using the volume up ( ► ) or down( ◀ ) buttons to enter in the sevice mode you wish to adjust.
- ◆ You adjust the values of service mode, automatically save to EEPROM

**Table-A : Adjust the values of service mode when a part is replaced**

PART REPLACE	ADJUSTMENT		NOTE
	NECESSARY	UNNECESSARY	
ICS01 (TIMER/SYSCON)		O	Data is stored in IS03(EEPROM)
I501 (TV CHROMA)		O	
IS03 (EEPROM)	O		Initial setting values are written from ICS01 Adjusting Items S5:IFC, S6:GEO, S8:W/B, S9:DP, S11:PG Adjust
CRT	O		Adjusting Items S2:SCRN, S6:GEO, S8:W/B, S9:DP
VCR DECK (DRN-7203)		O	Adjusting Items related to VCR DECK only. S10:ATK OFF, S11:PG Adjust
ICY01 (VCR Y/C)		O	

Table-B

MODE	ADJUSTMENT ITEMS	DATA		REMARK
		INITIAL	RANGE	
S2	Screen Adjustment	-	-	
S5: IF CONTROL	AGC Auto	-	-	Automatic adjustment
	AGC Vol	3.75V	-	Select AGC reference voltage (3.75V)
	AGC	* 1	0-63	Align RF AGC threshold
	VIDEO LEV	007	0-7	Must be set to 7
	FM LEV	005	0-31	Must be set to 5
	HFREQ	012	0-63	NOT USED
	CROSS BW * 2	-	-	NOT USED
S6: GEOMETRY	H CENTER (Horizontal center)	* 1	0-31	Using internal cross pattern (CROSS BW * 2)
	V SIZE (Vertical Size)	* 1	0-127	
	V CENTER (Vertical Center)	* 1	0-63	
	V SC (Vertical S-Correction)	0	0-31	Must be set to 0
	V LIN (Vertical Linearity)	20	0-31	Must be set to 20
	NO SD POWER OFF	NO		Automatically turn off in 15min for no received signal (YES)
	CROSS BW * 2	-	-	
	HBLKR	1	0-6	Must be set to 1
	HBLKL	6	0-6	Must be set to 6
S8: WHITE BALANCE	RD(Red Drive)	* 1	0-127	Using internal 100% WHITE pattern (CROSS BW * 2)
	GD(Green Drive)	10	0-15	
	BD(Blue Drive)	* 1	0-127	
	RB(Red Bias)	* 1	0-255	Using internal 60% WHITE pattern (CROSS BW * 2)
	GB(Green Bias)	* 1	0-255	
	BB(Blue Bias)	* 1	0-255	
	CROSS BW * 2	-	-	
S9 D.P	Brightness	* 1	0-63	
	sharpness	0	0-63	
	Color	35	0-63	
	Tint	22	0-63	
S10	ATK(Auto Tracking) OFF	-	-	For VCR DECK Adjustment
S11	PG Adjustment	-	-	Automatically P.G Adjustment
S12	FACT	-	-	Factory Initialization

\*1 indicates the items with different settings each of sets.

\*2 CROSS BW: Internal pattern of Device(I501:DCT814B)

Whenever you select the "CROSS BW" using volume up(▶) or down(◀) button,  
the screen is changing like this;

**VOL UP (▶)**

**NORMAL ⇄ BLACK ⇄ WHITE100 ⇄ WHITE60 ⇄ CROSS**

**VOL DOWN (◀)**

## 2. ASSEMBLY ADJUSTMENTS

### 1) SCREEN ADJUSTMENT(S2)

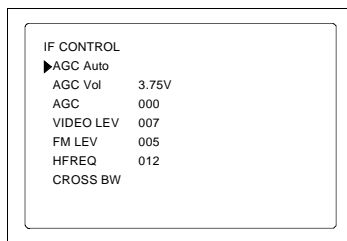
- ◆ Enter the service mode and select service adjustment S2
- ◆ You can see the horizontal straight line on the screen
- ◆ Adjust the Screen Control volume(located on FBT) so that the horizontal straight line on screen may be disappear.
- ◆ Press the MENU button to exit the screen adjustment mode.

### 2) FOCUS ADJUSTMENT(S2)

- ◆ Turn in a local station and the Focus Control volume(located on FBT) for best picture details at light condition.

### 3) RF-AGC ADJUSTMENT(S5)

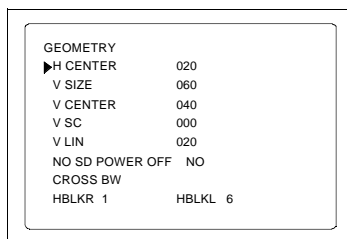
- ◆ Receive a good local channel.
- ◆ Enter the service mode and select service adjustment S5
- ◆ You can see the OSD as shown in below.



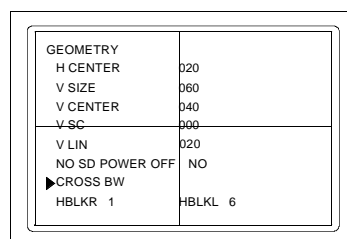
- ◆ Select AGC item, press volume up (▶) or down(◀) buttons until noise or beet in picture disappears.

### 4) GEOMETRIC ADJUSTMENT(S6)

- ◆ Enter the service mode and select service adjustment S6
- ◆ You can see the OSD as shown in below.



- ◆ Use the CH up (▲) or down (▼) buttons to select "CROSS BW" item.
- ◆ Use the VOL up (▶) button to select internal cross pattern.



- Figure1 -

**4-1.HORIZONTAL CENTER Adjustment**

- ◆ Select H CENTER item, adjust H CENTER data value to obtain proper horizontal centering of the internal cross pattern at the left and right of the screen.

**4-2.VERTICAL CENTER Adjustment**

- ◆ Select V CENTER item, adjust V CENTER data value to center the raster properly on the screen.

**4-3.VERTICAL SIZE Adjustment**

- ◆ Select V SIZE item, adjust V SIZE data value to proper vertical size as figure 1.

**5) WHITE BALANCE ADJUSTMENT(S8)**

- ◆ Enter the service mode and select service adjustment S8.
- ◆ You can see the OSD as shown in below.

▶RD	063
GD	010
BD	063
RB	127
GB	127
BB	127
CROSS BW	

NOTE:

The color coordinator to x:285, y:290.

- ◆ Use the CH up( ▲ ) or down ( ▼ ) buttons to select "CROSS BW" item.
- ◆ Use the VOL up ( ► ) button to select internal WHITE60 pattern.
- ◆ Use the CH ▲ ▼ buttons to select RB/GB/BB item, adjust data until a good white.
- ◆ Use the CH ▲ ▼ buttons to select "CROSS BW" item.
- ◆ Use the VOL ► button to select internal WHITE100 pattern.
- ◆ Use the CH ▲ ▼ buttons to select RD/BD item, adjust data until a good white.

**6) D.P(DIGITAL PRESET) ADJUSTMENT(S9)****SUBBRIGHTNESS Adjustment**

- ◆ Receive a good local channel.
- ◆ Enter the service mode and select service adjustment S9
- ◆ You can see the OSD as shown in below.

D.P	
▶Brightness	042
Sharpness	000
Color	035
Tint	022

NOTE :

SUBBRIGHTNESS = RETMA PATTERN : 8%

- ◆ Select Brightness item, adjust Brightness data value to obtain normal brightness level.

**Sharpness**

- ◆ Fixed value = 000

**Color**

- ◆ Fixed value = 035

**Tint**

- ◆ Fixed value = 022

### 3. VCR DECK ADJUSTMENTS

#### 1) X-DISTANCE & P2,P3 ADJUSTMENT(S10)

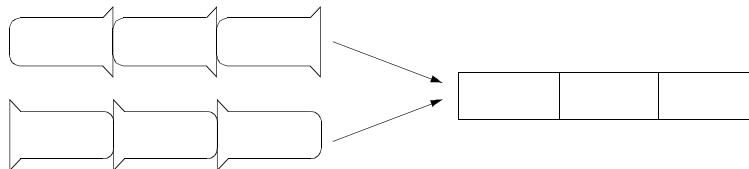
- ◆ Connect Path JIG to connector PS04, Playback the test tape (DN-2,7KHz)
- ◆ Connect oscilloscope CH1 to V.SW(PS04 #2),CH2 to PB RF(PS04 #1) and trigger on CH1.
- ◆ Enter the service mode and select service adjustment S10
- ◆ Use the VOL up(▶) button to set ATK Off CEN.
- ◆ Turn the X-distance screw to maximum of PB-RF.
- ◆ Use the VOL up(▶) button to set ATK Off MIN and MAX.
- ◆ If PB-RF is not smooth, adjust P2,P3.

⦿ P2, P3

VH SW



RF

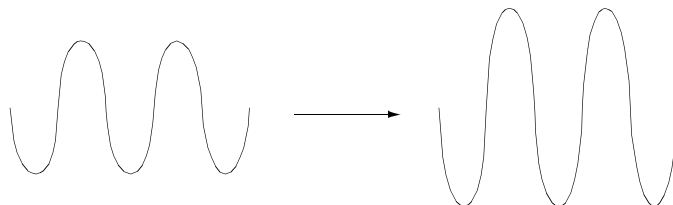


#### 2) P.G ADJUSTMENT(S11)

- ◆ Playback the test tape (DN-2,7KHz)
- ◆ Enter the service mode and select service adjustment S11
- ◆ Push the "REC" KEY once, P.G Adjustment is Automatically.
- ◆ Connect oscilloscope CH1 to V/SW(PS04 #2),CH2 to CVS(PS04 #5) and trigger on CH1, Confirm The P.G is 6.5H(412msec).

#### 3) AUDIO AZIMUTH ADJUSTMENT

- ◆ Playback the test tape (DN-2,7KHz)
- ◆ Connect oscilloscope and level meter to Aout(PS04 #4).
- ◆ Turn the azimuth screw to maximum 7KHz level.



#### 4) FACTORY OUTGOING MODE(S12)

- ◆ If you select the S12, then the set becomes factory outgoing status.
- ◆ You can see the channel to "02" or if the set playback you can see the OSD "AUTO TRACKING"

# SCHEMATIC DIAGRAM

## SCHEMATIC DIAGRAM CN-081 TVCR

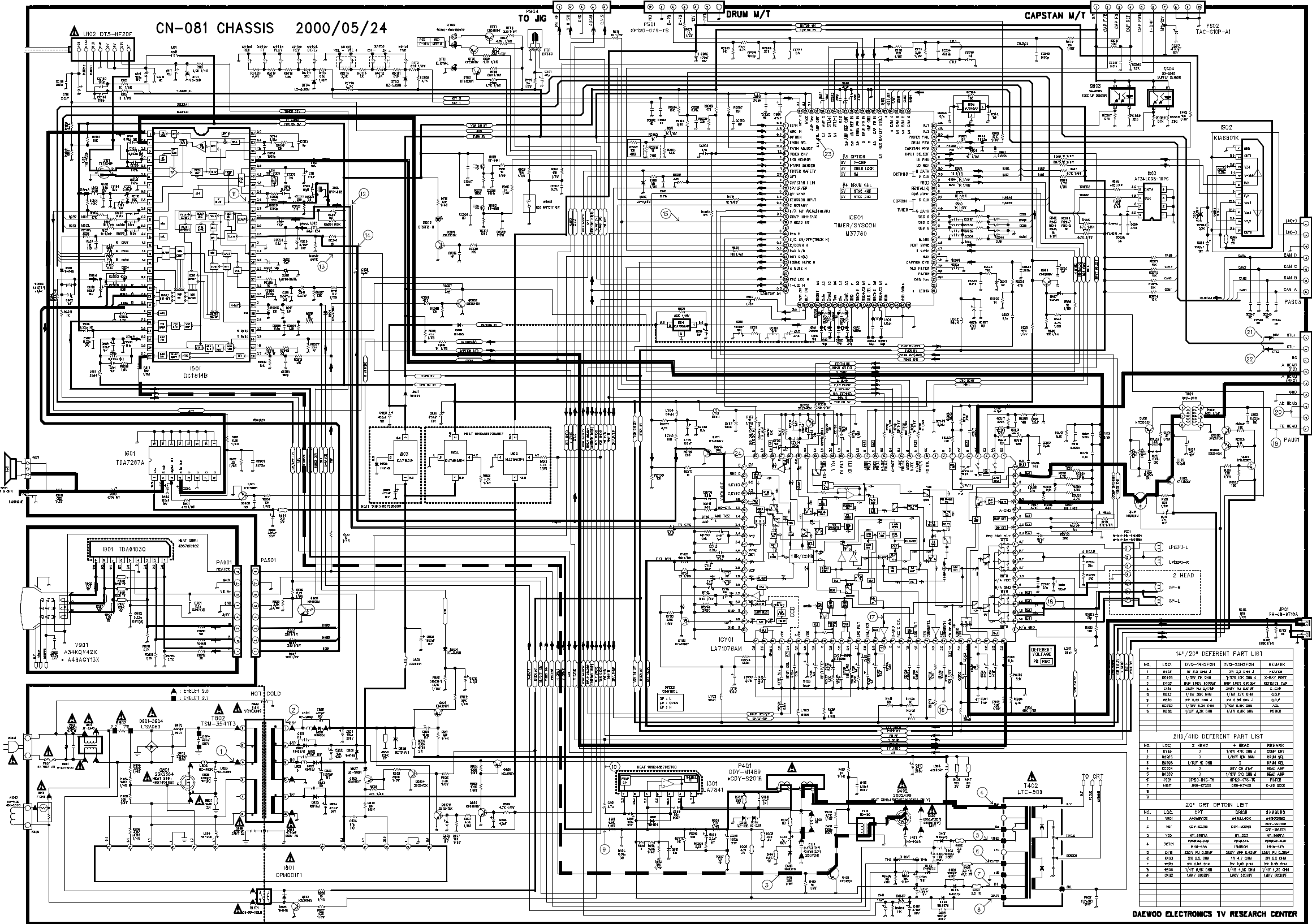
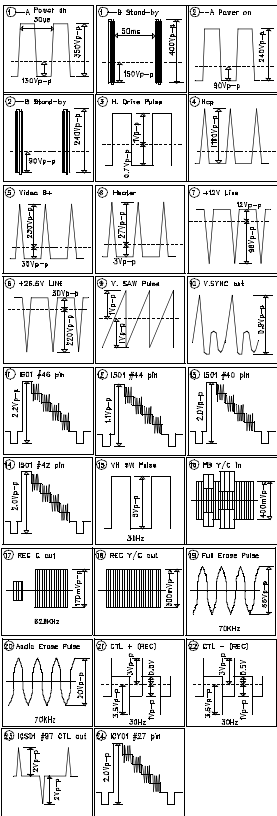
North America(AC 120V Only)  
U.S.A. / CANADA  
:DVQ-13HFCN/18HFCN  
:DVQ-13H2FCN/18H2FCN  
K-MART  
JCM13101

1. CAUTION  
CAUTION: WARNED PARTS IN THE SCHEMATIC DIAGRAM INDICATE THE COMPONENTS WHICH HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY AND SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN ORIGINAL CIRCUIT OR SPECIFIED IN THE PARTS LIST.  
DO NOT DEGRADE THE SAFETY OF THE RECEIVER THROUGH IMPROPER SERVICING.

WARNING :  
BEFORE SERVICING THIS CHASSIS, READ THE "H-441 RADIATION PRECAUTIONS" SAFETY PRECAUTION AND "PRODUCT SAFETY NOTICE" IN THE SERVICE MANUAL.

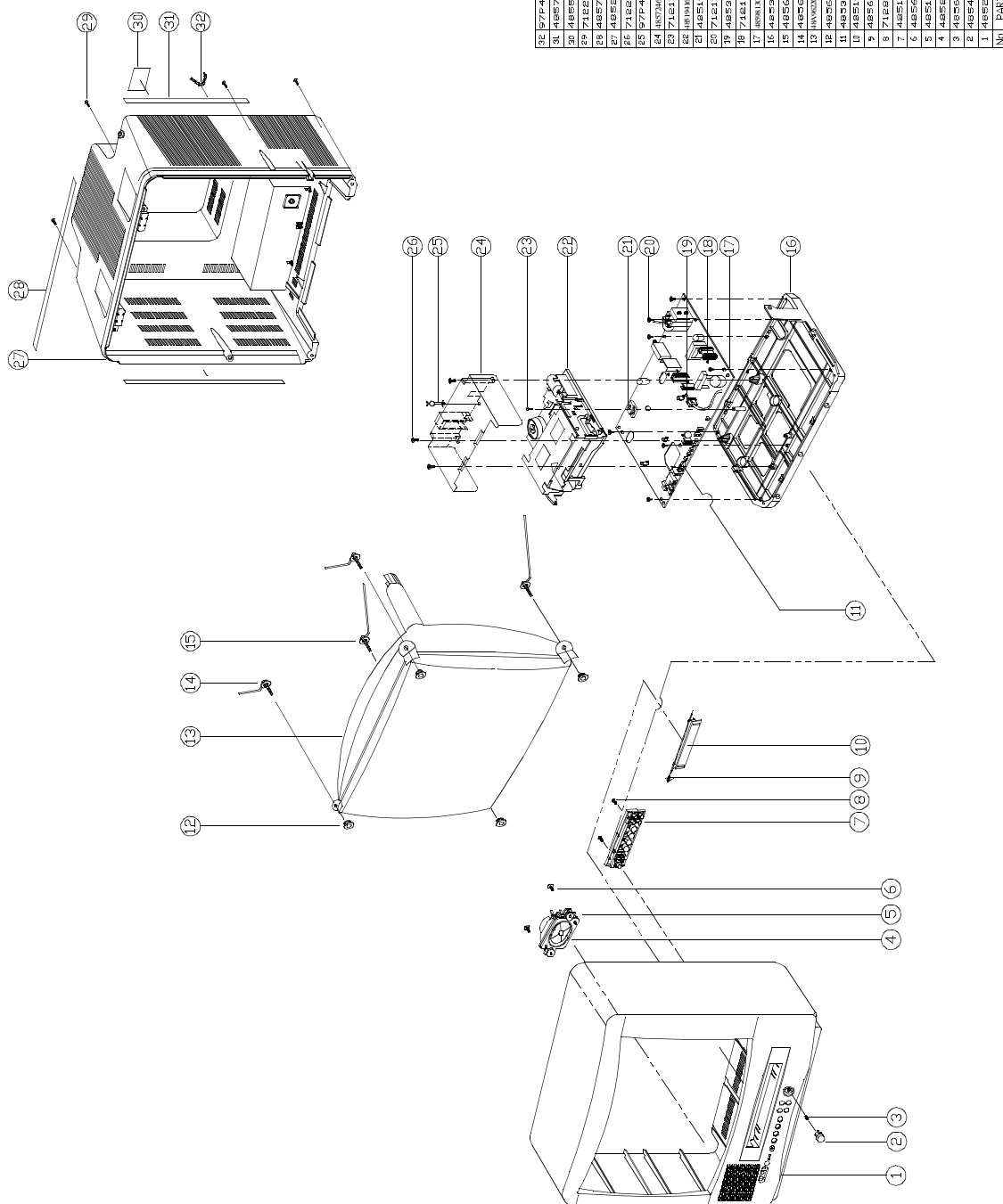
CAUTION TO THE SERVICE TECHNICIANS :  
BEFORE RETURNING THE RECEIVER TO THE CUSTOMER, APPROPRIATE LEAKAGE CURRENT OR RESISTANCE MEASUREMENT SHOULD BE CONDUCTED TO INSURE THAT EXPOSED PARTS ARE PROPERLY ISOLATED FROM THE SUPPLY CIRCUIT.

- NOTE :
1. RESISTANCE R IS SHOWN IN OHMS. K=1,000  
M=1,000,000
  2. UNLESS OTHERWISE NOTED IN SCHEMATIC, ALL "R" AND "W" VALUES MORE THAN 1 IN "R" CAPACITOR VALUES LESS THAN 1 ARE EXPRESSED
  3. VOLTAGES READ WITH "X" VOLT FROM POINT INDICATE TO CHASSIS GROUND USING A COLOR BAR SYMBOL WITH ALL GENTILES AT NORMAL LINE VOLTAGE 120V AC. VOLTAGE MEASURING POINTS ARE NORMAL VALUES AND MAY VARY ±20% EXCEPT NOT.
  4. IN CASE OF "R" RECEIVER COMPONENT WITH THE MARK "A" SHOULD BE USED ONLY.
  5. THE CIRCUIT DIAGRAM IS A STANDARD ONE. CIRCUITS PRINTED MAY BE SUBJECT TO CHANGE FOR PRODUCT IMPROVEMENT WITHOUT PRIOR NOTICE.



