

# SERVICE MANUAL

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## COLOR TELEVISION

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### SPECIFICATION

Color reception systems	PAL-M/PAL-N/NTSC with automatic or manual selection
Channel reception (181 channels)	VHF=channels from 2 to 13 UHF=channels from 14 to 69 CATV=channels from 1 to 125
Cinescope	29 inches
Visible diagonal	67.9 cm
Electrical Power (FREE VOLTAGE)	95 to 245V AC-50/60Hz
Consumption	140 Watts
Acoustical power	7 Watts RMS per channel
Weight	34 kg
Dimensions (W x H x D)	670 x 610 x 520 mm

Design and specifications are subject to change without notice.

## NOTICES BEFORE REPAIRING

### To make the best use of this equipment, make sure to obey the following items when repairing (or mending).

1. Do not damage or melt the tunicate of the leading wire on the AC1 side, including the power supply cord.
2. Do not soil or stain the letters on the spec. inscription plates, notice labels, fuse labels, etc.
3. When repairing the part extracted from the conducted side of the board pattern, fix it firmly with applying bond to the pattern and the part.
4. Restore the following items after repairing.
  - 1) Conditions of soldering of the wires (especially, the distance on the AC1 side).
  - 2) Conditions of wiring, bundling of wires, etc.
  - 3) Types of the wires.
  - 4) Attachment conditions of all types of the insulation.
5. After repairing, always measure the insulation resistance and perform the voltage-withstand test (See Fig-1).
  - 1) The insulation resistance must be 7.0 to 9.5 M $\Omega$  when applying 500V per second.
  - 2) In the voltage withstand test, apply 3.6 KV for 3 seconds and check that the GO lamp lights.

- \* Breaking current set to 10 mA.
- \* Connect the safety checker as shown in Fig-1, then measure the resistance and perform the test.
- \* Do not touch the equipment during testing.
- \* For details of the safety checker, refer to the supplied Operation manual.

Insulation resistance: 7.0 to 9.5 M $\Omega$  (500 V/s)  
Voltage-withstand: 3.6 KV for 3 or more seconds

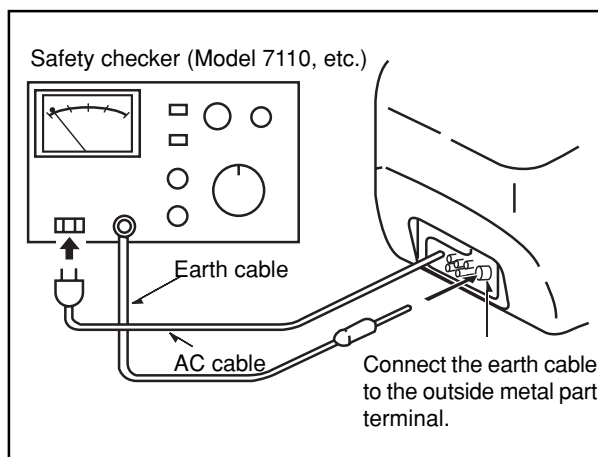


Fig-1

### When servicing and checking on the TV, note the followings.

1. Keep the notices  
As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.
2. Avoid an electric shock.  
There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.
3. Use the designated parts.  
The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety.  
Therefore, the part which is replaced should be used the part which has the same character. Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  $\Delta$  mark, the designated parts must be used.
4. Put parts and wires in the original position after assembling or wiring.  
There are parts which use the insulation material such as a tube or tape for safety, or which are assembled so that these parts do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.
5. Take care of the cathode-ray tube.  
By setting an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion.  
However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.
6. Avoid an X-ray.  
Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc. Therefore, when repairing the high voltage peripheral circuit, use the designated parts and do not change the circuit. Repairing except indicates causes rising of high voltage, and the cathode-ray tube emits an X-ray.
7. Perform a safety check after servicing.  
Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the places serviced.

# ELECTRICAL MAIN PARTS LIST

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
	C1-027-218-501	CJT.PCI	MAN/MONT PRINCIPAL	R821	C1-187-522-015		FUSISTOR 3W 22R 5%
	C1-027-218-511	CJT.PCI	IA PRINCIPAL MONT	R822	C1-185-547-140		RES.METAL FILME 1W 470R 5% N
	C1-027-218-521	CJT.PCI	INS.SMD TV-AR295	R823	C1-183-547-292		RES.METAL FILME 1/2W 4,7K 5% N
	C1-107-218-501	PCI	PRINCIPAL	R824	C1-183-668-519		RES.COMPOS.1/2W 6,8M K
DIODO				R828	C1-187-515-240		RES.METAL FILME 3W 1,5K 5% N
				R830	C1-185-510-914		FUSISTOR 1W 1R 5% N
D401	C1-129-314-199	DIODO	SK-4F1/06 RETIFICADOR	R833	C1-183-522-015		RES.FUS.NAO INFL.1/2W 22R 5% N
D407	C1-129-314-199	DIODO	SK-4F1/06 RETIFICADOR	R834	C1-183-510-192		RES.METAL FILME 1/2W 100R 5% N
D410	C1-129-314-199	DIODO	SK-4F1/06 RETIFICADOR	R835	C1-187-515-240		RES.METAL FILME 3W 1,5K 5% N
D802	C1-129-313-999	DIODO	SK-3G08 RETIFICADOR	R836	C1-183-547-292		RES.METAL FILME 1/2W 4,7K 5% N
D803	C1-129-313-999	DIODO	SK-3G08 RETIFICADOR	R840	C1-183-547-292		RES.METAL FILME 1/2W 4,7K 5% N
D804	C1-129-313-999	DIODO	SK-3G08 RETIFICADOR	R841	C1-183-582-092		RES.METAL FILME 1/2W 82R 5% N
D805	C1-129-313-999	DIODO	SK-3G08 RETIFICADOR	R843	C1-183-568-992		RES.METAL FILME 1/2W 6,8R 5% N
D811	C1-129-313-899	DIODO	SK-3GH06 RETIFICADOR	R844	C1-184-510-040		RES.METAL FILME 2W 10R 5% N
D819	C1-129-313-899	DIODO	SK-3GH06 RETIFICADOR	R845	C1-187-533-840		RES.METAL FILME 3W 0,33R 5% N
D820	C1-129-313-899	DIODO	SK-3GH06 RETIFICADOR	R846	C1-183-515-092		RES.METAL FILME 1/2W 15R 5% N
PTC801	C1-125-707-500	PTC	B59205-T80-B10 T205 9r+9r	R848	C1-183-522-992		RES.METAL FILME 1/2W 2,2R 5% N
R812	C1-125-707-400	RES.COEF.NEG.NTC	LIM.CORR.PICO	R853	C1-183-522-092		RES.METAL FILME 1/2W 22R 5% N
VR802	C1-125-708-000	VARISTOR	ERZV14D471	R854	C1-183-515-092		RES.METAL FILME 1/2W 15R 5% N
				R856	C1-183-515-092		RES.METAL FILME 1/2W 15R 5% N
				R857	C1-183-515-092		RES.METAL FILME 1/2W 15R 5% N
TRANSISTOR				R858	C1-183-515-092		RES.METAL FILME 1/2W 15R 5% N
				R859	C1-183-522-092		RES.METAL FILME 1/2W 22R 5% N
IC803	C1-139-999-159	PHOTO COUPLER	PS-2501-1-H	R901	C1-185-522-015		FUSISTOR 1W 22R 5%
Q401	C1-139-608-600	TRANSISTOR	MPS-A42				
Q402	C1-139-999-175	TRANSISTOR	BU-2520DX	CAP.CERAM			
Q801	C1-139-999-335	TRANSISTOR	2SK-2699				
IC				C406	C1-244-561-794		C.C.D.SL 560PF>=2KV J/K
IC101	C1-149-390-999	I.C.	TDA-8841/N2	C418	C1-244-471-920		CCD Y5P 470PF/1KV K
IC201	C1-149-392-399	I.C.	LA-7510	C419	C1-244-471-920		CCD Y5P 470PF/1KV K
IC301	C1-149-389-199	I.C.	TDA-8177	C425	C1-244-471-920		CCD Y5P 470PF/1KV K
IC601	C1-149-380-999	I.C.	TDA-7263	C808	C1-244-472-641		C.C.D.Y5P 4,7KPF/1KV K (6LR)
IC603	C1-149-388-999	I.C.	TDA-9855	C809	C1-244-472-641		C.C.D.Y5P 4,7KPF/1KV K (6LR)
IC700	C1-149-392-699	I.C.OTP	P87C770AAR/04 CTV828N	C810	C1-244-472-641		C.C.D.Y5P 4,7KPF/1KV K (6LR)
IC801	C1-146-300-103	I.C.	TL-431-BCLP	CAP.POLY			
IC802	C1-140-107-414	I.C.	MC-44603				
IC804	C1-149-376-899	I.C.	7805 (PLASTICO)	C407	C1-265-133-952		CAP.POLYPRO 13KPF/1600V J
RESISTOR/FUSISTOR				C409	C1-265-474-052		CAP.POLYPRO MET.470KPF/200V J
				C801	C1-265-104-070		C.POLY.100KPF/275VAC M(SUP.X2)
R204	C1-183-533-192	RES.METAL.FILME	1/2W 330R 5% N	C845	C1-265-224-563		C.POLY.220KPF/250VAC K(SUP.X2)
R205	C1-183-510-092	RES.METAL FILME	1/2W 10R 5% N	C846	C1-265-224-563		C.POLY.220KPF/250VAC K(SUP.X2)
R211	C1-183-510-092	RES.METAL FILME	1/2W 10R 5% N	C850	C1-265-104-070		C.POLY.100KPF/275VAC M(SUP.X2)
R225	C1-183-510-092	RES.METAL FILME	1/2W 10R 5% N	MODULO/SINTONIZ			
R301	C1-183-515-092	RES.METAL FILME	1/2W 15R 5% N				
R303	C1-185-533-140	RES.METAL FILME	1W 330R 5% N	RM701	C1-271-205-300		MODULO REMOCON RPM6938 180"
R304	C1-185-582-840	RES.METAL FILME	1W 0,82R 5% N	TU101	C1-271-503-500		SINTONIZADOR IIC 5V ENV56D33G3
R307	C1-185-518-940	RES.METAL FILME	1W 1,8R 5% N	CAP.ELCO			
R403	C1-183-522-192	RES.METAL FILME	1/2W 220R 5% N				
R405	C1-183-556-292	RES.METAL FILME	1/2W 5,6K 5% N	C417	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R406	C1-184-510-215	FUSISTOR	2W 1K 5%	C420	C1-291-220-017		ELCO 22UF/250V M 12,5X25
R407	C1-185-515-340	RES.METAL FILME	1W 15K 5% N	C424	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R412	C1-183-522-497	RES.M.GLAZ.FILM	1/2W 220K 5% N	C616	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R416	C1-183-582-192	RES.METAL FILME	1/2W 820R 5% N	C622	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R419	C1-185-510-914	FUSISTOR	1W 1R 5% N	C816	C1-293-471-057		ELCO 470UF /400V
R421	C1-185-510-914	FUSISTOR	1W 1R 5% N	C825	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R422	C1-185-522-015	FUSISTOR	1W 22R 5%	C826	C1-297-101-924		ELCO 100UF/160V (HR)
R423	C1-185-510-240	RES.M.FILME	1W 1K 5% N	C832	C1-291-102-419		ELCO 1000UF/25V M 12,5X25
R424	C1-185-568-340	RES.METAL FILME	1W 68K 5% N	C836	C1-297-101-924		ELCO 100UF/160V (HR)
R430	C1-183-582-192	RES.METAL FILME	1/2W 820R 5% N	C868	C1-291-102-519		ELCO CI 1000UF/35V M 16X20
R431	C1-185-510-914	FUSISTOR	1W 1R 5% N	BOBINA/INDUTOR			
R439	C1-183-533-092	RES.METAL FILME	1/2W 33R 5% N				
R503	C1-183-510-292	RES.METAL FILME	1/2W 1K 5% N				
R504	C1-183-510-192	RES.METAL FILME	1/2W 100R 5% N				
R505	C1-183-510-192	RES.METAL FILME	1/2W 100R 5% N				
R506	C1-183-510-192	RES.METAL FILME	1/2W 100R 5% N	L101	C1-312-001-100		BOBINA LINEARIDADE 34UH
R618	C1-183-547-992	RES.METAL FILME	1/2W 4,7R 5% N	L400	C1-319-916-948		INDUTOR 18UH J
R619	C1-183-547-992	RES.METAL FILME	1/2W 4,7R 5% N	L404	C1-319-957-000		INDUTOR 15UH K
R620	C1-183-510-292	RES.METAL FILME	1/2W 1K 5% N	L702	C1-319-953-000		INDUTOR 33UH
R658	C1-183-522-092	RES.METAL FILME	1/2W 22R 5% N	L703	C1-319-917-027		INDUTOR FIXO 20UH K AXIAL
R805	C1-183-510-392	RES.METAL.FILME	1/2W 10K 5% N	L806	C1-319-917-027		INDUTOR FIXO 20UH K AXIAL
R807	C1-183-522-015	RES.FUS.NAO INFL.1/2W	22R 5% N	L807	C1-319-951-100		INDUTOR 140UH
R808	C1-183-547-292	RES.METAL FILME	1/2W 4,7K 5% N	L808	C1-319-951-100		INDUTOR 140UH
R811	C1-184-527-340	RES.METAL FILME	2W 27K 5% N	L809	C1-319-953-000		INDUTOR 33UH
R813	C1-182-522-214	RES.FUS.NAO INFL.1/4W	2,2K 5%	T801	C1-319-955-400		FILTRO DE LINHA
R814	C1-187-533-840	RES.METAL FILME	3W 0,33R 5% N	TRANSISTOR FITADO			
R816	C1-183-547-292	RES.METAL FILME	1/2W 4,7K 5% N				
R817	C1-189-124-931	RES.PRECISAO	0,6W 2,49K 0,5%	Q802	C1-320-030-102		TRANSISTOR BC-337/16
R818	C1-174-051-025	RES.FIO	5W 1K 5% V-SQM	Q803	C1-320-030-102		TRANSISTOR BC-337/16
R819	C1-187-522-340	RES.METAL FILME	3W 22K 5% N	Q804	C1-320-030-102		TRANSISTOR BC-337/16
R820	C1-189-112-731	RES.PRECISAO	0,6W 127K 0,5%				

