SANYO

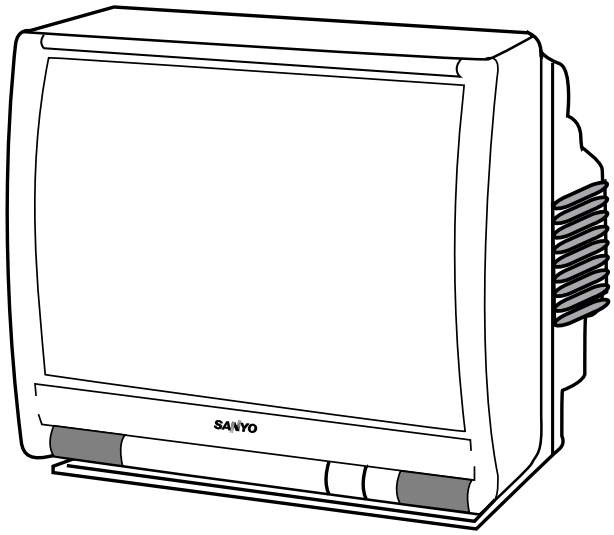
Colour Television Service Manual

28R2

CE28R2-C (W.Europe)

Service Ref. No. CE28R2-C-00

PRODUCT CODE: 1113 28004
ORIGINAL VERSION: Chassis No. EB4-A



Note
This TV receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications. Refer to the specifications for the design specifications

Give complete "SERVICE REF. NO." for parts order or servicing, it is shown on the rating sheet on the cabinet back of the TV set.

Specifications

Power source	AC 220~240V 50Hz
Television system	System B/G
Colour system	PAL
Receiving channel	VHF: E2-E12
	CATV: X, Y, Z, S1-S41
	UHF: #21~69
Aerial input impedance	75ohm
AV terminal	
21 Pin socket	CENELEC standard
Sound output(Music)	12 watts X2
Picture tube	70cm diagonal, 110 degree
(Visible picture diagonal)	66cm
Dimensions (WxHxD)	628 x 569 x 473 mm
Weight	30.4 Kg

Part No. SKSM0217 F4SEM SEPT 1997

SAFETY PRECAUTION

1: An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.
2: Comply with all caution and safety-related notes provided on the cabinet back, inside the cabinet, on the chassis or the picture tube.
3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.Before returning any television to the customer, the service technician must be sure that it is completely safe to operate without danger of electrical shock.

X-RADIATION PRECAUTION

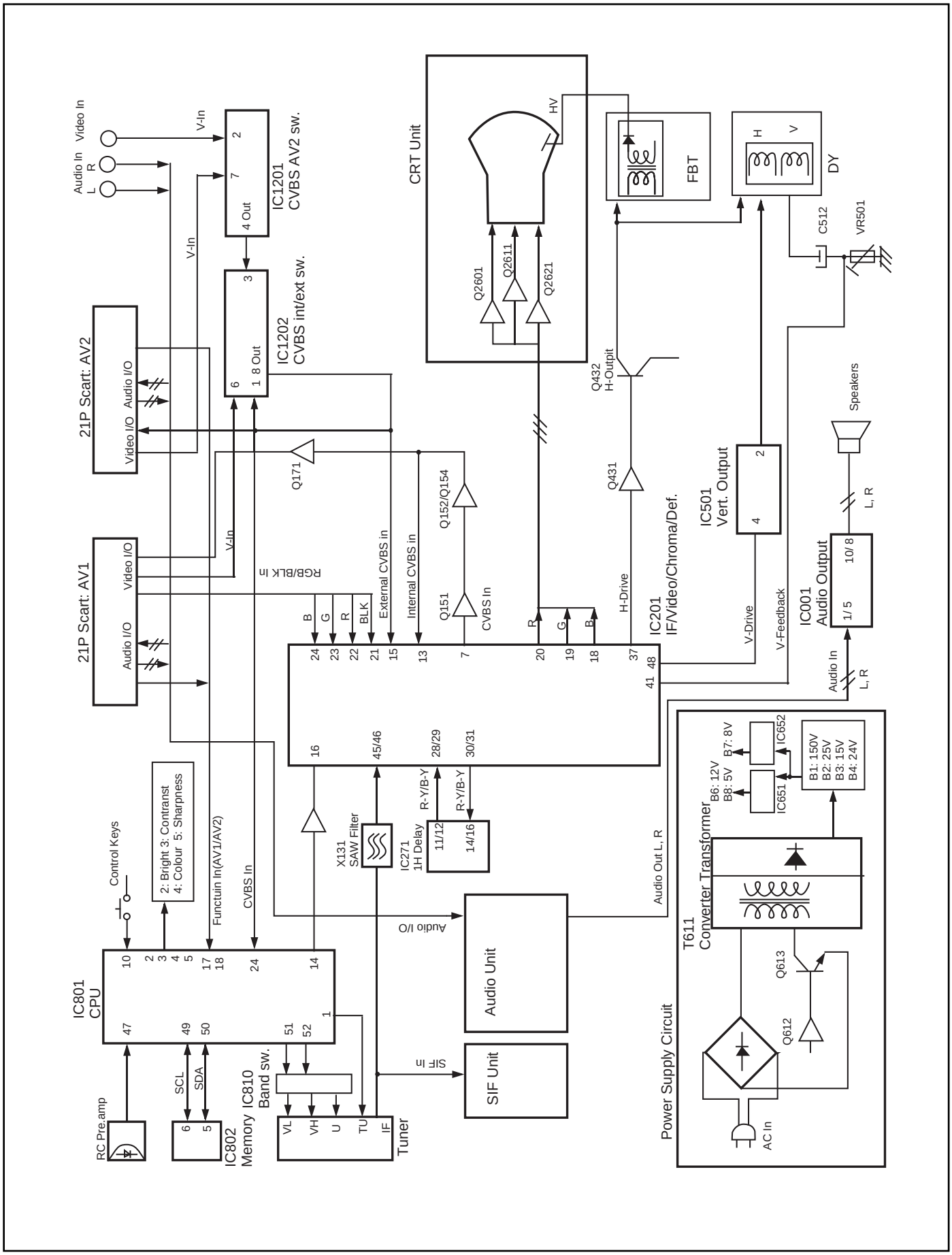
The primary source of X-RADIATION in the television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specified limit. Refer to this service manual, high voltage adjustment for specific high voltage limit. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for +B1 volt power supply adjustment, and high voltage adjustment to maintain the high voltage within the specified limits.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark /!\ in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by mark /!\ . No deviations from resistance wattage or voltage ratings may be made for replacement items designated by mark /!\ .

BLOCK DIAGRAM

This is a diagram for all models and therefore differs slightly from the actual block diagram.



CIRCUIT DESCRIPTION

1. POWER SUPPLY

The power supply circuit of the EB4-A chassis is composed of a rectifier smoothing circuit, an oscillation circuit, a control circuit and an output rectifier circuit. The AC input voltage is full-wave rectified by the rectifier smoothing circuit, and an unstable DC voltage is generated at both terminals of the smoothing capacitor C607. This voltage is input to the oscillation circuit. The oscillation circuit is provided with a blocking oscillator circuit that switches the switching transistor Q613 ON and OFF, and an oscillation frequency and a duty square wave pulse are generated in the input windings according to operation of the control circuit. A square-wave pulse whose size is dependent on the turn ratio of the input and output windings is obtained in the output winding. This is rectified in the output rectifier circuit, and the desired DC voltage is obtained.

2. IF & DEFLECTION (TDA8361)

The IF output signal from the tuner passes through the SAW filter, and it is input to pin45 and pin46 of IC201. The signal input to the IC passes through the IF amplifier, video detection and video amplifier circuits and is output from pin7 as a composite video signal. And after this signal is converted to impedance at Q151, supplies to the video and chroma amplifier stages.

The sync.-separation circuit separates the video signals applied to pin13(internal video signal) or pin15(external video signal) to vertical- and horizontal-sync. signals respectively. The horizontal oscillator requires no external components and is fully integrated. The oscillator is always running when the start-pin36 is supplied with 8V. Horizontal drive signal is output from pin37. VR361 is for adjustment of the horizontal centring. The separated vertical-sync. signal from sync. separation circuit passes through the vertical-separation circuit, and applied to trigger divider circuit. The horizontal oscillation pulse and input vertical sync. pulse are monitored by the trigger divider circuit, and switching 50Hz and 60Hz system, the vertical amplitude automatically adjusted for 50Hz and 60Hz. The output signal from the trigger divider is triggered vertical oscillation circuit consisting of C351, R352 and pin42, and vertical drive pulse is output from pin43. VR501 is for changing the amount of AC feedback applied to pin41 and for adjustment of the vertical amplitude.

3. VIDEO CHROMA & R.G.B. (TDA8361)

The composite video signal output from the pin7 of IC101 passes through Q151-Q154, and it is supplied to pin13. The external video signal output from SCART is supplied to pin15. The video signal input to pin13 or pin15 is separated to luminance (Y) signal and chroma signal in IC201. These pins are used in common with H/V-sync. separation input. The peaking of Y signal is adjusted by DC voltage of pin14. ("SHARPNESS" control) The chroma signal is divided into R-Y and B-Y chroma signals, demodulated in IC201, and output from pin30 (R-Y) and pin31 (B-Y). These chroma signals pass through the 1H delay line circuit (IC271), and they are input to pin29 (R-Y) and pin28 (B-Y). These R-Y/B-Y signals pass through RGB matrix circuit and RGB selector circuit of IC101. The internal RGB signals are generated in RGB matrix circuit and the RGB selector, consisting linear amplifiers, clamps and selects either the internal RGB signals or the external RGB signals input from pin22(R), pin23(G), pin24(B). Selection is controlled by the voltage at the RGB switch control (pin21) and mixed RGB modes are possible since RGB switching is fast. The RGB switch also functions as a fast blanking pin by blanking the RGB output stages; here internal and external RGB signals are overruled. The colour gain is controlled by DC voltage of pin26. ("COLOUR" control) The contrast control voltage present at pin25, and the brightness control voltage present at pin17 controls DC level of RGB signals. The RGB signals are finally buffered before being available at the RGB output pins [pin20 (R), pin19 (G), pin18 (R)].

4. AUDIO OUTPUT(TDA7263M)

The audio signals output from the audio unit are input to pin1(L) and 5(R) of IC171 and passes through the pre-amplifier circuit and drive circuit, after which it is input to the audio amplifier. The audio amplifier is an SEPP (single-ended, push-pull) OTL type and output to pin8(R) and 10(L) to directly drive the speakers.

5. VERTICAL OUTPUT (LA7832/LA7832)

An IC (LA7832/LA7833) is used for the vertical output circuit in this chassis. The vertical drive pulse from pin43 of IC201 is input to pin4 of IC501. This pulse drives IC501, and vertical scanning is performed. In the first half of scanning a deflecting current is output from pin2 and passes through the following path:

Vcc(B4) → D501 → pin3 → pin2 → DY → C512 → VR501/R509. An electric charge is then stored in C512. In the last half of scanning the current path is C512 → DY → pin2 → pin1 → VR501/R509 → C512. In this way, an amplifying sawtooth waveform current flows directly to DY to perform electron beam defection. Next, in the first half of the banking period the vertical drive pulse suddenly becomes OFF, and in order to reduce the current flowing to DY, the current path becomes as follows by the inductance of DY:

DY → pin2 → pin1 → VR501/R509 → C512 → DY. Also, when the charge of DY has dissipated, the current path becomes Vcc24V → pin6 → pin7 → C502 → pin3 → pin2→ DY → C512 → VR501/R509, and when the prescribed current value is reached, the vertical drive pulse becomes ON. This completes one cycle.

6. HORIZONTAL OUTPUT

A horizontal oscillation signal is output from pin37 of IC201 and switches the drive transistor Q431. This switching signal is current amplified by the drive transformer T431 and drives the output transistor Q432. When Q432 becomes ON, an amplifying current flows directly to DY through C441 → DY → 0432 → GND, and defection is performed in the last half of the scanning period. Next, when Q432 becomes OFF, the charge that had been stored in DY up to that point releases a resonance current to the resonant capacitors C421/C423 and charges them. The current stored in C421/C423 is then flowed back to DY, and an opposite charge is then stored in DY. This opposite charge then switches the dumper diode in Q432 ON, the resonance state is completed, and an amplifying current is then flowed again directly to DY through the dumper diode. By this means, deflection in the first half of the scanning period is performed, and when Q432 becomes ON at the end of the first half of the scanning period, deflection during the last half is begun, thus completing one cycle.

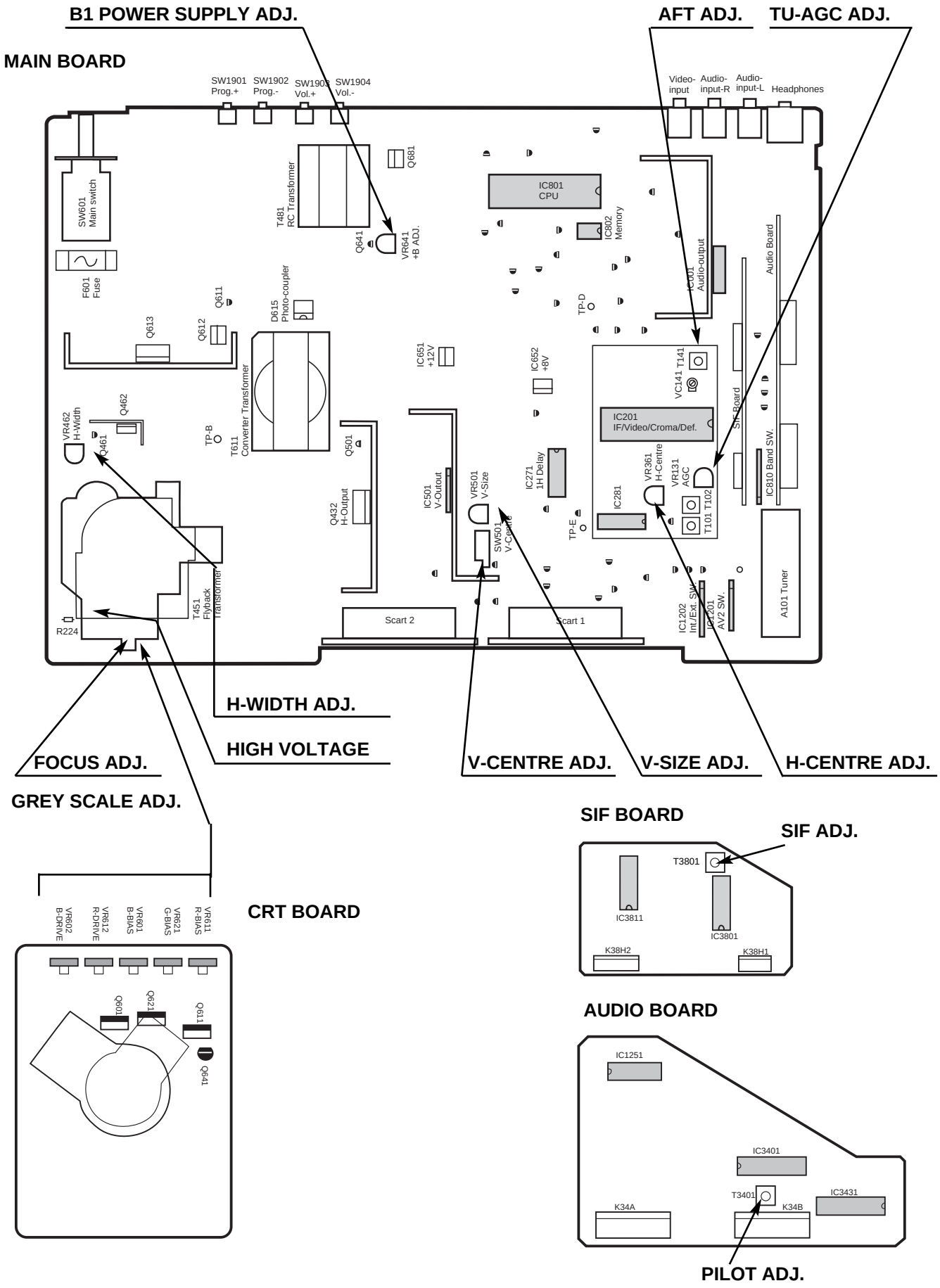
In the PCC circuit consisting of Q461 and Q462, the parabola signal supplied from the vertical circuit is added at the horizontal output stage and pincushion compensation is performed by varying the DC voltage bias. Further, the ABL voltage is feedback to the base of Q462 to compensate for width variations due to variations in the beam current.

