

# Service Manual

## Color Television

CHSSIS	MODEL
CN-402FN	DTQ-20S1SSFV DTQ-2130SSFV DTQ-21D7SSPV DTQ-21U6SSFV DTQ-21U6SSV

**Caution**

: In this Manual, some parts can be changed for improving. their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List)in Service Information Center.

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# SAFETY PRECAUTIONS

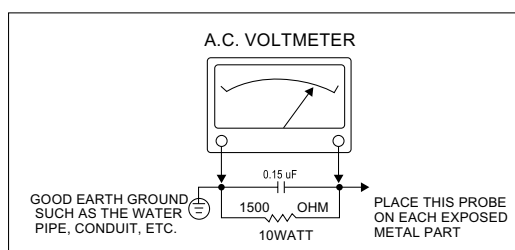
**CAUTION :** DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY. SERVICE WORK SHOULD BE 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 : 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. OF 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 GENERICALLY 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.

## SAFETY PRECAUTIONS

**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.

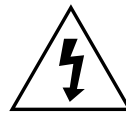
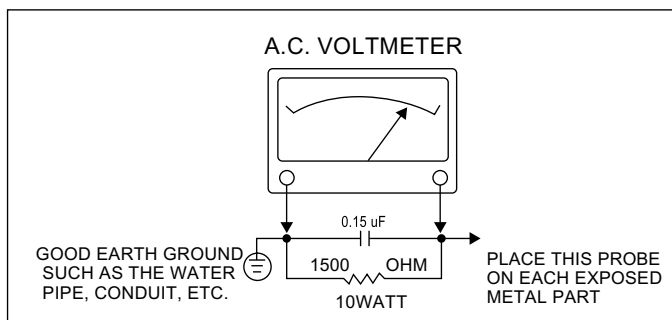
Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guide-lines. To do otherwise, increases the risk of potential hazards and injury to the user.

### SAFETY CHECKS

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

#### SUBJECT : FIRE & SHOCK HAZARD

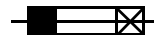
1. Be sure that all components are positioned in such a way as to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers, 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 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.



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 sufficiently 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 (4A, 125V)" and "ATTENTION: AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET DE "4A, 125V".**

#### 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 PRECAUTIONS

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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.

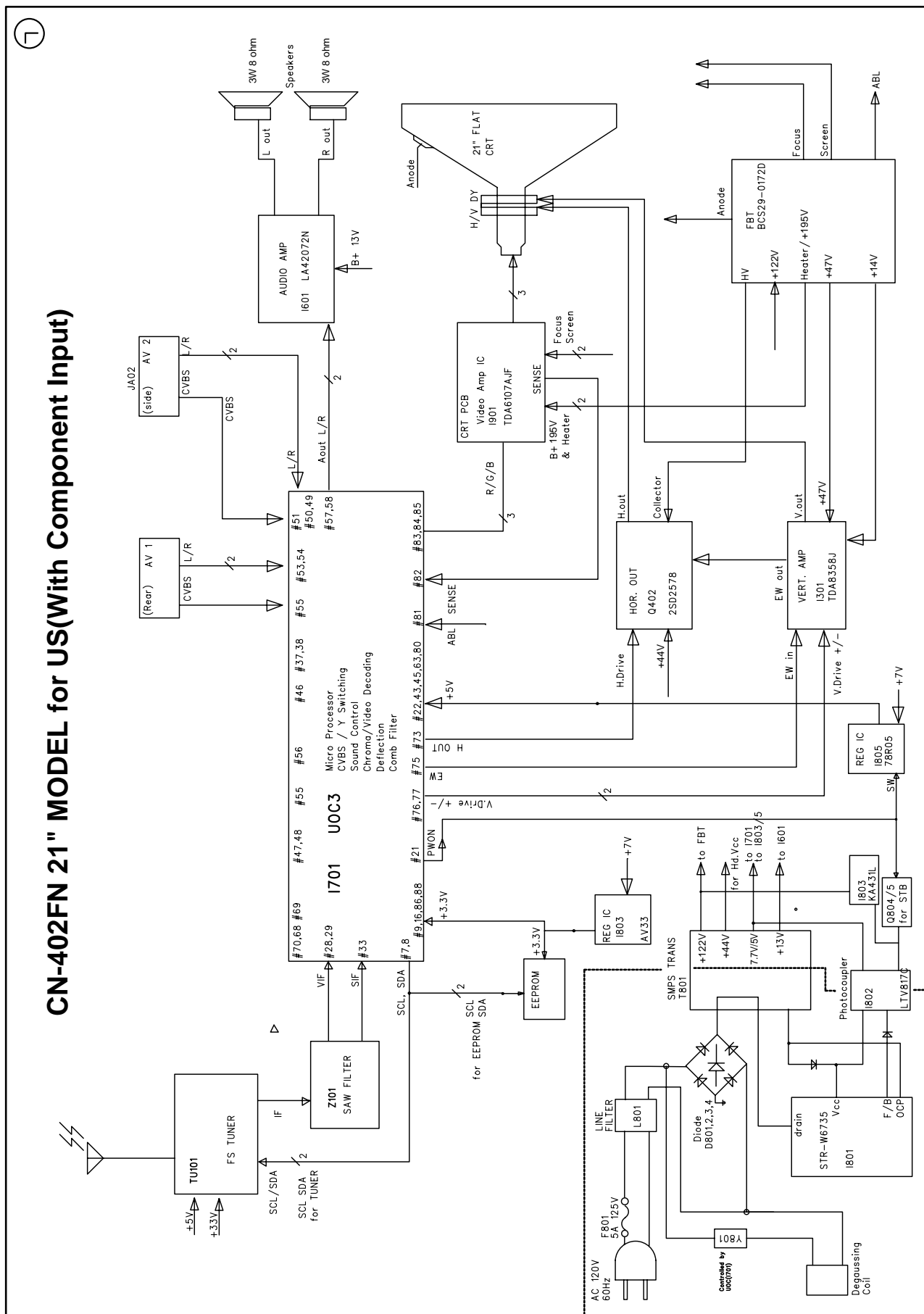
### **SUBJECT : TIPS ON PROPER INSTALLATION**

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

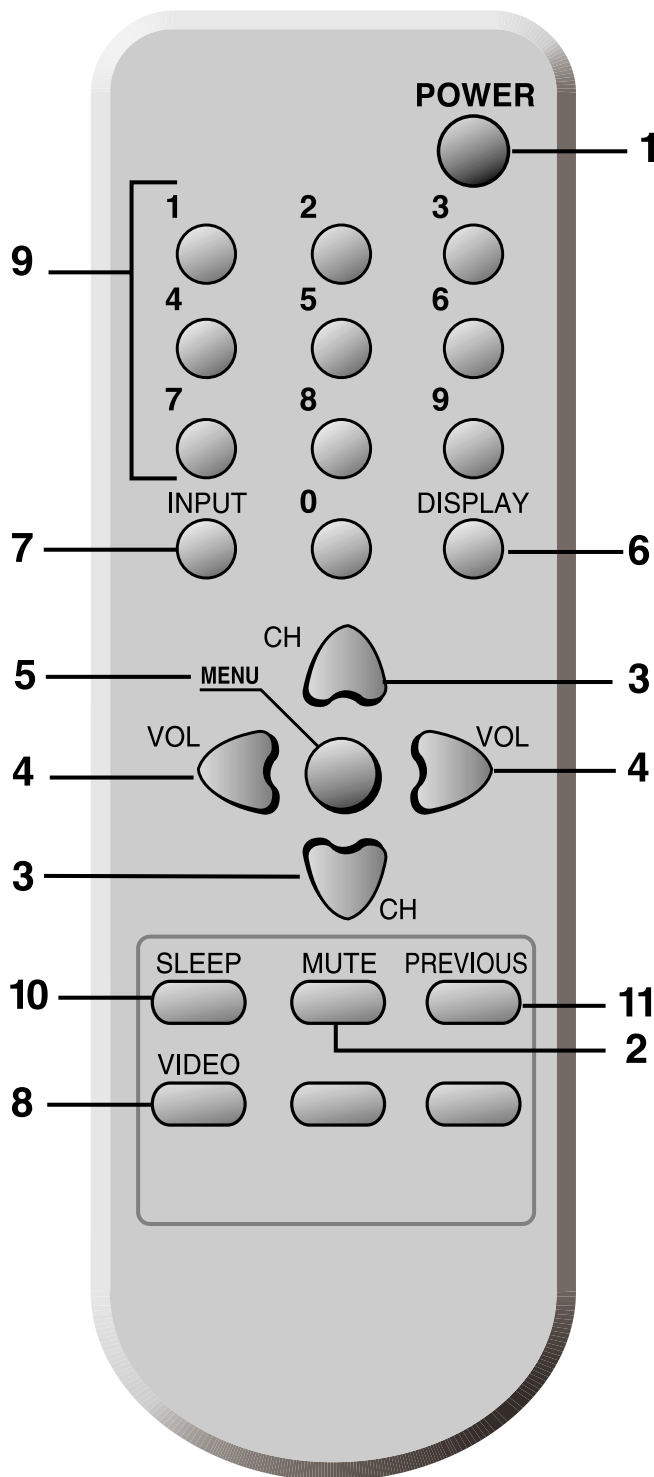
Item \ Model	DTQ-21U6SSV	DTQ-21D7SSPV	DTQ-2130SSFV DTQ-21U6SSFV DTQ-20S1SSFV
CHASSIS	CN-402FN		
TV Standard	NTSC-M		
Power Input	AC 120V, 60Hz	AC 220V, 60Hz	AC 100-250V, 60Hz
Power Consumption	70W		
Tuning System	Frequency Synthesizer(FS) Tuning System		
Tuning Ranges	TV VHF(L) : CH2 - CH6 UHF(H) : CH7 - CH13 UHF : CH14 - CH69 CATV VHF(L) : 5A, A,B,A-5-A-1,CH2-CH6 VHF(H) : C-W+11,CH7 - CH13 UHF : W+12-W+84 "		
Sound Output	3W + 3W		
Speaker	8 ohm 7W x 2EA		
Antenna Input Impedance	75 ohm Unbalanced		
Auxiliary Input Terminal	Front : Video, Audio(L,R) - AV2 Rear : Video, Audio(L,R) - AV1		
Auxiliary Output Terminal	Rear : Video, Audio(L,R) - MONITOR OUT		
Intermediate Frequencies	Picture IF Carrier Frequency : 45.75MHz Sound IF Carrier Frequency : 41.25MHz Color Sub-Carrier Frequency : 3.579545MHz		
Remote Control	R-48C04(AAA)		
Special Function	1) Closed Caption 2) V-Chip 3) Channel Label		

## CIRCUIT BLOCK DIAGRAM



# ALIGNMENT INSTRUCTION

## Your Remote Control(R-48C04)



### 1. POWER

Use this button to turn your TV on or off.

### 2. MUTE

Use to turn the TV's sound on and off.

### 3. ▼CH▲

Use these buttons to change channels on your TV, or select items in the menu system.

### 4. ◀VOL▶

Use these buttons to change your TV's volume, to activate selections in the menu system, or to change audio and video settings.

### 5. MENU

Use this button to turn the TV's menu system on and off.

### 6. DISPLAY

Use this button to display the present status.

### 7. INPUT

Use this button to select the TV's signal source.

### 8. VIDEO

Use this button to display video adjustment items.

### 9. 0-9

Use these buttons to change channels.

### 10. SLEEP

Use this button to program the TV to turn off after a certain time.

### 11. PREVIOUS

Use this button to return to the previous channel you were watching.



## ALIGNMENT INSTRUCTION

### 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 TV.
- Push buttons of remote control in sequence as follows.

**1 MUTE DISPLAY MUTE**

- Then, the screen will appear as follows.

SERVICE 02
SERVICE 03
SERVICE 04
SERVICE 05
SERVICE 06
SERVICE 07
SERVICE 08
SERVICE 09
SERVICE 10
SERVICE 11
SERVICE 12
▲ ▼ SELECT ◀ ▶ ADJUST ■ EXIT

- Using the channel up or channel down button, select the item you wish to adjust.  
(The color of selected item turns into the blue.)
- Press the volume up or down button to enter in the service mode you wish to adjust.

#### 2) How to memorize the adjusted values in the service mode.

- Don't have to press any button the state which the screen is displaying each of service menus after all adjustments are completed each of all service menu.

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

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
I701 (U-COM)		O	Data is stored in I702.
I702 (EEPROM)	O		Initial setting values are written from I701. ADJUSTING ITEMS S6 : Geometry adjustmnt S8 : White balance S9 : Subbrightness
CRT	O		Adjust items related to picture tube only. (White Balance adjustment) CRT OPTION (Screen Option adjustment)

## DTQ-20S1SSFV EEPROM DATA (050407)

CN-402FN

MODE	NAME	VAL	REMARKS	MODE	NAME	VAL	REMARKS
S1	HEAT RUN	RUN OFF		S7-2	SOC	0	
S2	SCREEN ADJUST	580V			PWLDAC	0	
S5	AGC LEVEL	22			CL	4	
	IFOFF	37			CLD	0	
	QSS	1			GAM	1	
	BPB	1			HCT	0	
	FMI	1			ACL	0	
	AGN	0			BPS	0	
	BPBS	1			CHSE	2	
	DSG	RF:0, AV:1			FCO	0	
	Fine Tunning				CBPS	0	
	FILTBW	0			CB	0	
	IDMOD	1			MUS	0	
	OVMTHR	1			FFI	0	
	IDMOD SLOW KOR	1		S8	R-GAIN	32	
S6	V.SIZE	31			G-GAIN	32	
	V.CENTER	36			B-GAIN	40	
	V.SLOPE	33			R-BIAS	32	
	V.LINEARITY	35			G-BIAS	32	
	S_CORRECTION	20			SRC R-BIAS	32	
	H.CENTER	45			SRC G-BIAS	32	
	H.SIZE	54			CVI R-BIAS	0	
	H.PARALLEL	44			CVI G-BIAS	0	
	H-BOW	35		S9	DP-Brightness	10	
	PARABOLA	17			DP-Contrast	10	
	EW TRAPEZ	38			DP-Color	5	
	CORNER TOP	54			DP-Sharpness	18	
	CORNER BOTTOM	46		S10	OPTION		
S7-1	CFCLF	1		S12	FACTORY SET		
	YD TV	RF:4, AV:7		<div> <p>* VOLUME : CENTER (32)</p> <p>* OPTION 1 : 1110 1001 OPTION 2 : 0110 0011 OPTION 3 : 0000 0010</p> <p>* SCREEN : 6AE ---&gt; 18 (HEX)</p> </div>			
	DTR	0					
	BPYD	0					
	TCCON	1					
	TCI2X	0					
	PF	3					
	TFR	1					
	NRR	0					
	WS	3					
	BLS	0					
	DSK	0					
	AAS	2					
	BSD	0					
	BKS	1					
	DSA	0					
	RPO	3					
	RPA	2					
	BPD	0					
	CFA0	1					

## ALIGNMENT INSTRUCTION

### 2. ASSEMBLY ADJUSTMENTS

#### 1) SCREEN ADJUSTMENT (S2)

- Enter the service mode and select service adjustment S2.
- You can see the one horizontal line on the screen.
- Adjust the Screen Control Volume (located on FBT) so that the horizontal line onscreen may be disappeared.
- Press S2 button to exit in the screen adjustment mode.

#### 2) FOCUS ADJUSTMENT

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

#### 3) AGC ADJUSTMENT

- Adjust the antenna signal level at 60 dBuV
- Tune a colour bar pattern.
- Find the "AGC" item in service mode.  
(it's two way to entering the "AGC" item in service mode)
  - Enter the service mode and select service adjustment S5 and select AUTO-AGC.
  - Enter the service mode and select service adjustment S3.
- Wait until AGC level stabilise to the optimum value.
- Alternatively,  
Enter the service mode and select service adjustment S5 and select AGC LEVEL.  
Use "Vol Up/Dwn" keys to adjust manually to the desired Tuner Take Over Point.

#### 4) GEOMETRIC ADJUSTMENTS (S6)

- Select service adjustment S6
- You can see the OSD as shown in below.

V.SIZE	43	H.PARALLEL	33
V.CENTER	42	H-BOW	35
V.SLOPE	28	PARABOLA	17
V.LINEARITY	37	EW TRAPEZ	38
S_CORRECT	32	CORNER TOP	54
H.CENTER	45	CORNER BOTTOM	46
H.SIZE	54		
▲ ▼ SELECT ◀ ▶ ADJUST ■ EXIT			

### 4-1) Vertical Position Adjustment.

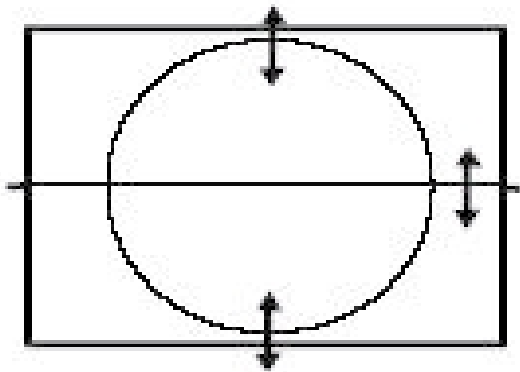
- Select V.SLOPE item, adjust V.SLOPE data value till the horizontal line in the centre of the video signal is just at the position where the blanking starts.
- Select V.CENTER item, adjust V.CENTER data value to center the raster properly on the screen.

### 4-2) Vertical Size Adjustment

- Select V.SIZE item, adjust V.SIZE data value to proper vertical size as follows.

### 4-3) Horizontal Position 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.

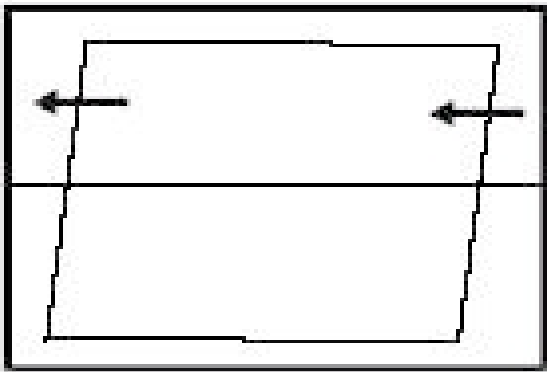


## ALIGNMENT INSTRUCTION

### 4-4). H.BOW, PARABOLA Adjustment

\* Adjust the H.BOW, PARABOLA to compensate for geometrical distortion.

\* You can not adjust the H.PARALLEL, H.SIZE, EW TRAPEZ, CORNER TOP and CORNER BOTTOM.



H.PARALLEL

## 5) WHITE BALANCE ADJUSTMENT(S8)

- Receive a good local channel.
- Enter the service mode and select service adjustment S8.
- You can see the OSD as shown in below.

R-GAIN	32	SRC R-BIAS	32
G-GAIN	32	SRC G-BIAS	32
B-GAIN	40	CVI R-BIAS	-8
R-BIAS	32	CVI G-BIAS	10
G-BIAS	32		

▲ ▼ SELECT ◀ ▶ ADJUST ■ EXIT

- Using volume up or volume down, adjust service adjustment data of R-GAIN/G-GAIN/B-GAIN and R-BIAS/G-BIAS until a good gray scale with normal whites is obtained.

