

# Super Flat Color Television 21 inch

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**HU-TV21SF**

**Chassis M-23**

## SERVICE MANUAL

### SPECIFICATIONS

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#### MAIN UNIT

TV Receiving System	PAL M/N, NTSC M
TUNER	FS TUNER
AV Colour System	NTSC 3.58, NTSC 4.43, PAL M, PAL N, PAL 4.43
Number of Preset Program	181
Channel Indicator	On screen display
Function Adjust Indicator	MENU display
Language of OSD	English, Portuguese and Spanish
RF Aerial Input	75-ohm unbalanced
Video Input/Output	75-ohm 1.0Vp-p, RCA
Audio Input	0.5 Vrms, high impedance
Audio Output	1k ohm 0.5 Vrms
Audio Output Power	$\geq 3W + 3W$
Operating Voltage	110-240V $\sim$ , 50/60Hz
Power Consumption	80W
Picture Tube	21" (54m)
Dimensions	582X 471 X 468 MM (L X W X H)
Net Weight	21 kg

**CAUTION:**

Use of controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

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**CAUTION**  
**RISK OF ELECTRIC SHOCK DO NOT OPEN.**



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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The lighting flash with arrowhead symbol, with an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to the person.

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The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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**WARNING: TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

# **IMPORTANT SAFETY INSTRUCTIONS**

## **CAUTION:**

**Read all of these instructions. Save these instructions for later use. Follow all Warnings and Instructions marked on the audio equipment.**

1. Read Instructions- All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions- The safety and operating instructions should be retained for future reference.
3. Heed Warnings- All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions- All operating and use instructions should be followed.

## **FOR YOUR PERSONAL SAFETY**

1. When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
2. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
3. Do not allow anything to rest on or roll over the power cord, and do not place the TV where power cord is subject to traffic or abuse. This may result in a shock or fire hazard.
4. Do not attempt to service this television set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
5. Never push objects of any kind into this television set through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television set.
6. If the television set has been dropped or the cabinet has been damaged, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
7. If liquid has been spilled into the television set, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
8. Do not subject your television set to impact of any kind. Be particularly careful not to damage the picture tube surface.
9. Unplug this television set from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 10.1. Do not place this television set on an unstable cart, stand, or table. The television set may fall, causing serious injury to a child or an adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the television set. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.
- 10.2. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



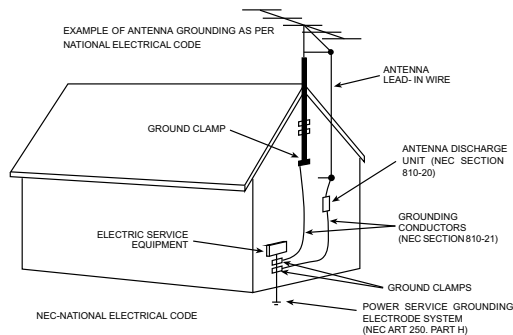
## **PROTECTION AND LOCATION OF YOUR SET**

11.
  - Do not use this television set near water ... for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
  - Never expose the set to rain or water. If the set has been exposed to rain or water, unplug the set from the wall outlet and refer servicing to qualified service personnel.
12. Choose a place where light (artificial or sunlight) does not shine directly on the screen.
13. Avoid dusty places, since piling up of dust inside TV chassis may cause failure of the set when high humidity persists.
14. The set has slots, or openings in the cabinet for ventilation purposes, to provide reliable operation of the receiver, to protect it from overheating. These openings must not be blocked or covered.
  - Never cover the slots or openings with cloth or other material.
  - Never block the bottom ventilation slots of the set by placing it on a bed, sofa, rug, etc.
  - Never place the set near or over a radiator or heat register.
  - Never place the set in a "built-in" enclosure, unless proper ventilation is provided.

## **PROTECTION AND LOCATION OF YOUR SET**

- 15.1. If an outside antenna is connected to the television set, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges, Section 810 of the National Electrical Code, NFPA No. 70-1975, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrode, and requirements for the grounding electrode.

### **EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS**



- 15.2. Note to CATV system installer : (Only for the television set with CATV reception)

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

16. An outside antenna system should not be located in the vicinity of overhead power lines or other electric lights or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. For added protection for this television set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna. This will prevent damage due to lightning and power-line surges.

## **OPERATION OF YOUR SET**

18. This television set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply at your home, consult your television dealer or local power company. For television sets designed to operate from battery power, refer to the operating instructions.
19. If the television set does not operate normally by following the operating instructions, unplug this television set from the wall outlet and refer servicing to qualified service personnel. Adjust only those controls that are covered in the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television set to normal operation.
20. When going on a holiday : If your television set is to remain unused for a period of time, for instance, when you go on a holiday, turn the television set " off " and unplug the television set from the wall outlet.

## **IF THE SET DOES NOT OPERATE PROPERLY**

21. If you are unable to restore normal operation by following the detailed procedure in your operating instructions, do not attempt any further adjustment. Unplug the set and call your dealer or service technician.
22. Whenever the television set is damaged or fails, or a distinct change in performance indicates a need for service, unplug the set and have it checked by a professional service technician.
23. It is normal for some TV sets to make occasional snapping or popping sounds, particularly when being turned on or off. If the snapping or popping is continuous or frequent, unplug the set and consult your dealer or service technician.

## **FOR SERVICE AND MODIFICATION**

24. Do not use attachments not recommended by the television set manufacturer as they may cause hazards.
25. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
26. Upon completion of any service or repairs to the television set, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.

<b>PFS2 FORMAT-1 Report</b>	
<b>Date:</b>	<b>Product:@</b> <b>HU-TV21SF</b>
<b>ProductView.....:</b>	
<b>Report by.....:</b>	
<b>Specs / Products</b>	
<b>SRF NO./ODF NO.</b>	<b>ON43020002</b>
<b>MasterData</b>	
<b>Customer Id</b>	JET LTDA (CHILE)
<b>Version</b>	0.1
<b>Status</b>	WG Archived
<b>Brand</b>	HYUNDAI
<b>EAN</b>	\
<b>UPC</b>	\
<b>Reception</b>	
<b>+Tuning - presets/channels</b>	181
<b>+Tuning - technology</b>	PLL
<b>+Tuning - Indication</b>	---
<b>+Freq Bands</b>	Full-Cable
<b>+Channels</b>	VHF:2-13, UHF:14-69, CATV: 1-13, A-W.W+1--- W+84,A-5---A-1,5A
<b>+IF Freq</b>	PICTURE 45.75MHz
<b>+TV Systems Off Air</b>	NTSC M (3.58 - 4.433)
<b>+Add Systems Ext In</b>	---
<b>+TV Systems Multi</b>	NTSC
<b>+Sound Systems</b>	BTSC
<b>Picture - Processing</b>	
<b>+Scan</b>	Standard
<b>+Scan Modes</b>	4:3
<b>+Wide Screen Switching</b>	
<b>+Combfiler</b>	
<b>+Picture Control</b>	4 Picture Modes, Brightness, Color, Contrast, Tint, Sharpness Cont Var
<b>+Pict Enhancement</b>	Black Stretch
<b>+Pict Noise Reduction</b>	---
<b>Picture - Display</b>	
<b>+Display Type</b>	DV - CRT - FSQ
<b>+Screen Format</b>	4:3
<b>+Size(Visual)" - size/vis. cm</b>	21"
<b>+Deflection System (CRT only)</b>	1 Fh
<b>+Tube Technology (CRT only)</b>	Black Matrix, Iron
<b>+CRT Defl</b>	
<b>+CRT Gun</b>	Stand Gun
<b>+CRT Magn field</b>	Normal
<b>+Resolution</b>	
<b>+Coating (only for D.V. sets)</b>	
<b>+White Point</b>	
<b>Sound</b>	
<b>+Leaflet Power</b>	
<b>+RMS Power Intern</b>	
<b>+RMS Power Extern</b>	
<b>+Surround Sound</b>	
<b>+Sound Features</b>	Mute
<b>+Sound Control</b>	Volume
<b>Sound - Speakers</b>	
<b>+Speaker configuration</b>	2 speakers
<b>+Speakers used</b>	Normal Range
<b>+Speaker Size</b>	
<b>User Interface</b>	
<b>+Interface Name</b>	2113
<b>+Voice Control</b>	
<b>+Menu</b>	Cursor Control
<b>+Menu Colours</b>	
<b>+Menu Languages</b>	Spanish, English, Portuguese
<b>+Special Features</b>	
<b>+Operational Features</b>	
<b>+PP Features</b>	
<b>+Tuning/Install Features</b>	Auto Store, Factory Mode, Language Selection, Service Mode

