

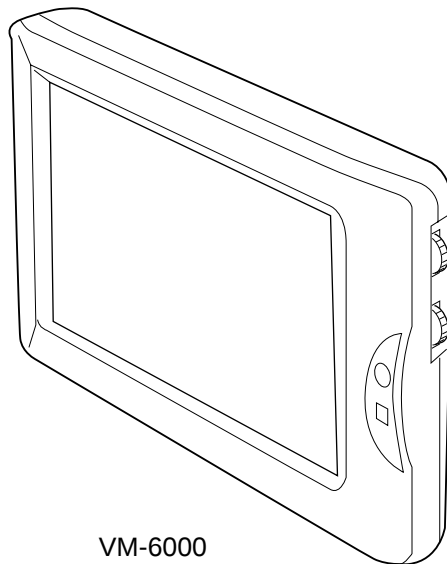
SERVICE MANUAL & PARTS LIST

(without price)

VM-6000

(KX-662)

NOV. 1999



VM-6000

CASIO®

Ver.3 Feb/ 2001

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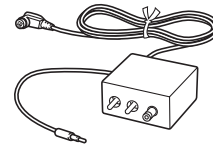
1. SPECIFICATIONS

Monitor (VM-103U)

Display Element:	High-resolution color LCD
Pixels:	224,640 (234 x 960)
Driver:	TFT active matrix
Light Source:	Internal backlight; high luminosity fluorescent lamp
Speaker:	One (3.6cm) round speaker
Operating Temperature:	0°C to 40°C
Storage Temperature:	-20°C to 60°C
Dimensions:	VM-103U: $7\frac{1}{16}$ "(W) x $1\frac{3}{16}$ "(D) x $5\frac{1}{16}$ "(H) 18.0(W) x 3.05(D) x 12.8(H) cm (excluding projections)
Approximate Weight:	VM-103U: 15.3oz (434g)

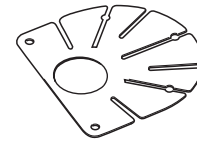
Connector Box (AV-1VM)

Dimensions:	$2\frac{9}{16}$ "(W) x $1\frac{3}{8}$ "(D) x $1\frac{1}{16}$ "(H) 6.5 (W) x 3.5(D) x 2.7(H) cm (excluding projections)
Approximate Weight:	6.0oz (170g)
Cable Length:	Approximately 10' (3m)



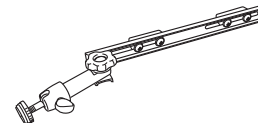
Center Console Box Stand Base (KY-01CA)

Dimensions:	$3\frac{15}{16}$ "(W) x $2\frac{7}{8}$ "(D) x $3\frac{13}{16}$ "(H) 10.0 (W) x 7.3(D) x 9.7(H) cm
Approximate Weight:	6.3oz (180g)
Accessories:	Five screws



Headrest Stand (OS-29R)

Stand Length:	$16\frac{1}{8}$ " 41.0cm (when extended)
Approximate Weight:	14.6oz (415g)



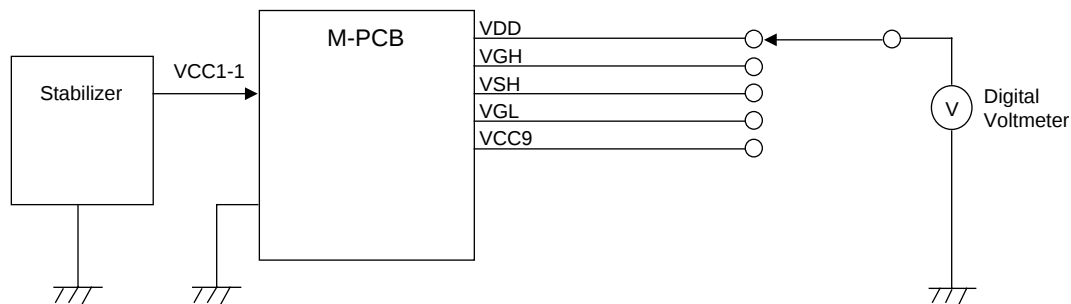
2. ADJUSTMENTS

2-1. Adjustments to be done

Adjustments	Necessary equipment
1. VDD adjustment, VGH, VSH, VGL, Vcc9 voltage check	Power supply, Digital voltmeter
2. Bright adjustment	Power supply, Signal generator, Oscilloscope
3. Contrast adjustment	Power supply, Signal generator, Oscilloscope
4. TINT color adjustment	Power supply, Signal generator, Oscilloscope
5. LCM screen positioning	Power supply, Signal generator