## 6) DIGITAL PRESET(D.P) ADJUSTMENTS(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.

DP-Brightness	10
DP-Contrast	10
DP-Color	5
DP-Sharpness	18

▲ ▼ SELECT ◀ ▶ ADJUST ■ EXIT

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

## DP-Contrast

- Fixed value = 10

## DP-Color

- Fixed value = 5

## DP-Sharpness

- Fixed value = 18

## 7) FACTORY OUTGOING MODE (S12 : FACT)

- If you select the S12, then the set becomes factory outgoing status.
- You can see the OSD "SHIPPING OFF"

# IC DESCRIPTION

## 1. UOC III SERIES

### 1-1. UOC III BLOCK DIAGRAM

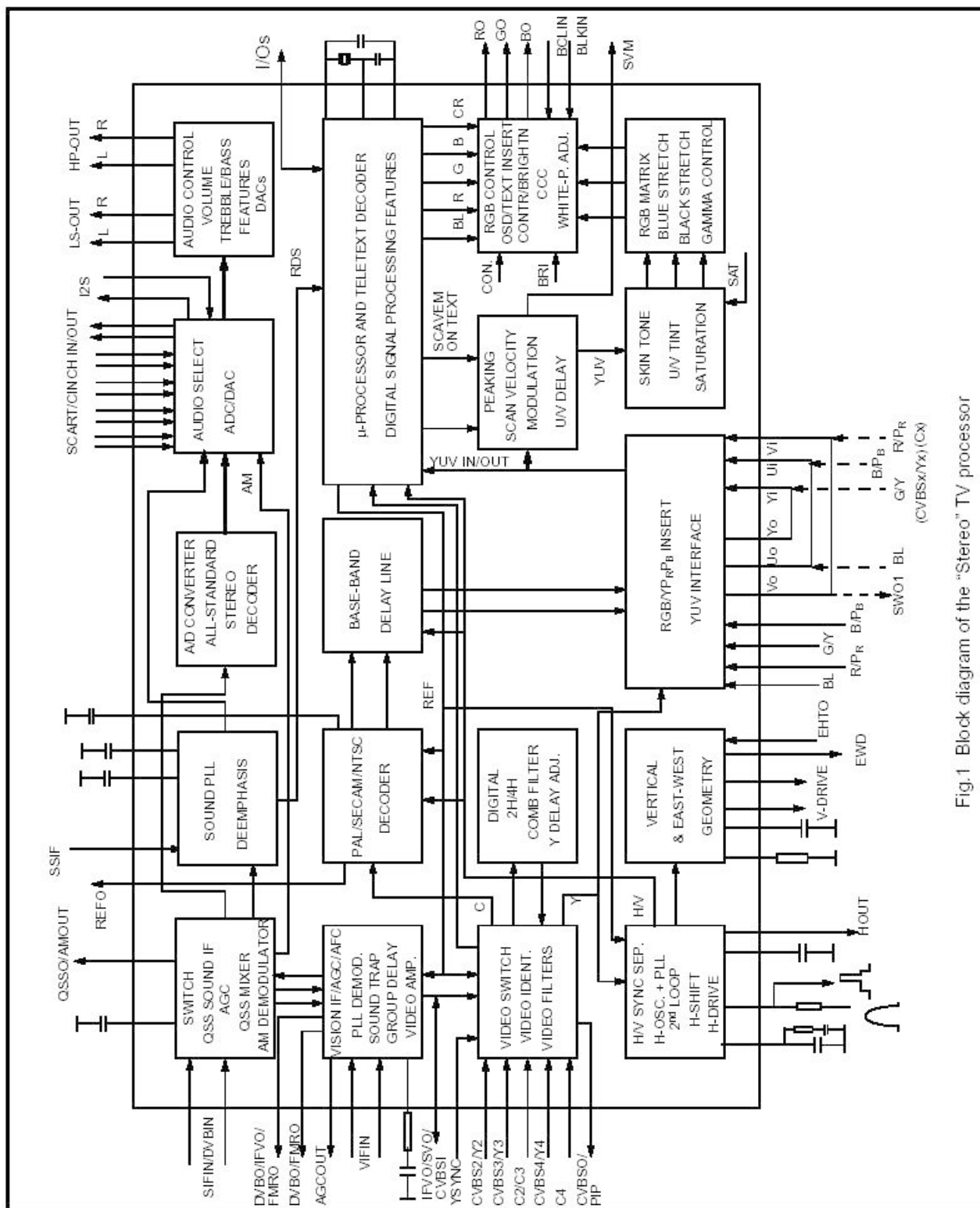


Fig.1 Block diagram of the "Stereo" TV processor

## 1-2. UOC III FEATURES

### Analogue Video Processing (all versions)

- Multi-standard vision IF circuit with alignment-free PLL demodulator
  - Internal (switchable) time-constant for the IF-AGC circuit
  - Switchable group delay correction and sound trap (with switchable centre frequency) for the demodulated CVBS signal
  - DVB/VSF IF circuit for preprocessing of digital TV signals.
  - Video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed.
  - Automatic Y/C signal detector
  - Adaptive digital (4H/2H) PAL/NTSC comb filter for optimum separation of the luminance and the chrominance signal.
  - Integrated luminance delay line with adjustable delay time
  - Picture improvement features with peaking (with switchable centre frequency, depeaking, variable positive/negative peak ratio, variable pre-/overshoot ratio and video dependent coring), dynamic skin tone control, gamma control and blue- and black stretching. All features are available for CVBS, Y/C and RGB/YPBPR signals.
  - Switchable DC transfer ratio for the luminance signal
  - Only one reference (24.576 MHz) crystal required for the TCG m-Controller, digital sound processor, Teletext and the colour decoder
  - Multi-standard colour decoder with automatic search system and various “forced mode” possibilities
  - Internal base-band delay line
  - Indication of the Signal-to-Noise ratio of the incoming CVBS signal
  - Linear RGB/YPBPR input with fast insertion.
  - YUV interface. When this feature is not required some pins can be used as additional RGB/YPBPR input. It is also possible to use these pins for additional CVBS (or Y/C) input (CVBS/YX and CX).
  - Tint control for external RGB/YPBPR signals
  - Scan Velocity Modulation output. The SVM circuit is active for all the incoming CVBS, Y/C and RGB/YPBPR signals. The SVM function can also be used during the display of teletext pages.
  - RGB control circuit with ‘Continuous Cathode Calibration’, white point and black level off-set adjustment so that the colour temperature of the dark and the light parts of the screen can be chosen independently.
  - Contrast reduction possibility during mixed-mode of OSD and Text signals
  - Adjustable ‘wide blanking’ of the RGB outputs
  - Horizontal synchronization with two control loops and alignment-free horizontal oscillator
  - Vertical count-down circuit
  - Vertical driver optimized for DC-coupled vertical output stages
  - Horizontal and vertical geometry processing with horizontal parallelogram and bow correction and horizontal and vertical zoom
  - Low-power start-up of the horizontal drive circuit
- Analogue video processing (stereo versions)
- The low-pass filtered ‘mixed down’ I signal is available via a single ended or balanced output stage.

### Analogue video processing (mono versions)

- The low-pass filtered ‘mixed down’ I signal is available via a single ended output stage

### Digital Video Processing (some versions)

- Double Window mode applications. It is possible to display a video and a text window or 2 text



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## IC DESCRIPTION

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windows in parallel.

- Linear and non-linear horizontal scaling of the video signal to be displayed.
- Sound Demodulation (all versions)
- Separate SIF (Sound IF) input for single reference QSS (Quasi Split Sound) demodulation.
- AM demodulator without extra reference circuit
- The mono intercarrier sound circuit has a selective FM-PLL demodulator which can be switched to the different FM sound frequencies (4.5/5.5/6.0/6.5 MHz). The quality of this system is such that the external band-pass filters can be omitted. In the stereo versions of UOCIII the use of this demodulator is optional for special applications. Normally the FM demodulators of the stereo demodulator/decoder part are used (see below).
- The FM-PLL demodulator can be set to centre frequencies of 4.72/5.74 MHz so that a second sound channel can be demodulated. In such an application it is necessary that an external bandpass filter is inserted.
- The vision IF and mono intercarrier sound circuit can be used for the demodulation of FM radio signals. With an external FM tuner also signals with an IF frequency of 10.7 MHz can be demodulated.
- Switch to select between 2nd SIF from QSS demodulation or external FM (SSIF)
- Audio Interfaces and switching (stereo versions with Audio DSP)
- Audio switch circuit with 4 stereo inputs, a stereo output for SCART/CINCH, 1 stereo output for HEADPHONE. The headphone channel has an analogue volume control circuit for the L and R channel. Finally 1 stereo SPEAKER output with digital controls.
- AVL (Automatic Volume Levelling) circuit for the headphone channel.
- Digital input crossbar switch for all digital signal sources and destinations
- Digital output crossbar for exchange of channel processing functionality
- Digital audio input interface (stereo I2S input interface)
- Digital audio output interface (stereo I2S output interface)
- Audio interfaces and switching (AV stereo versions without Audio DSP)
- Audio switch circuit with 4 stereo inputs, a stereo output for SCART/CINCH and a stereo SPEAKER output with analogue volume control.
- Analogue mono AVL circuit at left audio channel
- Audio interfaces and switching (mono versions)
- Audio switch circuit with 4 external audio (mono) inputs and a volume controlled output
- AVL circuit
- Stereo Demodulator and Decoder (full stereo versions)
- Demodulator and Decoder Easy Programming (DDEP)
- Auto standard detection (ASD)
- Static Standard Selection (SSS)
- DQPSK demodulation for different standards, simultaneously with 1-channel FM demodulation
- NICAM decoding (B/G, I, D/K and L standard)
- Two-carrier multistandard FM demodulation (B/G, D/K and M standard)
- Decoding for three analog multi-channel systems (A2, A2+ and A2\*) and satellite sound
- Adaptive de-emphasis for satellite FM
- Optional AM demodulation for system L, simultaneously with NICAM
- Identification A2 systems (B/G, D/K and M standard) with different identification time constants
- FM pilot carrier present detector
- Monitor selection for FM/AM DC values and signals, with peak and quasi peak detection option
- BTSC MPX decoder
- SAP decoder
- dbx® noise reduction (4)
- Japan (EIAJ) decoder
- FM radio decoder
- Soft-mute for DEMDEC outputs DEC, MONO and SAP

- ## m-Controller

- 17-

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## IC DESCRIPTION

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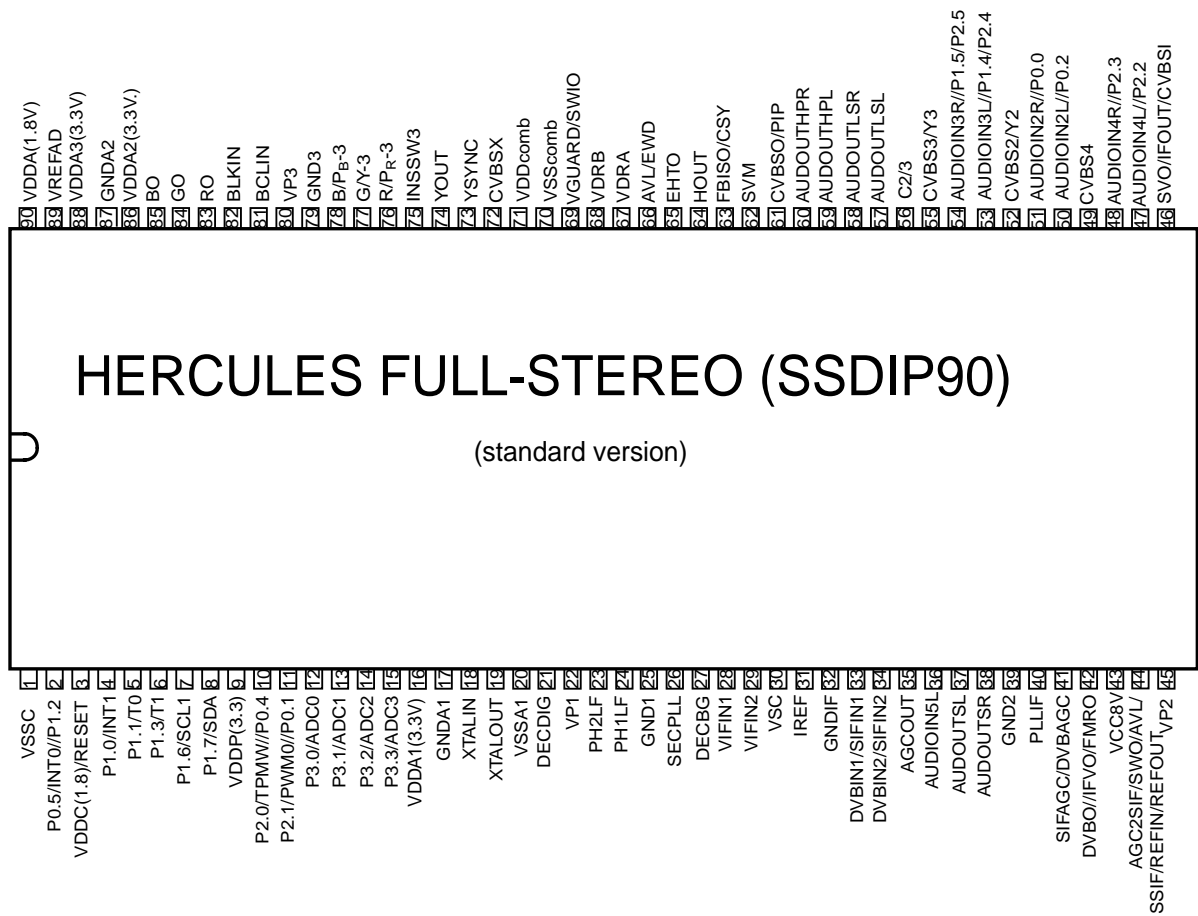
- 5 PWM (6-bits) outputs for analogue control functions
- Remote Control Pre-processor (RCP)
- Universal Asynchronous Receiver Transmitter (UART)

### **Data Capture**

- Text memory up to 10 pages
- Inventory of transmitted Teletext pages stored in the Transmitted Page Table (TPT) and Subtitle Page Table (SPT)
- Data Capture for US Closed Caption
- Data Capture for 525/625 line WST, VPS (PDC system A) and Wide Screen Signalling (WSS) bit decoding
- Automatic selection between 525 WST/625 WST
- Automatic selection between 625 WST/VPS on line 16 of VBI
- Real-time capture and decoding for WST Teletext in Hardware, to enable optimized m-processor throughput
- Automatic detection of FASTEXT transmission
- Real-time packet 26 engine in Hardware for processing accented, G2 and G3 characters
- Signal quality detector for video and WST/VPS data types
- Comprehensive teletext language coverage
- Vertical Blanking Interval (VBI) data capture of WST data

### **Display**

- Teletext and Enhanced OSD modes
- Features of level 1.5 WST and US Close Caption
- 50Hz/60Hz display timing modes
- Two page operation for 16:9 screens
- Serial and Parallel Display Attributes
- Single/Double/Quadruple Width and Height for characters
- Smoothing capability of both Double Size, Double Width & Double Height characters
- Scrolling of display region
- Variable flash rate controlled by software
- Soft colours using CLUT with 4096 colour palette
- Globally selectable scan lines per row (9/10/13/16/) and character matrix [12x9, 12x10, 12x13, 12x16, 16x18, (VxH)]
- Fringing (Shadow) selectable from N-S-E-W direction
- Fringe colour selectable
- Contrast reduction of defined area
- Cursor
- Special Graphics Characters with two planes, allowing four colours per character
- 64 software redefinable On-Screen display characters
- 4 WST Character sets (G0/G2) in single device (e.g. Latin, Cyrillic, Greek, Arabic)
- G1 Mosaic graphics, Limited G3 Line drawing characters
- WST Character sets and Closed Caption Character set in single device
- SVM for Text



## IC DESCRIPTION

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
VSSP2	1	1		128	90		ground
VSSC4	2	1		127	90		ground
VDDC4	3	3		126	88		digital supply to SDACs (1.8V)
VDDA3(3.3V)	4	16		125	75		supply (3.3 V)
VREF_POS_LSL	5	16		124	75		positive reference voltage SDAC (3.3 V)
VREF_NEG_LSL+HPL	6	17		123	74		negative reference voltage SDAC (0 V)
VREF_POS_LSR+HPR	7	16		122	75		positive reference voltage SDAC (3.3 V)
VREF_NEG_HPL+HPR	8	17		121	74		negative reference voltage SDAC (0 V)
VREF_POS_HPR	9	16		120	75		positive reference voltage SDAC (3.3 V)
XTALIN	10	18		119	73		crystal oscillator input
XTALOUT	11	19		118	72		crystal oscillator output
VSSA1	12	20		117	71		ground
VGUARD/SWIO	13	69		116	22		V-guard input / I/O switch (e.g. 4 mA current sinking capability for direct drive of LEDs)
DECDIG	14	21		115	70		decoupling digital supply
VP1	15	22		114	69		1 <sup>st</sup> supply voltage TV-processor (+5 V)
PH2LF	16	23		113	68		phase-2 lter
PH1LF	17	24		112	67		phase-1 lter
GND1	18	25		111	66		ground 1 for TV-processor
SECPLL	19	26		110	65		SECAM PLL decoupling
DECBG	20	27		109	64		bandgap decoupling
EWD/AVL <sup>(1)</sup>	21	66		108	25		East-West drive output or AVL capacitor
VDRB	22	68		107	23		vertical drive B output
VDRA	23	67		106	24		vertical drive A output
VIFIN1	24	28		105	63		IF input 1

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
VIFIN2	25	29		104	62		IF input 2
VSC	26	30		103	61		vertical sawtooth capacitor
IREF	27	31		102	60		reference current input
GNDIF	28	32		101	59		ground connection for IF amplifier
SIFIN1/DVBIN1 <sup>(2)</sup>	29	33		100	58		SIF input 1 / DVB input 1
SIFIN2/DVBIN2 <sup>(2)</sup>	30	34		99	57		SIF input 2 / DVB input 2
AGCOUT	31	35		98	56		tuner AGC output
EHTO	32	65		97	26		EHT/overvoltage protection input
AVL/SWO/SSIF/ REFO/REFIN <sup>(2)</sup>	33	44		96	47		Automatic Volume Levelling / switch output / sound IF input / subcarrier reference output / external reference signal input for I signal mixer for DVB operation
AUDIOIN5	-	-		-	-		audio 5 input
AUDIOIN5L	34	36/-		95	55/-		audio-5 input (left signal)
AUDIOIN5R	35	-		94	-		audio-5 input (right signal)
AUDOUTSL	36	37		93	54		audio output for SCART/CINCH (left signal)
AUDOUTSR	37	38		92	53		audio output for SCART/CINCH (right signal)
DECSDEM	38	-/72		91	-/19		decoupling sound demodulator
QSSO/AMOUT/AUDEEM <sup>(2)</sup>	39	-/36		90	-/55		QSS intercarrier output / AM output / deemphasis (front-end audio out)
GND2	40	39		89	52		ground 2 for TV processor
PLLIF	41	40		88	51		IF-PLL loop filter
SIFAGC/DVBAGC <sup>(2)</sup>	42	41		87	50		AGC sound IF / internal-external AGC for DVB applications
DVBO/IFVO/FMRO <sup>(2)</sup>	43	42		86	49		Digital Video Broadcast output / IF video output / FM radio output
DVBO/FMRO <sup>(2)</sup>	44	-		85	-		Digital Video Broadcast output / FM radio output
VCC8V	45	43		84	48		8 Volt supply for audio switches

## IC DESCRIPTION

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
AGC2SIF	46	44/-		83	47/-		AGC capacitor second sound IF
VP2	47	45		82	46		2 <sup>nd</sup> supply voltage TV processor (+5 V)
IFVO/SVO/CVBSI <sup>(2)</sup>	48	46		81	45		IF video output / selected CVBS output / CVBS input
AUDIOIN4	-	-		-	-		audio 4 input
AUDIOIN4L	49	47		80	44		audio-4 input (left signal)
AUDIOIN4R	50	48		79	43		audio-4 input (right signal)
CVBS4/Y4	51	49		78	42		CVBS4/Y4 input
C4	52	-		77	-		chroma-4 input
AUDIOIN2	-	-		-	-		audio 2 input
AUDIOIN2L	53	50		76	41		audio 2 input (left signal)
AUDIOIN2R	54	51		75	40		audio 2 input (right signal)
CVBS2/Y2	55	52		74	39		CVBS2/Y2 input
AUDIOIN3	-	-		-	-		audio 3 input
AUDIOIN3L	56	53		73	38		audio 3 input (left signal)
AUDIOIN3R	57	54		72	37		audio 3 input (right signal)
CVBS3/Y3	58	55		71	36		CVBS3/Y3 input
C2/C3	59	56		70	35		chroma-2/3 input
AUDOUTLSL	60	57		69	34		audio output for audio power amplifier (left signal)
AUDOUTLSR	61	58		68	33		audio output for audio power amplifier (right signal)
AUDOUT/AMOUT/FMOUT	-	-		-	-		audio output / AM output / FM output, volume controlled
AUDOUTHPL	62	59		67	32		audio output for headphone channel (left signal)
AUDOUTHPR	63	60		66	31		audio output for headphone channel (right signal)
CVBSO/PIP	64	61		65	30		CVBS / PIP output

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
SVM	65	62		64	29		scan velocity modulation output
FBISO/CSY	66	63		63	28		Y-back input/sandcastle output or composite H/V timing output
HOUT	67	64		62	27		horizontal output
VSScomb	68	70		61	21		ground connection for comb filter
VDDcomb	69	71		60	20		supply voltage for comb filter (5 V)
VIN (R/P <sub>R</sub> IN2/C <sub>X</sub> )	70	-		59	-		V-input for YUV interface (2 <sup>nd</sup> R input / P <sub>R</sub> input or C <sub>X</sub> input)
UIN (B/P <sub>B</sub> IN2)	71	-		58	-		U-input for YUV interface (2 <sup>nd</sup> B input / P <sub>B</sub> input)
YIN (G/YIN2/CVBS-Y <sub>X</sub> )	72	72/-		57	19/-		Y-input for YUV interface (2 <sup>nd</sup> G input / Y input or CVBS/Y <sub>X</sub> input))
YSYNC	73	73		56	18		Y-input for sync separator
YOUT	74	74		55	17		Y-output (for YUV interface)
UOUT (INSSW2)	75	-		54	-		U-output for YUV interface (2 <sup>nd</sup> RGB / YP <sub>B</sub> P <sub>R</sub> insertion input)
VOUT (SWO1)	76	-		53	-		V-output for YUV interface (general purpose switch output)
INSSW3	77	75		52	16		3 <sup>rd</sup> RGB / YP <sub>B</sub> P <sub>R</sub> insertion input
R/P <sub>R</sub> IN3	78	76		51	15		3 <sup>rd</sup> R input / P <sub>R</sub> input
G/YIN3	79	77		50	14		3 <sup>rd</sup> G input / Y input
B/P <sub>B</sub> IN3	80	78		49	13		3 <sup>rd</sup> B input / P <sub>B</sub> input
GND3	81	79		48	12		ground 3 for TV-processor
VP3	82	80		47	11		3 <sup>rd</sup> supply for TV processor
BCLIN	83	81		46	10		beam current limiter input
BLKIN	84	82		45	9		black current input
RO	85	83		44	8		Red output
GO	86	84		43	7		Green output
BO	87	85		42	6		Blue output