<b>Date:</b>	
<b>ProductView.....:</b>	
<b>Report by.....:</b>	
<b>Specs / Products</b>	Product:@ HU-TV21SF
+Clock/Timer Functions	Sleep timer
+Local Controls Front	
+Local Controls Top	
+Indicators - screen	
+Indicators - front	
+Numb of Loc Cont (incl Mains)	7
+Number of Ind. (incl Mains)	
+Local Controls (Old)	Channel +-, Tact Switch, Vol +-, TV/AV, MENU
<b>Remote Control</b>	
+Remote Control - scope	TV
+Remote Control - type	Standard
+Remote Control - typenr	E
+Remote Control - features	
<b>Connectors Rear</b>	
+Scart RGB+Y/C+CVBS	
+Scart RGB+CVBS	
+Scart CVBS+Y/C	
+Component In (Y/U/V) Cinch	
+In Y/C+Cinch(CVBS+St)	
+In Y/C+Cinch(CVBS+Mo)	
+In Y/C+Cinch(St)	
+In BNC (CVBS)	
+In Cinch(CVBS+St)	X
+In Cinch(CVBS+Mo)	---
+Out Cinch(CVBS+St)	
+Out Cinch(CVBS+Mo)	
+Out Cinch Audio Stereo	X
+Out Cinch Audio Mono	
+Out Cinch Dolby Surround	
+Dig Audio Out	
+Loudspeakers	
+Control Busses	
+Feature Slot	
+ITV Smart Port	
+Terr. Antenna in	75 Ohms (F type)
Guide + IR Blaster Jack	
<b>Connectors Front</b>	
+In Cinch (CVBS + St)	
+In Cinch (CVBS+Mo)	X
+Headphone Out	
<b>Connectors Side</b>	
+In Y/C + Cinch(CVBS+St)	
+In Y/C + Cinch Stereo	
+In Cinch (CVBS + St)	
+IN Cinch (CVBS + Mo)	
+Headphone Out	
<b>Connectors Top</b>	
<b>Connectors Mechanical</b>	
<b>Styling</b>	
+Cabinet Name	2113
+Configuration	Symm
+Graphics/Logo's	HYUNDAI
+Cabinet Colour and Finish	
+Mechanics	
+Speaker Visibility	Standard
<b>General</b>	
+Segment	Standard 4:3
+Chassis	M23
+Software Delivery Mode	
+Software Version	
+Mains Voltage	110-240V
+Mains Frequency	50/60Hz
+Type Mains Cord	VDE
Power Consumption (P)TV in On	
Power Consumption SB in Watts	Less than 6
Power Consumption Semi SB in W	
+Power in "ON" for	
+Power in Standby for	
+Power in "OFF" for	

<b>Date:</b>	
<b>ProductView.....:</b>	
<b>Report by.....:</b>	
<b>Specs / Products</b>	<b>Product:@</b> <b>HU-TV21SF</b>
Weight (P)TV (incl. Packaging)	
Weight (P)TV (excl. Package)	
Weight AVUnit excl Packaging	
+INDICATION on BACKCOVER	
+Channel	
<b>Final Equipment</b>	
+Packaging - methods	2 Colour Printing, White Carton
+Documents and manuals	
+Languages DFU	
+Cables Supplied	
+Antenna Supplied	
+Stand Supplied	
+Aux Equipm Supplied	Batteries for RC (2 x AA)
Packaging - width cm	
Packaging - height cm	
Packaging - depth cm	
<b>Miscellaneous</b>	
+EAN Indication	
+Approbation	
+Tests	
+Local Integration	
<b>Various Perf. Param.</b>	
+Service Call-Rate	
<b>PIP/POP</b>	
+Type	No PIP/POP
+Features	n/a
<b>Digital Reception</b>	
+Transmission	
<b>Built-in Data System</b>	
+Text Standard	
+(Tele)text Features	
+Nbr bckgrnd page / Mem Size	
+Text Technology	
+Digital Data handling	
+Program Guide	
<b>Built-in Clock/Timer</b>	
+Type	
+Features	
<b>Built-in Radio</b>	
+Type	
<b>Built-in PC display</b>	
+PC Synch	
+PC Control	
<b>Built-in DVD drive</b>	
+Type of Medium	
+Type of Deck	
<b>Phased Out Items</b>	
+Tuner/Frontend	
+Sensitivity	
+CRT EHT	
+Lightning Protection	NO
+Account	
+XX(Radio Antenna in)	
+Non Volatile Memory	
+In Y/C + Cinch(CVBS+Mo)	
Version of deck	



Item No.	Description	Quantity Req.	Designator	Remarks
08-02109X-MPY	ASS'Y - MPX PARTS	1		
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q701	
13-0TDA98-50P	IC TDA9850 (MPX)	1	IC701	
18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	1	R706	
18-CB0151-JNX	RES. C.F. 150 OHM 1/6W +/-5%	1	R702	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R703	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R707	
18-CB0511-JNX	RES. C.F. 510 OHM 1/6W +/-5%	1	R704	
18-CB0511-JNX	RES. C.F. 510 OHM 1/6W +/-5%	1	R705	
18-CB0822-JNX	RES. C.F. 8.2K OHM 1/6W +/-5%	1	R701	
27-MBC104-J0X	CAP. M.P.E 0.1 UF 63V +/-5%	1	C703	
27-MBC104-J0X	CAP. M.P.E 0.1 UF 63V +/-5%	1	C706	
27-MBC104-J0X	CAP. M.P.E 0.1 UF 63V +/-5%	1	C717	
27-MBC224-J0X	CAP. M.P.E 0.22UF 63V +/-5%	1	C710	
27-MBC474-J0X	CAP. M.P.E 0.47UF 63V +/-5%	1	C709	
27-PBC153-J0X	CAP. P.E 0.015UF 63V +/-5%	1	C715	
27-PBC473-J0X	CAP. P.E 0.047 UF 63V +/-5%	1	C701	
34-R330J2-0EX	COIL PL - 33 UH +/-5%	1	L701	
41-BF0180-3BB	WIRE UL 1007 #24 180mm ORANGE	1		FOR L - L
41-BF0180-9BB	WIRE UL1007 #24 180mm WHITE	1		FOR R - R2
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J704	
41-WJ0070-B00	WIRE BARE JUMPER 7MM	1	J701	
45-COS500-KN0	CER. RESONATOR 514.5KHz	1	Z701	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C719	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C718	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C712	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C707	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C702	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C716	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C708	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C705	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C721	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C720	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C711	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C704	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C713	

Item No.	Description	Quantity Req.	Designator	Remarks
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C714	
08-2113SX-MA1	ASS'Y - MAIN BD	1		
07-457FF5-NX0	TUNER TEDH9	1	TU101	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D401	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D402	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D403	
10-1N4001-EBX	DIODE 1N4001 (RECTIFIER)	1	D301	
10-1N4002-EBX	DIODE 1N4002 (RECTIFIER)	1	D411	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D206	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D312	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D313	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D314	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D381	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D412	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D315	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D601	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D452	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1		J004 - FOR P8/IC001
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1		J063 (-) TO R825
10-79C3V9-DBX	DIODE ZENER 3V9 1/2W 5%	1	D901	
10-79C4V7-DBX	DIODE ZENER 4V7 1/2W 5%	1		(+) TO J218, (-) TO J282
10-79C5V1-DBX	DIODE ZENER 5V1 1/2W 5%	1	D004	
10-79C5V6-DBX	DIODE ZENER 5V6 1/2W 5%	1	D902	
10-79C9V1-DBX	DIODE ZENER 9V1 1/2W 5%	1	D404	
10-PC574J-DJX	DIODE ZENER UPC 574J	1	D101	
11-A124ES-0BX	TRANSISTOR PDTA124ES (PNP)	1	Q304	
11-C124ES-0BX	TRANSISTOR PDTC124ES (NPN)	1	Q213A	
11-C124ES-0BX	TRANSISTOR PDTC124ES (NPN)	1	Q604	
11-C144ES-0BX	TRANSISTOR PDTC144ES (NPN)	1	Q903	
11-DD1555-0AX	TRANSISTOR 3DD1555	1	Q402	
11-IRR001-3X0	IR RECEIVER MODULE HK381A	1	IR001	
11-SA1015-YBX	TRANSISTOR 2SA1015Y	1	Q007	
11-SA1015-YBX	TRANSISTOR 2SA1015Y	1	Q203	
11-SA1015-YBX	TRANSISTOR 2SA1015Y	1	Q220	
11-SA1015-YBX	TRANSISTOR 2SA1015Y	1	Q601	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q006	

Item No.	Description	Quantity Req.	Designator	Remarks
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q005	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q004	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q205	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q902	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q904	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q906	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q920	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q921	
11-SC2482-0BX	TRANSISTOR 2SC2482	1	Q401	
11-SC3779-DBX	TRANSISTOR 2SC3779D (RF AMPL)	1	Q101	
13-000040-66P	IC 4066 (ANALOG SW.)	1	IC902	
13-00M24C-04P	IC 4K EEPROM M24C04-BN6	1	IC002	
13-0TA840-3KS	IC TA8403K (VERT. OUTPUT)	1	IC301	
13-A09V01-TOP	IC TCL-A09V01-T0	1	IC001	
13-L7809C-VAP	IC L7809CV	1	IC401	
13-TB1238-ANP	IC TB1238AN (P/SIF/VCD) CH/JP	1	IC201	
13-TDA705-7AS	IC TDA7057AQ (R/L AUDIO O/P)	1	IC603	
13-UA7805-C0S	IC UA7805C	1	IC402	
14-LED05R-XX1	LED RED FB205	1	D051A	
18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	1	R107	
18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	1	R105	
18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	1	R106	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R027	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R041	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R054	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R129	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R226	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R227	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R238	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R285	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R301	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R302	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R411	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R913	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R281	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R933	