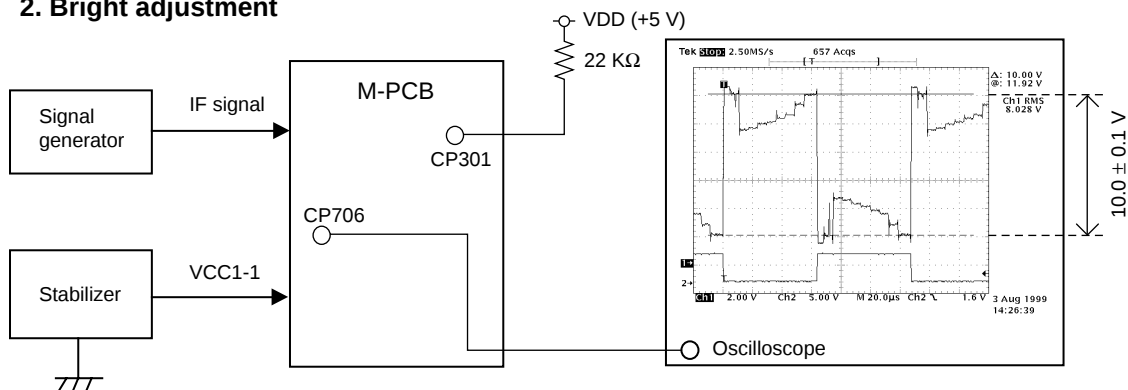
2-2. Adjustments

1. VDD adjustment, VGH, VSH, VGL, Vcc9 voltage check



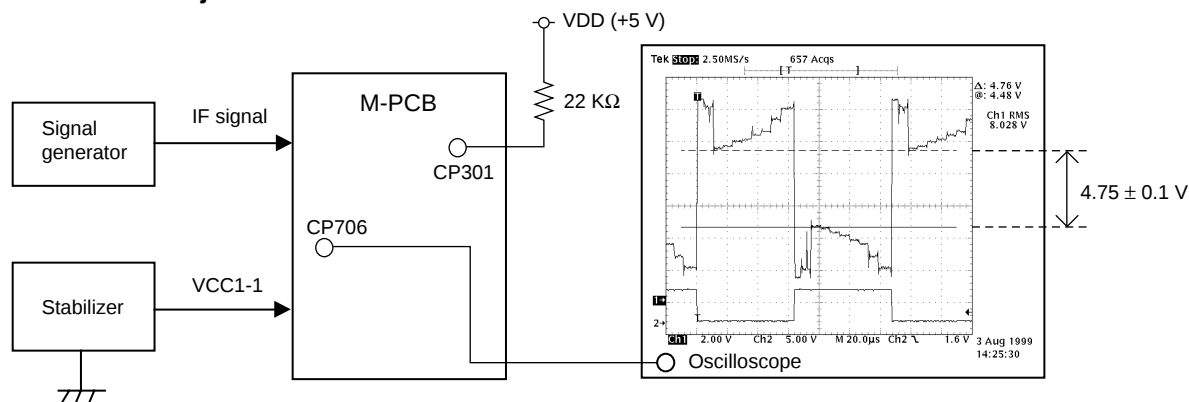
- Conditions
Apply 11.50 ± 0.05 [V] on Vcc1-1.
- Adjustment
Adjust VR161 so that VDD (CP165) voltage becomes 5.00 ± 0.02 [V].
- Checking
 - VGH (CP168) = $19.0 \sim 21.0$ [V]
 - VSH (CP166) = $13.5 \sim 14.5$ [V]
 - VGL (CP164) = $-5.5 \sim -4.0$ [V]
 - Vcc9 (CP163) = $7.8 \sim 8.4$ [V]