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
CAP.POLY FITADO			
C101	C1-330-474-904	C.POLYMET	470KPF/63V K
C302	C1-330-224-122	C.POLYMET	220KPF/63V K
C307	C1-331-104-004	C.POLYPRO	100KPF/160V 5%
C404	C1-330-104-421	C.POLYMET	100KPF/250V J
C421	C1-330-224-122	C.POLYMET	220KPF/63V K
C804	C1-330-122-100	MYLLARCAP	1,2KPF/63V K
C819	C1-330-474-904	C.POLYMET	470KPF/63V K
C822	C1-330-473-401	CAP.POLYESTER	47KPF/250V J
TRAFO			
TF401	C1-353-101-500	TRAFO DRIVE HT	
FLK401	C1-355-210-000	TRAFO FLY BACK 29"	
TF802	C1-356-004-500	TRAFO DE CHAVEAMENTO	
CAP.CERAM FITADO			
C405	C1-363-102-601	C.C.D.Y5P	1KPF>=500V K
C422	C1-363-221-600	C.C.D.Y5P	220PF>=500V K
C429	C1-363-221-600	C.C.D.Y5P	220PF>=500V K
C813	C1-363-471-600	C.C.D.Y5P/Y5E	470PF>=500V K
C818	C1-363-221-803	C.C.D.Y5P	220PF/2KV K 6LS
C820	C1-363-102-803	C.C.D.Y5P	1KPF/2KV K 6LS
C821	C1-363-331-803	C.C.D.Y5P	330PF/2KV J
C823	C1-363-102-700	C.C.D.Y5U	1K/1KV M
C824	C1-363-331-803	C.C.D.Y5P	330PF/2KV J
C829	C1-363-102-700	C.C.D.Y5U	1K/1KV M
C838B	C1-369-222-803	C.C.D.GKO	2K2PF/620 M
C839	C1-363-221-600	C.C.D.Y5P	220PF>=500V K
C855	C1-363-471-600	C.C.D.Y5P/Y5E	470PF>=500V K
CAP.ELCO FITADO			
C103	C1-380-470-324	ELCO	47UF/25V M
C200	C1-380-109-622	ELCO	1UF/100V M
C203	C1-380-101-328	ELCO	100UF/25V M
C208	C1-380-100-524	ELCO	10UF/50V M
C210	C1-380-109-622	ELCO	1UF/100V M
C211	C1-380-100-524	ELCO	10UF/50V M
C213	C1-380-478-622	ELCO	0,47UF/100V M
C214	C1-380-478-622	ELCO	0,47UF/100V M
C215	C1-380-478-622	ELCO	0,47UF/100V M
C304	C1-380-221-325	ELCO	220UF/25V-35V M
C401	C1-380-109-622	ELCO	1UF/100V M
C408	C1-380-229-724	ELCO	2,2UF /160V M (6X11)
C412	C1-380-229-622	ELCO	2,2UF/100V M 5x11mm
C414	C1-380-479-622	ELCO	4,7UF/100V M
C423	C1-380-100-524	ELCO	10UF/50V M
C605	C1-380-471-229	ELCO	470UF/16V M
C612	C1-380-109-622	ELCO	1UF/100V M
C613	C1-380-100-422	ELCO	10UF/50V K
C615	C1-380-229-521	ELCO	2,2UF/50V M
C620	C1-380-229-521	ELCO	2,2UF/50V M
C625	C1-380-229-521	ELCO	2,2UF/50V M
C627	C1-380-109-622	ELCO	1UF/100V M
C628	C1-380-221-325	ELCO	220UF/25V-35V M
C629	C1-380-229-521	ELCO	2,2UF/50V M
C630	C1-380-470-324	ELCO	47UF/25V M
C631	C1-380-470-324	ELCO	47UF/25V M
C632	C1-380-101-328	ELCO	100UF/25V M
C633	C1-380-109-622	ELCO	1UF/100V M
C634	C1-380-100-525	ELCO	10UF/16V M LL
C636	C1-380-100-524	ELCO	10UF/50V M
C638	C1-380-479-622	ELCO	4,7UF/100V M
C639	C1-380-479-622	ELCO	4,7UF/100V M
C640	C1-380-479-622	ELCO	4,7UF/100V M
C641	C1-380-229-521	ELCO	2,2UF/50V M
C642	C1-380-229-521	ELCO	2,2UF/50V M
C643	C1-380-100-524	ELCO	10UF/50V M
C646	C1-380-229-521	ELCO	2,2UF/50V M
C647	C1-380-221-325	ELCO	220UF/25V-35V M
C648	C1-380-479-622	ELCO	4,7UF/100V M
C650	C1-380-100-524	ELCO	10UF/50V M
C654	C1-380-100-422	ELCO	10UF/50V K
C655	C1-380-229-521	ELCO	2,2UF/50V M
C657	C1-380-101-328	ELCO	100UF/25V M
C658	C1-380-221-325	ELCO	220UF/25V-35V M
C659	C1-380-229-521	ELCO	2,2UF/50V M
C660	C1-380-229-521	ELCO	2,2UF/50V M
C661	C1-380-229-521	ELCO	2,2UF/50V M
C662	C1-380-229-521	ELCO	2,2UF/50V M

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C663	C1-380-229-521	ELCO	2,2UF/50V M
C670	C1-380-229-521	ELCO	2,2UF/50V M
C700	C1-380-100-524	ELCO	10UF/50V M
C726	C1-380-100-524	ELCO	10UF/50V M
C802	C1-380-221-325	ELCO	220UF/25V-35V M
C807	C1-380-109-622	ELCO	1UF/100V M
C814	C1-380-101-328	ELCO	100UF/25V M
C817	C1-380-221-325	ELCO	220UF/25V-35V M
C830	C1-380-221-325	ELCO	220UF/25V-35V M
C831	C1-380-471-331	ELCO	470UF/35V M 10X20
C834	C1-380-101-328	ELCO	100UF/25V M
C837	C1-380-221-325	ELCO	220UF/25V-35V M
C840	C1-380-470-324	ELCO	47UF/25V M
C843	C1-380-100-524	ELCO	10UF/50V M
C844	C1-380-221-325	ELCO	220UF/25V-35V M
C847	C1-380-100-524	ELCO	10UF/50V M
C848	C1-380-471-331	ELCO	470UF/35V M 10X20
C851	C1-380-221-325	ELCO	220UF/25V-35V M
C852	C1-380-470-324	ELCO	47UF/25V M
C856	C1-380-101-328	ELCO	100UF/25V M
C857	C1-380-100-524	ELCO	10UF/50V M
C858	C1-380-479-622	ELCO	4,7UF/100V M
C860	C1-380-100-524	ELCO	10UF/50V M
C861	C1-380-100-524	ELCO	10UF/50V M
C862	C1-380-101-328	ELCO	100UF/25V M
C866	C1-380-471-229	ELCO	470UF/16V M
C874	C1-380-100-524	ELCO	10UF/50V M
RELE			
RL801	C1-391-004-600	RELE	SDT-SS-112DM
DIODO FITADO			
D201	C1-414-621-902	DIODO	1N-4148 75V SINAL
D301	C1-410-440-015	DIODO	1N-4005 RETIFICADOR
D400	C1-414-621-902	DIODO	1N-4148 75V SINAL
D405	C1-414-621-902	DIODO	1N-4148 75V SINAL
D408	C1-411-430-807	DIODO	BYV-95B RETIFICADOR
D412	C1-414-621-902	DIODO	1N-4148 75V SINAL
D601	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D602	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D603	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D604	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D605	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D606	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D607	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D608	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D609	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D610	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D611	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D612	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D613	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D614	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D801	C1-414-621-903	DIODO	BAV-21
D808	C1-414-621-902	DIODO	1N-4148 75V SINAL
D808	C1-415-167-401	DIODO	SK-4F1/08
D809	C1-415-167-401	DIODO	SK-4F1/08
D810	C1-415-164-001	DIODO	BYV-27-150
D812	C1-412-054-302	DIODO	1N-5231B ZENER 5,1V
D815	C1-414-621-902	DIODO	1N-4148 75V SINAL
D817	C1-410-440-015	DIODO	1N-4005 RETIFICADOR
D821	C1-414-621-902	DIODO	1N-4148 75V SINAL
D822	C1-414-621-902	DIODO	1N-4148 75V SINAL
D829	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
D901	C1-412-104-302	DIODO	1N-5237B ZENER 8,2V
FILTRO/CRISTAL /FERRITE			
CF100	C1-421-500-400	FILTRO	CERAMICO SFE- 4.5MB
CF200	C1-421-506-600	FILTRO	CERAMICO TPS-4.5MB
FB801	C1-427-011-200	BEAD	2X5X5MM
FB802	C1-427-010-820	FERR.BEAD	BL02RN2R6T4 DP.RAD
FB803	C1-427-011-200	BEAD	2X5X5MM
FB804	C1-427-010-820	FERR.BEAD	BL02RN2R6T4 DP.RAD
FB805	C1-427-011-200	BEAD	2X5X5MM
FB806	C1-427-010-820	FERR.BEAD	BL02RN2R6T4 DP.RAD
FB807	C1-427-011-200	BEAD	2X5X5MM
FB808	C1-427-011-200	BEAD	2X5X5MM
FB809	C1-427-011-200	BEAD	2X5X5MM
FB810	C1-427-011-200	BEAD	2X5X5MM
SF100	C1-421-507-300	SAW FILTER	M3953M
SF201	C1-421-506-800	SAW FILTER	M9260