7. CPU <System and Teletext Control>

Pin description

Pin1: Tuning voltage output
Pin2: Brightness control output (6-bit DAC)
Pin3: Contrast control output (6-bit DAC)
Pin4: Colour control output (6-bit DAC)
Pin5: Sharpness control output(6-bit DAC)
Pin6: Not used (GND)
Pin7: Not used (GND)
Pin8: Power ON/OFF output (H:ON)
Pin9: AFT signal input
Pin10: Option SW1 & Keyboard scan input (DC)
Pin11: Option SW2
Pin12: 50/60Hz switch input (50Hz: Hi)
Pin13: GND
Pin14: TV/AV switch output (TV: Hi)
Pin15: S-VHS switch output (S-VHS: Hi)
Pin16: Option SW3 (2AV: Hi)
Pin17: Function signal input for SCART1
Pin18: Function signal input for SCART2
Pin19: Power LED drive output1
Pin20: Option SW4 & Power LED drive output2
Pin21: Ignore output
Pin22: GND
Pin23: CVBS input0 (Internal)
Pin24: CVBS input1 (Internal/External)
Pin25: Black
Pin26: IREF
Pin27: Odd/Even output
Pin28: GND
Pin29: -
Pin30: V-deflection stop output
Pin31: RGB REF
Pin32: Blue output for OSD
Pin33: Green output for OSD
Pin34: Red output for OSD
Pin35: Blanking output for OSD
Pin36: H-sync. input (Horizontal pulse for OSD)
Pin37: V-sync. input (Vertical pulse for OSD)
Pin38~39: Supply (+5V)
Pin 40: OSC GND
Pin 41: Oscillator input for CPU
Pin 42: Oscillator output for CPU
Pin 43: Reset input
Pin 44: Supply (+5V)
Pin 45: Protect signal input (L:Power circuit defects)
Pin 46: Ident. signal input
Pin 47: R/C signal input
Pin 48: Mute output in no picture
Pin 49: I^2C bus SCL (Serial clock)
Pin 50: I^2C bus SDA (Serial date)
Pin 51: Option SW5 & Band select output1
Pin 52: Band select output2

SERVICE CONTROL ADJUSTMENT



F4SEM

B1 POWER SUPPLY ADJUSTMENT

1. Set VR641 to be mechanically centre before pressing the mains ON/OFF switch.
2. Tune the receiver to a PAL circular pattern.
3. Set the brightness and contrast controls to normal.
4. Connect a digital V-meter to test point "TP-B".
5. Using VR641, adjust the voltage to 150 ± 0.5V.

AFT ADJUSTMENT

1. Tune the receiver to the clearest station.
2. Using T141, adjust the AFT to obtain the best picture.

AGC ADJUSTMENT

NOTE: ***Do not attempt this adjustment with a weak signal.***

1. Tune the receiver to the clearest station.
2. Set AGC VR(VR131) in direction which causes snow noise just to appear, then in the opposite direction until the snow noise just disappears.

GREY SCALE ADJUSTMENT

[SCREEN VR ADJUSTMENT]

1. Tune the receiver to the white pattern.
2. Set the brightness and contrast controls to normal.
3. Set VR2602and VR2612 to their mechanical centres.
4. Turn VR2601, VR2611 and VR2621 fully counter-clockwise (anti-clockwise).
5. Set the TV into service mode by pressing the Function button F on the Remote control and the Prog + P▲ on the TV front panel. Press the Function button F on the Remote control until "SCREEN" is highlighted. Then press the + or - on the remote control to adjust the horizontal scanning line.
6. Set screen VR so that one colour is just visible.

[BIAS VR ADJUSTMENT]

7. By using VR2601, VR2611 or VR2621, adjust the line until it becomes white.
8. Set screen mode OFF, by pressing the Recall button on the Remote control.

[DRIVE VR ADJUSTMENT]

9. Using VR2602 and VR2612, adjust white balance.

HIGH VOLTAGE & WIDTH ADJUSTMENT

[HIGH VOLTAGE ADJUSTMENT]

1. Tune the receiver to the circular pattern.
2. Set the brightness and contrast controls to **maximum**.
3. Connect a digital V-meter to both terminals of R224, and a high voltage meter to the CRT anode.
4. Confirm high voltage to be 26.0 ± 1 KV at beam current 1.4, and less than 29.0 KV at 0 beam current.

[H-WIDTH ADJUSTMENT]

5. Adjust VR462 to obtain proper H- width **.**
6. Reconfirm high voltage.

H-CENTRE ADJUSTMENT

1. Tune the receiver to a circular pattern.
2. Adjust H-centre by using VR361.

V-CENTRE ADJUSTMENT

1. Tune the receiver to a circular pattern.
2. Adjust V-centre by using SW501.

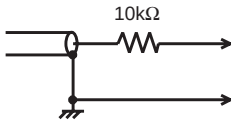
V-SIZE ADJUSTMENT

1. Tune the receiver to a circular pattern.
2. Adjust V-size by using VR501.

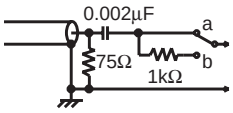
FOCUS ADJUSTMENT

By using FOCUS VR, adjust focus control for good scanning lines.

CIRCUIT ALIGNMENT

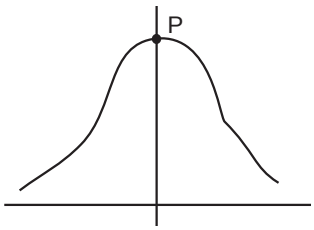


Input probe

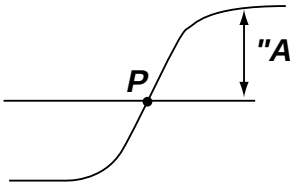


Output probe

VIF alignment

SETTING		Adjustment	Waveform
DC 15.5V AGC voltage (4.3-4.5V) Output probe Input probe Marker frequency Sweep ATT 0dB=176mVrms/75	C644 + IC201-pin48 IC201-pin45 (Side b) IC201-pin7 38.9MHz 20dB	By using T141, adjust "P" to be maximum amplitude.	

SIF alignment

SETTING		Adjustment	Waveform
DC 12V AGC voltage Output probe Input probe Sweep ATT Marker Frequency	IC3801-pin11 IC3801-pin3 IC3801-pin1 (Side b) IC3801-pin12 10dB 38.9MHz	1. Adjust AGC voltage to be "A" = 0.5Vp-p. 2. By using T3801, adjust "P" to be equal centre line.	

Pilot alignment

SETTING		Adjustment	Waveform
Oscilloscope Input sound signal source TV system Deviation Mode	IC3401-pin5 System B/G 27kHz Stereo	By using T3401, adjust amplitude to be maximum.	

INITIALISATION (Important Notice)

When you replace a memory IC (IC802), it is necessary to initialise the IC as following step.

A. Initialisation

Press and hold the **normalisation button** →•← on the remote control handset and press the **programme + button** P▲ on the TV set.
The IC will be initialised automatically and set to the following data.

User control data

Colour	: Centre
Brightness	: Centre
Contrast	: Maximum
Sharpness	: Centre
Text. Bright	: Centre
Bass	: Centre
Treble	: Centre
Balance	: Centre
Volume	: Step 12

Service data		**Manual set data**	
K1	: +000	->	+001
K2	: +000	->	-001
ST ID	: +000		
ATT	: +004		
MAX	: -096	->	-050
MIN	: +010	->	-075

The initialised service data of items K1, K2, MAX and MIN should be modified to the manual set data shown above.
For how to modify, refer to next step.

B. Service Mode

1. To enter the service mode, press and hold the **Function button** F on the remote control handset and press the **programme + button** P▲ on the TV set.
   The following OSD appears on the screen.

ADJUST	DATA
K1	+000
K2	-006
ST ID	+000
ATT	+004
MAX	-050
MIN	-075
SCREEN	VOL
CPU Ver	1.0

2. Select the desired service item by using the **Function button** F on the remote control handset.
3. Change the data by using the **Level + or - button** − +.
4. To return to TV mode press the **Recall button** on the remote control handset.

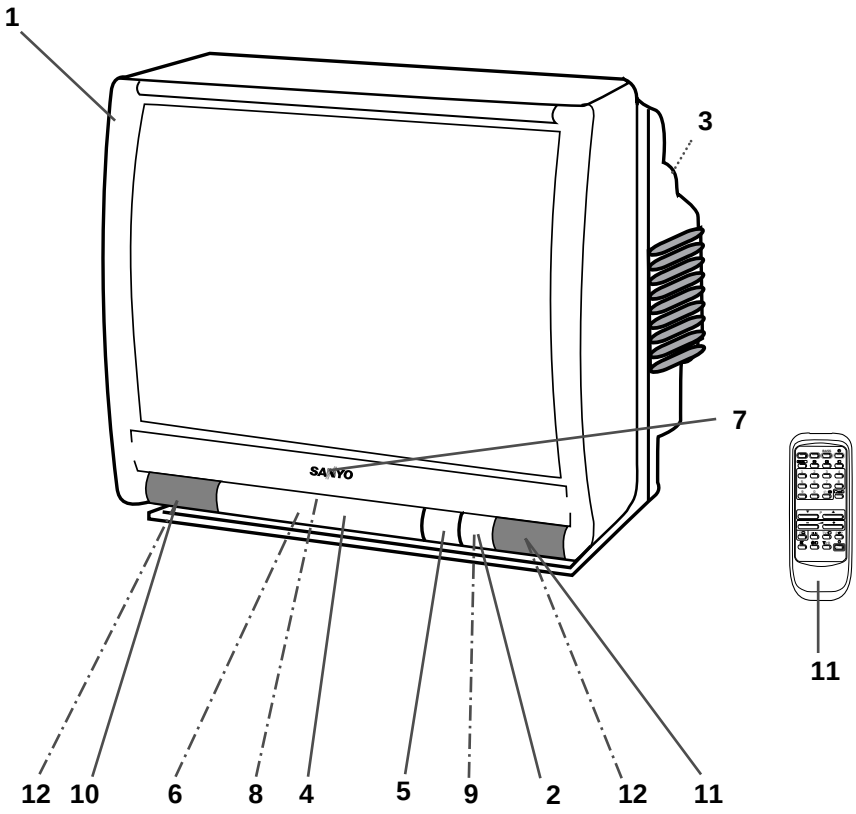
Service mode description

K1, K2 : For adjustment of stereo separation
ST ID : Mode setting for A2 stereo judgement
+000 : Fast mode
+001: Normal mode
+002: Fast -> normal mode
ATT : Attenuation of FM sound
To equalise sound levels between FM and Nicam.
MAX : Setting of sensitivity for switching Nicam to FM mode
MIN : Setting of sensitivity for switching FM to Nicam mode.
SCREEN: For screen adjustment
To make one horizontal scanning line.

NOTE:
The items K1, K2, ST ID and ATT are invalid adjustments for a model which does not have an A2 stereo decoder.
The items MAX and MIN are invalid adjustmens for a model which does not have a Nicam decoder.
These items allow modifications to the set data, but there is no effect in performance.

CABINET PARTS LIST FOR MODELS CE28R2-C-00

Note: Parts order must contain Service Ref. No., Part No., and descriptions.



Item	Part No.	Description
CABINET PARTS		
1	610 270 5218	ASSY,CABINET FR-F4SEM
2	610 270 4945	BUTTON POWER-F4SEM
3	610 262 2089	CABINET BACK-B-E6ZV
4	610 270 4952	DOOR-F4SE
5	610 262 0955	DEC BOARD-E8GWV
6	610 262 7725	DEC CONTROL SHEET-F4PT
7	610 104 6336	BADGE,SANYO-D7PA
8	610 104 2505	LATCH PUSH,7.9X6.9BK
9	610 210 7302	COIL SPRING-D8HA
10	610 258 2123	GRILL SP-L-E6ZR
11	610 258 2130	GRILL SP-R-E6ZR
12	610 241 7692	GRILL CLOTH
ACCESSORIES		
11	JXZB	RC TRANSMITTER
12	SKP10095	INST MANUAL (GB,D)

CHASSIS ELECTRICAL PARTS LIST

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a ⚠ mark in this parts list and the circuit diagram show components whose value have special significance to product safety. It is particularly recommended that only parts specified on the following parts list be used for components replacement pointed out by the mark.

Note: Parts order must contain Service Ref. No., Part No., and descriptions.