2. Bright adjustment



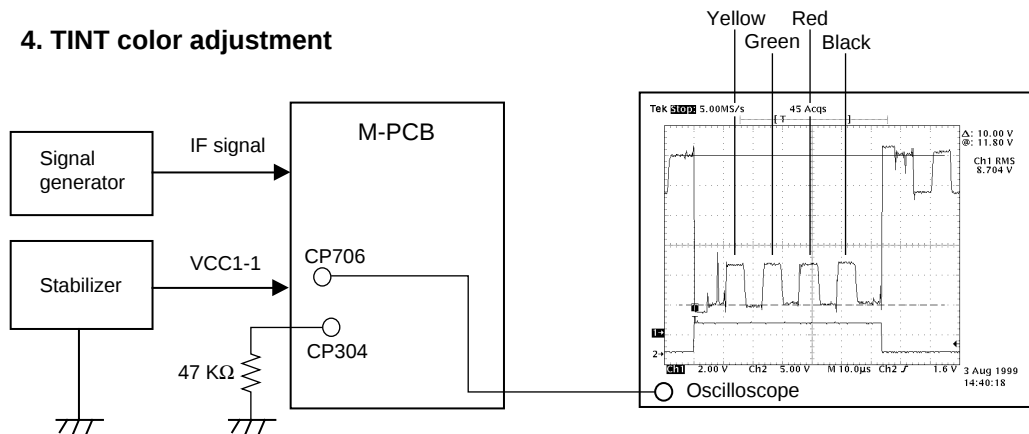
- Conditions
 - (1) Apply 11.50 ± 0.05 [V] on Vcc1-1.
 - (2) Signals: provide color bar pattern (white 75 %) composite video signal from CP196.
Signal level; 1Vp-p +/- 0.01V (75 ohm termination), conforming to NTSC-M system.
 - (3) Apply VDD (+5V) voltage on KILLER terminal (CP301) via 22 k Ω resistance.
- Adjustment
 - (1) Triggering CP702 (FRP), adjust VR304 so that positive and negative pedestal level of CP706 (VB) is 10.0 ± 0.1 V.
- Caution
 - (1) Make sure that waveforms are not distorted.
 - (2) Do not turn VR430 until contrast, tint, and color level adjustments are completed.
 - (3) Leave the resistor connected between CP301 (KILLER) and VDD until contrast adjustment is completed.

3. Contrast adjustment



- Conditions
 - (1) Apply 11.50 ± 0.05 [V] on Vcc1-1.
 - (2) Signals: provide color bar pattern (white 75 %) composite video signal from CP196.
Signal level; 1Vp-p +/- 0.01V (75 ohm termination), conforming to NTSC-M system.
- Adjustment
 - (1) Triggering CP702 (FRP), adjust VR301 so that CP706 (VB)'s negative and positive white peak voltage becomes 4.75 ± 0.1 V.
- Caution
 - (1) Make sure that waveforms are not distorted.
 - (2) Make sure to perform this adjustment after brightness adjustment.
 - (3) After the adjustment, remove the resistor connected between CP301 (KILLER) and VDD.