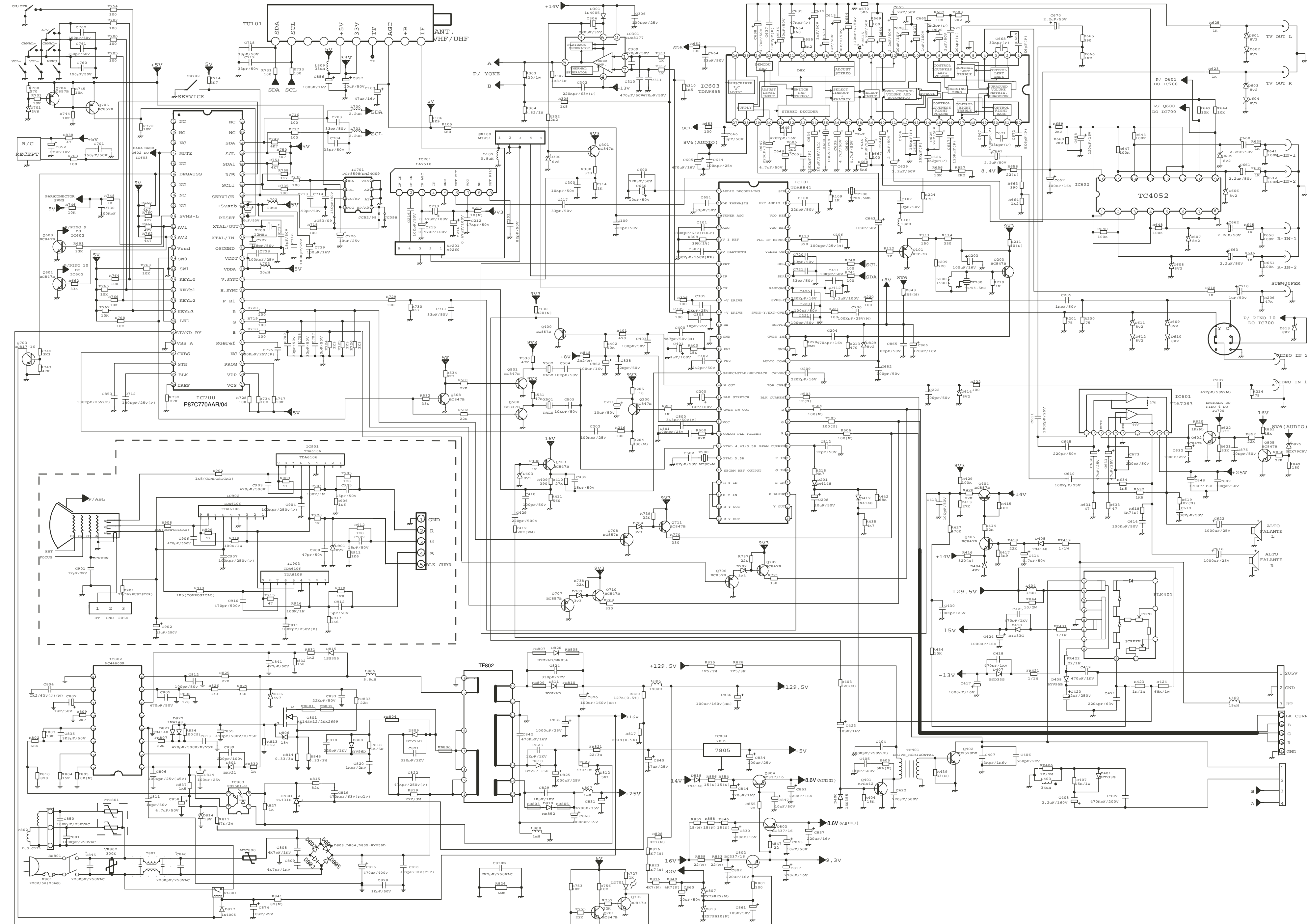
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X500	C1-425-009-200		CRISTAL NTSC 3.579545 SE / S
X501	C1-425-009-300		CRISTAL PAL-N 3.582056 SSP / S
X502	C1-425-009-100		CRISTAL PAL-M 3.575611 SSP / S
X600	C1-421-506-100		RESSONADOR CERAMICO CSB-503P58
X700	C1-425-008-100		CRISTAL 12,0000 MHZ
CHAVE			
SW701	C1-449-008-400		BLOCO CHAVES DE TOQUE C/7UNID
SW702	C1-440-505-900		CHAVE SERVICIO
SW801	C1-440-090-058		CHAVE POWER
DIODO LED			
LD701	C1-459-521-800		DIODO LED SLR-56VC3F
FUSIVEL			
F801	C1-461-058-002		FUS.ACAO RET.20AG 4A/250V
INDUTOR FITADO			
L102	C1-479-920-034		INDUTOR 0,82UH K
L200	C1-479-908-634		INDUTOR FIXO 15UH K AXIAL
L700	C1-479-906-734		INDUTOR FIXO 2,2UH K AXIAL
L701	C1-479-906-734		INDUTOR FIXO 2,2UH K AXIAL
L805	C1-479-907-634		INDUTOR FIXO 5,6UH K AXIAL
CAP. SMD			
C106	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C107	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C108	C1-490-522-300		CAP. SMD X7R 22KPF/50V K 0805
C109	C1-490-522-300		CAP. SMD X7R 22KPF/50V K 0805
C201	C1-490-462-004		CAP. SMD NPO 82PF/50V J 0805
C202	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C204	C1-490-647-405		CAP. SMD Y5V 470KPF/25V Z 0805
C205	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C206	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C207	C1-490-547-300		CAP. SMD X7R 47KPF/50V K 0805
C209	C1-490-522-420		CAP. SMD X7R 220KPF/16V K 0805
C212	C1-490-547-300		CAP. SMD X7R 47KPF/50V K 0805
C216	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C217	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C220	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C221	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C222	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C300	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C303	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C305	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C306	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C309	C1-490-422-104		CAP. SMD NPO 220PF/50V J 0805
C310	C1-490-447-100		CAP. SMD NPO 470PF/50V K 0805
C311	C1-490-447-100		CAP. SMD NPO 470PF/50V K 0805
C400	C1-490-547-200		CAP. SMD X7R 4,7KPF/50V K 0805
C402	C1-490-522-200		CAP. SMD X7R 2,2KPF/50V K 0805
C403	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C410	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C411	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C413	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C426	C1-490-522-420		CAP. SMD X7R 220KPF/16V K 0805
C430	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C432	C1-490-415-000		CAP. SMD NPO 15PF/50V J 0805
C500	C1-490-533-200		CAP. SMD X7R 3,3KPF/50V K 0805
C501	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C502	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C503	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C504	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C512	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C600	C1-490-522-300		CAP. SMD X7R 22KPF/50V K 0805
C610	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C611	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C614	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C617	C1-490-512-400		CAP. SMD X7R 120KPF/50V K 0805
C618	C1-490-515-300		CAP. SMD X7R 15KPF/50V K 0805
C619	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C621	C1-490-512-400		CAP. SMD X7R 120KPF/50V K 0805
C626	C1-490-522-200		CAP. SMD X7R 2,2KPF/50V K 0805
C635	C1-490-547-303		CAP. SMD X7R 47KPF/25V K 0805
C637	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C644	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C645	C1-490-422-104		CAP. SMD NPO 220PF/50V J 0805
C649	C1-490-647-405		CAP. SMD Y5V 470KPF/25V Z 0805

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C651	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C652	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C653	C1-490-522-420		CAP. SMD X7R 220KPF/16V K 0805
C656	C1-490-515-300		CAP. SMD X7R 15KPF/50V K 0805
C664	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C665	C1-490-522-200		CAP. SMD X7R 2,2KPF/50V K 0805
C666	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C667	C1-490-515-420		CAP. SMD X7R 150KPF/16V K 0805
C668	C1-490-533-300		CAP. SMD X7R 33KPF/50V K 0805
C669	C1-490-556-200		CAP. SMD X7R 5,6KPF/50V K 0805
C671	C1-490-533-300		CAP. SMD X7R 33KPF/50V K 0805
C672	C1-490-556-200		CAP. SMD X7R 5,6KPF/50V K 0805
C673	C1-490-422-104		CAP. SMD NPO 220PF/50V J 0805
C701	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C703	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C704	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C707	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C708	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C709	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C711	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C712	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C713	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C714	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C716	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C717	C1-490-418-004		CAP. SMD NPO 18PF/50V J (0805)
C718	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C719	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C720	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C721	C1-490-433-004		CAP. SMD NPO 33PF/50V J 0805
C725	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C727	C1-490-418-004		CAP. SMD NPO 18PF/50V J (0805)
C728	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C730	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C760	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C761	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C762	C1-490-415-104		CAP. SMD NPO 150PF/50V J 0805
C805	C1-490-447-100		CAP. SMD NPO 470PF/50V K 0805
C806	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C811	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C812	C1-490-410-104		CAP. SMD NPO 100PF/50V J 0805
C828	C1-490-510-200		CAP. SMD X7R 1KPF/50V K 0805
C833	C1-490-522-300		CAP. SMD X7R 22KPF/50V K 0805
C835	C1-490-533-200		CAP. SMD X7R 3,3KPF/50V K 0805
C838	C1-490-522-300		CAP. SMD X7R 22KPF/50V K 0805
C841	C1-490-547-200		CAP. SMD X7R 4,7KPF/50V K 0805
C842	C1-490-647-405		CAP. SMD Y5V 470KPF/25V Z 0805
C849	C1-490-510-300		CAP. SMD X7R 10KPF/50V K 0805
C853	C1-490-410-410		CAP. SMD X7R 100KPF/25V K 0805
C865	C1-490-510-300		CAP. SMD X7R 1KPF/50V K 0805
C875	C1-490-510-300		CAP. SMD X7R 1KPF/50V K 0805
C908	C1-490-447-004		CAP. SMD NPO 47PF/50V J 0805

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
R309	C1-502-539-302	RES.SMD	39K 5% 0805
R310	C1-502-515-202	RES.SMD	1,5K 5% 0805
R311	C1-502-510-202	RES.SMD	1K 5% 0805
R312	C1-502-510-202	RES.SMD	1K 5% 0805
R314	C1-502-510-202	RES.SMD	1K 5% 0805
R400	C1-502-515-302	RES.SMD	15K 5% 0805
R401	C1-502-547-102	RES.SMD	470R 5% 0805
R402	C1-502-510-302	RES.SMD	10K 5% 0805
R404	C1-502-518-302	RES.SMD	18K 5% 0805
R408	C1-502-510-202	RES.SMD	1K 5% 0805
R409	C1-502-539-102	RES.SMD	390R 5% 0805
R410	C1-502-527-302	RES.SMD	27K 5% 0805
R411	C1-502-556-102	RES.SMD	560R 5% N 0805
R413	C1-502-527-302	RES.SMD	27K 5% 0805
R414	C1-502-522-302	RES.SMD	22K 5% 0805
R415	C1-502-510-302	RES.SMD	10K 5% 0805
R417	C1-502-539-202	RES.SMD	3,9K 0805
R418	C1-502-522-302	RES.SMD	22K 5% 0805
R427	C1-502-547-402	RES.SMD	470K 5% (0805)
R428	C1-502-522-302	RES.SMD	22K 5% 0805
R429	C1-502-510-402	RES.SMD	100K 5% 0805
R434	C1-502-510-302	RES.SMD	10K 5% 0805
R435	C1-502-547-202	RES.SMD	4,7K 5% 0805
R442	C1-502-568-302	RES.SMD	68K 5% 0805
R500	C1-502-582-302	RES.SMD	82K 5% 0805
R501	C1-502-522-302	RES.SMD	22K 5% 0805
R502	C1-502-530-302	RES.SMD	33K 5% 0805
R530	C1-502-547-302	RES.SMD	47K 5% 0805
R531	C1-502-547-302	RES.SMD	47K 5% 0805
R532	C1-502-533-302	RES.SMD	33K 5% 0805
R534	C1-502-547-202	RES.SMD	4,7K 5% 0805
R606	C1-502-522-202	RES.SMD	2,2K 5% 0805
R607	C1-502-510-302	RES.SMD	10K 5% 0805
R608	C1-502-522-202	RES.SMD	2,2K 5% 0805
R621	C1-502-533-302	RES.SMD	33K 5% 0805
R622	C1-502-533-302	RES.SMD	33K 5% 0805
R623	C1-502-510-202	RES.SMD	1K 5% 0805
R625	C1-502-510-202	RES.SMD	1K 5% 0805
R631	C1-502-547-002	RES.SMD	47R 5% 0805
R632	C1-502-515-202	RES.SMD	1,5K 5% 0805
R633	C1-502-547-002	RES.SMD	47R 5% 0805
R634	C1-502-515-202	RES.SMD	1,5K 5% 0805
R638	C1-502-510-202	RES.SMD	1K 5% 0805
R639	C1-502-510-202	RES.SMD	1K 5% 0805
R640	C1-502-510-402	RES.SMD	100K 5% 0805
R641	C1-502-510-402	RES.SMD	100K 5% 0805
R642	C1-502-510-402	RES.SMD	100K 5% 0805
R643	C1-502-510-402	RES.SMD	100K 5% 0805
R644	C1-502-510-302	RES.SMD	10K 5% 0805
R645	C1-502-510-202	RES.SMD	1K 5% 0805
R646	C1-502-510-202	RES.SMD	1K 5% 0805
R647	C1-502-510-402	RES.SMD	100K 5% 0805
R648	C1-502-510-402	RES.SMD	100K 5% 0805
R649	C1-502-510-302	RES.SMD	10K 5% 0805
R650	C1-502-510-402	RES.SMD	100K 5% 0805
R651	C1-502-510-402	RES.SMD	100K 5% 0805
R652	C1-502-510-102	RES.SMD	100R 5% 0805
R653	C1-502-510-102	RES.SMD	100R 5% 0805
R654	C1-502-516-102	RES.SMD	160R 5% 0805
R655	C1-502-582-202	RES.SMD	8,2K 5% 0805
R656	C1-502-510-302	RES.SMD	10K 5% 0805
R657	C1-502-522-202	RES.SMD	2,2K 5% 0805
R659	C1-502-522-202	RES.SMD	2,2K 5% 0805
R660	C1-502-522-202	RES.SMD	2,2K 5% 0805
R661	C1-502-533-302	RES.SMD	33K 5% 0805
R662	C1-502-533-302	RES.SMD	33K 5% 0805
R663	C1-502-539-102	RES.SMD	390R 5% 0805
R664	C1-502-512-202	RES.SMD	1,2K 5% 0805
R665	C1-502-539-102	RES.SMD	390R 5% 0805
R666	C1-502-512-202	RES.SMD	1,2K 5% 0805
R667	C1-502-510-102	RES.SMD	100R 5% 0805
R668	C1-502-556-202	RES.SMD	5,6K 5% N 0805
R669	C1-502-510-102	RES.SMD	100R 5% 0805
R670	C1-502-556-202	RES.SMD	5,6K 5% N 0805
R700	C1-502-527-102	RES.SMD	270R 5% 0805
R701	C1-502-510-302	RES.SMD	10K 5% 0805
R703	C1-502-510-102	RES.SMD	100R 5% 0805
R705	C1-502-510-102	RES.SMD	100R 5% 0805
R706	C1-502-510-102	RES.SMD	100R 5% 0805
R707	C1-502-510-102	RES.SMD	100R 5% 0805
R714	C1-502-547-202	RES.SMD	4,7K 5% 0805
R715	C1-502-510-102	RES.SMD	100R 5% 0805
R716	C1-502-510-102	RES.SMD	100R 5% 0805