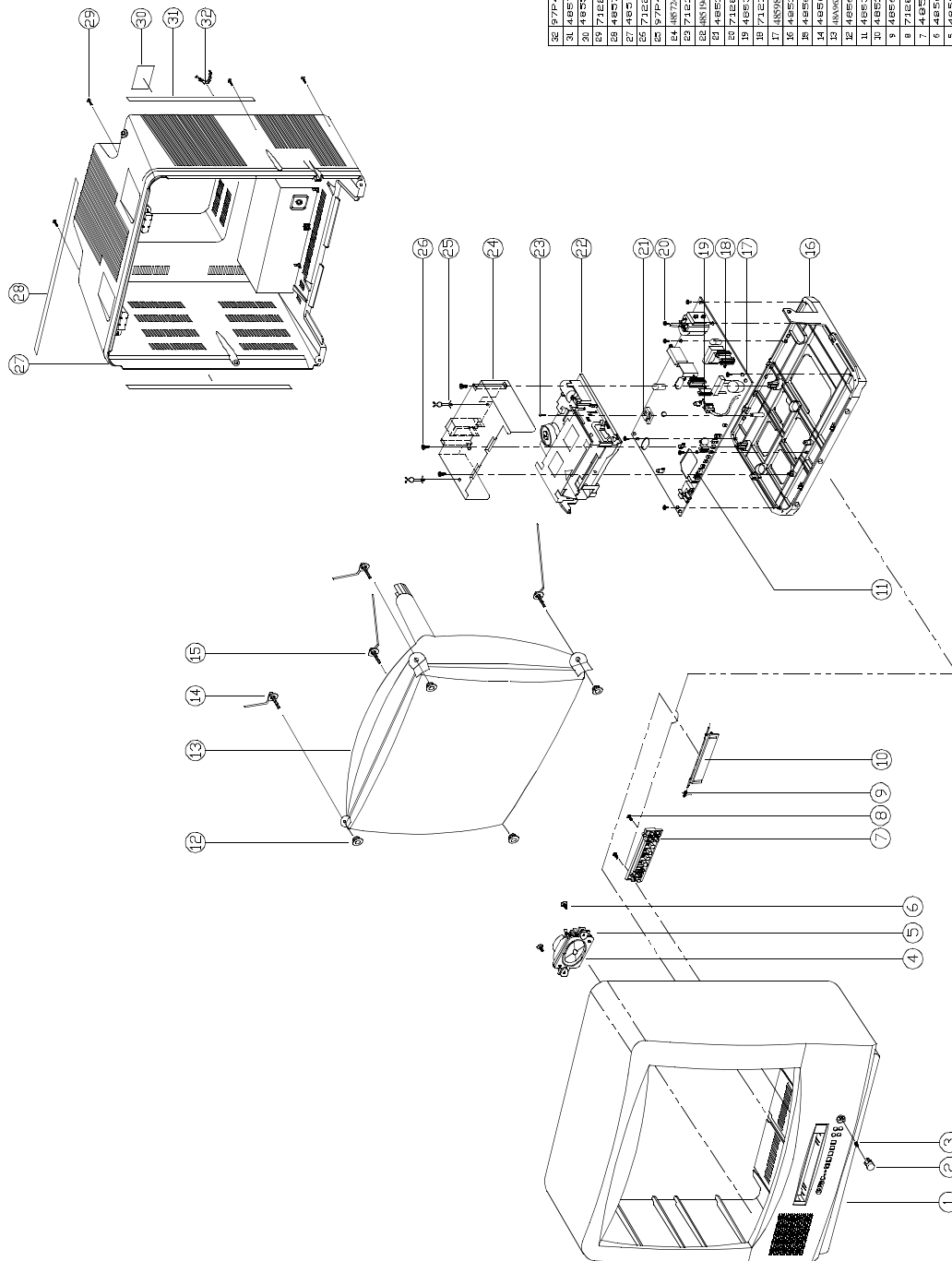
14"/20" DEFERENT PART LIST				
NO.	LOC.	14"-140G20G	14"-20A20G	20A14G
1	84516	1/2 32 SPIR 1/4	1/2 32 SPIR 1/4	1/2 32 SPIR 1/4
2	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
3	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
4	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
5	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
6	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
7	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
8	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
9	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
10	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
11	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
12	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
13	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
14	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
15	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
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28	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
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185	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
186	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
187	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
188	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
189	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
190	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
191	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
192	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
193	84516	1/2 1/2 TUB	1/2 1/2 TUB	1/2 1/2 TUB
194	84516	1/2 1/2 TUB	1/2 1/2 TUB	

## 1. DVQ-19H2FCN

[illegible]

## EXPLODED VIEW

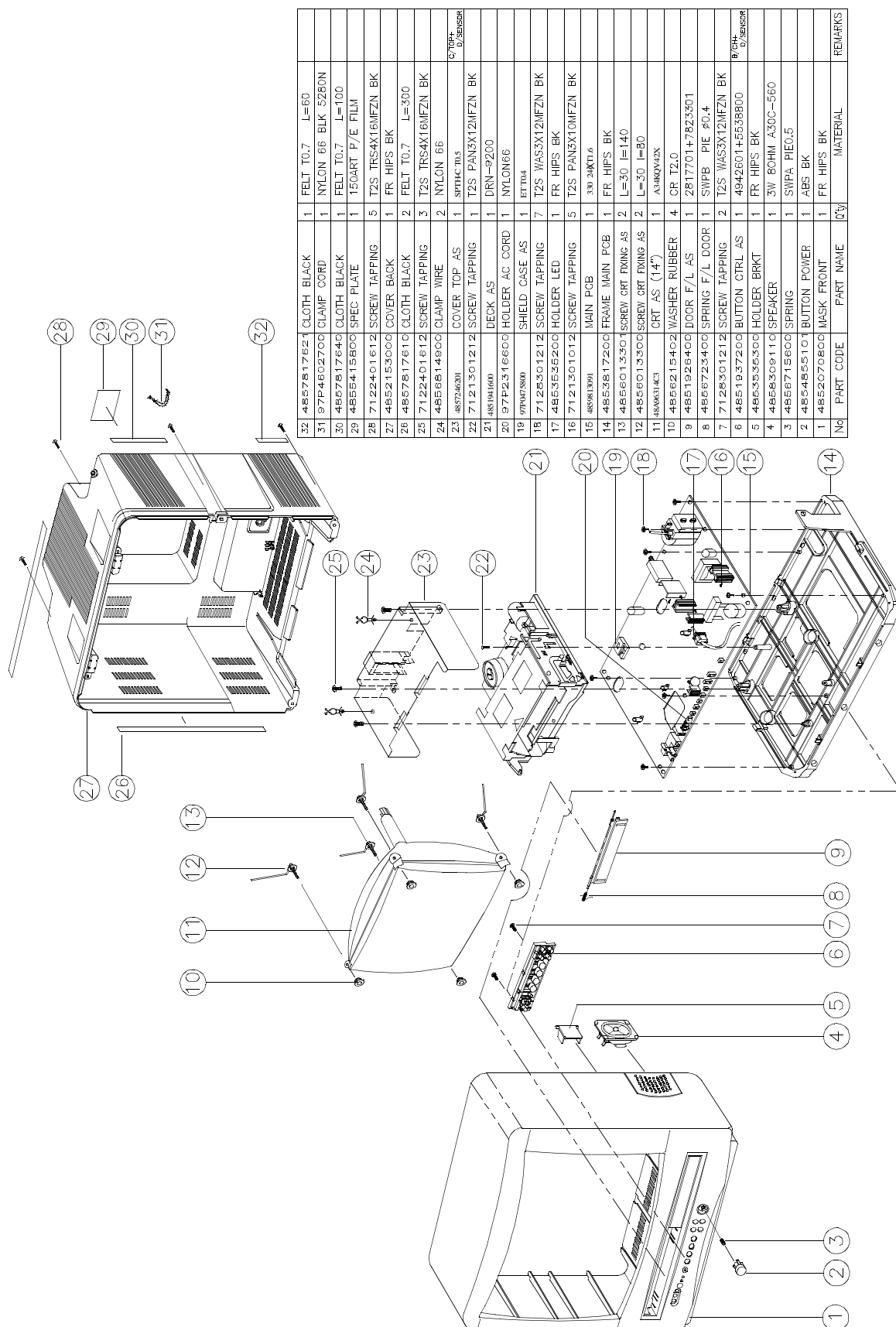
### 2. DVQ-19H1FC



32	92P4602702	CLAMP CORD	1	NYLON 66 BLK 560N	
31	4857017610	CLIP BLACK	1	FELT 300X200X7	
30	71855415603	SEC PLATE	1	ESART P/E FILM	
29	71855415603	SEC PLATE	1	TES TRSXM0MF2N BK	
28	4857017610	CLIP BLACK	2	FELT 400X200X7	
27	4857017610	CLIP BLACK	1	FR HPS BK	
26	71855415603	SEC PLATE	1	TES TRSXM0MF2N BK	
25	92P4602702	CLAMP CORD	2	NYLON 66 BLK 560N	
24	4857017610	CLIP BLACK	1	SPHCTUS	2/1000
23	71855415603	SEC PLATE	1	TES PANSXM0MF2N BK	
22	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
21	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
20	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
19	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
18	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
17	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
16	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
15	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
14	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
13	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
12	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
11	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
10	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
9	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
8	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
7	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
6	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
5	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
4	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
3	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
2	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
1	4857017610	CLIP BLACK	1	TES PANSXM0MF2N BK	
NO	PART CODE	PART NAME	QTY	MATERIAL	REMARKS

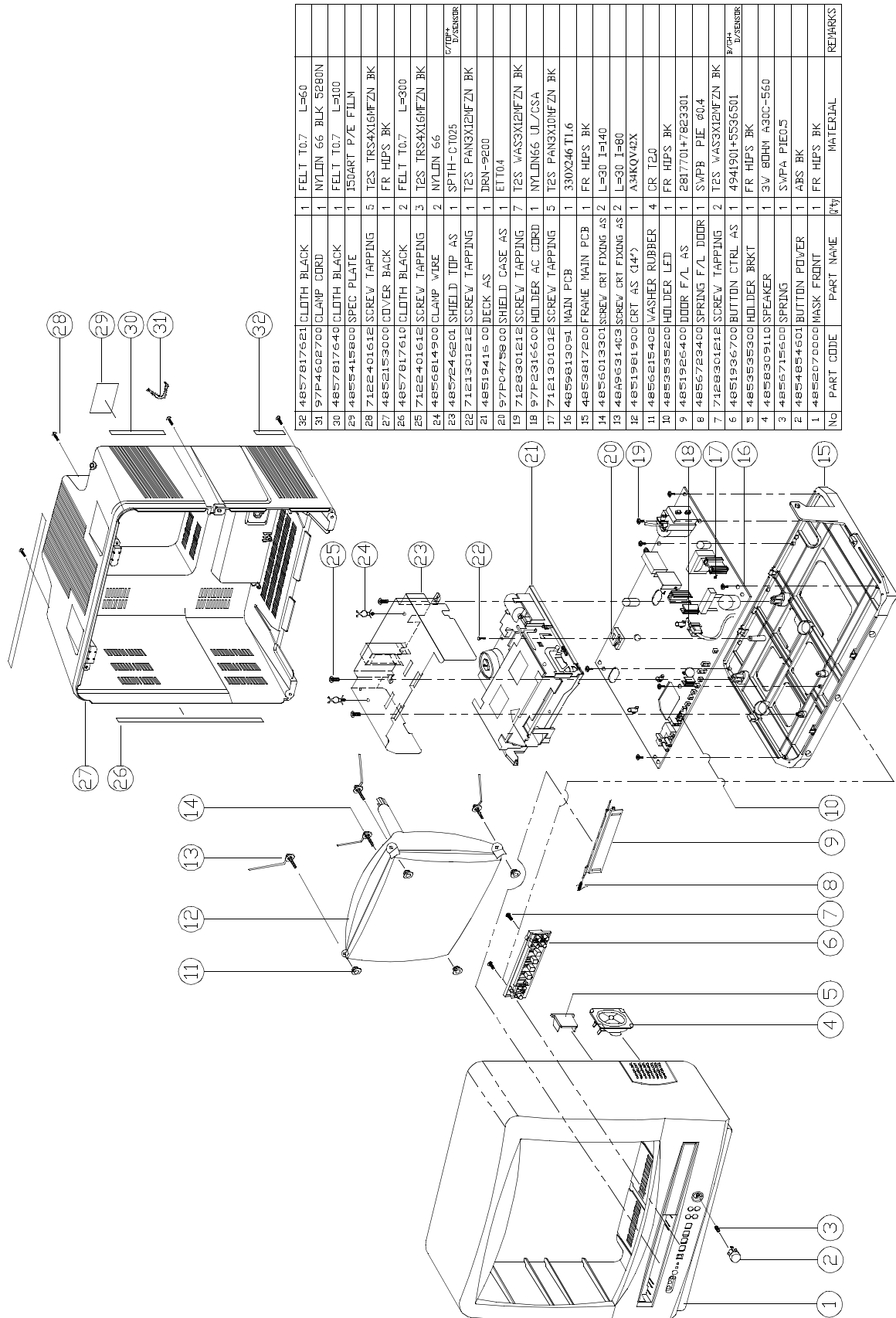


## 3. DVQ-13H2FC



32	48557817621	CLOTH BLACK	1	FELT T0.7	L=60	
31	97P4602700	CLAMP CORD	1	NYLON 66 BLK 5280N		
30	4867817640	CLOTH BLACK	1	FELT T0.7	L=100	
29	4855415800	SPEC PLATE	1	150ART F/E FILM		
28	7122401612	SCREW TAPPING	5	T2S TRS4X16MFZN BK		
27	4852153000	COVER BACK	1	FR HIPS BK		
26	4867817610	CLOTH BLACK	2	FELT T0.7	L=300	
25	7122401612	SCREW TAPPING	3	T2S TRS4X16MFZN BK		
24	4856814900	CLAMP WIRE	2	NYLON 66		
23	485746301	COVER TOP AS	1	SMTHC T0.3		CYTOP+ D/SENDA
22	7121301212	SCREW TAPPING	1	T2S PAN3X12MFZN BK		
21	485041600	DECK AS	1	DRN-9200		
20	97P2316600	HOLDER AC CORD	1	NYLON66		
19	97P073800	SHIELD CASE AS	1	ET104		
18	7126301212	SCREW TAPPING	7	T2S WAS3X12MFZN BK		
17	4853535200	HOLDER LED	1	FR HIPS BK		
16	7121301012	SCREW TAPPING	5	T2S PAN3X10MFZN BK		
15	485813091	MAIN PCB	1	3W 24KT1.6		
14	4853817200	FRAME MAIN PCB	1	FR HIPS BK		
13	4856013301	SCREW CRT FIXING AS	2	L=30 L=140		
12	4856013300	SCREW CRT FIXING AS	2	L=30 L=80		
11	485631403	CRT AS (14")	1	A380V40X		
10	4856215402	WASHER RUBBER	4	CR T2.0		
9	4851926400	DOOR F/L AS	1	2817701+7823301		
8	4866723400	SPRING F/L DOOR	1	SWPB PIE #0.4		
7	7126301212	SCREW TAPPING	2	T2S WAS3X12MFZN BK		
6	4851937200	BUTTON CTRL AS	1	4942601+5538800		
5	4853535300	HOLDER BRKT	1	FR HIPS BK		B/CNH D/SENDA
4	4856309110	SPEAKER	1	3W 8OHM A30C-560		
3	4856715600	SPRING	1	SWPA PIE0.5		
2	4854855101	BUTTON POWER	1	ABS BK		
1	4852070800	MASK FRONT	1	FR HIPS BK		
No	PART CODE	PART NAME	QTY	MATERIAL	REMARKS	



4. DVQ-13H1FC



## PRINTED CIRCUIT BOARD

# SERVICE PARTS LIST

## CAUTION

“” is safety component, so it must be used the same component.  
 “” is recomendable part for stock.

### □ DVQ-13H2FCN

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
ZZ100	48B4139A02	TRANSMITTER REMOCON	R-39A02 (AAA)		M672	4856715600	SPRING	SWPA PIE 0.4	
ZZ110	PTACPWH452	ACCESSORY AS	DVQ-14H2FCN		M681	4853535600	HOLDER CORD	NYROLN 66	
0001	4850A02510	ANT ROD	S3BW216B (L=600 MM)		ZZ200	PTFMSJH452	MASK FRONT AS	DVQ-14H2FCN	
0002	4850Q00910	BATTERY	R03/NN		M201	4852070800	MASK FRONT	FR HIPS BK	
0003	4850A00250	TRANS ANT MATCH-ING	IMT-06		M352	4853535300	HOLDER BRKT	FR HIPS BK	
0004	485860710	MANUAL INSTRU-CTI-ON	DVQ-14/20H1FC		ZZ202	PTSPPPWH452	SPEAKER AS	DVQ-14H2FCN	
M821	4858213800	BAG INSTRUCTION	L.D.P.E T0.05X250X400		PA601	4850703553	CONNECTOR	YH025-03+35098+ULW=500	
ZZ120	PTBCSHH452	COVER BACK AS	DVQ-14H2FCN		SP01	4858314310	SPEAKER	SP-5070A01 3W 8 OHM	
M211	4852153600	COVER BACK	FR HIPS BK		ZZ290	PTMPMSH452	PCB MAIN MANUAL AS	DVQ-14H2FCN	
M541	4855415800	SPEC PLATE	150ART P/E FILM (C/TV)		A001	4859813091	PCB MAIN	330X246	 
M781	4857817610	CLOTH BLACK	FELT 300X20X0.7		C101	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	
M782	4857817640	CLOTH BLACK	FELT 100X20X0.7		C102	CMXB1H333J	C MYLAR	50V EU 0.033MF J (TP)	
M783	4857817621	CLOTH BLACK	CLOTH T0.7 L=60		C105	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP	
ZZ130	PTPKCPH452	PACKING AS	DVQ-14H2FCN		C106	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
M801	4858042700	BOX CARTON	SW-3		C110	CEXF1H478A	C ELECTRO	50V RSM 0.47MF 4X7	
M801A	6520010100	STAPLE PIN	18M/M J D O		C111	CEXF1H108A	C ELECTRO	50V RSM 0.1MF 4X7	
M811	4858190200	PAD	EPS 14H2		C112	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
M822	4858215700	BAG PE	PE FOAM 10.5x1000X950		C116	CEXF1H229A	C ELECTRO	50V RSM 2.2MF (4X7) TP	
ZZ131	48519A4710	CRT GROUND NET	1401S-1015-1P		C117	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
ZZ132	58G0000078	COIL DEGAUSSING	DC-1400		C121	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP	
ZZ140	PTCACAH452	CABINET AS	DVQ-14H2FCN		C122	CEXF1H228V	C ELECTRO	50V RSS 0.22MF (5X11) TP	
CRT1	PTRTPWH452	CRT AS	"NTSC 14"" ITC CRT AS"	 	C301	CEXF1H479A	C ELECTRO	50V RSM 4.7MF 4X7	
V01	58D0000082	COIL DY	ODY-M1489		C302	CEXF1V101V	C ELECTRO	35V RSS 100MF (8X11.5) TP	
V02	2233030001	PAINT LOCK	3B-1401B		C303	CXSL2H100D	C CERA	500V SL 10PF D (TAPPING)	
V03	2TC26019BE	TAPE CLOTH	19X30 BEIGE		C304	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	
V04	2224050026	BOND SILICON	RTV 122 CARTRIDGE		C305	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
V05	4850PM001-	MAGNET CP	NY-225 (MINI NECK)		C308	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP	
V06	48A96R004-	RUBBER WEDGE	HMR 28 SR (10X54)		C309	CEXD1H109Q	C ELECTRO	50V RT 1MF (6.3X11) TP	
V901	48A96314C3	CRT BARE	A34KQV42X		C310	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
M191	4851937200	BUTTON CTRL	4942601+5538800		C401	CEXF2D470V	C ELECTRO	200V RSS 47MF (13X25) TP	
M191A	7178301212	SCREW TAPPTITE	TT2 WAS 3X12 MFZN BK		C402	CMYH3C692H	C MYLAR	1.6KV BUP 6900PF H	 
M201A	4856013300	SCREW CRT FIXING	30X80 BK		C403	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
M201B	4856013301	SCREW CRT FIXING	30X140 YL		C404	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP	
M201C	4856215402	WASHER RUBBER	CR T2.0		C405	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
M201D	4855800016	LABEL WARNING	ART 300 92X20		C406	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
M211A	7172401611	SCREW TAPPTITE	TT2 TRS 4X16 MFZN		C407	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP	
M281	4852817720	DOOR F/L	ABS BK SILK		C408	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
M481	4854855101	BUTTON POWER	ABS		C409	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
M671	4856723400	SPRING	SWPB 0.4		C410	CEXF1V471V	C ELECTRO	35V RSS 470MF (10X20) TP	
					C411	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7	

# SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
C412	CCYB2H103K	C CERA	500V B 0.01MF K		C836	CEXF1H479A	C ELECTRO	50V RSM 4.7MF 4X7	
C413	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)		C888	CH1BFE472M	C CERA AC	AC400V 4700PF M U/C/V	⚠
C415	CEXF2C109V	C ELECTRO	160V RSS 1MF (6.3X11) TP		C889	CH1BFE472M	C CERA AC	AC400V 4700PF M U/C/V	⚠
C416	CMYE2D474J	C MYLAR	200V PU 0.47MF J	Ⓡ ⚠	C901	CMXL2E104K	C MYLAR	250V MEU 0.1MF K	
C501	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z		C902	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
C502	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z		C965	CCXB3D102K	C CERA	2KV B 1000PF K (TAPPING)	
C503	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z		CC103	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C505	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP		CC104	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C507	CMXB1H224J	C MYLAR	50V EU 0.22MF J (TP)		CC107	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C508	CMXB1H224J	C MYLAR	50V EU 0.22MF J (TP)		CC108	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C509	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP		CC109	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C511	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP		CC113	HCQK809DCA	C CHIP CERA	50V CH 8PF D 2012	
C512	CMXM2A333J	C MYLAR	100V 0.033MF J (TP)		CC114	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C517	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP		CC115	HCBK152KCA	C CHIP CERA	50V X7R 1500PF K 2012	
C518	CMXB1H473J	C MYLAR	50V 0.047MF J (TP)		CC118	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C519	CEXF1H478A	C ELECTRO	50V RSM 0.47MF 4X7		CC120	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C522	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7		CC123	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012	
C525	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP		CC130	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C526	CEXF1H229A	C ELECTRO	50V RSM 2.2MF (4X7) TP		CC131	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C527	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7		CC506	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C528	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP		CC510	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C529	CMXL1H105J	C MYLAR	50V MEU 1MF J		CC513	HCQK181JCA	C CHIP CERA	50V CH 180PF J 2012	
C552	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP		CC516	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C602	CEXF1H108A	C ELECTRO	50V RSM 0.1MF 4X7		CC521	HCQK180JCA	C CHIP CERA	50V CH 18PF J 2012	
C604	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP		CC524	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C605	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP		CC532	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012	
C606	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP		CC553	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C801	CL1JB3474K	C LINE ACROSS	AC250V 0.47MF U/C/SNDF/ SV	⚠	CC601	HCBK153KCA	C CHIP CERA	50V X7R 0.015MF K 2012	
C802	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)		CCS03	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C803	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)		CCS04	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C804	CEYN2D331P	C ELECTRO	200V LHS 330MF	⚠	CCS05	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C805	CMYH3A472J	C MYLAR	1KV BUP 4700PF J	⚠	CCS08	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C820	CCXB3A471K	C CERA	1KV B 470PF K (T)		CCS11	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C821	CEYF2D101V	C ELECTRO	200V RSS 100MF (16X31.5)		CCS12	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C822	CEXF2A100V	C ELECTRO	100V RSS 10MF (6.3X11) TP		CCS16	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C823	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP		CCS24	HCQK240JCA	C CHIP CERA	50V CH 24PF J 2012	
C824	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP		CCS25	HCQK240JCA	C CHIP CERA	50V CH 24PF J 2012	
C825	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP		CCS29	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012	
C826	CEXF1H479A	C ELECTRO	50V RSM 4.7MF 4X7		CCS31	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012	
C827	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP		CCS32	HCQK201JCA	C CHIP CERA	50V CH 200PF J 2012	
C828	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP		CCS34	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C829	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP		CCS35	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C830	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP		CCS36	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C832	CCXB3A471K	C CERA	1KV B 470PF K (T)		CCS37	HCQK101JCA	C CHIP CERA	50V CH 100PF J 2012	
C834	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)		CCS43	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012	
C835	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP		CCS48	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012	
					CCS49	HCBK102KCA	C CHIP CERA	50V X7R 1000PF K 2012	

## SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
CCS50	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CS33	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
CCS53	HCQK391JCA	C CHIP CERA	50V CH 390PF J 2012		CS39	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCS54	HCBK332KCA	C CHIP CERA	50V X7R 3300PF K 2012		CS40	CCZB1H223K	C CERA	HIBK 50V 0.022MF K AXL 52	
CCS61	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS41	CCZB1H223K	C CERA	HIBK 50V 0.022MF K AXL 52	
CCS63	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS42	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCS64	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS51	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCU02	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CS52	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCU03	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CS57	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7	
CCU08	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CS59	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCU09	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS62	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP	
CCU10	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CS65	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP	
CCU11	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS66	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP	
CCU13	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CS70	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCU14	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CT01	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
CCU15	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU01	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
CCU17	HCBK222KCA	C CHIP CERA	50V X7R 2200PF K 2012		CU04	CEXF1C220A	C ELECTRO	16V RSM 22MF (5X7)	
CCU18	HCBK152KCA	C CHIP CERA	50V X7R 1500PF K 2012		CU05	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCY02	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CU06	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
CCY03	HCQK391JCA	C CHIP CERA	50V CH 390PF J 2012		CU07	CEXF1H479A	C ELECTRO	50V RSM 4.7MF 4X7	
CCY04	HCQK201JCA	C CHIP CERA	50V CH 200PF J 2012		CU12	CCZB1H223K	C CERA	HIBK 50V 0.022MF K AXL 52	
CCY05	HCQK390JCA	C CHIP CERA	50V CH 39PF J 2012		CU16	CEXF1H479A	C ELECTRO	50V RSM 4.7MF 4X7	
CCY08	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU19	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
CCY12	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU20	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP	
CCY13	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CU21	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	
CCY20	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU22	CMXM2A333J	C MYLAR	100V 0.033MF J (TP)	
CCY21	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU23	CMXM2A223J	C MYLAR	100V 0.022MF J TP	
CCY28	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CU30	CEXF1C220A	C ELECTRO	16V RSM 22MF (5X7)	
CCY33	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CY01	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCY34	HCBK473KCA	C CHIP CERA	50V X7R 0.047MF K 2012		CY06	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
CCY35	HCBK473KCA	C CHIP CERA	50V X7R 0.047MF K 2012		CY07	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP	
CCY36	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CY09	CEXF1C220A	C ELECTRO	16V RSM 22MF (5X7)	
CCY38	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CY10	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7	
CCY40	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CY11	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCY41	HCQK510JCA	C CHIP CERA	50V CH 51PF J 2012		CY14	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7	
CCY42	HCBK103KCA	C CHIP CERA	50V X7R 0.01MF K 2012		CY15	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCZ02	HCFK104ZCA	C CHIP CERA	50V Y5V 0.1MF Z 2012		CY16	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CCZ03	HCQK510JCA	C CHIP CERA	50V CH 51PF J 2012		CY17	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7	
CS10	CCZF1H103Z	C CERA	50V F 0.01MF Z		CY18	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CS14	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP		CY19	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
CS15	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP		CY22	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
CS17	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP		CY23	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP	
CS18	CZCH1H180J	C CERA	50V CH 18PF J (AXIAL)		CY24	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
CS19	CZCH1H180J	C CERA	50V CH 18PF J (AXIAL)		CY26	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CS20	CZCH1H240J	C CERA	50V CH 24PF J AXIAL		CY27	CEXF1H229A	C ELECTRO	50V RSM 2.2MF (4X7) TP	
CS21	CZCH1H240J	C CERA	50V CH 24PF J AXIAL		CY29	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	
CS28	CEXF1C470A	C ELECTRO	16V RSM 47MF (5X7) TP		CY30	CCZB1H223K	C CERA	HIBK 50V 0.022MF K AXL 52	
CS30	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP		CY31	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP	

# SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
CY32	CEXF1C100A	C ELECTRO	16V RSM 10MF 5X7		I301A	4857027100	HEAT SINK	SPCC T1.0+SN	
CY37	CEXF1H109A	C ELECTRO	50V RSM 1MF (4X7) TP		I301B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
CY39	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP		I501	1DCT814B--	IC CHROMA	DCT814B	®
CZ01	CEXF1C101A	C ELECTRO	16V RSM 100MF (6.3X7) TP		I601	1TDA7267A-	IC AMP	TDA7267A	
D101	DUZ33B----	DIODE ZENER	UZ-33B		I801	4850M04310	MODULE POWER	DPM001T1	® ⚠
D301	D1N4004---	DIODE	1N4004		I803	PTX2SW6900	HEAT SINK ASS'Y	1K1A7805P1 + 7174301011	
D302	DUZ33B----	DIODE ZENER	UZ-33B		I803A	1K1A7805P1	IC REGULATOR	KIA7805API	
D303	DUZ33B----	DIODE ZENER	UZ-33B		I803B	4857026900	HEAT SINK	AL EX	
D401	D1N4937G--	DIODE	1N4937G (TAPPING)		I803C	7174301011	SCREW TAPPTITE	TT2 RND 3X10 MFZN	
D402	D1N4937G--	DIODE	1N4937G (TAPPING)		I804	PTD2SW4617	HEAT SINK ASS'Y	1K78R05--- + 7174300811	
D403	D1N4937G--	DIODE	1N4937G (TAPPING)		I804	1K78R05---	IC REGULATOR	KIA78R05PI	
D404	D1N4937G--	DIODE	1N4937G (TAPPING)		I804A	4857024617	HEAT SINK	AL EX	
D406	D1N4937G--	DIODE	1N4937G (TAPPING)		I804B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
D501	D1N4148---	DIODE	1N4148 (TAPPING)		I805	1K78R12---	IC REGULATOR	KIA78R12PI	
D504	DUZ9R1BM--	DIODE ZENER	UZ-9.1BM 9.1V		I805A	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
D801	DLT2A05G--	DIODE	LT2A05G (TP)	® ⚠	I901	PTA3SW1300	HEAT SINK ASS'Y	1TDA6103Q- + 7174300811	®
D802	DLT2A05G--	DIODE	LT2A05G (TP)	⚠	I901	1TDA6103Q-	IC VIDEO	TDA6103Q	
D803	DLT2A05G--	DIODE	LT2A05G (TP)	⚠	I901A	4857031300	HEAT SINK	A1050P-H24 T1.6	
D804	DLT2A05G--	DIODE	LT2A05G (TP)	⚠	I901B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
D820	DRGP30J---	DIODE	RGP30J		ICS01	1DW760BA1Q	IC MICOM	DW37760MOH-BA1	®
D821	D1N4937G--	DIODE	1N4937G (TAPPING)		ICY01	1LA71076AQ	IC CHIP Y/C	LA71076AM	
D822	DRGP15J---	DIODE	RGP15J		IS02	1K1A6801K-	IC MOTOR DRIVER	KIA6801K	
D823	DRGP15J---	DIODE	RGP15J		IS03	1AT24C08PC	IC	AT24C08-10PC	
D824	DUZ9R1BM--	DIODE ZENER	UZ-9.1BM 9.1V	®	IS04	1K1A7033AP	IC RESET	KIA7033AP	
D825	DRZ1175V1-	DIODE ZENER	RZ1175V1		IS05	1K1A7042AP	IC REGULATOR	KIA7042AP	®
D826	D1N4148---	DIODE	1N4148 (TAPPING)		IT01	1KRT30----	IC PREAMP	KRT30	
D827	DUZ15BM---	DIODE ZENER	UZ-15BM	®	J001-J166	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
D828	D1N4148---	DIODE	1N4148 (TAPPING)		JG01-JG03	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
D829	D1N4148---	DIODE	1N4148 (TAPPING)		JP01	4859109950	JACK PIN BOARD	PH-JB-9710A	
DS01	D1N4004---	DIODE	1N4004		L101	5CPX560J--	COIL PEAKING	56UH J (RADIAL)	
DS02	D1N4148---	DIODE	1N4148 (TAPPING)		L102	58C5580019	COIL CHOKE	TRF-9225 (0.55UH)	
DS03	DS15312H--	LED IR	SI5312-H		L103	5CPZ220K02	COIL PEAKING	22UH K (AXIAL 3.5MM)	
DS03A	97P2339600	HOLDER IR	ABS		L110	58N0000042	COIL VCO	TRF-V008	
DS04	DUZ6R2BM--	DIODE ZENER	UZ-6.2BM 6.2V		L401	58C0000026	COIL BEAD	HC-4035	
DS05	DUZ5R6BM--	DIODE ZENER	UZ-5.6BM(TAPPING)		L501	5CPZ220K02	COIL PEAKING	22UH K (AXIAL 3.5MM)	
DS07	D1N4148---	DIODE	1N4148 (TAPPING)		L502	5CPZ560K04	COIL PEAKING	56UH K (AXIAL 10.5MM)	
DT01	DKLR114L--	LED	KLR114L		L503	5CPZ150K02	COIL PEAKING	15UH K (AXIAL 3.5MM)	
DT02	DSD50RH51B	LED	SD50-RH51BGRW		L801	5PLF24A1--	FILTER LINE	LF-24A1	⚠
DT03	DUZ5R6BM--	DIODE ZENER	UZ-5.6BM(TAPPING)		L802	5MC0000100	COIL BEAD	HC-3550	
DT04	DUZ5R6BM--	DIODE ZENER	UZ-5.6BM(TAPPING)		L803	5MC0000100	COIL BEAD	HC-3550	
E001-E046	4856310300	EYE LET	BSR T0.2 (R1.6/R2.3)		L804	58C0000093	COIL DELAY LINE	RS208	
F801	5F1GB4021L	FUSE GLASS TUBE	UL/CSA TL 4A 125V MF51	⚠	L820	5MC0000100	COIL BEAD	HC-3550	
F801A	4857415001	CLIP FUSE	PFC5000-0702		L821	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
F801B	4857415001	CLIP FUSE	PFC5000-0702		L823	58CX430599	COIL CHOKE	AZ-9004Y 940K TP	
I301	PTB2SW7100	HEAT SINK ASS'Y	1LA7841--- + 7174300811		L824	58CX430599	COIL CHOKE	AZ-9004Y 940K TP	
I301	1LA7841---	IC VERTICAL	LA7841	® ⚠	LS01	5CPZ159M02	COIL PEAKING	1.5UH 3.5MM M (LAL02TB)	

## SERVICE PARTS LIST


LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
LS02	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)		Q823	TKSA1013Y-	TR	KSA1013Y (TP)	
LS03	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)		Q826	TKTC3198Y-	TR	KTC3198Y	
LU01	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)		QC824	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LU02	5CPX101J--	COIL PEAKING	PL 100UH J (TAPPING)		QC825	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LU03	5CPX103J--	COIL PEAKING	10MH 5MM J RADIAL		QCS01	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LY01	5CPZ560K04	COIL PEAKING	56UH K (AXIAL 10.5MM)		QCS02	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LY02	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)		QCU04	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LY03	5CPX560J--	COIL PEAKING	56UH J (RADIAL)		QCU05	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LY04	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)		QCY03	T2SC2412KB	TR CHIP	2SC2412K-T146-BR	
LZ01	5CPZ560K04	COIL PEAKING	56UH K (AXIAL 10.5MM)		QS03	TKTC3198Y-	TR	KTC3198Y	
M047	97P0475800	CASE SHI PREAMP	ET T0.4		QT01	TKTC3198Y-	TR	KTC3198Y	
M191	4851941600	DECK AS	DRN-9200	⚠	QT02	TKTC3198Y-	TR	KTC3198Y	
M194	4857246201	SHIELD TOP	SPTH-C T0.5		QT03	TKTA1266Y-	TR	KTA1266Y (TP)	
M231	4853535500	HOLDER CORD	NYROLN 66		QU01	TKRC102M--	TR	KRC 102-M (TAPPING)	
M351	4853535200	HOLDER LED	FR HIPS BK		QU02	TKTA1266Y-	TR	KTA1266Y (TP)	
M381	4853817200	FRAME MAIN PCB	FR HIPS BK	⚠	QU03	TKTA1266Y-	TR	KTA1266Y (TP)	
M381A	7172401611	SCREW TAPPTITE	TT2 TRS 4X16 MFZN		QU06	TKTC3202Y-	TR	KTC3202Y (TP)	
M381B	7178301212	SCREW TAPPTITE	TT2 WAS 3X12 MFZN BK		QY01	TKTA1266Y-	TR	KTA1266Y (TP)	
M381C	7171301212	SCREW TAPTITE	TT2 PAN 3X12 MFZN BK		QY02	TKTA1266Y-	TR	KTA1266Y (TP)	
M381D	7172401612	SCREW TAPPTITE	TT2 TRS 4X16 MFZN BK		R106	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
M682	4856814900	CLAMP WIRE	NYLON 66		R107	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
M683	4856812001	TIE CABLE	NYLON66 DA100		R110	RD-4Z392J-	R CARBON FILM	1/4 3.9K OHM J	
P401	4859240020	CONN WAFER	YFW500-05		R112	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
P601	485923162S	CONN WAFER	YW025-03 (STICK)		R113	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
P802A	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)		R301	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J	
P802B	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)		R302	RN01B331JS	R METAL FILM	1W 330 OHM J SMALL	
PA501	4850708N11	CONNECTOR	BIC-08T-25T+C-20T+ULW=300		R305	RN02B471JS	R METAL FILM	2W 470 OHM J SMALL	
PAS03	4850707V03	CONNECTOR	60-8283-3078-45+ULW=100		R306	RN02B471JS	R METAL FILM	2W 470 OHM J SMALL	
PAU01	4850706N07	CONNECTOR	60-8283-3068-45+USW=250		R307	RN01B129JS	R METAL FILM	1W 1.2 OHM J SMALL	
PS01	4859292320	CONN WAFER	GF120-07S-TS		R308	RD-4Z273J-	R CARBON FILM	1/4 27K OHM J	
PS01A	4859200170	CONN FFC	K-7X100-0.25		R312	RN-4Z1502F	R METAL FILM	1/4 15K OHM F	
PS02	4859278220	CONN WAFER	TKC-G10P-A1		R313	RN-4Z1603F	R METAL FILM	1/4 160K OHM F	
PS04	485923182S	CONN WAFER	YW025-05 (STICK)		R320	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
PWC01	4859907910	CORD POWER AS	ME301P+TER=1830	⚠	R401	RN02B101JS	R METAL FILM	2W 100 OHM J SMALL	
PZ01	4859292220	CONN WAFER	GF120-04S-TS-R		R402	RN01B229JS	R METAL FILM	1W 2.2 OHM J SMALL	
Q401	TKTC3207--	TR	KTC3207 (TP)		R403	RS01Z309J-	R M-OXIDE FILM	1W 3 OHM J (TAPPING)	
Q402	T2SD2499--	TR	2SD2499	⚠	R404	RN01B229JS	R METAL FILM	1W 2.2 OHM J SMALL	
Q503	TKRC102M--	TR	KRC 102-M (TAPPING)		R405	RD-4Z153J-	R CARBON FILM	1/4 15K OHM J	
Q601	TKTC3198Y-	TR	KTC3198Y		R409	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J	
Q801	PTL2SW4510	HEAT SINK ASS'Y	T2SK2564-- + 7174300811		R410	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J	
Q801	T2SK2564--	FET	2SK2564	⚠	R411	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	
Q801A	4857024510	HEAT SINK	AL EX		R412	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
Q801B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN		R414	RN01B562JS	R METAL FILM	1W 5.6K OHM J SMALL	
Q820	TKSA1013Y-	TR	KSA1013Y (TP)		R415	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J	
Q821	TKSA1013Y-	TR	KSA1013Y (TP)		R417	RN02B101JS	R METAL FILM	2W 100 OHM J SMALL	
Q822	TKTC3198Y-	TR	KTC3198Y		R504	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J	
					R505	RD-AZ201J-	R CARBON FILM	1/6 200 OHM J	



# SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
R506	RD-AZ201J-	R CARBON FILM	1/6 200 OHM J		R907	RN01B124JS	R METAL FILM	1W 120K OHM J SMALL	
R507	RD-AZ201J-	R CARBON FILM	1/6 200 OHM J		RA01	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J	
R508	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RA02	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R511	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J		RC101	HRFT153JCA	R CHIP	1/10 15K OHM J 2012	
R518	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J		RC102	HRFT104JCA	R CHIP	1/10 100K OHM J 2012	
R529	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J		RC103	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012	
R530	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J		RC104	HRFT473JCA	R CHIP	1/10 47K OHM J 2012	
R601	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J		RC105	HRFT473JCA	R CHIP	1/10 47K OHM J 2012	
R602	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J		RC108	HRFT331JCA	R CHIP	1/10 330 OHM J 2012	
R603	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RC109	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
R604	RN02B339JS	R METAL FILM	2W 3.3 OHM J SMALL		RC110	HRFT153JCA	R CHIP	1/10 15K OHM J 2012	
R605	RD-2Z331J-	R CARBON FILM	1/2 330 OHM J		RC309	HRFT222JCA	R CHIP	1/10 2.2K OHM J 2012	
R607	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J		RC310	HRFT333JCA	R CHIP	1/10 33K OHM J 2012	
R608	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RC311	HRFT113JCA	R CHIP	1/10 11K OHM J 2012	
R609	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J		RC406	HRFT113JCA	R CHIP	1/10 11K OHM J 2012	
R801	DSVC471D14	VARISTOR	SVC471D14A	⚠	RC407	HRFT473JCA	R CHIP	1/10 47K OHM J 2012	
R802	RX07B229JN	R CEMENT	7W 2.2 OHM J BENCH 4P	⚠	RC408	HRFT113JCA	R CHIP	1/10 11K OHM J 2012	
R803	RD-4Z394J-	R CARBON FILM	1/4 390K OHM J		RC501	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
R804	RD-4Z394J-	R CARBON FILM	1/4 390K OHM J		RC502	HRFT822JCA	R CHIP	1/10 8.2K OHM J 2012	
R805	RD-4Z333J-	R CARBON FILM	1/4 33K OHM J		RC503	HRFT824JCA	R CHIP	1/10 820K OHM J 2012	
R806	RD-4Z432J-	R CARBON FILM	1/4 4.3K OHM J		RC509	HRFT122JCA	R CHIP	1/10 1.2K OHM J 2012	
R807	RS02Z228JS	R M-OXIDE FILM	2W 0.22 OHM J SMALL		RC510	HRFT182JCA	R CHIP	1/10 1.8K OHM J 2012	
R816	DEC7R0M140	POSISTOR	ECPAC7R0M140	⚠	RC512	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
R820	RS02Z828JS	R M-OXIDE FILM	2W 0.82 OHM J SMALL		RC513	HRFT152JCA	R CHIP	1/10 1.5K OHM J 2012	
R821	RD-4Z363J-	R CARBON FILM	1/4 36K OHM J		RC514	HRFT472FCA	R CHIP	1/10 4.7K OHM F 2012	
R822	RD-AZ363J-	R CARBON FILM	1/6 36K OHM J		RC515	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
R823	RD-AZ363J-	R CARBON FILM	1/6 36K OHM J		RC517	HRFT123JCA	R CHIP	1/10 12K OHM J 2012	
R824	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J		RC519	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
R825	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J		RC520	HRFT390JCA	R CHIP	1/10 39 OHM J 2012	
R826	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J		RC521	HRFT914JCA	R CHIP	1/10 910KOHM J 2012	
R827	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC522	HRFT511JCA	R CHIP	1/10 510 OHM J 2012	
R828	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J		RC523	HRFT511JCA	R CHIP	1/10 510 OHM J 2012	
R829	RD-AZ304J-	R CARBON FILM	1/6 300K OHM J		RC527	HRFT223JCA	R CHIP	1/10 22K OHM J 2012	
R830	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RC528	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
R831	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC541	HRFT205JCA	R CHIP	1/10 2M OHM J 2012	
R832	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC542	HRFT564JCA	R CHIP	1/10 560K OHM J 2012	
R833	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC553	HRFT330JCA	R CHIP	1/10 33 OHM J 2012	
R834	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC908	HRFT202JCA	R CHIP	1/10 2K OHM J 2012	
R835	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RC909	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
R836	RN01B124JS	R METAL FILM	1W 120K OHM J SMALL		RC910	HRFT202JCA	R CHIP	1/10 2K OHM J 2012	
R837	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RC911	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
R889	RC-2Z565KP	R CARBON COMP	1/2 5.6M OHM K	⚠	RC912	HRFT202JCA	R CHIP	1/10 2K OHM J 2012	
R902	RN01B152JS	R METAL FILM	1W 1.5K OHM J SMALL		RC913	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
R903	RN01B152JS	R METAL FILM	1W 1.5K OHM J SMALL		RCS03	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
R904	RN01B152JS	R METAL FILM	1W 1.5K OHM J SMALL		RCS06	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
R905	RN01B124JS	R METAL FILM	1W 120K OHM J SMALL		RCS07	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
R906	RN01B124JS	R METAL FILM	1W 120K OHM J SMALL		RCS08	HRFT473JCA	R CHIP	1/10 47K OHM J 2012	

## SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
RCS09	HRFT393JCA	R CHIP	1/10 39K OHM J 2012		RCU03	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012	
RCS10	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU05	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012	
RCS11	HRFT154JCA	R CHIP	1/10 150K OHM J 2012		RCU06	HRFT362JCA	R CHIP	1/10 3.6K OHM J 2012	
RCS12	HRFT154JCA	R CHIP	1/10 150K OHM J 2012		RCU08	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
RCS14	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU09	HRFT912JCA	R CHIP	1/10 9.1K OHM J 2012	
RCS15	HRFT362JCA	R CHIP	1/10 3.6K OHM J 2012		RCU10	HRFT682JCA	R CHIP	1/10 6.8K OHM J 2012	
RCS16	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012		RCU11	HRFT272JCA	R CHIP	1/10 2.7K OHM J 2012	
RCS25	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU12	HRFT821JCA	R CHIP	1/10 820 OHM J 2012	
RCS30	HRFT106JCA	R CHIP	1/10 10M OHM J 2012		RCU13	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012	
RCS31	HRFT104JCA	R CHIP	1/10 100K OHM J 2012		RCU14	HRFT152JCA	R CHIP	1/10 1.5K OHM J 2012	
RCS32	HRFT105JCA	R CHIP	1/10 1M OHM J 2012		RCU15	HRFT123JCA	R CHIP	1/10 12K OHM J 2012	
RCS33	HRFT511JCA	R CHIP	1/10 510 OHM J 2012		RCU16	HRFT822JCA	R CHIP	1/10 8.2K OHM J 2012	
RCS36	HRFT471JCA	R CHIP	1/10 470 OHM J 2012		RCU17	HRFT334JCA	R CHIP	1/10 330K OHM J 2012	
RCS37	HRFT105JCA	R CHIP	1/10 1M OHM J 2012		RCU18	HRFT181JCA	R CHIP	1/10 180 OHM J 2012	
RCS46	HRFT102JCA	R CHIP	1/10 1K OHM J 2012		RCU19	HRFT273JCA	R CHIP	1/10 27K OHM J 2012	
RCS47	HRFT102JCA	R CHIP	1/10 1K OHM J 2012		RCU20	HRFT122JCA	R CHIP	1/10 1.2K OHM J 2012	
RCS48	HRFT102JCA	R CHIP	1/10 1K OHM J 2012		RCU23	HRFT152JCA	R CHIP	1/10 1.5K OHM J 2012	
RCS49	HRFT362JCA	R CHIP	1/10 3.6K OHM J 2012		RCU24	HRFT229JCA	R CHIP	1/10 2.2 OHM J 2012	
RCS60	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU25	HRFT229JCA	R CHIP	1/10 2.2 OHM J 2012	
RCS61	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU27	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
RCS64	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCU28	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012	
RCS65	HRFT273JCA	R CHIP	1/10 27K OHM J 2012		RCU29	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
RCS66	HRFT201JCA	R CHIP	1/10 200 OHM J 2012		RCY09	HRFT153JCA	R CHIP	1/10 15K OHM J 2012	
RCS67	HRFT273JCA	R CHIP	1/10 27K OHM J 2012		RCY10	HRFT152JCA	R CHIP	1/10 1.5K OHM J 2012	
RCS68	HRFT201JCA	R CHIP	1/10 200 OHM J 2012		RCY11	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012	
RCS71	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCY12	HRFT153JCA	R CHIP	1/10 15K OHM J 2012	
RCS72	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCY14	HRFT511JCA	R CHIP	1/10 510 OHM J 2012	
RCS73	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCY15	HRFT181JCA	R CHIP	1/10 180 OHM J 2012	
RCS74	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCY16	HRFT201JCA	R CHIP	1/10 200 OHM J 2012	
RCS81	HRFT182JCA	R CHIP	1/10 1.8K OHM J 2012		RCY17	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
RCS82	HRFT182JCA	R CHIP	1/10 1.8K OHM J 2012		RCY19	HRFT512JCA	R CHIP	1/10 5.1K OHM J 2012	
RCS84	HRFT332JCA	R CHIP	1/10 3.3K OHM J 2012		RCY20	HRFT182JCA	R CHIP	1/10 1.8K OHM J 2012	
RCS85	HRFT473JCA	R CHIP	1/10 47K OHM J 2012		RCY24	HRFT684JCA	R CHIP	1/10 680K OHM J 2012	
RCS86	HRFT103JCA	R CHIP	1/10 10K OHM J 2012		RCY27	HRFT122JCA	R CHIP	1/10 1.2K OHM J 2012	
RCS87	HRFT471JCA	R CHIP	1/10 470 OHM J 2012		RCY29	HRFT822JCA	R CHIP	1/10 8.2K OHM J 2012	
RCS93	HRFT273JCA	R CHIP	1/10 27K OHM J 2012		RCY30	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
RCT09	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012		RCY31	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
RCT11	HRFT911JCA	R CHIP	1/10 910 OHM J 2012		RCY32	HRFT332JCA	R CHIP	1/10 3.3K OHM J 2012	
RCT12	HRFT132JCA	R CHIP	1/10 1.3K OHM J 2012		RCY33	HRFT363JCA	R CHIP	1/10 36K OHM J 2012	
RCT13	HRFT202JCA	R CHIP	1/10 2K OHM J 2012		RCY34	HRFT202JCA	R CHIP	1/10 2K OHM J 2012	
RCT14	HRFT332JCA	R CHIP	1/10 3.3K OHM J 2012		RCY37	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012	
RCT15	HRFT472JCA	R CHIP	1/10 4.7K OHM J 2012		RCY38	HRFT103JCA	R CHIP	1/10 10K OHM J 2012	
RCT17	HRFT911JCA	R CHIP	1/10 910 OHM J 2012		RCY40	HRFT102JCA	R CHIP	1/10 1K OHM J 2012	
RCT18	HRFT132JCA	R CHIP	1/10 1.3K OHM J 2012		RCY43	HRFT204JCA	R CHIP	1/10 200K OHM J 2012	
RCT19	HRFT202JCA	R CHIP	1/10 2K OHM J 2012		RCZ01	HRFT511JCA	R CHIP	1/10 510 OHM J 2012	
RCT20	HRFT332JCA	R CHIP	1/10 3.3K OHM J 2012		RLY01	5SC0101338	SW RELAY	DO5D1-Q(M)/GJ-SS-105LM	
RCU01	HRFT205JCA	R CHIP	1/10 2M OHM J 2012		RS01	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	

# SERVICE PARTS LIST

LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
RS02	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RT04	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	
RS13	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J		RT05	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
RS17	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RT06	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
RS18	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RT08	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	
RS19	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RT10	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J	
RS20	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RT16	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J	
RS23	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RU02	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J	
RS24	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RU04	RD-AZ683J-	R CARBON FILM	1/6 68K OHM J	
RS26	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J		RU07	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
RS27	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RU21	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	
RS28	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J		RU22	RD-AZ470J-	R CARBON FILM	1/6 47 OHM J	
RS29	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING		RU26	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	
RS35	RD-AZ751J-	R CARBON FILM	1/6 750 OHM J		RU30	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J	
RS38	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RV01	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
RS39	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J		RV02	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
RS40	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		RY01	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
RS41	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RY04	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
RS42	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY05	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
RS43	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY06	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
RS44	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY07	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
RS45	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY08	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
RS50	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY13	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
RS51	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY23	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	
RS52	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RY26	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
RS53	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RY28	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J	
RS54	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY36	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
RS55	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		RY39	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
RS56	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		RY42	RD-AZ184J-	R CARBON FILM	1/6 180K OHM J	
RS57	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		SCT01	4859303430	SOCKET CRT	PCS633A	® ⚠
RS58	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J		SS01	TST5811---	TR PHOTO	ST-5811	
RS59	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J		SS01A	97P2343500	HOLDER TR	ABS FR	
RS62	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		SS02	TST5811---	TR PHOTO	ST-5811	
RS63	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J		SS02A	97P2343500	HOLDER TR	ABS FR	
RS69	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		SS03	4850S00001	SENSOR REEL	SG-258S	
RS70	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		SS04	4850S00001	SENSOR REEL	SG-258S	
RS75	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		SWS01	5SN0101Z20	SW DETECT	JDS1105-6X	
RS76	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		SWT01	5S50101090	SW TACT	SKHV17910A	
RS77	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		SWT02	5S50202002	SW TACT	KPT-2105A 2C-2P	
RS78	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J		SWT03	5S50202002	SW TACT	KPT-2105A 2C-2P	
RS79	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J		SWT04	5S50101090	SW TACT	SKHV17910A	
RS83	RN02B100JS	R METAL FILM	2W 10 OHM J SMALL		SWT05	5S50101090	SW TACT	SKHV17910A	
RS88	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J		SWT06	5S50101090	SW TACT	SKHV17910A	
RS90	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		SWT07	5S50101090	SW TACT	SKHV17910A	
RS91	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J		SWT08	5S50101090	SW TACT	SKHV17910A	
RT01	RD-AZ240J-	R CARBON FILM	1/6 24 OHM J		T401	50D0000022	TRANS DRIVE	HD-15D	®
RT02	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J		T402	50H0000210	FBT	LTC-509	® ⚠
RT03	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J		T802	50M3541T3-	TRANS SMPS	TSM-3541T3	⚠

## SERVICE PARTS LIST

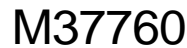
LOC	PART CODE	PART NAME	DESCRIPTION	REMARK	LOC	PART CODE	PART NAME	DESCRIPTION	REMARK
TU01	5800000032	COIL OSC	DE0-006		XS02	5XJ16R000E	CRYSTAL QUARTZ	HC-49S 16.000000MHZ 30PPM	
U102	4859719130	TUNER VARACTOR	DT5-NF20F	® ⚠	XY01	5XEX3R579B	CRYSTAL QUARTZ	HC-49U 3.57954M 15PPM TP	
X501	5XE3R5795C	CRYSTAL QUARTZ	HC-49/U 3.579545MHZ 20PPM		Z101	5PTS5241P	FILTER SAW	TSF5241P	
XS01	5XYR03276C	CRYSTAL QUARTZ	C-001R 32.768000KHZ 20PPM		Z102	5PXPS45MB-	FILTER CERA	TPS-4.5MB TRAP (TAPPING)	

## ❑ OPTION PARTS LIST

### 1. CN-081 13" / 19" DIFFERENT PARTS LIST

LOC	PART NAME	DVQ- 13H2FCN		DVQ- 19H2FCN		REMARK
		PART CODE	DESCRIPTION	PART CODE	DESCRIPTION	
1	ANT ROD	4850A02510	S3BW216B (L=600 MM)	X		OPTION
3	TRANS ANT MATCHING	4850A00250	IMT- 06	X		OPTION
C402	C MYLAR	CMYH3C692H	1.6KV BUP 6900PF H	CMYH3C692H	1.6KV BUP 6900PF H	RETRACE
C416	C MYLAR	CMYE2D474J	200V PU 0.47MF J	CMYE2D514J	200V PU 0.51MF J	C- CAPACITOR
M191	BUTTON CTRL	4851937200	4942601+5538800	4851937100	4942501+5538700	
M201	MASK FRONT	4852070800	FR HIPS BK	4852070700	FR HIPS BK	
M201B	SCREW CRT FIXING	4856013301	30X140 YL	4856013302	30X190 BK	
M211	COVER BACK	4852153600	FR HIPS BK	4852153700	FR HIPS BK	
M481	BUTTON POWER	4854855101	ABS	4854855001	ABS BK	
M801	BOX CARTON	4858042700	SW- 3	4858038300	DW- 3 2086	
M811	PAD	4858190200	EPS 14H2	4858190100	EPS 20H2	
M822	BAG PE	4858215700	PE FOAM t0.5x1000X950	4858215000	PE FOAM t0.5x1200x1150	
PA501	CONNECTOR	4850708N11	BIC- 08T- 25T+C- 20T+ULW=300	4850708N08	BIC- 08T- 25T+C- 20T+ULW=400	
PA601	CONNECTOR	4850703S53	YH025- 03+35098+ULW=500	4850703S50	YH025- 03+35098+ULW=200	
Q402A	HEAT SINK	X		4857027200	AL T1.0	HORIZONTAL TR
Q402B	SCREW TAPPTITE	X		7174301011	TT2 RND 3X10 MFZN	HORIZONTAL TR
Q402C	WASHER	X		4856215201	SPCC	HORIZONTAL TR
R403	R M- OXIDE FILM	RS01Z309J-	1W 3 OHM J (TAPPING)	RS02Z229JS	2W 2.2 OHM J SMALL	HEATER
R806	R CARBON FILM	RD- 4Z432J-	1/4 4.3K OHM J	RD- 4Z682J-	1/4 6.8K OHM J	POWER
R820	R M- OXIDE FILM	RS02Z828JS	2W 0.82 OHM J SMALL	RS02Z688JS	2W 0.68 OHM J SMALL	OCP
R823	R CARBON FILM	RD- AZ363J-	1/6 36K OHM J	RD- AZ273J-	1/6 27K OHM J	OCP
RC406	R CHIP	HRFT113JCA	1/10 11K OHM J 2012	HRFT103JCA	1/10 10K OHM J 2012	X- RAY
RC502	R CHIP	HRFT822JCA	1/10 8.2K OHM J 2012	HRFT682JCA	1/10 6.8K OHM J 2012	ABL
SCT01	SOCKET CRT	4859303430	PCS633A	4859303530	PCS629- 03C	
SP01	SPEAKER	4858314310	SP- 5070A01 3W 8 OHM	48A8306000	SS- 5070A01 3W 8 OHM	
V01	COIL DY	58D0000082	ODY- M1489	58D0000087	CDY- S2016	
V05	MAGNET CP	4850PM001-	NY- 225 (MINI NECK)	4850PM010-	NY- 88DTA	
V901	CRT BARE	48A96314C3	A34KQV42X	48A96220C1	A48AGY13X	
ZZ131	CRT GROUND NET	48519A4710	1401S- 1015- 1P	48519A5110	2001S- 1015- 1P	
ZZ132	COIL DEGAUSSING	58G0000078	DC- 1400	58G0000122	DC- 2030	

## DW37760MOH-BA1(M37760) : IC TIMER / SYSCON / CTL PROCESSOR



## 1. SYSTEM FEATURE

- 1) The system for TV/VCR tuning is Frequency Synthesis type.
- 2) VCR SERVO Controller is interior designed.
- 3) Closed Caption function is interior designed.
- 4) Parental Control function is interior designed.
- 5) On Screen Display function is interior designed.
- 6) Package : 100PIN QFP
- 7) Tuner (Pre-scaler) : IIC BUS  
/PLL IC : TAU 6014-S (SIEMENS)
- 8) REMOCON : The IC of transmission (MITSUBISHI M50560)
- 9) EEPROM : 24AT08 (IIC BUS)
- 10) 10-Local Key : A/D input control  
(KEY 0 : REC, REW, PLAY, FF, STOP/EJECT)  
(KEY 1 : POWER, CH UP/DOWN, VOL UP/DOWN)
- 11) Option S/W : Port A/D input Option check
- 12) IF/V/C/D IC : DCT814B (LA76814B)
- 13) VCR Y/C/A IC : LA71076AM(LA71076SM)
- 14) DECK MECHANISM : K-50MECHA

## 2. PIN DESCRIPTION

Pin	Terminal	Name	Explanation	Remarks
1	P11(0)	KEY 1 IN	Power, Ch up/down, Vol up/down	
2	P7(7)	AGC IN	Connect this port to AGC of Tuner. Default voltage :3.75V Variable voltage : 3.25V, 3.5V, 3.75V	
3	P7(6)	OPTION	H(5V) : Parental control M(2.5V) : Child lock L(0V) : None	
4	P7(5)	DRUM SELECT	H(5V) : NTSC 4 head L(0V) : NTSC 2 head	
5	P7(4)	PATH ADJUST	Automatic PATH adjust	
6	P7(3)	VIDEO ENVELOPE IN	Connect this port to 6 pin of IZ01. Maximum point search DC ENVE input. Auto tracking restart condition (SP:2.5V, LP/SLP:1.5-5V)	
7	P7(2)	END SENSOR IN	Tape END sensor detect input. H: Tape end.	
8	P7(1)	START SENSOR IN	Tape START sensor detect input. H: Tape start.	
9	P7(0)	POWER SAFETY IN	Connect this port to 26V of FBT. FBT protect port. Detect voltage: 3V under → Hold down	
10	P6(7)	AFT IN	DC voltage that comes from the 10 pin of DCT814B	
11	P6(6)	CAPSTAN I LIMIT OUT	Limit the current of CAPSTAN MOTOR Set "L" during PAUSE/STILL	
12	P6(5)	SP/LP/EP	Tape speed control. SP(L)/LP(M)/EP(H)	
13	P6(4)	QV SYNC	When special play, Quasi Vertical SYNC insert V SYNC of C.V.S	Special play: QUE,REV, STILL,SLOW
14	P6(3)	REMOCON INPUT	Remote Controller pulse input	
15	P6(2)	COLOR ROTARY OUT	When color MOD/DEMODO, phase shift pulse	
16	P6(1)	HEAD AMP SW PULSE	4 head option. When special play, EP head switching pulse	
17	P6(0)	COMPARATOR ENV	4 head option.	
18	P5(7)	V HEAD SW PULSE	Video head switching pulse(SP head).	
19	P5(6)	A HEAD SW PULSE	6 head option. Not used	
20	P5(5)	REC H	When recording, set "H"	
21	P5(4)	TRICK H	When special play, set "H" and when recording copy guard ON.	
22	P5(3)	CASSETTE DOWN H	When cassette insert, light up IR led.	
23	P5(2)	CAPSTAN F/R	Switching forward(H) and reverse(L) of CAPSTAN MOTOR	
24	P5(1)	CRT ON L	When CRT off, set "H" during 1sec.	
25	P5(0)	SOUND MUTE H	When stand by TV/VCR, set speaker sound mute.	

