



**Colour TV
Service Manual**

CHASSIS: 3YA1

**MODEL:
CT-21HS9/CE**

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SAFETY NOTICE

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 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 check 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.

TECHNICAL SPECIFICATION

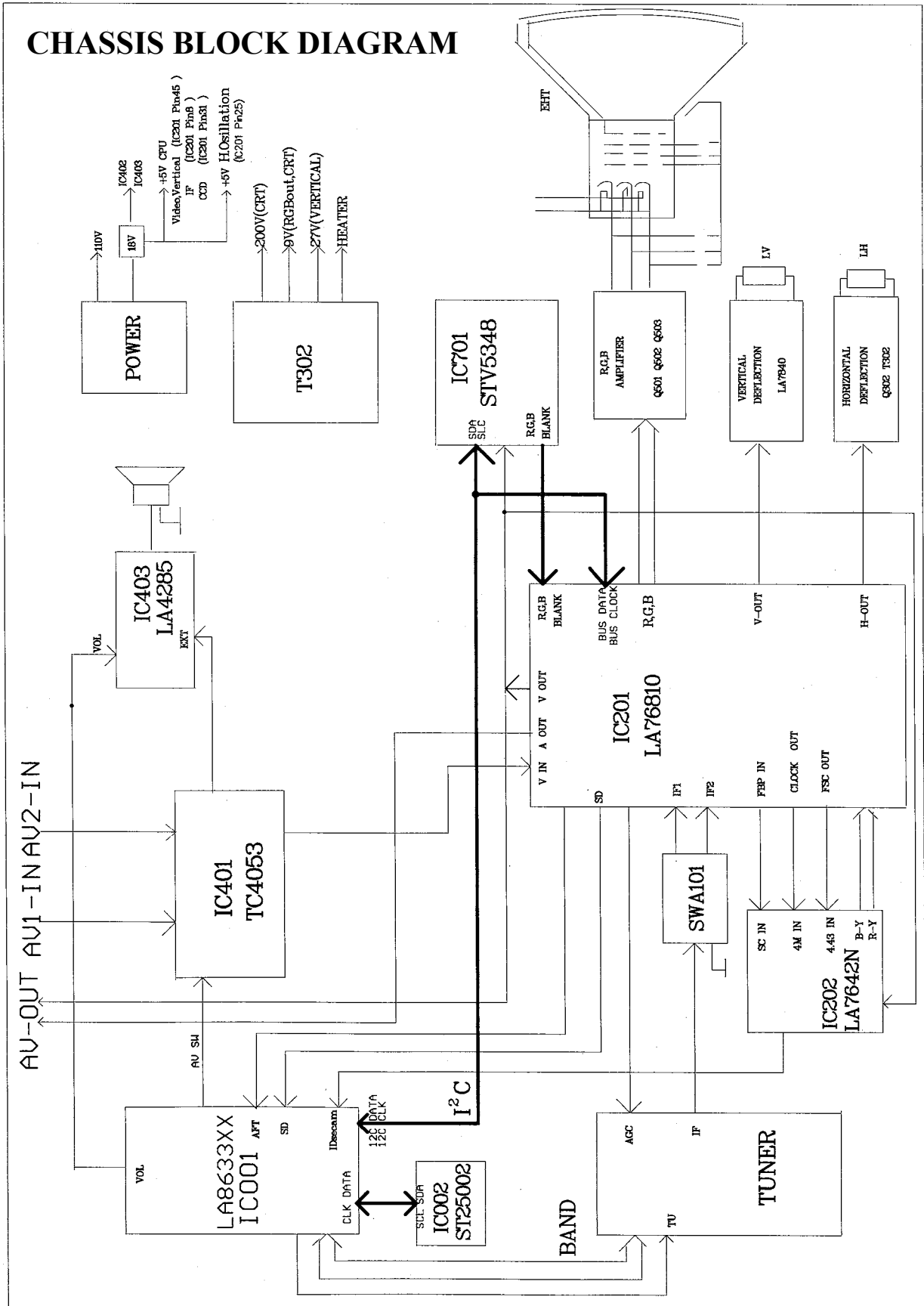
FEATURE

- AC 90V - 260V 50/60Hz
- MULTISYSTEM: PALBG/DK/I, SECAMBG/DK(OPTION), NTSCM(OPTION)
- VOLTAGE SYNTHESISED TUNING SYSTEM
- 100/256 PROGRAMS MEMORY (OPTION)
- BLUE BACK FUNCTION
- 120 MINUTES SLEEP TIMER
- FULL AUTO PROGRAM
- TIME ON
- CLOCK ; CHILD LOCK
- 2 AV INPUT
- GAME (OPTION)
- 8 PAGES TELETEXT (OPTION)
- BLACK LEVEL STRETCH
- PROGRAM VIEW FUNCTION
- FOUR PICTURE MODE MILD; COLORTUL; STANDARD; CUSTOM; DYNAMIC