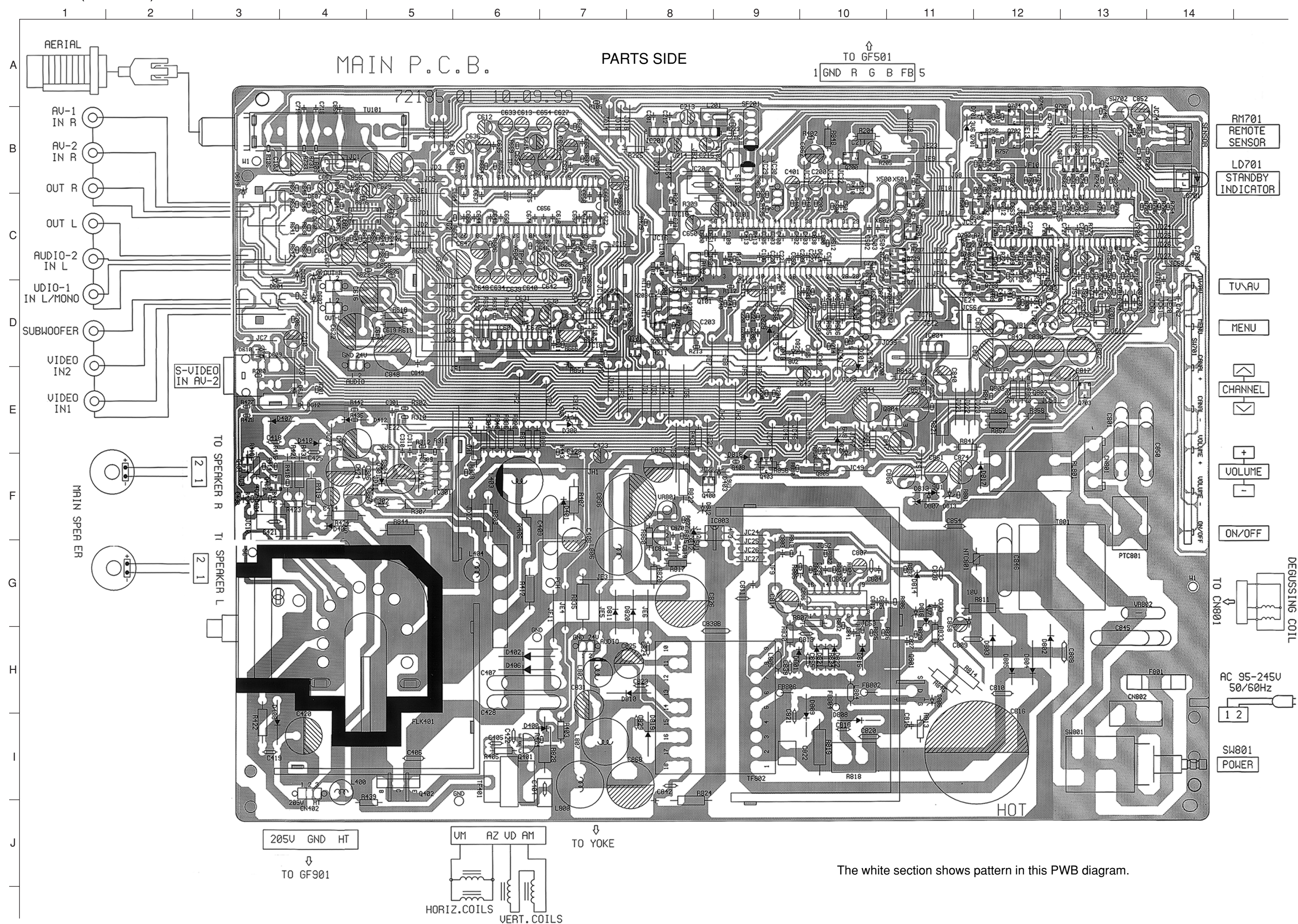


SCHEMATIC DIAGRAM-1





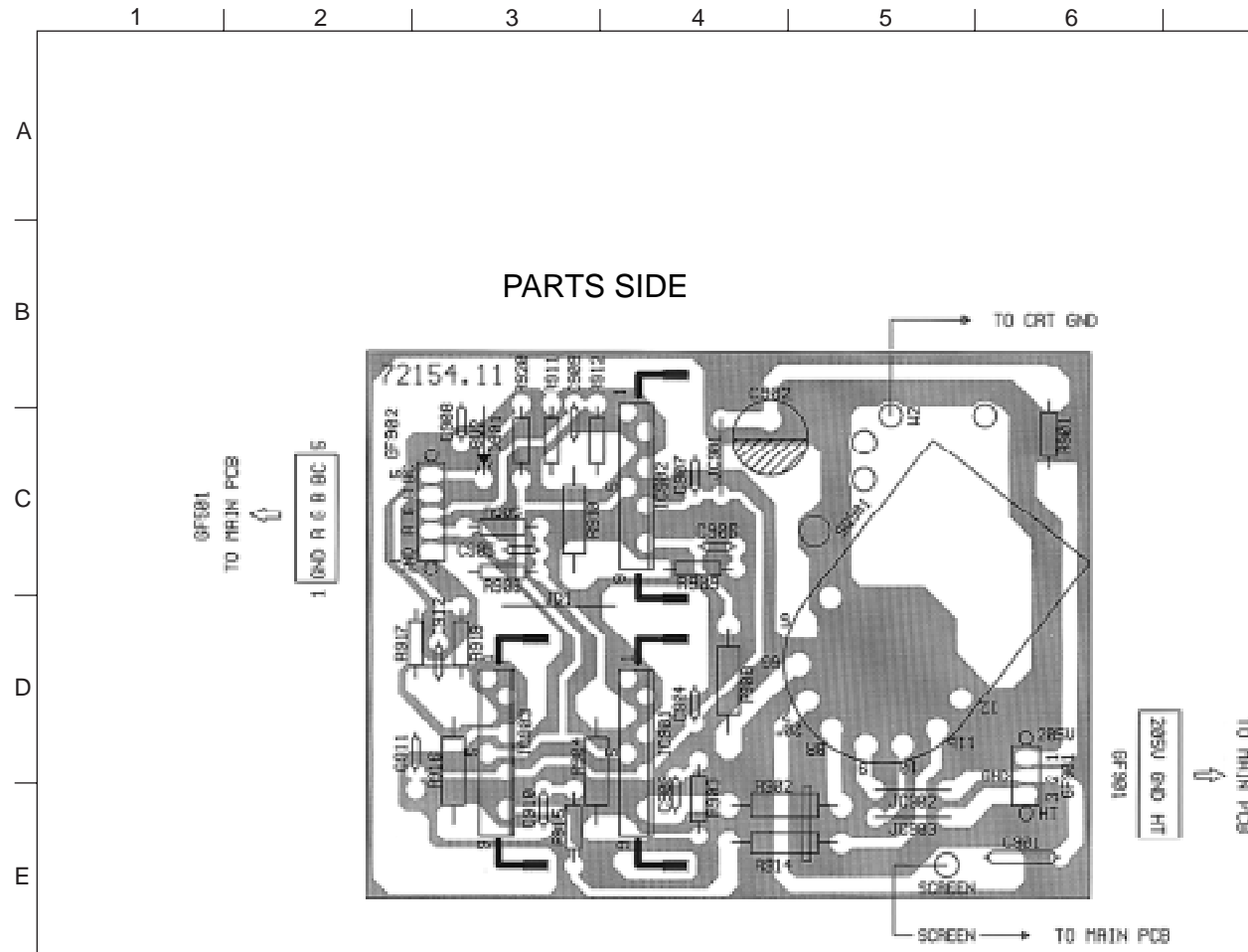
# WIRING-1 (MAIN C.B.)



The white section shows pattern in this PWB diagram.