Item No.	Description	Quantity Req.	Designator	Remarks
18-CB0102-JNX	RES. C. F. 1K OHM 1/6W +/-5%	1	R934	
18-CB0102-JNX	RES. C. F. 1K OHM 1/6W +/-5%	1	R927	
18-CB0102-JNX	RES. C. F. 1K OHM 1/6W +/-5%	1	R028	
18-CB0102-JNX	RES. C. F. 1K OHM 1/6W +/-5%	1	R935	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R017	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R019	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R020	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R033	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R034	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R038	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R043	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R047	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R050	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R222	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R415	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R928	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R931	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R015	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R915	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R009	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R930	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R953	
18-CB0103-JNX	RES. C. F. 10K OHM 1/6W +/-5%	1	R203	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R042	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R035	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R037	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R294	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R919	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R952	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R917	
18-CB0104-JNX	RES. C. F. 100K OHM 1/6W +/-5%	1	R209	
18-CB0123-JNX	RES. C. F. 12k OHM 1/6W +/-5%	1	R231	
18-CB0123-JNX	RES. C. F. 12k OHM 1/6W +/-5%	1	R904	
18-CB0123-JNX	RES. C. F. 12k OHM 1/6W +/-5%	1	R906	
18-CB0151-JNX	RES. C. F. 150 OHM 1/6W +/-5%	1	R109	
18-CB0151-JNX	RES. C. F. 150 OHM 1/6W +/-5%	1	R401	

Item No.	Description	Quantity Req.	Designator	Remarks
18-CB0151-JNX	RES. C.F. 150 OHM 1/6W +/-5%	1	R234	
18-CB0152-JNX	RES. C.F. 1.5k OHM 1/6W +/-5%	1	R267	
18-CB0152-JNX	RES. C.F. 1.5k OHM 1/6W +/-5%	1	R268	
18-CB0152-JNX	RES. C.F. 1.5k OHM 1/6W +/-5%	1	R269	
18-CB0152-JNX	RES. C.F. 1.5k OHM 1/6W +/-5%	1	R010	
18-CB0153-JNX	RES. C.F. 15k OHM 1/6W +/-5%	1	R046	
18-CB0153-JNX	RES. C.F. 15k OHM 1/6W +/-5%	1	R381	
18-CB0181-JNX	RES. C.F. 180 OHM 1/6W +/-5%	1	R914	
18-CB0181-JNX	RES. C.F. 180 OHM 1/6W +/-5%	1	R932	
18-CB0182-JNX	RES. C.F. 1.8K OHM 1/6W +/-5%	1	R011	
18-CB0182-JNX	RES. C.F. 1.8K OHM 1/6W +/-5%	1	R080	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R215	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R216	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R217	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R287	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R251	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R230	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R032	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R280	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R936	
18-CB0223-JNX	RES. C.F. 22k OHM 1/6W +/-5%	1	J410	
18-CB0224-JNX	RES. C.F. 220k OHM 1/6W +/-5%	1	R232	
18-CB0241-JNX	RES. C.F. 240 OHM 1/6W +/-5%	1	R270	
18-CB0272-JNX	RES. C.F. 2.7k OHM 1/6W +/-5%	1	R012	
18-CB0303-JNX	RES. C.F. 30K OHM 1/6W +/-5%	1	R210	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R048	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R049	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R219	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R220	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R239	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R910	
18-CB0332-JNX	RES. C.F. 3.3k OHM 1/6W +/-5%	1	R236	
18-CB0332-JNX	RES. C.F. 3.3k OHM 1/6W +/-5%	1	R201	
18-CB0333-JNX	RES. C.F. 33K OHM 1/6W +/-5%	1	R622	
18-CB0334-JNX	RES. C.F. 330K OHM 1/6W +/-5%	1	R937	
18-CB0334-JNX	RES. C.F. 330K OHM 1/6W +/-5%	1	R938	

Item No.	Description	Quantity Req.	Designator	Remarks
18-CB0363-JNX	RES. C.F. 36K OHM 1/6W +/-5%	1	R304	
18-CB0392-JNX	RES. C.F. 3.9K OHM 1/6W +/-5%	1	R903	
18-CB0392-JNX	RES. C.F. 3.9K OHM 1/6W +/-5%	1	R905	
18-CB0432-JNX	RES. C.F. 4.3K OHM 1/6W +/-5%	1	R266	
18-CB0432-JNX	RES. C.F. 4.3K OHM 1/6W +/-5%	1	R013	
18-CB0433-JNX	RES. C.F. 43k OHM 1/6W +/-5%	1	R016	
18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	1	R061	
18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	1	R026	
18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	1	R912	
18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	1	R110	
18-CB0472-JNX	RES. C.F. 4.7k OHM 1/6W +/-5%	1	R202	
18-CB0472-JNX	RES. C.F. 4.7k OHM 1/6W +/-5%	1	R454	
18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	1	R036	
18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	1	R380	
18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	1	R306A	
18-CB0560-JNX	RES. C.F. 56 OHM 1/6W +/-5%	1	R112	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R247	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R292	
18-CB0622-JNX	RES. C.F. 6.2k OHM 1/6W +/-5%	1	R014	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R040	
18-CB0682-JNX	RES. C.F. 6.8K OHM 1/6W +/-5%	1	R029	
18-CB0682-JNX	RES. C.F. 6.8K OHM 1/6W +/-5%	1	R030	
18-CB0682-JNX	RES. C.F. 6.8K OHM 1/6W +/-5%	1	R031	
18-CB0683-JNX	RES. C.F. 68K OHM 1/6W +/-5%	1	R307	
18-CB0750-JNX	RES. C.F. 75 OHM 1/6W +/-5%	1	R911	
18-CB0750-JNX	RES. C.F. 75 OHM 1/6W +/-5%	1	R902	
18-CB0751-JNX	RES. C.F. 750 OHM 1/6W +/-5%	1	R081	
18-CB0821-JNX	RES. C.F. 820 OHM 1/6W +/-5%	1	R273	
18-CB0912-JNX	RES. C.F. 9.1K OHM 1/6W +/-5%	1	R073	
18-CD0100-JNX	RES. C.F. 10 OHM 1/4W +/-5%	1	R039	
18-CD0183-JNX	RES. C.F. 18K OHM 1/4W +/-5%	1	R412A	
18-CE0102-JNX	RES. C.F. 1k OHM 1/2W +/-5%	1	R312	
18-CE0121-JNX	RES. C.F. 120 OHM 1/2W +/-5%	1	R221	
18-EF0109-JGX	RES. FUS. 1 OHM 1W +/-5% (LS)	1	R403	
18-EF0109-JGX	RES. FUS. 1 OHM 1W +/-5% (LS)	1	R405	
18-EF0109-JGX	RES. FUS. 1 OHM 1W +/-5% (LS)	1	R407	

Item No.	Description	Quantity Req.	Designator	Remarks
18-EF0109-JGX	RES. FUS. 1 OHM 1W +/-5% (LS)	1	R409	
18-EF0109-JGX	RES. FUS. 1 OHM 1W +/-5% (LS)	1	R841	
18-FF0103-JGX	RES. M.O. 10k OHM 1W +/-5%	1	R413	
18-FF0103-JGX	RES. M.O. 10k OHM 1W +/-5%	1	R404	
18-FF0189-JGX	RES. M.O. 1.8 OHM 1W +/-5%	1	R305	
18-FF0391-JGX	RES. M.O. 390 OHM 1W +/-5%	1	R336	
18-FF0472-JGX	RES. M.O. 4.7K OHM 1W +/-5%	1	R408	
18-FG0681-JHX	RES. M.O. 680 OHM 2W +/-5%	1	R441	
18-FH0472-JIX	RES. M.O. 4.7K OHM 3W +/-5%	1	R402	
18-FH0822-JIX	RES. M.O. 8.2K OHM 3W +/-5%	1	R101	
25-BCA102-M1X	CAP. ELEC 1000 UF 16V +/-20%	1	C416	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C041	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C217	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C236	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C245	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C246	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C904	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C905	
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C615	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C101	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C225	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C624	
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C030	
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C912	
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C921	
25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%	1	C224	
25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%	1	C103	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C028	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C015	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C202	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C241	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C423	
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C285	
25-BCB471-M1X	CAP. ELEC 470 UF 16V +/-20%	1	C418	
25-BDA471-M1X	CAP. ELEC 470 UF 25V +/-20%	1	C306	
25-BDB221-M1X	CAP. ELEC 220 UF 25V +/-20%	1	C621	

