

 PIONEER®

W19

Service Manual



ORDER NO.
CRT-481-0

GRAPHIC EQUALIZER/AMPLIFIER

BP-780

US, CA, ES, EW

SPECIFICATIONS

Power source 14.4V DC (10.8–15.6V allowable)
Grounding system Negative type
Max. current consumption 8A
Dimensions 150(W) × 50(H) × 150(D)mm
[5-3/8(W) × 2(H) × 5-3/8(D)in.]
Weight 1.3kg (2.9lbs.)

Continuous power output is 12W per channel min. into 4 ohms, both channels driven 50 to 20,000Hz with no more than 5% THD.

Maximum power output 20W × 4
Load impedance 4Ω (4–8Ω allowable)
Frequency response 20–50,000Hz (±3dB)
Signal-to-noise ratio 90dB (IHF-A network, at 1W)
Distortion 0.5% (at 1.5W, 1kHz)

Input level COMPO: 70mV/20kΩ
LINE IN: 200mV/15kΩ
BOOSTER: 3V/120Ω
Equalization frequency 60Hz, 125Hz, 250Hz, 500Hz,
1kHz, 3.5kHz, 10kHz
Gain 0dB
Equalization range ±12dB

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

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1.PARTS LOCATION

NOTE: • For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
 ★ ★: GENERALLY MOVES FASTER THAN ★.
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

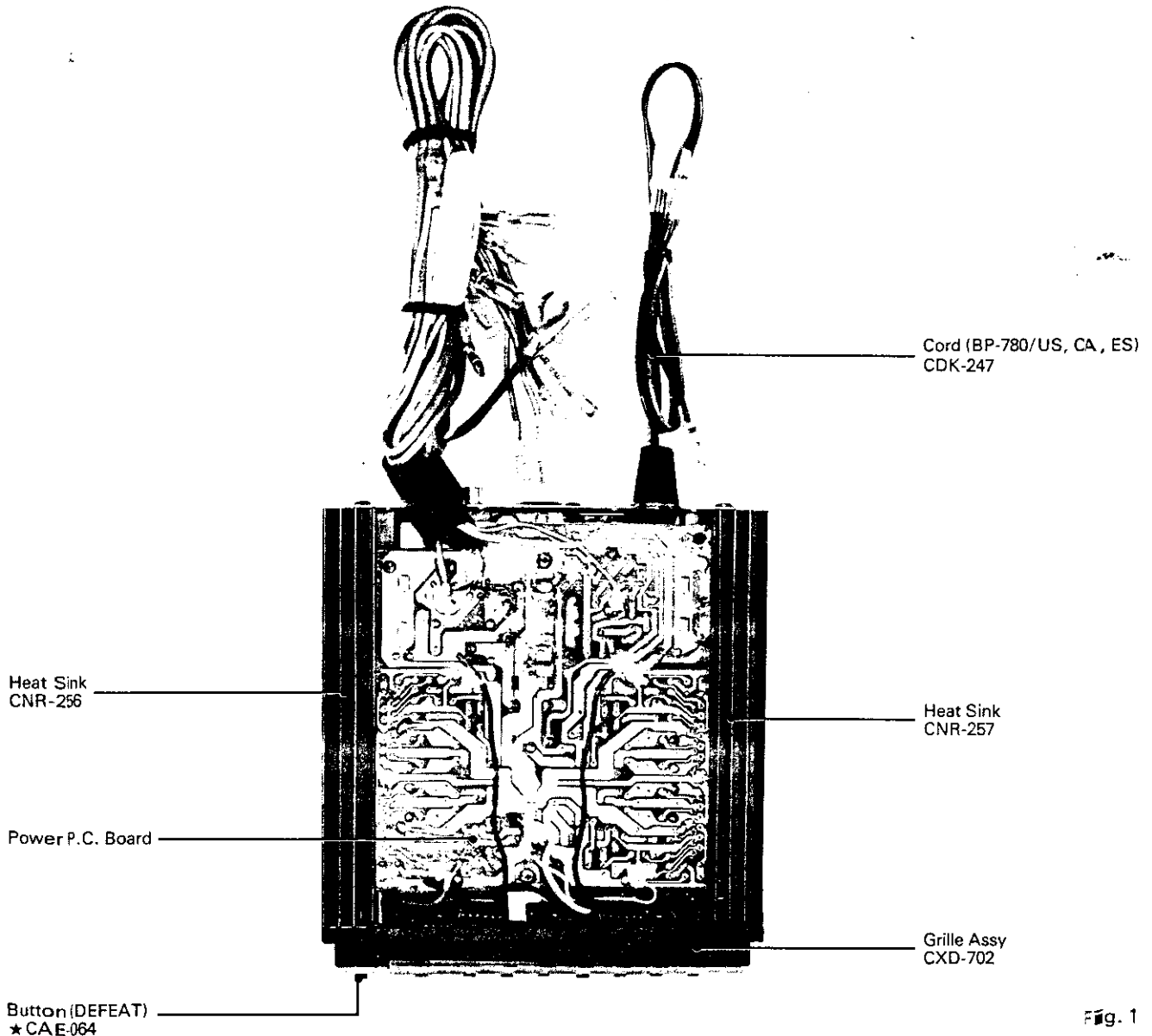


Fig. 1

QUESTIONNAIRE

MODEL _____

One Model per questionnaire

Dear Servicer,

Thank you for your cooperation in the post-sale service of Pioneer products.

This questionnaire is used as a tool to improve the serviceability of our products and service manuals. Please evaluate this model and service manual by answering the following questions. Your ideas may be realized in our future products. Your answers will be appreciated. Thank you.

PIONEER ELECTRONIC CORP.

T. Nakagawa, Manager, Service Section, International Division

1. SERVICING EVALUATION

Circle applicable number:

Good

Fair

Poor

a. Disassembly/Re-assembly:

1 2 3 *4 *5

b. Circuit Checks:

1 2 3 *4 *5

c. Replacement of Parts:

1 2 3 *4 *5

d. Adjustment (s):

1 2 3 *4 *5

* If (4) or (5) was circled, please be specific.

e. Your advice, opinion or ideas related to servicing this product.

2. SERVICE MANUAL EVALUATION

a. Circuit & Mechanism Description

b. Circuit Diagram

3. OTHER

Please describe other areas of servicing which you may find difficult.

Completed by :

Date :

Company Name :

Address :

City/State/Zip :

Please send this form filled to the distributor in your country.

2. NAME OF PARTS and THEIR FUNCTION

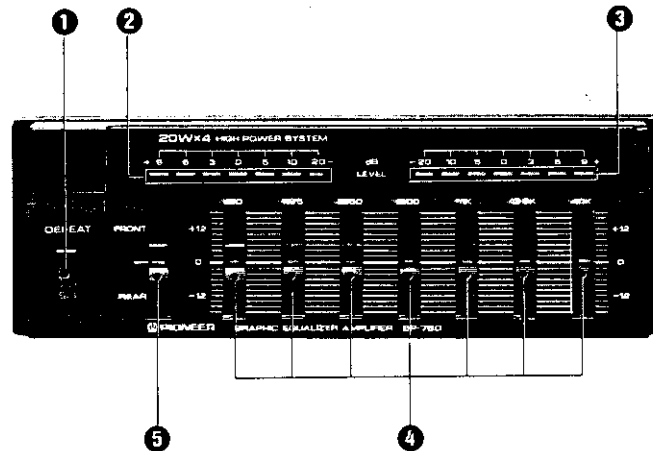


Fig. 2

① Equalizer Switch (DEFEAT)

Press to activate the equalizer control function and illuminate the indicator on the equalizer control lever.

② Lch Level Indicator

③ Rch Level Indicator

Green, orange and red indicators illuminate corresponding to the left/right output levels.

④ Equalizer Control

Slides up and down to allow adjustment to suit both the music and individual tastes. Pressing the equalizer switch causes each indicator to illuminate.

⑤ Fader Control

Raising the lever gradually decreases the volume of the rear speakers, while lowering it gradually decreases the volume of the front speakers. Adjust the volume of the front and rear speakers.

3.CONNECTION

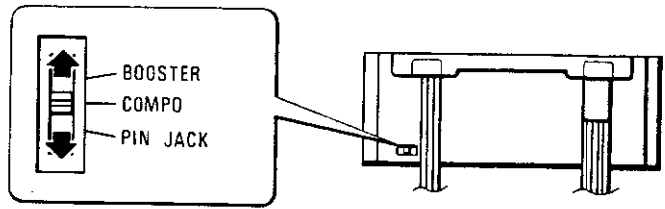
Connect the components correctly as shown in the diagram.

- Test-connect all components before securing them into place. Test-operate your entire car stereo system to ensure that there are no faulty wiring connections between this unit and the rest of your car stereo system.
- Be sure to connect only a single component as shown in the connection diagram. If two or more components are connected, internal circuitry may be damaged or an accident may occur.
- When using this unit in combination with a car stereo equipped with pin jacks, see the section entitled "When combined with a car stereo with pin jacks".
- Speakers connected to this unit must be high power type with over 20W maximum input power and have impedance between 4 and 8 ohms. Be aware of the fact that using a speaker other than the one specified can cause the speaker to be damaged.
- A special BPTL circuit is used to be sure that you do not connect the speaker directly to ground nor join the left and right speaker (-) leads.
- For detailed information concerning connections between different components and this unit consult their respective instruction manuals and follow those recommendations precisely.
- Be sure not to remove the cap on the red lead (female plug) of this unit when not in use to prevent shorting.
- Wire all connecting cords so that they stay well clear of high-temperature areas such as the heater exhaust port.

- To ensure that all components used in combination with this unit operate properly, be sure to wire the main power supply cable (red) correctly to the respectively determined points. Failure to do so or errors in this process will result in total inoperation.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.

Input Selector

Be sure to set the input selector before wiring. (Fig. 3)



- COMPO:** When connecting the unit with a component car stereo.
- BOOSTER:** When connecting the unit with a regular car stereo.
- PIN JACK:** When connecting the unit with a car stereo with pin jacks.

Fig. 3

When Combined with a Component Car Stereo

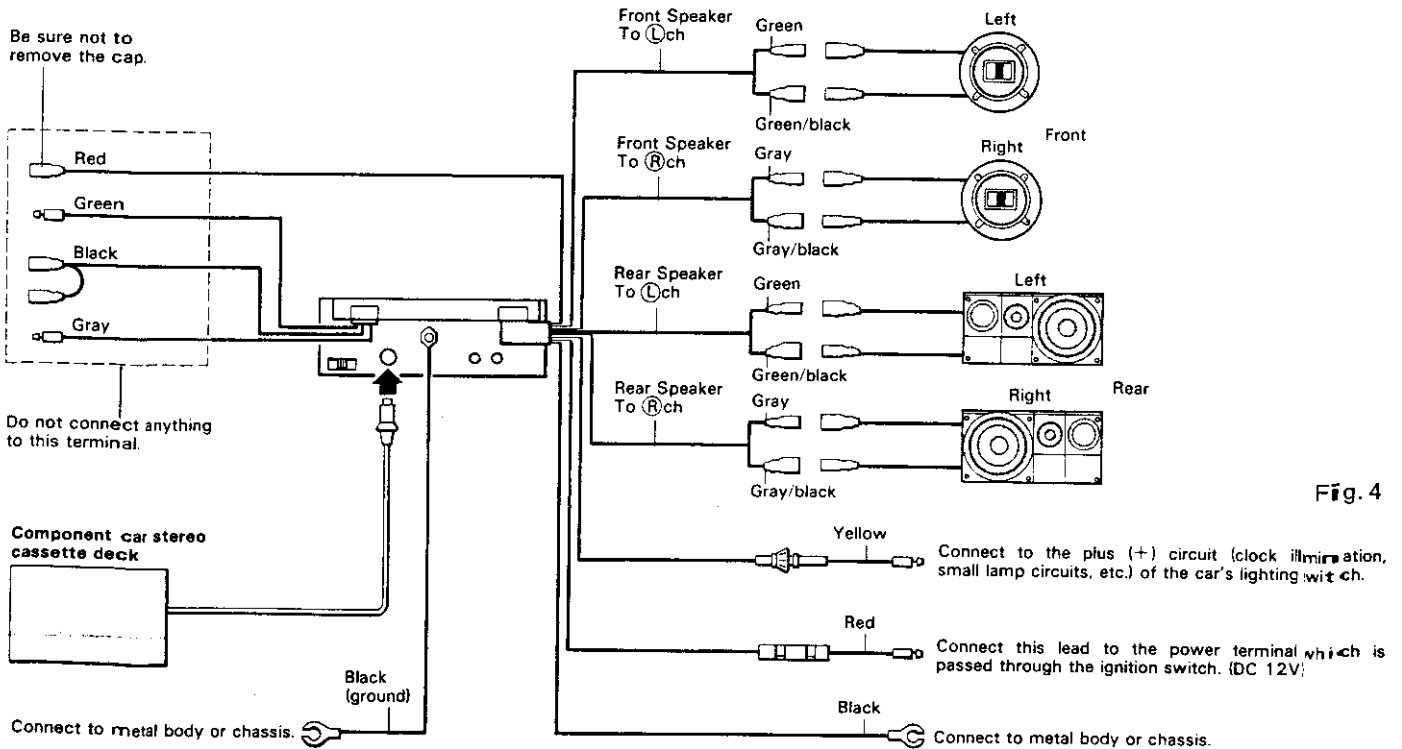


Fig. 4

When Combined with a Regular Car Stereo

- Use a regular power car stereo with a maximum output of 6.5W+6.5W or less.