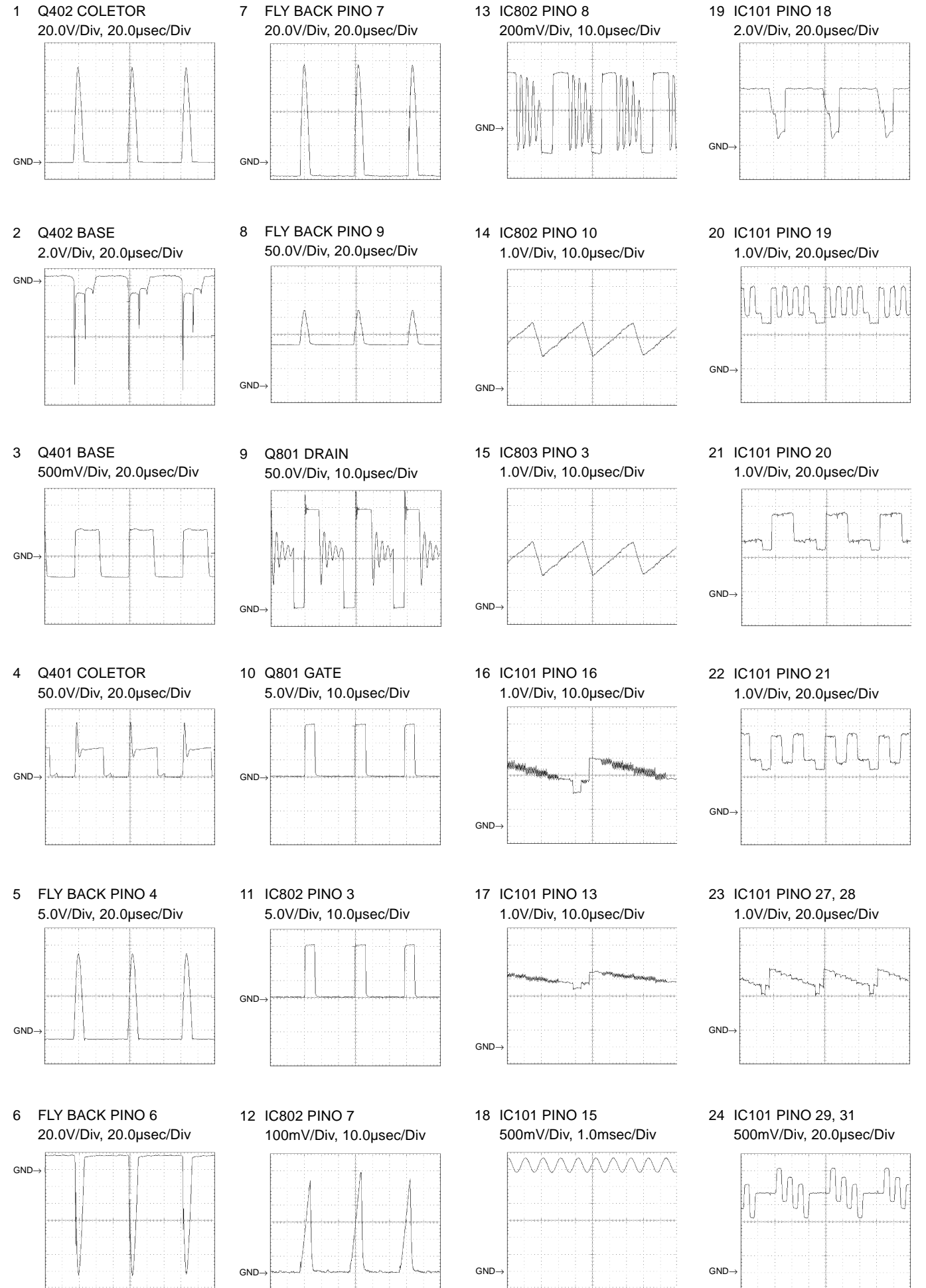


WIRING-2 (NC C.B)



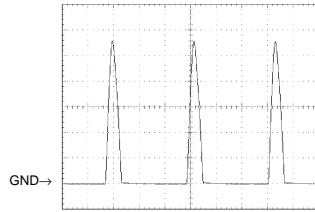
The white section shows pattern in this PWB diagram.

## WAVEFORMS

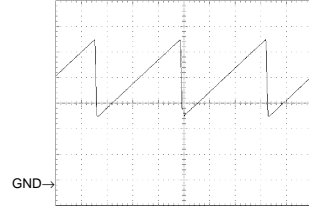




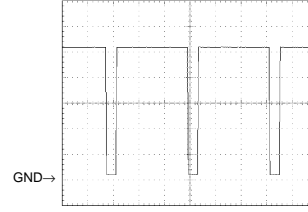
25 IC101 PINO 30, 32  
500mV/Div, 20.0µsec/Div



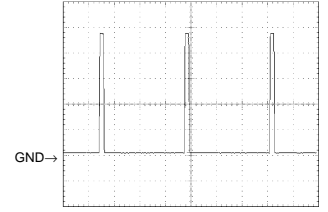
31 IC101 PINO 51  
1.0V/Div, 5.0msec/Div



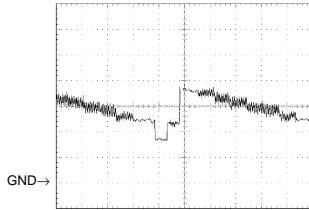
37 IC700 PINO 16  
1.0V/Div, 5.0msec/Div



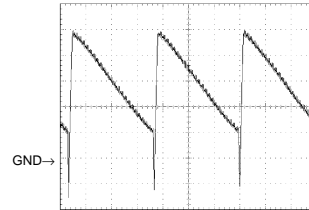
43 IC700 PINO 37  
1.0V/Div, 5.0msec/Div



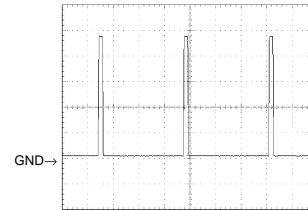
26 IC101 PINO 38  
1.0V/Div, 10.0µsec/Div



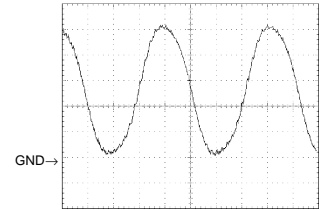
32 IC301 PINO 1  
500mV/Div, 20.0µsec/Div



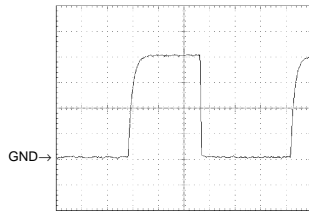
38 IC700 PINO 17  
1.0V/Div, 5.0msec/Div



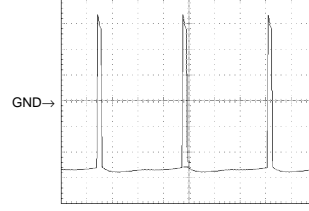
44 IC700 PINO 41  
1.0V/Div, 20.0nsec/Div



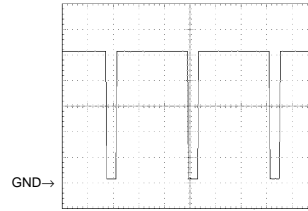
27 IC101 PINO 40  
2.0V/Div, 10.0µsec/Div



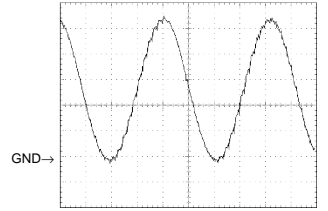
33 IC301 PINO 3  
500mV/Div, 20.0µsec/Div



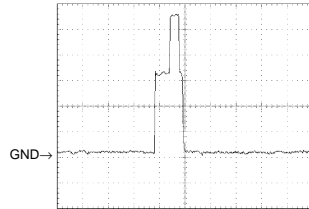
39 IC700 PINO 18  
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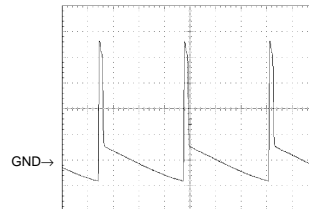
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1.0V/Div, 20.0nsec/Div



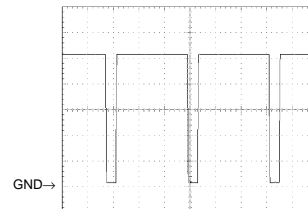
28 IC101 PINO 41  
1.0V/Div, 10.0µsec/Div



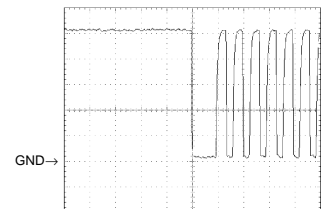
34 IC301 PINO 5  
10.0V/Div, 5.0msec/Div



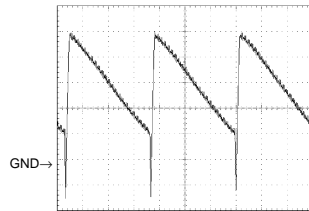
40 IC700 PINO 19  
1.0V/Div, 5.0msec/Div



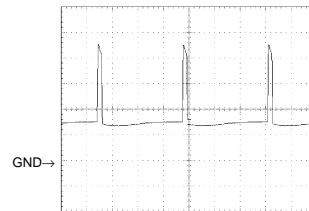
46 IC700 PINO 46  
500mV/Div, 20.0µsec/Div



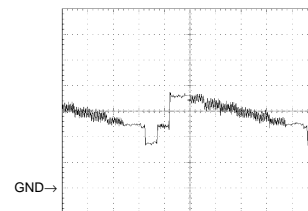
29 IC101 PINO 46  
200mV/Div, 5.0msec/Div



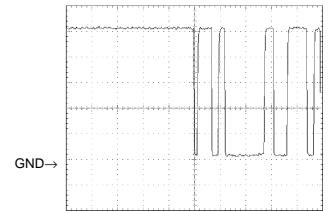
35 IC301 PINO 6  
10.0V/Div, 5.0msec/Div



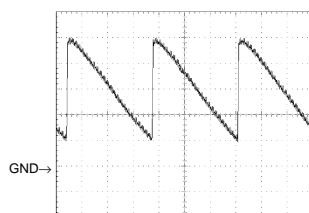
41 IC700 PINO 23  
1.0V/Div, 10.0µsec/Div



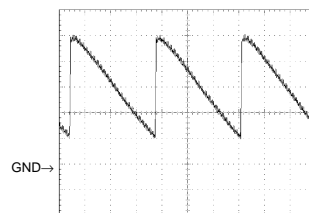
47 IC700 PINO 48  
1.0V/Div, 50.0µsec/Div



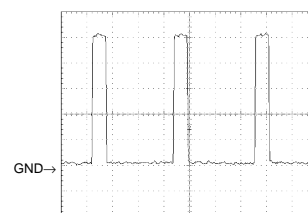
30 IC101 PINO 47  
200mV/Div, 5.0msec/Div



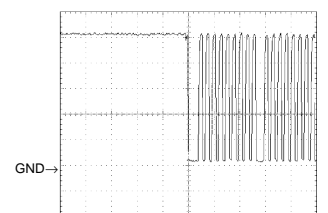
36 IC301 PINO 7  
200mV/Div, 5.0msec/Div



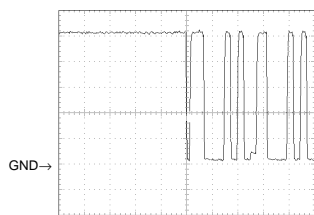
42 IC700 PINO 36  
1.0V/Div, 20.0µsec/Div



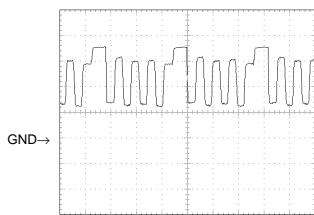
50 IC700 PINO 49  
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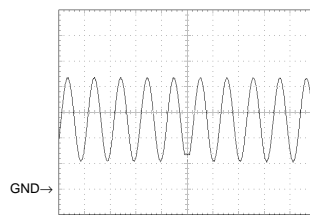
51 IC700 PINO 50  
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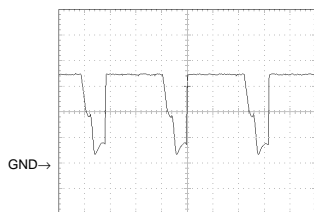
58 IC903 PINO 8  
50.0V/Div, 20.0μsec/Div



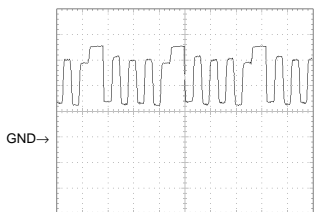
64 IC601 PINO 8  
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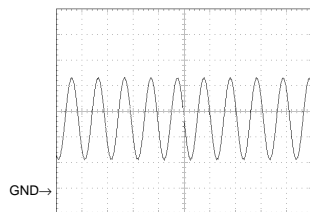
52 IC901 PINO 5  
2.0V/Div, 20.0μsec/Div



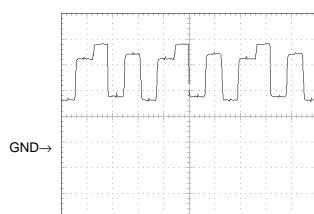
59 IC903 PINO 9  
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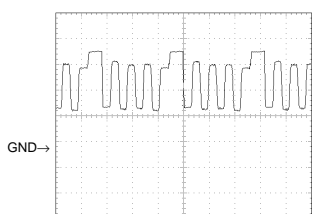
65 IC601 PINO 10  
5.0V/Div, 1.0msec/Div



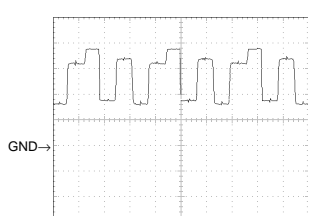
53 IC901 PINO 8  
50.0V/Div, 20.0μsec/Div