Ref. No.	Part No.	Description

Read description in the Capacitor and Resistor as follows:

CAPACITOR

CERAMIC 100P K 50V

- 50V: Rated Voltage
- K: Tolerance Symbols:

  Less than 10PF

  A: Not specified B: ±0.1PF C: ±0.25PF
  D: ±0.5PF F: ±1PF G: ±2PF
  R: ±0.25-0PF S: ±0-0.25PF E: +0-1PF

  More than 10PF

  A: Not specified B: ±0.1% C: ±0.25%
  D: ±0.5% F: ±1% G: ±2%
  H: ±3% J: ±5% K: ±10%
  L: ±15% M: ±20% N: ±30%
  P: +100-0% Q: +30-10% T: +50-10%
  U: +75-10% V: +20-10% W: +100-10%
  X: +40-20% Y: +150-10% Z: +80-20%
- 100P: Rated value: P=pico farad, U=Micro farad
- CERAMIC: Material:

  CERAMIC..... Ceramic
  MT-PAPER..... Metallized Paper
  POLYESTER..... Polyester
  MT-POLYEST.... Metallized Polyester
  POLYPRO..... Polypropylene
  MT-POLYPRO.... Metallized Polypropylene
  COMPO FILM..... Composite film
  MT-COMPO..... Metallized Composite
  STYRENE..... Styrene
  TA-SOLID..... Tantalum Solid
  AL-SOLID..... Aluminium Solid
  ELECT..... Electrolytic
  NP-ELECT..... Non-polarized Electrolytic
  OS-SOLID..... Aluminium Solid with Organic Semiconductive Electrolytic
  DL-ELECT..... Doble Layered Electrolytic

RESISTOR

CARBON 4.7K J A 1/4W

- 1/4W: Rated Wattage
- A: Performance Symbols:

  A: General B: Non flammable Z: Low noise
  Other: Temperature coefficient
- J: Tolerance Symbols:

  A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5%
  F: ±1% G: ±2% J: ±5% K: ±10%
  M: ±20% P: +5-15%
- 4.7K: Rated value, ohms:

  K: 1,000, M: 1,000,000
- CARBON: Material:

  CARBON..... Carbon
  MT-FILM..... Metal Film
  OXIDE-MT..... Oxide Metal Film
  SOLID..... Composition
  MT-GLAZE..... Metal Glaze
  WIRE WOUND... Wire Wound
  CERAMIC RES.. Ceramic
  FUSIBLE RES.... Fusible

Ref. No.	Part No.	Description

Chassis construction

CE28R2-C-00 (28R2)

ASSY,PWB,MAIN F4SEM 1AA0B10H024D0

TRANSISTOR

Q001	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1001	406 007 1901	TR	JC556A
	406 007 1802	TR	JC556B
	405 004 4205	TR	2SA608-E-CTV-NP
	405 004 4809	TR	2SA608-F-CTV-NP
	405 028 7909	TR	2SA608-G-CTV-NP
Q1002	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1003	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1004	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1005	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1041	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP
	405 019 2708	TR	2SC536-F-NP
	405 019 3804	TR	2SC536-G-NP
Q1042	406 007 1901	TR	JC556A
	406 007 1802	TR	JC556B
	405 004 4205	TR	2SA608-E-CTV-NP
	405 004 4809	TR	2SA608-F-CTV-NP
	405 028 7909	TR	2SA608-G-CTV-NP
Q1043	406 007 2106	TR	JC546A
	406 007 2007	TR	JC546B
	405 019 1909	TR	2SC536-E-NP

Ref. No.	Part No.	Description
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q1201	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q1202	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q1203	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q1204	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q121	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q151	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q152	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q153	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q154	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q171	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q2001	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q201	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q202	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q431	405 018 0507	TR 2SC3332-R
	405 018 0606	TR 2SC3332-S
Q432	405 095 0209	TR 2SD1556-3E
Q461	405 064 7307	TR 2SB1274-Q-RA
	405 064 7406	TR 2SB1274-R-RA
	405 064 7505	TR 2SB1274-S-RA
	405 139 1100	TR 2SB1565-D RA
	405 139 1209	TR 2SB1565-E RA
	405 139 1308	TR 2SB1565-F RA
Q462	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q501	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q611	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q612	405 058 0208	TR 2SC3807-R-CTV-YA
Q613	405 095 0407	TR 2SC4429-L-YB
	405 095 0308	TR 2SC4429-M-YB
Q641	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q652	405 023 4903	TR 2SD400-D-MP
	405 023 5009	TR 2SD400-E-MP
	405 023 5306	TR 2SD400-F-MP
Q681	405 059 9804	TR 2SD1913-Q-RA
	405 059 9903	TR 2SD1913-R-RA
	405 060 0005	TR 2SD1913-S-RA
Q682	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q801	405 118 4207	TR PH2369
Q835	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q861	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q871	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q872	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q873	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q874	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q875	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP

INTEGRATED CIRCUIT

IC001	409 301 4906	IC TDA7263M
IC1201	409 018 7603	IC LA7016
IC1202	409 120 3401	IC LA7221
IC201	409 309 6209	IC TDA8361/N3
IC271	409 404 0201	IC U3665M
IC501	409 192 5709	IC LA7833

Ref. No.	Part No.	Description
IC651	409 143 3402	IC AN78M12 LB
	409 365 2900	IC BA178M12T
	409 026 9507	IC L78M12-RA
	409 269 1207	IC L78M12CV
	409 366 1803	IC MC78M12CT
IC652	409 362 7403	IC AN78M08 LB
	409 365 2801	IC BA178M08T
	409 285 5203	IC L78M08-RA
	409 269 1108	IC L78M08CV
	409 366 1704	IC MC78M08CT
IC801	410 269 6802	IC SAA5290ZP/061
IC802	409 333 3700	IC 24LC02B/P
IC810	409 019 6209	IC LA7910
CAPACITOR		
C001A	403 068 0419	CERAMIC 0.1U Z 25V
C002	403 070 9803	CERAMIC 0.015U K 50V
C003A	403 068 0419	CERAMIC 0.1U Z 25V
C004B	403 047 3100	ELECT 47U M 25V
C005	403 046 3507	ELECT 33U M 25V
C006	403 046 3507	ELECT 33U M 25V
C007	403 270 3403	MT-POLYEST 0.22U K 63V
	403 237 7901	MT-COMPO 0.22U J 50V
C008	403 270 3403	MT-POLYEST 0.22U K 63V
	403 237 7901	MT-COMPO 0.22U J 50V
C009	403 270 3403	MT-POLYEST 0.22U K 63V
	403 237 7901	MT-COMPO 0.22U J 50V
C010	403 270 3403	MT-POLYEST 0.22U K 63V
	403 237 7901	MT-COMPO 0.22U J 50V
C011	403 045 1504	ELECT 1000U M 25V
C012	403 045 1504	ELECT 1000U M 25V
C013	403 069 9500	CERAMIC 0.01U Z 50V
C014	403 069 9500	CERAMIC 0.01U Z 50V
C015	403 047 3100	ELECT 47U M 25V
C016	403 085 4008	NP-ELECT 10U M 16V
C017	403 085 4008	NP-ELECT 10U M 16V
C018	403 069 9500	CERAMIC 0.01U Z 50V
C021	403 052 8503	ELECT 1000U M 35V
C023	403 069 9500	CERAMIC 0.01U Z 50V
C024	403 069 9500	CERAMIC 0.01U Z 50V
C1001	403 069 1702	CERAMIC 1000P K 50V
C1002	403 041 8804	ELECT 10U M 16V
C1003	403 009 5708	CERAMIC 100P J 50V
C1004	403 130 3109	CERAMIC 0.047U K 50V
C1005	403 069 1702	CERAMIC 1000P K 50V
C1006	403 041 8804	ELECT 10U M 16V
C1007	403 009 5708	CERAMIC 100P J 50V
C1008	403 130 3109	CERAMIC 0.047U K 50V
C1009	403 041 8804	ELECT 10U M 16V
C101	403 194 4609	ELECT 470U M 16V
C102	403 043 9106	ELECT 47U M 16V
C1021	403 069 1702	CERAMIC 1000P K 50V
C1022	403 041 8804	ELECT 10U M 16V
C1023	403 009 5708	CERAMIC 100P J 50V
C1024	403 041 9405	ELECT 10U M 16V
C1025	403 069 1702	CERAMIC 1000P K 50V
C1026	403 041 8804	ELECT 10U M 16V
C1027	403 009 5708	CERAMIC 100P J 50V
C1028	403 041 9405	ELECT 10U M 16V
C1029	403 041 8804	ELECT 10U M 16V
C103A	403 069 9500	CERAMIC 0.01U Z 50V
C1031	403 014 9203	CERAMIC 180P J 50V
C104	403 043 9106	ELECT 47U M 16V
C1041	403 041 8804	ELECT 10U M 16V
C106	403 049 0008	ELECT 1U M 50V
C106TM	403 069 8305	CERAMIC 0.01U Z 50V
C1101	403 041 8804	ELECT 10U M 16V
C1103	403 069 1702	CERAMIC 1000P K 50V
C1104	403 041 8804	ELECT 10U M 16V
C1105	403 009 5708	CERAMIC 100P J 50V
C1106	403 069 1702	CERAMIC 1000P K 50V
C1107	403 041 8804	ELECT 10U M 16V
C1108	403 014 9203	CERAMIC 180P J 50V
C1109	403 008 7406	CERAMIC 10P D 50V
C114	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
C117	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
C120	403 069 9500	CERAMIC 0.01U Z 50V

Ref. No.	Part No.	Description
C1201	403 041 8804	ELECT 10U M 16V
C1202	403 041 8804	ELECT 10U M 16V
C1203	403 069 8305	CERAMIC 0.01U Z 50V
C1205	403 609 5718	CERAMIC 100P J 50V
C121	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C131	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
C132	403 069 1702	CERAMIC 1000P K 50V
C133	403 069 9500	CERAMIC 0.01U Z 50V
C134	403 050 6600	ELECT 3.3U M 50V
C135	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C136	403 194 4609	ELECT 470U M 16V
C137	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C138	403 069 9500	CERAMIC 0.01U Z 50V
C141	403 028 4409	CERAMIC 56P J 50V
C142	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C143	403 027 1201	CERAMIC 5P C 50V
C146	403 010 8517	CERAMIC 12P C 50V
C151	403 024 2102	CERAMIC 39P J 50V
C162	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C171	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C1901	403 069 1702	CERAMIC 1000P K 50V
C200	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C2001	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C2002	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C2003	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C201	403 014 3409	CERAMIC 18P J 50V
C202	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C203	403 073 9107	CERAMIC 4700P K 50V
C204	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C205	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C206	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C207	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C208	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C209	403 069 1702	CERAMIC 1000P K 50V
C212	403 049 9803	ELECT 2.2U M 50V
C215	403 270 3908	MT-POLYEST 0.47U K 63V
	403 256 0808	MT-COMPO 0.47U J 50V
C222	404 045 6605	NP-ELECT 2.2U M 50V
C226	403 138 1602	ELECT 1U M 100V
C231	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C232	403 014 9203	CERAMIC 180P J 50V
C233	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C234	403 013 3004	CERAMIC 150P J 50V
C235	403 008 7406	CERAMIC 10P D 50V
C271	403 069 1702	CERAMIC 1000P K 50V
C272	403 069 1702	CERAMIC 1000P K 50V
C273	403 069 9500	CERAMIC 0.01U Z 50V
C274	403 041 8804	ELECT 10U M 16V
C351	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C352	403 270 3809	MT-POLYEST 0.047U K 63V
	403 225 2703	MT-COMPO 0.047U J 50V
C353	403 073 9107	CERAMIC 4700P K 50V
C354	403 049 0008	ELECT 1U M 50V
C361	403 072 5605	CERAMIC 2700P K 50V
C362	403 069 9500	CERAMIC 0.01U Z 50V
C363	403 042 2405	ELECT 100U M 16V
⚠C421	404 046 8806	MT-POLYPRO 6200P J 1.5K
C422	403 083 4307	POLYPRO 0.022U J 400V

Ref. No.	Part No.	Description
⚠C423	404 044 1700	MT-POLYPRO 5400P J 1.5K
C424	403 083 3914	POLYPRO 0.018U J 400V
C430	403 075 7101	CERAMIC 1000P K 500V
C431	403 068 5602	CERAMIC 0.056U Z 25V
C432	403 075 7101	CERAMIC 1000P K 500V
C433	403 076 3102	CERAMIC 3900P K 500V
C434	403 229 1207	ELECT 47U M 35V
C437	403 066 6106	MT-POLYEST 0.47U J 250V
C438	403 057 0601	POLYESTER 0.01U K 50V
	403 179 3801	POLYESTER 0.01U K 50V
C441	403 309 2100	POLYPRO 0.3U J 400V
C445	403 049 4204	ELECT 10U M 50V
C462	403 049 0008	ELECT 1U M 50V
C463	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C464	403 270 3700	MT-POLYEST 0.39U K 63V
	403 255 8904	MT-COMPO 0.39U J 50V
C465	403 066 0104	MT-POLYEST 2.2U K 100V
	403 158 9107	MT-POLYEST 2.2U K 100V
C467	403 040 3701	ELECT 220U M 10V
C468	403 045 5809	ELECT 22U M 25V
C470	403 069 8305	CERAMIC 0.01U Z 50V
C481	403 076 1405	CERAMIC 2700P K 500V
C482	403 159 7409	MT-POLYEST 0.1U K 250V
C501	403 054 1502	ELECT 470U M 35V
C502	403 053 2104	ELECT 220U M 35V
C503	403 024 2102	CERAMIC 39P J 50V
C504	403 069 9500	CERAMIC 0.01U Z 50V
C505	403 075 7101	CERAMIC 1000P K 500V
C506	403 183 7901	MT-POLYEST 0.1U K 100V
	403 256 4806	MT-COMPO 0.1U J 100V
C511	403 188 0709	MT-POLYEST 0.27U K 100V
	403 313 7702	MT-COMPO 0.27U J 100V
C512	403 148 0701	ELECT 2200U M 25V
C513	403 049 4204	ELECT 10U M 50V
C514	403 049 4204	ELECT 10U M 50V
C600	403 076 4000	CERAMIC 4700P K 500V
⚠C601	404 047 3602	MT-POLYEST 0.1U M 125V
	404 044 0901	MT-COMPO 0.1U M 250V
⚠C602	404 047 3602	MT-POLYEST 0.1U M 125V
	404 044 0901	MT-COMPO 0.1U M 250V
C603	403 076 7100	CERAMIC 1000P M 1K
C604	403 076 7100	CERAMIC 1000P M 1K
C605	403 076 7100	CERAMIC 1000P M 1K
C606	403 076 7100	CERAMIC 1000P M 1K
C607	404 047 1608	ELECT 270U M 400V
	404 069 6001	ELECT 270U M 400V
C613	403 061 8303	POLYESTER 4700P K 50V
	403 179 1104	POLYESTER 4700P K 50V
C614	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C615	403 058 2604	POLYESTER 0.015U J 50V
	403 179 3207	POLYESTER 0.015U J 50V
C616	403 165 6205	CERAMIC 1000P K 2K
	403 232 1102	CERAMIC 1000P K 2K
C617	403 059 6205	POLYESTER 0.022U K 50V
	403 179 2408	POLYESTER 0.022U K 50V
⚠C631	404 060 6505	CERAMIC 2200P M 400V
	404 071 4200	CERAMIC 2200P M 400V
	404 060 6604	CERAMIC 2200P M 400V
⚠C632	404 044 2806	CERAMIC 470P K 400V
	404 071 4606	CERAMIC 470P K 400V
	404 060 6901	CERAMIC 470P M 400V
C640	403 069 8305	CERAMIC 0.01U Z 50V
C641	403 165 9305	CERAMIC 680P K 1K
	403 262 4401	CERAMIC 680P K 1K
C642	404 055 9801	ELECT 220U M 200V
C643	403 148 2002	ELECT 470U M 35V
C644	403 148 0701	ELECT 2200U M 25V
C645	403 158 1309	ELECT 2200U M 35V
C651	403 148 0305	ELECT 470U M 16V
C652	403 069 9500	CERAMIC 0.01U Z 50V
C653	403 043 9106	ELECT 47U M 16V
C655	403 126 4400	ELECT 100U M 10V
C661	403 051 0607	ELECT 4.7U M 50V
C681	403 190 4702	ELECT 1000U M 25V
C682	403 069 9500	CERAMIC 0.01U Z 50V