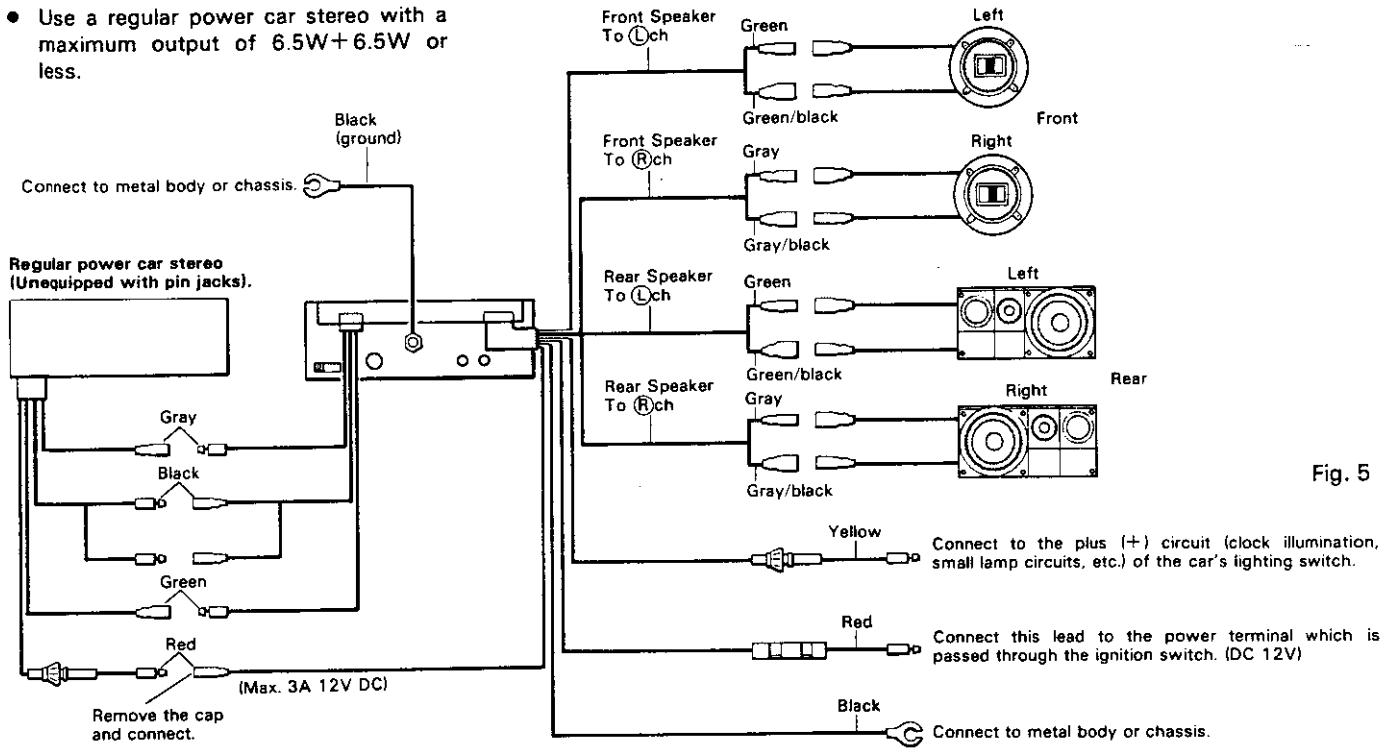


Fig. 5

When Combined with a Car Stereo with Pin Jacks

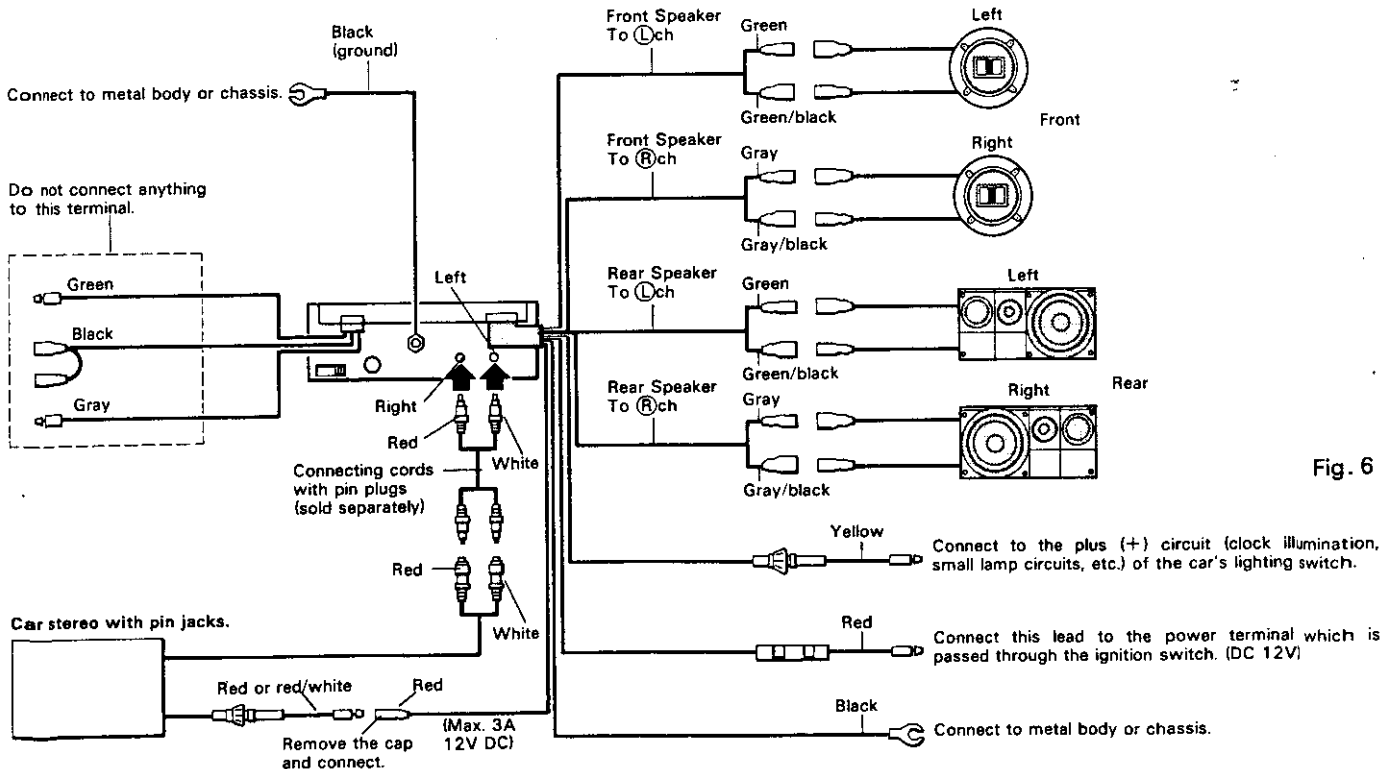
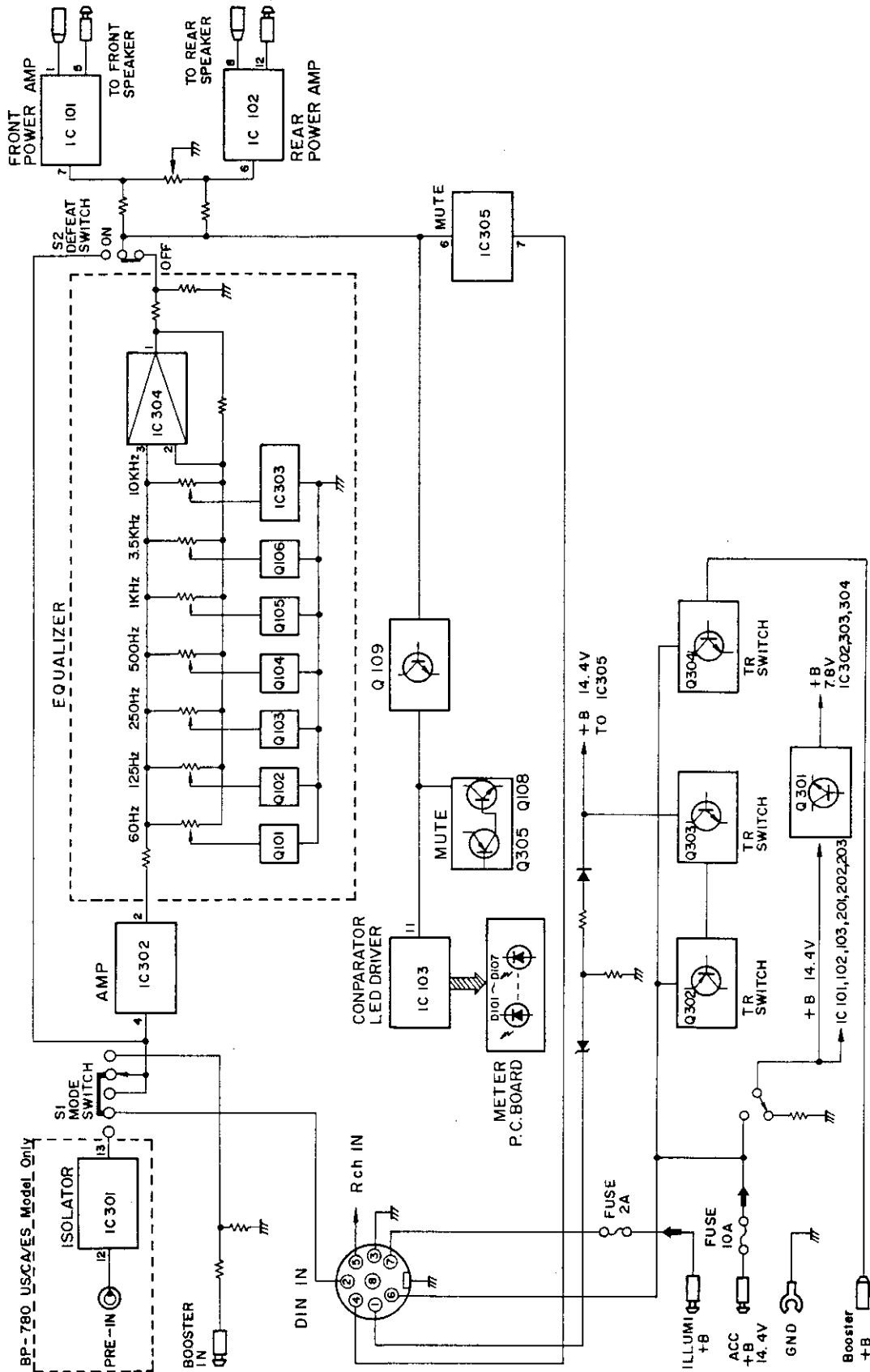