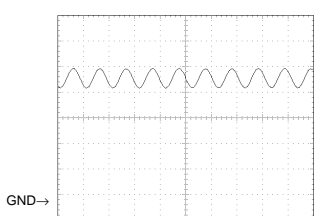
60 IC603 PINO 6  
50.0V/Div, 20.0μsec/Div



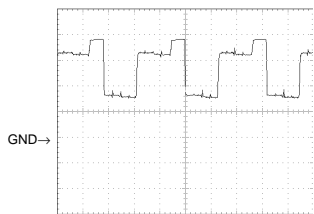
54 IC901 PINO 9  
50.0V/Div, 20.0μsec/Div



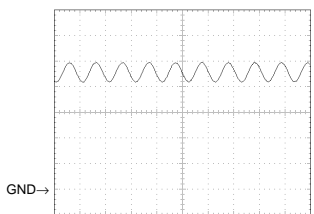
61 IC603 PINO 14  
1.0V/Div, 1.0msec/Div



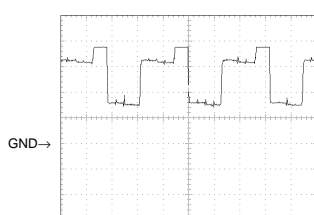
56 IC902 PINO 8  
50.0V/Div, 20.0μsec/Div



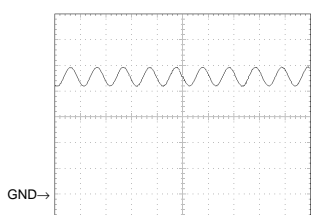
62 IC603 PINO 39  
1.0V/Div, 1.0msec/Div



57 IC902 PINO 9  
50.0V/Div, 20.0μsec/Div



63 IC603 PINO 47  
1.0V/Div, 1.0msec/Div



# VOLTAGE CHART

## MEDIDAS DE TENS'ES

### NOS IC'S

#### IC700(MICRO):

PINO 1	NC
PINO 2	NC
PINO 3	NC
PINO 4	62.92mV
PINO 5	NC
PINO 6	63.93mV
PINO 7	NC
PINO 8	NC
PINO 9	NC
PINO 10	0.56mV
PINO 11	64.24mV
PINO 12	64.21mV
PINO 13	-0.15mV
PINO 14	46.49mV
PINO 15	-0.62mV
PINO 16	4.359V
PINO 17	4.359V
PINO 18	4.359V
PINO 19	4.359V
PINO 20	47.84mV
PINO 21	3.568V
PINO 22	-1.51mV
PINO 23	2.6844V
PINO 24	1.0897V
PINO 25	2.3160V
PINO 26	2.2966V
PINO 27	4.9V
PINO 28	4.971V
PINO 29	238.7mV
PINO 30	0.95V
PINO 31	2.1541V
PINO 32	5.6mV
PINO 33	1.73mV
PINO 34	1.75mV
PINO 35	27.29mV
PINO 36	0.8496mV
PINO 37	236.36mV
PINO 38	4.979V
PINO 39	4.979V
PINO 40	-1.05mV
PINO 41	2.3729V
PINO 42	2.346V
PINO 43	1.47mV
PINO 44	4.977V
PINO 45	4.965V
PINO 46	4.213V
PINO 47	4.908V
PINO 48	4.16V
PINO 49	4.467V
PINO 50	4.453V
PINO 51	NC
PINO 52	NC

#### IC101(TDA8841):

PINO 1	-1.12mV
PINO 2	3.707V
PINO 3	NC
PINO 4	NC
PINO 5	2.4588V
PINO 6	2.019V
PINO 7	4.489V
PINO 8	4.45V
PINO 9	6.680V
PINO 10	1.1387V
PINO 11	3.756V
PINO 12	8.077V
PINO 13	3.882V
PINO 14	-1.10mV
PINO 15	3.0565V
PINO 16	11.9mV
PINO 17	3.388V
PINO 18	5.542V
PINO 19	3.487V
PINO 20	3.26V
PINO 21	3.203V
PINO 22	2.097V
PINO 23	NC
PINO 24	NC
PINO 25	NC
PINO 26	43.37mV
PINO 27	2.7575V
PINO 28	2.7575V
PINO 29	2.3130V
PINO 30	2.3114V
PINO 31	2.3132V
PINO 32	2.3112V
PINO 33	0.3033V
PINO 34	2.498V
PINO 35	2.504V
PINO 36	4.842V
PINO 37	7.92V
PINO 38	2.6478V
PINO 39	4.946V
PINO 40	3.1954V
PINO 41	0.8216V
PINO 42	3.597V
PINO 43	3.942V
PINO 44	-1.01mV
PINO 45	NC
PINO 46	0.6043V
PINO 47	0.639V
PINO 48	4.625V
PINO 49	4.625V
PINO 50	1.972V
PINO 51	3.808V
PINO 52	3.864V
PINO 53	4.32V
PINO 54	1.2848V
PINO 55	2.8919V
PINO 56	3.987V

#### IC603 (TDA9855):

PINO 1	4.357V
PINO 2	4.354V
PINO 3	4.357V
PINO 4	4.358V
PINO 5	0.98mV
PINO 6	4.358V
PINO 7	4.339V
PINO 8	4.353V
PINO 9	4.361V
PINO 10	6.260V
PINO 11	4.357V
PINO 12	4.353V
PINO 13	4.355V
PINO 14	4.355V
PINO 15	4.356V
PINO 16	4.212V
PINO 17	4.284V
PINO 18	4.319V
PINO 19	4.362V
PINO 20	3.748V
PINO 21	2.5265V
PINO 22	4.357V
PINO 23	54.80mV
PINO 24	4.357V
PINO 25	1.72mV
PINO 26	4.470V
PINO 27	4.473V
PINO 28	8.915V
PINO 29	4.346V
PINO 30	8.659V
PINO 31	4.356V
PINO 32	4.40V
PINO 33	4.356V
PINO 34	3.713V
PINO 35	7.401V
PINO 36	4.386V
PINO 37	4.375V
PINO 38	4.366V
PINO 39	4.366V
PINO 40	4.361V
PINO 41	4.358V
PINO 42	4.362V
PINO 43	4.363V
PINO 44	4.366V
PINO 45	4.359V
PINO 46	4.349V
PINO 47	4.365V
PINO 48	NC
PINO 49	4.367V
PINO 50	4.366V
PINO 51	4.360V
PINO 52	4.363V

#### IC601 (TDA7263):

PINO 1	1.668V
PINO 2	1.7066V

PINO 3	14.573V
PINO 4	1.7018V
PINO 5	1.59V
PINO 6	GND
PINO 7	NC
PINO 8	13.064V
PINO 9	26.655V
PINO 10	13.019V

#### IC602 (BU4052BP):

PINO 1	4.439V
PINO 2	4.396V
PINO 3	4.441V
PINO 4	4.399V
PINO 5	4.399V
PINO 6	GND
PINO 7	GND
PINO 8	GND
PINO 9	8.872V
PINO 10	8.873V
PINO 11	4.445V
PINO 12	4.445V
PINO 13	4.447V
PINO 14	4.403V
PINO 15	4.404V
PINO 16	8.887V

#### IC301 (TDA8177):

PINO 1	14.459V
PINO 2	28.671V
PINO 3	1.8435V
PINO 4	0.06mV
PINO 5	13.953V
PINO 6	29.366V
PINO 7	14.478V

#### IC201 (LA7510):

PINO 1	4.395V
PINO 2	4.935V
PINO 3	7.285V
PINO 4	3.550V
PINO 5	-1.78mV(GND)
PINO 6	3.603V
PINO 7	9.384V
PINO 8	NC
PINO 9	7.189V

#### IC701 (MN24C08MN6):

PINO 1	0.25mV
PINO 2	NC
PINO 3	NC
PINO 4	NC
PINO 5	4.19V
PINO 6	—
PINO 7	—
PINO 8	4.987V



IC901 (TDA6106):

PINO 1	NC
PINO 2	NC
PINO 3	2.6311V
PINO 4	GND
PINO 5	5.642V
PINO 6	208.04V
PINO 7	NC
PINO 8	137.4V
PINO 9	136.9V

IC902 (TDA6106):

PINO 1	NC
PINO 2	NC
PINO 3	2.6320V
PINO 4	GND
PINO 5	5.648V
PINO 6	208.04V
PINO 7	NC
PINO 8	133.04V
PINO 9	133.18V

IC903 (TDA6106):

PINO 1	NC
PINO 2	NC
PINO 3	2.6055V
PINO 4	GND
PINO 5	5.645V
PINO 6	208.04V
PINO 7	NC
PINO 8	121.37V
PINO 9	121.19V

IC802 (MC44603):

PINO 1	16.473V
PINO 2	16.472V
PINO 3	3.381V
PINO 4	0.15mV
PINO 5	GND
PINO 6	0.7471V
PINO 7	75.91mV
PINO 8	179.41mV
PINO 9	GND
PINO 10	2.6154V
PINO 11	2.4158V
PINO 12	276.62mV
PINO 13	2.9252V
PINO 14	2.5072V
PINO 15	2.4982V
PINO 16	2.5105V

IC804 (7805):

PINO 1	11.987V(IN)
PINO 2	GND
PINO 3	4.985V(OUT)

IC803 (PS2501H):

PINO 1	3.203V
PINO 2	2.557V
PINO 3	1.604V
PINO 4	16.473V

MEDIDAS DE TENS'ES  
EM TRANSISTORES

Q804:

EMISSOR	8.944V
BASE	9.594V
COLETOR	11.169V

Q803:

EMISSOR	8.937V
BASE	9.594V
COLETOR	10.361V

Q802:

EMISSOR	9.602V
BASE	10.2V
COLETOR	13.634V

Q704:

EMISSOR	4.986V
BASE	4.343V
COLETOR	4.965V

Q705:

EMISSOR	4.984V
BASE	4.963V
COLETOR	3.39mV

Q200:

EMISSOR	1.9588V
BASE	2.6185V
COLETOR	9.521V

Q101:

EMISSOR	3.69V
BASE	3.02V
COLETOR	0.010mV

Q203:

EMISSOR	2.7221V
BASE	3.373V
COLETOR	9.402V

Q805:

EMISSOR	1.86mV
BASE	0.6612V
COLETOR	75.73mV

Q602:

EMISSOR	48.46mV
BASE	-0.47V
COLETOR	14.541V

Q301:

EMISSOR	0.27V
BASE	-0.39V
COLETOR	9.602V

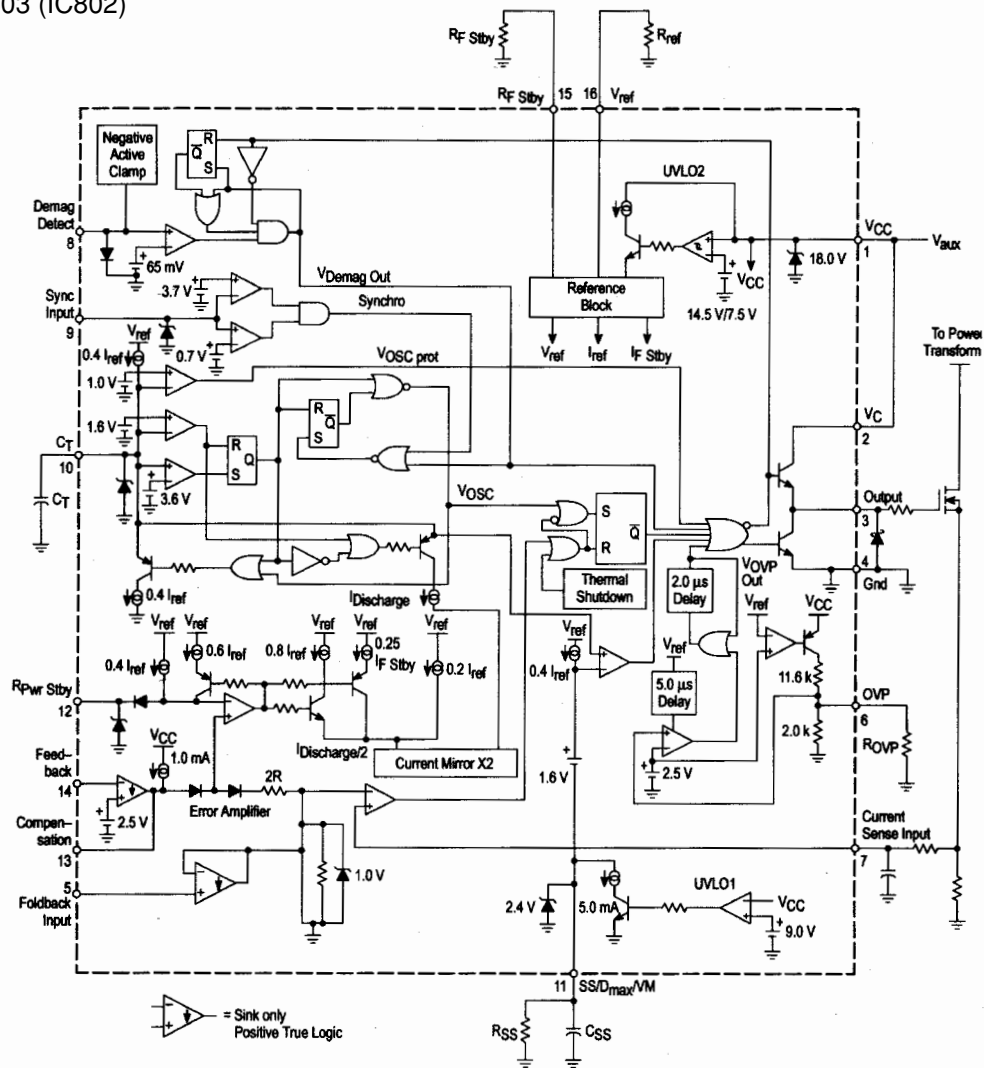
# IC DESCRIPTION

IC, P87C770AAR/04 (IC700)