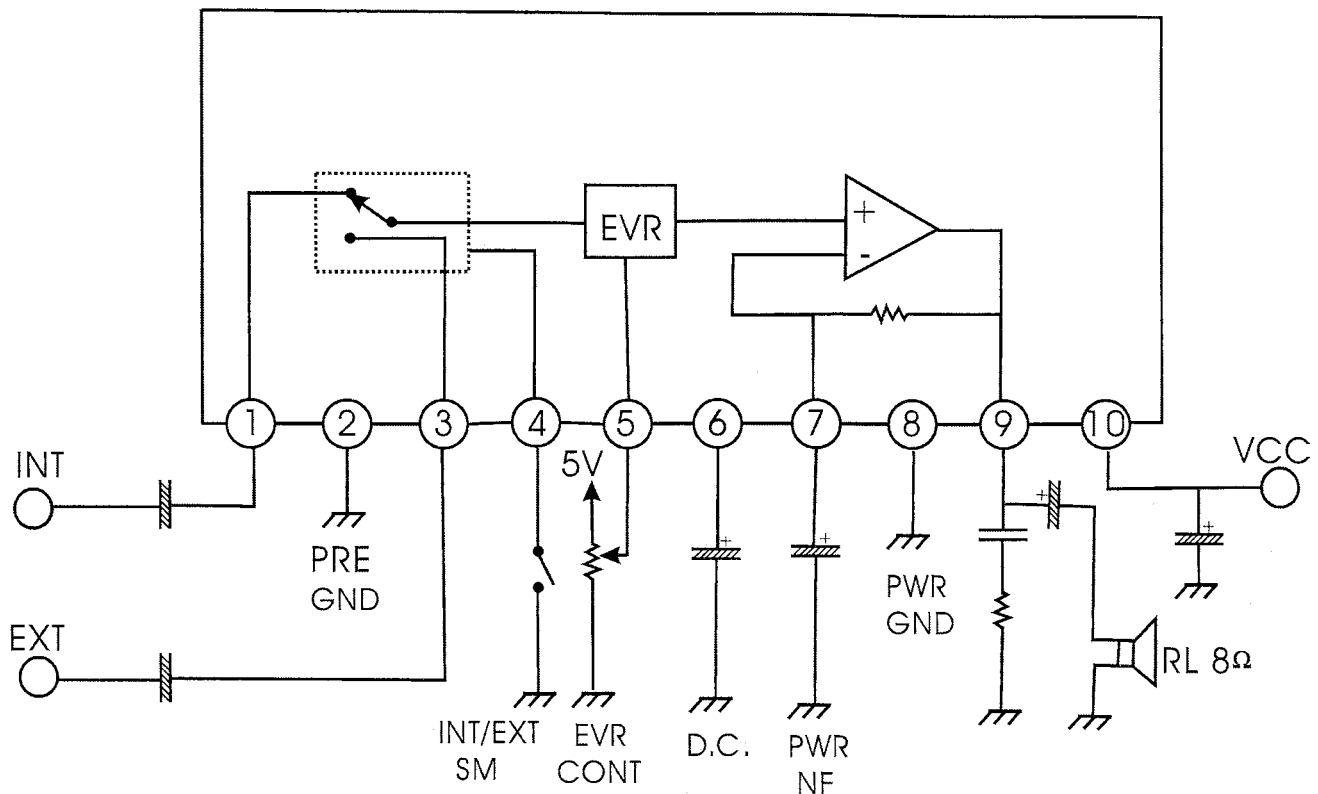
GENERAL SPECIFICATION

Power consumption	14	70W	MAX
	21	90W	MAX
Receive system	D/L: I		B/G: M
Color system	PAL/ SECAM/ NTSC		
Vision intermediate frequency	38.9MHz		
Inter-carrier frequency	4.5 MHz(M)		
	5.5 MHz(B/G)		
	6.0MHz(I)		
	6.5MHz(D/K)		
Chroma if frequency PAL/ NTSC	34.47/ 35.32MHz		
Antenna type	DIN TYPE 75 Ohm		
Channel receiving	VHF-1 A0; E2-E4; S1-S9 CH 46.25-161.25MHz		
	VHF-3 S10-S41; E5-E12 CH 168.25-463.25MHz		
	UHF E21-E69 CH 471.25-855.25MHz		
Tuning system	VS tuning		
AV IN/ OUT	2 AV IN + 1 AV STEREO OUT		