Fig. 6

4. CIRCUIT DESCRIPTION

• Block Diagram



• Level Diagram

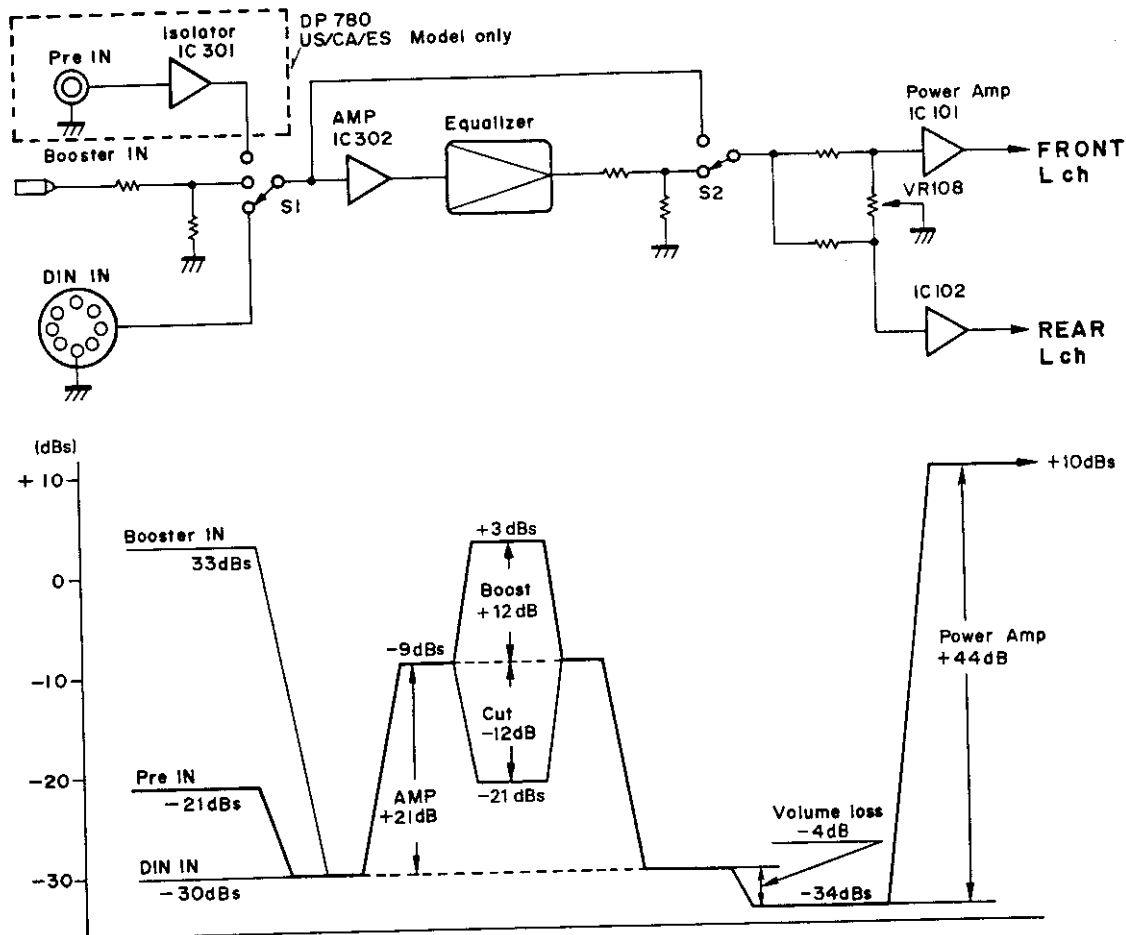
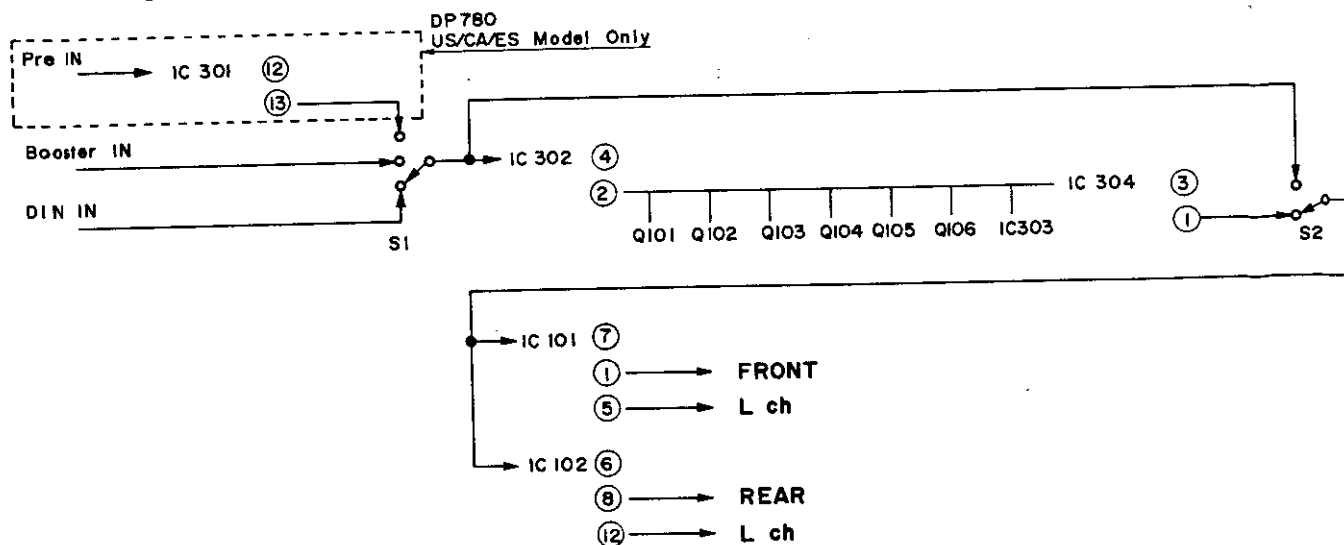


Fig. 8

• Audio Signal path (Lch)



Symbols explanation

Symbols	Description
	Division and synthesis
IC 301 12	A signal will be input to pin 12 of IC 301
13 →	and a signal will be output from pin 13

Fig. 9

5. DISASSEMBLY

• Removal of Case

1. The case can be removed by removing the four screws labeled "A."

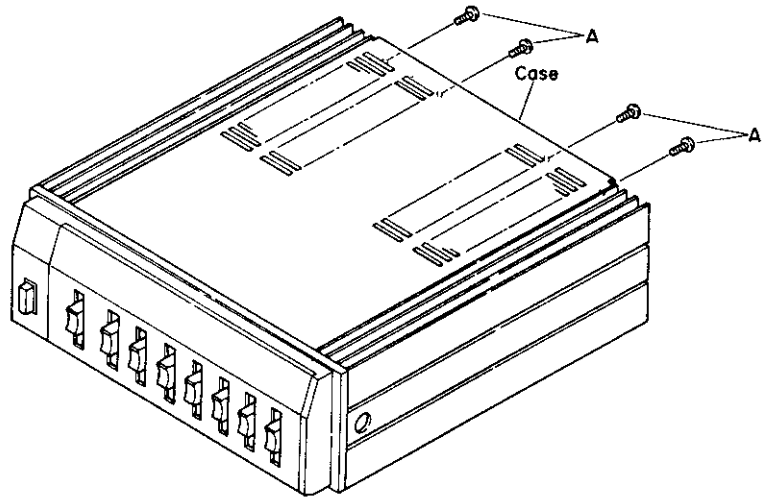


Fig. 10

• Removal of Chassis

1. The Chassis can be removed by removing the five screws labeled "B" and the two rivets.

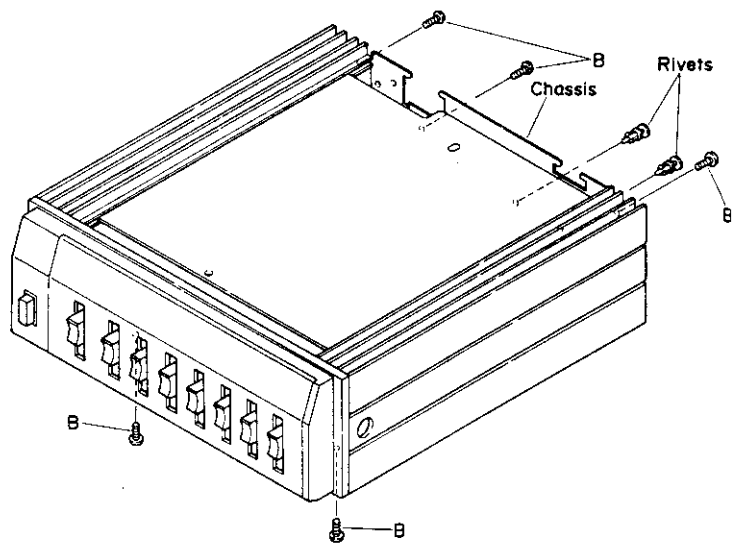


Fig. 11

• Removal of Grille Assembly

1. The grille assembly can be removed by removing the three screws labeled "C."

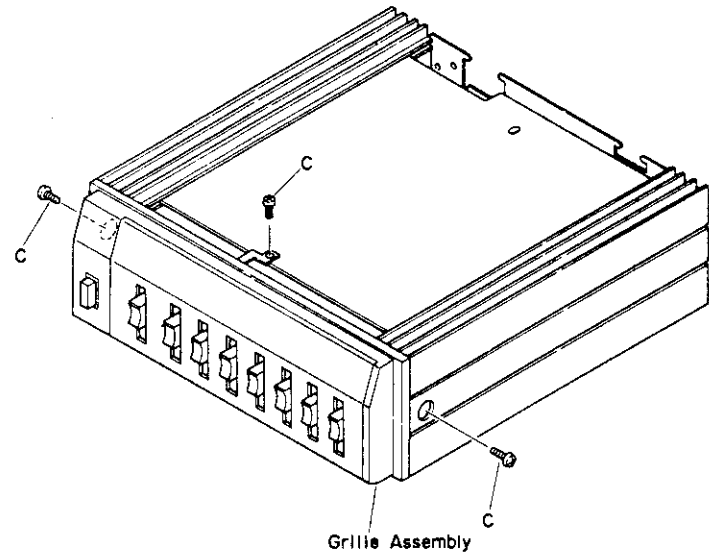
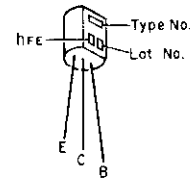


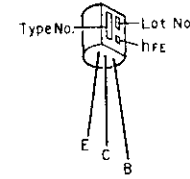
Fig. 12

• ICs and Transistors

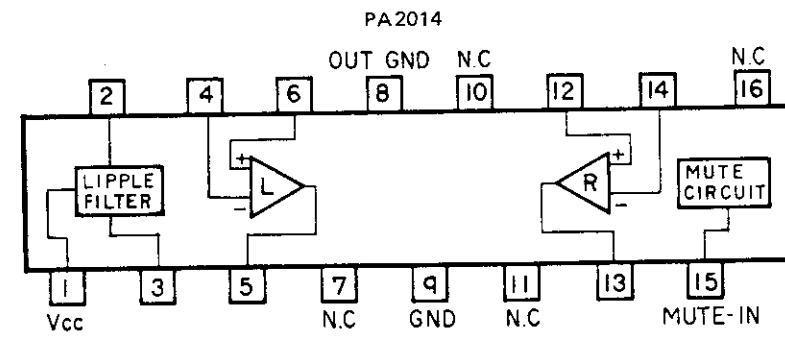
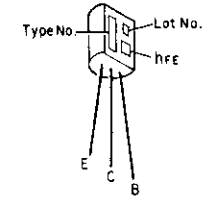
2SA933
2SC1740S