Item No.	Description	Quantity Req.	Designator	Remarks
25-BEA471-M1X	CAP. ELEC 470 UF 35V +/-20%	1	C413	
25-BEB101-M1X	CAP. ELEC 100 UF 35V +/-20%	1	C308	
25-BEB101-M1X	CAP. ELEC 100 UF 35V +/-20%	1	C320	
25-BFB100-M1X	CAP. ELEC 10 UF 50V +/-20%	1	C219	
25-BFB100-M1X	CAP. ELEC 10 UF 50V +/-20%	1	C106	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C211	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C229	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C234	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C283	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C613	
25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	1	C614	
25-BFB229-M1X	CAP. ELEC 2.2 UF 50V +/-20%	1	C910	
25-BFB229-M1X	CAP. ELEC 2.2 UF 50V +/-20%	1	C323	
25-BFB229-M1X	CAP. ELEC 2.2 UF 50V +/-20%	1	C903	
25-BFB229-M1X	CAP. ELEC 2.2 UF 50V +/-20%	1	C920	
25-BFB478-M1X	CAP. ELEC 0.47 UF 50V +/-20%	1	C213	
25-BFB478-M1X	CAP. ELEC 0.47 UF 50V +/-20%	1	C230	
25-BFB478-M1X	CAP. ELEC 0.47 UF 50V +/-20%	1	C238	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C051	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C104	
25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	1	C322	
25-BHB100-M1X	CAP. ELEC 10 UF 100V +/-20%	1	C420	
25-BJA470-M1X	CAP. ELEC 47 UF 160V +/-20%	1	C411	
25-BLA100-M1X	CAP. ELEC 10 UF 250V +/-20%	1	C408	
25-GFB109-K1X	CAP. ELEC 1UF 50V +/-10%	1	C220	
25-GFB229-K1X	CAP. ELEC 2.2UF 50V +/-10%	1	C305	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C036	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C214	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C215	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C216	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C616	
26-ABC104-ZFX	CAP. CER 0.1 UF 50V +80-20% F	1	C205	
26-AIC102-KBX	CAP. CER 1000 PF 500V +/-10% B	1	C401	
26-AIC332-KBX	CAP. CER 3300 PF 500V +/-10% B	1	C405	
26-AIC391-KBX	CAP. CER 390 PF 500V +/-10% B	1	C407	
26-AIC391-KBX	CAP. CER 390 PF 500V +/-10% B	1	C412	



Item No.	Description	Quantity Req.	Designator	Remarks
26-AIC391-KBX	CAP. CER 390 PF 500V +/-10% B	1	C414	
26-AMK331-JZX	CAP. CER 330 pF 2KV +/-5% SL	1	C402	
26-EBP100-JCX	CAP. CER 10PF 50V +/-5% CH	1	C201	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C112	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C221	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C272	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C309	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C404	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C114	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C080	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C026	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C027	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C042	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C105	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C203	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C210	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C218	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C223	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C226	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C237	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C242	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C244	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C417	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C425	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C909	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C911	
26-EBP220-JCX	CAP. CER 22PF 50V +/-5% CH	1	C022	
26-EBP220-JCX	CAP. CER 22PF 50V +/-5% CH	1	C023	
26-EBP221-JCX	CAP. CER 220PF 50V +/-5% CH	1	C038	
26-EBP221-JCX	CAP. CER 220PF 50V +/-5% CH	1	C039	
26-EBP221-JCX	CAP. CER 220PF 50V +/-5% CH	1	C031	
26-EBP222-KBX	CAP. CER 2200PF 50V +/-10% B	1	C212	
26-EBP300-JZX	CAP. CER 30PF 50V +/-5% SL	1	C025	
26-EBP300-JZX	CAP. CER 30PF 50V +/-5% SL	1	C024	
26-EBP332-KBX	CAP. CER 3300PF 50V +/-10%	1	C239	
26-EBP390-JCX	CAP. CER 39PF 50V +/-5% CH	1	C020	

Item No.	Description	Quantity Req.	Designator	Remarks
26-EBP472-KBX	CAP. CER 4700PF 50V +/-10% B	1	C113	
26-EBP472-KBX	CAP. CER 4700PF 50V +/-10% B	1	C235	
26-EBP472-KBX	CAP. CER 4700PF 50V +/-10% B	1	C617	
26-EBP472-KBX	CAP. CER 4700PF 50V +/-10% B	1	C618	
26-EBP473-ZFX	CAP. CER 0.047UF 50V +80/-20% F	1	C314	
26-EBP560-JZX	CAP. CER 56PF 50V +/-5% SL TUBE	1	C270	
26-EBP560-JZX	CAP. CER 56PF 50V +/-5% SL TUBE	1	C269	
27-AHR394-J0X	CAP. M. PP 0.39 UF 400V +/-5%	1	C421	
27-ALR103-J0X	CAP. M. PP 0.01 UF 1.6KV +/-5%	1	C427	
27-MBC104-J0X	CAP. M. P. E 0.1 UF 63V +/-5%	1	C233	
27-MBC104-J0X	CAP. M. P. E 0.1 UF 63V +/-5%	1	C251	
27-MBC474-J0X	CAP. M. P. E 0.47UF 63V +/-5%	1	C232	
27-MBC474-J0X	CAP. M. P. E 0.47UF 63V +/-5%	1	C222	
27-MBC474-J0X	CAP. M. P. E 0.47UF 63V +/-5%	1	C601	
27-MBC474-J0X	CAP. M. P. E 0.47UF 63V +/-5%	1	C602	
27-MHW104-K0X	CAP. M. PE 0.1 UF 400V +/-10%	1	C410B	
27-PBC102-J0X	CAP. P. E 0.001UF 63V +/-5%	1	C311	
27-PBC103-J0X	CAP. P. E. 0.01UF 63V +/-5%	1	C021	
27-PBC472-J0X	CAP. P. E 0.0047UF 63V +/-5%	1	C231	
27-PBC562-J0X	CAP. P. E 0.0056UF 63V +/-5%	1	C422	
34-A109K0-1IX	COIL CHOKE 1 UH +/-10%	1	L102	
34-A608K6-1BX	COIL CHOKE 0.6 UH +/-10%	1	L402	
34-R120J2-0EX	COIL PL - 12 UH +/-5%	1	L212	
34-R150J2-0EX	COIL PL - 15 UH +/-5%	1	L208	
34-R220J2-0EX	COIL PL - 22 UH +/-5%	1	L001	
34-R220J2-0EX	COIL PL - 22 UH +/-5%	1	L002	
34-R229J2-0EX	COIL PL - 2.2 UH +/-5%	1	L003	
34-R330J2-0EX	COIL PL - 33 UH +/-5%	1	L202	
34-R330J2-0EX	COIL PL - 33 UH +/-5%	1	L203	
36-HDR001-AX1	TRANSFOR HOR. DRIVE (MAGNETIC CORE)	1	T401	
36-LIN390-XX1	COIL LINEARITY 39 UH	1	L412	
36-WID151-XX1	COIL WIDTH 150 UH	1	L411	
37-BSC250-2110X	FLYBACK BSC25-0211	1	T402	
38-236083-00X	COIL IFT FOR VCO 45.75MHZ	1	T201	
40-2111SX-MAN01	P. C. B. MAIN PCB BD	1		
41-BF0150-0BB	WIRE UL 1007 #24 150 MM BLACK	1		FOR B - B

Item No.	Description	Quantity Req.	Designator	Remarks
41-WJ0025-B00	WIRE BARE JUMPER 2. 5mm	1		FOR Q404 (C-E)
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J932	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J107	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J420	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J421	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J422	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J423	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J425	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J426	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J026	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J220	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J604	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J906	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J062	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J604A	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J923	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	R074	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	R235	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J925	
41-WJ0065-B00	WIRE BARE JUMPER 6. 5MM	1	J031	
41-WJ0065-B00	WIRE BARE JUMPER 6. 5MM	1	J281	
41-WJ0065-B00	WIRE BARE JUMPER 6. 5MM	1	J204	
41-WJ0065-B00	WIRE BARE JUMPER 6. 5MM	1	J909	
41-WJ0065-B00	WIRE BARE JUMPER 6. 5MM	1	J924	
41-WJ0070-B00	WIRE BARE JUMPER 7MM	1	J061	
41-WJ0070-B00	WIRE BARE JUMPER 7MM	1	J901	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J010	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J013	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J034	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J065	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J101	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J217	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J218	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J234	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J249	
41-WJ0075-B00	WIRE BARE JUMPER 7. 5MM	1	J282	

Item No.	Description	Quantity Req.	Designator	Remarks
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J283	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J301	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J605	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	D011	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	D012	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	D013	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J012	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J017	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J024	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J601	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J602	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J066	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J428	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J429	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	R218	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J926	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J051	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J007	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J008	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J915	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J911	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J910	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J006	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J916	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J256	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J257	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J020	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J902	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	J407	
41-WJ0085-B00	WIRE BARE JUMPER 8.5MM	1	J023	
41-WJ0085-B00	WIRE BARE JUMPER 8.5MM	1	J406	
41-WJ0090-B00	WIRE BARE JUMPER 9MM	1	J062B	
41-WJ0095-B00	WIRE BARE JUMPER 9.5MM	1	J030	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J014	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J018	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J036	

Item No.	Description	Quantity Req.	Designator	Remarks
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J037	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J042	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J102	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J226	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J245	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J913	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	R412B	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J216	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J702	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J001	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J060	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J038	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	C426	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J401	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J430	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J227	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J303	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J222	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J917	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J002	
41-WJ0110-B00	WIRE BARE JUMPER 11MM	1	J011	
41-WJ0115-B00	WIRE BARE JUMPER 11.5MM	1	J907	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J009	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J050	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J206	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J224	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J260	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J405	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J918	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	R310	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J241	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J921	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J309	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J310	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	D431	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J927	

