

# JC-120/JC-160 SERVICE NOTES

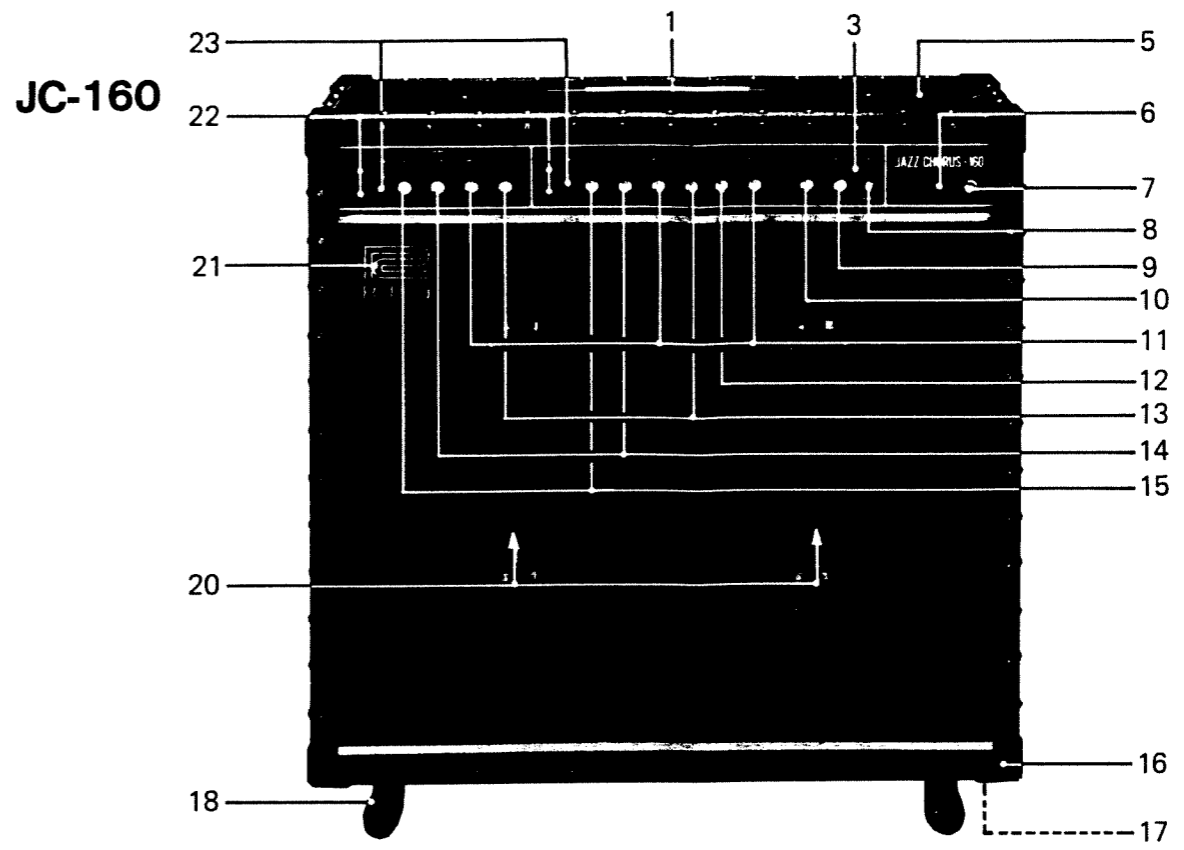
*Fifth Edition*

This Service Notes makes Fourth Edition (Printed MAR. 20, 1979) obsolete and includes its contents in PART 2 of this edition.