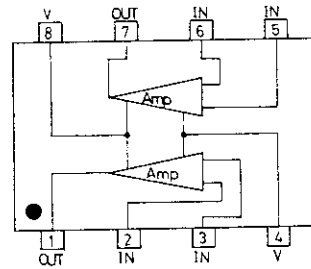
2SA1015
2SC1815



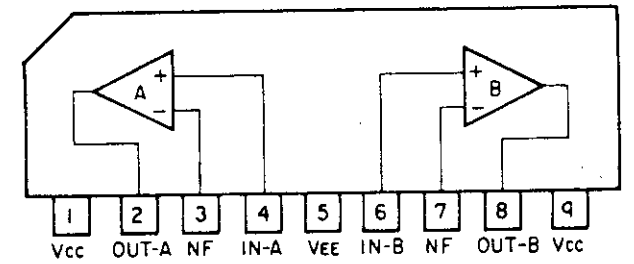
2SC1959
2SD1292



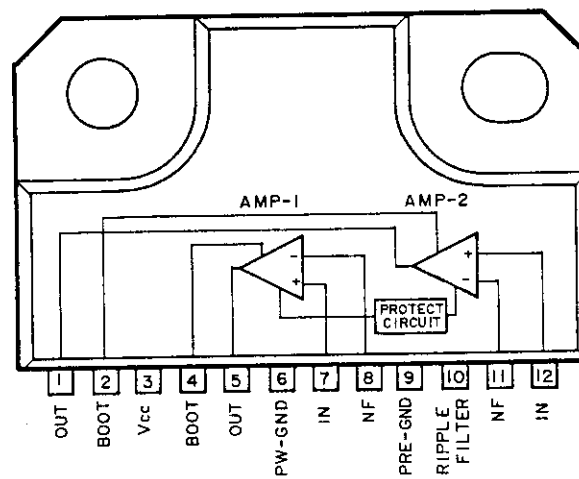
TA75558P
NJM4558



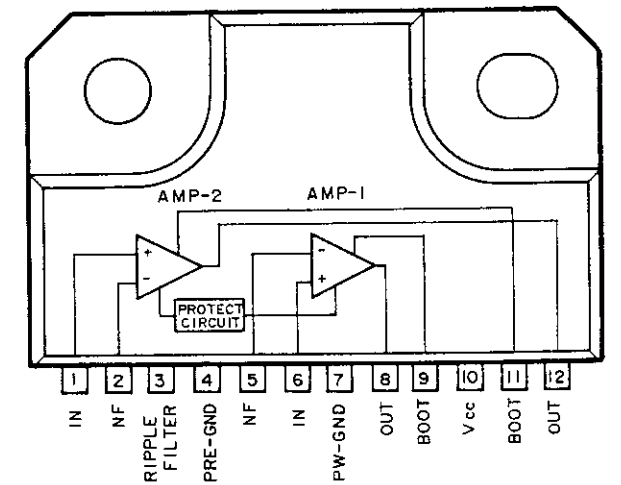
TA75558S
NJM4558S



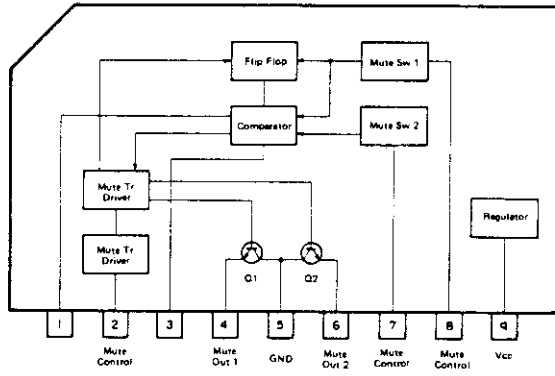
TA7271P



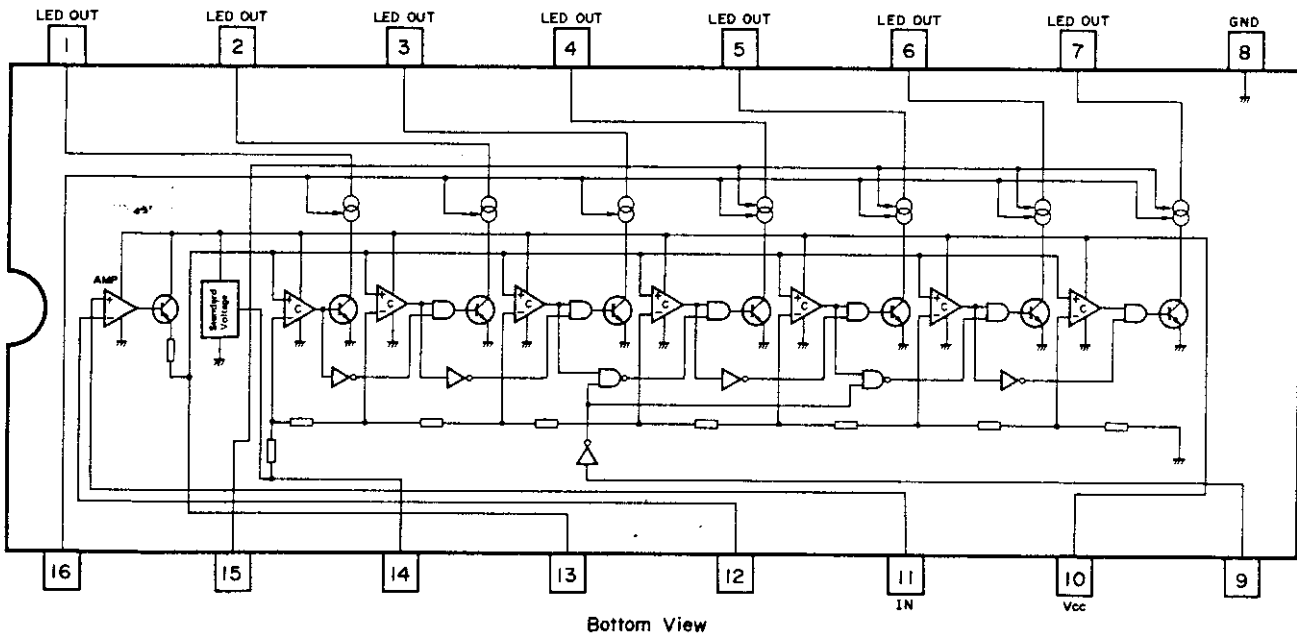
TA7270P



TA7362P



IR2E02



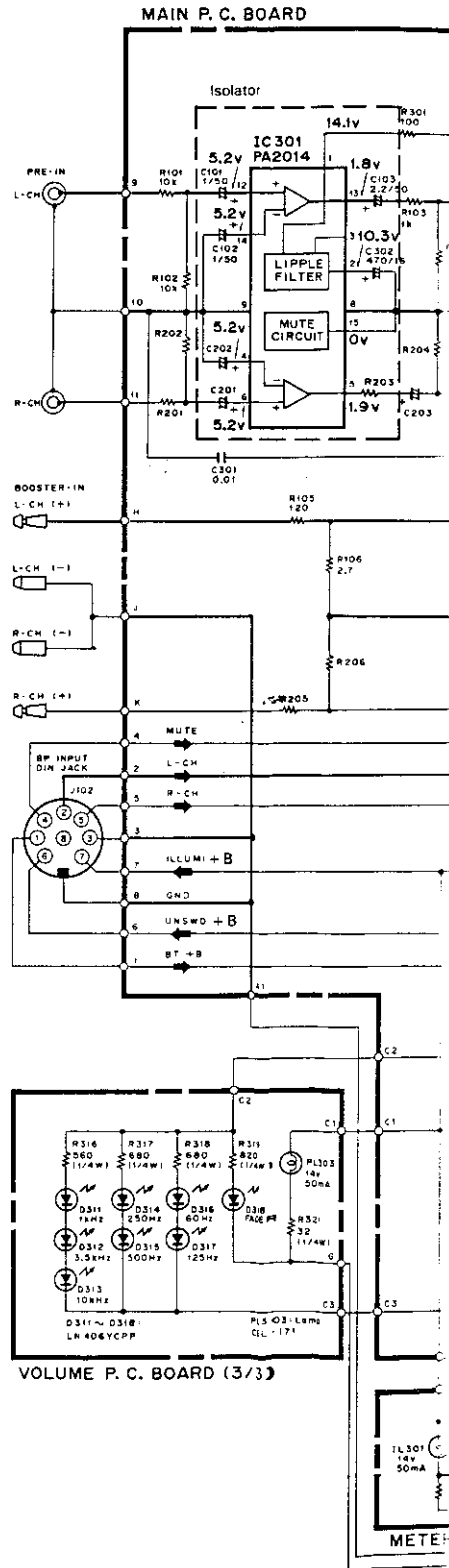
6. SCHEMATIC CIRCUIT DIAGRAM (BP-780/US, CA, ES)

A

B

C

D



4

5

6

7

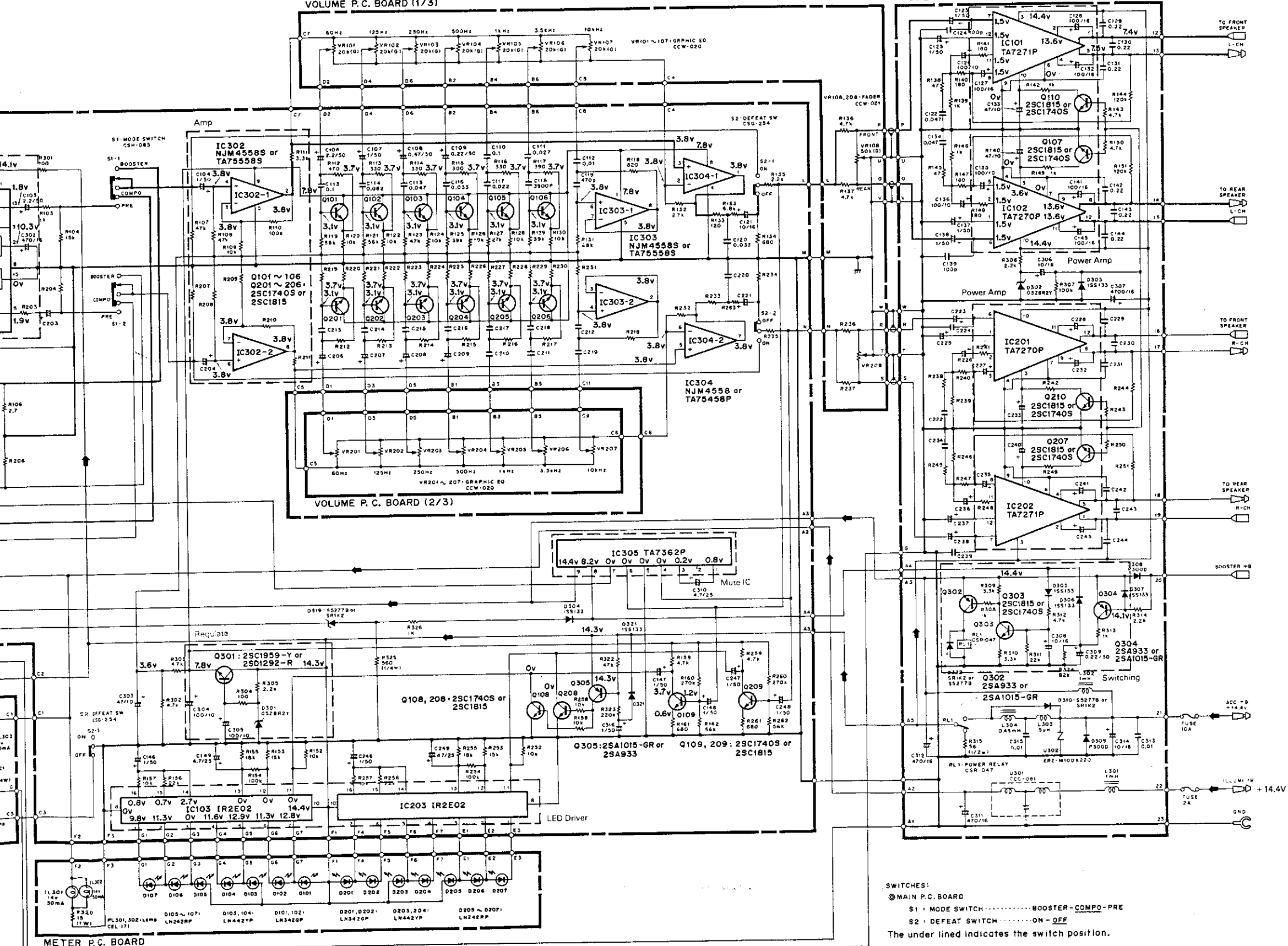
8

9

ES)

VOLUME P.C. BOARD (1/3)

POWER AMP. P. C. BOARD



SWITCHES:
 @ MAIN P.C. BOARD
 S1 - MODE SWITCH BOOSTER - COMPO - PRE
 S2 - DEFEAT SWITCH ON - OFF
 The under lined indicates the switch position.

A

B

C

D

Fig. 13

4

5

6

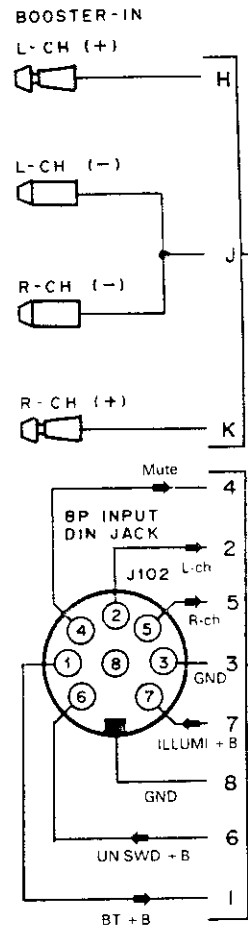
7

8

9

7.CONNECTION DIAGRAM (BP-780/US, CA, ES)

A



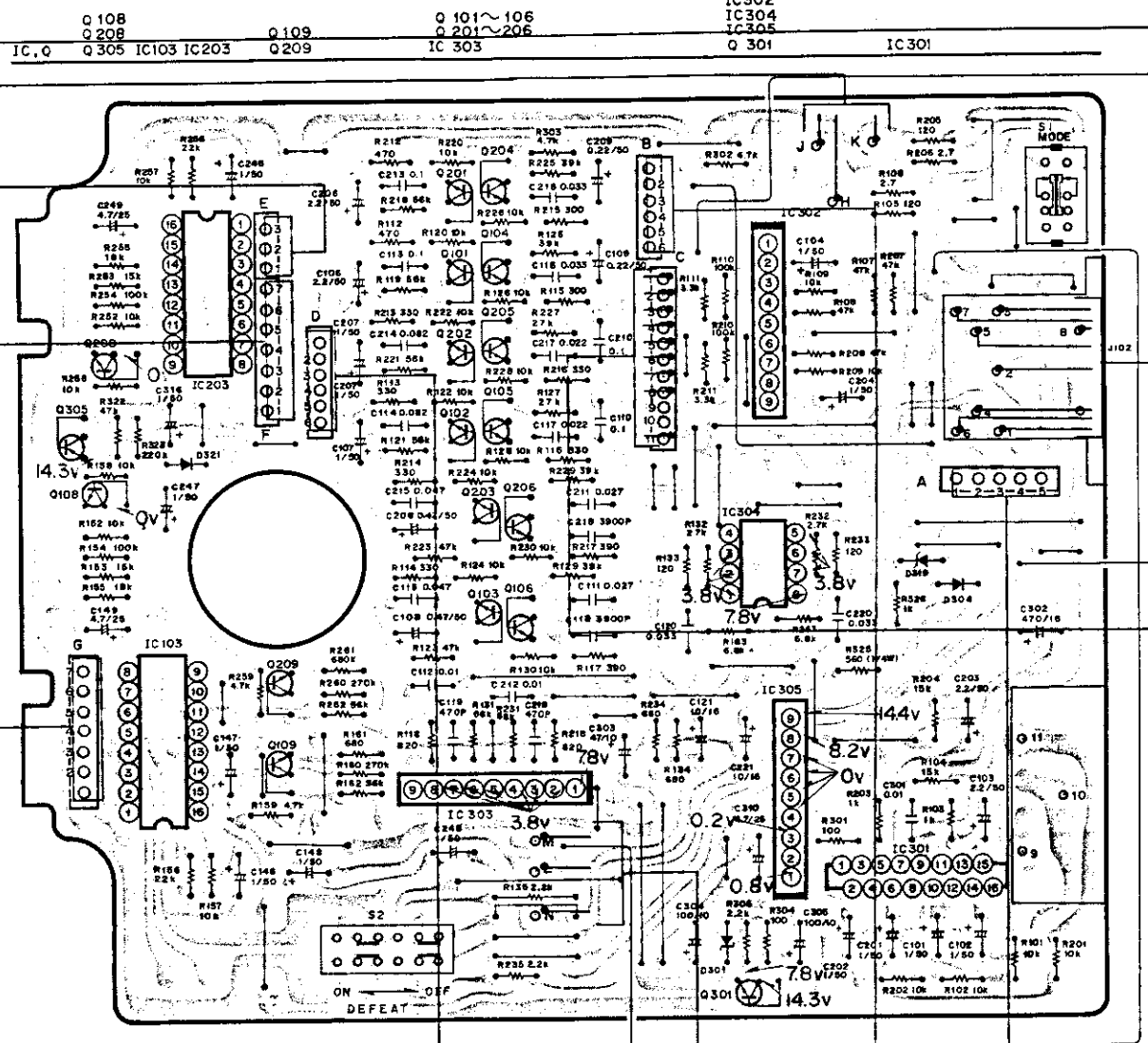
MAIN P.C. BOARD

	IC103	IC302
1	4.8	
2	11.3	3.8
3	0	3.8
4	11.6	3.8
5	12.9	0
6	11.3	3.8
7	12.8	3.8
8	0	3.8
9		7.8 (V)
10	14.4	
11	0	
12	0	
13	0	
14	2.7	
15	0.7	
16	0.8	