Ref. No.	Part No.	Description
C683	403 147 9606	ELECT 1000U M 10V
C684	403 050 6600	ELECT 3.3U M 50V
C802	403 270 2901	MT-POLYEST 0.1U K 63V
	403 237 8007	MT-COMPO 0.1U J 50V
C812	403 049 0008	ELECT 1U M 50V
C814	403 049 0008	ELECT 1U M 50V
C816	403 046 9905	ELECT 4.7U M 25V
C818	403 046 9905	ELECT 4.7U M 25V
C841	403 069 9500	CERAMIC 0.01U Z 50V
C861	403 179 1213	POLYESTER 4700P J 50V
C871	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C872	403 043 9106	ELECT 47U M 16V
C873	403 018 0503	CERAMIC 22P J 50V
C874	403 018 0503	CERAMIC 22P J 50V
C875	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C878	403 073 9107	CERAMIC 4700P K 50V
C879	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C881	403 069 9510	CERAMIC 0.01U Z 50V
C882	403 041 8804	ELECT 10U M 16V
C883	403 018 0503	CERAMIC 22P J 50V
C884	403 018 0503	CERAMIC 22P J 50V
C892	403 069 9510	CERAMIC 0.01U Z 50V
RESISTOR		
R001	401 037 5400	MT-GLAZE 1K JA 1/10W
R002	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R003	401 037 5400	MT-GLAZE 1K JA 1/10W
R004	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R005	401 019 9600	CARBON 47 JA 1/4W
R006	401 014 4105	CARBON 1.5K JA 1/4W
R007	401 019 9600	CARBON 47 JA 1/4W
R008	401 014 4105	CARBON 1.5K JA 1/4W
R009	401 010 1504	CARBON 4.7 JA 1/2W
R010	401 010 1504	CARBON 4.7 JA 1/2W
R011	401 007 7601	CARBON 150 JA 1/2W
R012	401 007 7601	CARBON 150 JA 1/2W
R013	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R014	401 025 7409	CARBON 220 JA 1/6W
R015	401 037 5400	MT-GLAZE 1K JA 1/10W
R016	401 038 6505	MT-GLAZE 47K JA 1/10W
R017	401 037 5608	MT-GLAZE 10K JA 1/10W
R100	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1001	401 038 7601	MT-GLAZE 560 JA 1/10W
R1002	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1003	401 038 7601	MT-GLAZE 560 JA 1/10W
R1004	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1005	401 027 6608	CARBON 75 JA 1/6W
R1006	401 038 5300	MT-GLAZE 39K JA 1/10W
R1007	401 038 3702	MT-GLAZE 33K JA 1/10W
R1008	401 027 6608	CARBON 75 JA 1/6W
R1009	401 027 6608	CARBON 75 JA 1/6W
R101	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1010	401 027 6608	CARBON 75 JA 1/6W
R1011	401 037 5202	MT-GLAZE 100 JA 1/10W
R1012	401 027 6608	CARBON 75 JA 1/6W
R1013	401 024 6700	CARBON 100 JA 1/6W
R1014	401 027 6608	CARBON 75 JA 1/6W
R1015	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1016	401 019 1000	CARBON 390 JA 1/4W
R1017	401 024 7400	CARBON 10K JA 1/6W
R1018	401 038 3504	MT-GLAZE 330 JA 1/10W
R1021	401 038 7601	MT-GLAZE 560 JA 1/10W
R1022	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1023	401 038 7601	MT-GLAZE 560 JA 1/10W
R1024	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1025	401 038 5300	MT-GLAZE 39K JA 1/10W
R1026	401 038 3702	MT-GLAZE 33K JA 1/10W
R1027	401 027 6608	CARBON 75 JA 1/6W
R1028	401 027 6608	CARBON 75 JA 1/6W
R1029	401 025 1308	CARBON 150 JA 1/6W
R1031	401 038 0612	MT-GLAZE 220 JA 1/10W
R1032	401 038 0612	MT-GLAZE 220 JA 1/10W
R1033	401 038 0612	MT-GLAZE 220 JA 1/10W
R1041	401 038 2200	MT-GLAZE 27K JA 1/10W

Ref. No.	Part No.	Description
R1042	401 037 5608	MT-GLAZE 10K JA 1/10W
R1043	401 039 0304	MT-GLAZE 820 JA 1/10W
R1044	401 039 0304	MT-GLAZE 820 JA 1/10W
R1045	401 037 5400	MT-GLAZE 1K JA 1/10W
R1046	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1047	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R1051	401 037 8104	MT-GLAZE 150K JA 1/10W
R1052	401 037 5707	MT-GLAZE 100K JA 1/10W
R1053	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R1054	401 037 8104	MT-GLAZE 150K JA 1/10W
R1055	401 037 5707	MT-GLAZE 100K JA 1/10W
R1056	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R108	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R110	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1101	401 027 6608	CARBON 75 JA 1/6W
R1102	401 037 7800	MT-GLAZE 150 JA 1/10W
R1103	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1104	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1105	401 037 5707	MT-GLAZE 100K JA 1/10W
R1106	401 037 5707	MT-GLAZE 100K JA 1/10W
R1111	401 037 5608	MT-GLAZE 10K JA 1/10W
R1200	401 022 1905	CARBON 680 JA 1/4W
R1201	401 038 6505	MT-GLAZE 47K JA 1/10W
R1202	401 038 6505	MT-GLAZE 47K JA 1/10W
R1203	401 037 5608	MT-GLAZE 10K JA 1/10W
R1204	401 038 2200	MT-GLAZE 27K JA 1/10W
R1205	401 038 2200	MT-GLAZE 27K JA 1/10W
R1206	401 038 6505	MT-GLAZE 47K JA 1/10W
R1207	401 024 7400	CARBON 10K JA 1/6W
R1208	401 038 0800	MT-GLAZE 22K JA 1/10W
R1209	401 024 7400	CARBON 10K JA 1/6W
R121	401 027 0309	CARBON 47K JA 1/6W
R133	401 037 9101	MT-GLAZE 180 JA 1/10W
R134	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R135	401 038 6505	MT-GLAZE 47K JA 1/10W
R137	401 037 5202	MT-GLAZE 100 JA 1/10W
R138	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R141	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R150	401 024 7004	CARBON 1K JA 1/6W
R151	401 022 1905	CARBON 680 JA 1/4W
R152	401 025 3807	CARBON 180 JA 1/6W
R153	401 037 5400	MT-GLAZE 1K JA 1/10W
R154	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R155	401 037 5400	MT-GLAZE 1K JA 1/10W
R156	401 037 5400	MT-GLAZE 1K JA 1/10W
R157	401 039 0908	MT-GLAZE 910 JA 1/10W
R158	401 037 5400	MT-GLAZE 1K JA 1/10W
R159	401 022 1905	CARBON 680 JA 1/4W
R163	401 038 6505	MT-GLAZE 47K JA 1/10W
R171	401 038 6307	MT-GLAZE 470 JA 1/10W
R172	401 025 7409	CARBON 220 JA 1/6W
R173	401 025 7409	CARBON 220 JA 1/6W
R1900	401 038 7809	MT-GLAZE 56K JA 1/10W
R1901	401 037 8005	MT-GLAZE 15K JA 1/10W
R1901A	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1902	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R1902A	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1903	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1903A	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1904	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R1905	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1906	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1907	401 037 5608	MT-GLAZE 10K JA 1/10W
R1908	401 038 3504	MT-GLAZE 330 JA 1/10W
R1909	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R1911	401 038 6307	MT-GLAZE 470 JA 1/10W
R1921	401 037 6615	MT-GLAZE 120 JA 1/10W
R1922	401 038 5013	MT-GLAZE 390 JA 1/10W
R1924	401 027 5502	CARBON 6.8K JA 1/6W
R2001	401 038 2200	MT-GLAZE 27K JA 1/10W
R2002	401 037 5608	MT-GLAZE 10K JA 1/10W
R2004	401 037 7800	MT-GLAZE 150 JA 1/10W
R2005	401 026 7002	CARBON 3.9K JA 1/6W
R201	401 038 6505	MT-GLAZE 47K JA 1/10W
R202	401 037 5707	MT-GLAZE 100K JA 1/10W
R203	401 024 6720	CARBON 100 JA 1/6W
R204	401 024 6720	CARBON 100 JA 1/6W

Ref. No.	Part No.	Description
R205	401 024 6720	CARBON 100 JA 1/6W
R206	401 037 5202	MT-GLAZE 100 JA 1/10W
R207	401 037 5202	MT-GLAZE 100 JA 1/10W
R208	401 037 5202	MT-GLAZE 100 JA 1/10W
R212	401 027 5502	CARBON 6.8K JA 1/6W
R213	401 037 8005	MT-GLAZE 15K JA 1/10W
R214	401 037 5202	MT-GLAZE 100 JA 1/10W
R215	401 038 3702	MT-GLAZE 33K JA 1/10W
R216	401 025 8208	CARBON 22K JA 1/6W
R217	401 025 8208	CARBON 22K JA 1/6W
R218	401 038 7809	MT-GLAZE 56K JA 1/10W
R223	401 014 0305	CARBON 130K JA 1/4W
R224	401 024 7004	CARBON 1K JA 1/6W
R226	401 026 7408	CARBON 39K JA 1/6W
R227	401 024 7400	CARBON 10K JA 1/6W
R231	401 037 7800	MT-GLAZE 150 JA 1/10W
R232	401 037 7800	MT-GLAZE 150 JA 1/10W
R271	401 024 6700	CARBON 100 JA 1/6W
R272	401 024 9008	CARBON 120 JA 1/6W
R351	401 024 6700	CARBON 100 JA 1/6W
R352	401 024 8001	CARBON 1M JA 1/6W
R353	401 038 0909	MT-GLAZE 220K JA 1/10W
R354	401 024 7400	CARBON 10K JA 1/6W
R355	401 012 9904	CARBON 10M JA 1/4W
R356	401 037 5202	MT-GLAZE 100 JA 1/10W
R357	401 037 5618	MT-GLAZE 10K JA 1/10W
R361	401 038 5409	MT-GLAZE 390K JA 1/10W
R363	401 038 0800	MT-GLAZE 22K JA 1/10W
R364	401 037 5202	MT-GLAZE 100 JA 1/10W
R365	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R431	401 038 3504	MT-GLAZE 330 JA 1/10W
R432	401 037 5400	MT-GLAZE 1K JA 1/10W
R433	401 007 1104	CARBON 1K JA 1/2W
R434	401 067 9201	OXIDE-MT 390 JA 2W
R435	402 075 2307	WIRE WOUND 10 JA 5W
R436	401 012 7009	CARBON 10K JA 1/4W
R441	401 058 3706	OXIDE-MT 1K JA 1W
R447	401 026 9907	CARBON 4.7K JA 1/6W
R448	401 009 5803	CARBON 330 JA 1/2W
R451	401 061 0808	OXIDE-MT 3.9 JA 1W
R462	401 025 1605	CARBON 1.5K JA 1/6W
R463	401 025 1625	CARBON 1.5K JA 1/6W
R467	401 025 8703	CARBON 220K JA 1/6W
R468	401 025 4200	CARBON 1.8K JA 1/6W
R469	401 027 5908	CARBON 68K JA 1/6W
R470	401 027 0309	CARBON 47K JA 1/6W
R471	401 025 1605	CARBON 1.5K JA 1/6W
R472	401 027 0309	CARBON 47K JA 1/6W
R473	401 027 5205	CARBON 680 JA 1/6W
R474	401 009 0907	CARBON 270 JA 1/2W
R481	401 025 4903	CARBON 180K JA 1/6W
R482	401 027 2600	CARBON 5.6K JA 1/6W
R501	401 026 9907	CARBON 4.7K JA 1/6W
R502	402 051 8705	FUSIBLE RES 4.7 J- 1/2W
R504	401 027 3003	CARBON 56K JA 1/6W
R505	401 027 5522	CARBON 6.8K JA 1/6W
R506	401 017 1844	CARBON 2.7K JA 1/4W
R507	401 025 3827	CARBON 180 JA 1/6W
R508	401 025 7825	CARBON 2.2K JA 1/6W
R509	401 057 6807	OXIDE-MT 0.68 JA 1W
R511	401 059 2807	OXIDE-MT 150 JA 1W
R512	401 010 7625	CARBON 560 JA 1/2W
R513	401 063 1001	OXIDE-MT 680 JA 1W
R602	402 072 4403	WIRE WOUND 3.9 KA 7W
R611	401 027 2600	CARBON 5.6K JA 1/6W
R615	401 025 8208	CARBON 22K JA 1/6W
R617	401 024 7004	CARBON 1K JA 1/6W
R619	401 016 1508	CARBON 22 JA 1/4W
R620	401 007 5805	CARBON 120K JA 1/2W
R621	401 007 5805	CARBON 120K JA 1/2W
R622	401 014 5201	CARBON 15K JA 1/4W
R623	401 025 4200	CARBON 1.8K JA 1/6W
R624	401 068 6902	OXIDE-MT 56 JA 2W
R625	401 065 9609	OXIDE-MT 18 JA 2W
R626	401 016 3304	CARBON 2.2K GA 1/4W
⚠R631	402 000 8305	SOLID 5.6M KA 1/2W
⚠R632	402 000 8305	SOLID 5.6M KA 1/2W