Item No.	Description	Quantity Req.	Designator	Remarks
41-WJ0140-B00	WIRE BARE JUMPER 14MM	1	J015	
41-WJ0140-B00	WIRE BARE JUMPER 14MM	1	J016	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J028	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J225	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J215	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J403	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J302	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J203	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J021	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J027	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J201	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J202	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J208	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J213	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J912	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	R417	
41-WJ0160-B00	WIRE BARE JUMPER 16MM	1	J230	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	J231	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	J103	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	J228	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	J229	
41-WJ0195-B00	WIRE BARE JUMPER 19.5MM	1	J108	
41-WJ0200-B00	WIRE BARE JUMPER 20MM	1	J404	
45-FIL4M5-0Y1	CERAMIC FILTER SFSH4.5MDB	1	X208	
45-OSC4M4-3Y00A	CRYSTAL 4.43MHz (CL=16pF)	1	X202	
45-OSC8M0-0Y0	CRYSTAL 8.0MHZ	1	X001	
45-SAW185-9M0	SAW FILTER M1859M (45.75MHz)	1	Z101	
45-TRA4M5-0Y0	CER TRAP TPS 4.5MHZ	1	X203	
46-12866W-02X	PIN BASE *2 S11-02Y	1		P601 F FOR F. CAB (SPK)
46-20598W-04X	PIN BASE *4 TJC1-4A	1		P401 F FOR DY CONNECTOR
46-29355H-04X	HS 4P24 450 2*SCN-4Y	1		FOR P402 TO CRT PARTS (P502)
46-29356H-05X	HS 5P24 450 F/W 2* SCN-5Y	1		FOR P201 TO CRT PARTS (P503)
46-33079W-02X	PIN BASE *2 TJC3-2A	1		P001 F FOR AGING TEST
46-33079W-02X	PIN BASE *2 TJC3-2A	1		P002 F FOR AGING TEST
46-33079W-02X	PIN BASE *2 TJC3-2A	1		P602 F FOR F. CAB (SPK)
46-33079W-06X	PIN BASE *6 TJC3-6A	1		P101A FOR W. BAL. ADJUST

Item No.	Description	Quantity Req.	Designator	Remarks
47-RCA021-XX0	RCA JACK 6P RED/SW. WHT. YEL	1	P901	
48-TAC002-XX0	TACT SWITCH	1	S002	
48-TAC002-XX0	TACT SWITCH	1	S003	
48-TAC002-XX0	TACT SWITCH	1	S004	
48-TAC002-XX0	TACT SWITCH	1	S005	
48-TAC002-XX0	TACT SWITCH	1	S006	
48-TAC002-XX0	TACT SWITCH	1	S007	
48-TAC010-XX0	SWITCH TACT TSVC-2 (L=8.5 MM)	1	S008	
62-10654X-00F	UNI-TIE (2.5mmX95mm)	8		
62-227680-0UA	BRACKET ABS-KINGFA 606 (UO)	1		
62-291630-0HH	MTG SPACER FBT&H. SINK	1		FOR FBT & H. SINK
62-346080-0HA	LED HOLDER	1		
63-B40150-AB2	S/T SCREW B 4 X 15 AB	1		FOR FBT & H. SINK
64-P30060-104	M/C SCREW 3 X 6 (ZINC)	1		FOR IC401
64-P30060-104	M/C SCREW 3 X 6 (ZINC)	1		FOR IC402
64-P30100-104	M/C SCREW P 3 X 10	2		MTG IC603
64-P30100-104	M/C SCREW P 3 X 10	2		FOR IC301 & Q402
65-Z30050-23M	NUT M 3	2		FOR IC301 & Q402
65-Z30050-23M	NUT M 3	2		FOR IC603
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	4		FOR T402
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR L411
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR L412
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR L401
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	3		FOR Q402
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR D432
66-382330-0B7	RIVET 2.0X3.7X3.5	2		FOR R402A
67-H10918-4M2	HEAT SINK	1		FOR IC401
67-H10918-4M2	HEAT SINK	1		FOR IC402
67-H30752-1A0	HEAT SINK	1		FOR IC301
67-H30752-4A0	HEAT SINK (A=75MM)	1		FOR IC603
67-H30752-5A0	HEAT SINK	1		FOR Q402
70-271510-00A	SERVICE CARD	1		FOR PRODUCTION USE
71-270870-0A9	LABEL	3		
90-209770-SR1	SILICONE GREASE G-746	0.0003		FOR Q402 & IC603
90-269080-ZU0	CLEAN COATING TC-131L 14KG/BARREL	0.0001		
08-02109X-CR1	ASS'Y - CRT PARTS (S. S)	1		

Item No.	Description	Quantity Req.	Designator	Remarks
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D501	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D502	
11-0BF422-0BX	TRANSISTOR BF422 (NPN)	1	Q501	
11-0BF422-0BX	TRANSISTOR BF422 (NPN)	1	Q503	
11-0BF422-0BX	TRANSISTOR BF422 (NPN)	1	Q505	
11-A562TM-0BX	TRANSISTOR 2SA562TM-0	1	Q507	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q502	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q504	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q506	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R515	
18-CB0272-JNX	RES. C.F. 2.7k OHM 1/6W +/-5%	1	R514	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R501	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R505	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R510	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R503	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R508	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R513	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R502	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R506	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R509	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R511	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R522	
18-FE0272-JNX	RES. M.O. 2.7K OHM 1/2W +/-5%	1	R519	
18-FE0272-JNX	RES. M.O. 2.7K OHM 1/2W +/-5%	1	R520	
18-FE0272-JNX	RES. M.O. 2.7K OHM 1/2W +/-5%	1	R521	
18-FG0153-JHX	RES. M.O. 15k OHM 2W +/-5%	1	R516	
18-FG0153-JHX	RES. M.O. 15k OHM 2W +/-5%	1	R517	
18-FG0153-JHX	RES. M.O. 15k OHM 2W +/-5%	1	R518	
25-BLA100-M1X	CAP. ELEC 10 UF 250V +/-20%	1	C504	
26-AMK102-KRX	CAP. CER 1000 pF 2KV +/-10% R	1	C505	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C509	
26-EBP102-KBX	CAP. CER 1000 PF 50V +/-10% B	1	C508	
26-EBP471-JCX	CAP. CER 470PF 50V +/-5% CH	1	C501	
26-EBP471-JCX	CAP. CER 470PF 50V +/-5% CH	1	C502	
26-EBP471-JCX	CAP. CER 470PF 50V +/-5% CH	1	C503	
34-R569K2-1BX	COIL CHOKE 5.6 UH +/-10%	1	L502	



Item No.	Description	Quantity Req.	Designator	Remarks
34-R569K2-1BX	COIL CHOKE 5.6 UH +/-10%	1	L503	
35-139730-00X	FERR. BEAD BF60	2		FOR C508 (L505 & L506)
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	L504	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	L501	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	R504	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	R507	
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	R512	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J503	
46-10967W-01X	PIN BASE *1 TJC1-1A	1	P501	FOR CRT GROUNDING
47-265540-0U7	SOCKET CRT GZS10-2-4 (C.B.)	1	S501	
25-BCB471-M1X	CAP. ELEC 470 UF 16V +/-20%	1	C506	
08-02109X-PW5	ASS'Y - POWER PARTS	1		
10-0001H8-FBX	DIODE 1H8 (FAST RECOVERY)	1	D810	
10-00RU3C-F0X	DIODE RU3C (FAST RECTIFIER)	1	D824	
10-ORL255-EBX	DIODE RL255 (POWER RECTIFIER)	1	D801	
10-ORL255-EBX	DIODE RL255 (POWER RECTIFIER)	1	D802	
10-ORL255-EBX	DIODE RL255 (POWER RECTIFIER)	1	D803	
10-ORL255-EBX	DIODE RL255 (POWER RECTIFIER)	1	D804	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D832	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D807	
10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	1	D805	
11-SC1815-YBX	TRANSISTOR 2SC1815Y	1	Q806	
13-TDA168-46P	IC TDA16846 (SMPS)	1	IC801	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R829	
18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	1	R828	
18-CB0182-JNX	RES. C.F. 1.8K OHM 1/6W +/-5%	1	R804	
18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%	1	R827	
18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	1	R826A	
18-CB0472-JNX	RES. C.F. 4.7k OHM 1/6W +/-5%	1	R826	
18-CB0563-JNX	RES. C.F. 56K OHM 1/6W +/-5%	1	R812	
18-CB0563-JNX	RES. C.F. 56K OHM 1/6W +/-5%	1	R806	
18-CB0752-JNX	RES. C.F. 7.5K OHM 1/6W +/-5%	1	R810	
18-CB0823-JNX	RES. C.F. 82K OHM 1/6W +/-5%	1	R803	
18-CD0101-JNX	RES. C.F. 100 OHM 1/4W +/-5%	1	R808	
18-CD0153-JNX	RES. C.F. 15K OHM 1/4W +/-5%	1	R811	
18-CD0470-JNX	RES. C.F. 47 OHM 1/4W +/-5%	1	R808A	