	Q101 ~ 106	Q109
E	3.7	0.6
C	7.8	3.7
B	3.1	1.2

(V)

MAIN P.C. BOARD



IC 103, 203 : IR2E02
 IC 301 : PA2014
 IC 302, 303 : NJM4558S or TA7558S
 IC 304 : NJM 4558 or TA75458P
 IC 305 : TA7362P

Q 101 ~ 106, 109 : 2SC1746S or 2SC1815
 Q 201 ~ 206, 209 : 2SC1959 - Y or 2SD1292 - R
 Q 301 : 2SA933 or 2SA1015 - GR

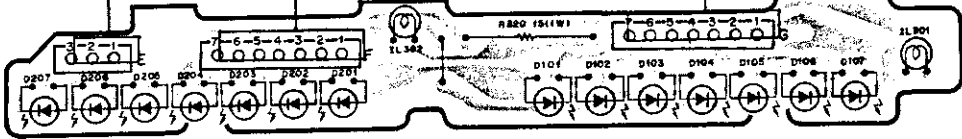
D301 : 05Z6R2Y
 D304, 321 : 15B133
 D319 : 5R1K2 or 552778

B

C

D

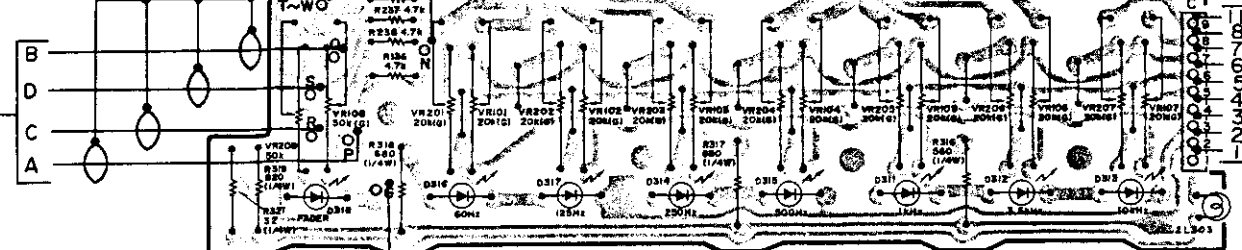
METER P.C. BOARD



D101, 102, 201, 202 : LN342GP
 D103, 104, 203, 204 : LN442YP
 D105 ~ 107, 205 ~ 207 : LN242RP

IL301, 302 : Lamp, 14V 50mA
 CEL-171

VOLUME P.C. BOARD

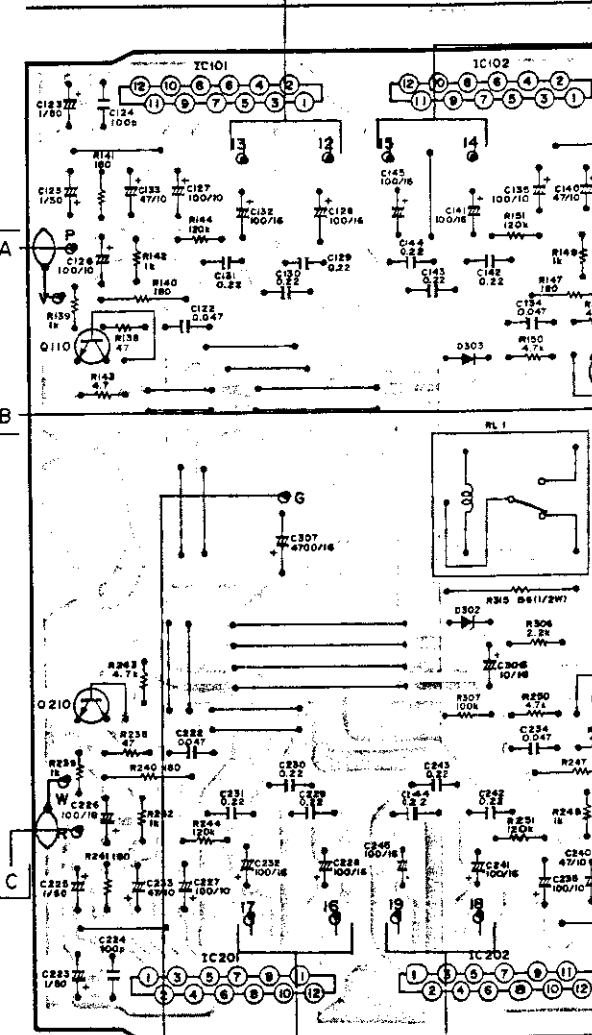


D311 ~ 318 : LN406YCPP

IL303 : Lamp, 14V 50mA
 CEL-171

POWER P.C BOARD

IC.0 Q110 IC101 IC102
 Q210 IC201 IC202



IC101, 202 : TA7271P
 IC102, 201 : TA7270P
 Q107, 110, 207, 210, 303 : 2SC1815
 Q302, 304 : 2SA1015 - GR or 2SA933

POWER AMP P.C. BOARD

	1	2	3	4
IC101	7.4	13.6	14.4	
IC102	1.5	1.5	3.6	0

1

2

3

4

5

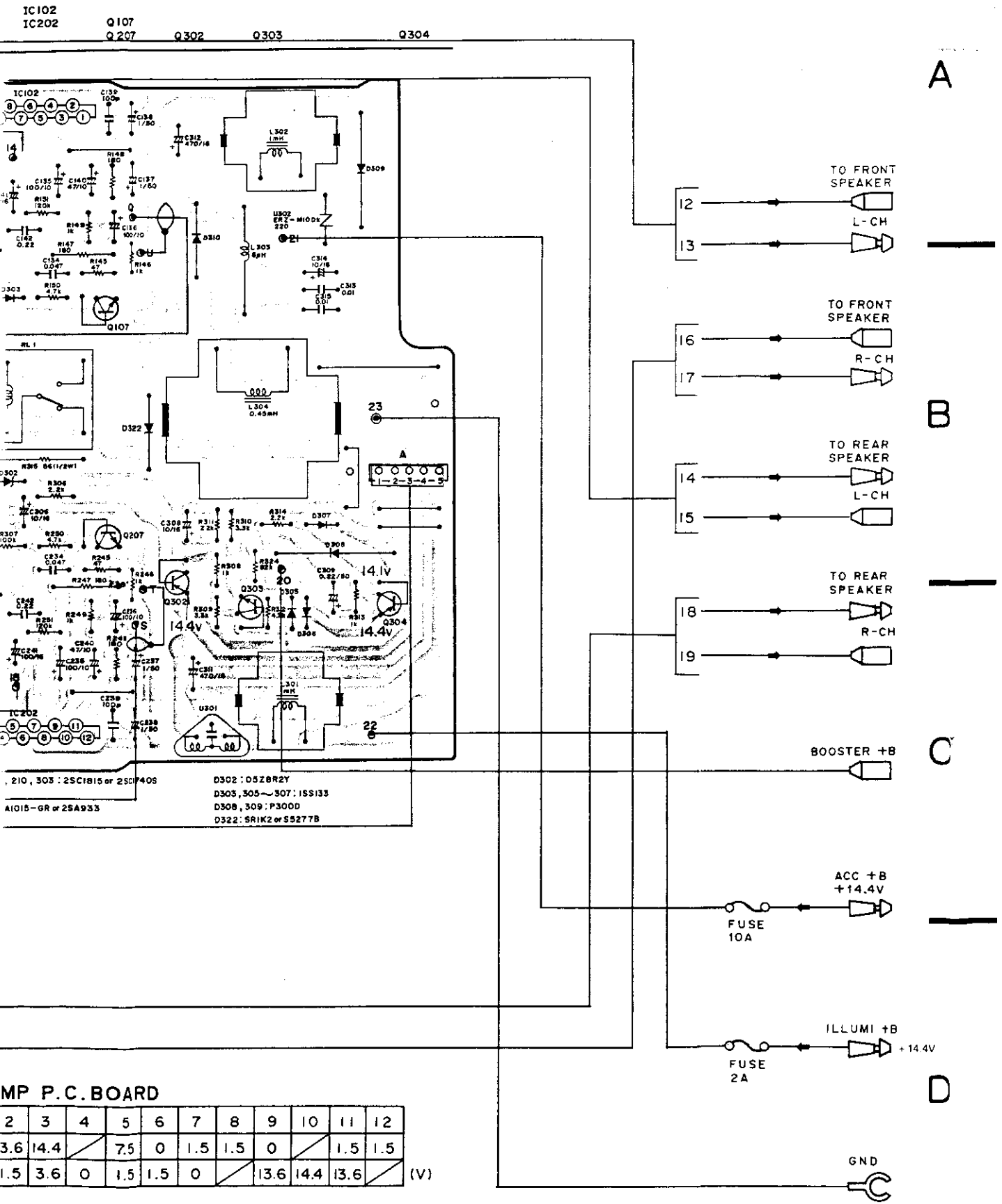
6

A

B

C

D



MP P.C. BOARD

2	3	4	5	6	7	8	9	10	11	12
3.6	14.4	/	7.5	0	1.5	1.5	0	/	1.5	1.5
1.5	3.6	0	1.5	1.5	0	/	13.6	14.4	13.6	/

(V)

Fig. 14

8. SCHEMATIC CIRCUIT DIAGRAM (BP-780/EW)

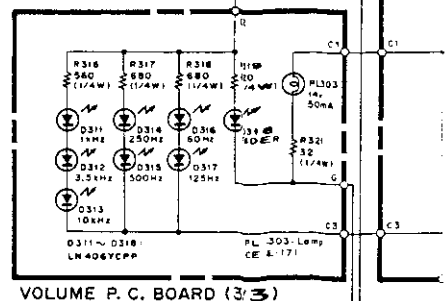
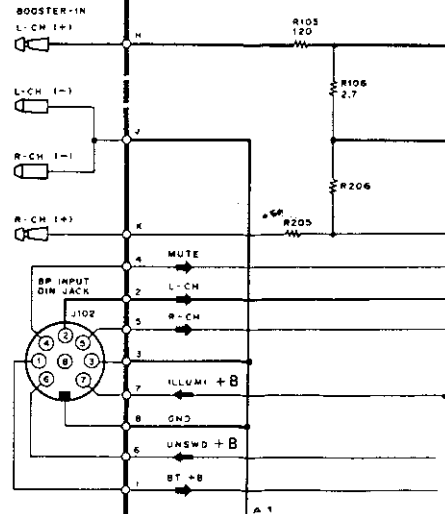
A