Ref. No.	Part No.	Description
R641	401 014 6109	CARBON 150K JA 1/4W
R642	401 027 4307	CARBON 6.2K JA 1/6W
R643	401 015 4708	CARBON 180K JA 1/4W
R644	401 011 2708	CARBON 68K JA 1/2W
R645	401 025 8208	CARBON 22K JA 1/6W
R646	402 069 9800	WIRE WOUND 2.7 KA 5W
R647	402 076 WIRE	WOUND 8.2 KA 7W
R648	401 026 9927	CARBON 4.7K JA 1/6W
R651	401 064 3806	OXIDE-MT 1 JA 2W
R652	401 065 1801	OXIDE-MT 12 JA 2W
R653	401 067 8204	OXIDE-MT 39 JA 2W
R655	401 067 4206	OXIDE-MT 33 JA 2W
R656	401 026 9600	CARBON 470 JA 1/6W
R661	401 068 4700	OXIDE-MT 4.7K JA 2W
R662	401 068 8807	OXIDE-MT 5.6K JA 2W
R681	401 008 1608	CARBON 1.8K JA 1/2W
R682	401 069 1708	OXIDE-MT 68 JA 2W
R684	401 027 8602	CARBON 8.2K JA 1/6W
R685	401 025 8208	CARBON 22K JA 1/6W
R800	401 026 9907	CARBON 4.7K JA 1/6W
R801	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R802	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R803	401 037 9408	MT-GLAZE 180K JA 1/10W
R804	401 024 7400	CARBON 10K JA 1/6W
R806	401 024 7400	CARBON 10K JA 1/6W
R807	401 024 7400	CARBON 10K JA 1/6W
R808	401 019 1901	CARBON 3.9K JA 1/4W
R811	401 025 7805	CARBON 2.2K JA 1/6W
R812	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R813	401 026 4605	CARBON 33K JA 1/6W
R815	401 024 6700	CARBON 100 JA 1/6W
R816	401 037 5608	MT-GLAZE 10K JA 1/10W
R817	401 027 8602	CARBON 8.2K JA 1/6W
R818	401 038 9308	MT-GLAZE 68K JA 1/10W
R819	401 025 7805	CARBON 2.2K JA 1/6W
R820	401 037 5608	MT-GLAZE 10K JA 1/10W
R821	401 038 0800	MT-GLAZE 22K JA 1/10W
R822	401 038 6505	MT-GLAZE 47K JA 1/10W
R823	401 024 9305	CARBON 1.2K JA 1/6W
R824	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R825	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R838	401 037 8005	MT-GLAZE 15K JA 1/10W
R839	401 026 4605	CARBON 33K JA 1/6W
R840	401 026 9600	CARBON 470 JA 1/6W
R841	401 038 0800	MT-GLAZE 22K JA 1/10W
R842	401 026 9907	CARBON 4.7K JA 1/6W
R843	401 037 5608	MT-GLAZE 10K JA 1/10W
R844	401 038 5112	MT-GLAZE 3.9K JA 1/10W
R845	401 037 5608	MT-GLAZE 10K JA 1/10W
R846	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R847	401 037 5608	MT-GLAZE 10K JA 1/10W
R848	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R851	401 037 5400	MT-GLAZE 1K JA 1/10W
R852	401 037 5400	MT-GLAZE 1K JA 1/10W
R853	401 038 0800	MT-GLAZE 22K JA 1/10W
R861	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R862	401 038 0800	MT-GLAZE 22K JA 1/10W
R863	401 038 0800	MT-GLAZE 22K JA 1/10W
R864	401 039 0314	MT-GLAZE 820 JA 1/10W
R865	401 038 0711	MT-GLAZE 2.2K JA 1/10W
R866	401 038 0711	MT-GLAZE 2.2K JA 1/10W
R867	401 038 0711	MT-GLAZE 2.2K JA 1/10W
R868	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R869	401 038 2200	MT-GLAZE 27K JA 1/10W
R870	401 025 8208	CARBON 22K JA 1/6W
R870A	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R871	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R872	401 038 3702	MT-GLAZE 33K JA 1/10W
R873	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R874	401 037 5608	MT-GLAZE 10K JA 1/10W
R875	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R876	401 037 5608	MT-GLAZE 10K JA 1/10W
R877	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R878	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R879	401 037 5608	MT-GLAZE 10K JA 1/10W
R880	401 038 6505	MT-GLAZE 47K JA 1/10W
R884	401 037 7800	MT-GLAZE 150 JA 1/10W
R885	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R886	401 037 7800	MT-GLAZE 150 JA 1/10W
R887	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R888	401 037 5202	MT-GLAZE 100 JA 1/10W
R889	401 037 5202	MT-GLAZE 100 JA 1/10W
R891	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R892	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R893	401 037 5400	MT-GLAZE 1K JA 1/10W
R894	401 037 5400	MT-GLAZE 1K JA 1/10W
R895	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R896	401 038 6505	MT-GLAZE 47K JA 1/10W
R897	401 012 5748	CARBON 1K JA 1/4W
R898	401 012 5748	CARBON 1K JA 1/4W
VARIABLE RESISTOR		
VR131	645 003 5531	VR,10K
VR361	645 003 5531	VR,10K
VR462	645 003 5616	VR,4.7K
VR501	645 006 5231	VR,100
VR641	645 003 5579	VR,2.2K
TRANSFORMER		
T141	610 037 4522	S COIL
T431	610 000 1077	DRIVE TRANS
⚠T451	645 021 2741	TRANS,FLYBACK
⚠T611	645 015 7653	TRANS,POWER,PULSE
	645 015 7677	TRANS,POWER,PULSE
T681	610 033 3758	POWER TRANS
	610 240 4722	POWER TRANS
COIL		
L001	645 008 5635	INDUCTOR,12U K
L002	645 008 5635	INDUCTOR,12U K
L003	645 002 1787	CORE,PIPE
L1002	645 002 1787	CORE,PIPE
L1003	645 001 4567	INDUCTOR,10U K
L1004	645 001 4567	INDUCTOR,10U K
L1005	645 001 4567	INDUCTOR,10U K
L1006	645 001 4567	INDUCTOR,10U K
L101	645 001 4567	INDUCTOR,10U K
L102	645 008 2863	INDUCTOR,4.7U K
L1022	645 002 1787	CORE,PIPE
L1023	645 001 4567	INDUCTOR,10U K
L1024	645 001 4567	INDUCTOR,10U K
L1025	645 001 4567	INDUCTOR,10U K
L1026	645 001 4567	INDUCTOR,10U K
L1027	645 008 2863	INDUCTOR,4.7U K
L1101	645 001 4567	INDUCTOR,10U K
L1102	645 001 4567	INDUCTOR,10U K
L1103	645 008 2863	INDUCTOR,4.7U K
L141	645 001 4550	PEAKING COIL 10UH
L151	645 008 2924	INDUCTOR,8.2U K
L152	645 003 9782	INDUCTOR,22U K
L201	645 001 4567	INDUCTOR,10U K
L202	645 001 4567	INDUCTOR,10U K
L203	645 001 4567	INDUCTOR,10U K
L231	645 008 2863	INDUCTOR,4.7U K
L232	645 008 2863	INDUCTOR,4.7U K
L431	645 008 5628	INDUCTOR,1U M
L432	645 002 1787	CORE,PIPE
L441	610 000 0964	LINEARITY COIL
	610 212 6310	LINEARITY COIL
	610 218 3856	LINEARITY COIL
L461	610 031 1367	INDUCTOR 202J
	610 211 3488	INDUCTOR
	645 005 5645	INDUCTOR,2200U K
	645 007 8361	INDUCTOR,2000U
L462	645 000 2229	INDUCTOR,430UH
L501	645 008 5642	INDUCTOR,3.3U K
⚠L601	645 017 1260	LINE FILTER
L607	610 237 1000	PIPE CORE
L608	610 237 1000	PIPE CORE
L641	645 002 1787	CORE,PIPE
L642	645 002 1787	CORE,PIPE

Ref. No.	Part No.	Description
L643	645 002 1787	CORE,PIPE
L871	645 008 0203	INDUCTOR,5.6U K
L881	645 001 4697	INDUCTOR,1.5U M
DIODE		
D1005	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1007	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1008	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1010	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1011	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1021	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1022	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1023	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1024	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1026	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1027	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1101	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1201	407 053 6803	ZENER DIODE MTZ5.6C
	407 057 0104	ZENER DIODE RD5.6EB3
	407 151 8501	ZENER DIODE UZ-5.6BCC
D135	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1901A	407 120 9706	LED LN28RPL
D1901-1	610 269 4703	HOLDER LED A-E6YC
D1902	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D1903	407 063 8309	ZENER DIODE MTZJ11C
D1905	407 012 4406	DIODE 1SS133
D201	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D202	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D203	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D210	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D221	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D222	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
D271	407 053 6407	ZENER DIODE MTZ5.1C
	407 056 8200	ZENER DIODE RD5.1EB3
	407 163 8209	ZENER DIODE UZ-5.1BCC
D352	407 057 8308	ZENER DIODE RD8.2EB2
	407 164 5207	ZENER DIODE UZ-8.2BCB
D361	407 063 8309	ZENER DIODE MTZJ11C
	407 158 3400	ZENER DIODE UZ-11BSC
D431	407 053 8708	ZENER DIODE MTZ9.1A
	407 053 8807	ZENER DIODE MTZ9.1B
	407 057 9602	ZENER DIODE RD9.1EB1
	407 057 9701	ZENER DIODE RD9.1EB2
	407 163 9909	ZENER DIODE UZ-9.1BCA
	407 162 2703	ZENER DIODE UZ-9.1BCB
D432	407 005 7308	DIODE EM01Z
D438	407 095 8001	DIODE ERD07-15L
D439	407 006 4108	DIODE ERB44-04
D442	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
D445	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D446	407 151 9003	ZENER DIODE UZ-7.5BCC
	407 151 9102	ZENER DIODE UZ-8.2BCA
D464	407 053 6605	ZENER DIODE MTZ5.6A
	407 056 9801	ZENER DIODE RD5.6EB1
	407 163 9602	ZENER DIODE UZ-5.6BCA
D465	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D466	407 077 9705	ZENER DIODE MTZ20A
	407 055 1707	ZENER DIODE RD20EB1
	407 164 7805	ZENER DIODE UZ-20BCA
D469	407 007 7405	DIODE EU1
D481	407 007 7405	DIODE EU1
D482	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D501	407 005 7308	DIODE EM01Z
	408 009 9008	DIODE BYD33D
D502	407 118 2207	ZENER DIODE 1Z75
D603	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
D604	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
D605	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
D606	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
D614	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
⚠D615	407 105 8700	PHOTO COUPLE PC113B
	408 009 8407	PHOTO COUPLE CNY17F-3OPT6
D616	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
D617	407 007 6606	DIODE ES1
	407 007 6903	DIODE ES1Z
	408 009 9008	DIODE BYD33D
D618	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
D619	407 053 3000	ZENER DIODE MTZ11C
	407 054 1807	ZENER DIODE RD11EB3
D641	407 009 8806	DIODE RU3AM
D642	407 007 7603	DIODE EU2
	407 007 7801	DIODE EU2Z
D643	407 166 2303	DIODE ERC91-02L
D644	407 166 2303	DIODE ERC91-02L
D645	407 053 7206	ZENER DIODE MTZ6.2C
	407 053 7503	ZENER DIODE MTZ6.8A
	407 057 2801	ZENER DIODE RD6.2EB3
	407 057 4003	ZENER DIODE RD6.8EB1
	407 151 8600	ZENER DIODE UZ-6.2BCC
	407 164 9908	ZENER DIODE UZ-6.8BCA
D647	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D648	407 053 4007	ZENER DIODE MTZ16C
	407 054 7205	ZENER DIODE RD16EB3
	407 164 7201	ZENER DIODE UZ-16BCC
D652	407 053 6803	ZENER DIODE MTZ5.6C
	407 057 0104	ZENER DIODE RD5.6EB3
	407 151 8501	ZENER DIODE UZ-5.6BCC
D654	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D655	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D661	409 013 0104	IC HZT33
	409 026 8005	IC L5630
	409 057 5103	IC UPC574J
D681	407 005 7308	DIODE EM01Z
D682	407 053 6803	ZENER DIODE MTZ5.6C
	407 057 0104	ZENER DIODE RD5.6EB3
	407 151 8501	ZENER DIODE UZ-5.6BCC
D683	407 005 7308	DIODE EM01Z
D684	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D685	407 012 4406	DIODE 1SS133

Ref. No.	Part No.	Description
	407 012 5809	DIODE 1SS176
D831	407 005 4505	DIODE DS442X
	407 013 1008	DIODE 1S1553
	407 013 4306	DIODE 1S2076A
	407 013 6508	DIODE 1S2471
D861	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D871	407 012 4406	DIODE 1SS133
	407 012 5809	DIODE 1SS176
D872	407 055 7907	ZENER DIODE RD3.6EL
MISCELLANEOUS		
⚠F601	423 022 2102	FUSE 250V 4A
A101	645 017 2571	TUNER,U/V
A1901	645 007 1546	UNIT,REMOCON RECEIVER
	610 224 5806	RC PREAMP 409-1L
TP-A	645 008 4058	TERMINAL,PLUG
TP-B	645 008 4058	TERMINAL,PLUG
TP-D	645 008 4058	TERMINAL,PLUG
TP-E	645 008 4058	TERMINAL,PLUG
K001	645 005 5706	JACK,PHONE D3.6
	645 006 4708	JACK,PHONE D3.6
K10B	645 004 2911	PLUG,5P
K1001	645 005 5867	SOCKET,RGB 21P
	610 234 3779	SOCKET 21P
K1001Z	610 261 2813	MOUNTING-BRKT F2WV
K1002	645 005 5867	SOCKET,RGB 21P
	610 234 3779	SOCKET 21P
K1002Z	610 261 2813	MOUNTING-BRKT F2WV
K11A	645 004 2881	PLUG,2P
K1101	645 016 6433	JACK,RCA-3
KSC	645 008 4058	TERMINAL PLUG
⚠PS601	408 013 3801	TH PTH451C262BF140M270
SW1901	610 011 4432	SWITCH,PUSH
SW1902	610 011 4432	SWITCH,PUSH
SW1903	610 011 4432	SWITCH,PUSH
SW1904	610 011 4432	SWITCH,PUSH
SW501	610 011 2728	SWITCH,LEVER 1P-3T
⚠SW601	645 024 0607	SWITCH,SW POWER SD
X131	421 002 2609	SAW F TSF5315
	421 003 3902	SAW F TSF5315U
X151	610 015 2854	TRAP,CERAMIC 5.5MHZ
X152	610 015 3011	TRAP,CERAMIC 6.5MHZ
X201	645 025 2631	OSC CRYSTAL 4.43MHz
X871	645 015 8339	OSC,CRYSTAL 12MHZ