4. TINT color adjustment



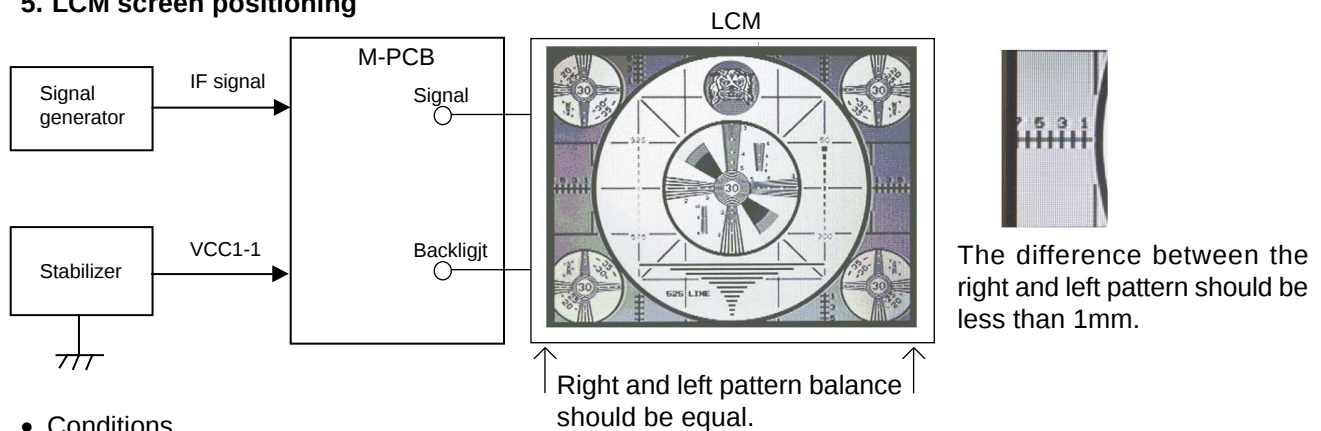
- Conditions

- (1) Apply 11.50 ± 0.05 [V] on Vcc1-1.
- (2) Signals: provide color bar pattern (white 75 %) composite video signal from CP196.
Signal level; 1Vp-p +/- 0.01V (75 ohm termination), conforming to NTSC-M system.
- (3) Connect 47kohm resistor between CP304 and CP300 (GND).

- Adjustment

- (1) Triggering CP702 (FRP), observe CP706 (VB) waveform.
- (2) Adjust VR303 so that yellow, green, and red pulses are level.
- (3) Adjust VR302 so that yellow, green, and red pulses are same height as black pulse.
- (4) Repeat steps (3) and (4) until;
Amplitude difference of blue and purple pulses (center two pulses) is less than 0.1V.
Amplitude difference between black and yellow and red (both adjoining pulses of blue and purple) is less than 0.1V.
- (5) Remove the 47kohm resistor between CP304 and CP300 (GND).

5. LCM screen positioning



- Conditions

- (1) Apply 11.50 ± 0.05 [V] on Vcc1-1.
- (2) Signals: Apply monoscope pattern composite video signal from CP196.
Signal level; 1Vp-p +/-0.01V (75 ohm terminated), conform to NTSC-M system.

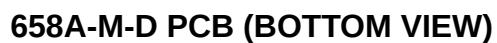
- Adjustment

- (1) Connect LCM to display monoscope pattern.
- (2) Adjust LCD's H.POS to display the picture in the center.
Adjust so that the right and left patterns are the same.