Item No.	Description	Quantity Req.	Designator	Remarks
18-CE0102-JNX	RES. C.F. 1k OHM 1/2W +/-5%	1	R808B	
18-EF0228-JGX	RES. FUS. 0.22 OHM 1W +/-5%	1	R831	
18-EF0228-JGX	RES. FUS. 0.22 OHM 1W +/-5%	1	R832	
18-FE0120-JNX	RES. M.O. 12 OHM 1/2W +/-5%	1	R825	
18-FG0121-JHX	RES. M.O. 120 OHM 2W +/-5%	1	R854A	
18-FG0153-JHX	RES. M.O. 15k OHM 2W +/-5%	1	R824	
18-FG0563-JHX	RES. M.O. 56K OHM 2W +/-5%	1	R809	
18-KE0475-JNX	RES. H. VOLT. CC 4.7M OHM 1/2W	1	R805	
18-KE0475-JNX	RES. H. VOLT. CC 4.7M OHM 1/2W	1	R835	
18-KE0475-JNX	RES. H. VOLT. CC 4.7M OHM 1/2W	1	R835A	
20-TR502H-5CX	TRIMMER B5K HORIZ TYPE	1	VR801	
22-PTC200-XX0	POSISTOR 20 OHM (25-34)	1	RT801	
25-315130-M1X	CAP. ELEC 330UF 400V +/-20%	1	C809	
25-343260-M1X	CAR. ELEC	1	C845	
25-BJG221-M1X	CAP. ELEC 220 UF 160V +/-20%	1	C827	
26-AIC221-KBX	CAP. CER 220 PF 500V +/-10% B	1	C840	
26-AIC221-KBX	CAP. CER 220 PF 500V +/-10% B	1	C843	
26-AIM103-KBX	CAP. CER 0.01UF 500V +/-10% B	1	C826	
26-AIM103-KBX	CAP. CER 0.01UF 500V +/-10% B	1	C808	
26-AMK221-JZX	CAP. CER 220pF 2KV +/-5% SL	1	C839	
26-AMK331-JZX	CAP. CER 330 pF 2KV +/-5% SL	1	C830	
26-AMK561-JZX	CAP. CER 560 pF 2KVDC +/-5% SL	1	C819	
26-AQK472-ZFX	CAP. CER 4700PF 250VAC+80-20%F	1	C804	
26-AQK472-ZFX	CAP. CER 4700PF 250VAC+80-20%F	1	C805	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C844	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C846	
26-EBP103-ZFX	CAP. CER 0.01UF 50V +80/-20% F	1	C841	
26-EBP220-JZX	CAP. CER 22PF 50V +/-5% SL TU	1	C810	
26-EBP561-JCX	CAP. CER 560PF 50V +/-5% CH	1	C808A	
27-MBC224-J0X	CAP. M.P.E 0.22UF 63V +/-5%	1	C814	
27-MHM104-K0X	CAP. METAL P.E. 0.1UF 400V 10%	1	C803	
27-MQW683-M0X	CAP.M. PE 0.068UF 250VAC +/-20%	1	C818	
27-PBC102-J0X	CAP. P.E 0.001UF 63V +/-5%	1	C815	
27-PBC103-J0X	CAP. P.E. 0.01UF 63V +/-5%	1	C817	
27-PBC103-J0X	CAP. P.E. 0.01UF 63V +/-5%	1	C812	
27-PBC222-J0X	CAP. P.E 0.0022UF 63V +/-5%	1	C811	

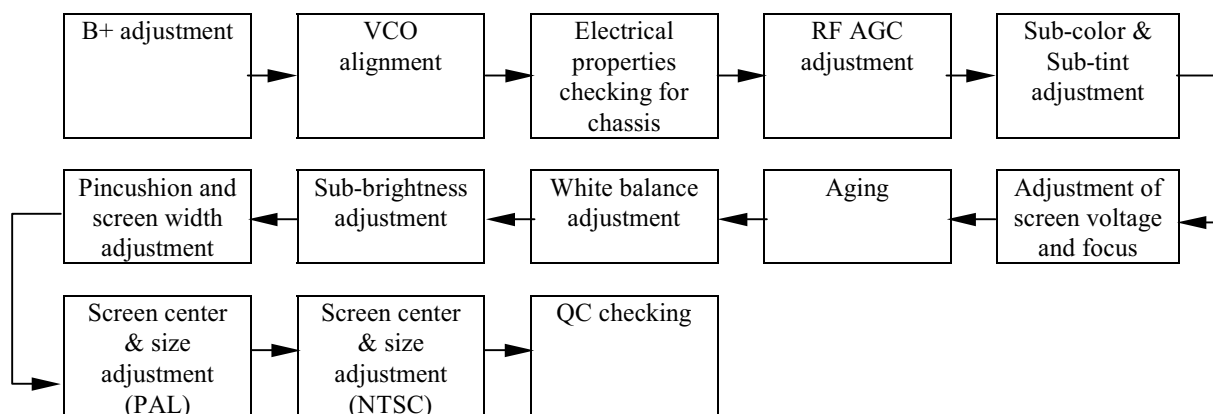
Item No.	Description	Quantity Req.	Designator	Remarks
34-R101K2-1BX	COIL CHOKE 100 UH +/-10%	1	L804	
35-139730-00X	FERR. BEAD BF60	2		FOR L801
35-139730-00X	FERR. BEAD BF60	2		FOR D831 (L810 & L811)
35-139730-00X	FERR. BEAD BF60	2		FOR D830 (L808 & L809)
35-237250-00X	FERR. BEAD HF70	2		FOR D824 (L806 & L807)
36-LIF001-XX0	LINE FILTER LCL1602	1	T803	
41-AJ0125-BEE	WIRE BARE JUMPER 12.5MM	1		L801 FOR FERR. BEAD BF60 X2
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J810	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J811	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J812	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J813	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J814	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J815	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J816	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	1	J817	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J803	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J805	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J806	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J801	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	J804	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	J802B	
46-10962W-02X	PIN BASE *2 TJC2-2A	1		P801 FOR DEGAUSSING COIL
46-28559W-02X	PIN BASE *2 TJC1-2A	1		P802 FOR POWER CORD
66-20516X-0B0	FUSE HOLDER	2		FOR F801
67-339070-1E7	SPRING CLIP	1		FOR Q801
67-H28649-3A0	HEAT SINK	1		FOR Q801
90-209770-SR1	SILICONE GREASE G-746	0.0003		FOR Q801
10-79C8V2-DBX	DIODE ZENER 8V2 1/2W 5%	1	D833	
11-SK2645-0AX	TRANSISTOR 2SK2645-01MR (POWER	1	Q801	
11-2SD882-0AX	TRANSISTOR 2SD882-P (NPN)	1	Q805	
26-APK102-ME4	CAP. CER 1000PF 400VAC+/-20% E	1	C835	
26-APK102-ME4	CAP. CER 1000PF 400VAC+/-20% E	1	C835A	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D831	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D830	
10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	1	D806	
36-LIF010-AX0	LINE FILTER	1	T801	

Item No.	Description	Quantity Req.	Designator	Remarks
36-TRF020-AX2	TRANSFORMER CONV. BCK-4001-34d	1	T802	
51-DC0243-0CH01	POWER CORD VDE PLUG W/HOUSING	1		
18-KE0105-JN3	RES. H. VOLT. CC 1M OHM 1/2W +/-5%	1	R807	
18-KE0105-JN3	RES. H. VOLT. CC 1M OHM 1/2W +/-5%	1	R802	
27-AQT224-MVH	CAP. M. PP 0.22 UF 250VAC 20%	1	C802	
25-BDA471-M1X	CAP. ELEC 470 UF 25V +/-20%	1	C842	
25-BDA471-M1X	CAP. ELEC 470 UF 25V +/-20%	1	Q805	(C) & GND
25-BFB470-M1X	CAP. ELEC 47 UF 50V +/-20%	1	C816	
35-139730-00X	FERR. BEAD BF60	1		FOR Q801 "S"
50-02000D-1GS	FUSE 2.0AT 250VAC	1	F801	
22-NTC479-XX0	NTC 4.7 OHM +/-18% NTC4.7D2-14	1	R801B	
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR C827
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	4		FOR T802
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	3		FOR RT801
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	6		FOR T802
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR D824
66-343730-0B0	HOLLOW RIVET 1.6X3.0XL3.2	2		FOR L804
66-382330-0B7	RIVET 2.0X3.7X3.5	2		FOR P801
66-382330-0B7	RIVET 2.0X3.7X3.5	2		FOR R801A
25-BFB470-M1X	CAP. ELEC 47 UF 50V +/-20%	1	C847A	[(+ ) TO C846A]
08-02113X-RCY	ASS'Y - REAR CABINET	1		
54-114000-00X	FELT TAPE (150mmX19mmX0.3mm)	7		STICK ON R. CAB
55-2113RC-0CN	REAR CABINET	1		
58-2106RI-7UI	INLAY REAR AV	1		
58-2113MP-JKT	PLATE MODEL NO.	1		
59-130460-00X	RUBBER PAD (25mmX7mm)	2		FOR FOOTING
62-301490-0UN	SUPPORTER (FOR FBT)	1		
63-B40200-AB2	S/T SCREW B 4 X 20 AB	6		MTG FRONT & R. CAB
63-F30100-BT3	S/T SCREW F 3 X 10 BT (BLACK)	2		MTG RCA JACK & R. CAB
63-W30100-AB4	S/T SCREW W 3 X 10 AB	2		MTG SUPPORTOR & R. CAB
08-2113SX-FCN	ASS'Y - FRONT CABINET	1		
02-GND021-XX0	ASS"Y - CRT GND WIRE&HOUSE	1		
36-DEG210-BX1	DEGAUSSING COIL 2500mm	1		
42-50916D-XX0	SPEAKER 16 OHM 5W (50mmX90mm)	1	W601	
42-50916D-XX0	SPEAKER 16 OHM 5W (50mmX90mm)	1	W602	
44-210FLN-SZ2A	CRT A51KQK99X01 (ASIN)	1	CRT01	