ASSY,PWB,SIF F2RT 1AA0B10E230BA

TRANSISTOR		
Q3801	405 015 9701	TR 2SC2814-F4-TA
	405 015 9909	TR 2SC2814-F5-TA
INTEGRATED CIRCUIT		
IC3801	409 290 4307	IC TDA2545A/V4
IC3811	409 376 6300	IC TDA9821/V1
CAPACITOR		
C3802	403 069 9500	CERAMIC 0.01U Z 50V
C3803	403 069 9500	CERAMIC 0.01U Z 50V
C3804	403 073 9107	CERAMIC 4700P K 50V
C3805	403 166 8000	MT-POLYEST 0.33U J 63V
	403 260 2904	MT-COMPO 0.33U J 50V
C3806	403 028 4102	CERAMIC 56P J 50V
C3807	403 041 8804	ELECT 10U M 16V
C3808	403 069 9500	CERAMIC 0.01U Z 50V
C3811	403 041 8804	ELECT 10U M 16V
C3812	403 069 9500	CERAMIC 0.01U Z 50V
C3813	403 049 9803	ELECT 2.2U M 50V
C3814	403 049 9803	ELECT 2.2U M 50V
C3815	403 049 9803	ELECT 2.2U M 50V
RESISTOR		
R3802	401 037 5202	MT-GLAZE 100 JA 1/10W
R3803	401 037 5608	MT-GLAZE 10K JA 1/10W
R3804	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R3805	401 038 3504	MT-GLAZE 330 JA 1/10W
R3806	401 038 7502	MT-GLAZE 56 JA 1/10W
R3811	401 038 7601	MT-GLAZE 560 JA 1/10W
R3814	401 038 7601	MT-GLAZE 560 JA 1/10W
R3815	401 038 2200	MT-GLAZE 27K JA 1/10W
R3845	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R3846	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
TRANSFORMER		
T3801	610 037 4522	S COIL
MISCELLANEOUS		
K38H1	610 012 4561	TERMINAL 4P
K38H2	610 012 4561	TERMINAL 4P
X3801	421 006 2902	SAW F OFWG9251M
X3811	645 003 2806	CERAMIC FILTER
X3814	645 006 3022	CERAMIC FILTER 5.742MHZ

ASSY,PWB,AUDIO F2RT 1AA0B10E230BB

TRANSISTOR		
Q1251	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
Q1252	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
Q3431	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
Q3432	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
Q3482	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
Q3484	405 109 4407	TR BC848-B
	405 015 8704	TR 2SC2812-L6-TA
INTEGRATED CIRCUIT		
IC1251	409 009 2501	IC HD14052BP
	409 120 7607	IC MN4052B
	409 051 2801	IC TC4052BP
	409 059 2209	IC UPD4052BC
IC3401	409 371 6206	IC TDA9840/V2
IC3431	409 316 4601	IC TDA8424
CAPACITOR		
C1251	403 041 8804	ELECT 10U M 16V
C3401	403 041 8804	ELECT 10U M 16V
C3402	403 069 5601	CERAMIC 0.01U K 50V
C3403	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C3404	403 310 5008	CERAMIC 3300P G 25V
C3405	403 042 2405	ELECT 100U M 16V
C3406	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
C3407	403 026 2803	CERAMIC 47P J 50V
C3408	403 049 9803	ELECT 2.2U M 50V
C3409	403 049 9803	ELECT 2.2U M 50V
C3411	403 069 5601	CERAMIC 0.01U K 50V
C3412	403 069 5601	CERAMIC 0.01U K 50V
C3421	403 069 9500	CERAMIC 0.01U Z 50V
C3422	403 041 8804	ELECT 10U M 16V
C3431	403 049 0008	ELECT 1U M 50V
C3432	403 042 2405	ELECT 100U M 16V
C3433	403 049 0008	ELECT 1U M 50V
C3434	403 068 0409	CERAMIC 0.1U Z 25V
	403 070 2606	CERAMIC 0.1U Z 50V
C3435	403 068 3202	CERAMIC 0.033U K 25V
	403 073 1200	CERAMIC 0.033U K 50V
C3436	403 074 7607	CERAMIC 5600P K 50V
C3437	403 074 7607	CERAMIC 5600P K 50V
C3438	403 068 3202	CERAMIC 0.033U K 25V
	403 073 1200	CERAMIC 0.033U K 50V
RESISTOR		
R1251	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R1252	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R1253	401 039 0502	MT-GLAZE 82K JA 1/10W
R1254	401 039 0502	MT-GLAZE 82K JA 1/10W
R1257	401 038 6307	MT-GLAZE 470 JA 1/10W
R1258	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1262	401 039 0502	MT-GLAZE 82K JA 1/10W
R1264	401 039 0502	MT-GLAZE 82K JA 1/10W
R1265	401 038 6307	MT-GLAZE 470 JA 1/10W
R1266	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3401	401 037 5202	MT-GLAZE 100 JA 1/10W
R3402	401 037 5202	MT-GLAZE 100 JA 1/10W
R3403	401 038 3108	MT-GLAZE 30K JA 1/10W
R3431	401 037 5202	MT-GLAZE 100 JA 1/10W
R3432	401 037 5202	MT-GLAZE 100 JA 1/10W
R3433	401 037 5202	MT-GLAZE 100 JA 1/10W

Ref. No.	Part No.	Description
R3434	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R3435	401 037 5202	MT-GLAZE 100 JA 1/10W
R3436	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R3477	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3479	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3481	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3482	401 038 0701	MT-GLAZE 2.2K JA 1/10W
TRANSFORMER		
T3401	645 015 7943	COIL,FERRITE 2.5M
COIL		
L3451	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
MISCELLANEOUS		
X3401	645 016 6662	OSC,CRYSTAL 10MHZ

ASSY,PWB,CRT F2RC 1AA0B10E24500

TRANSISTOR

Q2601	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M
Q2611	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M
Q2621	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M
Q2640	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q2651	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP

CAPACITOR

C2601	403 074 5702	CERAMIC 560P K 50V
C2611	403 074 5702	CERAMIC 560P K 50V
C2621	403 074 5702	CERAMIC 560P K 50V
C2631	403 077 2708	CERAMIC 1000P P 2K
C2635	403 055 8401	ELECT 22U M 250V
	403 260 0405	ELECT 22U M 250V
C2651	403 201 5001	ELECT 330U M 16V

RESISTOR

R2601	401 018 2800	CARBON 330 JA 1/4W
R2602	401 019 1901	CARBON 3.9K JA 1/4W
R2603	401 012 5708	CARBON 1K JA 1/4W
R2604	401 065 4604	OXIDE-MT 12K JA 2W
R2605	401 009 6602	CARBON 3.3K JA 1/2W
R2611	401 018 2800	CARBON 330 JA 1/4W
R2612	401 019 1901	CARBON 3.9K JA 1/4W
R2613	401 016 3809	CARBON 2.2K JA 1/4W
R2614	401 065 4604	OXIDE-MT 12K JA 2W
R2615-B	401 009 6602	CARBON 3.3K JA 1/2W
R2621	401 018 2800	CARBON 330 JA 1/4W
R2622	401 019 1901	CARBON 3.9K JA 1/4W
R2623	401 015 2704	CARBON 1.8K JA 1/4W
R2624	401 065 4604	OXIDE-MT 12K JA 2W
R2625-B	401 009 6602	CARBON 3.3K JA 1/2W
R2627	401 020 0801	CARBON 470 JA 1/4W
R2641	401 020 2003	CARBON 4.7K JA 1/4W
R2642	401 018 3807	CARBON 3.3K JA 1/4W
R2644	401 017 0807	CARBON 270 JA 1/4W
R2652	401 012 7009	CARBON 10K JA 1/4W
R2653	401 012 7009	CARBON 10K JA 1/4W

Ref. No.	Part No.	Description
VARIABLE RESISTOR		
VR2601	645 003 5722	VR,SEMI,4.7K N
VR2602	645 003 5647	VR,SEMI,1K N
VR2611	645 003 5722	VR,SEMI,4.7K N
VR2612	645 003 5647	VR,SEMI,1K N
VR2621	645 003 5722	VR,SEMI,4.7K N
COIL		
L2601	645 008 0012	INDUCTOR,330U K
L2611	645 008 0012	INDUCTOR,330U K
L2621	645 008 0012	INDUCTOR,330U K
DIODE		
D2601	407 013 1206	DIODE 1S1555
D2611	407 013 1206	DIODE 1S1555
D2621	407 013 1206	DIODE 1S1555
D2651	407 013 1206	DIODE 1S1555
MISCELLANEOUS		
K26M	645 008 4058	TERMINAL,PLUG
K26P	645 004 2911	PLUG,5P
K26Q	645 004 2898	PLUG,3P
K2601-B	610 233 7990	CRT SOCKET

OUT OF CIRCUIT -F4SEM

PICTURE TUBE (PANASONIC)

⚠Q901	414 009 2208	CRT A66ECF20X05

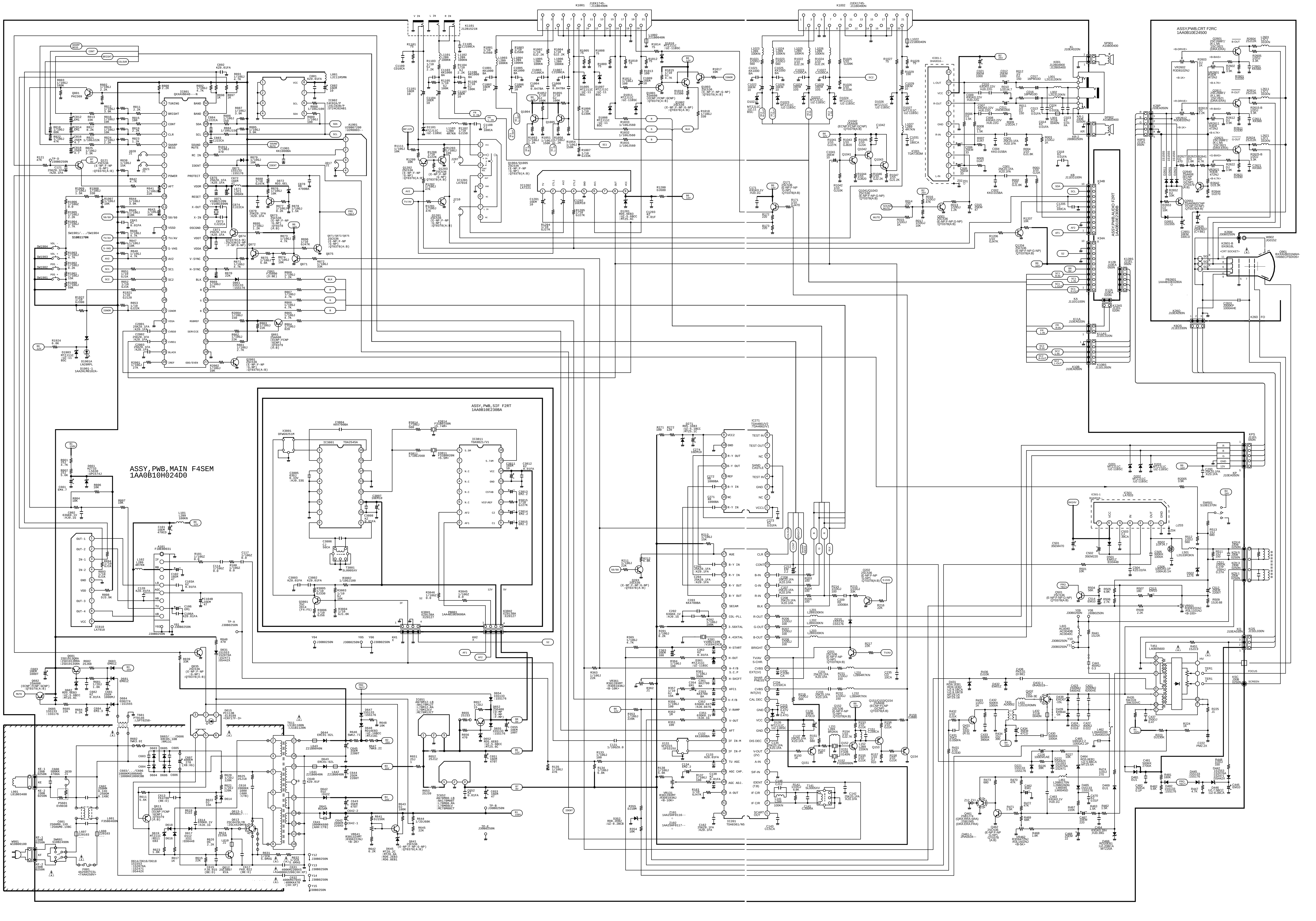
COIL

⚠L901	645 025 6523	COIL,DEGAUSSING

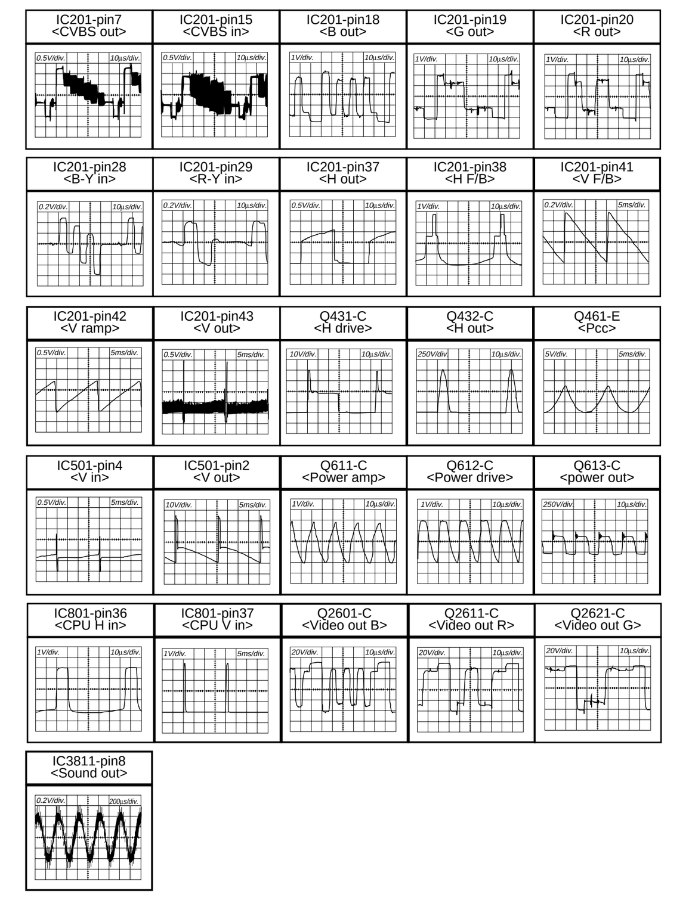
MISCELLANEOUS

SP901	610 232 3986	SPEAKER,8
SP902	610 232 3986	SPEAKER,8
⚠W901	645 012 7632	ASSY,CORD,POWER
W902	610 204 6090	ASSY,WIRE GND CONNECTOR E