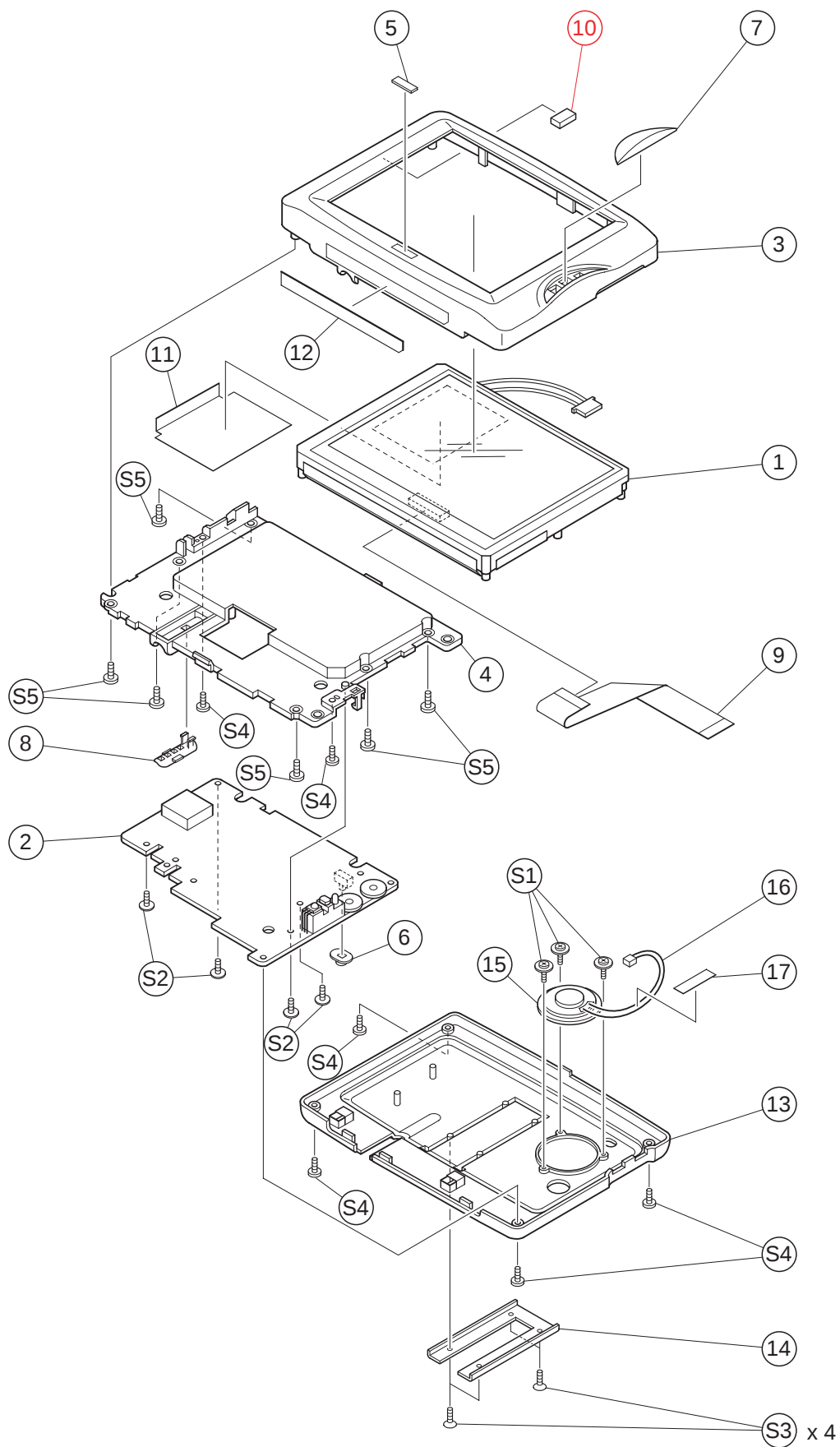
- Caution

- (1) Non-equality of right and left pattern should be less than 1 mm.
- (2) Adjustment should be done with the display unit which is assembly of LCM and PCB.

658A-M-D PCB (TOP VIEW)



4. EXPLODED VIEW



5. PARTS PRICE LIST

VM-6000

Monitor(VM-103U)

N	Item	Code No.	Parts Name	Specification	Q	Price Code	R
N	01	27251395	TFT-LCD module	P64AN2	1	EP	A
N	02	10002495	PCB ass'y , Monitor	K140659*2	1	DK	A
N	03	10002491	Upper case BXM-K662	K140633-2	1	BB	X
N	04	66145530	Frame AAM-K658	K140635-1	1	AO	X
	05	66100341	Name plate , CASIO	K440276-1	1	AF	X
N	06	10002507	Switch knob AAM-K662	K341720-1	1	AB	X
	07	66112010	Sensor cover AM-K660	K340585-2	1	AL	X
N	08	10002505	Code spacer AAM-K662	K341716-1	1	AB	X
N	09	66145520	Flat cable AAM-K658	K441911-1	1	AC	X
N	10	66145510	Cushion AAM-K658	K441873-1	1	AA	X
N	11	66145500	Shield tape AAM-K658	K441874-1	1	AD	X
N	12	10002191	Rating plate BXA-K662	K440985-6	1	AA	X
N	13	10002494	Lower case BXM-K662	K140634-2	1	AY	X
	14	66100360	Attachment AM-K635	K340292-1	1	AI	X
N	15	38311108	Speaker	K036NA505-12	1	AS	B
N	16	66145480	Speaker cable	K441872-1	1	AB	X
	17	66145470	Insulated tape AAM-K658	K441912-1	1	AA	X
	S1	66307430	Screw A-K618	K440305-1	3	AA	X
	S2	66112110	Screw A-K650	K440850-1	4	AA	X
	S3	66112120	Precision screw (+)	BT3 2X4 Black	4	AA	X
N	S4	10002496	Precision screw (+)	BT3P 2X6 Black	6	AA	X
N	S5	10002497	Precision screw (+)	BT3P 2.6X8 NI	6	AA	X