## IC DESCRIPTION

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
VDDA1	88	86		41	5		analog supply for TCG mController and digital supply for TV-processor (+3.3 V)
VREFAD_NEG	89	87		40	4		negative reference voltage (0 V)
VREFAD_POS	90	88		39	3		positive reference voltage (3.3 V)
VREFAD	91	89		38	2		reference voltage for audio ADCs (3.3/2 V)
GNDA	92	87		37	4		ground
VDDA(1.8V)	93	90		36	1		analogue supply for audio ADCs (1.8 V)
VDDA2(3.3)	94	88		35	3		supply voltage SDAC (3.3 V)
VSSadc	95	1		34	90		ground for on-chip temperature sensor
VDDadc(1.8)	96	90		33	1		supply voltage video ADC
INT0/P0.5	97	2		32	89		external interrupt 0 or port 0.5 (4 mA current sinking capability for direct drive of LEDs)
P1.0/INT1	98	4		31	87		port 1.0 or external interrupt 1
P1.1/T0	99	5		30	86		port 1.1 or Counter/Timer 0 input
VDDC2	100	3		29	88		digital supply to core (1.8 V)
VSSC2	101	1		28	90		ground
P0.4/I2SWS	102	-		27	-		port 0.4 or I <sup>2</sup> S word select
P0.4	-	-		-	-		port 0.4
P0.3/I2SCLK	103	-		26	-		port 0.3 or I <sup>2</sup> S clock
P0.3	-	-		-	-		port 0.3
P0.2/I2SDO2	104	50		25	41		port 0.2 or I <sup>2</sup> S digital output 2
P0.2	-	-		-	-		port 0.2
P0.1/I2SDO1	105	-		24	-		port 0.1 or I <sup>2</sup> S digital output 1
P0.1	-	-		-	-		port 0.1
P0.0/I2SDI1/O	106	51		23	40		port 0.0 or I <sup>2</sup> S digital input 1 or I <sup>2</sup> S digital output
P0.0	-	-		-	-		port 0.0
P1.3/T1	107	6		22	85		port 1.3 or Counter/Timer 1 input

SYMBOL	STANDARD VERSION			FACE DOWN VERSION			DESCRIPTION
	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	STEREO + AV STEREO QFP128	FULL-STEREO/ MONO+ AV STEREO SSDIP90	MONO	
P1.6/SCL	108	7		21	84		port 1.6 or I <sup>2</sup> C-bus clock line
P1.7/SDA	109	8		20	83		port 1.7 or I <sup>2</sup> C-bus data line
VDDP(3.3V)	110	9		19	82		supply to periphery and on-chip voltage regulator (3.3 V)
P2.0/TPWM	111	10		18	81		port 2.0 or Tuning PWM output
P2.1/PWM0	112	11		17	80		port 2.1 or PWM0 output
P2.2/PWM1	113	47		16	44		port 2.2 or PWM1 output
P2.3/PWM2	114	48		15	43		port 2.3 or PWM2 output
P3.0/ADC0	115	12		14	79		port 3.0 or ADC0 input
P3.1/ADC1	116	13		13	78		port 3.1 or ADC1 input
VDDC1	117	3		12	88		digital supply to core (+1.8 V)
DECV1V8	118	3		11	88		decoupling 1.8 V supply
P3.2/ADC2	119	14		10	77		port 3.2 or ADC2 input
P3.3/ADC3	120	15		9	76		port 3.3 or ADC3 input
VSSC/P	121	1		8	90		digital ground for mController core and periphery
P2.4/PWM3	122	53		7	38		port 2.4 or PWM3 output
P2.5/PWM4	123	54		6	37		port 2.5 or PWM4 output
VDDC3	124	3		5	88		digital supply to core (1.8V)
VSSC3	125	1		4	90		ground
P1.2/INT2	126	2		3	89		port 1.2 or external interrupt 2
P1.4/RX	127	53		2	38		port 1.4 or UART bus
P1.5/TX	128	54		1	37		port 1.5 or UART bus

## IC DESCRIPTION

### 2. TDA8358J VERTICAL AMPLIFIER

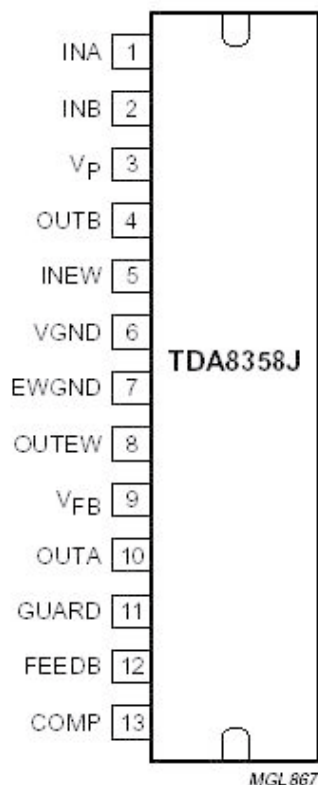
The TDA8358J are power circuit for use in 90° and 110° colour deflection systems for field frequencies of 25 to 200Hz field frequencies, and for 4:3 and 16/9 picture tubes. The IC contains a vertical deflection output circuit, operating as a high efficiency class G system. The full bridge output circuit allows DC coupling of the deflection coil in combination with single positive supply voltages.

The east-west output stage is able to supply the sink current for a diode modulator circuit.

The IC is constructed in a Low Voltage DMOS(LVDMOS) process that combines bipolar, CMOS and DMOS devices. DMOS transistors are used in the output stage because of the absence of second breakdown.

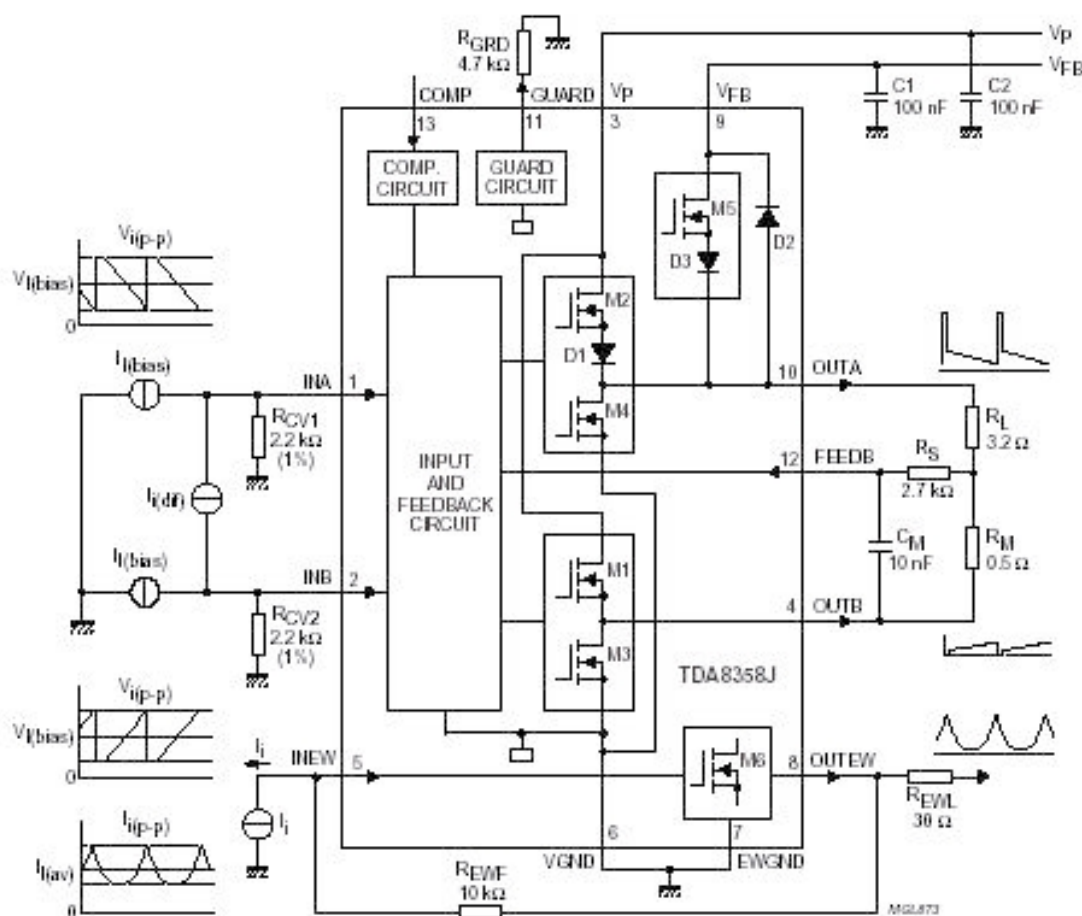
Features :

- Few external components
- Highly efficient fully DC-coupled vertical bridge output circuit
- Vertical flyback switch with short rise and fall times
- Built-in guard circuit
- Thermal protection circuit
- Improved EMC performance due to differential inputs
- East-west output stage



## Pinning

Pin	Symbol	Description
1	INA	Positive vertical input
2	INB	Negative vertical input
3	V <sub>P</sub>	Supply voltage
4	OUTB	Vertical output voltage B
5	INEW	East-west input voltage
6	VGND	Vertical ground
7	EWGND	East-west ground
8	OUTEW	East-west output voltage
9	V <sub>FB</sub>	Flyback supply voltage
10	OUTA	Vertical output voltage A
11	GUARD	Guard output voltage
12	FEEDB	Input measuring resistor
13	COMP	Input compensation current



Block diagram TDA8358J

## IC DESCRIPTION

### 3. TDA6107AJF

The TDA6107AJF includes three video output amplifiers and is intended to drive the three cathodes of a colour CRT directly. The device is contained in a plastic DIL-bent-SIL 9-pin medium power(DBS9MPF) package, and uses high-voltage DMOS technology.

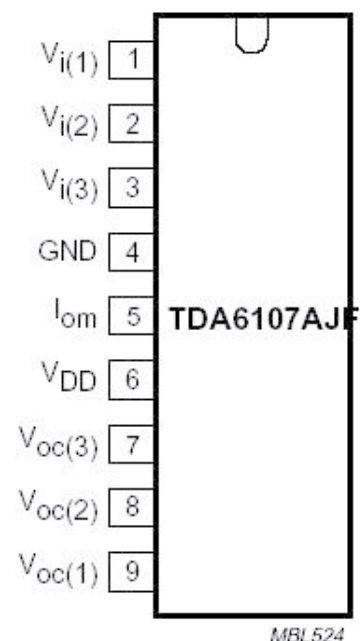
To obtain maximum performance, the amplifier should be used with black-current control.

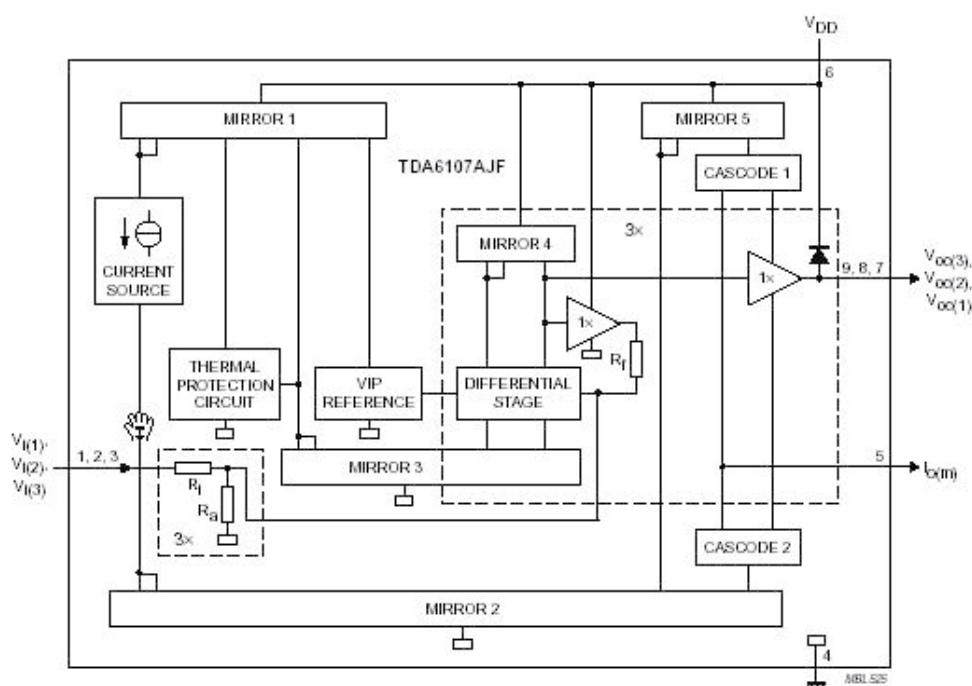
#### Features

- Typical bandwidth of 5.5 MHz for an output signal of 60 Vpp
- High slew rate of 900V/μs
- No external components required
- Very simple application
- Single supply voltage of 200V
- Internal reference voltage of 2.5 V
- Fixed gain of 81.
- Black-current stabilisation (BCS) circuit with voltage window from 1.8 to 6 V and current window from 100μA to -10mA
- Thermal protection
- Internal protection against positive flashover discharges appearing on the CRT

#### Pin description

Pin	Symbol	Description
1	$V_{i(1)}$	inverting input 1
2	$V_{i(2)}$	inverting input 2
3	$V_{i(3)}$	inverting input 3
4	GND	ground (fin)
5	$I_{om}$	black current measurement output
6	$V_{DD}$	supply voltage
7	$V_{OC(3)}$	cathode output 3
8	$V_{OC(2)}$	cathode output 2
9	$V_{OC(1)}$	cathode output 1





Block diagram TDA6107AJF

#### 4. 24WC16 - 16 KB EEPROM

Features :

- 16 Kbit serial I2C bus EEPROM
- 400KHz I2C Bus Compatible
- supply voltage : 1.8 V to 6.0 V
- Low Power CMOS Technology
- 1 Million Erase/Write cycles (minimum)
- 100 year data retention (minimum)

Pin description

Pin No.	Name	Description
1, 2, 3	A0, A1, A2	Device address – not used
5	SDA	Serial Data/Address Input/Output
6	SCL	Serial clock
7	WP	Write control
8	Vcc	Supply voltage
4	Vss	Ground

The memory device is compatible with the I2C memory standard. This is a two wire serial interface that uses a bi-directional data bus and serial clock. The memory carries a built-in 4-bit unique device type identifier code (1010) in accordance with the I2C bus definition.

Serial Clock (SCL)

The SCL input is used to strobe all data in and out of the memory.

Serial Data (SDA)

The SDA pin is bi-directional, and is used to transfer data in or out of the memory.

## IC DESCRIPTION

### 5. LA42072N-E AUDIO AMPLIFIER

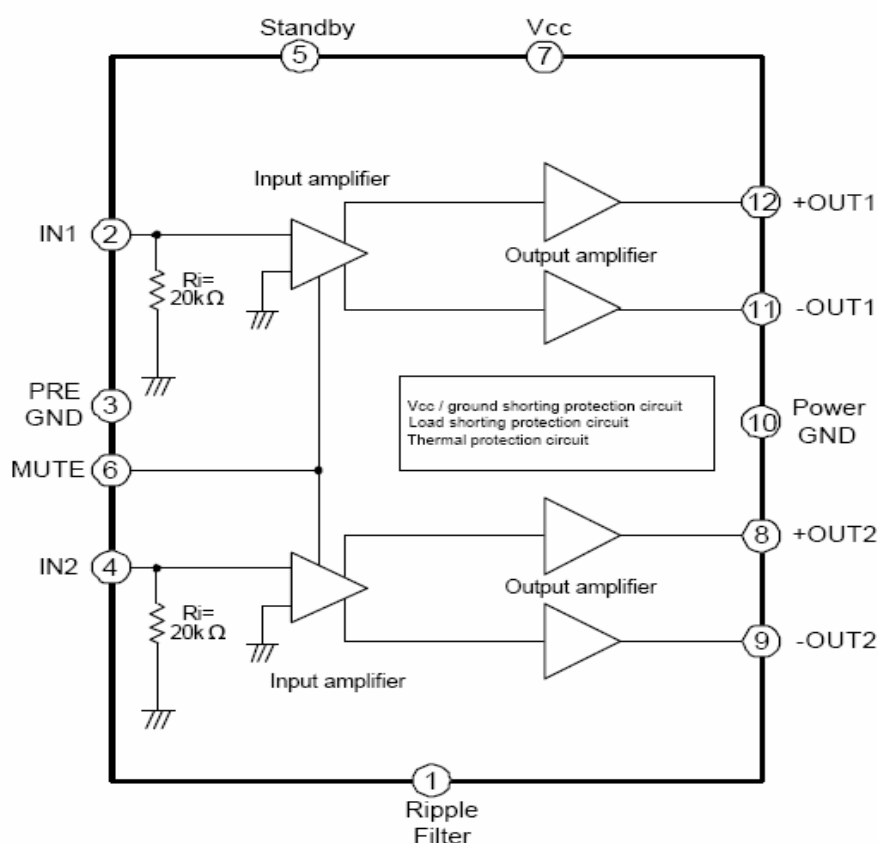
LA42000 series is power IC which made Pin compatible possible a ltogether in 5 to 15W.

They consist of four kinds of power ICs.

(mono, stereo, mono with volume function , stereo with volume function.)

They realized PCB layout communalization of an audio power block of TV.

#### Block Diagram



Operating Characteristics at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$ ,  $R_L = 8\ \Omega$ ,  $f = 1\text{kHz}$ ,  $z, R_g = 600\ \Omega$

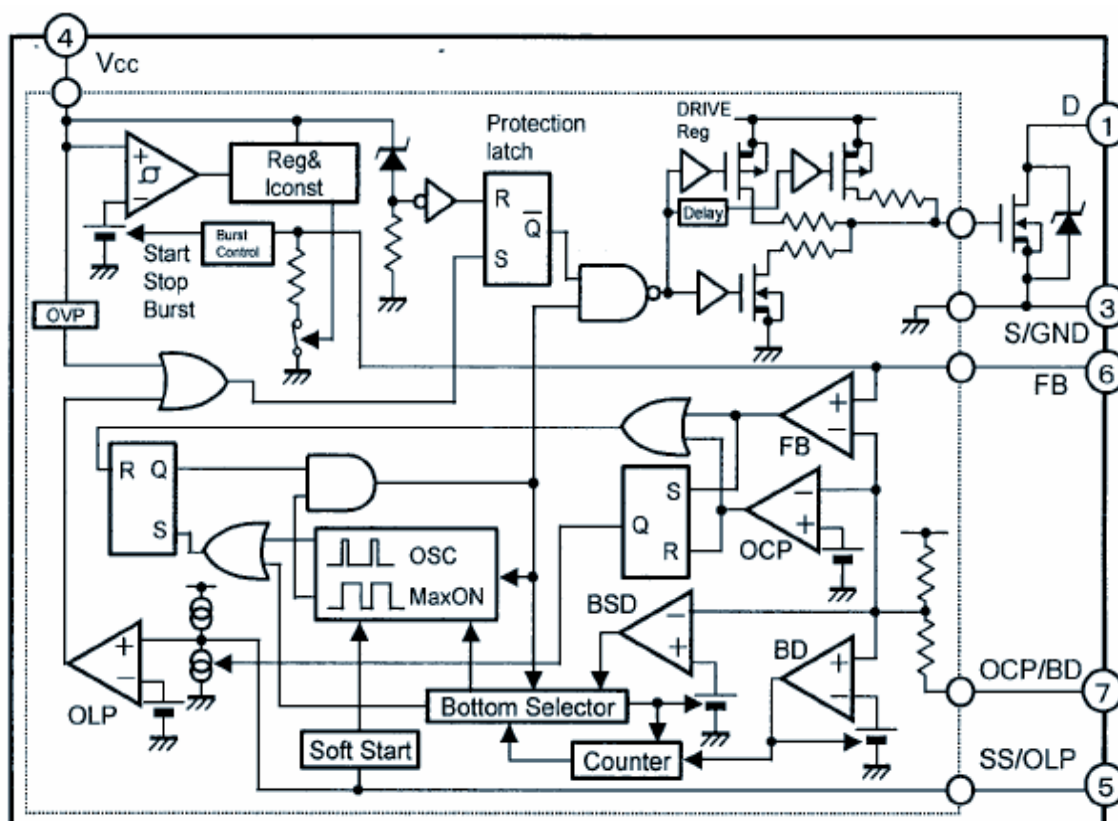
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CCO}$	$R_g=0$	40	70	150	mA
Output power	$P_o$	THD=10%	6	7	-	W
Total harmonic distortion	THD	$P_o=1\text{W}$	-	0.06	0.2	%
Voltage gain	VG	$V_o=0\text{dBm}$	33	35	37	dB
Output noise voltage	$V_{NO}$	$R_g=0, \text{BPF}=20\text{Hz to } 20\text{kHz}$	-	0.1	0.3	mVrms
Ripple rejection	SVRR	$R_g=0, f_R=100\text{Hz}, V_{CCR}=0\text{dBm}$	50	60	-	dB
Channel separation	Sep.	$R_g=10\text{k}\Omega, V_o=0\text{dBm}$	50	60	-	dB
Muting attenuation	$A_{TT}$	$V_o=1\text{Vrms}, \text{BPF}=20\text{Hz to } 20\text{kHz}$	80	90	-	dB
Muting control voltage (The Pin 6 voltage)	$V_{MUTE} - H$	Muting on	1.7	-	3.0	V
	$V_{MUTE} - L$	Muting off	0	-	0.5	V
Standby control voltage (The Pin 5 voltage)	$V_{STB} - H$	Amplifier on	2.5	-	20	V
	$V_{STB} - L$	Amplifier off	0	-	0.5	V
Input resistance	$R_i$		21	30	39	k $\Omega$