Pin	Terminal	Name	Explanation	Remarks
26	P4(7)	AUDIO MUTE H	Connect this port to 95 pin of ICY01. When special play, set audio mute.	
27	P4(6)		Not used	
28	P4(5)	REC LED H	Light up LED(RED) when recording	
29	P4(4)	TIMER REC LED H	Light up LED(GREEN) when ready to programming record.	
30	P4(3)	MONITOR ON H	When CRT on, set "H".	
31	P4(2)	VCR ON H	Recording when CRT off, set "H"	
32	P4(1)	RELAY ON H	When CRT on, relay on during 1sec.	
33	P4(0)		Not used	
34	RESET	RESET(L)	RESET	
35	P3(1)	Xcin	It uses 32.768KHz Crystal. 35 pin is input terminal for crystal oscillator 36 pin is output terminal for crystal oscillator	
36	P3(0)	Xcout		
37	Vcc	Vcc	Ever +5V( $\pm 0.5V$ ). Positive power supply	
38	Xin	Xin	It uses 16MHz Crystal. 38 pin is input terminal for crystal oscillator 39 pin is output terminal for crystal oscillator	
39	Xout	Xout		
40	Vss	Vss	GND Negative power supply.	
41	P2(2)	OSCin3	Not used	
42	P2(1)	OS Cout3	Not used	
43		CLK SELECT	When MICOM to start, decide to 32.768KHz or 16MHz. Set "L" : 32.768KHz	
44	P2(0)	OSCin2	It uses LC oscillator. Set the OSD position. 38 pin is input terminal for LC oscillator 39 pin is output terminal for LC oscillator	
45	P1(7)	OS Cout2		
46	NUB	NUB	GND	
47	P1(6)	LP H	Not used	
48	P1(5)	FSC IN	Not used	
49	Vcc	OSD Vss	GND	
50	P1(4)	CVS IN	Not used	
51	P1(3)	LECHA	Not used	
52	P1(2)		Not used	
53	Vcc	OSD Vcc	Ever +5V ( $\pm 0.5V$ ).	
54	P1(1)	FILTER	Filter terminal for PLL.	
55	P1(0)	SLD FILTER	Filter terminal for SYNC separate.	
56	P0(7)	C.V.S IN	For Caption and Parental control signal detect.	
57	NUA	NUA	GND	
58	P0(6)	H SYNC IN	For OSD horizontal SYNC input	
59	P0(5)	V SYNC IN	For OSD vertical SYNC input	

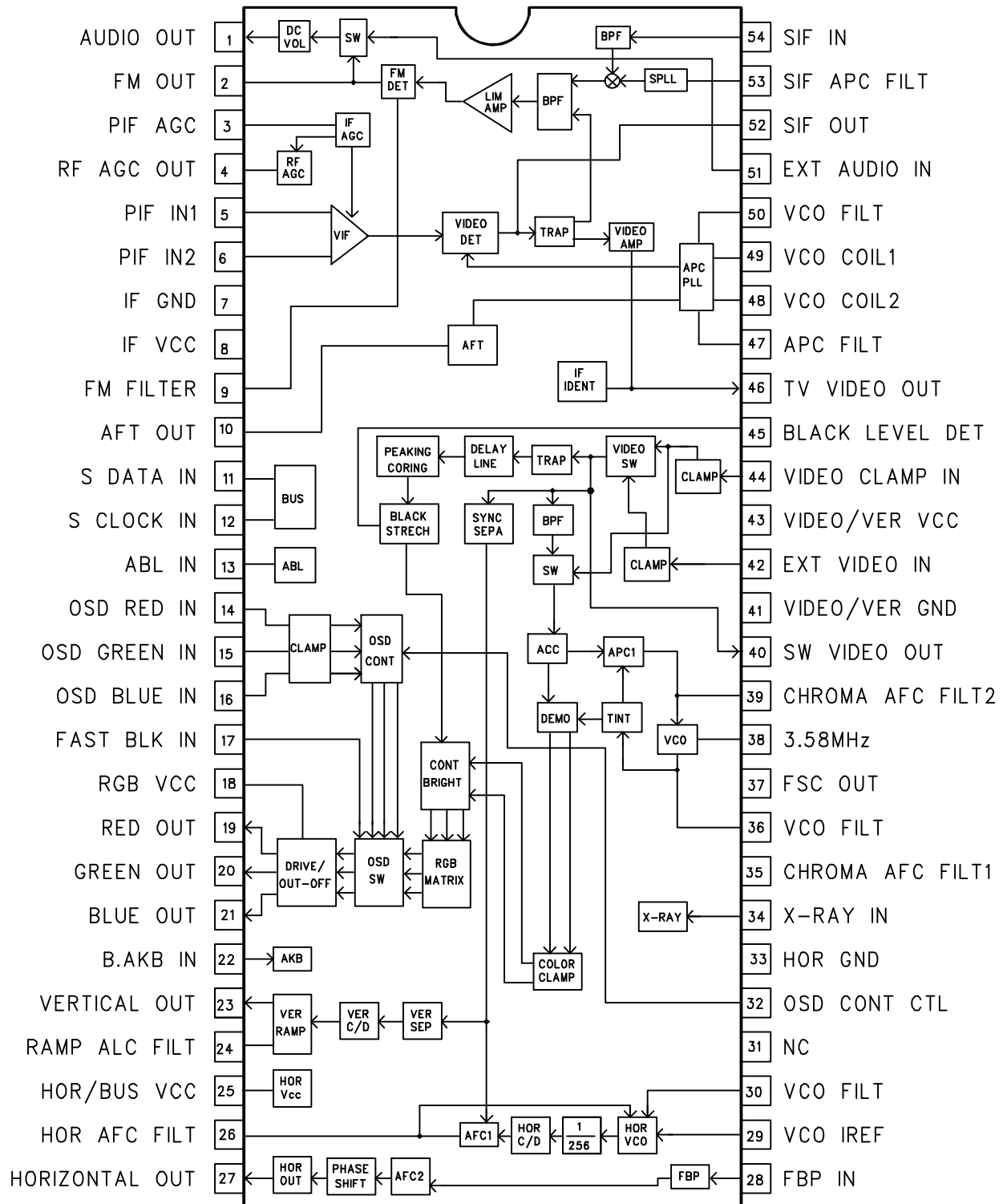


Pin	Terminal	Name	Explanation	Remarks																																			
60	P0(4)	OSD BLANK OUT	Fast blanking control signal. Switch TV image signal and Caption/OSD image signal.																																				
61	P0(3)		Not used																																				
62	P0(2)	OSD B OUT	Blue output terminal of OSD image.																																				
63	P0(1)	OSD G OUT	Green output terminal of OSD image.																																				
64	P0(0)	OSD R OUT	Red output terminal of OSD image.																																				
65	P10(7)	S DATA	IIC data I/O. Control VCR Y/C, TUNER, EEPROM																																				
66	P10(6)		Not used																																				
67	P10(5)	S CLOCK	IIC clock output																																				
68	P10(4)	DOC CONTROL	When play, set "L"																																				
69	P10(3)	RENTAL H	If user set rental ON in MENU, set "H"																																				
70	P10(2)	PB L	When play, set "L"																																				
71	P10(1)	M CLOCK	IIC clock output																																				
72	P10(0)	M DATA	IIC data I/O. Control CHROMA IC																																				
73	P9(7)	LD F/R	Loading Motor Forward(L)/Reverse(H)																																				
74	P9(6)	LD ON	When operate Loading Motor, set "H"																																				
75	P9(5)	TV/EXT	Mode change control TV(H)/LINE(L)																																				
76	P9(4)	CAPSTAN PWM	Control rotate speed of Capstan Motor. Period of PWM : 23.4KHz																																				
77	P9(3)	DRUM PWM	Control rotate speed of Drum Motor. Period of PWM : 23.4KHz																																				
78	P9(2)	POWER FAIL	Input "L", MICOM is Hold mode. Backup time approx. 30minute.																																				
79	P9(1)	RLS IN	Supply reel/Take up reel pulse input terminal. Use to check the Tape remain or high speed rewind and fast forward.																																				
80	P9(0)	RLT IN																																					
81	P8(7)	CAM D	<div>CAM detection input terminal.<table><tr><th>MODE</th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>EJECT</td><td>L</td><td>H</td><td>H</td><td>H</td></tr><tr><td>STAND BY</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>REV</td><td>H</td><td>H</td><td>L</td><td>H</td></tr><tr><td>STOP</td><td>H</td><td>H</td><td>H</td><td>L</td></tr><tr><td>PLAY</td><td>H</td><td>H</td><td>H</td><td>L</td></tr><tr><td>FF/REW</td><td>H</td><td>L</td><td>H</td><td>L</td></tr></table></div>	MODE	A	B	C	D	EJECT	L	H	H	H	STAND BY	L	H	L	H	REV	H	H	L	H	STOP	H	H	H	L	PLAY	H	H	H	L	FF/REW	H	L	H	L	
MODE	A	B		C	D																																		
EJECT	L	H		H	H																																		
STAND BY	L	H		L	H																																		
REV	H	H		L	H																																		
STOP	H	H		H	L																																		
PLAY	H	H		H	L																																		
FF/REW	H	L	H	L																																			
82	P8(6)	CAM C																																					
83	P8(5)	CAM B																																					
84	P8(4)	CAM A																																					
85	P8(3)																																						
86	P8(2)	REC SAFETY SW L																																					
87		CAP PG IN	Capstan Pulse Generator signal input. Feed back Capstan rotation speed.																																				
88	Vss	AMPVss	GND																																				

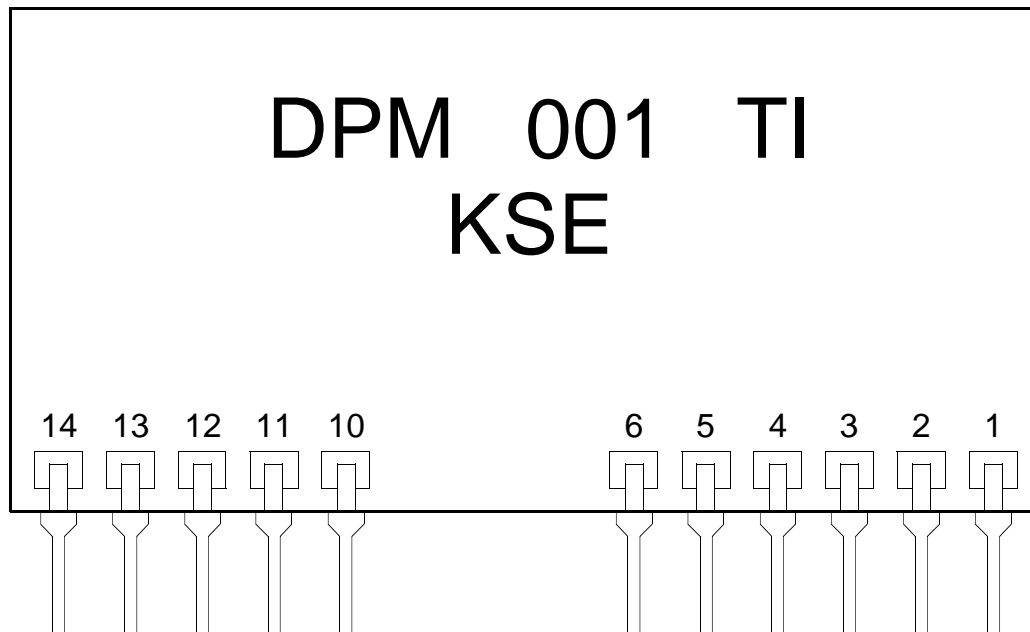
Pin	Terminal	Name	Explanation	Remarks
89	P8(1)	DRUM FG IN	Drum Frequency Generator signal input. Feed back Drum rotation speed.	
90		DRUM PG IN	Drum Pulse Generator signal input. Feed back Drum rotation phase.	
91		AMP REF IN	Control pulse AMP reference input terminal.	
92		AMP REF OUT	Control pulse AMP reference output terminal.	
93	P8(0)	C	AMP filter.	
94		CTL-	Input control pulse when playing.	
95		CTL+	Output control pulse when recording.	
96		AMP C	AMP condenser.	
97		CTL AMP OUT	Check Control pulse.	
98	Vcc	AMP Vcc	Ever +5V ( $\pm 0.5V$ ).	
99	Vcc	ANALOG Vcc	Ever +5V ( $\pm 0.5V$ ).	
100	P11(1)	KEY 0 IN	REC, REW, PLAY, FF, STOP/EJECT	

## IC501

## DCT814B(LA76814B) : IC VIDEO PROCESSOR

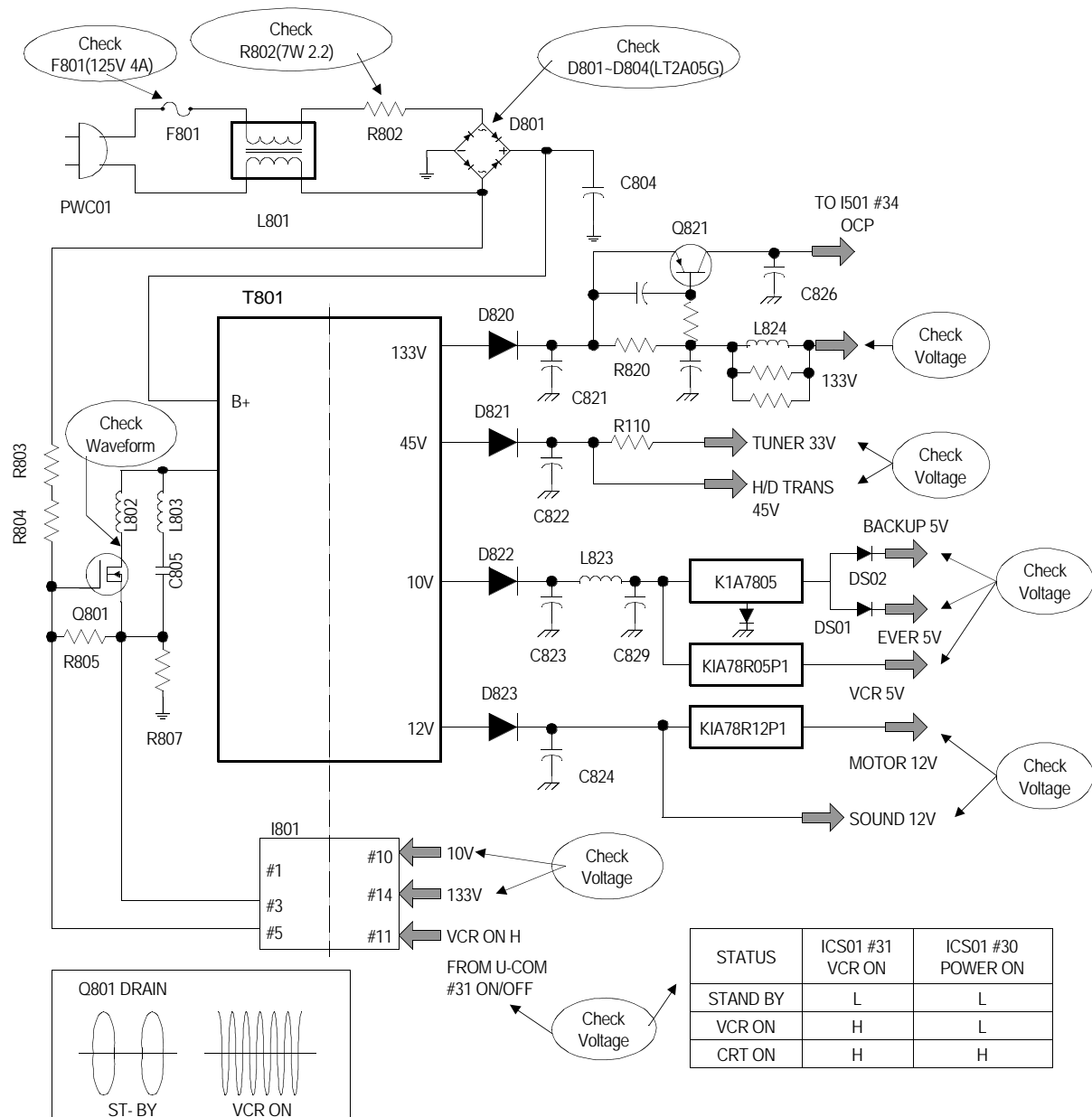




**I801**  
**POWER CONTROL MODULE**

PIN NO	DESCRIPTION	PIN NO	DESCRIPTION
1	GATE DRIVE1	10	+12V INPUT
2	OCP	11	POWER CONTROL
3	SOURCE	12	+26 OUTPUT
4	GND1	13	GND2
5	GATE	14	+133V INPUT
6	GATE DRIVE2		