Accessory

N	Item	Code No.	Parts Name	Specification	Q	Price Code	R
N		10002192	Connection cable	AV-1VM	1	CM	C
N		10005805	Car front stand	KY-01CA	1	AZ	X
N		10002146	Rear stand	OS-29R-(D)	1	CP	X

Notes: Q - Quantity per unit

R - Rank

N - New Parts

M PCB

N	Item	Code No.	Parts Name	Specification	Q	Price Code	R
Connector							
N	CN190	35022256	Connector	TCS7926-18-301	1	AI	X
N	CN600	35021529	Connector	CGP4702-0101	1	AB	X
N	CN700	35016720	Connector	006200520330000	1	AI	X
N	CN900	35022707	Connector	SM02(8)B-BHS-1-TB	1	AD	X
Diodes							
	D170	23901449	Tip Schottky diode	MA701A-(TX)	1	AC	X
	D172	71011194	Diode	MA111(TX)	1	AA	X
	D174	23901379	Schottky diode	MA729-(TX)	1	AB	X
	D176	23901379	Schottky diode	MA729-(TX)	1	AB	X
	D177	71011194	Diode	MA111(TX)	1	AA	X
	D178	71011194	Diode	MA111(TX)	1	AA	X
	D180	23901470	Tip diode	MA143A-(TX)	1	AA	X
	D190	23901883	Tip Schottky diode	RB160L-40TE25	1	AC	X
	D191	71011194	Diode	MA111(TX)	1	AA	X
	D192	71011194	Diode	MA111(TX)	1	AA	X
	D500	23701211	LED	SLR-342VR3F	1	AA	X
	D905	71011194	Diode	MA111(TX)	1	AA	X
Fuse							
	FU161	36320343	Tip fuse	SSFC1AR12A4	1	AH	A
Oscillator							
	H301	25901239	Crystal oscillator	HC-49/U-S-A	1	AH	X
Ics							
	IC160	21142660	IC	FA7611M-TE1	1	AS	X
	IC170	21144816	Linear IC	PQ05SZ5U	1	AL	X
	IC301	21145901	IC	IR3Y31M	1	BN	X
N	IC550	10002467	IC	RPM6938-V4	1	AL	X
	IC650	21141750	Linear IC	NJM386-M-T1	1	AE	X
N	IC701	21056381	MOS IC	TC74HC14AF(EL)	1	AC	X
	IC902	21054109	IC	TC7S14F(TE85L)	1	AC	X
Transistor							
	Q160	22510868	Transistor	2SB1261K-Z-E1	1	AE	X
	Q161	22520714	Tip transistor	2SD1623S,T-TD	1	AC	X
	Q163	22501162	Tip transistor	2SA1576A-T106R	1	AA	X
	Q164	22520637	Tip transistor	2SC4081-T106R	1	AA	X
	Q190	22501162	Tip transistor	2SA1576A-T106R	1	AA	X
	Q191	22520637	Tip transistor	2SC4081-T106R	1	AA	X
	Q902	22591540	Digital transistor	DTC144EU-T106	1	AA	X
N	Q910	22530719	Tip transistor	2SD2391T100	1	AB	X
	Q911	22530719	Tip transistor	2SD2391T100	1	AB	X
	Q921	22501162	Tip transistor	2SA1576A-T106R	1	AA	X
Switch							
	SW101	10002474	Switch	SLD-12-501A	1	AC	C
Converter							
N	T160	30121626	Transformer	10CAH-01	1	AL	X
N	T900	30121625	Transformer	EPS197-01	1	AV	X
Variable resistors							
	VR161	27752751	Chip semi-fixed resistor	EVN5ESX50B23	1	AA	X
	VR301	27752765	Chip semi-fixed resistor	EVN5ESX50B54	1	AA	X
	VR302	27752765	Chip semi-fixed resistor	EVN5ESX50B54	1	AA	X
	VR303	27752765	Chip semi-fixed resistor	EVN5ESX50B54	1	AA	X
	VR304	27650623	Volume	RK09H11T-20KB	1	AD	C
	VR650	27650616	Volume	RK09H11T-10KB	1	AD	C