AV IN/ OUT specification	VIDEO IN ----1.0 0.2V _{p-p} 75 Ohm		
	AUDIO IN ----0-2V (r.m.s)		
	VIDEO OUT ----1.0 0.2V _{p-p} 75 Ohm		
	AUDIO OUT ---- 0-2V (r.m.s)		
OSD language	English		
Audio output power	> 3W (1KHz, 0.5V INPUT, 10% THD)		
Safety authentication standard	CB		
LED indicator	Power ON		
Hand set type	HS08		
Hans set power supply	Battery 3V UM-3/ R6/ AA x 2		
Colour picture tube	14" 21" 90 degree tube		
Remote control distance	5m		

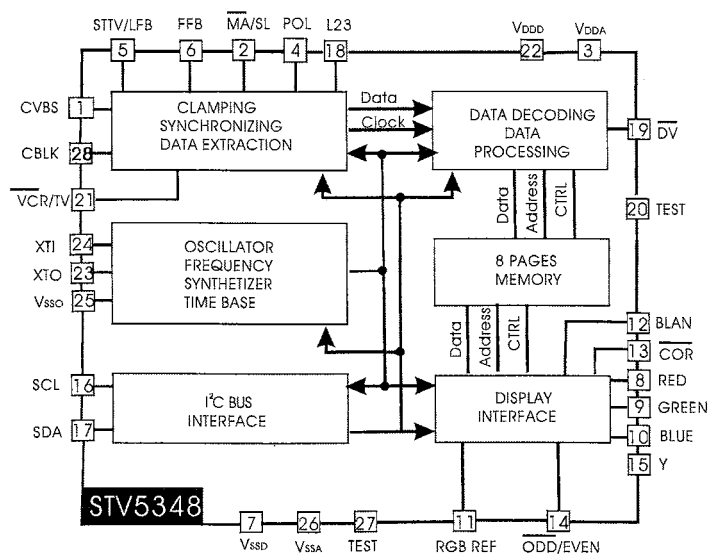
CHASSIS BLOCK DIAGRAM



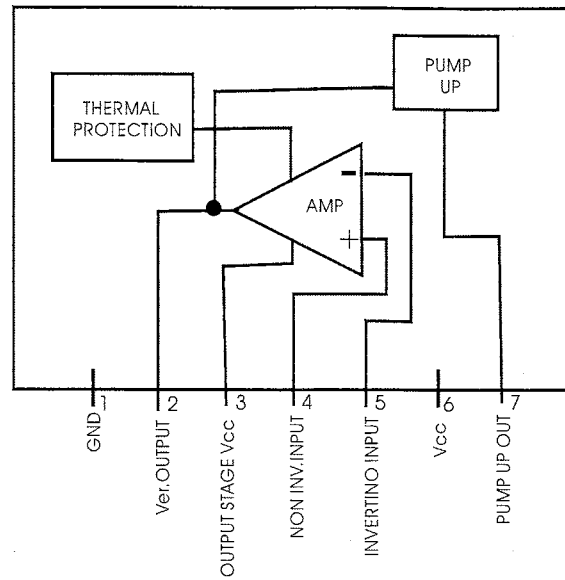
IC 402 & IC 403 (3W AUDIO OUTPUT) LOA 4285