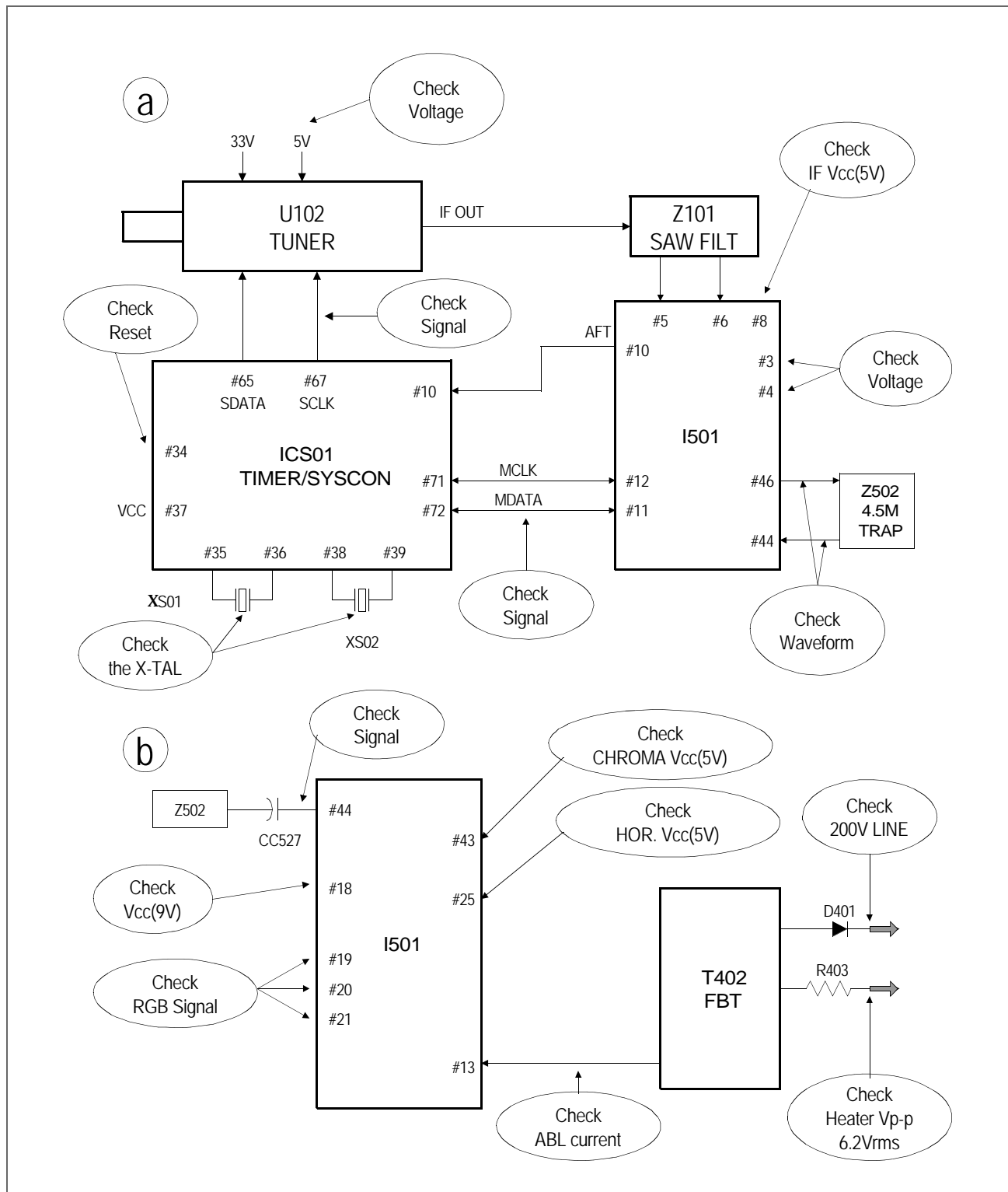
## 1. NO POWER



## 2. TV PART

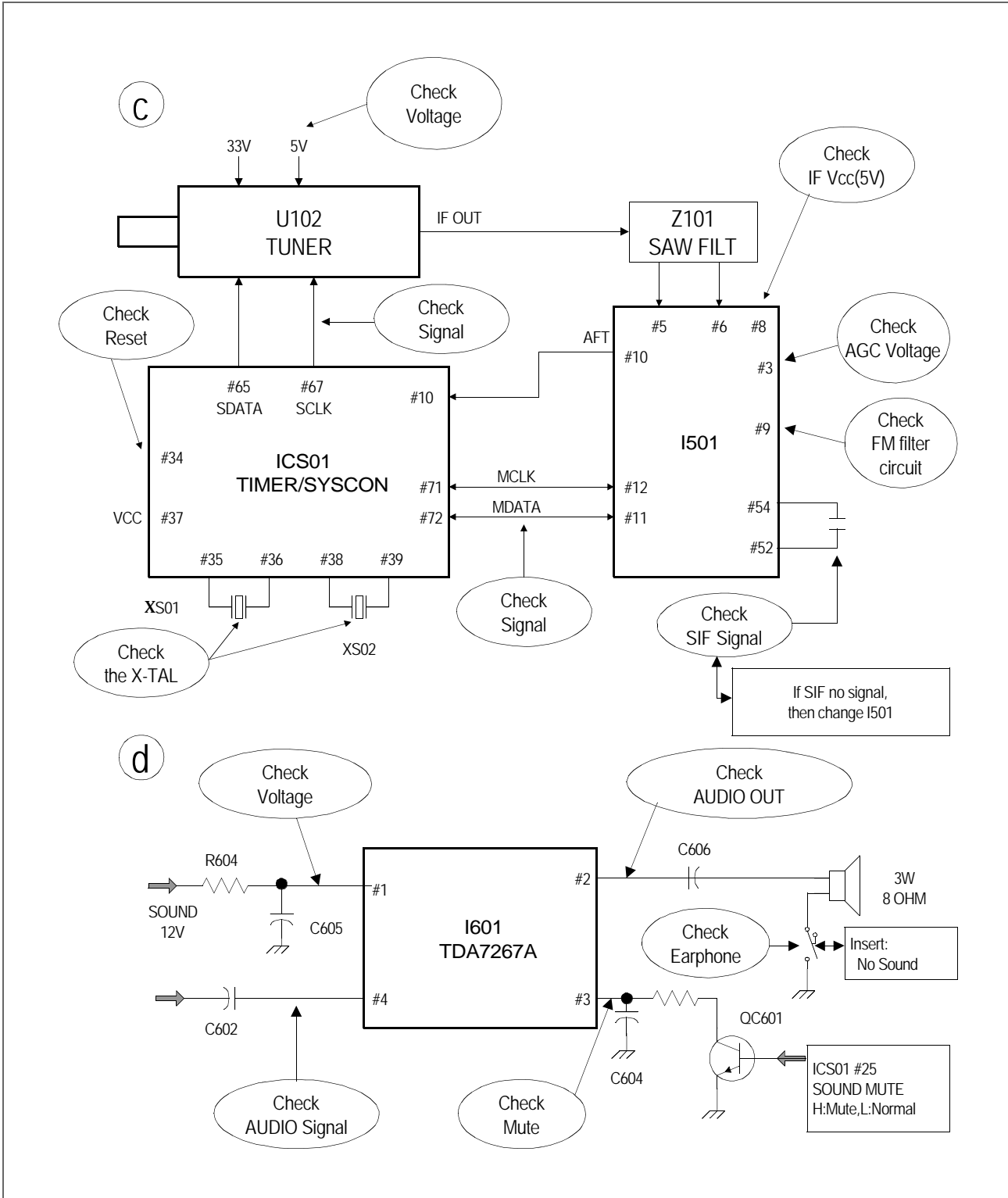
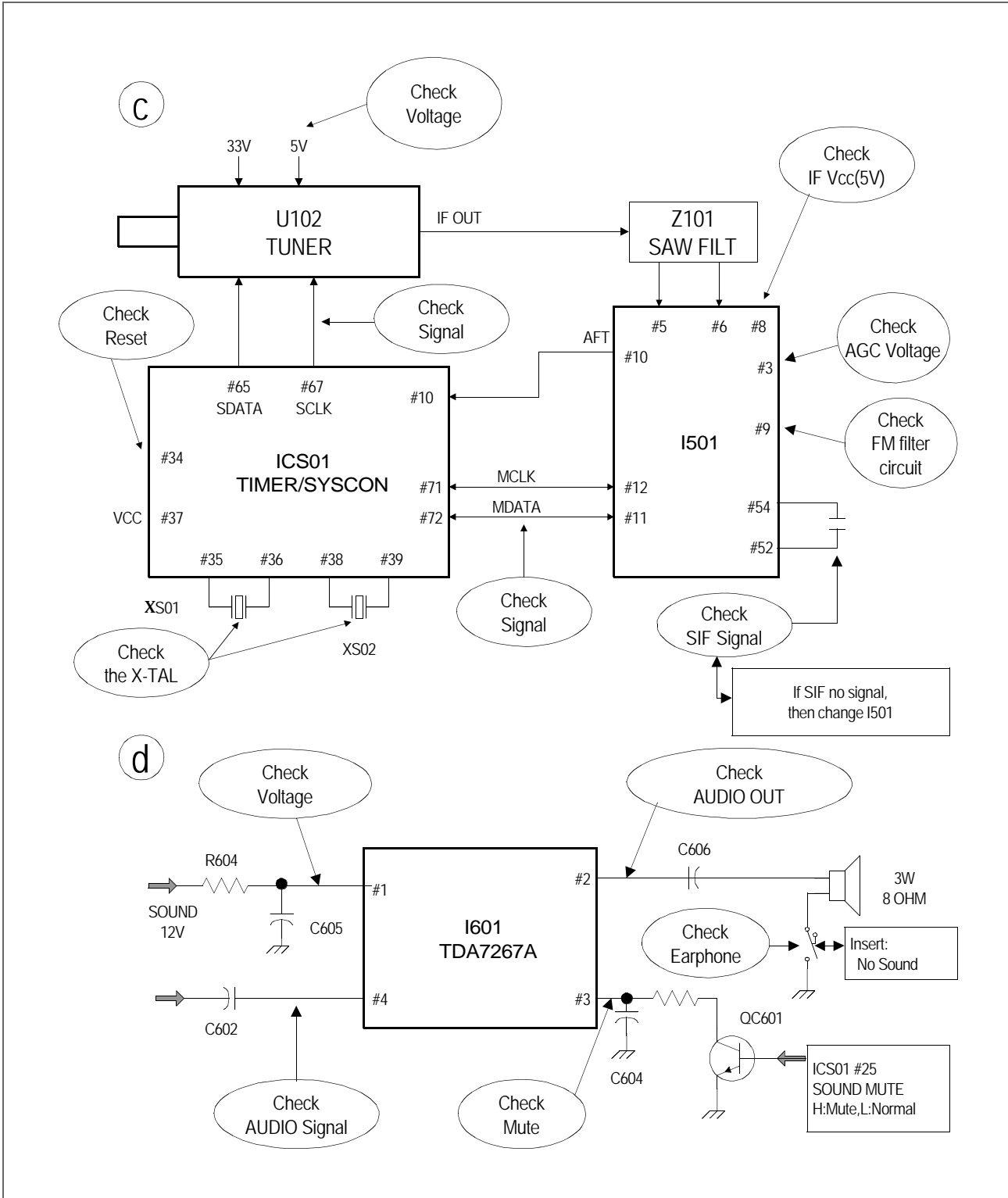
## 2-1) NO PICTURE

Check the waveform of I501 #46	NG : GO to the figure ㉓
	OK : GO to the figure ㉔



2-2) NO SOUND

Check the waveform of I501 #1	NG : GO to the figure ㉔
	OK : GO to the figure ㉕



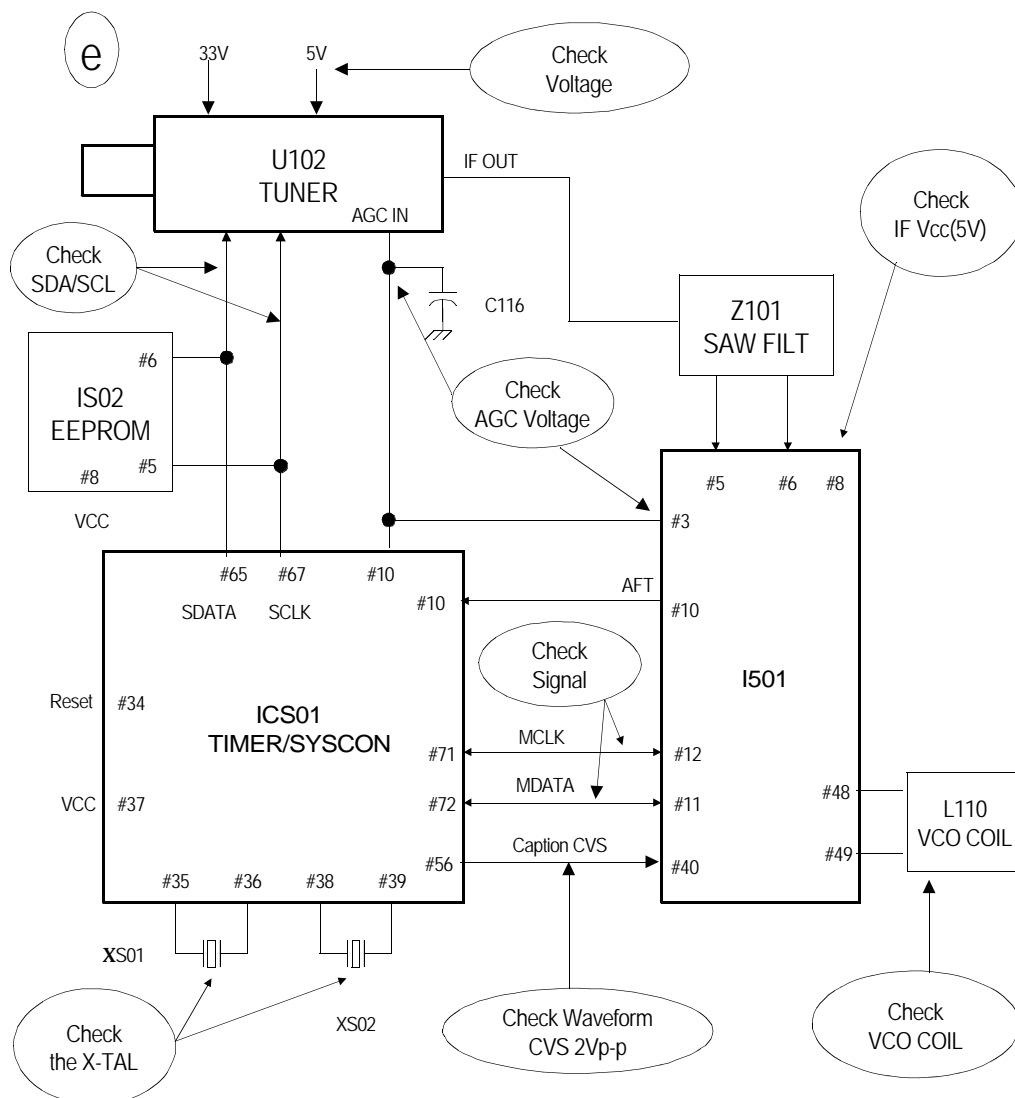


## 2-3) CHANNEL DON'T STOP

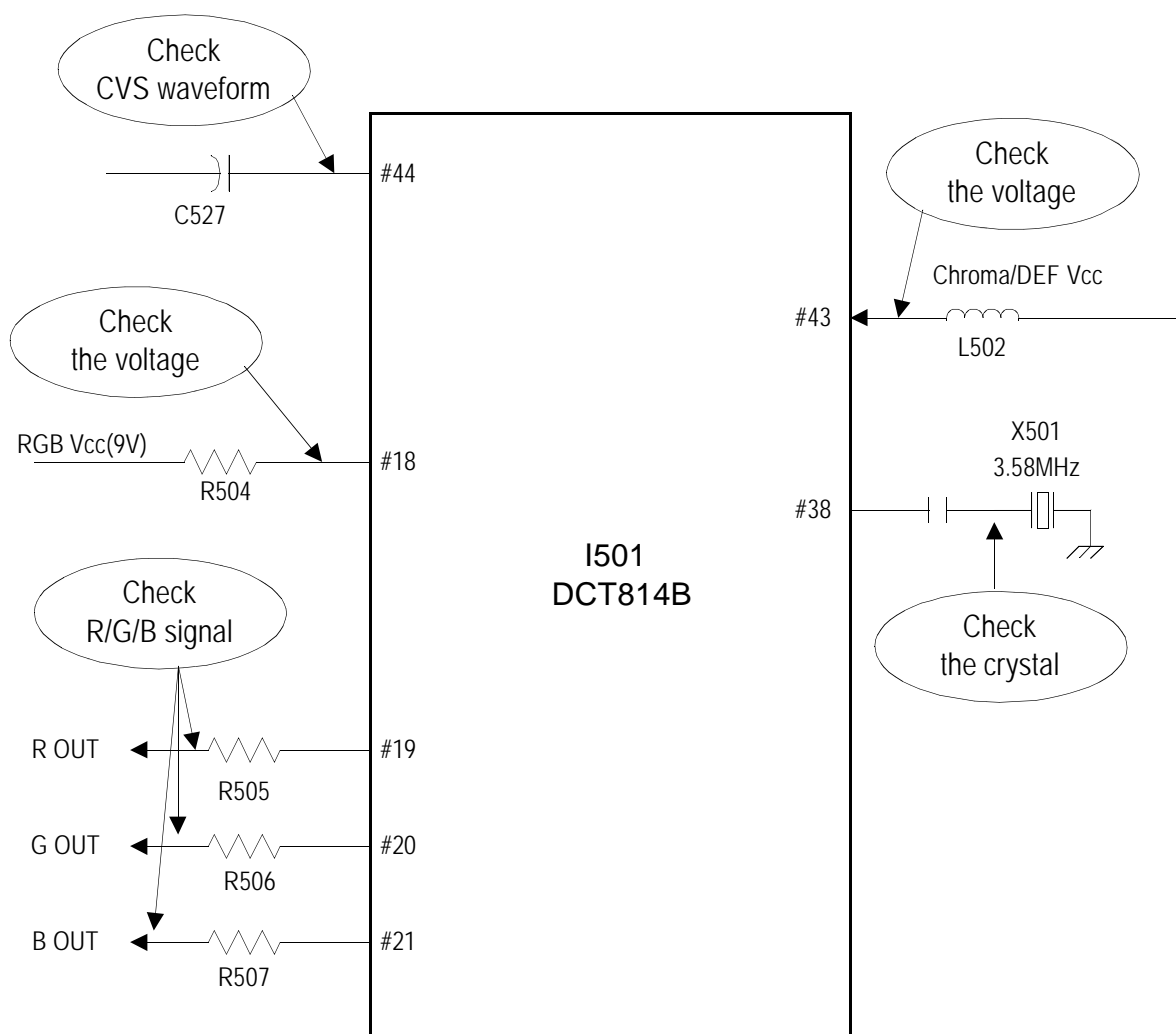
Check the input signal conditions.