## 6. STR-W6735

### FUNCTIONS OF EACH TERMINAL

TERMINAL No.	SYMBOLS	DESCRIPTIONS	FUNCTIONS
1	D	DRAIN TERMINAL	MOSFET DRAIN
3	S/GND	SOURCE/GND	MOSFET SOURCE / GND
4	Vcc	SET UP TERMINAL	INPUT OF POWER SUPPLY FOR CONTROL CIRCUIT
5	SS/OLP	DELAY AT OVERLOAD / SOFT START SET UP TERMINAL	OVERLOAD PROTECTION AND SOFT START OPERATION TIME SET UP
6	FB	FEEDBACK TERMINAL	CONSTANT VOLTAGE CONTROL SIGNAL INPUT, BURST (INTERMITTENT) MODE OSCILLATION
7	OCP/BD	OVERCURRENT PROTECTION INPUT / BOTTOM DETECTION TERMINAL	OVERCURRENT DETECTION SIGNAL INPUT / BOTTOM DETECTION SIGNAL INPUT

### BLOCK DIAGRAM





## IC DESCRIPTION

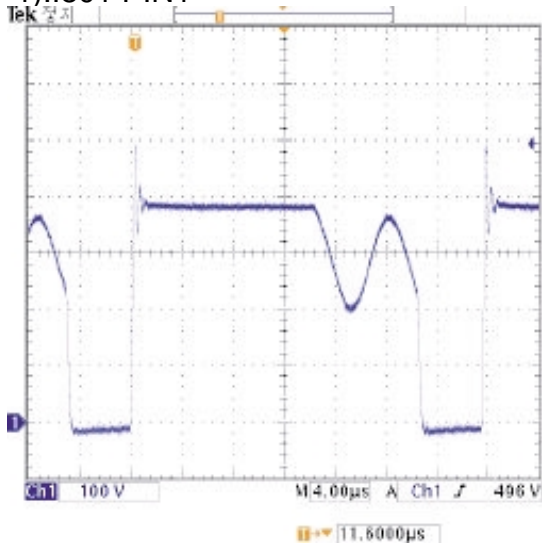
### ELECTRICAL CHARACTERISTICS IN CONTROL PART

(Ta=25℃, Vcc=20V, UNLESS OTHERWISE SPECIFIED)

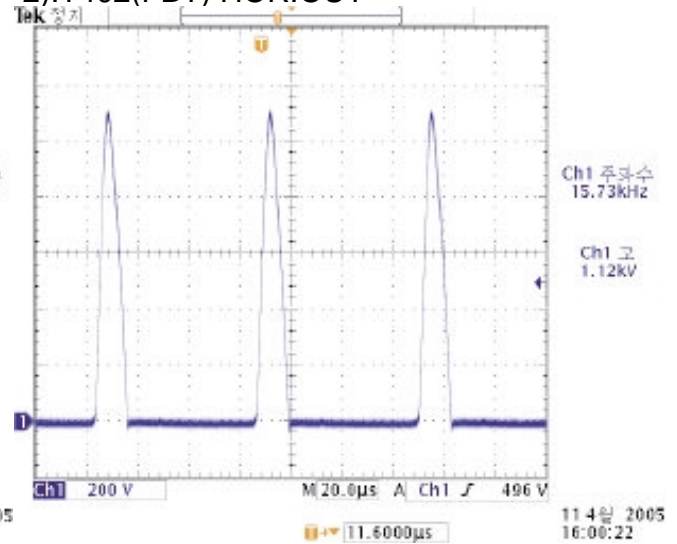
PARAMETER	TERMINAL	SYMBOL	RATINGS			UNITES
			MIN	TYP	MAX	
POWER SUPPLY START-UP OPERATION						
OPERATION START VOLTAGE	4-3	Vcc(on)	16.3	18.2	19.9	V
OPERATION STOP VOLTAGE	4-3	Vcc(off)	8.8	9.7	10.6	V
CIRCUIT CURRENT IN OPERATION	4-3	Icc(on)			6	mA
CIRCUIT CURRENT IN NON-OPERATION	4-3	Icc(off)			100	uH
OSCILLATION FREQUENCY	1-3	fosc	19	22	25	kHz
SOFT START OPERATION STOP VOLTAGE	5-3	Vssolp(ss)	1.1	1.2	1.4	v
SOFT START OPERATION CHARGING CURRENT	5-3	Issolp(ss)	-710	-550	-390	uA
NORMAL OPERATION						
BOTTOM-SKIP OPERATION THRESHOLD VOLTAGE1	7-3	Vocpbd(bs1 )	-0.72	-0.660	-0.61	V
BOTTOM-SKIP OPERATION THRESHOLD VOLTAGE2	7-3	Vocpbd(bs2 )	-0.485	-0.435	-0.385	V
OVERCURRENT DETECTION THRESHOLD VOLTAGE	7-3	Vocpbd(lim)	-0.995	-0.940	-0.895	V
OCP/BD TERMINAL OUTFLOW CURRENT	7-3	Iocpbd	-250	-100	-40	uA
QUASI-RESONANT OPERATION THRESHOLD VOLTAGE1	7-3	Vocpbd(th1)	0.28	0.40	0.52	V
QUASI-RESONANT OPERATION THRESHOLD VOLTAGE2	7-3	Vocpbd(th2)	0.67	0.80	0.93	V
FB TERMINAL THRESHOLD VOLTAGE	6-3	Vfb(off)	1.32	1.45	1.58	V
FB TERMINAL INFLOW CURRENT(NORMAL OPERATION)	6-3	Ifb(on)	600	1000	1400	uA
STAND-BY OPERATION						
STAND-BY OPERATION START VOLTAGE	4-3	Vcc(s)	10.3	11.2	12.1	V
STAND-BY OPERATION START VOLTAGE INTERVAL	4-3	Vcc(sk)	1.20	1.45	1.65	V
STAND-BY NON-OPERATION CIRCUIT CURRENT	4-3	Icc(s)		20	56	uA
FB TERMINAL INFLOW CURRENT(STAND-BY)	1-3	Ifb(s)		4	14	uA
STAND-BY OPERATION FB TERMINAL THRESHOLD VOLTAGE	6-3	Vfb(s)	0.55	1.10	1.50	V
MINIMUM ON TIME	1-3	Ton(min)		0.75	1.20	uSec
PROTECTION OPERATION						
MAXIMUM ON TIME	1-3	Ton(max)	27.5	32.5	39.0	uSec
OLP OPERATION THRESHOLD VOLTAGE	5-3	Vssolp(olp)	4.0	4.8	5.8	V
OLP OPERATION CHARGING CURRENT	5-3	Issolp(olp)	-16	-11	-6	uA
OLP OPERATION VOLTAGE	4-3	Vcc(ovp)	25.5	27.7	29.9	V
LATCH CIRCUIT HOLDING CURRENT	4-3	Icc(h)		45	140	uA
LATCH CIRCUIT RELEASE VOLTAGE	4-3	Vcc(la.off)	6.0	7.2	8.5	V

### WAVEFORMS

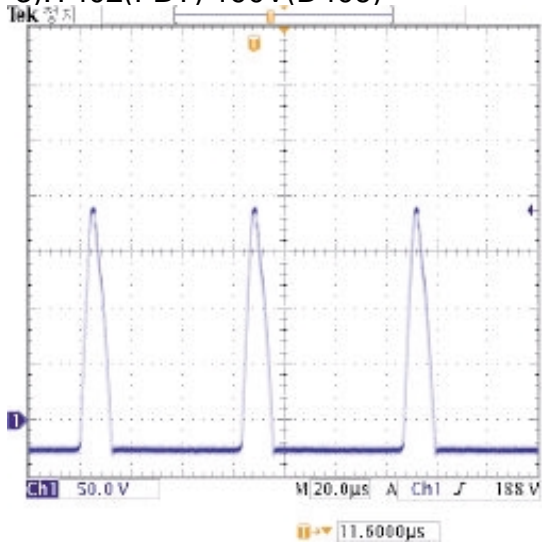
1).I801 PIN1



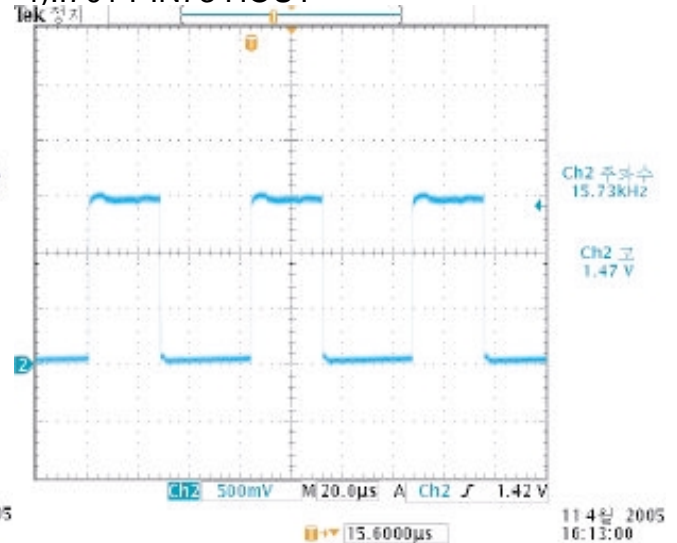
2).T402(FBT) HOR.OUT



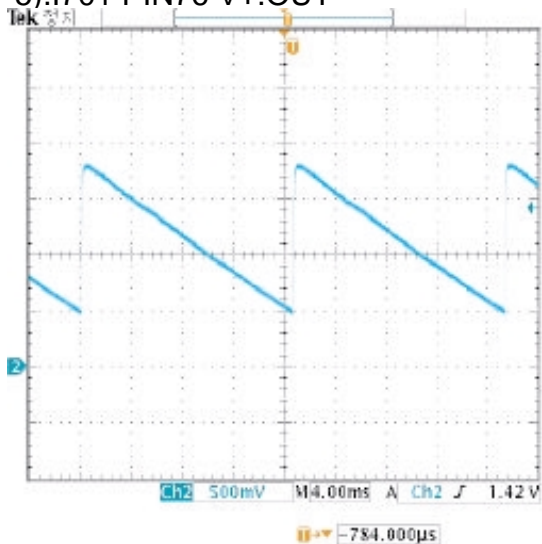
3).T402(FBT) 190V(D406)



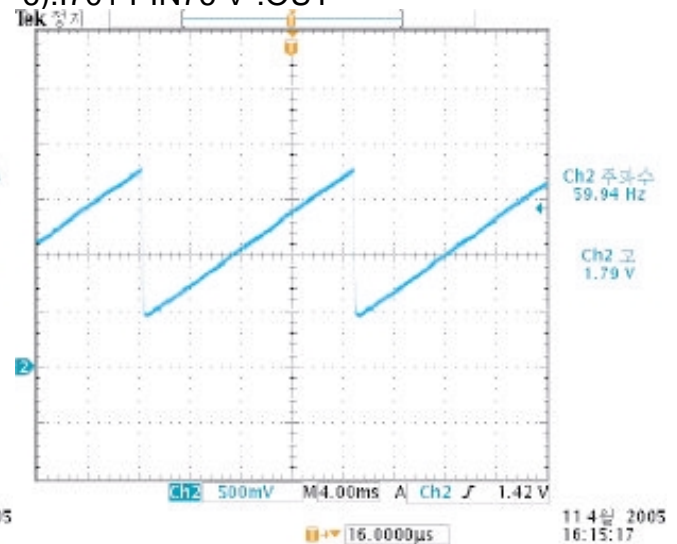
4).I701 PIN73 HOUT



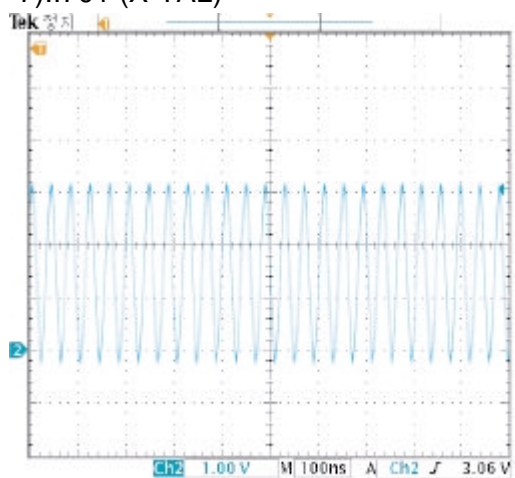
5).I701 PIN76 V+.OUT



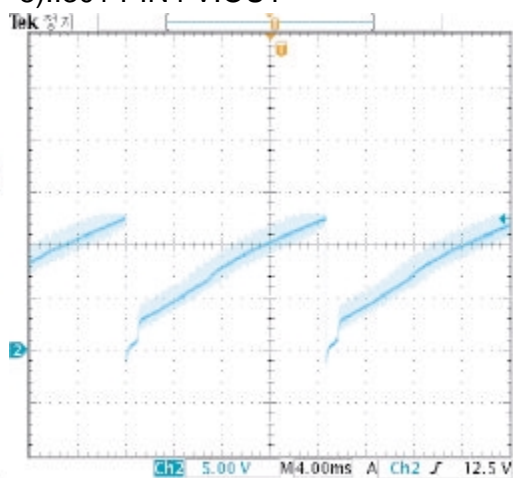
6).I701 PIN76 V-.OUT



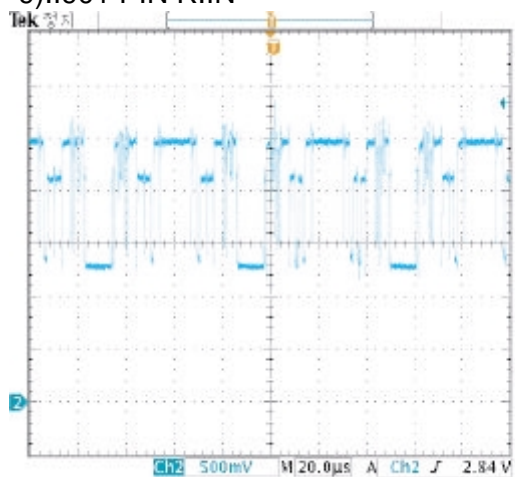
7).I701 (X-TAL)