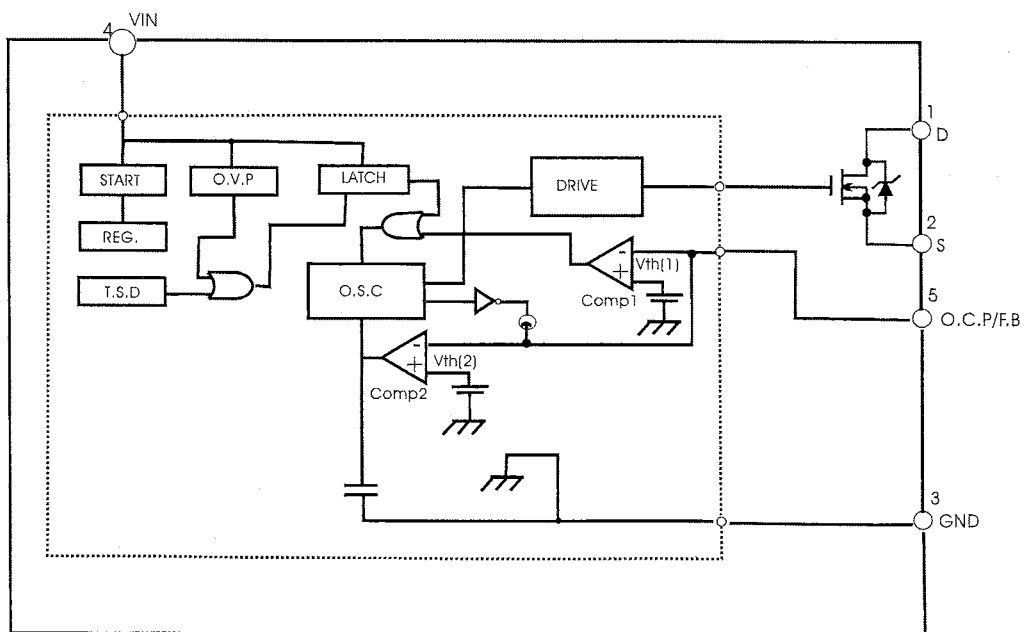
IC 701 <TELETEXT> STV-5348



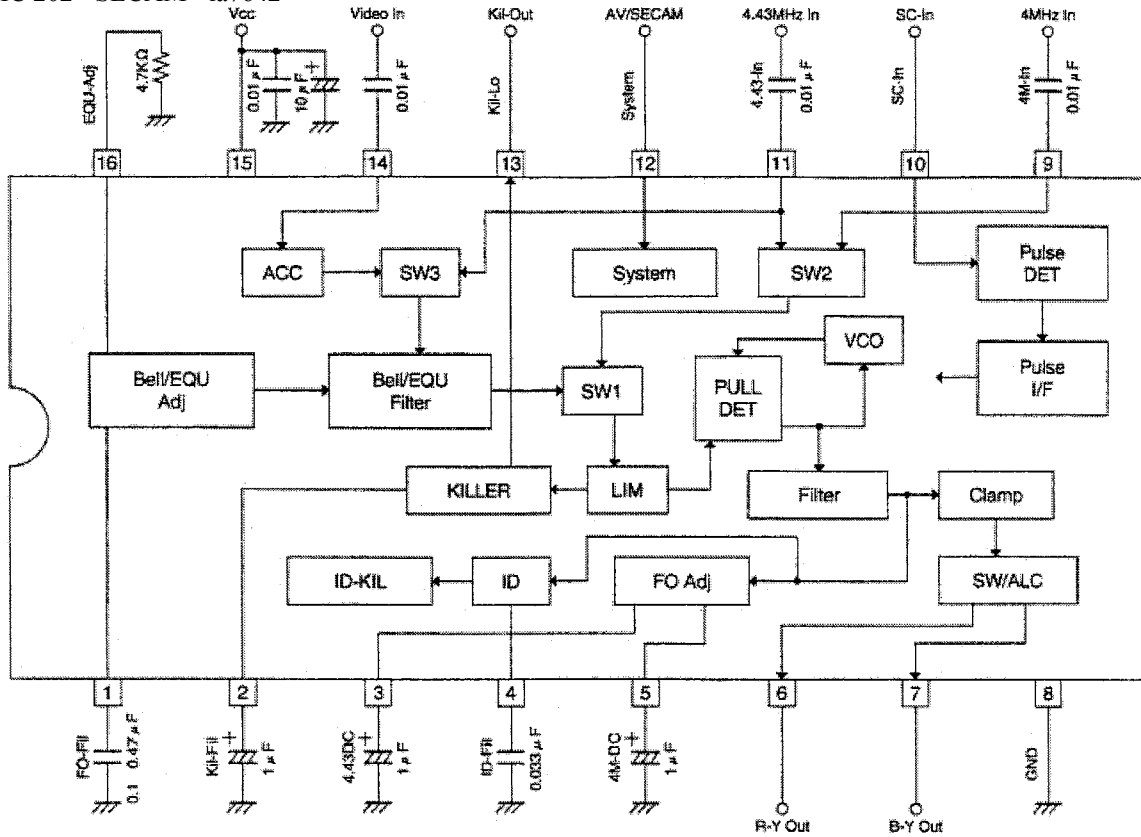
IC 301 <VERTICAL OUTPUT> LA7840



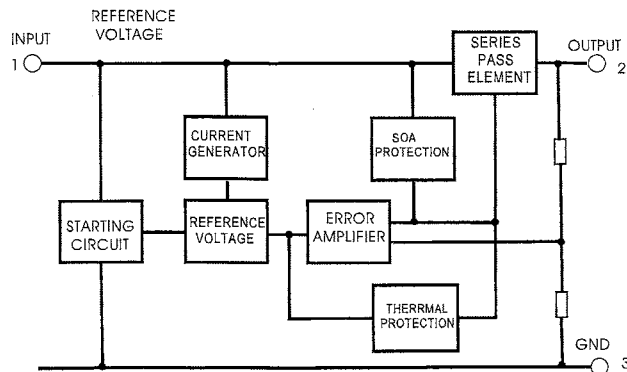
IC 602 < POWER > STR-G6653