NG : Loss of signal or weak signal

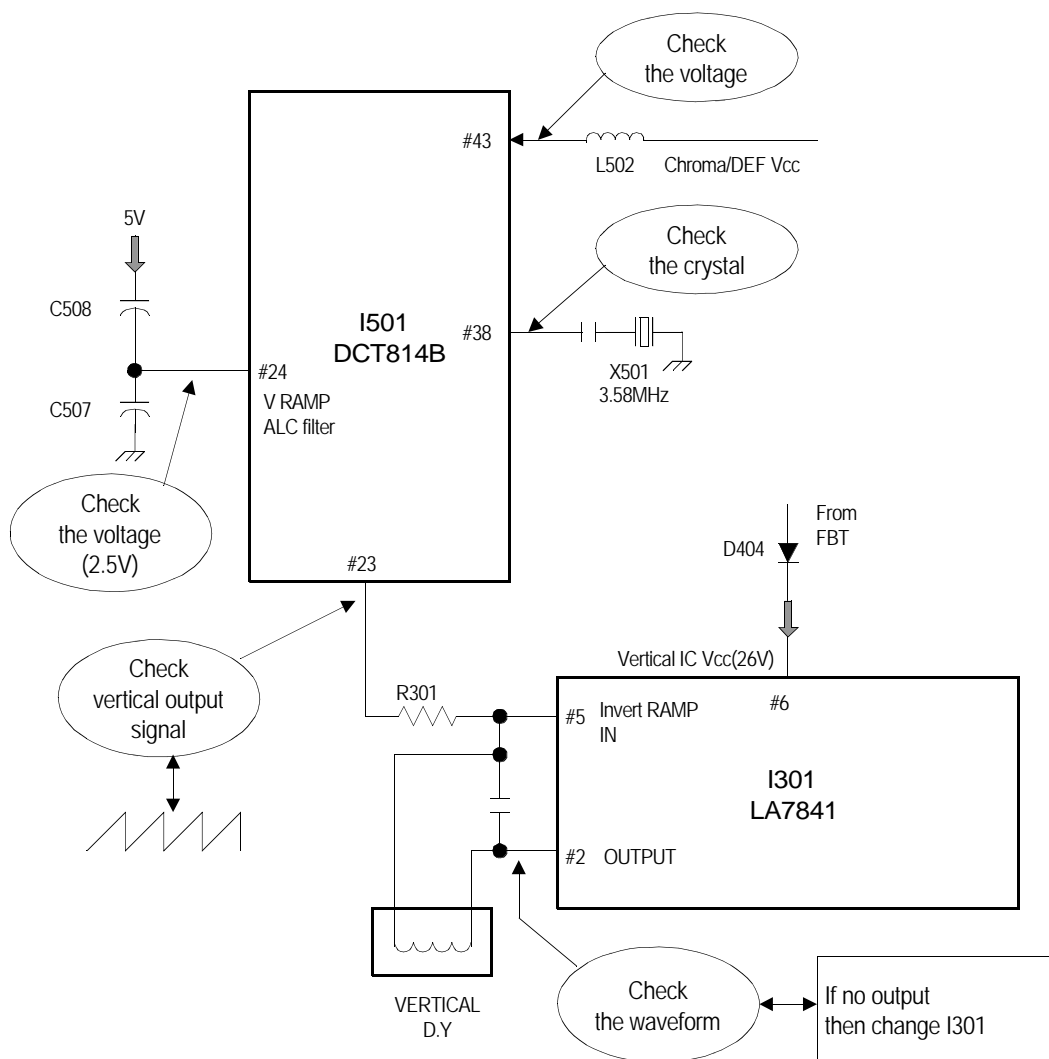
OK : GO to the figure ②



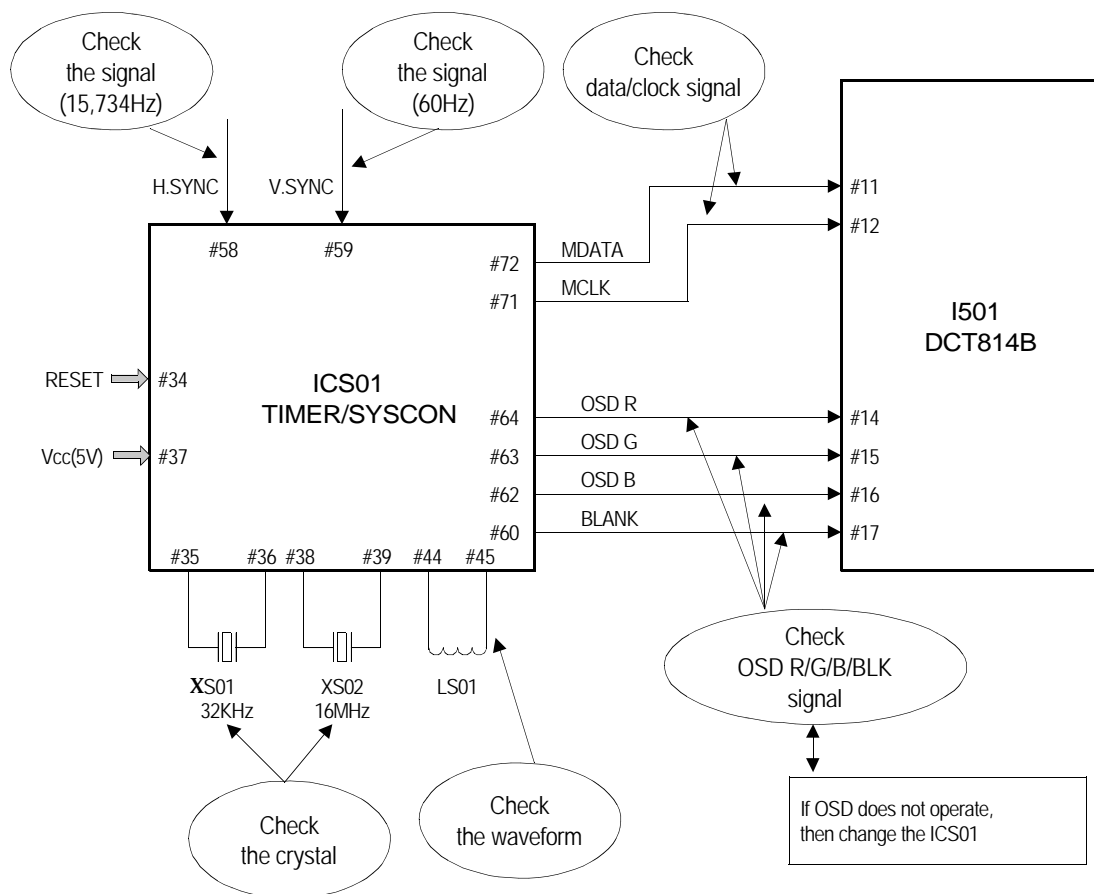
## 2-4) NO COLOR



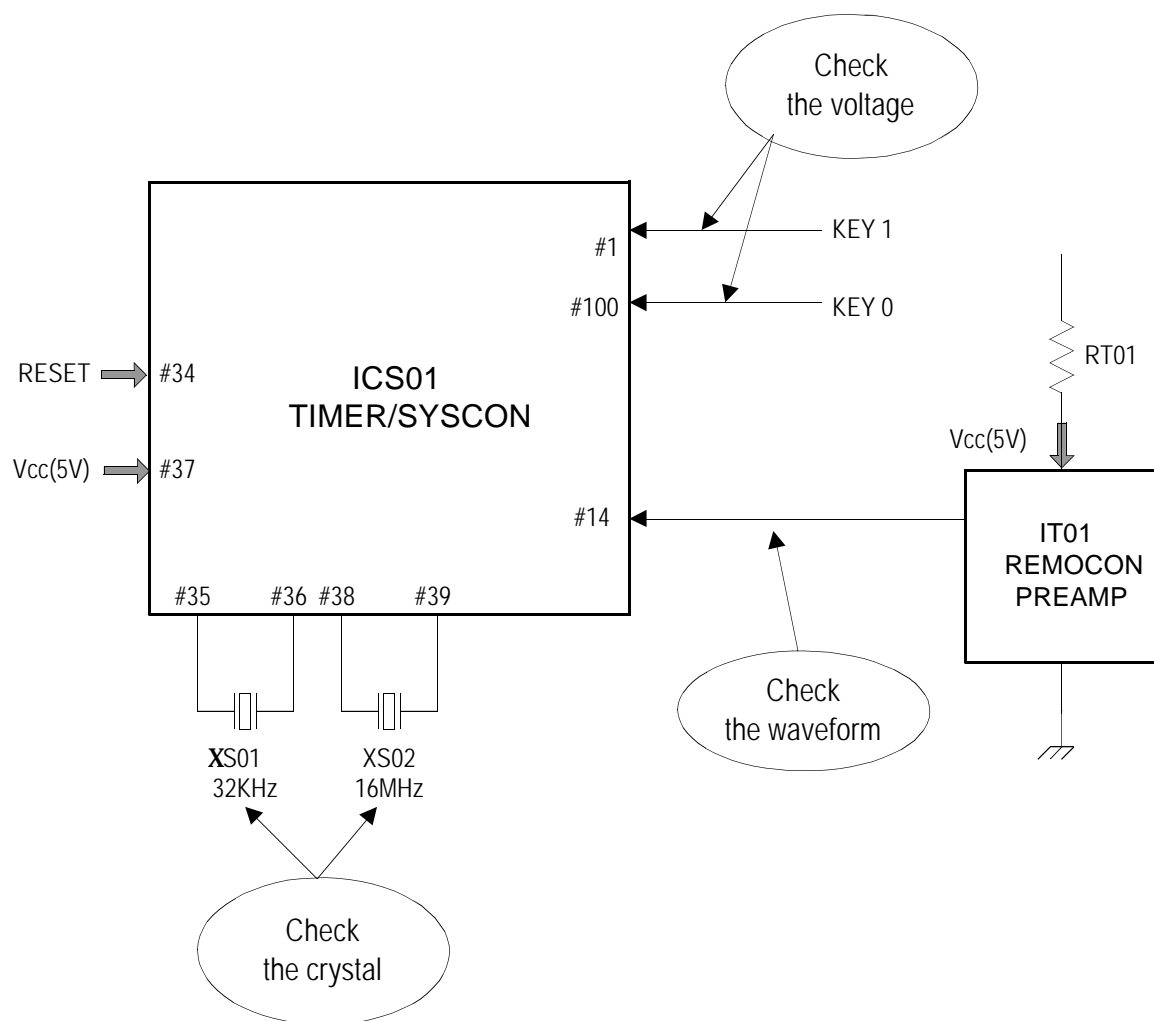
## 2-5) NO VERTICAL DEFLECTION



## 2-6) NO ON-SCREEN DISPLAY



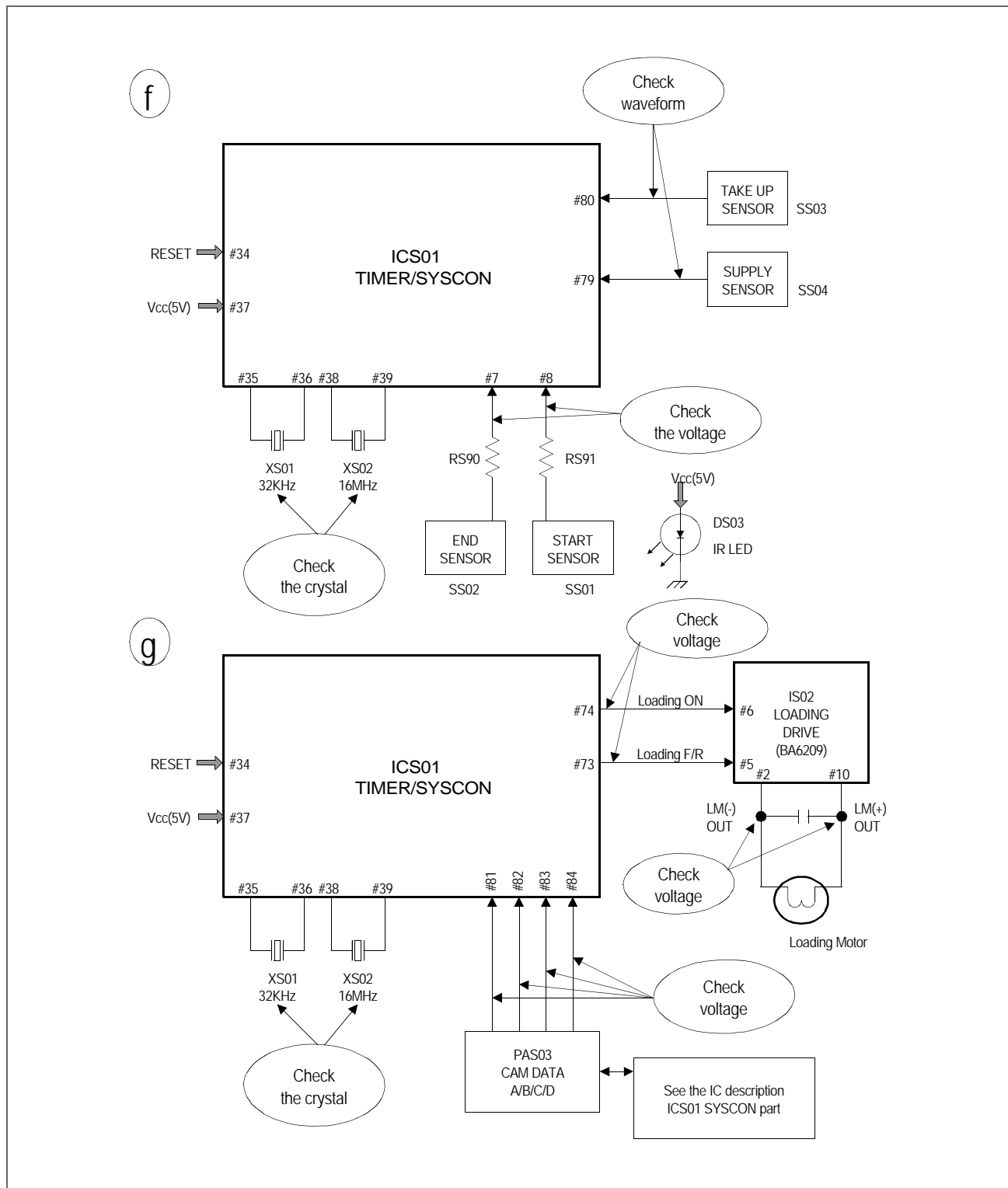
## 2-7) REMOTE CONTROL DOES NOT OPERATE



## 3. VCR PART

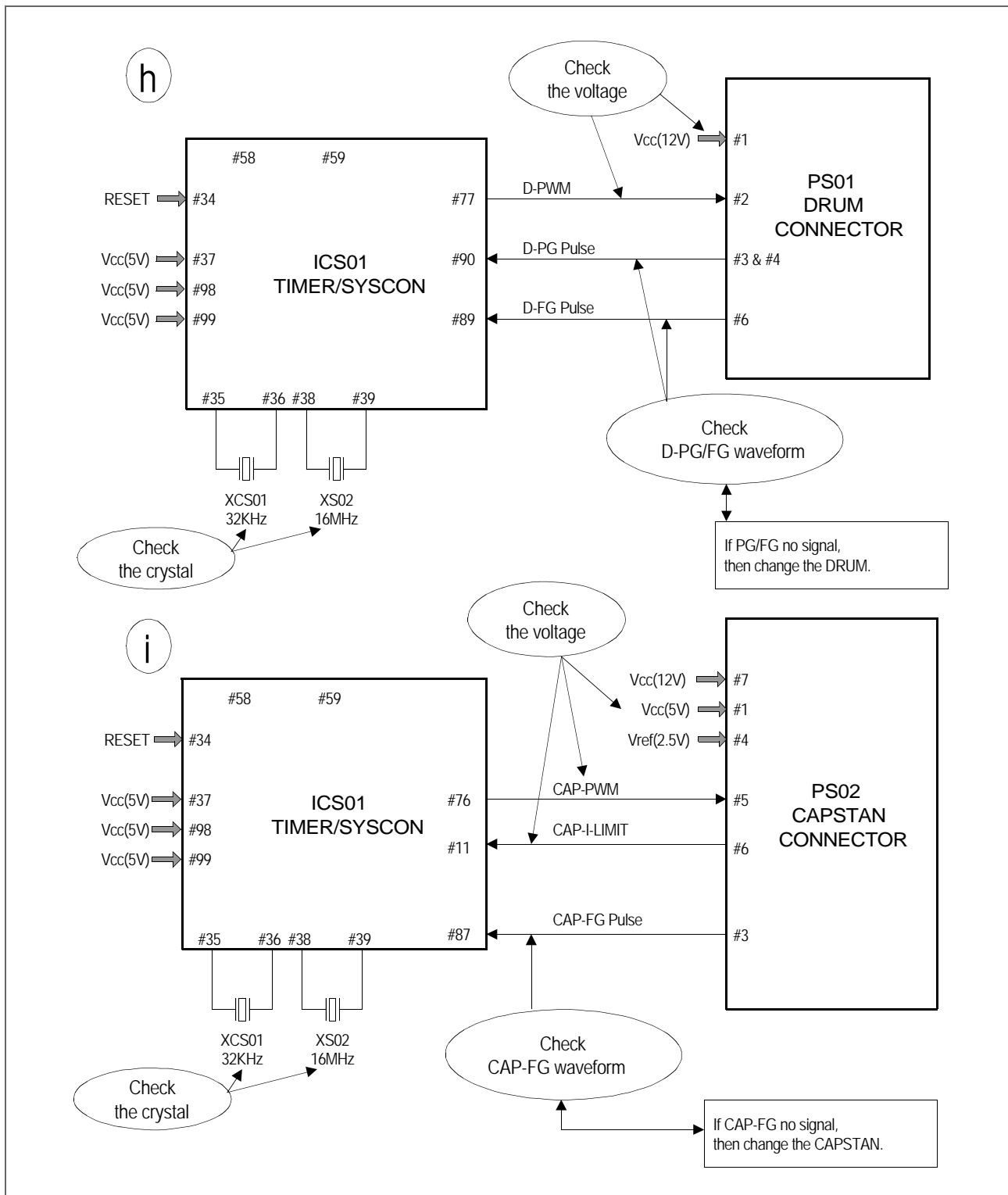
## 3-1) NO LOADING

Check the loading conditions (VHS TAPE)	EJECT : GO to the figure ①
	UNLOADING : GO to the figure ②