Item No.	Description	Quantity Req.	Designator	Remarks
46-14026H-02X	HS 2P 2468#22 570mm S11-2Y/7mm	1		P601H FOR M. BD P601
46-27688H-04X	HS 4P A/B 400/13 RBGW TJC1/4Y	1		P401H FOR D. Y COIL
46-35196H-02X	HS 2P22 570/7 TJC3-2Y	1		P602H FOR M. BD P602
54-113970-0U0	PVC TUBE #5 L=ROLL	0.32		FOR SPK HOUSING
54-114000-00X	FELT TAPE (150mmX19mmX0.3mm)	5		STICK ON F. CAB
54-205140-000	SPACER CRT MOUNTING T=2MM	4		MTG CRT & F. CAB
54-314740-0X0	CRT FIBRE SHEET (22mmX22mmX0.8mm)	8		FOR CRT & F. CAB
54-347230-000	SPONGE (3MMX3MMX280MM)	2		FOR SPK
55-2113FC-0CN	FRONT CABINET	1		
56-2113FB-0HA	PUSH BUTTON	1		
56-2113LS-0HC	LENS - LED & SENSOR	1		
56-2113PK-0HA	POWER KNOB	1		
59-130460-00X	RUBBER PAD (25mmX7mm)	2		FOR F. CAB (FOOTING)
59-312160-000	SPEAKER RUBBER CUSHION	4		FOR SPEAKER
62-10654X-00F	UNI-TIE (2.5mmX95mm)	4		
62-216340-0UA	HOLDER POWER CORD HIPS-KINGFA 113(V0)	1		
63-B30080-AB4	S/T SCREW B 3 X 8 AB	1		MTG LENS & F. CAB
63-B30080-AB4	S/T SCREW B 3 X 8 AB	3		MTG PUSH BUTTON & F. CAB
63-H60300-AB4	S/T SCREW H 6 X 30 AB	4		MTG CRT F. CAB
63-W30120-AB4	S/T SCREW W 3 X 12 AB	4		MTG SPK & F. CAB
65-A60180-20E	EXT. TOOTH WASHTER 6 X 18 X 2	4		FOR CRT & F. CAB
67-X12668-0E0	SPRING CRT 6mmX40mmX0.5mm	1		
67-X24970-0E0	SPRING	1		
62-307210-0HA	KNOB ADAPTER	1		
08-2113SX-PA1	ASS'Y - PACKING PARTS	1		
36-141390-000	CONVERTER 300/75 OHM (FOR NTSC)	1		
47-300770-000	ASS'Y - TWO ROD ANT. W/RIB. 75CM	1		
59-377680-000	RUBBER PAD (22X22X5mm)	2		
72-2113SX-X03	OPERATION MANUAL	1		
74-022032-6WE	POLYBAG (23cmX34cmX0.06mm)	1		FOR OPERATION MANUAL
74-120120-80HAA	POLYBAG W/SUFFOCATION WARNING	1		
75-2113LL-CC1	POLYFOAM "LL"	1		
75-2113LR-CC1	POLYFOAM "LR"	1		
75-2113UL-CC1	POLYFOAM "UL"	1		
75-2113UR-CC1	POLYFOAM "UR"	1		
76-02113E-1AT	CARTON BOX	1		

Item No.	Description	Quantity Req.	Designator	Remarks
08-HS45E0-M23A	ASS'Y - REMOTE HANDSET	1		
11-0BC337-0BX	TRANSISTOR (NPN) BC337-40	1	Q1501	
13-M34282-M2B	IC M34282MX	1	IC1501	
14-IRE05B-XX0	IR EMITTING DIODE TSAL6200	1	D1501	
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	1	R1501	
18-CB0109-JNX	RES. C.F. 1 OHM 1/6W +/-5%	1	R1502	
26-EBP151-JCX	CAP. CER 150 pF 50VDC +/-5%	1	C1501	
26-EBP151-JCX	CAP. CER 150 pF 50VDC +/-5%	1	C1502	
40-2111SW-RMA	P.C.B. REMOTE HANDSET BD	1		
41-WJ0060-B00	WIRE BARE JUMPER 6mm	1	J1501	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J1502	
45-COS455-KY0	CERAMIC RESONATOR 455KHZ	1	X1501	
49-HS45E0-00X	RUBBER PAD KEYS	1		
54-302000-00X	FELT TAPE 15 X 4 CM	1		
55-HS45EB-0HA	LOWER CASE - REMOTE HANDSET	1		
55-HS45ED-0HA	DOOR BATT. - REMOTE HANDSET	1		
55-HS45ET-1HA	CASE UPPER - REMOTE HANDSET	1		
56-HS45EK-1HAAA	KEY KNOB (OVAL) LEFT	1		
56-HS45EK-1HAAB	KEY KNOB (OVAL) RIGHT	1		
56-HS45EK-2HAAA	KEY KNOB (OVAL) UPPER	1		
56-HS45EK-2HAAB	KEY KNOB (OVAL) LOWER	1		
58-HS45E2-8UI	INLAY REMOTE HANDSET	1		
74-009022-60C	POLYBAG HANDSET (9CMX22CM)	1		
25-HBB470-M1X	CAP. ELEC 47UF 10V +/-20%	1	C1503	
67-X26968-0E2	BATT. TERMINAL (+/-)	1		
67-X29681-1E2	BATTERY CONTACT SPRING (-)	1		
67-X29682-0E2	BATTERY CONTACT SPRING (+)	1		

## Flowchart chart of alignment procedure for M23 chassis:



## ALIGNMENT PROCEDURE FOR M23 CHASSIS:

### D-mode:

Enter D-Mode by pressing D-Mode ON/OFF key, and then you can enter the D-mode

### S-mode:

Enter S-Mode by pressing VOLUME DOWN key on the unit until the volume decrease to minimum level, then press the DISPLAY key on the remote handset (don't release the volume key) and you can enter the factory mode. In factory mode, you can adjust the following items.

After enter D-mode or S-mode, you can adjust the setting according to the following procedure,

Press "1" to enter the white balance alignment menu,

Item	Description	Default value
RCUT	Red cutoff	80
BCUT	Blue cutoff	80
GCUT	Green cutoff	80
BDRV	Blue drive	40
GDRV	Green drive	40

Press "2" to enter picture geometry alignment menu for PAL,

Item	Description	Default value
HPOS50	PAL H. position	0A
VPOS50	PAL V. position	03
HIGH50	PAL V. size	24
VLIN50	PAL V. linearity	09
VSC50	PAL V-S correction	06
OSDV50	PAL V. position of OSD	1D

Press "3" to enter picture geometry alignment menu for NTSC,

Item	Description	Default value
HPOS60	NTSC H. position	03
VPOS60	NTSC V. position	00
HIGH60	NTSC vertical size	07
VLIN60	NTSC V. linearity	01
VSC60	NTSC V-S correction	04
OSDV60	NTSC V. position of OSD	20

Press “4” to enter sharpness setting menu,

Item	Description	Default value
SHPX	Maximum sharpness	20
SHPN	Minimum sharpness	00
SHPTV3	50% sharpness in 3.58 system (TV)	12
SHPAV3	50% sharpness in 3.58 system (AV)	12
SHPTV4	50% sharpness in 4.43 system (TV)	12
SHPAV4	50% sharpness in 4.43 system (AV)	12

Press “5” to enter sound alignment,

Item	Description	Default value
CON1	Stereo alignment data	08
CON2	Stereo alignment data	08
CON4	Stereo alignment data	00
STSADJ	Stereo alignment data	00
ALI1	Stereo alignment data	10
ALI2	Stereo alignment data	0A
ALI3	Stereo alignment data	03

Press “6” to enter AGC and volume setting,

Item	Description	Default value
RFAGC	AGC setting	24
HAFC	HAFC setting.	00
VOL01	Volume output level at 1%	11
VOL25	Volume output level at 25%	2E
VOL50	Volume output level at 50%	49
S-R-Y	Sub color for system	08
S-B-Y	Sub color for system	08

Press “7” to enter system setting,

Item	Description	Default value
VCDM0	System setting	00
VCDM1	System setting	00
VCDM2	System setting	40
OPTION	System setting	44
MOD0	System setting	01
MOD1	System setting	90
MOD2	System setting	B2

Press “8” to enter picture alignment menu 1,

Item	Description	Default value
CNTX	Maximum contrast	3F
SCNT	Sub contrast for luminance signal	0F
CNTN	Minimum contrast	10
BRTX	Maximum brightness	50
BRTN	Minimum brightness	30
COLX	Maximum color	7F
COLN	Minimum color	00



Press “9” to enter picture alignment menu 2,

Item	Description	Default value
CNTC	50% contrast	2C
BRTC	50% brightness	36
BRTS	Sub brightness for SECAM	00
COLC	50% color	54
COLS	Color level for SECAM	40
COLP	Color level for PAL	00
TNTC	50% tint	41

Press “0” to enter OSD setting menu,

Item	Description	Default value
OSD	Horizontal position of OSD	09
TXCX	OSD intensity when maximum contrast	33
RGCN	OSD intensity when minimum contrast	25
TNTX	Maximum tint level	7F
TNTN	Minimum tint level	35

#### **I) Adjustment of VCO**

1. Change to TV mode.
2. Adjust T201 until the picture becomes stable.
3. Enter D-mode and press the ANA button. The screen will show “PIFAFT OK” if the process is finished.

#### **II) Adjustment of B+ voltage**

1. Apply 110-240VAC( $\pm 5V$ ) to mains power input, and Philips standard testing pattern to RF input.
2. Adjust VR801 in STANDARD mode until voltage at TP2 (B+) is  $112V \pm 0.5V$ .