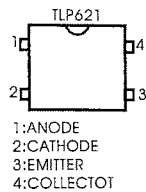
IC 202 <SECAM> la7642



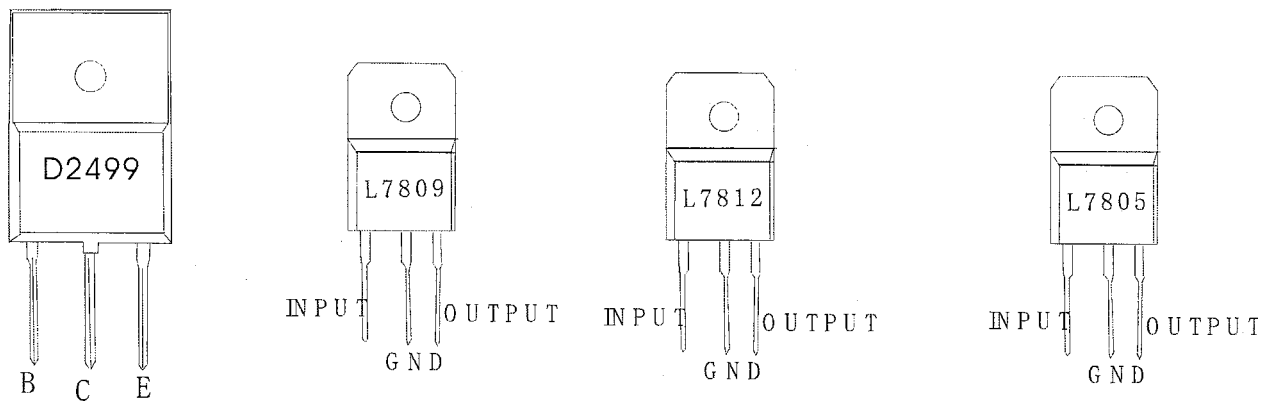
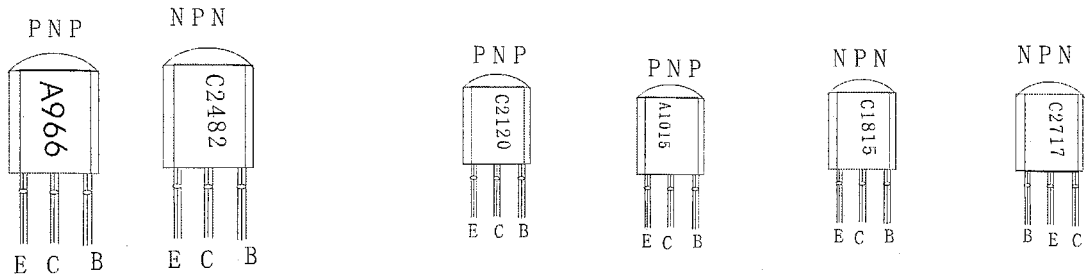
IC 203, Q 609, IC601 & IC 302 < REGULATORS> L7800 SERIES