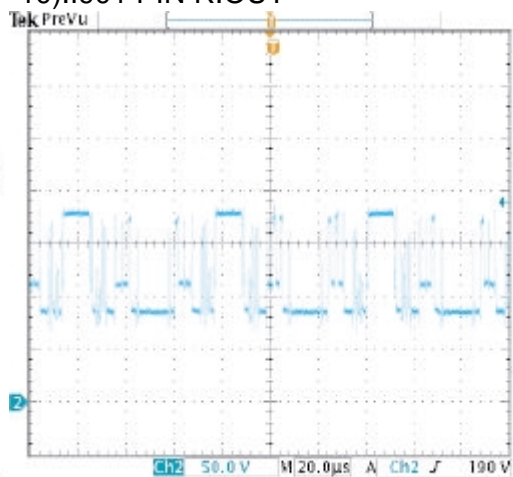
8).I301 PIN4 V.OUT



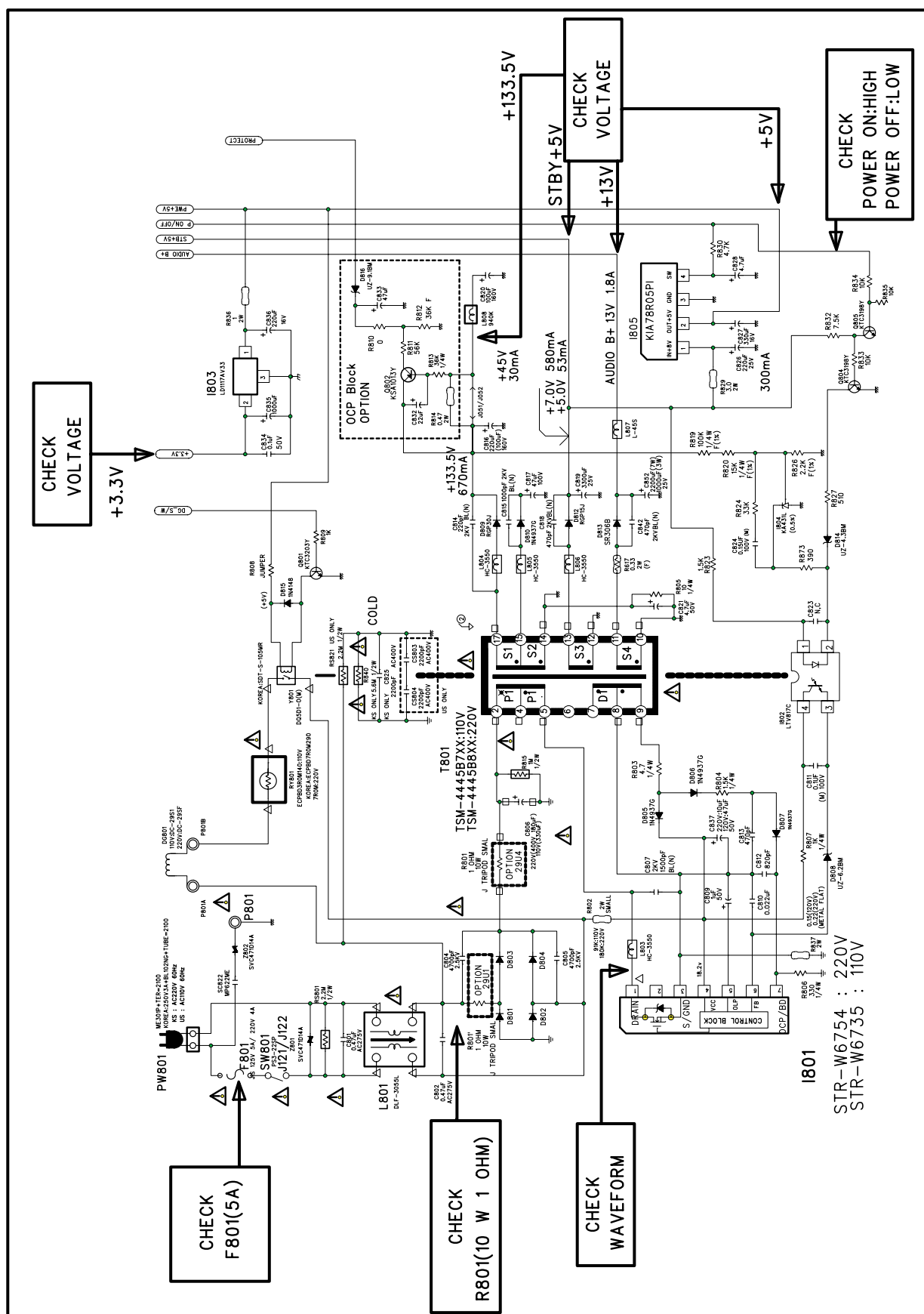
9).I901 PIN R.IN



10).I901 PIN R.OUT

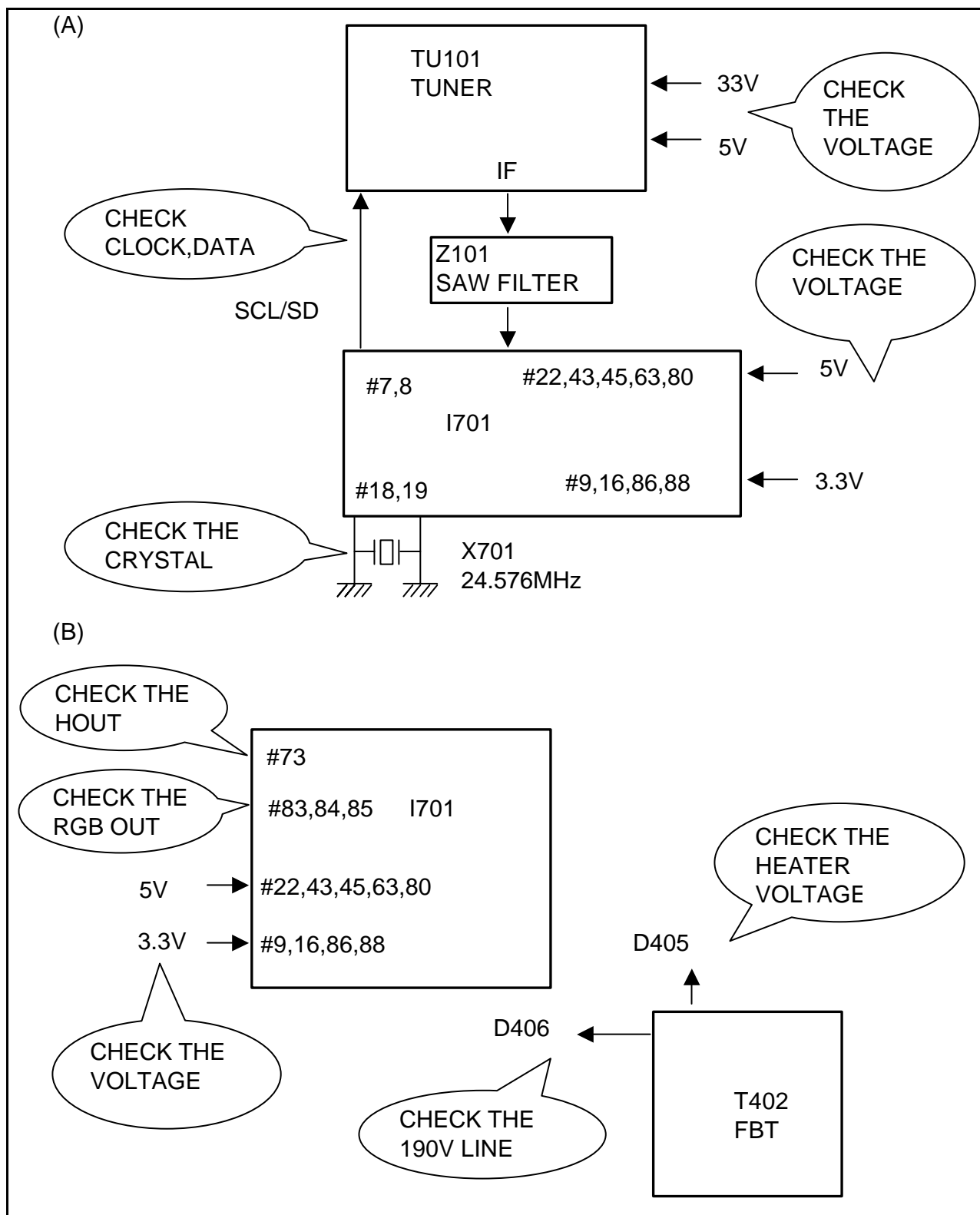


## 1. NO POWER



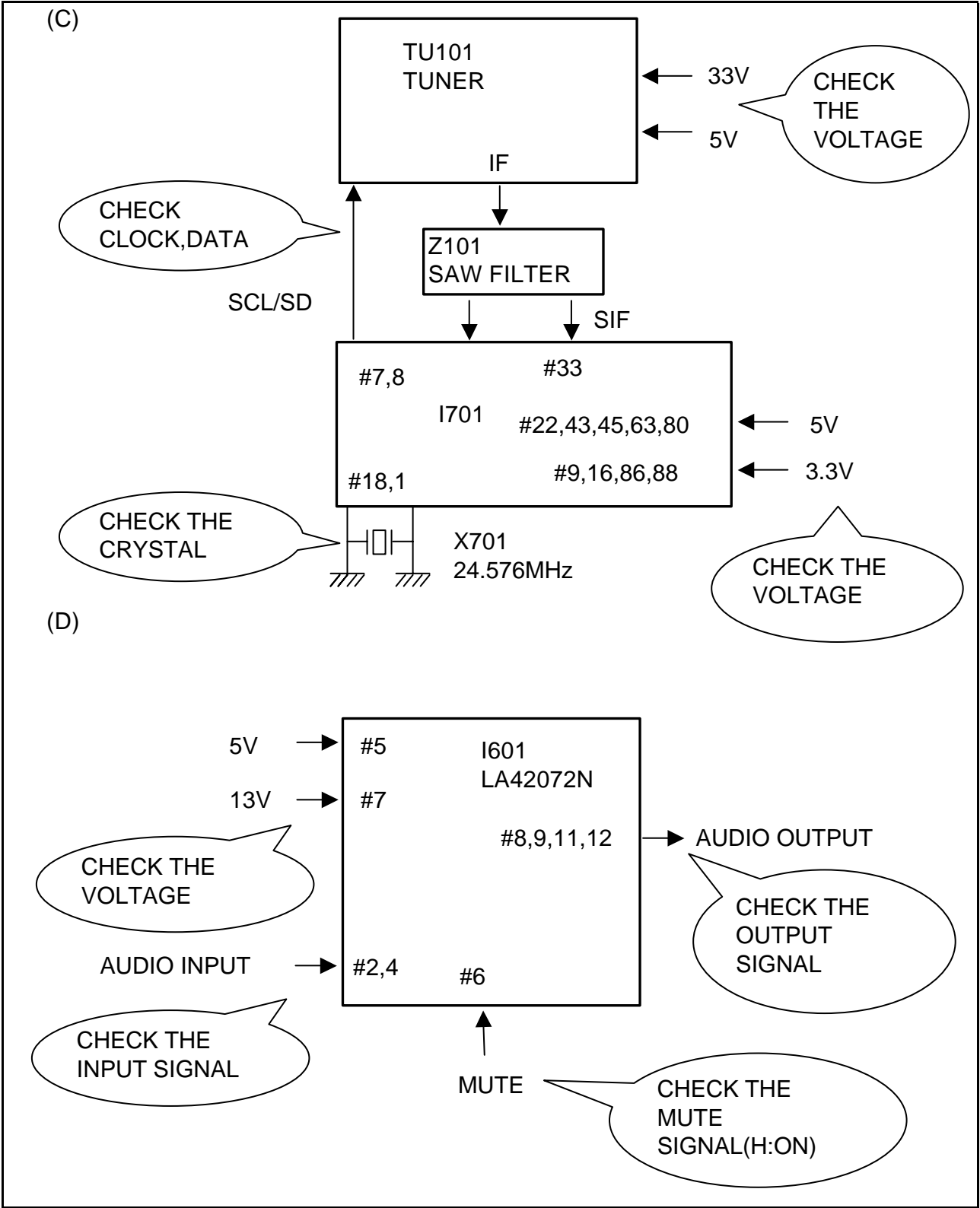
## 2. NO PICTURE

Check The Waveform of TU101 IF PIN	NG : Go To The Figure (A)
	OK : Go To The Figure (B)



3. NO SOUND

Check The Output Signal of I701 #57,58	NG : Go To The Figure (C)
	OK : Go To The Figure (D)



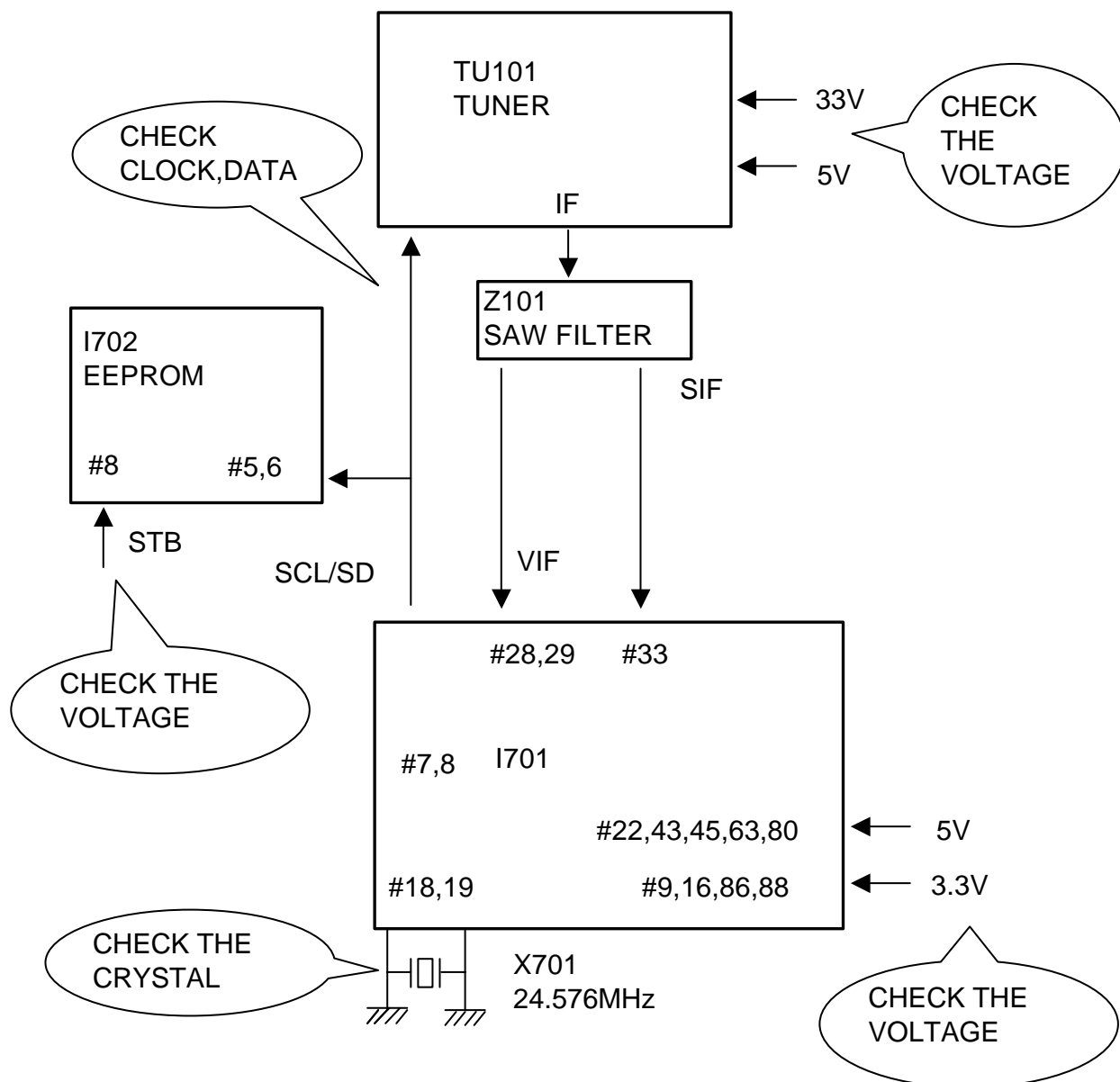
## 4. CH DON'T MEMORY or SKIP

Check The Iutput Signal Conditions

NG : Loss of Signal or Weak Signal

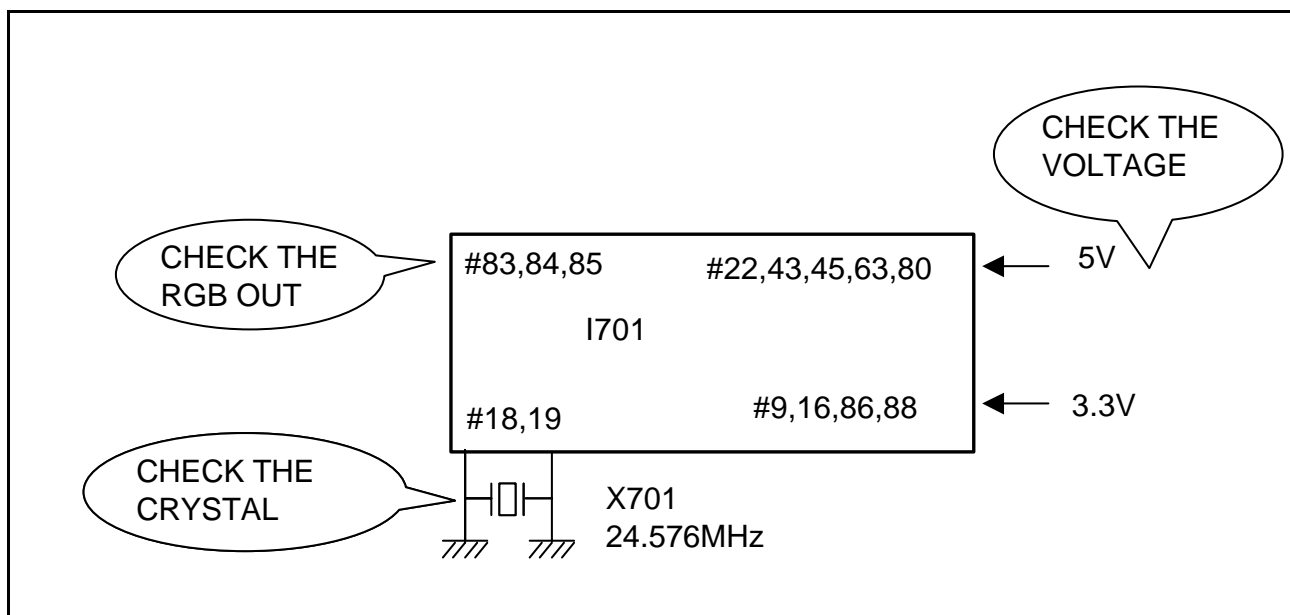
OK : Go To The Figure (E)

(E)

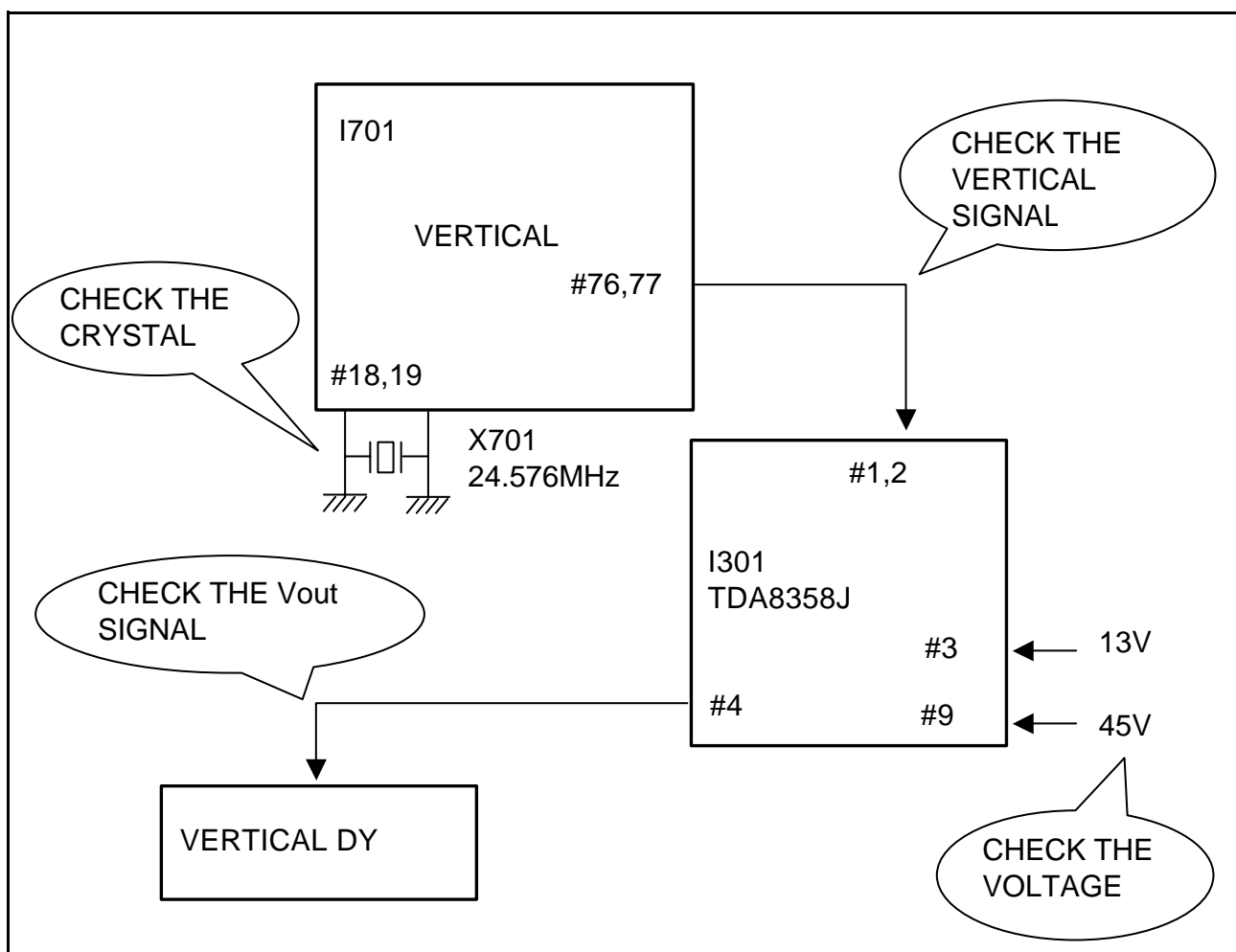




## 5. NO COLOR

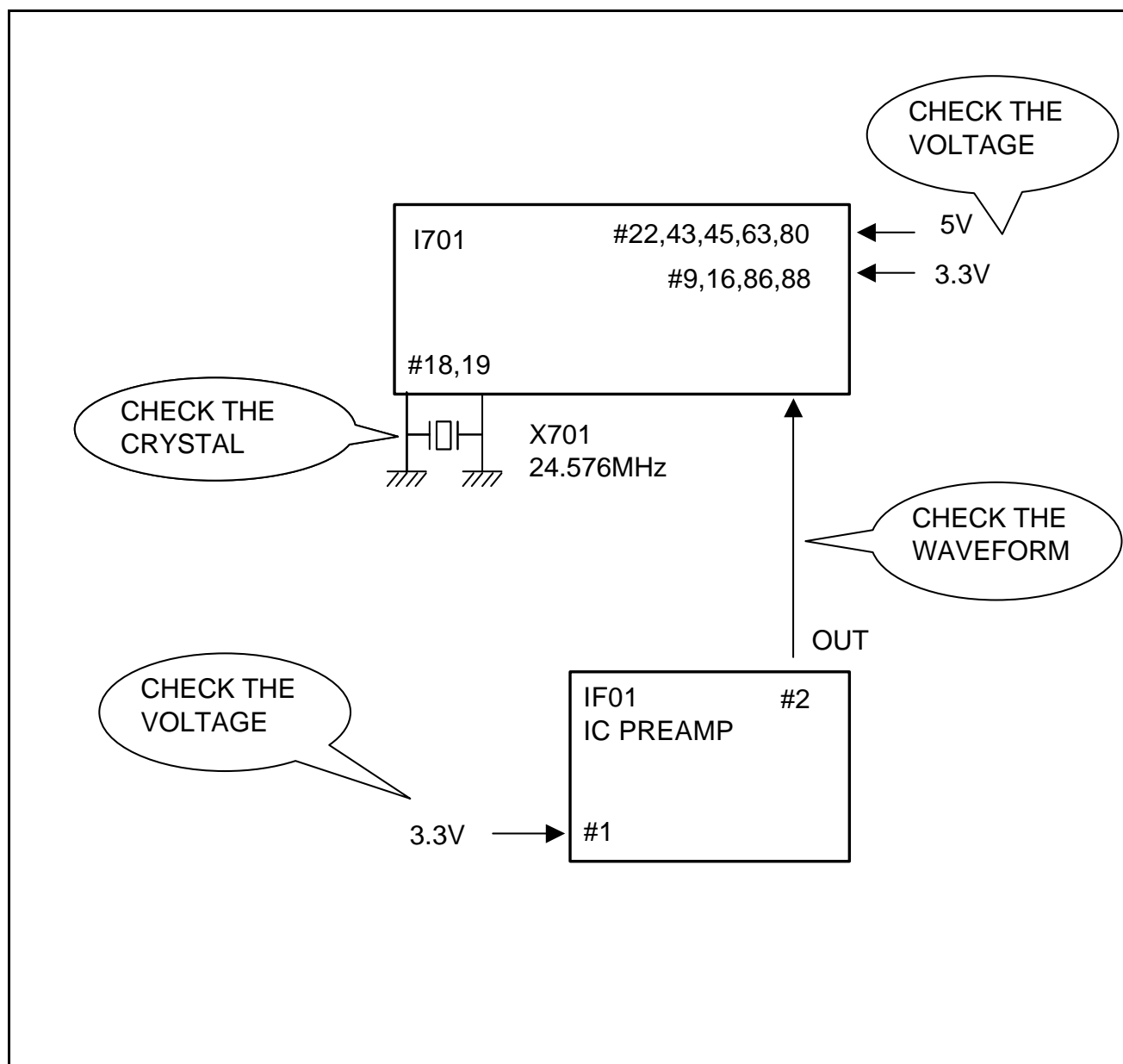


## 6. NO VERTICAL DEFLECTION





## 7. REMOTE CONTROL DOES NOT OPERATE



# ELECTRICAL PARTS LIST

## ★Caution

: In this Manual, some parts can be changed for improving. their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List)in Service Information Center(<http://svc.dwe.co.kr>)