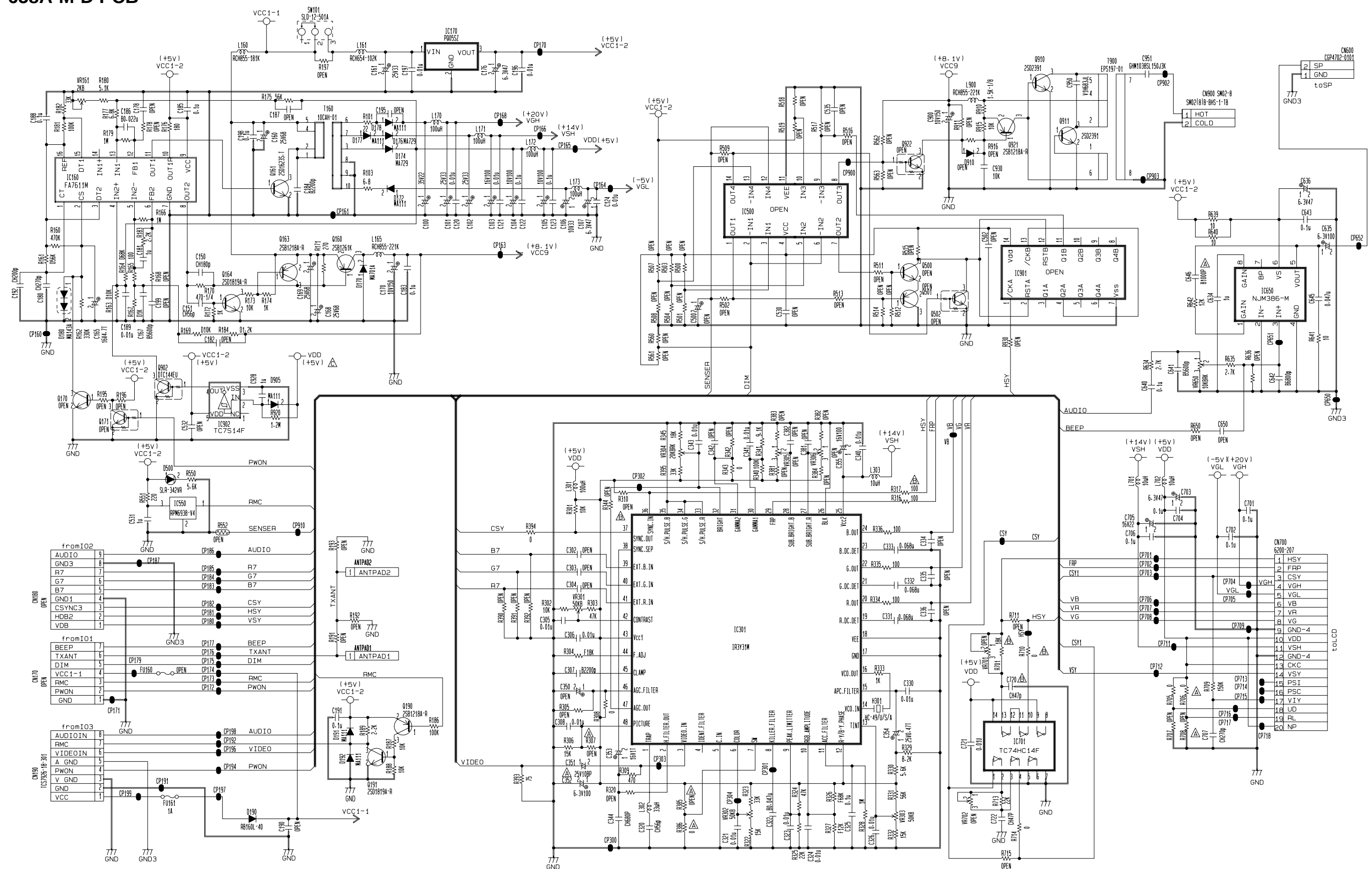
Notes: Q - Quantity per unit

R - Rank

N - New Parts

6. SCHEMATIC DIAGRAM

658A-M-D PCB



Ver.1 : The following sections were added.

- ADJUSTMENT
- PRINTED CIRCUIT BOARDS
- SCHEMATIC DIAGRAMS

Ver.2 : The parts list was changed.

Ver.3 : Correction on Exploded view number.

Wrong: 11

Corrected: 10

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