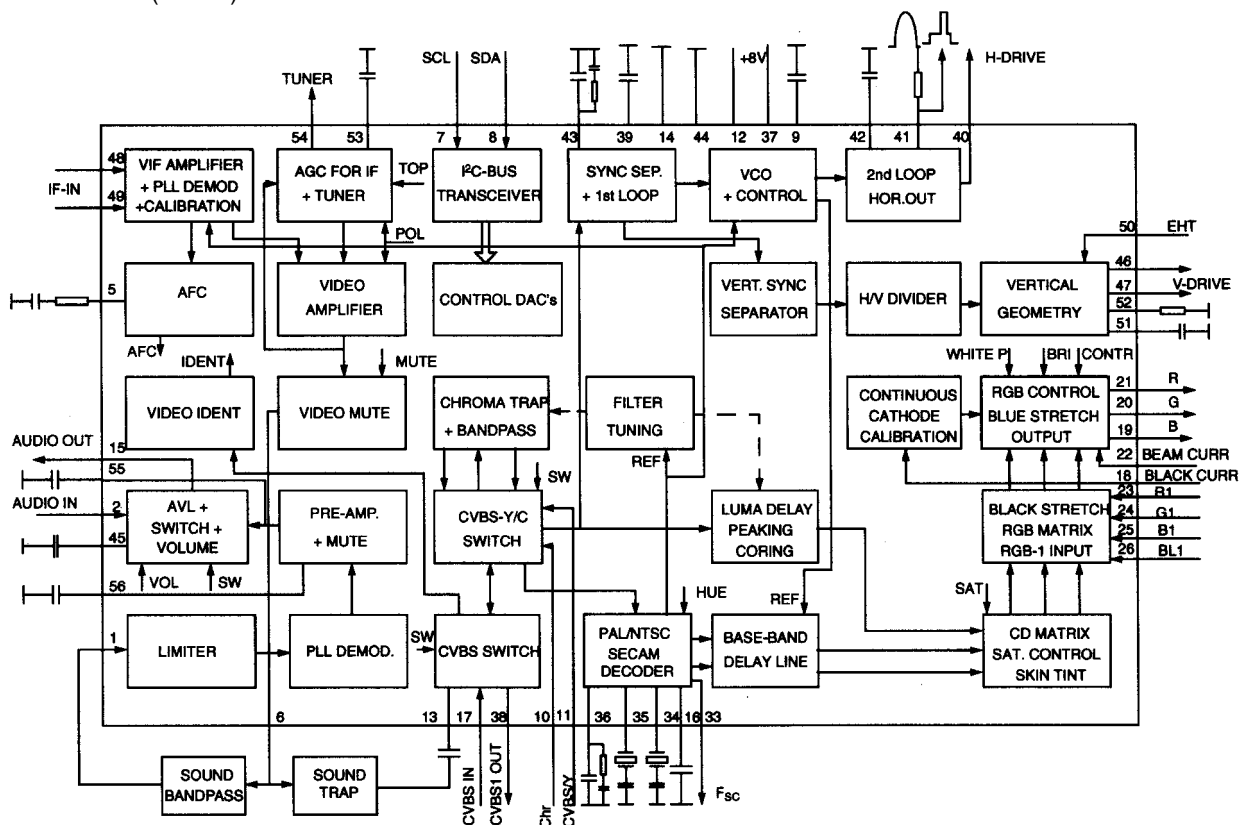
Pin	Pin name	Signal name	I/O	Function
1	P00/PWM8			Reserved
2	P01/PWM7			Reserved
3	P02/PWM6			Reserved
4	P03/PWM5	Mute	O	Mute sound amplifiers output (high:sound muted, low:sound on)
5	P04/PWM4			Reserved
6	P05/PWM3	Degaussing	O	Output high during 16 sec. for degaussing purposes
7	P06/PWM2			Reserved
8	P07/PWM1			Reserved
9	P10/AFT0			Reserved
10	P11/AFT1	AV-2 Status	I	High=AV-2, Low=AV-2S (S-VHS)
11	P12/AFT2	AV-1	O	Peripheral Select
12	P13/PWM0	AV-2	O	
13	VSS_D	Ground (digital circuits)	O	Ground line for digital circuits
14	P27	Sw0	O	Crystal selection for Tri - or Four Norma system
15	P26	Sw1	I/O	Connect to Ground.
16	P25	Local Key line 0	I/O	Local Keyboard scan lines
17	P24	Local Key line 1	I/O	
18	P23	Local Key line 2	I/O	
19	P22	Local Key line 3	I/O	
20	P21	LED	O	LED drive output, high current (10mA)
21	P20	Stand-by	I/O	Power mode: low = stand-by, high = on
22	VSS_A	VSS_A	-	Ground line for analogue circuits
23	CVBS	CVBS0	I	Composite video input (for CC)
24	STN	CVBS1	I	Data slicer input reference capacitor
25	BLK	Black	I	CVBS signal black level reference, connect to external capacitor
26	IRef	IRef	I	CVBS signal current reference, connect to external resistor
27	VCS/PSENN	VCS	O	CVBS signal valid output
28	VPP/EAN	VPP	I	OTP Programming mode
29	ALE/PROGN	PROG	I	OTP Programming mode
30	P14/RMC	OSD level	O	Reserved
31	RefH	RefH	I	Data slicer reference high capacitor input
32	B	OSD/CC Blue	O	Blue OSD/CC output, active high
33	G	OSD/CC Green	O	Green OSD/CC output, active high
34	R	OSD/CC Red	O	Red OSD/CC output, active high
35	FB	OSD/CC Fast blanking	O	Fast blank OSD/CC output, active high
36	Hsync	Horizontal sync	I	Horizontal OSD sync input, active high
37	Vsync	Vertical sync	I	Vertical OSD sync input, active high
38	VDD_A	VDD Analogue	-	5 V Analogue power supply
39	VDD_D	VDD Digital	-	5 V Digital peripheral power supply
40	VSS_D	Ground	-	Ground line for digital circuits
41	XI	Xtal input	I	12 MHz crystal input
42	XO	Xtal output	O	12 MHz crystal output
43	RESET	Reset	I	Microcontroller reset input, high = reset
44	VDD Core	+5 Vstb	-	5 V Digital core power supply in stand-by mode
45	P30/INT1N	SERVICE	I	Factory computer detection
46	P31/T0	SCL1	I/O	Second I <sup>2</sup> C bus clock
47	P32/INT0N	RC-5 input	I	RC-5 remote control input, active high
48	P33/T1	SDA1	I/O	Second I <sup>2</sup> C bus data
49	P34/SCL	SCL	I/O	I <sup>2</sup> C bus clock
50	P35/SDA	SDA	I/O	I <sup>2</sup> C bus data
51	P36			Reserved
52	P37			Reserved

## IC BLOCK DIAGRAMS

IC, MC-44603 (IC802)



IC, TDA-8841/N2 (IC101)





*It is necessary to pre-heat the TV during 15 minutes, before its calibration.*

- ### How to select the **FACTORY MODE**

- 

21

- b) Select the adjustment options pressing the key CH or CH of the remote control or of the television front panel.

**Note:** All the adjustment options can be selected directly by the remote control numeric keys.

- c) Adjust the selected option pressing the key **VOL▷** or **VOL◁** of the remote control or of the television front panel.
- c1) **VOL▷** - increases registers (MAX.).
  - c2) **VOL◁** - decreases registers (MIN.).
- d) To exit the FACTORY MODE, use the key **OSD/OUT** of the remote control.

## **1. Important recommendations**

- 1.1** Before beginning the adjustments, the TV set should be a pre-heated during at least 15 minutes.
- 1.2** The positioning of the TV set should obey the magnetic parameters of South America that it is -120 vertical mG. In the practice, this is gotten with a relative precision, positioning the TV set with the face (screen) of the CRT pointing to the geographical East.

## 2. Definitions of the terms

Reg. #	Description	Name	Reference adjustment value
02	Adjustment of the AGC delay.	AGC	15
03	Adjustment of the vertical slope.	VSL	20
04	Adjustment of the height.	VAM	31
05	Adjustment of the vertical position	VSH	31
06	Adjustment of the center linearity	SC	12
07	Adjustment of the Pin Cushion	PW	32 Fixed
08	Adjustment of the geometric distortion of the vertical lines in the image corner	CP	32 Fixed
09	Adjustment of the width	EW	32 Fixed
10	Adjustment of the horizontal position	HSH	32
11	Adjustment of the geometric trapezoidal distortion in the direction east-west	TC	32 Fixed
12	Adjustment of the white balance	WPR	32
13	Adjustment of the white balance	WPG	32
14	Adjustment of the white balance	WPB	32
15	Adjustment of cathode amplitude level - CRT (*).	CL	07 Fixed
16	Adjustment of vertical zoom (the register has to be in 25)	VX	25
17	Adjustment of vertical scroll (the register has to be in 31)	VSC	31
18	Adjustment of the position in the vertical direction of text insertion in the screen in the C.C mode	VOT	31
19	Adjustment of the position in the horizontal direction of text insertion in the screen in the C.C mode	TAS	15
20	Preset of the function C.C (**)	OEA	32
21	Adjustment of the stereo separation.	ALW	15 Fixed
22	Adjustment of the stereo separation.	ALS	15 Fixed
23	Adjustment of reference electric current of the stereo decoder (**)	TCA	03 Fixed
24	Adjustment of the time constant of the AVL circuit	ATT	01 Fixed
25	Adjustment of audio input level of the stereo decoder	LA	07 Fixed
26	Adjustment of brightness pattern	BRI	32 Fixed
27	Adjustment of color pattern	COL	32 Fixed
28	Adjustment of contrast pattern	CON	63 Fixed
29	Adjustment of tint pattern	HUE	32 Fixed
30	Adjustment of sharpness pattern	PEA	50 Fixed
31	Adjustment of volume pattern	VOL	25 Fixed
32	Adjustment of balance pattern	BAL	31 Fixed
33	Adjustment of bass pattern	BAS	31 Fixed
34	Adjustment of treble pattern	TRE	50 Fixed
35	Adjustment of subwoofer pattern	SWF	31 Fixed
36	Luminance delay (*)	YDL	08 Fixed
96	Option register for of color system definition	SYS	04 Fixed
97	General options	OPT	218 Fixed
98	Initialization of EEPROM	INI	00
99	Adjustment of screen	VSD	00

\* After replacing EEPROM (IC701), set to the reference adjustment values, and then perform  
(To continue...)