\*\*This BOM is based on DTQ-2130SSFV, DTQ-21U6SSFV

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
1	ZZ100	48B5748C04	TRANSMITTER REMOCON	R-48C04 (AAA)	
2	ZZ110	PTACPWK145	ACCESSORY AS	DTQ-21U6SSFV	
3	ZZ120	PTBCSHK022	COVER BACK AS	DTQ-2130	
4	M211	4852161801	COVER BACK	HIPS BK 2130	
5	M781	4857817610	CLOTH BLACK	FELT 300X20X0.7	
6	ZZ131	48519A7610	CRT GROUND NET	2103S-1015-1P	
7	ZZ132	58G0000177	COIL DEGAUSSING	DC-21SF AL	
8	ZZ140	PTCACAK156	CABINET AS	DTQ-2130SSFV	
9	CRT1	4859648662	CRT	A51AKL15X36 P00	
10	M201A	4856017703	SCREW CRT FIX	5X30 L80 BK 3CR	
11	M201B	4856017710	SCREW CRT FIX	5X30 L190 BK 3CR	
12	M201C	4856219502	WASHER RUBBER	CR T2.0 BLACK	
13	M211A	7172401452	SCREW TAPPTITE	TT2 TRS 4X14 MFAN BK 3CR	
14	M541	4855415800	SPEC PLATE	150ART P/E FILM (C/TV)	
15	M686	4856812001	TIE CABLE	NYLON66 DA100	
16	SP01A	7178301051	SCREW TAPPTITE	TT2 WAS 3X10 MFZN 3CR	
17	SP02A	7178301051	SCREW TAPPTITE	TT2 WAS 3X10 MFZN 3CR	
18	ZZ200	PTFMSJK156	MASK FRONT AS	DTQ-2130SSFV	
19	M191	4851946700	BUTTON CTRL	4952611+5546901 2130	
20	M191A	7178301051	SCREW TAPPTITE	TT2 WAS 3X10 MFZN 3CR	
21	M201	4852081111	MASK FRONT	HIPS GY 2130	
22	M481	4854862211	BUTTON POWER	ABS GY 2130	
23	M481A	4856716000	SPRING	SWPA PIE0.5	
24	M561	4855617500	MARK BRAND	CU AU+ABS BK	
25	M591	4855936101	DECO EYE	ABS BLUE	
26	M591B	7178301051	SCREW TAPPTITE	TT2 WAS 3X10 MFZN 3CR	
27	ZZ201	PTSPPWK145	SPEAKER AS	DTQ-21U6SSFV	
28	P601A	4850704S32	CONNECTOR	YH025-04+YRT205+ULW=900	
29	SP01	4858314910	SPEAKER	SP-33129A03	
30	SP02	4858314910	SPEAKER	SP-33129A03	
31	ZZ290	PTMPMSK156	PCB MAIN MANUAL AS	DTQ-2130SSFV	
32	10	2193102005	SOLDER BAR	SN:PB=63:37 S63S-1320	
33	30	2291050616	FLUX SOLDER	JS-71	
34	40	2291050301	FLUX SOLVENT	IM-1000	
35	C118	CMXL1J154J	C MYLAR	63V MEU 0.15MF J	
36	C406	CMYF2G254J	C MYLAR	400V MPP 0.25MF J	
37	C408	CMYH3C662H	C MYLAR	1.6KV BUP 6600PF H	
38	C801	CL1UC3474M	C LINE ACROSS	0.47MF 1J(UCVSNDF/SV)+Q/O	
39	C802	CL1UC3474M	C LINE ACROSS	0.47MF 1J(UCVSNDF/SV)+Q/O	
40	C806	CEYD2G331D	C ELECTRO	400V FHS 330MF (30X45)	

# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
41	C819	CEYF1E332V	C ELECTRO	25V RSS 3300MF (16X31.5)	
42	CS803	CH1BFE222M	C CERA AC	U/C/V AC400V 2200PF	
43	CS804	CH1BFE222M	C CERA AC	U/C/V AC400V 2200PF	
44	D809	DRGP30J—	DIODE	RGP30J DO-201AD 600V 3A	
45	D813	DRGP30J—	DIODE	RGP30J DO-201AD 600V 3A	
46	DL701	DLH2PR5MH3	LED HOLDER AS	LH-2P-R-5M-H3	
47	I301	PTC2SW8216	HEAT SINK ASS'Y	1TDA8358J- + 7174301051	
48	00001	1TDA8358J-	IC VERTICAL	TDA8358J	
49	0000A	4857028216	HEAT SINK	AL EX	
50	0000B	7174301051	SCREW TAPPTITE	TT2 RND 3X10 MFZN 3CR	
51	I601	PTI2SW8200	HEAT SINK ASS'Y	1LA42072N- + 7174300851	
52	00001	1LA42072N-	IC AUDIO AMP	LA42072N-E	
53	0000A	4857028200	HEAT SINK	AL EX BK	
54	0000B	7174300851	SCREW TAPPTITE	TT2 RND 3X8 MFZN 3CR	
55	I701	1DA12000PQ	IC MICOM FLASH	TDA12000N1D40	
56	I702	124LC16B1B	IC MEMORY	24LC16B1B	
57	I801	PTE2SW4401	HEAT SINK ASS'Y	1STRW6756- + 7174300851	
58	00001	1STRW6756-	IC POWER	STR-W6756	
59	0000A	4857024401	HEAT SINK	AL EX	
60	0000B	7174300851	SCREW TAPPTITE	TT2 RND 3X8 MFZN 3CR	
61	I802	1LTV817C—	IC PHOTO COUPLER	LTV-817C	
62	I803	PTUASW6900	HEAT SINK ASS'Y	1LD1117V33 + 7174300851	
63	00001	1LD1117V33	IC REGULATOR	LD1117AV33 3.3V 2% TO-220	
64	0000A	4857026900	HEAT SINK	AL EX	
65	0000B	7174300851	SCREW TAPPTITE	TT2 RND 3X8 MFZN 3CR	
66	I805	1K78R05—	IC REGULATOR	KIA78R05API	
67	IF01	1346VF6—	IC PREAMP	346VF6	
68	JA01	4859109250	JACK PIN BOARD	PH-JB-9614A	
69	JA02	4859108450	JACK PIN BOARD	YSC03P-4120-14A	
70	JA03	4859109250	JACK PIN BOARD	PH-JB-9614A	
71	JP01	4859102130	JACK EARPHONE	YSC-1537	
72	L402	58H0000055	COIL H-LINEARITY	TRL-361A	
73	L801	5PDLF3055L	FILTER LINE	DLF-3055L	
74	L807	58C0000090	COIL CHOKE	L-45S	
75	M681	4856813600	HOLDER WIRE	NYLON 66 DAWH-13NA	
76	PA602	4850705N16	CONNECTOR	YBNH250-05+YBNH250+ULW300	
77	PA907	4850705S04	CONNECTOR	YH025-05+YBNH250+ULW=400	
78	PW801	48599NL001	CORD POWER AS	CENT-AM KKP-419C+YH396-43V=2.0M	
79	PWC1	4859289320	CONN WAFER	YW396-43V	
80	Q402	PTH2SW7609	HEAT SINK ASS'Y	T2SD2578— + 7174301051	
81	00001	T2SD2578—	TR HORI	2SD2578	
82	0000A	4857027609	HEAT SINK	AL EX	
83	0000B	7174301051	SCREW TAPPTITE	TT2 RND 3X10 MFZN 3CR	
84	R617	RF02Y338K-	R FUSIBLE	2W 0.33 OHM K	
85	R801	RX10T109JS	R CEMENT	10W 1 OHM J TRIPOD SMALL	

## ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
86	RY801	DJ5020M270	POSISTOR	J502P72D070M270	
87	SW707	5S50101035	SW TACT	KPT-1112 1C-1P	
88	T401	50D10A3---	TRANS DRIVE	TD-10A3	
89	T402	50H0000302	FBT	LTC-545	
90	T801	50M3541C1-	TRANS SMPS	TSM-3541C1	
91	TU101	4859726730	TUNER VARACTOR	TAEC-H012F(A)	
92	X701	5XJ24R576E	CRYSTAL QUARTZ	HC-49/S 24.576MHZ 30PPM	
93	Y801	5SC0101339	SW RELAY	SDT-S-105LMR	
94	Z101	5PTSB6221C	FILTER SAW	TSB6221C	
95	Z801	DSVC471D14	VARISTOR	SVC471D14A (BULK)	
96	ZZ200	PTMPJ0K156	PCB MAIN (RHU) AS	DTQ-2130SSFV	
97	C404	CEXA2D229E	C ELECTRO	200V RUL 2.2MF (10X16) TP	
98	C410	CMXB2G472J	C MYLAR	400V EU 4700PF J (TP)	
99	C411	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP	
100	C412	CCXB3D681K	C CERA	2KV B 680PF K (TAPPING)	
101	C417	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP	
102	C419	CEXF2A470V	C ELECTRO	100V RSS 47MF (10X16) TP	
103	C613	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP	
104	C804	CH1BEE472M	C CERA AC	U/C/V 2.5KV 4700PF TP	
105	C805	CH1BEE472M	C CERA AC	U/C/V 2.5KV 4700PF TP	
106	C807	CBXB3D102K	C CERA SEMI	2KV BL(N) 1000PF K (T)	
107	C814	CCXB3D221K	C CERA	2KV B 220PF K (TAPPING)	
108	C815	CBXB3D102K	C CERA SEMI	2KV BL(N) 1000PF K (T)	
109	C816	CEXF2C101V	C ELECTRO	160V RSS 100MF (16X25) TP	
110	C817	CEXF2A470V	C ELECTRO	100V RSS 47MF (10X16) TP	
111	C818	CBXB3D471K	C CERA SEMI	2KV BL(N) 470PF K (T)	
112	C820	CEXF2C101V	C ELECTRO	160V RSS 100MF (16X25) TP	
113	C835	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP	
114	C836	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP	
115	C842	CBXB3D471K	C CERA SEMI	2KV BL(N) 470PF K (T)	
116	C852	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP	
117	ZZ200	PTMPJBK156	PCB MAIN M-10 AS	DTQ-2130SSFV	
118	N004	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
119	N005	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
120	N006	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
121	N007	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
122	N008	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
123	N009	4857417500	TERM PIN	DA-IB0214(D2.3/DY PIN)	
124	P601	485923172S	CONN WAFER	YW025-04 (STICK)	
125	P705	485923172S	CONN WAFER	YW025-04 (STICK)	
126	P902	485923172S	CONN WAFER	YW025-04 (STICK)	
127	R106	RS02Z512JS	R M-OXIDE FILM	2W 5.1K OHM J SMALL	
128	R305	RS02Z189JS	R M-OXIDE FILM	2W 1.8 OHM J SMALL	
129	R402	RS02Z121JS	R M-OXIDE FILM	2W 120 OHM J SMALL	
130	R407	RS02Z163JS	R M-OXIDE FILM	2W 16K OHM J SMALL	

# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
131	R408	RS02Z102JS	R M-OXIDE FILM	2W 1K OHM J SMALL	
132	R409	RS01Z103J-	R M-OXIDE FILM	1W 10K OHM J (TAPPING)	
133	R411	RS02Z390JS	R M-OXIDE FILM	2W 39 OHM J SMALL	
134	R416	RF01Z338K-	R FUSIBLE	1W 0.33 OHM K (TAPPING)	
135	R417	RS01Z688J-	R M-OXIDE FILM	1W 0.68 OHM J	
136	R802	RS02Z913JS	R M-OXIDE FILM	2W 91K OHM J SMALL	
137	R829	RS02Z109JS	R M-OXIDE FILM	2W 1 OHM J SMALL	
138	R836	RS02Z109JS	R M-OXIDE FILM	2W 1 OHM J SMALL	
139	R837	RS02Z278JS	R M-OXIDE FILM	2W 0.27 OHM J SMALL	
140	ZZ200	PTMPJRK156	PCB MAIN RADIAL AS	DTQ-2130SSFV	
141	C101	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
142	C102	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
143	C103	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
144	C104	CEXF1C221V	C ELECTRO	16V RSS 220MF (8X11.5) TP	
145	C105	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
146	C106	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
147	C112	CMXM2A682J	C MYLAR	100V 6800PF J (TP)	
148	C114	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
149	C115	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
150	C116	CCXF1H223Z	C CERA	50V F 0.022MF Z (TAPPING)	
151	C117	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
152	C119	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
153	C122	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
154	C123	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
155	C124	CMXM2A473J	C MYLAR	100V 0.047MF J (TP)	
156	C125	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
157	C127	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
158	C128	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
159	C130	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
160	C131	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)	
161	C201	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
162	C202	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
163	C204	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
164	C301	CMXM2A473J	C MYLAR	100V 0.047MF J (TP)	
165	C305	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
166	C306	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
167	C307	CCXF1H473Z	C CERA	50V F 0.047MF Z (TAPPING)	
168	C308	CCXF1H473Z	C CERA	50V F 0.047MF Z (TAPPING)	
169	C402	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
170	C403	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
171	C405	CCXB2H561K	C CERA	500V B 560PF K (TAPPING)	
172	C413	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP	
173	C414	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
174	C416	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
175	C418	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	

## ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
176	C420	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	
177	C422	CMXM2A473J	C MYLAR	100V 0.047MF J (TP)	
178	C423	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
179	C601	CEXF1E470V	C ELECTRO	RSS 25V 47MF 5X11 P5.0 TA	
180	C602	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
181	C603	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
182	C604	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
183	C605	CMXM2A682J	C MYLAR	100V 6800PF J (TP)	
184	C606	CMXM2A682J	C MYLAR	100V 6800PF J (TP)	
185	C607	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
186	C608	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
187	C609	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
188	C610	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
189	C614	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
190	C622	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP	
191	C623	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP	
192	C624	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
193	C625	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
194	C626	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
195	C627	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
196	C701	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
197	C704	CEXF1E470V	C ELECTRO	RSS 25V 47MF 5X11 P5.0 TA	
198	C705	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
199	C707	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
200	C713	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
201	C716	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
202	C721	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
203	C722	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
204	C723	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
205	C724	CXCH1H809D	C CERA	50V CH 8PF D (TAPPING)	
206	C725	CXCH1H809D	C CERA	50V CH 8PF D (TAPPING)	
207	C726	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
208	C727	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
209	C729	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
210	C730	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
211	C731	CEXF1E470V	C ELECTRO	RSS 25V 47MF 5X11 P5.0 TA	
212	C732	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
213	C734	CMXL1J224J	C MYLAR	63V MEU 0.22MF J (TP)	
214	C735	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
215	C740	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
216	C809	CEXF2C109C	C ELECTRO	160V RUS 1MF (6.3X11)TP	
217	C810	CCXF1H223Z	C CERA	50V F 0.022MF Z (TAPPING)	
218	C811	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
219	C812	CCXB1H821K	C CERA	50V B 820PF K (TAPPING)	
220	C813	CCXB1H471K	C CERA	50V B 470PF K (TAPPING)	



# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
221	C821	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
222	C824	CMXL1J154J	C MYLAR	63V MEU 0.15MF J	
223	C826	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP	
224	C827	CEXF1C331V	C ELECTRO	16V RSS 330MF (8X11.5) TP	
225	C834	CMXL1J104J	C MYLAR	63V MEU 0.1MF J	
226	C837	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP	
227	CA15	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP	
228	CA16	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP	
229	CS01	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
230	CV12	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
231	F801	5FWPS4022L	FUSE	WIDE TL 250V 4A CASE	
232	I804	1K1A431B—	IC REGULATOR(SHUNT)	KIA431B 2.495V 0.5% TO-92	
233	L808	58C0000142	COIL CHOKE	ELC 0809 940K	
234	Q101	TKTC3198Y-	TR	KTC3198Y	
235	Q201	TKTA1266Y-	TR	KTA1266Y (TP)	
236	Q401	TKTC3207—	TR	KTC3207 (TP)	
237	Q602	TKTA1266Y-	TR	KTA1266Y (TP)	
238	Q704	TKTC3198Y-	TR	KTC3198Y	
239	Q705	TKTA1270Y-	TR	KTA1270Y (TP)	
240	Q706	TKTC3198Y-	TR	KTC3198Y	
241	Q707	TKTA1270Y-	TR	KTA1270Y (TP)	
242	Q708	TKTC3198Y-	TR	KTC3198Y	
243	Q801	TKTC3203Y-	TR	KTC3203-Y	
244	Q804	TKTC3198Y-	TR	KTC3198Y	
245	Q805	TKTC3198Y-	TR	KTC3198Y	
246	QS01	TKTA1266Y-	TR	KTA1266Y (TP)	
247	QV01	TKTC3198Y-	TR	KTC3198Y	
248	QV02	TKTA1266Y-	TR	KTA1266Y (TP)	
249	R302	RN02B331JS	R METAL FILM	2W 330 OHM J SMALL	
250	R403	RN01B472JS	R METAL FILM	1W 4.7K OHM J SMALL	
251	RA14	RN01B221JS	R METAL FILM	1W 220 OHM J SMALL	
252	RA15	RN01B221JS	R METAL FILM	1W 220 OHM J SMALL	
253	SW701	5S50101090	SW TACT	THVH472GCA	
254	SW702	5S50101090	SW TACT	THVH472GCA	
255	SW703	5S50101090	SW TACT	THVH472GCA	
256	SW704	5S50101090	SW TACT	THVH472GCA	
257	SW705	5S50101090	SW TACT	THVH472GCA	
258	SW706	5S50101090	SW TACT	THVH472GCA	
259	ZZ200	PTMPJAK156	PCB MAIN AXIAL AS	DTQ-2130SSFV	
260	10	2TM14006LB	TAPE MASKING	3M #232 6.0X2000M	
261	20	2TM10006LB	TAPE MASKING	3M #232-MAP-C 6.2X2000M	
262	A001	4859816992	PCB MAIN	330X246 S1B	
263	C107	CZSL1H470J	C CERA	50V SL 47PF J (AXIAL)	
264	C108	CZSL1H470J	C CERA	50V SL 47PF J (AXIAL)	
265	C109	CCZF1H103Z	C CERA	50V F 0.01MF Z	

## ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
266	C110	CCZB1H222K	C CERA	50V B 2200PF K AXIAL	
267	C111	CCZB1H222K	C CERA	50V B 2200PF K AXIAL	
268	C126	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
269	C129	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
270	C203	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
271	C205	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
272	C206	CCZB1H472K	C CERA	HIKB 50V 4700PF K AXIAL	
273	C612	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
274	C702	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
275	C703	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
276	C706	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
277	C712	CCZB1H561K	C CERA	50V B 560PF K	
278	C714	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
279	C715	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
280	C717	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
281	C719	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
282	C720	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
283	C728	CCZF1H103Z	C CERA	50V F 0.01MF Z	
284	C733	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
285	C736	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
286	C737	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z	
287	C738	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
288	C739	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
289	CA01	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
290	CA02	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
291	CA03	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
292	CA04	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
293	CA05	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
294	CA06	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
295	CA07	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
296	CA08	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
297	CA09	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
298	D101	DUZ33B—	DIODE ZENER	UZ-33B	
299	D301	D1N4937G—	DIODE	1N4937G (TAPPING)	
300	D401	D1N4937G—	DIODE	1N4937G (TAPPING)	
301	D404	DUZ9R1BM—	DIODE ZENER	UZ-9.1BM	
302	D405	D1N4937G—	DIODE	1N4937G (TAPPING)	
303	D406	D1N4937G—	DIODE	1N4937G (TAPPING)	
304	D407	DRGP15J—	DIODE	RGP15J DO-204AC 600V 1.5A	
305	D408	DRGP15J—	DIODE	RGP15J DO-204AC 600V 1.5A	
306	D602	D1N4148—	DIODE	1N4148 (TAPPING)	
307	D701	DUZ3R9B—	DIODE ZENER	UZ-3.9B	
308	D702	D1N4148—	DIODE	1N4148 (TAPPING)	
309	D703	D1N4148—	DIODE	1N4148 (TAPPING)	
310	D706	DUZ3R3B—	DIODE ZENER	UZ-3.3B	



# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
311	D801	DLT2A05G—	DIODE	LT2A05G (TP)	
312	D802	DLT2A05G—	DIODE	LT2A05G (TP)	
313	D803	DLT2A05G—	DIODE	LT2A05G (TP)	
314	D804	DLT2A05G—	DIODE	LT2A05G (TP)	
315	D805	D1N4937G—	DIODE	1N4937G (TAPPING)	
316	D806	D1N4937G—	DIODE	1N4937G (TAPPING)	
317	D807	D1N4148—	DIODE	1N4148 (TAPPING)	
318	D808	DMTZJ6R2C-	DIODE ZENER	MTZJ 6.2C	
319	D810	D1N4937G—	DIODE	1N4937G (TAPPING)	
320	D812	DRGP15J—	DIODE	RGP15J DO-204AC 600V 1.5A	
321	D814	DUZ9R1BM—	DIODE ZENER	UZ-9.1BM	
322	D815	D1N4148—	DIODE	1N4148 (TAPPING)	
323	DS01	D1N4148—	DIODE	1N4148 (TAPPING)	
324	DS02	D1N4148—	DIODE	1N4148 (TAPPING)	
325	DS03	D1N4148—	DIODE	1N4148 (TAPPING)	
326	DS04	D1N4148—	DIODE	1N4148 (TAPPING)	
327	DS05	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM	
328	DS06	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM	
329	DS07	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM	
330	DV01	DMTZJ5R6B-	DIODE ZENER	MTZJ 5.6B	
331	DV05	DMTZJ5R6B-	DIODE ZENER	MTZJ 5.6B	
332	DV06	DMTZJ5R6B-	DIODE ZENER	MTZJ 5.6B	
333	L101	5CPZ470K04	COIL PEAKING	47UH 10.5MM K (LAL04TB)	
334	L103	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
335	L104	5CPZ479K04	COIL PEAKING	4.7UH K (AXIAL 10.5MM)	
336	L201	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
337	L301	5MC0000100	COIL BEAD	HC-3550	
338	L302	5MC0000100	COIL BEAD	HC-3550	
339	L403	5MC0000100	COIL BEAD	HC-3550	
340	L701	5CPZ479K04	COIL PEAKING	4.7UH K (AXIAL 10.5MM)	
341	L702	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
342	L703	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
343	L704	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
344	L705	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
345	L706	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
346	L707	5CPZ479K04	COIL PEAKING	4.7UH K (AXIAL 10.5MM)	
347	L709	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
348	L714	5CPZ479K02	COIL PEAKING	4.7UH K (AXIAL 3.5MM)	
349	L803	5MC0000100	COIL BEAD	HC-3550	
350	L804	5MC0000100	COIL BEAD	HC-3550	
351	L805	5MC0000100	COIL BEAD	HC-3550	
352	L806	5MC0000100	COIL BEAD	HC-3550	
353	R101	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
354	R102	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
355	R103	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	

## ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
356	R104	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J	
357	R105	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J	
358	R107	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
359	R108	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
360	R111	RD-AZ181J-	R CARBON FILM	1/6 180 OHM J	
361	R112	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
362	R113	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
363	R114	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
364	R119	RN-AZ3902F	R METAL FILM	1/6 39K OHM F	
365	R121	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J	
366	R201	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
367	R203	RN-AZ1801F	R METAL FILM	1/6 1.8K OHM F	
368	R204	RD-4Z332J-	R CARBON FILM	1/4 3.3K OHM J	
369	R301	RD-4Z159J-	R CARBON FILM	1/4 1.5 OHM J	
370	R303	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J	
371	R306	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
372	R307	RN-AZ2401F	R METAL FILM	1/6 2.40K OHM F	
373	R308	RD-4Z514J-	R CARBON FILM	1/4 510K OHM J	
374	R312	RN-AZ2401F	R METAL FILM	1/6 2.40K OHM F	
375	R313	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
376	R314	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
377	R404	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
378	R405	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	
379	R406	RD-4Z220J-	R CARBON FILM	1/4 22 OHM J	
380	R410	RN-AZ9101F	R METAL FILM	1/6 9.1K OHM F	
381	R412	RN-AZ1202F	R METAL FILM	1/6 12K OHM F	
382	R413	RD-4Z470J-	R CARBON FILM	1/4 47 OHM J	
383	R414	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
384	R415	RD-4Z563J-	R CARBON FILM	1/4 56K OHM J	
385	R418	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J	
386	R601	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J	
387	R602	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
388	R604	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J	
389	R605	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
390	R606	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J	
391	R607	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
392	R609	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	
393	R610	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	
394	R612	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	
395	R613	RD-4Z229J-	R CARBON FILM	1/4 2.2 OHM J	
396	R614	RD-4Z229J-	R CARBON FILM	1/4 2.2 OHM J	
397	R615	RD-4Z229J-	R CARBON FILM	1/4 2.2 OHM J	
398	R616	RD-4Z229J-	R CARBON FILM	1/4 2.2 OHM J	
399	R623	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
400	R624	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	

# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
401	R625	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
402	R626	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
403	R627	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
404	R628	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
405	R629	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
406	R630	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
407	R636	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
408	R701	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
409	R702	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
410	R703	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
411	R704	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
412	R705	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
413	R707	RN-AZ5600F	R METAL FILM	1/6 560 OHM F	
414	R709	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J	
415	R710	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J	
416	R712	RD-4Z222J-	R CARBON FILM	1/4 2.2K OHM J	
417	R713	RD-AZ470J-	R CARBON FILM	1/6 47 OHM J	
418	R714	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J	
419	R719	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
420	R720	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J	
421	R722	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J	
422	R723	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
423	R725	RD-AZ513J-	R CARBON FILM	1/6 51K OHM J	
424	R726	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
425	R727	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
426	R729	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
427	R730	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
428	R732	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
429	R733	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
430	R735	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
431	R736	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
432	R742	RD-AZ181J-	R CARBON FILM	1/6 180 OHM J	
433	R743	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J	
434	R744	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	
435	R745	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J	
436	R746	RD-AZ911J-	R CARBON FILM	1/6 910 OHM J	
437	R747	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
438	R748	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	
439	R769	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
440	R770	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	
441	R772	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J	
442	R773	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
443	R774	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J	
444	R775	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
445	R776	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J	

## ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
446	R777	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J	
447	R778	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
448	R779	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
449	R780	RN-AZ5600F	R METAL FILM	1/6 560 OHM F	
450	R803	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J	
451	R804	RD-4Z152J-	R CARBON FILM	1/4 1.5K OHM J	
452	R805	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J	
453	R806	RD-4Z331J-	R CARBON FILM	1/4 330 OHM J	
454	R807	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J	
455	R808	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J	
456	R809	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
457	R814A	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
458	R817	RC-2Z565KP	R CARBON COMP	1/2 5.6M OHM K	
459	R819	RN-4Z1003F	R METAL FILM	1/4 100K OHM F	
460	R820	RN-4Z6801F	R METAL FILM	1/4 6.8K OHM F	
461	R821	RC-2Z105KP	R CARBON COMP	1/2 1M OHM K	
462	R823	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J	
463	R824	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
464	R826	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
465	R827	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	
466	R830	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
467	R832A	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J	
468	R833	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
469	R834	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
470	R835	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
471	R873	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J	
472	RA01	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
473	RA02	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
474	RA03	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
475	RA05	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
476	RA06	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
477	RA07	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
478	RA08	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
479	RA09	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J	
480	RS01	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
481	RS801	RC-2Z225KP	R CARBON COMP	1/2 2.2M OHM K	
482	RV01	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
483	RV09	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
484	RV10	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
485	RV11	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
486	RV12	RD-4Z220J-	R CARBON FILM	1/4 22 OHM J	
487	RV13	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	
488	RV14	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
489	RV15	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
490	ZZ300	PTCPMSK156	PCB CRT MANUAL AS	DTQ-2130SSFV	

# ELECTRICAL PARTS LIST

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
491	10	2193102005	SOLDER BAR	SN:PB=63:37 S63S-1320	
492	30	2291050616	FLUX SOLDER	JS-71	
493	40	2291050301	FLUX SOLVENT	IM-1000	
494	I901	PTE3SW1100	HEAT SINK ASS'Y	1TDA6107AJ + 7174300851	
495	00001	1TDA6107AJ	IC VIDEO	TDA6107AJF	
496	0000A	4857031100	HEAT SINK	A1050P-H24 T2.0	
497	0000B	7174300851	SCREW TAPPTITE	TT2 RND 3X8 MFZN 3CR	
498	PA902	4850704S04	CONNECTOR	YH025-04+YST025+ULW=400	
499	SCT4	4859303530	SOCKET CRT	PCS629-03C	
500	ZZ200	PTCPJ0K156	PCB CRT ODD SHAPE AS	DTQ-2130SSFV	
501	C904	CEXF2E479V	C ELECTRO	250V RSS 4.7MF (10X16)TP	
502	C905	CEXF2E479V	C ELECTRO	250V RSS 4.7MF (10X16)TP	
503	C926	CBXB3D102K	C CERA SEMI	2KV BL(N) 1000PF K (T)	
504	ZZ200	PTCPJBK156	PCB CRT M-10 AS	DTQ-2130SSFV	
505	10	2TM18006BE	TAPE MASKING	6.2X500	
506	P907	485923182S	CONN WAFER	YW025-05 (STICK)	
507	R911	RS02Z151JS	R M-OXIDE FILM	2W 150 OHM J SMALL	
508	R914	RS01Z339J-	R M-OXIDE FILM	1W 3.3 OHM J (TAPPING)	
509	ZZ200	PTCPJRK156	PCB CRT RADIAL AS	DTQ-2130SSFV	
510	C902	CCXB1H561K	C CERA	50V B 560PF K (TAPPING)	
511	C903	CMXL2E104K	C MYLAR	250V MEU 0.1MF K	
512	C922	4SG0DX0001	SPARK GAP	SSG-102-A1(1.0KV) TAP	
513	C923	4SG0DX0001	SPARK GAP	SSG-102-A1(1.0KV) TAP	
514	C924	4SG0DX0001	SPARK GAP	SSG-102-A1(1.0KV) TAP	
515	C925	4SG0DX0001	SPARK GAP	SSG-102-A1(1.0KV) TAP	
516	ZZ200	PTCPJAK156	PCB CRT AXIAL AS	DTQ-2130SSFV	
517	10	2TM14006LB	TAPE MASKING	3M #232 6.0X2000M	
518	20	2TM10006LB	TAPE MASKING	3M #232-MAP-C 6.2X2000M	
519	A001	4859830213	PCB CRT	108X61.5(246X246) D1B	
520	D905	D1N4004S—	DIODE	1N4004S	
521	D906	D1N4004S—	DIODE	1N4004S	
522	D907	D1N4004S—	DIODE	1N4004S	
523	D908	DLT2A05G—	DIODE	LT2A05G (TP)	
524	J901	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
525	J902	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
526	R901	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	
527	R902	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	
528	R903	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	
529	R905	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J	
530	R906	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J	
531	R907	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J	
532	R908	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K	
533	R909	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K	
534	R910	RC-2Z102K-	R CARBON COMP	1/2 1K OHM K	
535	R912	RC-2Z105KP	R CARBON COMP	1/2 1M OHM K	
536	R913	RD-2Z102J-	R CARBON FILM	1/2 1K OHM J	

## DIFFERENT PARTS LIST

DTQ-20S1SSFV

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
1	00020	4859000240	ADAPTER	2P15A 300V(D=4.0)	
2	A001	4859830713	PCB CRT	108X61.5(246X246/8) S1B	
3	C406A	CMXF2E434J	C MYLAR	250V MPP 0.43MF J (TP)	
4	C408	CMYH3C752J	C MYLAR	1.6KV BUP 7500PF J	
5	CRT1	PTRTPWJ841	CRT AS	" CRT ITC AS (20 ") "	
6	J086	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
7	J087	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
8	M191	4851950501	BUTTON CTRL AS	4956901+5550901	
9	M201	4852085101	MASK FRONT	HIPS GY	
10	M211	4852163901	COVER BACK	HIPS BK	
11	M481	4854865801	BUTTON POWER	HIPS GY	
12	M781	4857821105	CLOTH BLACK	FELT 90X10X1.5	
13	M801	4858060000	BOX CARTON	DW-2	
14	M811	4858199J00	PAD	EPS 20S1	
15	P401	4859240120	CONN WAFER	YFW500-06	
16	P601A	4850704S36	CONNECTOR	YH025-04+YRT205+ULW=500	
17	R302	RN02B391JS	R METAL FILM	2W 390 OHM J SMALL	
18	R305	RS02Z229JS	R M-OXIDE FILM	2W 2.2 OHM J SMALL	
19	R307	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
20	R312	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
21	R411	RS01Z229J-	R M-OXIDE FILM	1W 2.2 OHM J (TAPPING)	
22	R905	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
23	R906	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
24	R907	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
25	R915	RS01Z209J-	R M-OXIDE FILM	1W 2 OHM J	
26	SCT1	4859303930	SOCKET CRT	ISMG03S INCHANG	
27	SP01	4858310910	SPEAKER	SP-5090F03	
28	SP02	4858310910	SPEAKER	SP-5090F03	
29	T402	50H0000269	FBT	LTC-515	
30	V01	58D0000083	COIL DY	ODY-M2050	
31	V04	2224050029	BOND SILICON	LDC7091 CARTRIDGE	
32	V05	4850PM001-	PCM	NY-225 (MINI NECK)	
33	V06	48A96R004-	RUBBER WEDGE	HMR 28 SR (/0X54)	
34	V901	48A96820N2	CRT BARE	A48JLL41X (P)	



## DIFFERENT PARTS LIST

DTQ-21U6SSV

NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
1	00001	1STRW6735-	IC POWER	STR-W6735	
2	C406A	CMXF2E304J	C MYLAR	250V MPP 0.3MF J (TP)	
3	C408	CMYH3C662J	C MYLAR	1.6KV BUP 6600PF J	
4	C801	CL1UC3104M	C LINE ACROSS	WORLD AC250V 0.1UF M R.47	
5	C802	CL1UC3104M	C LINE ACROSS	WORLD AC250V 0.1UF M R.47	
6	C806	CEYD2E331D	C ELECTRO	250V FHS 330MF (25X30)	
7	CRT1	4859646864	CRT	A51QDJ420X03 P23	
8	I801	PTB2SW4401	HEAT SINK ASS`Y	1STRW6735- + 7174300851	
9	M191	4851945002	BUTTON CTRL	4948702+5543401	
10	M201	4852076902	MASK FRONT	HIPS GY	
11	M211	4852158701	COVER BACK	HIPS BK	
12	M481	4854859302	BUTTON POWER	ABS GY	
13	M591	4855933401	DECO EYE	ABS BLUE	
14	M801	4858059100	BOX	DW-3	
15	M811	4858196300	PAD	EPS 21U6	
16	PA602	4850705N18	CONNECTOR	YBNH250-05+YBNH250+ULW400	
17	PW801	48599NL000	CORD POWER AS	CENT-AM LP-11+YH396-43V=2.0M	
18	R307	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
19	R312	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
20	R417	RS01Z229J-	R M-OXIDE FILM	1W 2.2 OHM J (TAPPING)	
21	R914	RS01Z369J-	R M-OXIDE FILM	1W 3.6 OHM J (TAPPING)	
22	RY801	DJB3R0Q140	POSISTOR	J502P51D030Q140	
23	T402	50H0000269	FBT	LTC-515	

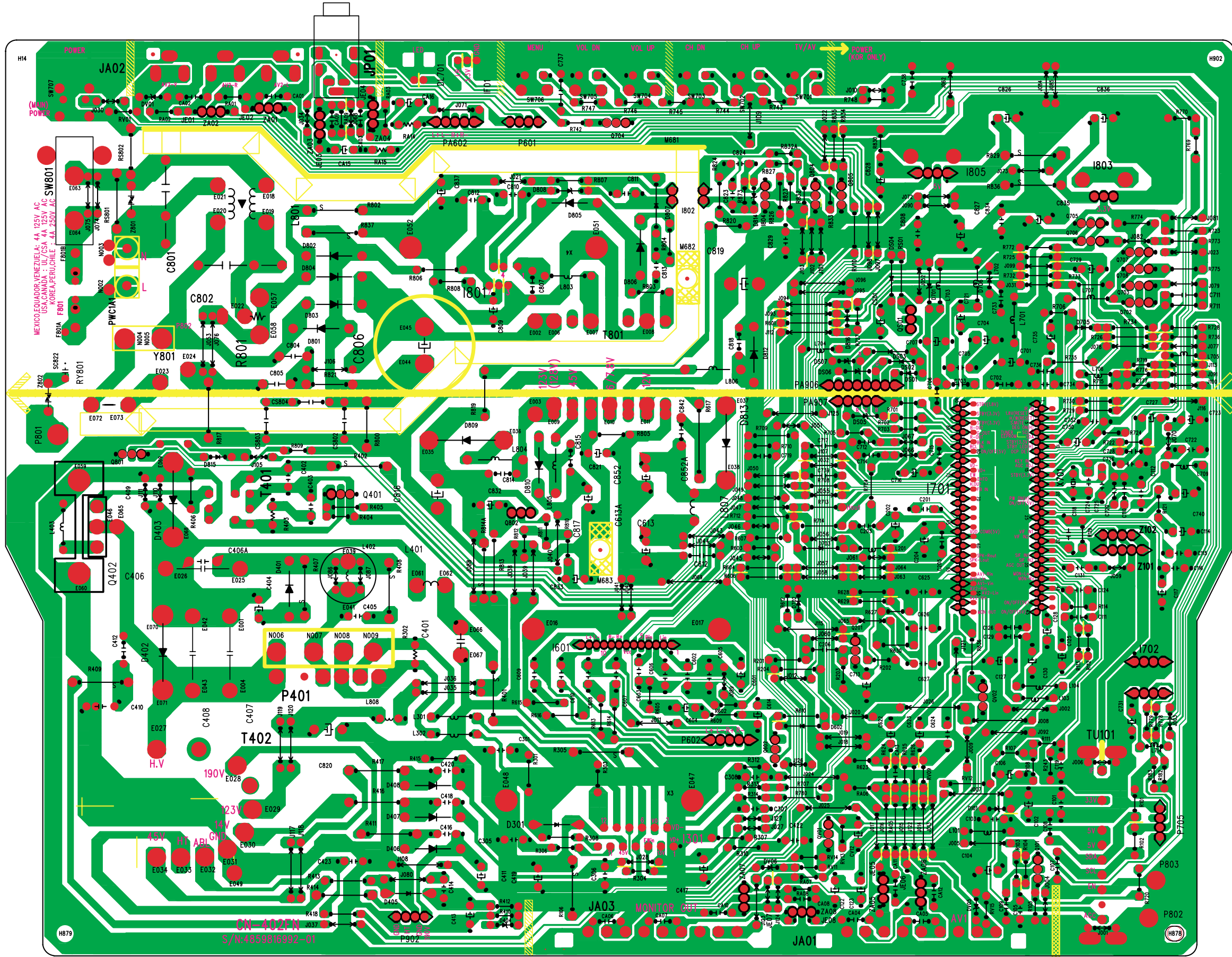
## DIFFERENT PARTS LIST

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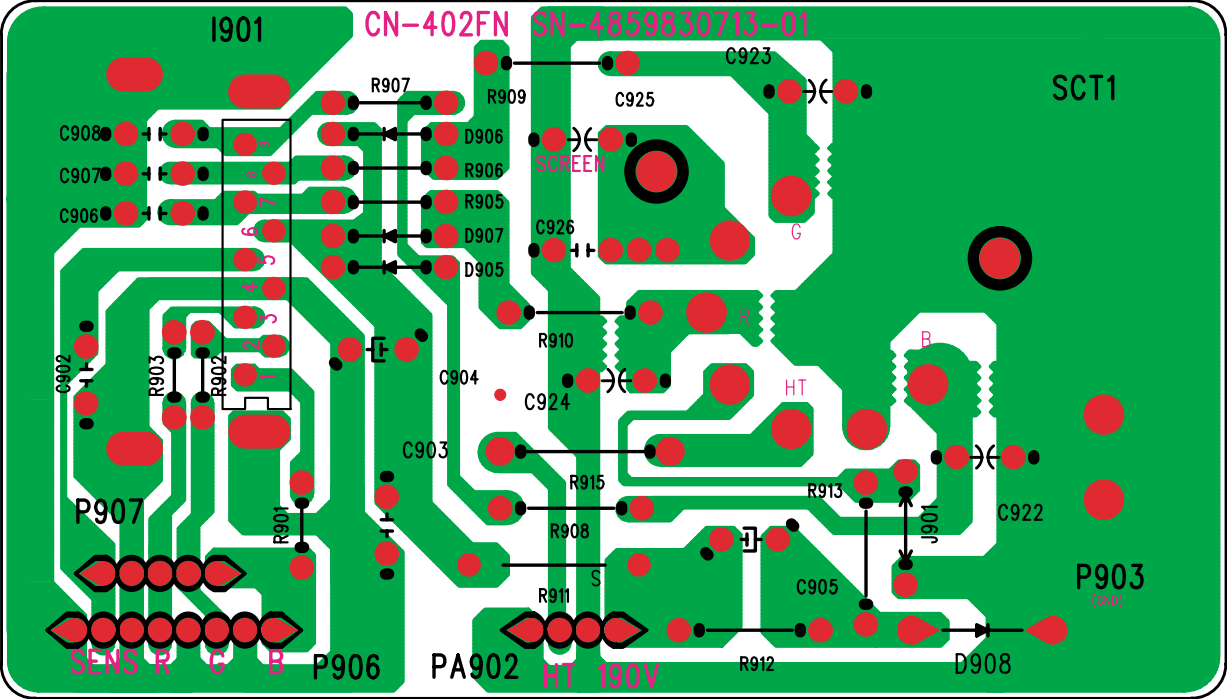
NO	LOC	PARTS CODE	PARTS NAME	PARTS DESCRIPTION	REMARK
1	00001	1STRW6754-	IC POWER	STR-W6754	
2	C406	CMYF2G624J	C MYLAR	400V MPP 0.62MF J	
3	C408	CMYH3C752J	C MYLAR	1.6KV BUP 7500PF J	
4	C806	CEYD2G181D	C ELECTRO	400V FHS 180MF (25X35)	
5	CRT1	4859637160	CRT	A51EHW135X01	
6	D908	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
7	I801	PTD2SW4401	HEAT SINK ASS`Y	1STRW6754- + 7174300851	
8	L402	58H0000025	COIL H-LINEARITY	TRL-330	
9	M191	4854950201	BUTTON CH	ABS GY	
10	M201	4852078611	MASK FRONT	HIPS GY	
11	M201C	4856215402	WASHER RUBBER	CR T2.0	
12	M211	4852160311	COVER BACK	HIPS GY	
13	M481	4854860701	BUTTON POWER	ABS GY	
14	M551	4855544701	DECO SENSOR	PC SMOG	
15	M801	4858057500	BOX CARTON	DW-3	
16	M811	4858197700	PAD	EPS 21D7	
17	P401	4859240120	CONN WAFER	YFW500-06	
18	R302	RN02B391JS	R METAL FILM	2W 390 OHM J SMALL	
19	R307	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
20	R312	RN-AZ2201F	R METAL FILM	1/6 2.2K OHM F	
21	R411	RS01Z229J-	R M-OXIDE FILM	1W 2.2 OHM J (TAPPING)	
22	R820	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
23	R913	85801060GY	WIRE COPPER	1/0.6 TIN COATING	
24	R914	RS01Z109J-	R M-OXIDE FILM	1W 1 OHM J (TAPPING)	
25	SP01	4858311110	SPEAKER	12W 8 OHM SP-58126F	
26	SP01A	7172401252	SCREW TAPPTITE	TT2 TRS 4X12 MFZN BK 3CR	
27	SP02	4858311110	SPEAKER	12W 8 OHM SP-58126F	
28	T402	50H0000269	FBT	LTC-515	