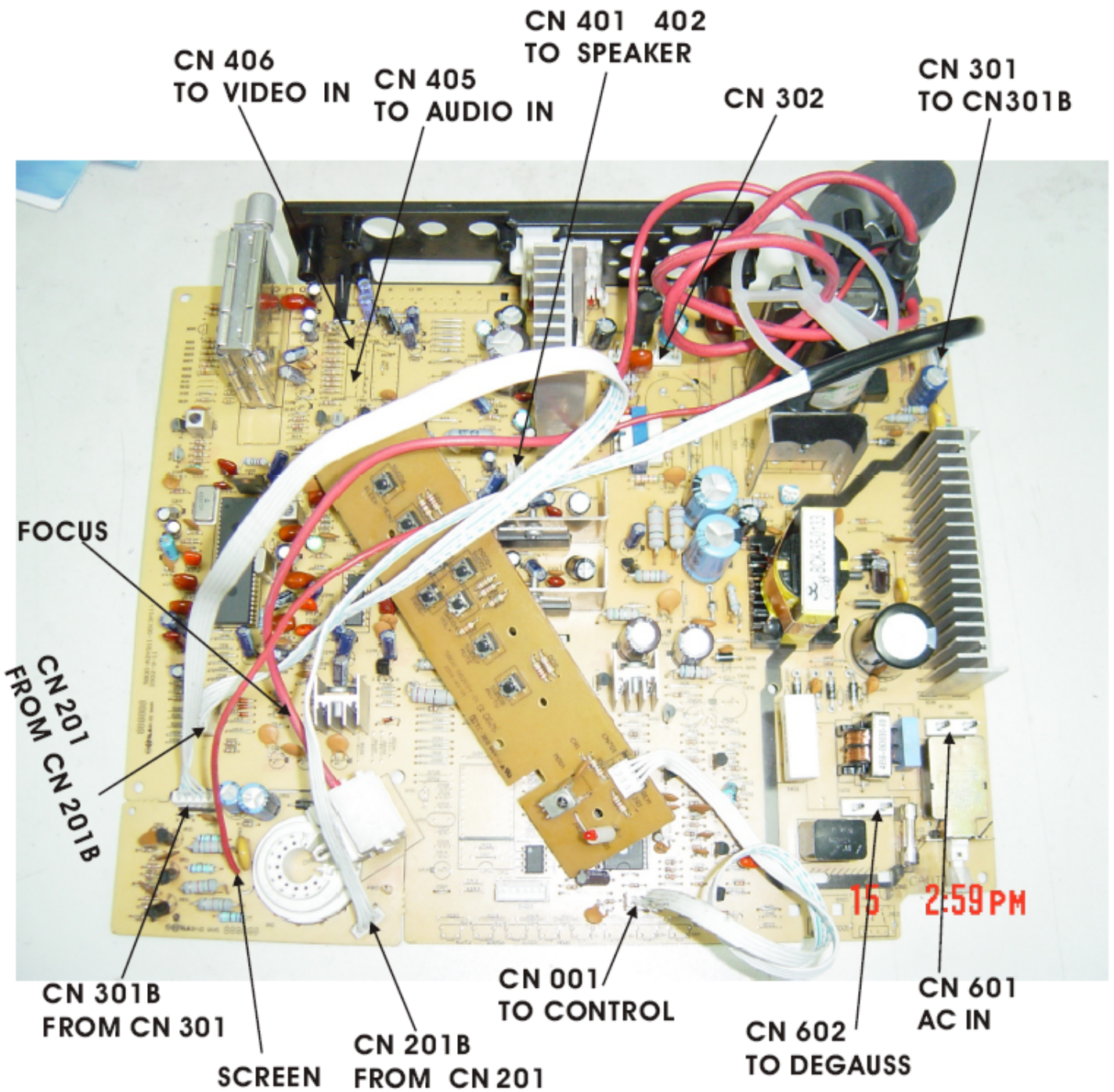
D613 <PHOTO TRANSISTOR> TLP 621



TRANSISTOR MARK



CHASSIS WIRING DIAGRAM



ADJUSTMENT MODE

There is no direct method to enter production menu, user must follow the instruction as below.

- i) Move to “Picture” menu
- ii) Press Channel Reverse key
- iii) Press Mute key

After the following action, a production menu will be shown out. User can use “Sleep” key to change the production menu page and use “User Menu” key to quit production menu.