(...Continued)

**Note:**

- \* These registers don't actuate when an IC TDA8375A or TDA8374A is used.
- \* \* The register 20 (OEA) should be obligatorily adjusted to the value 32.
- \* \* The register 23 (TCA) should be obligatorily adjusted to the value 03.

**Options Register for of color system definition SYS (96)**

7 (27)	6 (26)	5 (25)	4 (24)	3 (23)	2 (22)	1 (21)	0 (20)
Op3 FCO	Op3 COR	Op3 SliceLevel	Op3 BlueStretch	Op3 BlackStretch	Op3 NotSingle Norma	Op3 SinglePaIN	Op3 SinglePaIN

(Example) 96 SYS 04 (00-255)  
                  ↓  
              00000100

**Op3SinglePaIM (20)**

1	0
Enabled	Disabled

**Op3SinglePaIN (21)**

1	0
Enabled	Disabled

**Op3NotSingleNorma (22)**

1	0
MultiNorma	SingleNorma

**Op3BlackStretch (23)**

1	0
Enabled	Disable

**Op3BlueStretch (24)**

1	0
Enabled	Disable

**Op3SliceLevel (25)**

1	0
Set to 50% (needed for Brazil)	Vert. Slice level set to 70% (normal)

**Op3COR (26)**

1	0
Noise coring function enabled	No noise coring function available

**Op3FCO (27)**

1	0
Color killing disabled	Normal color killing function

Options Register OPT (97)

Option Byte OPT

7 (27)	6 (26)	5 (25)	4 (24)	3 (23)	2 (22)	1 (21)	0 (20)
O NoEVG	OpSubwoofer	OpAVL	OpSurround	OpLatAm	TDA88/83	OpAV2	OpMeshing

(Example) 97 OPT 218 (00-255)  
                                  ↓  
                                 11011010

OpMeshing (20)

1	0
Menu's in meshing display	Normal Menu display

OpAV2 (21)

1	0
AV-2 available	No AV-2

OpTDA88/83 (22)

1	0
TDA837X	TDA884X

OpLatAm (23)

1	0
LatAm Tuning	USA Tuning

OpSurround (24)

1	0
Surround control <sup>1</sup>	No Surround control, see OpSubwoofer

OpAVL (25)

1	0
AVL ou HBL function	AVL/HBL function disabled

OpSubwoofer (26)

1	0
Subwoofer control <sup>1</sup>	No Subwoofer control

OpNoEVG (27)

1	0
Vertical guard disabled	Vertical guard enabled

<sup>1</sup> = Subwoofer control has higher priority than surround.

3. Geometry of the Image

- a) Using the PM - 5515 generator, apply the crosshatch pattern with circle.
  - b) Adjust the following items:
    - Vertical slope (**VSL**);
    - Height (**VAM**);
    - Vertical position (**VSH**);
    - Center Linearity (**SC**);
    - Horizontal position (**HS**)
- Adjust the above items, until obtaining the best circle symmetry and positioning, as well as the minor image geometric distortion.

4. White balance

**Note:**  
The cut point doesn't need adjustment, because it's automatically made by the IC101.  
The white adjustment is already pre-adjusted and incised in the IC101 and, thus, its adjustment is not necessary.

Otherwise, if it is necessary to change the temperature of the white pattern, proceed in the following way:

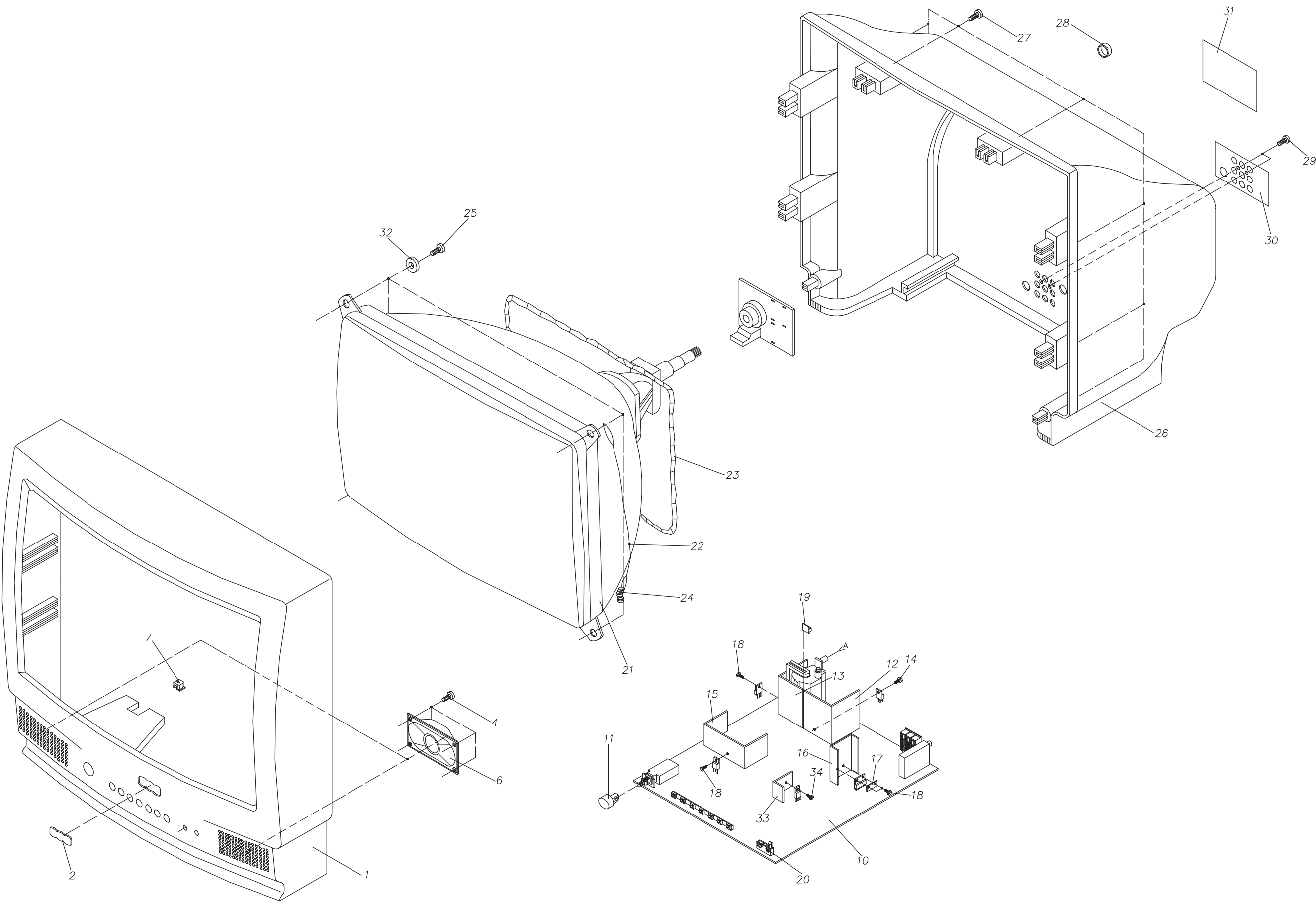
- a) Enter in the service mode.
- b) Select via **CH**△ or **CH**▽ the WPR (12), WPG (13) and WPB (14) functions.
- c) Increase or decrease the function via **VOL**▷ or via **VOL**◁ respectively.

5. Screen adjustment

- a) Select the register 99 (**VSD**).
- b) Press **VOL**▷ or **VOL**◁ to access and adjust the screen control localized on the FBT, until the horizontal line be slightly visible on the screen center.
- c) Press **CH**△ or **CH**▽.

6. AGC adjustment

- a) Select the register 02 (AGC)  
Apply a PHILIPS pattern with 60dBμV of intensity and adjust so that TP AGC or C103 (+) terminal become 4V.





## MECHANICAL MAIN PARTS LIST 1/1

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
MECHANICAL			
1	C1-577-218-502		CJT.GABINETE FRONTAL
2	C1-677-218-505		EMBLEMA AIWA
4	C1-600-015-108		PAR.AA.P.PH.PP1 3,0X12 ZNA RES
7	C1-777-214-301		PRENDEDOR CABO AC
11	C1-677-218-504		TECLA POWER
25	C1-600-034-138		PAR.M.SEX.PH.6,0X15ZNA AR.PRES
26	C1-577-218-507		GABINETE TRASEIRO
27	C1-600-015-515		PAR.AA.P.PH.PP1 4,0X25 ZNP RES
28	C1-771-081-500		LACRE
29	C1-600-015-508		PAR.AA.P.PH.PP1 3,0X12 ZNP RES
30	C1-677-218-503		PLACA DO CHASSI
31	C1-677-218-502		PLACA DE IDENTIFICACAO
32	C1-720-191-300		ARRUELA DENTADA ESPECIAL
	C1-577-218-501		GABINETE FRONTAL
	C1-777-218-501		TECLADO FUNCOES
	C1-677-214-901		DIFUSOR LED/SENSOR
	C1-727-214-903		SUPORTE DO CINESCOPIO
	C1-600-015-112		PAR.AA.P.PH.PP1 4,0X12 ZNA RES
	C1-600-015-108		PAR.AA.P.PH.PP1 3,0X12 ZNA RES
	C1-057-214-999		CJT.CALCO PROT.SUP DIR/ESQ
	C1-057-214-998		CJT.CALCO PROT.INF.D/E
	C1-057-218-501		CAIXA DE EMBALAGEM TV-AR295
	C1-067-218-502		MANUAL DE INSTRUcoes TV-AR295
	C1-069-100-026		PAPEL CHAMEX CX.C/5000FLS A3
	C1-874-609-900		TONER 4135/5090 CX.3
	C1-852-200-702		GRAMPO/ROLO ARAME
	C1-644-504-300		CABO DE FORCA 2X0,75X2100PRETO
	C1-633-211-600		BASE CONECTORA 2V 180"
	C1-889-401-000		FITA ADES S/LOG L=50MM C=100MT
	C1-068-127-201		CJT.ETIQ.ADES.N.SERIE C/5
	C1-062-216-022		FOLHETO OFICINAS AUTORIZADAS
	C1-069-100-005		PAPEL CHAMEX CX.C/5000FLS A4
	C1-874-609-900		TONER 4135/5090 CX.3
	C1-852-200-702		GRAMPO/ROLO ARAME
	C1-062-216-021		CERTIFICADO DE GARANTIA
	C1-886-001-400		PILHA ALCALINA (PEQ) 1.5V AA
	C1-067-218-501		ETIQ.PROMOCIONAL
	C1-769-900-058		SACO PLASTICO 120X120XE0,05 AD
	C1-769-900-003		SACO PLASTICO 25X40X0,05
	C1-850-120-205		MANTA POLIPR.125X55X0,07CM
	C1-068-127-600		ETIQ.CONTROLE QUALIDADE
	C1-068-126-400		ETIQUETA 50X86
	C1-311-603-100		BOBINA DESMAGNETIZ.29"20r+20r

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
ALTO FALANTE			
6	C1-510-454-007		ALTO FALANTE 2X5"
DISSIPADOR			
12	C1-657-215-402		CJT.DISSIPADOR SAIDA VT(IC301)
13	C1-657-215-403		CJT.DISSIPADOR SAIDA HT(Q402)
15	C1-657-215-404		CJT.DISSIPADOR FONTE(Q801)
16	C1-657-215-414		CJT.DISSIPADOR POTENCIA(IC801)
33	C1-657-200-402		DISSIPADOR B(IC804)
PARAFUSO			
14	C1-600-005-120		PAR.AA.PAN.PH.PP1 3,0X10 ZNA
18	C1-600-015-120		PAR.AA.P.PH.PP1 3,0X10 ZNA RES
34	C1-600-007-106		PAR.AA.PAN.PH.BEMLI3,0X6 ZNA
MECANICA PCB MAIN			
17	C1-727-214-902		APOIO DO IC
19	C1-777-215-404		ESPACADOR
20	C1-777-213-102		SUPORTE P/ LED/SENSOR
22	C1-738-002-700		MALHA DE ATERRAMENTO
TUBO			
21	C1-408-009-500		CJT.CINESCOPIO A68AJE28X471
ILHOS			
	C1-621-203-299		ILHOS LATAO EST.2X3,5X3,2



サービス技術ニュース	
番号	連絡内容
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