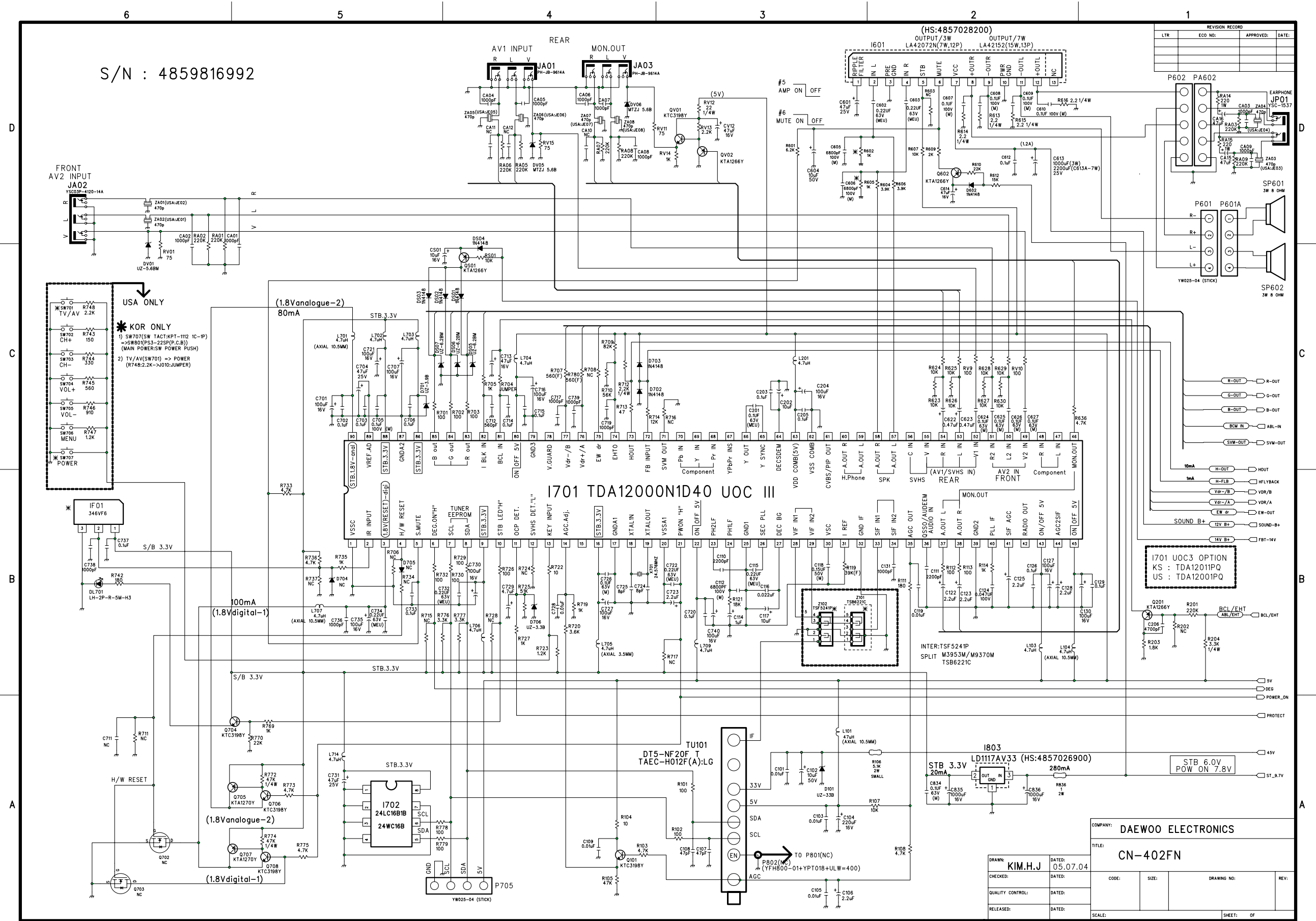
PRINTED CIRCUIT BOARD



PRINTED CIRCUIT BOARD (CRT)

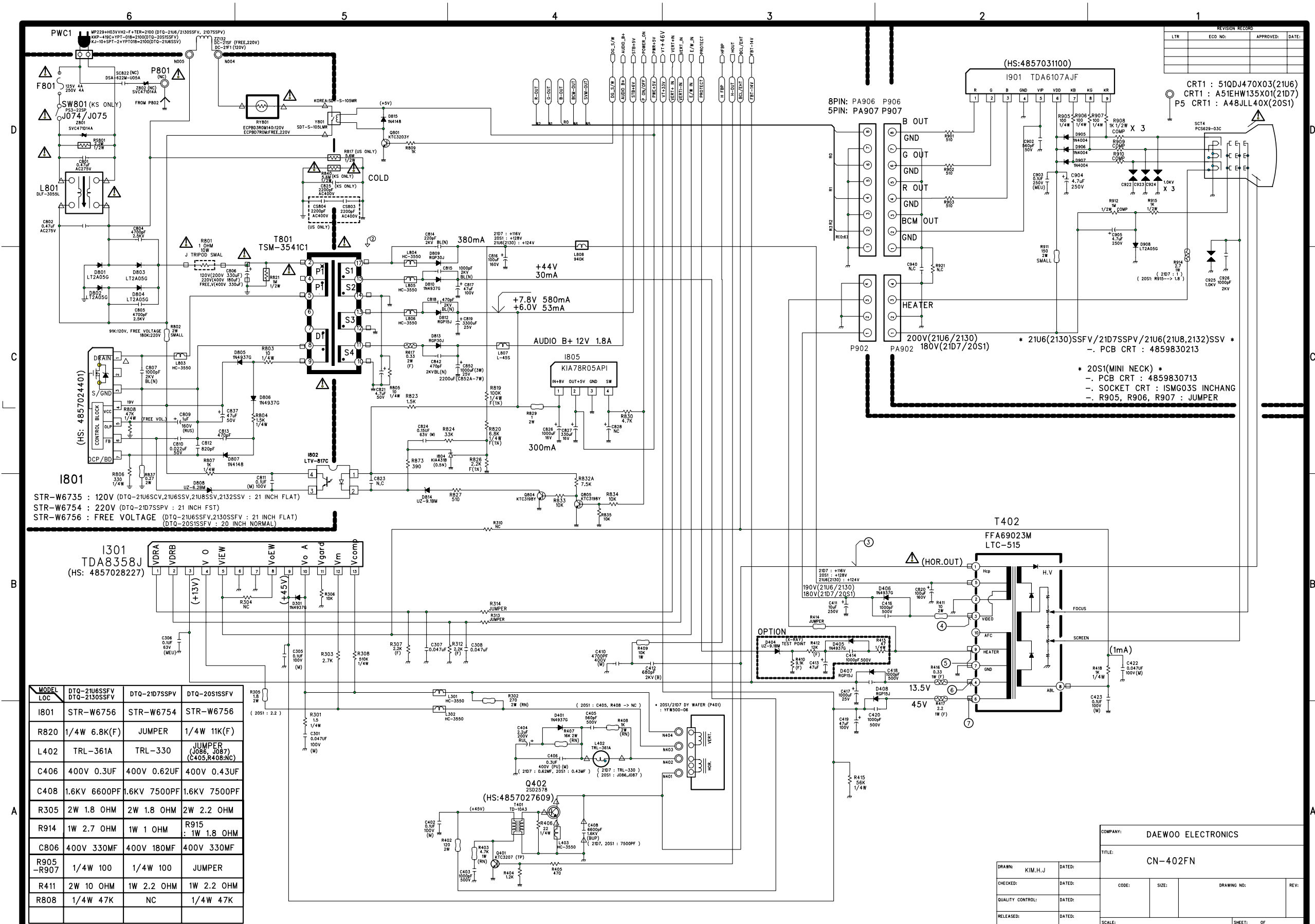


SCHEMATIC DIAGRAM

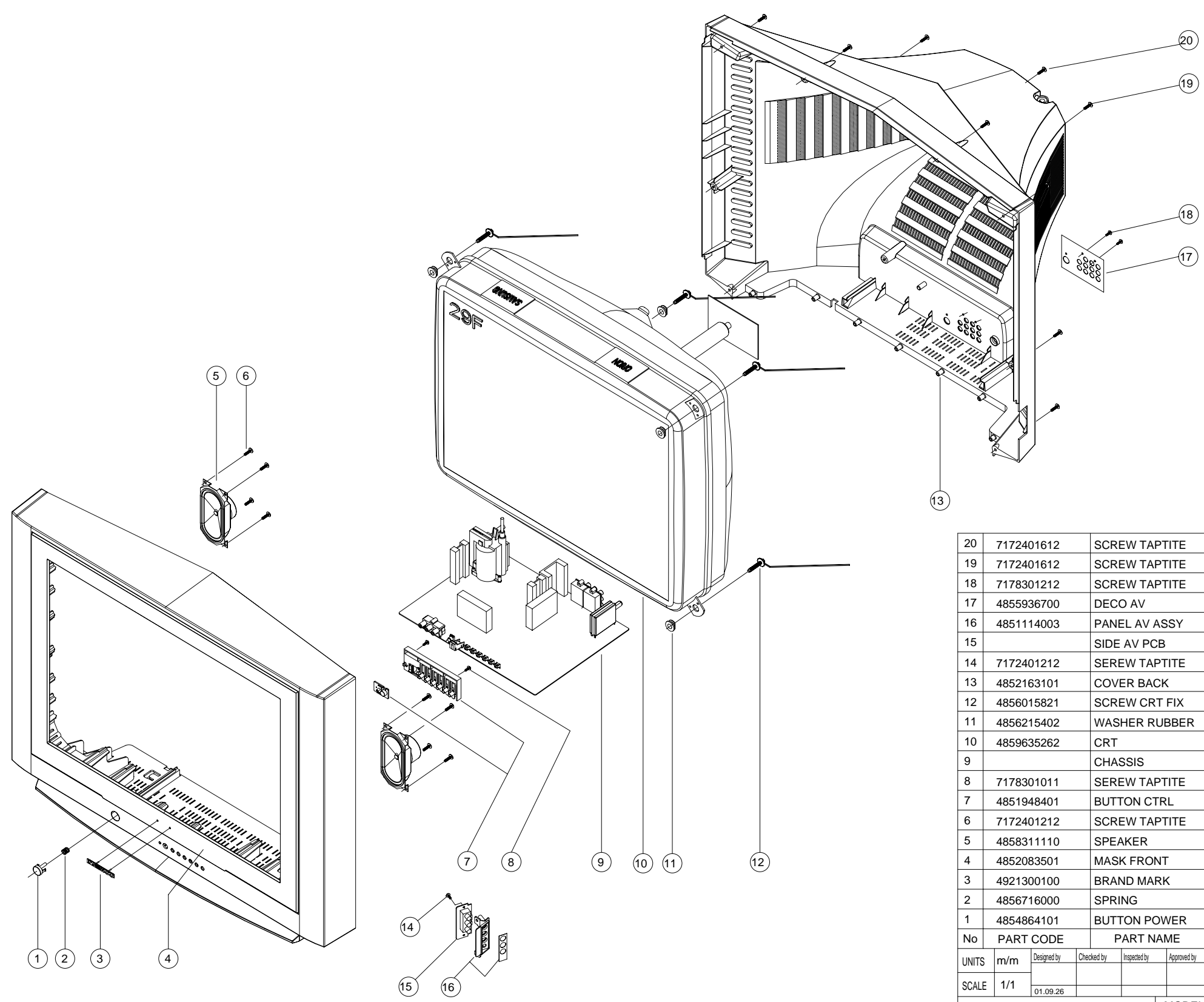




## SCHEMATIC DIAGRAM

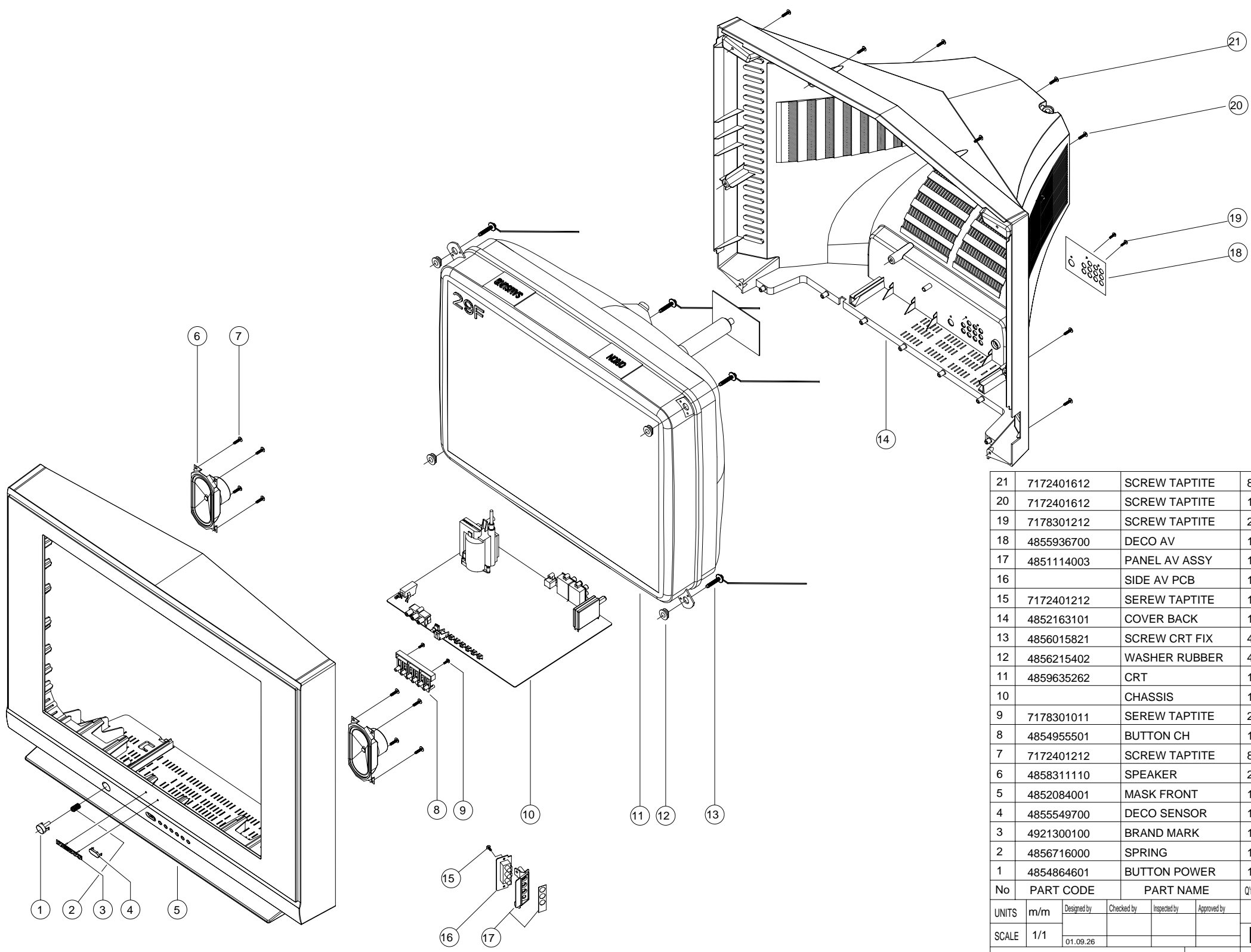


EXPLODE VIEW



20	7172401612	SCREW TAPTITE	8	TT2 TRS 4X16 MFZN BK	
19	7172401612	SCREW TAPTITE	1	TT2 TRS 4X16 MFZN BK	
18	7178301212	SCREW TAPTITE	2	TT2 WAS 3X12 MFZN BK	
17	4855936700	DECO AV	1	PVC T0.25	
16	4851114003	PANEL AV ASSY	1	2326802+5934301	
15		SIDE AV PCB	1	CN-321	
14	7172401212	SEREW TAPTITE	1	TT2 TRS 4X12 MFZN BK	
13	4852163101	COVER BACK	1	HIPS GY	
12	4856015821	SCREW CRT FIX	4	SWRM+SK5 L=35	
11	4856215402	WASHER RUBBER	4	CR T2.0	
10	4859635262	CRT	1	29"F	
9		CHASSIS	1	CN-793F	
8	7178301011	SEREW TAPTITE	2	TT2 WAS 3X10 MFZN	
7	4851948401	BUTTON CTRL	1	4955101+5549200	
6	7172401212	SCREW TAPTITE	8	TT2 TRS 4X12 MFZN BK	
5	4858311110	SPEAKER	2	12W 8 OHM SP-58126F	
4	4852083501	MASK FRONT	1	HIPS GY	
3	4921300100	BRAND MARK	1	A1	
2	4856716000	SPRING	1	SWPA PIE0.5	
1	4854864101	BUTTON POWER	1	HIPS GY	
No	PART CODE	PART NAME	Qty	MATERIAL	REMARKS
UNITS	m/m	Designed by	Checked by	Inspected by	Approved by
SCALE	1/1	01.09.26			
DAEWOO Electronics Corp.		MODEL	DTQ-29U1	D	485009KR
Mechanical Design Team, TV Research Center		REFERENCE		N	

EXPLODE VIEW



21	7172401612	SCREW TAPTITE	8	TT2 TRS 4X16 MFZN BK	
20	7172401612	SCREW TAPTITE	1	TT2 TRS 4X16 MFZN BK	
19	7178301212	SCREW TAPTITE	2	TT2 WAS 3X12 MFZN BK	
18	4855936700	DECO AV	1	PVC T0.25	
17	4851114003	PANEL AV ASSY	1	2326802+5934301	
16		SIDE AV PCB	1	CN-321	
15	7172401212	SEREW TAPTITE	1	TT2 TRS 4X12 MFZN BK	
14	4852163101	COVER BACK	1	HIPS GY	
13	4856015821	SCREW CRT FIX	4	SWRM+SK5 L=35	
12	4856215402	WASHER RUBBER	4	CR T2.0	
11	4859635262	CRT	1	29"F	
10		CHASSIS	1	CN-794F	
9	7178301011	SEREW TAPTITE	2	TT2 WAS 3X10 MFZN	
8	4854955501	BUTTON CH	1	ABS GY	
7	7172401212	SCREW TAPTITE	8	TT2 TRS 4X12 MFZN BK	
6	4858311110	SPEAKER	2	12W 8 OHM SP-58126F	
5	4852084001	MASK FRONT	1	HIPS GY	
4	4855549700	DECO SENSOR	1	PC SMOG	
3	4921300100	BRAND MARK	1	A1	
2	4856716000	SPRING	1	SWPA PIE0.5	
1	4854864601	BUTTON POWER	1	HIPS GY	
No	PART CODE	PART NAME	Qty	MATERIAL	REMARKS
UNITS	m/m	Designed by	Checked by	Inspected by	Approved by
SCALE	1/1	01.09.26			
DAEWOO Electronics Corp.		MODEL	DTQ-29U5	D	485009KU
Mechanical Design Team, TV Research Center		REFERENCE		N	
PART NAME DEVELOPMENT DWG					



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