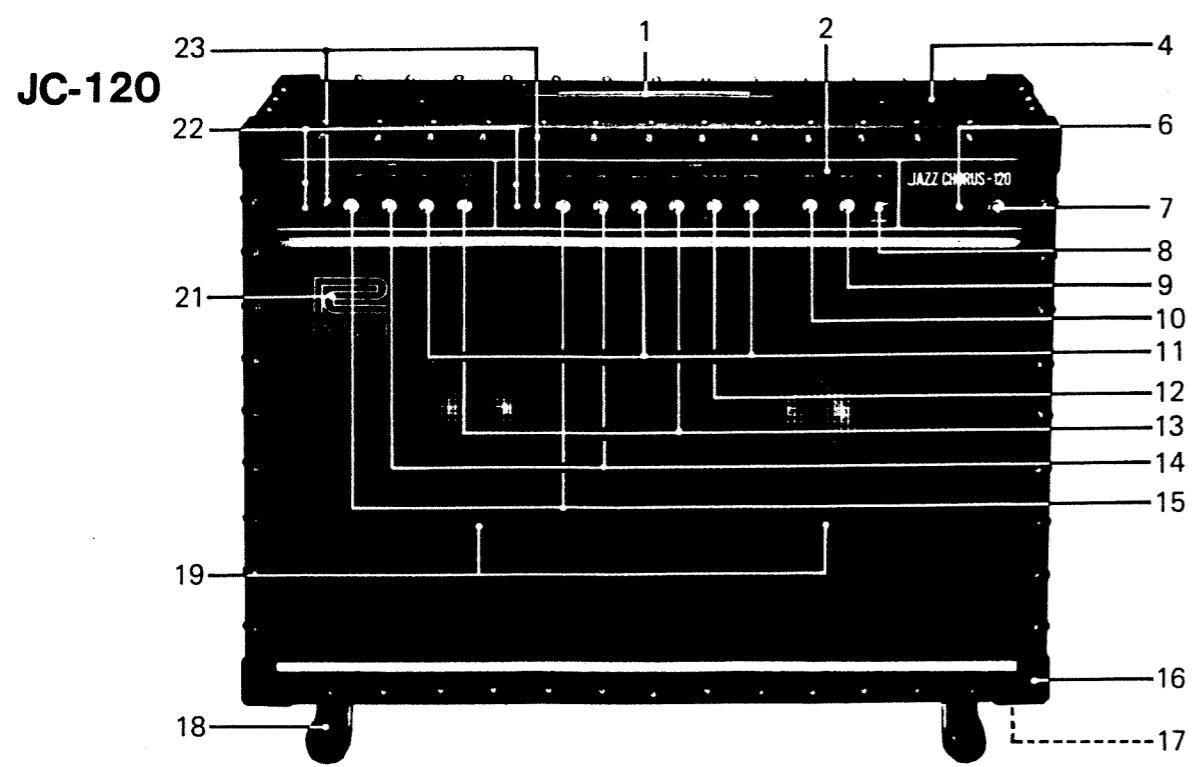
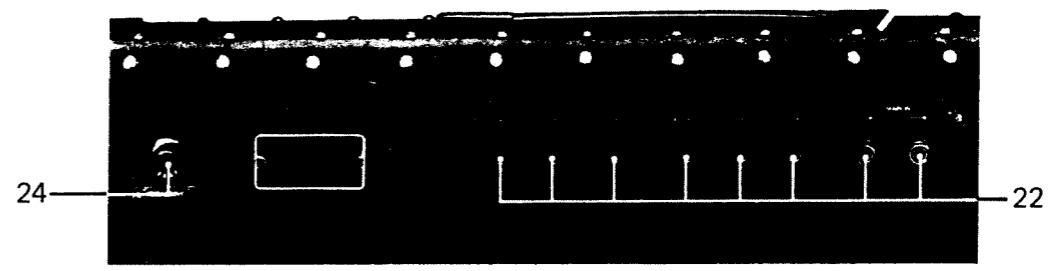
PART 1 (PP. 1 thru 4)	JC-120	258100 and up (except USA) 293150 and up (USA only)
	JC-160	254510 and up
PART 2 (PP. 5 thru 8)	JC-120	789500-248099 950100-283149 (USA only)
	JC-160	782921-244509
	JC-120A	810600-001099

## SPECIFICATIONS

Output . . . . .	120W (rms)	Tone Control Range . . .	TREBLE 17dB @10kHz MIDDLE 13dB @350Hz BASS 14dB @50Hz BRIGHT 5dB @10kHz (VOLUME at center)
Speaker . . . . .	JC-120 30cm x 2 JC-160 25cm x 4	Dimensions . . .	JC-120 (w/o caster) 750(W) x 540(H) x 270(D) mm 29-1/2 x 21-1/4 x 10-5/8in JC-160 750(W) x 700(H) x 300(D) mm 29-1/2 x 27-1/2 x 11-3/4in
Power Consumption . . .	400VA	Weight . . . . .	JC-120 28kg, 62 lbs JC-160 35kg, 77 lbs
Input Sensitivity . . . . .	HIGH 20mV LOW 60mV MAIN IN 800mV		
Line Output . . . . .	Level 100mV @1kHz Impedance 100Ω		
Residual Noise . . . . .	7-35mV per channel (varies with controls setting)		