B

C

D

MAIN P. C. BOARD

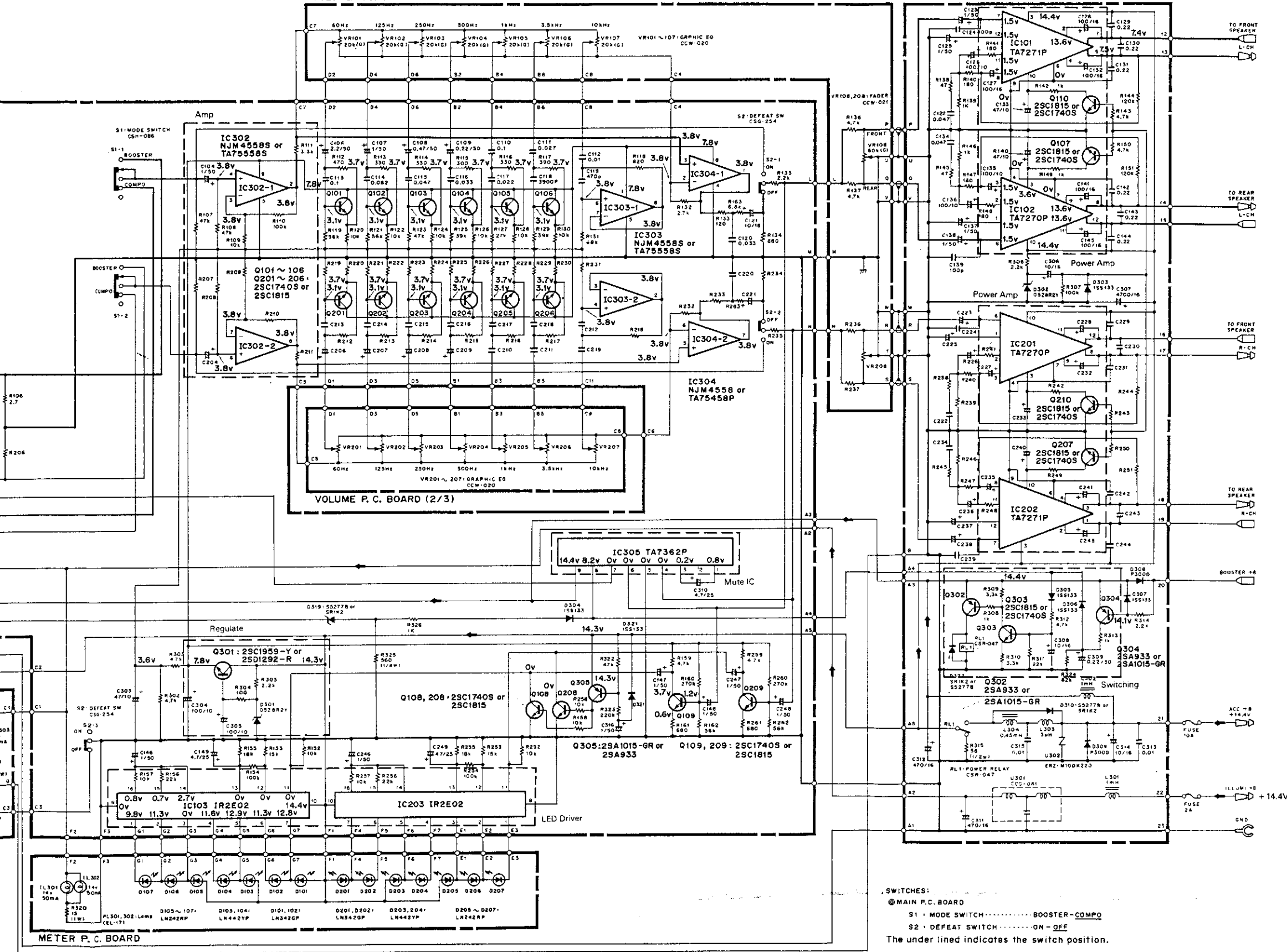


VOLUME P. C. BOARD (3/3)



VOLUME P.C. BOARD (1/3)

POWER AMP. P.C. BOARD



SWITCHES:
 S1 - MODE SWITCH BOOSTER-COMPO
 S2 - DEFEAT SWITCH ON-OFF
 The under lined indicates the switch position.

A

B

C

D

Fig15

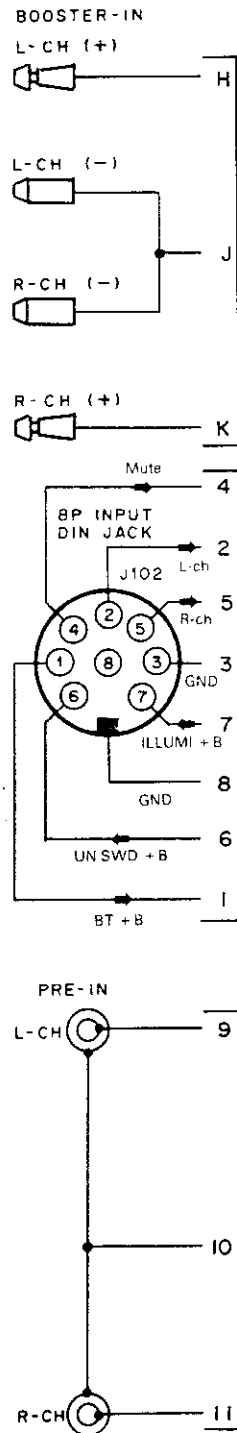
9.CONNECTION DIAGRAM (BP-780/EW)

A

B

C

D

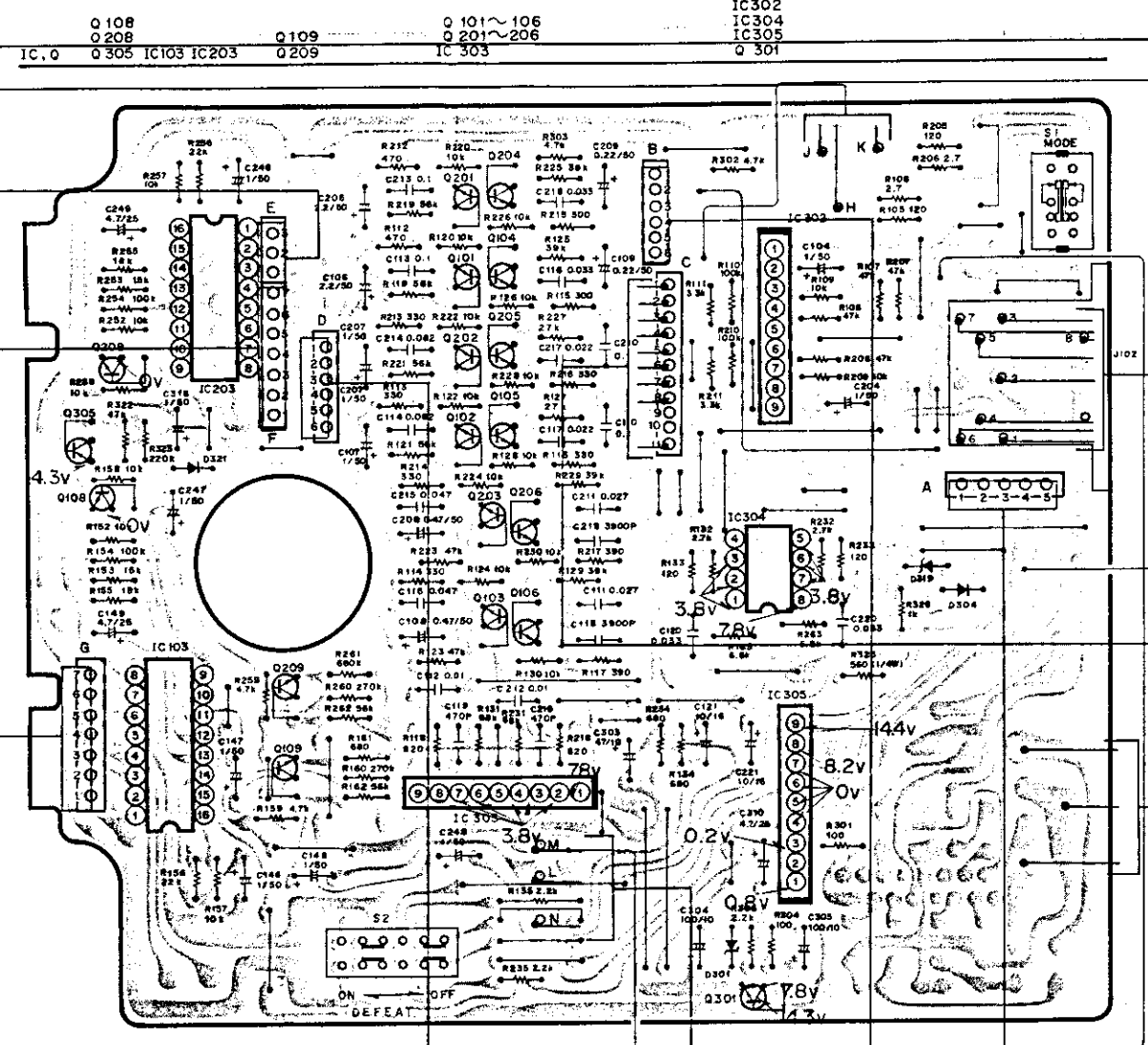


MAIN P.C. BOARD

	IC103	IC301	IC302
1	4.8	14.1	
2	11.3	10.3	3.8
3	0		3.8
4	11.6	5.2	3.8
5	12.9	1.9	0
6	11.3	5.2	3.8
7	12.8		3.8
8	0	0	3.8
9		0	7.8
10	14.4		
11	0		
12	0	5.2	
13	0	1.8	
14	2.7	5.2	
15	0.7	0	
16	0.8		

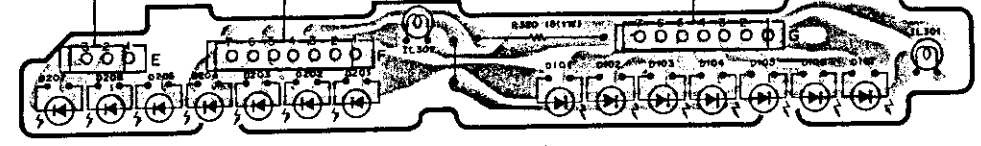
	Q101 ~ 106	Q109
E	3.7	0.6
C	7.8	3.7
B	3.1	1.2

MAIN P.C. BOARD

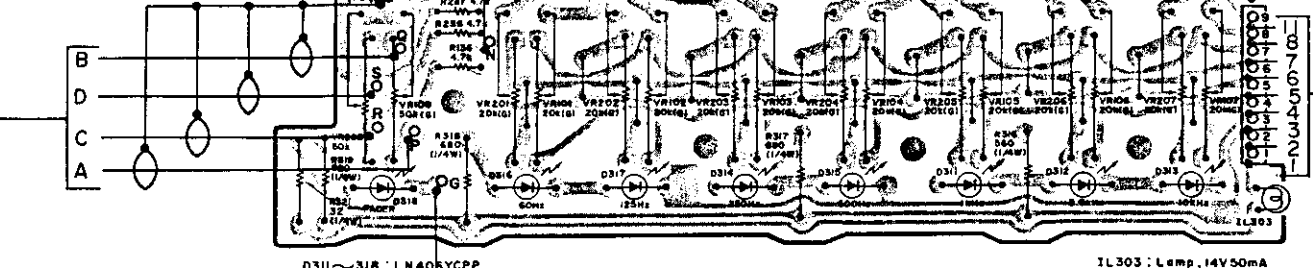


- IC103, 203 : IR2E02
- IC302, 303 : NJM4558S or TA7558S
- IC304 : NJM4558 or TA75458P
- IC305 : TA7362P
- Q 101 ~ 106, 109 : 2SC1785 or 2SC1815
- Q 201 ~ 206, 209 : 2SC1815
- Q 301 : 2SC1959 - Y or 2SD1292 - R
- Q 305 : 2SA933 or 2SA1015 - GR
- D301 : 05Z8R2Y
- D304, 321 : 1SS133
- D319 : SRIK2 or 55Z77B

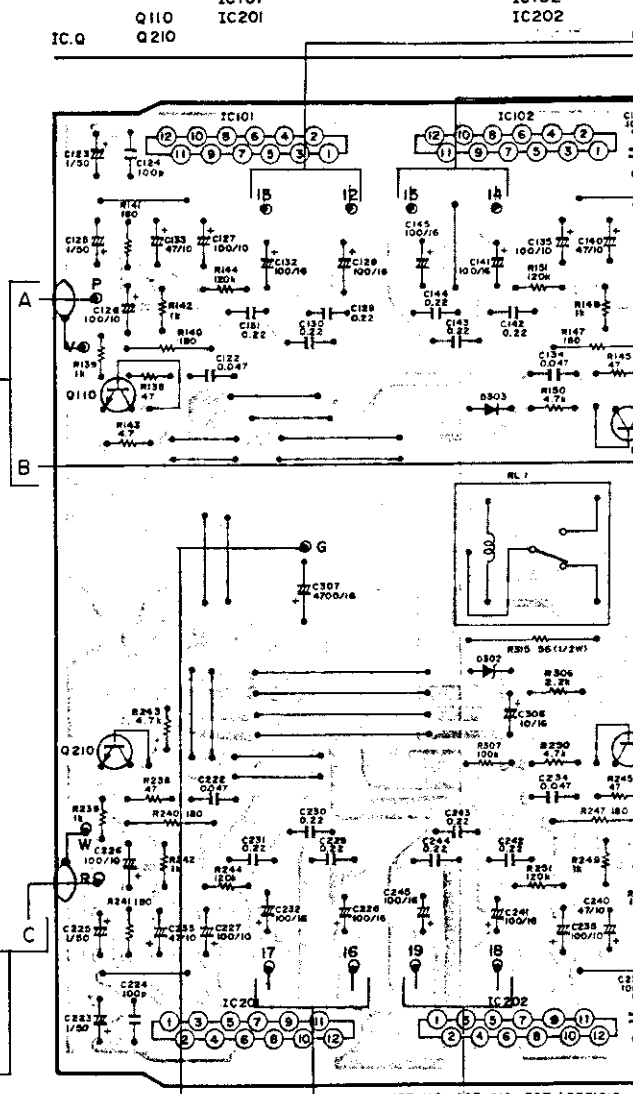
METER P.C. BOARD



VOLUME P.C. BOARD



POWER P.C. BOARD



- IC101, 202 : TA7271P
- IC102, 201 : TA7270P
- Q107, 110, 207, 210, 303 : 2SC1815 or 2SD1292 - R
- Q302, 304 : 2SA1015 - GR or 2SA933