#### **III) The alignment procedure of RFAGC**

Applying a 471.25MHz RF signal with amplitude  $62dB \pm 2dB$  and select channel 14. Then enter D-mode and press “6” key. Then adjust RFAGC to set the DC voltage level of AGC pin of the tuner to about 4.7V.

#### **IV) Adjustment of Screen Voltage and Focus**

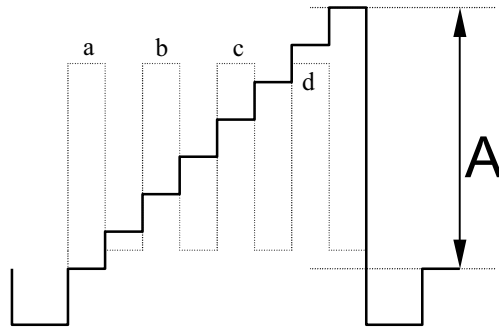
1. Receive a crosshatch pattern.
2. Enter D-mode and press “1--” key and the screen will become a horizontal line. Then adjust the “SCREEN” VR on the flyback transformer to set the intensity of the line to a minimum level (the line can just be seen).
3. Press “1--” key again and the TV will become full raster.
4. Adjust the “FOCUS” VR on the flyback the make the picture clear.

#### **V) Adjustment of White balance**

1. Receive a black and white pattern at STANDARD status.
2. Use a color analyzer to measure the black side of the screen. By changing the value of BCUT and GCUT, set the reading of the color analyzer to  $x=284, y=299$ .
3. Then measure the white side of the screen. By changing the value of BDRV and GDRV, set the reading of the color analyzer to  $x=284, y=299$ .
4. Repeat step 2&3 until you can get the correct reading for both black and white sides.

**VI) Adjustment of Sub-brightness, Sub-contrast, Sub-tint and Sub-colour for NSTC and PAL signal.**

1. Apply the Grey-scale/Colour-bar (NTSC signal) to the AV input, in STANDARD status.
2. Enter D-mode, and connect the probe of Oscilloscope to the conjunction between R217 and P201 (B-out).
3. Select BRTC to adjust the sub-brightness, until that the 2<sup>nd</sup> dark bar of 8 level grey scales just can be seen.
4. Select CNTC to adjust the sub-contrast, until that the amplitude "A" is 2.5V<sub>p-p</sub> as shown below.



5. Select COLC to adjust the sub-colour by tuning the amplitude of "a" and "d" to the same.
6. Select TNTC to adjust the sub-tint by tuning the amplitude of "b" and "c" to the same.
7. Apply the Grey-scale/Colour-bar (PAL signal) to the AV input, in STANDARD status.
8. Re-enter D-mode, and connect the probe of Oscilloscope to the conjunction between R217 and P201 (B-out).
9. Select COLP to adjust the sub-colour by tuning the amplitude of "a", "b", "c" and "d" to the same.

**VII) Adjustment of Pincushion and Picture Width**

1. Receive a crosshatch pattern.
2. Adjust VR302 until the vertical line become straight.
3. Adjust VR303 for horizontal size.

**VIII) Adjustment of Picture Geometry (PAL)**

1. Apply the crosshatch pattern (PAL signal) to the RF input, in STANDARD status.
2. Enter D-mode and press key "2".
3. Select HPOS50 to adjust the Horizontal center.
4. Select VPOS50 to adjust the Vertical center.
5. Select HIGH50 to adjust the Vertical amplitude.
6. Select VLIN50 to adjust the vertical linearity.
7. Select VSC50 to adjust the vertical S-correction.

**IX) Adjustment of Picture Geometry (NTSC)**

1. Apply the crosshatch pattern (NTSC signal) to the RF input, in STANDARD status.
2. Enter D-mode and press key "3".
3. Select HPOS60 to adjust the Horizontal center.
4. Select VPOS60 to adjust the Vertical center.
5. Select HIGH60 to adjust the Vertical amplitude.
6. Select VLIN60 to adjust the vertical linearity.
7. Select VSC60 to adjust the vertical S-correction.

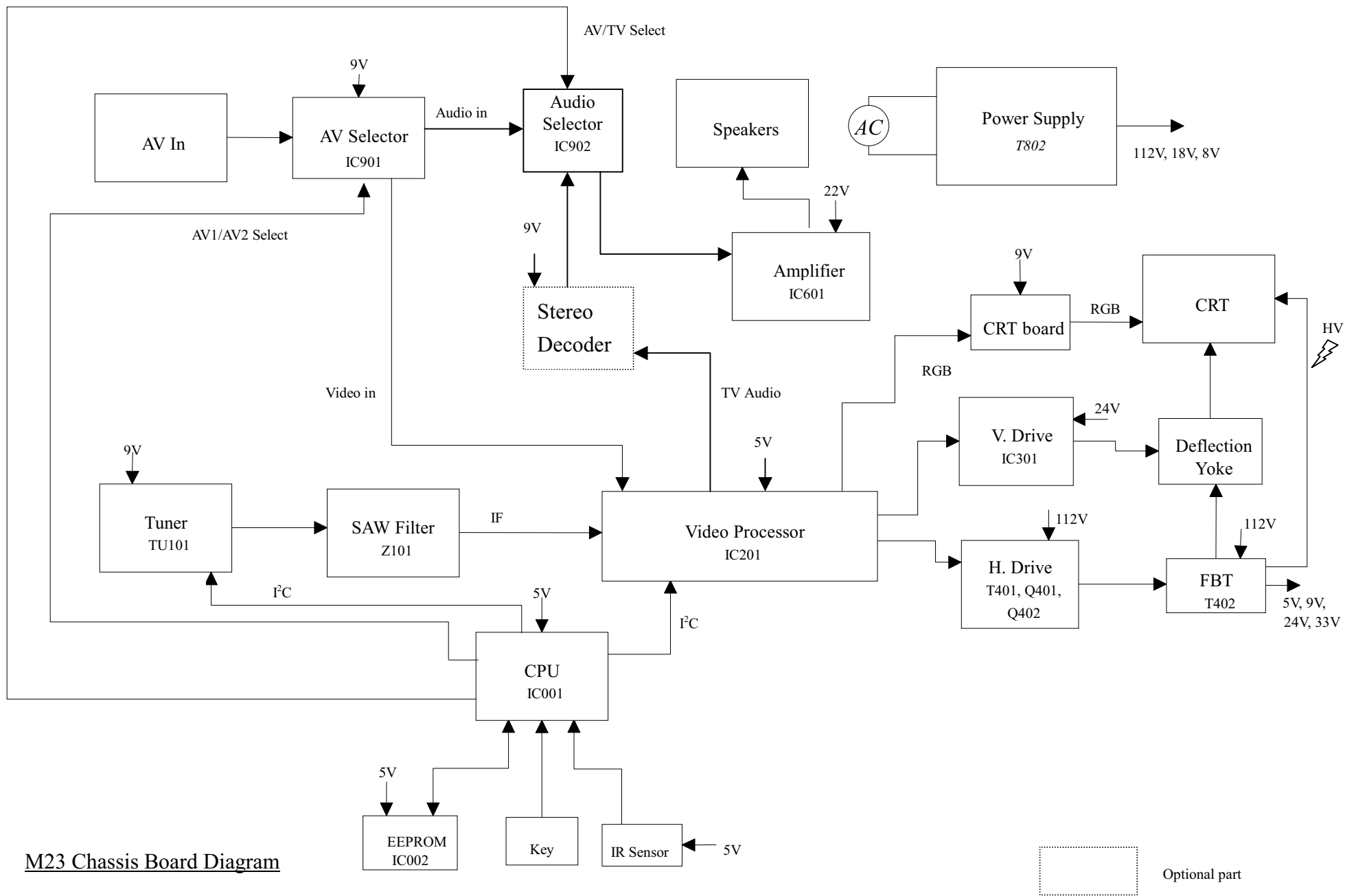
**X) Adjustment of Stereo Sound**

- 1) BTSC input level
  - a. Receive a signal with BTSC modulation. Suggested equipment (FLUKE pattern generator PM54200)
  - b. Select stereo mode on pattern generator into test-3 mode. (300Hz frequency and 100 % modulation)
  - c. Enter into D-mode, then press “5” key and select CON4 item.
  - d. Connect a scope to pin 21 of IC702.
  - e. Adjust the signal level to 1500mV P-P by remote control volume up/ down key.
- 2) Separation alignment
  - a. Connect pin 20 and 25 of IC701 to ground with a 2.2uF E.Cap.
  - b. Select the test 1 mode on pattern generator.
  - c. Press MPX key on remote control during in D-mode condition. The channel separation will align automatically. The final alignment data will be displayed on screen.
- 3) DBX timing alignment
  - a. Connect pin 30 of IC701 to +5V through a current meter with accuracy of mA.
  - b. Press “5” key in D-mode and select ALI3 item.
  - c. Adjust volume up / down key to get a 0.0024 mA reading on current meter.

**Remark: If you don't have the equipment for stereo sound adjustment, it is suggested that to use the default value in sound adjustment part.**

**XI) Adjustment of OSD position**

1. Enter D-mode and press key “0”, then choose OSD item and adjust the OSD horizontal position.
2. Enter D-mode and press key “2”, then choose the OSDV50 item and adjust the OSD horizontal position.
3. Enter D-mode and press key “3”, then choose the OSDV60 item and adjust the OSD horizontal position.



M23 Chassis Board Diagram