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description



Waveforms on ICs and Transistors



Voltage on ICs

IC	Pin	V	Pin	V	Pin	V	Pin	V	Pin	V	Pin	V	Pin	V	Pin	V	Pin	V
IC001	1	1.6V	2	1.6V	3	15.5V	4	1.6V	5	1.6V	6	0V	7	-	8	13.8V	9	28.6V
	10	14.0V	11	0V														
IC201	1	3.1V	2	6.0V	3	6.0V	4	6.1V	5	0V	6	4.0V	7	3.1V	8	1.6V	9	0V
	10	8.0V	11	0V	12	3.6V	13	4.4V	14	3.2V	15	3.9V	16	0V	17	3.4V	18	2.5V
	19	2.5V	20	2.5V	21	0.2V	22	3.4V	23	3.4V	24	3.4V	25	2.9V	26	1.6V	27	5.9V
	28	4.0V	29	4.0V	30	1.5V	31	1.5V	32	0V	33	4.9V	34	3.5V	35	2.6V	36	8.0V
	37	0.9V	38	0.7V	39	3.0V	40	4.0V	41	2.5V	42	0V	43	0.8V	44	4.1V	45	4.1V
	46	4.1V	47	7.0V	48	3.1V	49	1.6V	50	3.6V	51	4.3V	52	6.7V				
IC271	1	5.3V	2	0V	3	0V	4	0V	5	0.7V	6	0V	7	0V	8	0V	9	5.2V
	10	0V	11	3.1V	12	3.1V	13	0V	14	1.3V	15	0V	16	1.3V				
IC501	1	0V	2	13.4V	3	25.3V	4	0.7V	5	0.7V	6	25.2V	7	2.1V				
IC651	1	14.5V	2	0V	3	11.9V												
IC652	1	10.5V	2	0V	3	8.0V												
IC801	1	0.6V	2	2.4V	3	3.7V	4	1.8V	5	2.1V	6	0V	7	0V	8	0V	9	2.6V
	10	0.5V	11	2.5V	12	0V	13	0V	14	3.7V	15	0V	16	0V	17	0V	18	0V
	19	0V	20	0V	21	0V	22	0V	23	2.2V	24	0.2V	25	2.0V	26	2.3V	27	0V
	28	0V	29	5.0V	30	5.0V	31	5.0V	32	0.1V	33	0V	34	0V	35	0V	36	0.8V
	37	0.2V	38	4.9V	39	4.9V	40	0V	41	2.1V	42	2.4V	43	0V	44	4.9V	45	4.7V
	46	5.4V	47	5.0V	48	0V	49	4.8V	50	4.8V	51	0V	52	2.9V				
IC802	1	0V	2	0V	3	0V	4	0V	5	4.8V	6	4.8V	7	0V	8	5.0V		
IC810	1	0V	2	11.6V	3	2.0V	4	0V	5	0V	6	11.3V	7	2.2V	8	0V	9	11.7V
IC1201	1	11.8V	2	7.8V	3	0V	4	7.1V	5	0V	6	0V	7	7.7V	8	0V		
IC1202	1	3.0V	2	2.0V	3	6.0V	4	0V	5	0V	6	2.7V	7	0V	8	1.7V	9	5.7V
IC1251	1	8.4V	2	8.4V	3	5.0V	4	8.4V	5	0V	6	0V	7	0V	8	0V	9	0V
	10	11.9V	11	5.0V	12	8.4V	13	8.4V	14	8.4V	15	8.4V	16	11.9V				
IC3401	1	4.8V	2	3.4V	3	2.7V	4	2.5V	5	2.5V	6	2.5V	7	2.5V	8	2.5V	9	2.5V
	10	2.5V	11	2.5V	12	2.5V	13	2.5V	14	2.5V	15	2.5V	16	0V	17	2.5V	18	5.1V
	19	3.3V	20	4.8V														
IC3431	1	5.8V	2	11.7V	3	5.8V	4	11.8V	5	0V	6	0V	7	5.8V	8	5.8V	9	5.8V
	10	0V	11	4.8V	12	4.8V	13	5.8V	14	5.8V	15	5.8V	16	5.8V	17	0V	18	0V
	19	0V	20	0V														
IC3451	1	0V	2	0.3V	3	5.1V	4	0V	5	2.5V	6	0.4V	7	2.5V	8	2.5V	9	0V
	10	0V	11	2.5V	12	0V	13	0V	14	0V	15	2.5V	16	2.5V	17	0.4V	18	4.6V
	19	0V	20	2.3V	21	2.5V	22	2.5V	23	2.4V	24	0V	25	2.5V	26	5.0V	27	2.4V
	28	2.3V	29	2.3V	30	2.3V	31	2.3V	32	0.3V	33	2.3V	34	2.3V	35	2.3V	36	4.7V
	37	0V	38	4.8V	39	2.0V	40	3.4V	41	2.4V	42	4.0V	43	2.0V	44	0V	45	2.4V
	46	4.8V	47	4.7V	48	2.0V	49	4.8V	50	0V	51	4.0V	52	0V				
IC3801	1	4.5V	2	4.6V	3	6.0V	4	0V	5	0V	6	0V	7	0V	8	5.3V	9	5.3V
	10	0V	11	11.9V	12	5.9V	13	0V	14	0V	15	4.5V	16	4.5V				
IC3811	1	2.5V	2	0V	3	0V	4	0V	5	0V	6	0V	7	2.2V	8	2.2V	9	2.2V
	10	2.2V	11	2.6V	12	4.3V	13	0V	14	5.1V	15	2.5V	16	0V				

Voltage on Transistors

	Q001	Q121	Q151	Q152	Q153	Q154	Q171	Q201	Q202
E	0V	2.8V	3.8V	3.2V	9.3V	3.1V	2.5V	0V	0V
C	15.5V	8.0V	0V	8.7V	2.3V	0V	11.8V	0V	0.4V
B	0.1V	3.3V	3.2V	0V	8.7V	2.4V	3.1V	0.8V	0V

	Q203	Q431	Q432	Q461	Q462	Q501	Q611	Q612	Q613
E	0V	0V	0V	12.9V	0V	0V	10.8V	0V	0V
C	6.0V	10.8V	--	0V	12.9V	4.7V	-1.4V	-1.1V	--
B	0V	0.3V	0V	13.5V	0.5V	0V	10.5V	-1.4V	-1.1V

	Q641	Q652	Q681	Q682	Q801	Q835	Q861	Q871	Q872
E	6.3V	5.2V	5.0V	5.0V	0V	0V	5.0V	0V	0V
C	29.5V	8.3V	7.8V	0.1V	2.0V	29.4V	2.5V	6.3V	0.2V
B	6.7V	5.8V	5.7V	5.6V	0.6V	0V	5.0V	0.1V	0.6V

	Q873	Q874	Q875	Q1001	Q1002	Q1003	Q1004	Q1005	Q1201
E	0V	4.9V	0V	0.6V	0.1V	0V	5.0V	5.0V	0V
C	0V	4.9V	4.7V	0V	11.8V	0.6V	11.9V	11.9V	0V
B	0.8V	5.6V	0V	0V	0.6V	0V	5.6V	5.6V	0.6V

	Q1202	Q1203	Q1204	Q1041	Q1042	Q1043	Q1251	Q1252	Q1901
E	0V	0V	0V	2.4V	10.0V	3.4V	7.7V	7.9V	1.8V
C	0V	0V	11.9V	9.4V	4.0V	11.9V	11.9V	11.9V	5.0V
B	0V	0V	0V	3.0V	9.4V	4.0V	8.4V	8.4V	0.2V

	Q1902	Q2001	Q2601	Q2611	Q2621	Q2640	Q2651	Q3431	Q3432
E	0V	0V	1.8V	1.8V	1.9V	1.5V	11.8V	5.2V	5.2V
C	5.0V	13.2V	134.3V	137.1V	143.8V	0V	0V	11.9V	11.9V
B	0.0V	0V	2.3V	2.2V	2.2V	0.9V	11.9V	5.9V	5.9V

	Q3481	Q3482	Q3483	Q3484	Q3801	Q3802
E	1.9V	7.7V	1.9V	7.7V	0.7V	5.2V
C	8.4V	11.9V	8.4V	11.9V	6.1V	11.9V
B	2.5V	8.4V	2.5V	8.4V	1.4V	5.9V

COLOUR TELEVISION

SANYO

CHASSIS SERIES **EB4**

MODEL NUMBER **28R2/CE28R2-C**

SERVICE REF.NO. **CE28R2-C-00**

The service Precaution:
The area enclosed by this line ( ) is directly connected with AC mains voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

Product safety notice:
Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a mark ⚠ in this circuit diagram show components whose values have special significance to product safety. It is particularly recommended that only parts specified on the part service manual be used for components replacement pointed out by the mark.

PRECAUZIONE DI SERVIZIO
L'area inclusa in questa linea ( ) è collegata direttamente con la tensione della rete CA quando si serve l'area collegare un trasformatore isolante tra il ricevitore TV e la linea CA per eliminare il pericolo di scossa elettrica.

NOTIZIE SULLA SICUREZZA DI FUNZIONAMENTO
Ogni sotituzione di componenti va fatta tenendo conto della sicurezza di funzionamento. I componenti indicati sollo schema con il simbolo ⚠ hanno particolare importanza per il sicuro funzionamento del TV.
I suddetti componenti devono essere sostituiti esclusivamente con quelli indicati nell'elenco.

Note sul diagramma di circuito :
1. Tutte i valori di resistenza sono in ohm, K=1,000, M=1,000,000.
2. Tutte le resistenze nominali watt sono di 1/6 a meno che sia specificato altrimenti.
3. Eccetto per i condensatori elettrolitici, tutti i valori di capacitanza di meno di sono espressi in μF, e di piu di 1 sono in pF. I varoli di capacitanza elettrolitici sono in μF.
4. Tutti volt di capacitanza nominali sono di 50V a meno cha sia indicato altrimenti.
5. Tutti valori di inductanza sono in μH.
6. I valori letti del voltaggio presi con un "VTVM" proven gono dal punto indicato sulla massa del chassis, i valori di voltaggio presi usando un segnale di barre colore sono con tutti i controlli alle loro posizioni normali ed il commutatore AFC in posizione "OFF". Il voltaggio puo variare con l'intensita del segnale.
7. Le forme di onda furono prese con il segnale di barre colore e i controlli regolati oppure le forme di onda di immagine normale furono prese usando un oscillatore a larga banda ed una sonda bassa capasità.
8. Rispetto a quando indicato su questo schema possono essere state introdotte delle modifiche.
9. ■ I diodo 1S1555 possono essere sostituiti con 1S2473, 1S2076 oppure DS472 a meno che sia specificato altrimenti.
■ I transistori possono essere sostituiti con 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) oppure 2SC1815(G,O,Y) a meno che sia specificato altrimenti.
■ Il transistore 2SA608(E,F) puo essere sostituito con 2SA933(Q,R), 2SA564(QA,RA), oppure 2SA1015(O,Y) a meno che sia specificato altrimenti.

Circuit diagram notes :
1. All resistance values are in ohms, K=1,000, M=1,000,000.
2. All resistance rated wattages are 1/6W unless otherwise noted.
3. Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in μF and more than 1 are pF.
4. All capacitance rated voltages are 50V unless otherwise noted.
5. All inductance values are in μH.
6. Voltage readings taken a digital voltmeter are from point indicated chassis ground. Voltage readings taken by using a colour bar signal are with all controls at normal position. Some voltages may vary with signal strength.
7. Waveforms were taken with colour bar and controls adjusted for normal picture. Waveforms were taken by using a wide band oscilloscope and a low capacity probe.
8. This circuit diagram covers a basic or representative chassis only. There may be some components or partial circuit differences between the actual chassis and the circuit diagram.
9. ■ Diode 1S1555 may be replaced with 1S2473, 1S2076 or DS472 unless otherwise noted.
■ Transistor 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) or 2SC1815(G,O,Y) unless otherwise noted.
■ Transistor 2SA608(E,F) may be replaced with 2SA933(Q,R), 2SA564(QA,RA), or 2SA1015(O,Y) unless otherwise noted.

Expression of capacitance and resistance in circuit diagram.