POWER AMP P.C. BOARD

	1	2	3	4
IC101	7.4	13.6	14.4	
IC102	1.5	1.5	3.6	0

- D101, 102, 201, 202 : LN3426P
- D103, 104, 203, 204 : LN442YP
- D105 ~ 107, 205 ~ 207 : LN242RP

- IL303 : Lamp, 14V 50mA CEL-171

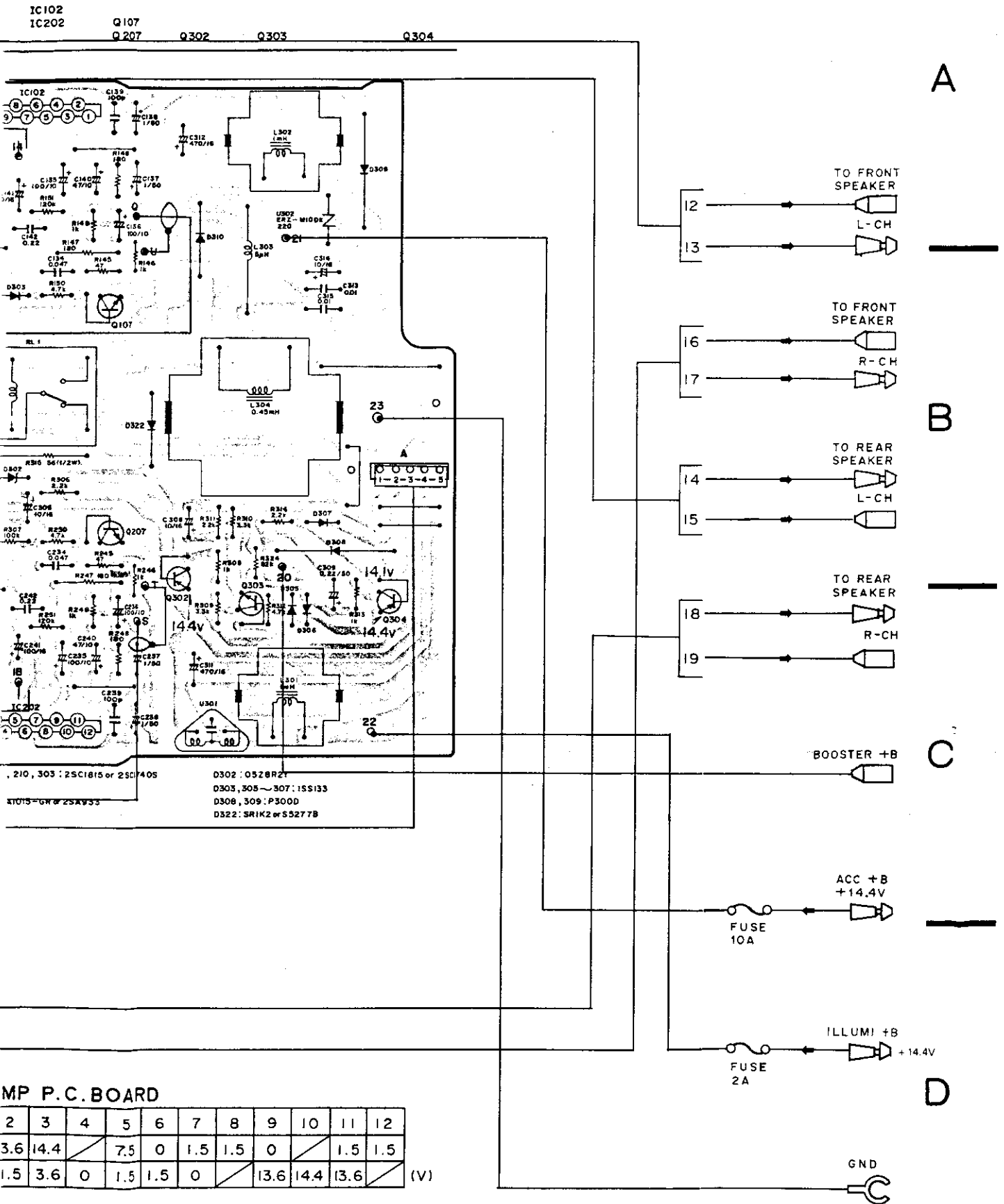


Fig. 16

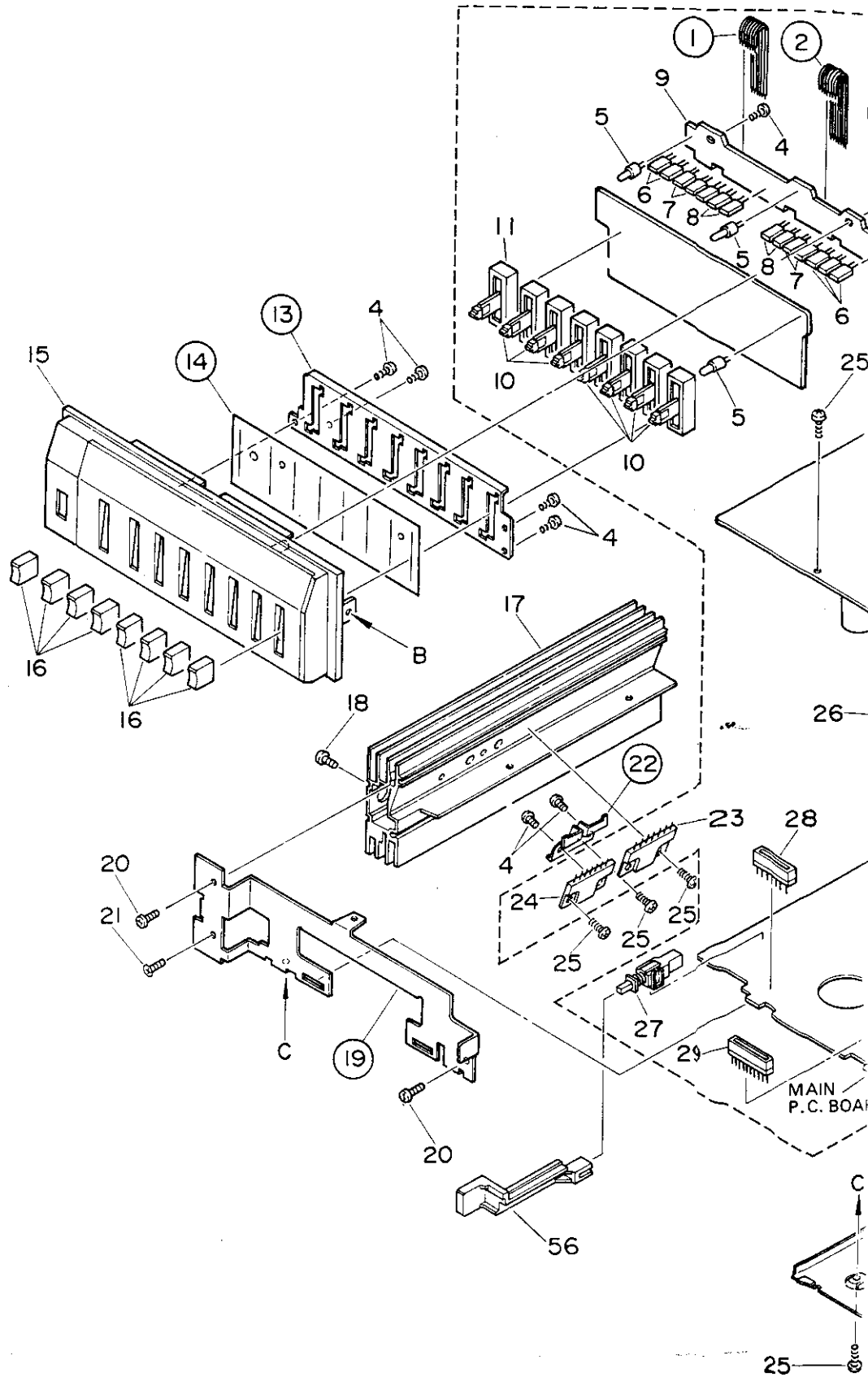
10. EXPLODED VIEW

A

B

C

D



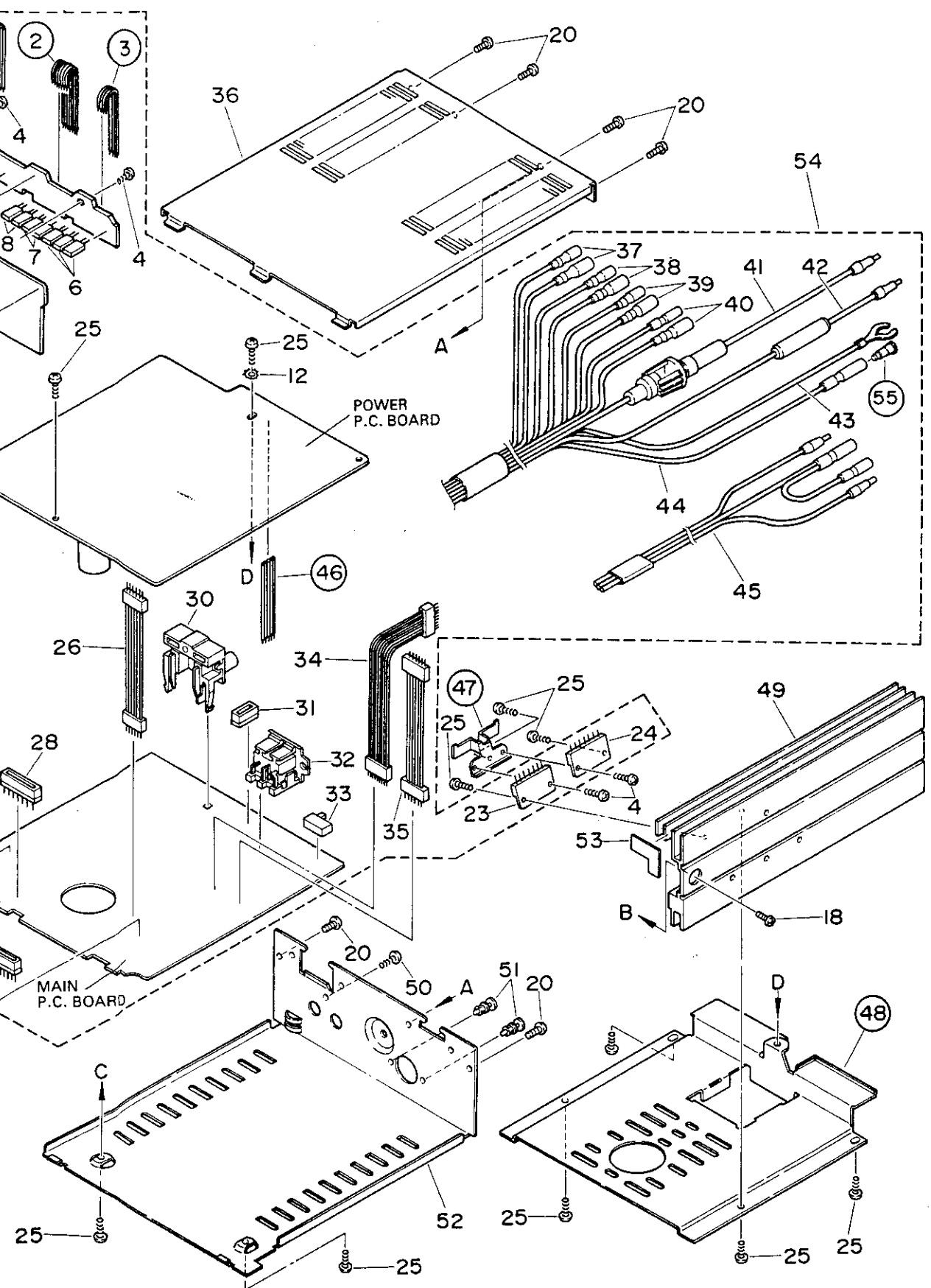


Fig. 17

• Parts List

NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
		1.	Connector (7P)			31.	CDK-235 Connector (5P)
		2.	Connector (7P)			32.	CKS-614 DIN Jack
		3.	Connector (3P)	★ ★		33.	CSH-085 Switch (BP-780/US,CA,ES)
		4.	CBA-187 Screw, M2×5			CSH-086	Switch (BP-780/EW)
★ ★		5.	CEL-171 Lamp, 14V 50mA			34.	CDV-003 Connector (9P)
★		6.	LN242RP LED			35.	CDV-002 Connector (6P)
★		7.	LN442YP LED			36.	CNB-925 Case
★		8.	LN342GP LED			37.	CDK-238 Cord (Front Lch)
		9.	CNL-905 P.C. Board			38.	CDK-239 Cord (Rear Lch)
★ ★		10.	CCW-020 Volume (GRAPHIC EQ)			39.	CDK-240 Cord (Front Rch)
★ ★		11.	CCW-021 Volume (FADER)			40.	CDK-241 Cord (Rear Rch)
		12.	WH26FMC Washer			41.	CDK-244 Cord
		13.	Bracket			42.	CDK-243 Cord
		14.	Felt			43.	CDK-242 Cord
		15.	CXD-702 Grille Assy			44.	CDK-246 Cord
		16.	CXD-703 Knob Assy			45.	CDK-247 Cord (BP-780/US,CA,ES)
		17.	CNR-256 Heat Sink			46.	Connector (5P)
		18.	CBA-189 Screw, M2.6×6			47.	Bracket
		19.	Bracket			48.	Shield Plate
		20.	CBA-191 Screw, M3×6			49.	CNR-257 Heat Sink
		21.	CBA-193 Screw, M3×6			50.	CBA-194 Screw, M3×10 (BP-780/US,CA,ES)
		22.	Bracket			51.	CMB-031 Rivet
★ ★		23.	TA7270P IC			52.	CNA-303 Chassis (BP-780/US,CA,ES)
★ ★		24.	TA7271P IC			CNA-304	Chassis (BP-780/EW)
		25.	CBA-188 Screw, M2.6×6			53.	CNN-452 Insulator
★ ★		26.	CDV-001 Connector (6P)			54.	CWK-376 Amp Unit (BP-780/US, CA, ES)
		27.	CSG-254 Switch (DEFEAT)			CWK-385	Amp Unit (BP-780/EW)
		28.	CDK-236 Connector (7P)			55.	Cover
		29.	CDK-237 Connector (10P)	★		56.	CAE-064 Button
		30.	CKN-085 RCA Jack (BP-780/US, CA, ES)				

11. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	56 × 10 ¹	561	RD1/4PS	561J
47kΩ	47 × 10 ³	473	RD1/4PS	473J
0.5Ω	0R5		RN2H	0R5K
1Ω	010		RS1P	010K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ RN1/4SR 5621F

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
★ ★: GENERALLY MOVES FASTER THAN ★.
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

Amp Unit (CWK-376) (BP-780/US, CA, ES)

Caution:
The parts of the MAIN P.C. BOARD and POWER P.C. BOARD are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC1012, IC202	TA7271P
★★	IC102, IC201	TA7270P
★★	IC103, IC203	IR2E02
★★	IC301	PA2014
★★	IC302, IC303	TA75558S or
		NJM4558S
★★	IC304	TA75558P or
		NJM4558
★★	IC305	TA7362P
★★	Q101 – Q110, Q201 – Q210, Q303	2SC1815 or
		2SC1740S
★★	Q301	2SC1959-Y or
		2SD1292-R
★★	Q302, Q304, Q305	2SA1015-GR or
		2SA933

Mark	Symbol & Description	Part No.
★	D301, D302	05Z8R2Y
★	D303-D307, D321	1SS133
★	D308, D309	P300D
★	D310, D319, D320, D322	S52778 or SR1K2
	L301	Transformer CTH-04
	L302	Transformer CTH-02
	L303	Transformer CTH-03
	L304	Transformer CTH-01
	RL1	Relay CSR-07
★★	S1	Switch (MODE SELECTOR) CSH-05
★★	S2	Switch (DE FEAT) CSG-04
	U301	Capacitor CCG-01
	U302	ERZ-MODK220

RESISTORS

Mark	Symbol & Description	Part No.
	R101 – R108, R111 – R135, R138 – R162, R201 - R208, R211 - R235, R238 - R259, R301 - R314, R323	RD1/6S □□□J
	R315	RD1/2S □□□JL
	R316	RD1/4S □□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C101, C102, C104, C123, C125, C137, C138, C146-C148, C201, C202, C103, C106, C203, C206	CEA010M50L2
	C102, C207	CEA2R2M50L2
	C108, C208	CEAR68M50L2
		CEAR47M50L2
	C109, C209, C309	CEAR22M50L2
	C110, C113, C210, C213	CQFA104J50L
	C111, C211	CQFA273J50L
	C112, C212	CQFA103J50L
	C114, C214	CQFA823J50L
	C115, C122, C134, C215, C222, C234	CQFA473J50L
	C116, C120, C216, C220	CQFA333J50L
	C117, C217	CQFA223J50L
	C118, C218	CQMA392J50
	C119, C219	CQPA471J50
	C121, C221, C306, C308, C314	CEA100M25L2
	C124, C139, C224, C239	CKDYB101K50L
	C126, C127, C135, C136, C226, C227, C235, C236, C304, C305	CEA101M10L2
	C128, C132, C141, C145, C228	CEA101M16L2
	C232, C241, C245	
	C129, C131, C142, C144, C229, C231, C242, C244	CKDBAR22K25
	C130, C143, C230, C243	CQFA224J50
	C133, C140, C233, C240, C303	CEA470M10L2
	C149, C249, C310	CEAR47M25L2
	C204, C223, C225, C237, C238	CEA010M50L2
	C246-C248, C316	
	C301	CKDYB103Z50L
	C302	CEA471M16L2
	C307	CEA472M16L2
	C311, C312	CEA471M16L2
	C313, C315	CKDYB103Z50L

Amp Unit (CWK-385) (BP-780/EW)

Caution:

The parts of the MAIN P.C. BOARD and POWER P.C. BOARD are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.	
★ ★	IC101, IC202	TA7271P	
★ ★	IC102, IC201	TA7270P	
★ ★	IC103, IC203	IR2E02	
★ ★	IC302, IC303	TA75558S or NJM4558S	
★ ★	IC304	TA75558P or NJM4558	
★ ★	IC305	TA7362P	
★ ★	Q101-Q110, Q201-Q210, Q303	2SC1815 or 2SC1740S	
★ ★	Q301	2SC1959-Y or 2SD1292-R	
★ ★	Q302, Q304, Q305	2SA1015-GR or 2SA933	
★	D301, D302	05Z8R2Y	
★	303-D307, D321	1SS133	
★	D308, D309	P300D	
★	D310, D319, D320, D322	S5277B or SR1K2	
	L301	Transformer	CTH-094
	L302	Transformer	CTH-092
	L303	Transformer	CTH-093
	L304	Transformer	CTH-091
	RL1	Relay	CSR-047
★ ★	S1	Switch (MODE SELECTOR)	CSH-086
★ ★	S2	Switch (DEFEAT)	CSG-254
	U301	Capacitor	CCG-081
	U302		ERZ-M10DK220

RESISTORS

Mark	Symbol & Description	Part No.
	R105-R108, R111-R135, R138-R162, R205-R208, R211-R235, R238-R259, R302-R314, R323	RD1/6PS□□□J
	R315	RD1/2PS□□□JL
	R316	RD1/4PM□□□JL

12.PACKING MEHOD

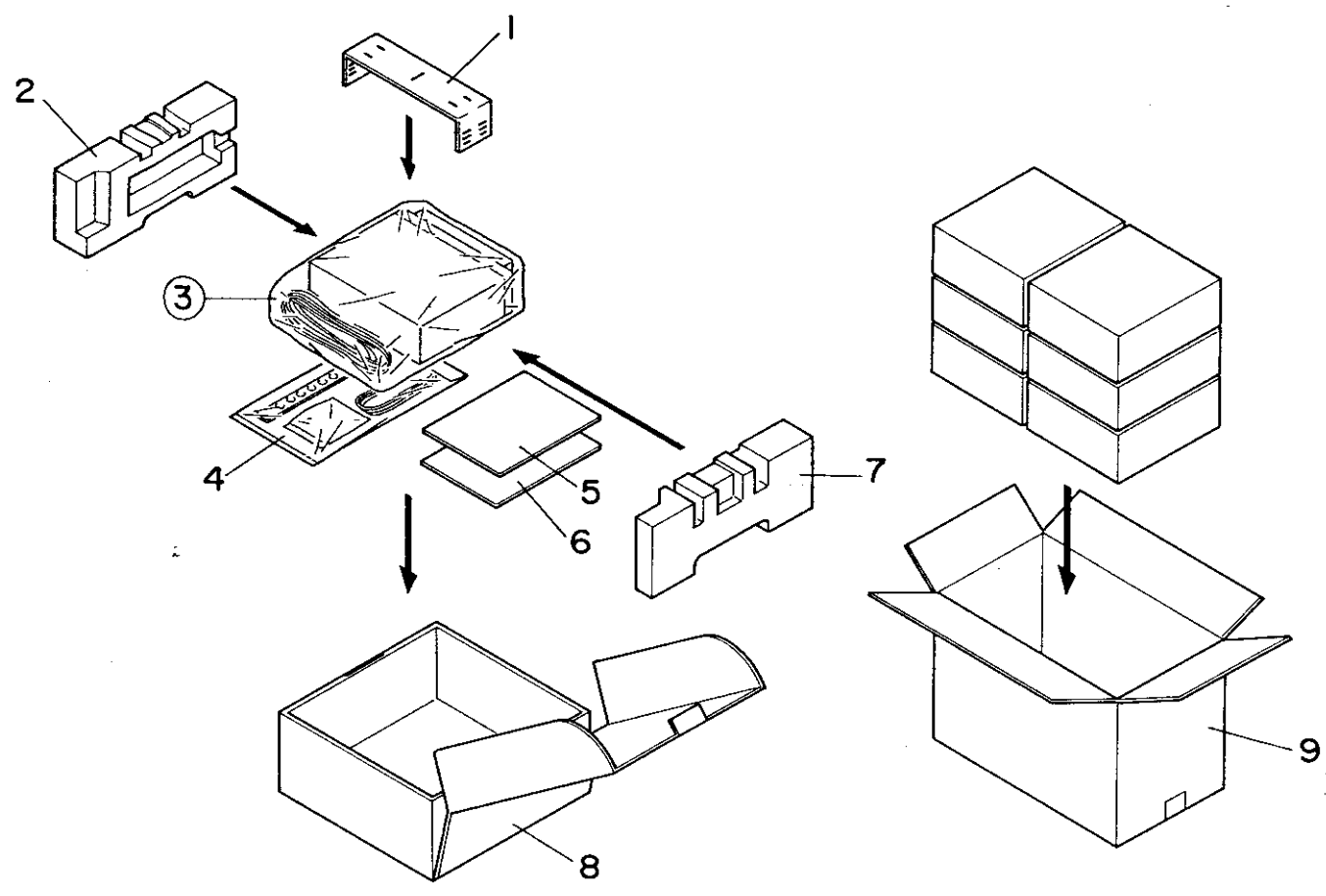


Fig. 18

NOTE:
 • Parts whose parts numbers are omitted are subject to being not supplied.

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	CNB-791	Mounting Bracket			CRD-555	Owner's Manual (BP-780/EW) (English, French, German, Spanish)
	2.	CHF-072	Styrofoam			CRD-557	Owner's Manual (BP-780/ES) (English, French, Spanish, Arabic)
	3.		Cover		6.	CRB-528	Owner's Manual (BP-780/CA) (French)
	4.	CEB-096	Accessory Kit			CRD-556	Owner's Manual (BP-780/EW) (Swedish, Norwegian, Dutch, Italian)
	4-1.	CDE-437	Cord		7.	CHF-073	Styrofoam
	4-2.	CNF-111	Strap		8.	CHF-074	Carton (BP-780/US)
	4-3.	CEB-095	Screw Kit			CHF-075	Carton (BP-780/CA)
	4-3-1.	CBA-028	Screw for Strap			CHF-076	Carton (BP-780/EW)
	4-3-2.	CBA-101	Screw, M4x6			CHF-077	Carton (BP-780/ES)
	4-3-3.	CBA-102	Screw, M5x16		9.	CHF-078	Contain Box (BP-780/US)
	4-3-4.	CBF-168	Washer				
	4-3-5.	CBN-040	Nut				
	4-3-6.	CBN-041	Nut				
	5.	CRB-527	Owner's Manual (BP-780/US,CA) (English)				

CAPACITORS

Mark	Symbol & Description	Part No.
	C104, C123, C125, C137, C138 C146 - C148 C106, C206 107, C207 108, C208	CEA010M50L2 CEA2R2M50L2 CEAR68M50L2 CEAR47M50L2
	C109, C209, C309 C110, C113, C210, C213 C111, C211 C112, C212 C114, C214	CEAR22M50L2 CQFA104J50L CQFA273J50L CQFA103J50L CQFA823J50L
	C115, C122, C134, C215, C222, C234 C116, C120, C216, C220 C117, C217 C118, C218	CQFA473J50L CQFA333J50L CQFA223J50L CQMA392J50
	C199, C219 C121, C221, C306, C308, C314 C124, C139, C224, C239 126, C127, C135, C136, C226, C227, C235, C236, C304, C305	CQPA471J50 CEA100M25L2 CKDYB101K50L CEA101M10L2
	C128, C132, C141, C145, C228, C232, C241, C245 C129, C131, C142, C144, C229, C231, C242, C244 C130, C143, C230, C243	CEA101M16L2 CKDBAR22K25 CQFA224J50
	C133, C140, C233, C240, C303 C149, C249, C310 C204, C223, C225, C237, C238, C246-C248, C316 C307	CEA470M10L2 CEAR47M25L2 CEA010M50L2 CEA472M16L2
	C311, C312 313, C315	CEA471M16L2 CKDYB103Z50L

Meter P.C. Board

Mark	Symbol & Description	Part No.
★	D101, D102, D201, D202 LED	LN342GP
★	D103, D104, D203, D204 LED	LN442YP
★	D105 - D107, D205 - D207 LED	LN242RP
★★	IL301, IL302 Lamp, 14V 50mA	CEL - 171
	R320 Resistor	RS1P□□□JL

Volume P.C. Board

Mark	Symbol & Description	Part No.
★	D311 - D318 LED	LN406YCPP
★★	VR101 - VR107 Volume, 50kΩ(G)	CCW - 020
★★	VR108 Volume, 20kΩ(G)	CCW - 021
★★	IL303 Lamp, 14V 50mA	CEL - 171
	R136, R137, R236, R237 Resistor	RD1/6PS□□□J
	R371 - R319, R321 Resistor	RD1/4PM□□□J