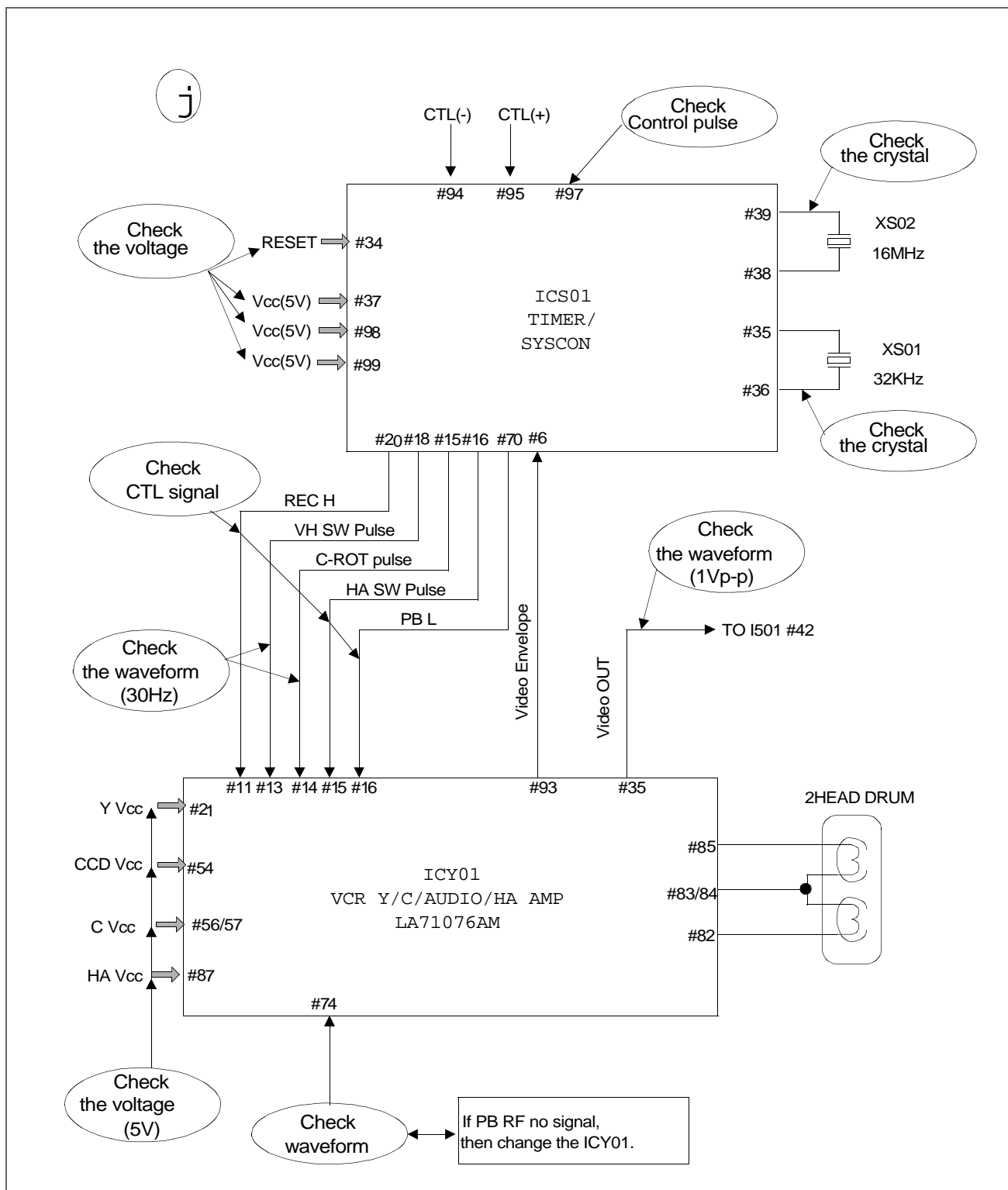
## 3-2) NO ROTATING

Check the Rotating	DRUM : GO to the figure ⑧
	CAPSTAN : GO to the figure ⑨

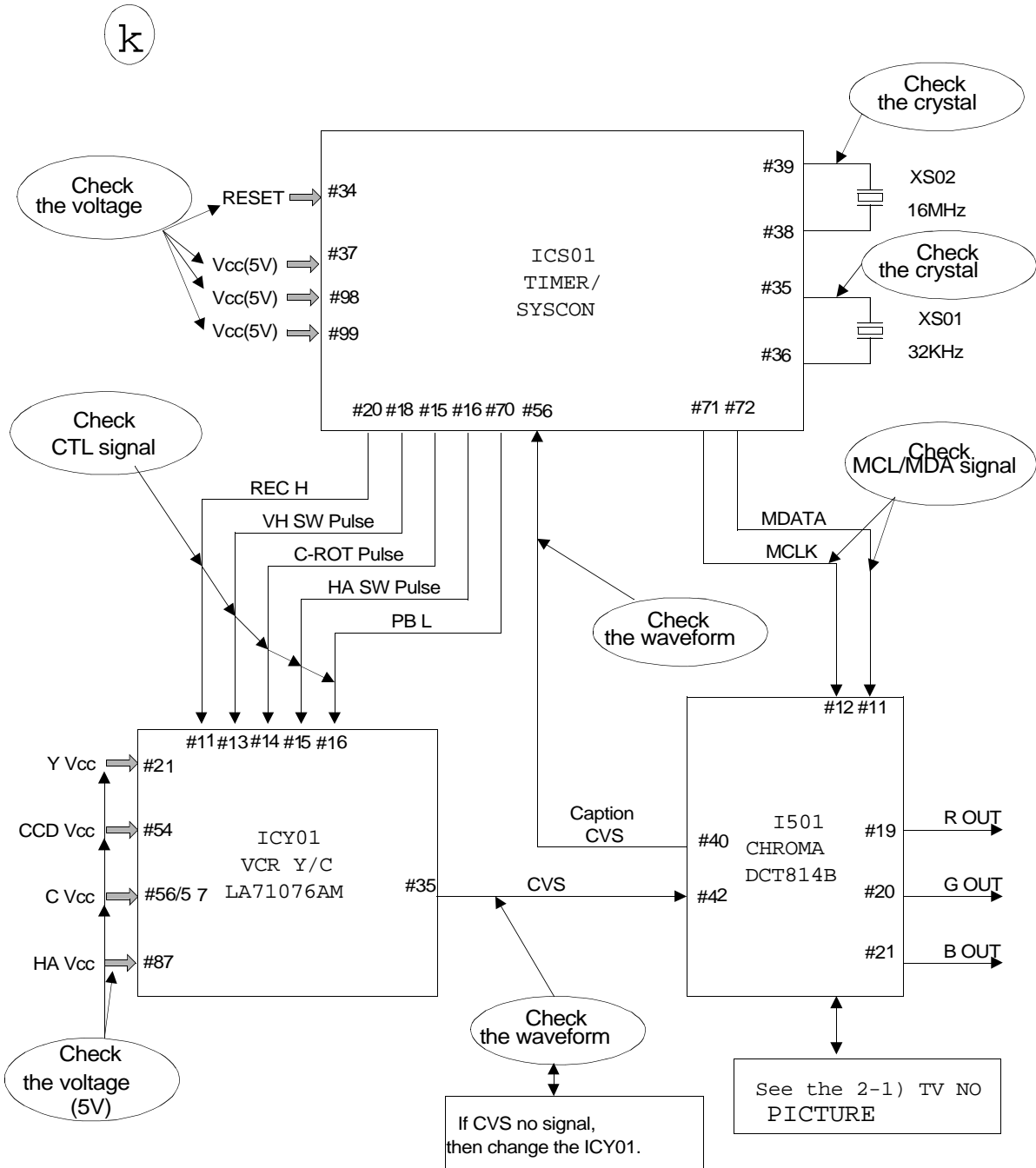


## 3-3) NO PICTURE PLAYBACK

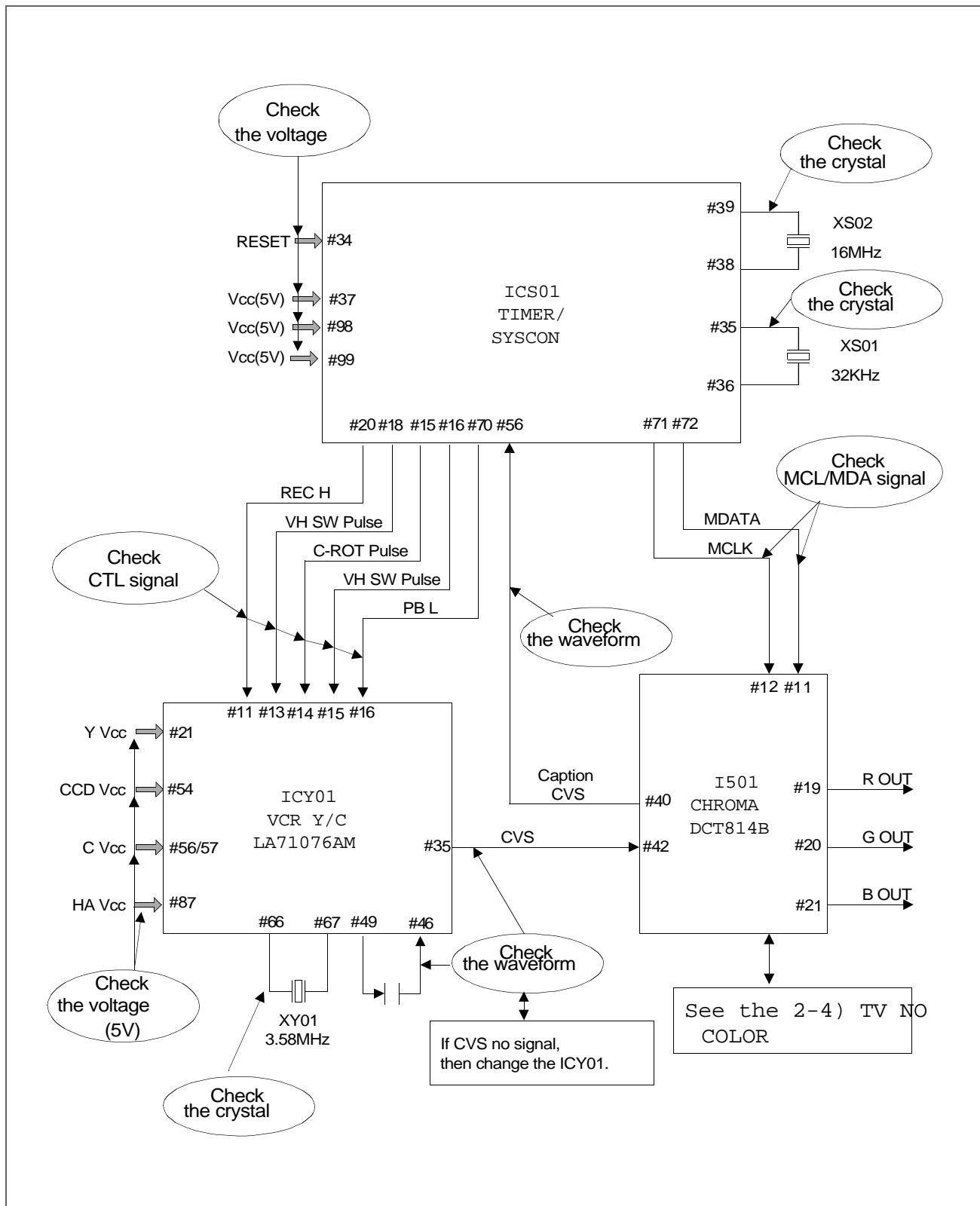
Check the waveform of ICY01 #27	NG : GO to the figure ①
	OK : GO to the figure ②



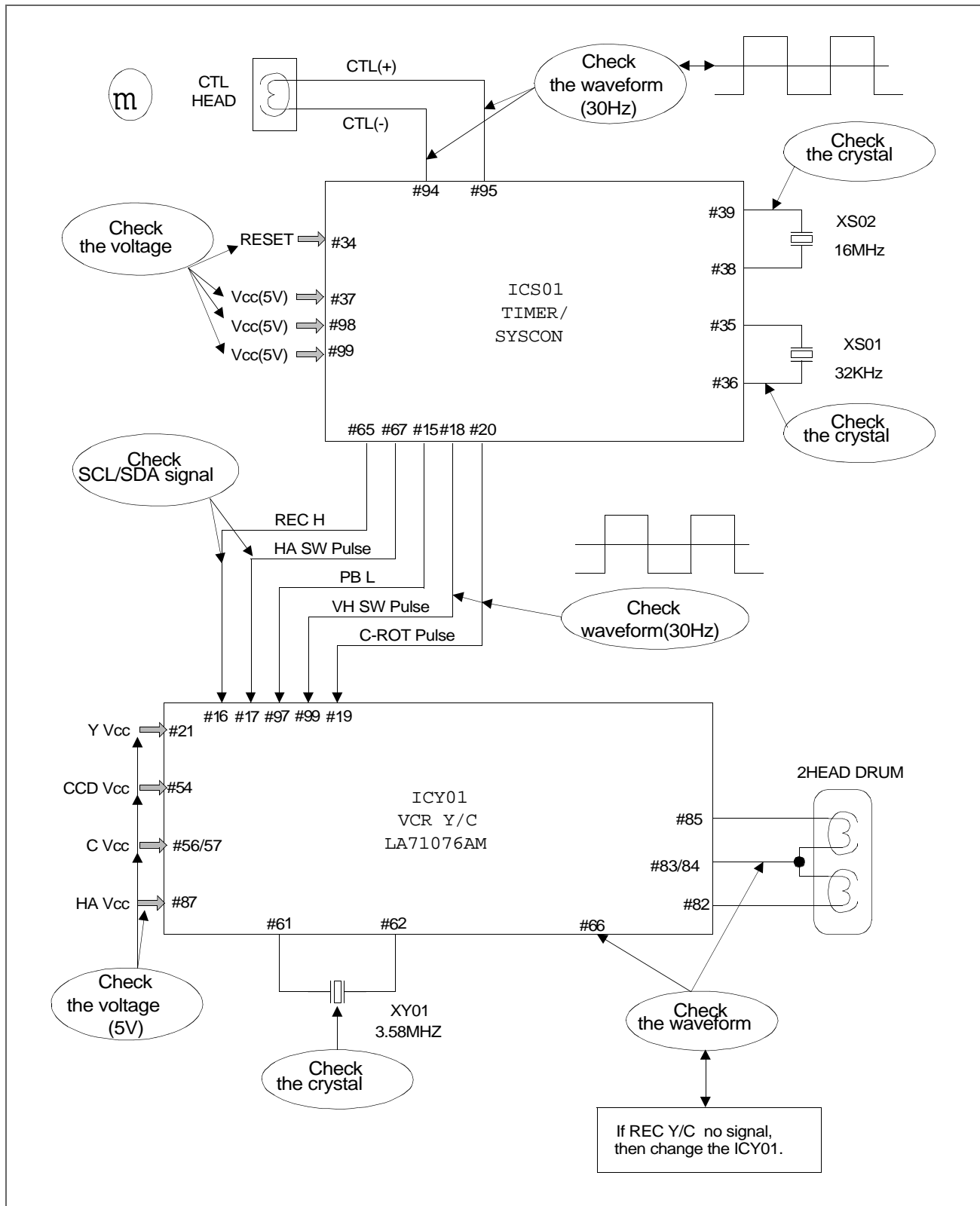




## 3-4) NO COLOR PLAYBACK

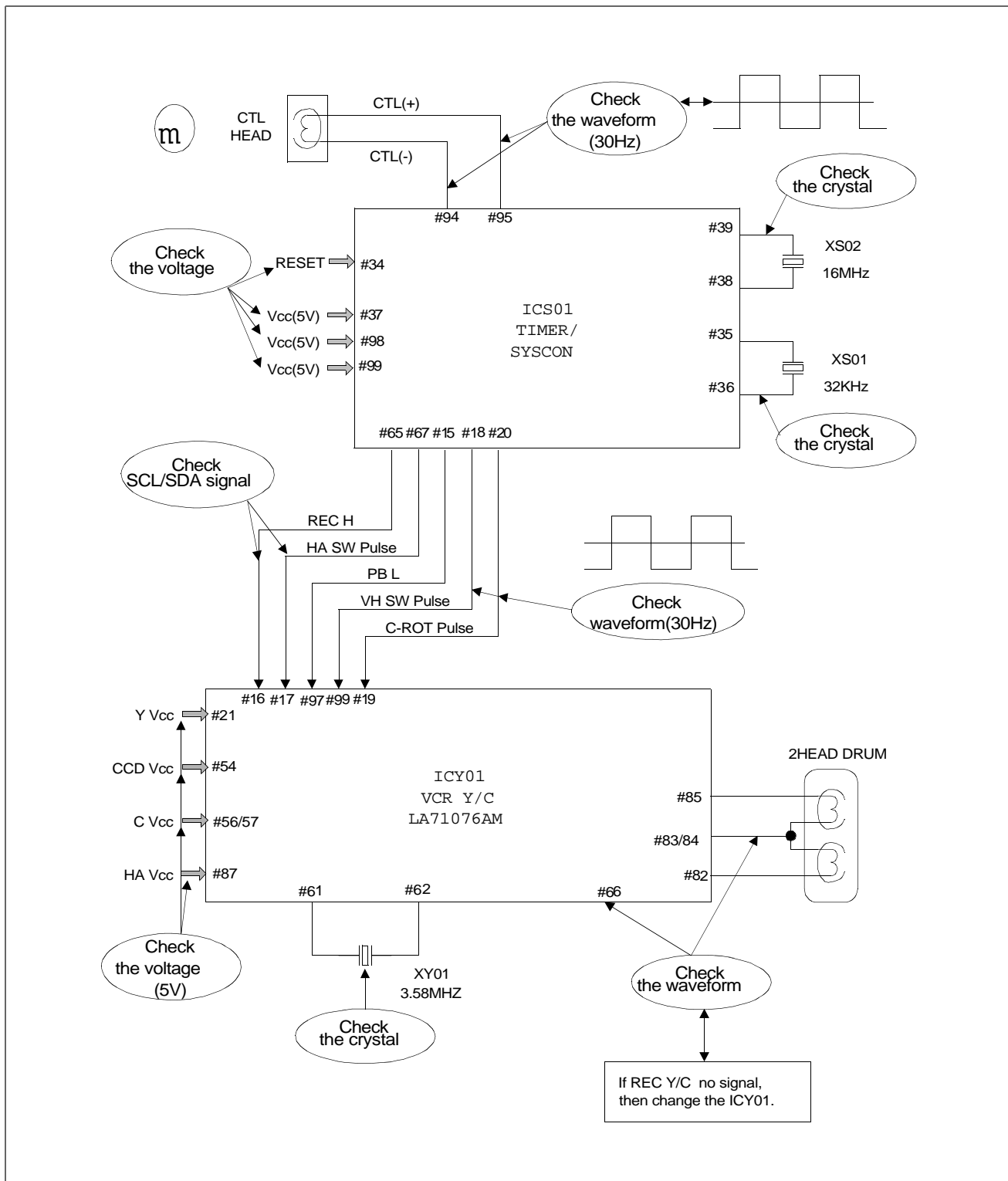


## 3-5) NO SOUND PLAYBACK



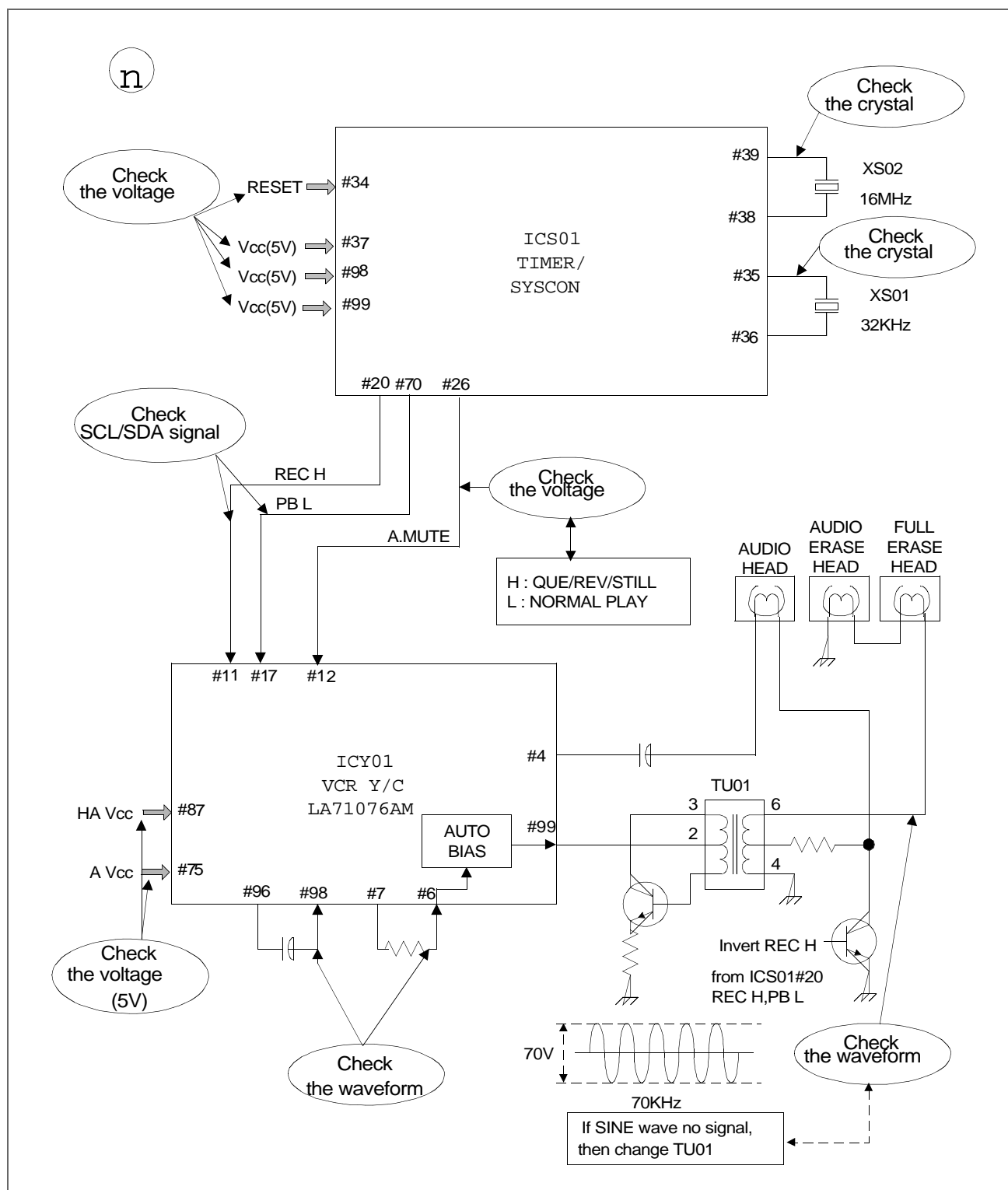
## 3-6) NO RECORD PICTURE

Check the waveform of ICY01 #40	NG : GO to the figure ②-1 (TV PART)
	OK : GO to the figure ㉓

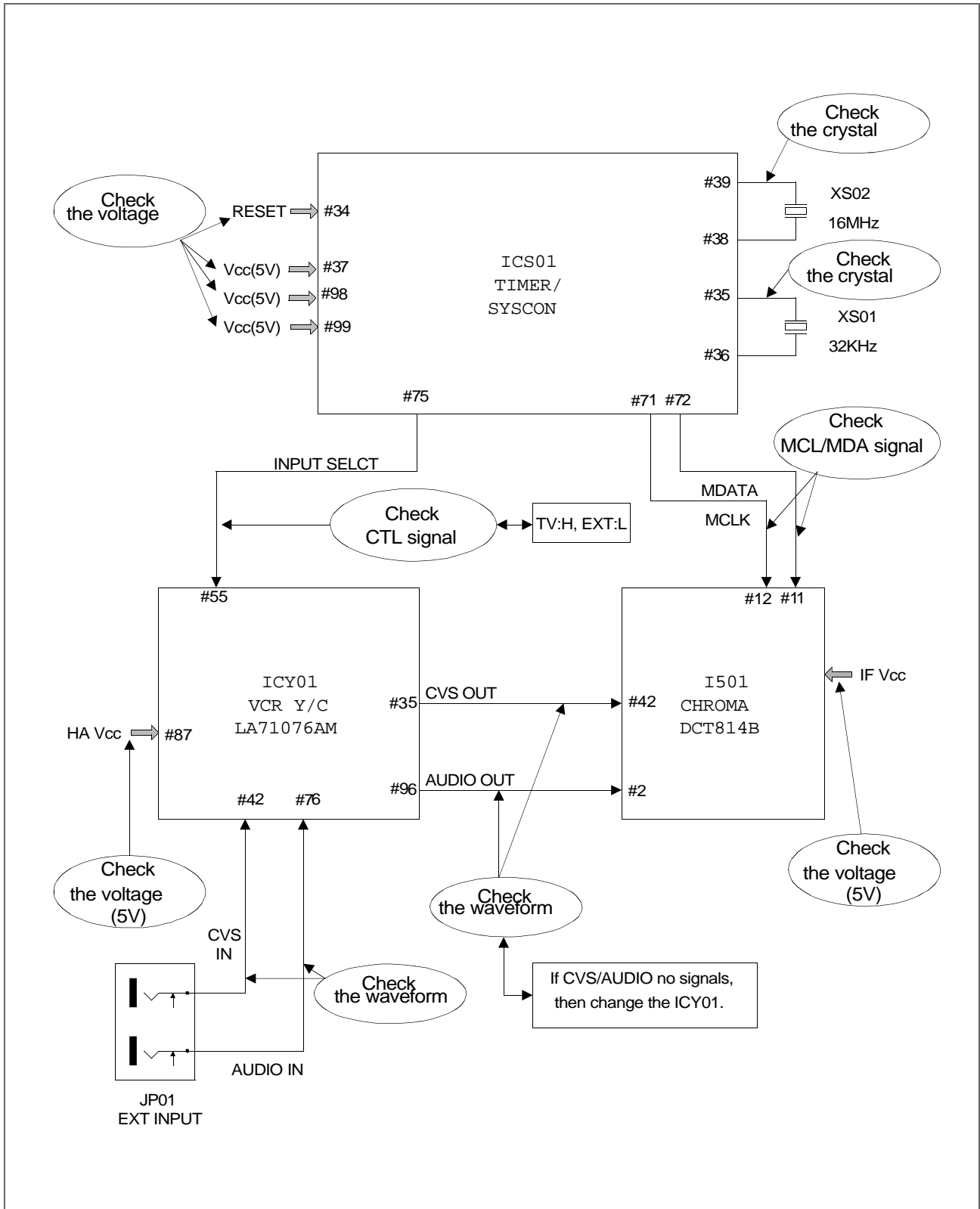


### 3-7) NO RECORD SOUND

Check the waveform of ICY01 #74	NG : GO to the figure 2-2(TV PART)
	OK : GO to the figure ⑨



## 3-8) NO EXTERNAL VIDEO / AUDIO



**DAEWOO**

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