Capacitance (Example)
1000 C M 2000 D
- Characteristic
- Capacitance value (220pF)
- Tolerance (±20%)
- Kind(Ceramic)
- Rated voltage (1,000V)

J= ± 5%
K= ± 10%
M= ± 20%

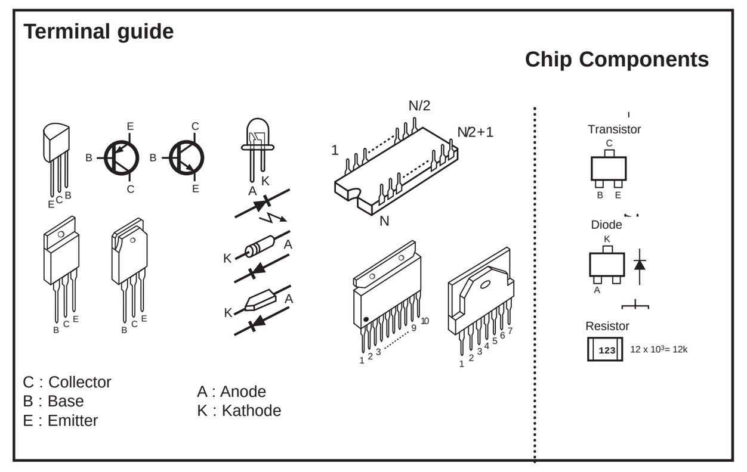
T, A, U, D : Electrolytic
C, K, B : Ceramic
F : Mylar film
M, N : Polypropylene
Z : Metallized paper

Resistance (Example)
1/2 N J 1.2
- Resistance value (1.2Ω)
- Tolerance (±5%)
- Kind (M.carbon)
- Rated wattage(1/2W)

D : Carbon
N : Metallized carbon
S : Oxide metallized
W : Wire wounding
C : Solid

Terminal guide

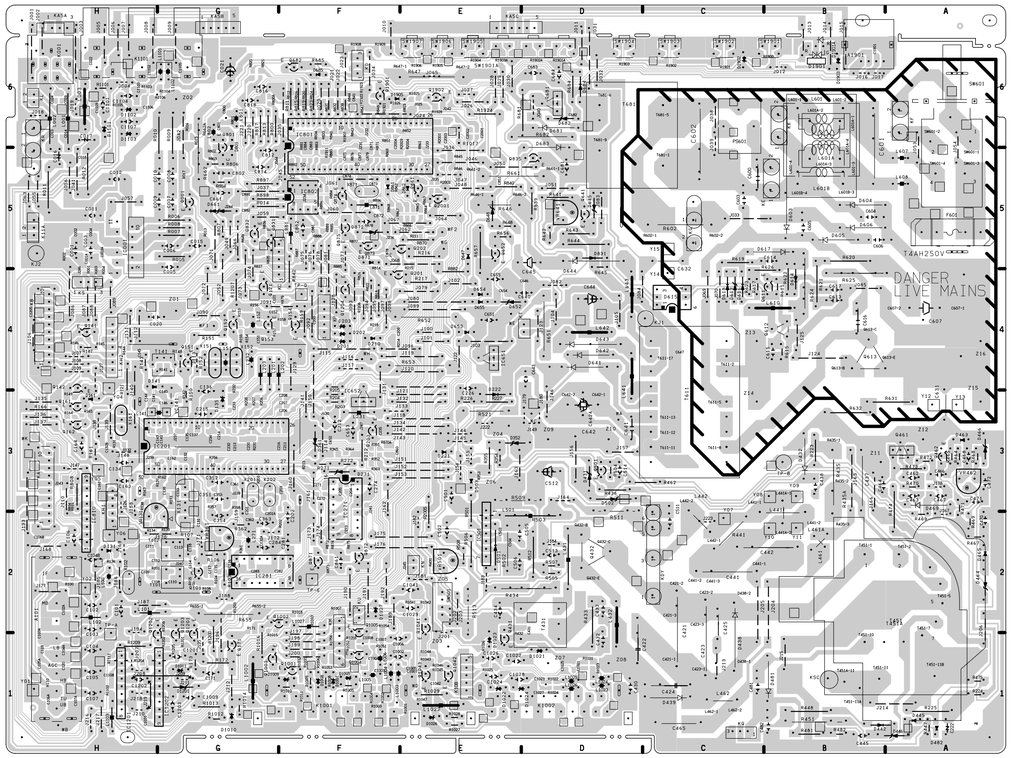
Chip Components

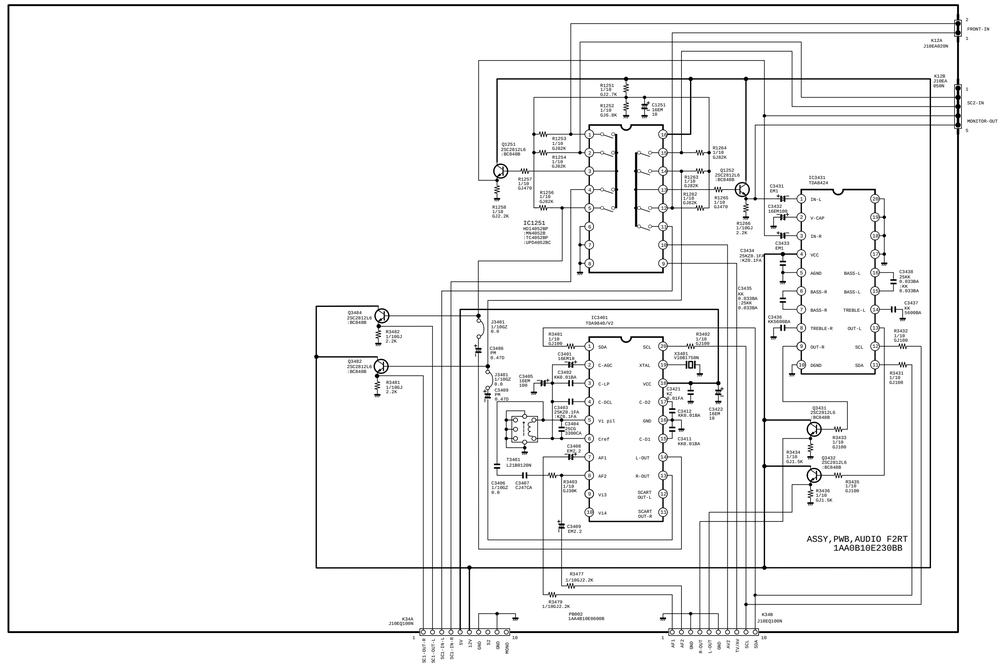


C : Collector
B : Base
E : Emitter

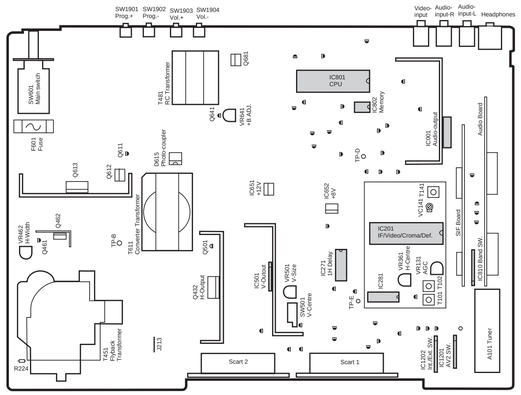
A : Anode
K : Kathode

Main Board /Pannello Principal
Circuit side/Lato del Circuito

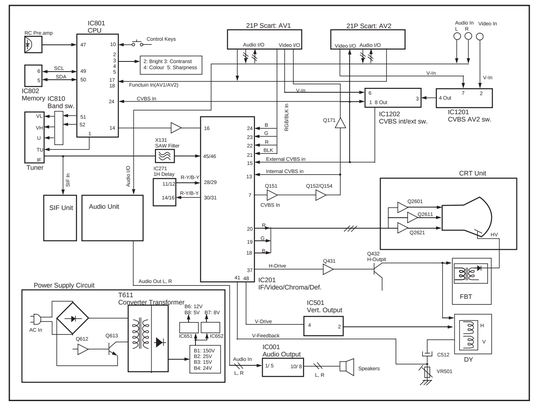




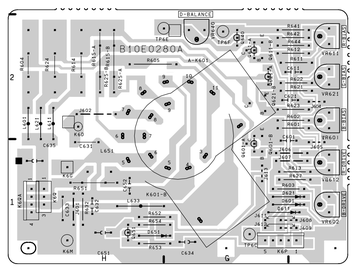
Main Board /Pannello Principal
Component Location/Lato del Componente



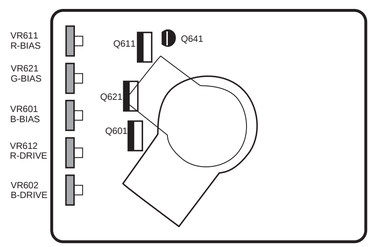
GENERAL BLOCK DIAGRAM FOR EB4 CHASSIS



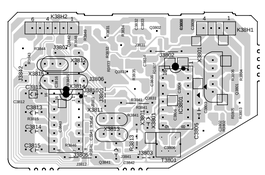
CRT Board /Pannello Cinescopio
Circuit side/Lato del Circuito



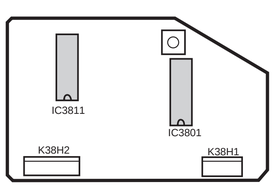
Component Location/Lato del Componente



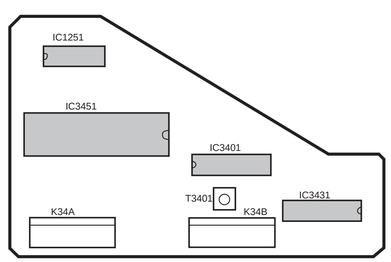
SIF Board /Pannello SIF
Circuit side/Lato del Circuito



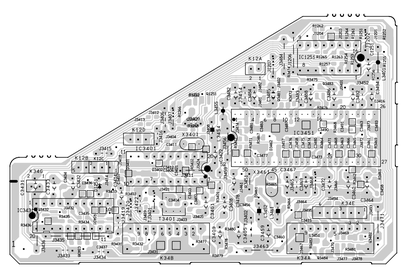
Component Location/Lato del Componente



Audio Board /Pannello Audio
Component Location/Lato del Componente



Circuit side/Lato del Circuito



REGOLAZIONI DI SERVIZIO TECNICO

REGOLAZIONE DELL'ALIMENTATORE B1

1. Regolare VR641 in modo che sia centro meccanico, prima di premere l'interruttore principale.
2. Sintonizzare il ricevitore sull'oscillogramma circolare PAL.
3. Regolare i comandi di luminosità e contrasto sui livelli normali.
4. Collegare il misuratore V digitale su "TP-B".
5. Servendosi di VR641, regolare il voltaggio su 130 ± 0,5 V (per 21 pollici).
   Servendosi di VR641, regolare il voltaggio su 150 ± 0,5 V (per 25 pollici).

REGOLAZIONE AFT

1. Sintonizzare il ricevitore sulla stazione più chiara.
2. Servendosi di T141, regolare AFT per ottenere l'immagine migliore.

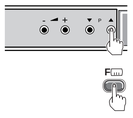
REGOLAZIONE AGC

NOTA: Non tentare questa regolazione con un segnale debole.

1. Sintonizzare il ricevitore sulla stazione più chiara.
2. Regolare AGC VR(VR130) nella direzione in cui appaiono i disturbi da neve, quindi regolare in direzione opposta nel punto esatto in cui i disturbi da neve scompaiono.

REGOLAZIONE DELLA SCALA DEI GRIGI
[REGOLAZIONE VR DI SCHERMO]

1. Sintonizzare il ricevitore sull'oscillogramma bianco.
2. Regolare il comando della luminosità su centro display e quello del contrasto su normale.
3. Regolare VR2601 e VR2611 in modo che sia centro meccanico.
4. Ruotare fino in fondo, in senso antiorario VR602, VR612 o VR622.
5. Quando si tiene premuto il pusante tasto "Funzione" (sul telecommando) e contemporaneamente si preme il pusante P ▲ (sul televisore) apparivanno le seguenti indicazioni sullo schermo.



ADJUST	DATA
K1	+000
K2	+000
ST ID	+000
ATT	+004
MAX	-050
MIN	-075
SCREEN	VOL
CPU Ver	1.0

6. Premere il tasto "Funzione" (sul televisore) per selezione la funzione "SCREEN".

ADJUST	DATA
K1	+000
K2	+000
ST ID	+000
ATT	+004
MAX	-050
MIN	-075
SCREEN	VOL
CPU Ver	1.0

7. Per regolar il livelli, premere il tasto livello.

8. Regolare VR di schermo per un solo colore in modo che sia ben visibile.

[REGOLAZIONE VR DEL BIAS (POLARIZZAZIONE)]

7. Servendosi di VR602, VR612 o VR622, regolare la linea in modo che sia bianca.
9. Per tornare al modo di funzionamento TV, premere il tasto Richiamo.

[REGOLAZIONE VR DEL DRIVE (ECCITAZIONE)]

9. Servendosi di VR601 e VR611, regolare il bilanciamento del bianco.

REGOLAZIONE DI ALTO VOLTAGGIO E DI AMPIEZZA
[REGOLAZIONE DI ALTO VOLTAGGIO]

1. Sintonizzare il ricevitore sull'oscillogramma circolare PAL.
2. Regolare i comandi di luminosità e contrasto sui livelli massimi.
3. Collegare il misuratore V digitale su entrambi i terminali di R224 (lato sinistro) (+), e il misuratore di alto voltaggio sull'anodo CRT.
4. Confermare che l'alto voltaggio sia 25,0 ± 1 KV alla corrente di fascio di elettroni 1,0, e meno di 28,0 KV alla corrente di fascio di elettroni 0 (per 21 pollici).
   Confermare che l'alto voltaggio sia 26,0 ± 1 KV alla corrente di fascio di elettroni 1,1, e meno di 29,0 KV alla corrente di fascio di elettroni 0 (per 25/28 pollici).

[REGOLAZIONE DI AMPIEZZA-H]

5. Se l'ampiezza H è troppo larga o troppo stretta, collegare o scollegare un filo in piombo J213 (per 21 pollici).
   Regolare VR462 per ottenere l'ampiezza H appropriata (per 25/28 pollici).
6. Riconfermare l'alto voltaggio.

REGOLAZIONE DI CENTRO-H

1. Sintonizzare il ricevitore sull'oscillogramma circolare.
2. Regolare il centro-H servendosi di VR361.

REGOLAZIONE DI CENTRO-V

1. Sintonizzare il ricevitore sull'oscillogramma circolare.
2. Regolare il centro-V servendosi di SW501.

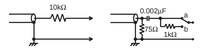
REGOLAZIONE DELLA DIMENSIONE-V

1. Sintonizzare il ricevitore sull'oscillogramma circolare.
2. Regolare la dimensione-V servendosi di VR501.

REGOLAZIONE DELLA MESSA A FUOCO

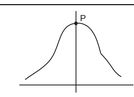
Servendosi di FOCUS VR, regolare il controllo della messa a fuoco per una buona scansione delle linee.

ALLINEAMENTO DI CIRCUITO

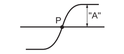


Sonda di ingresso Sonda di uscita

Allineamento VIF

IMPOSTAZIONE		Regolazione	Forma d'onda VIF
DC 15.5V Tensione AGC (4.3-4.5V) Sonda di uscita Sonda di ingresso Marker frequency Sweep ATT 0dB=176mVrms/75	C644 + IC201-pin48 IC201-pin45 (Side b) IC201-pin7 38.9MHz 20dB	Servendosi di T141, regolare "P" in modo che sia di ampiezza massima.	

Allineamento SIF

IMPOSTAZIONE		Regolazione	Forma d'onda SIF
DC 12V Tensione AGC Sonda di uscita Sonda di ingresso ATT di deflessione Frequenza segnalatore	IC3801-pin11 IC3801-pin3 IC3801-pin1 (Side b) IC3801-pin12 10dB 38.9MHz	1. Regolare la tensione AGC in modo che sia "A" = 0.5Vp-p. 2. Servendosi di T3801, regolare "P" in mod che sia uguale alla linea di centro.	

Allineamento Pilot

IMPOSTAZIONE		Regolazione	Forma d'onda
Oscilloscopio Ingresso di desidera SW di sistema Deviazione Modo	IC3401-pin5 Sistema B/G 27kHz Stereo	Servendosi di T3401, regolare "P" in modo che sia di ampiezza massima.