Production Menu 1 OSD

MENU 1			
	V. SIZE	X	
▶	V.POS	X	
	V.LINE	X	
	V.SC		X
	H.PHASE	X	
	H.BLK	X	
	PATTERN	X	
	H.FREQ	X	

Item	Function	Range
V.SIZE	Align vertical amplitude	0-127
V.POS	Align vertical DC bias	0-63
V.LINE	Align vertical linearity	0-31
V.SC	Align vertical S-correction	0-31
H.PHASE	Align sync to flyback phase	0-31
H.BLK	Left/ Right blanking control	L7-R7
PATTERN	0: Normal screen	0-4
	1: White screen	
	2: Gray screen	
	3: Black screen	
	4: White cross signal	
H.FREQ	Align horizontal frequency (valid for LA76810 ES10)	0-63

Production Menu 2 OSD

MENU 2	
V.KILL	X
▶ R.C	X
G.C	X
B.C	X
R.D	X
G.D	X
B.D	X
COL.TEST	X

Display and control properties are as same as production menu 1.

Item	Function	Range
V.KILL	Disable vertical output	0-1
R.C	Align red out DC level	0-255
G.C	Align green out DC level	0-255
B.C	Align blue out DC level	0-255
R.D	Align red out AC level	0-127
G.D	Align green out AC level	0-15
B.D	Align blue out AC level	0-127
COL.TEST	IF LA76810 ES12 or later version use, set to "1"	0-1

Production Menu 3 OSD

MENU 3	
RF.AGC	X
VIF.SYS	X
▶ SND.TRAP	X
VIDEO LVL	X
FM.LEVEL	X
R.B BALANCE	X
DIGITAL.OSD	X

Display and control properties are as same as production menu 1.

Item	Function	Range
RF.AGC	Align RF AGC threshold	0-63
VIF.SYS	0:38.0 MHz	0-3
	1:38.9 MHz	
	2: 45.75 MHz	
	3: 58.75 MHz	
SND.TRAP	Sound Trap	0-7
VIDEO LVL	Align IF video level	0-7
FM.LEVEL	Align WBA output level	0-31
R.B BALANCE	R-Y / B-Y gain balance	0-15
DIGITAL.OSD	Digital/ Analog OSD	0-1
	0: Analog OSD, Capacitors (259, C260, C261) need to connect between LC863320 & LA76810)	
	1: Digital OSD, Capacitors (259, C260, C261) do not need to connect between LC863320 & LA76810)	

Production Menu 4 OSD

MENU 4		
SUB-BRI	X	
OSD CONT	X	
▶ B.GAM.SEL	X	
RG.GAM.DEF	X	
SCM B-Y DC		X
SCM R-Y DC		X
BLUE.BACK	X	
C/E OSD	X	

Item	Function	Range
SUB-BRI	Align commom RGB DC level	0-127
OSD CONT	Align OSD AC level	0-127
B.GAM.SEL	Blue gamma selection	0-3
RG.GAM.DEF	Disable R/G gamma correction	0-1
SCM B-Y DC	Secam B-Y DC level	0-15
SCM R-Y DC	Secam R-Y DC level	0-15
BLUE.BACK	0: Red Back	0-1
	1: Blue Back	
C/E OSD	0: OSD display fix to English	0-1
	1: OSD display can select between Chinese & English	

Production Option Menu OSD

OPTION		
2 AV CHANNEL	X	
COL.SYS.SEL	X	
▶ TELETEXT ON	X	
MONITOR OUT	X	
LOGO ON	X	
BRISP.SEL	X	
SVHS.SEL	X	
5V TUNER	X	

Display and control properties are as same as production menu 1.

Item	Function	Range
2 AV CH	0: 1 AV channel	0-1
	1: 2 AV channel	
C.SYS.SEL	0: AUTO/ PAL/ SECAM/ NTSC1/ NTSC2	0-3
	1: AUTO/ PAL/ NTSC1/ NTSC2	
	2: AUTO/ PAL/ SECAM	
	3: NOT VALID	
TELETEXT ON	0: Teletext circuit not valid	0-1
	1: Teletext circuit valid	
MONTR OUT	0: For non-china market (AV output is TV signal)	0-1
	1: For china market (AV output is Video signal)	
LOGO ON	0: Logo display non-valid	0-1
	1: Logo display valid	
BRISP.SEL	0: When program change, bright value change	0-1
	1: When program change, bright value not change	
SVHS.SEL	0: NO S-VHS	0-1
	1: S-VHS ON	
TUN.TYPE	0: Use 9V tuner	0-2
	1: Use 5V tuner	
	2: High Gain tuner	

CIRCUIT DIAGRAM