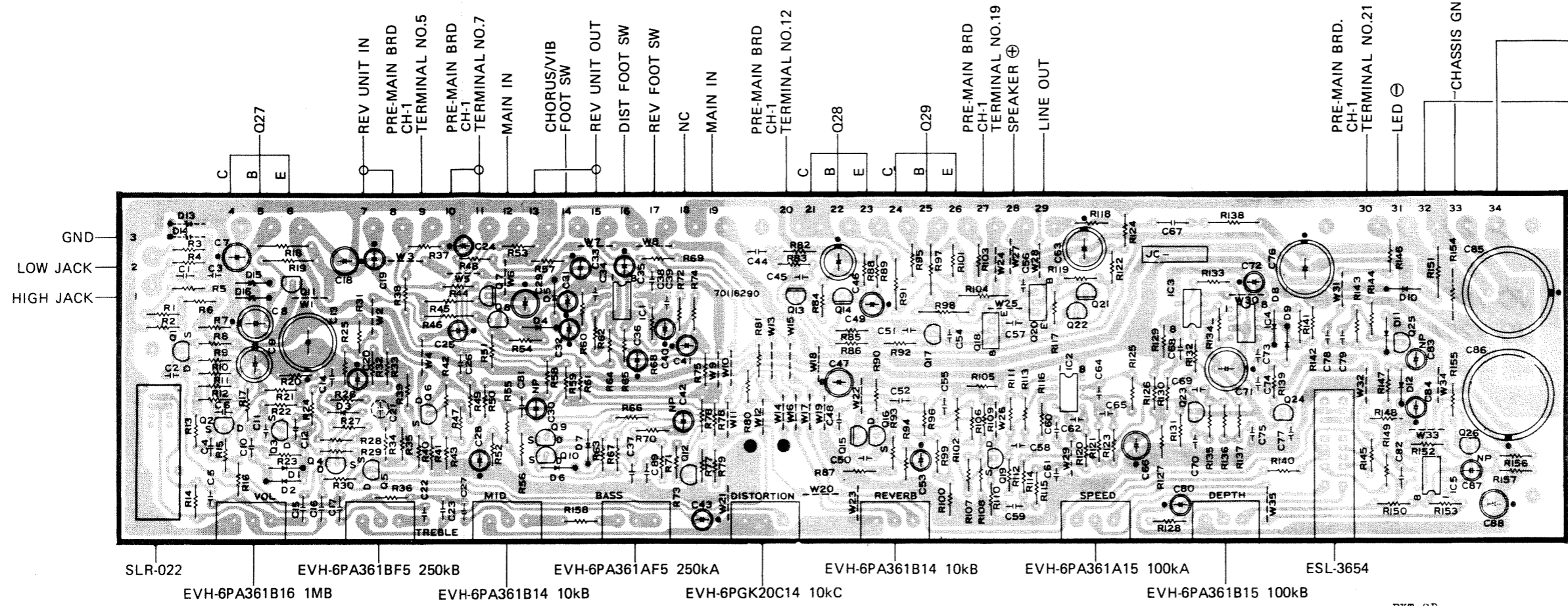


## REAR

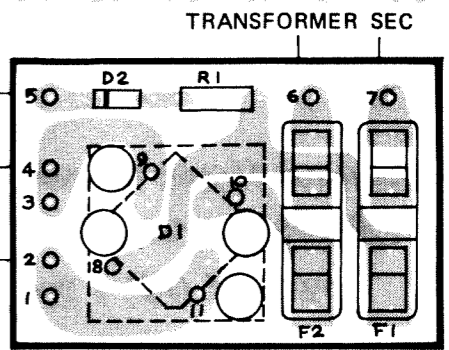
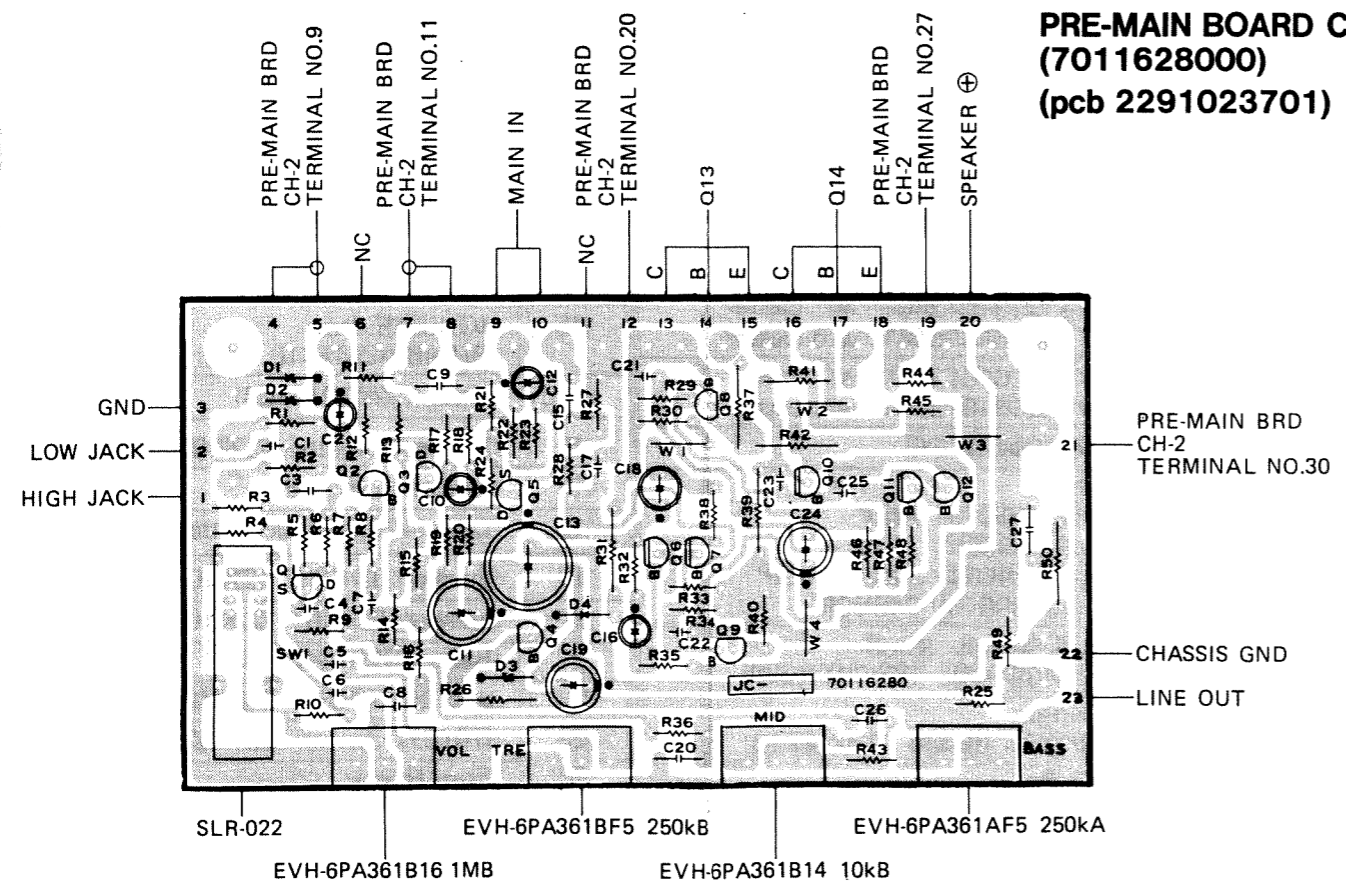


No.	Part Name (Part Number)	No.	Part Name (Part Number)
1	Handle H-30 w/cover (12319401)	13	BASS Pot. EVH-6PA361AF5 250kA (13219239)
2	Panel (2221020900) Chassis	14	TREBLE Pot. EVH-6PA361BF5 250kB (13219282)
3	Panel (2221021000) (2281019900)	15	VOLUME Pot. EVH-6PA361B16 1MB (13219283)
4	Cabinet Ass'y (2101013401) w/ caster Cabinet Ass'y (2101015501) w/o caster	9-15	Knob (2247012300)
5	Cabinet Ass'y (2101013501) w/ caster Cabinet Ass'y (2101015701) w/o caster	16	Corner Protector (2234020200)
6	LED SLP-4B (15029114)	17	Rubber Foot G-5
7	POWER Switch DS-239 6P (13139511) 100V S-7B-7 (13139507) 117V S-33 (13139505) 220/240V2P WD-13129 (13139515) 240V3P	18	Caster 420K-R50φ (detachable)
8	VIB/CHORUS Switch Knob ESL-3654 (13139140) (2247011500)	19	Speaker 30-103D (2241020400)
9	VIB DEPTH Pot. EVH-6PA361B15 100kB (13219213)	20	Speaker 25-33D (2241030200)
10	VIB SPEED Pot. EVH-6PA361A15 100kA (13219210)	21	Badge (2251040200)
11	MIDDLE, REVERB Pot. EVH-6PA361B14 10kB (132129212)	22	Jack SG-7615#1 (13449105)
12	DISTORTION Pot. w/SW EVH-6PGK20C14 10kC (13219801)	23	BRIGHT Switch SLR-022 (13139109)
		24	Fuse Holder SN-2059 (12199514) 100/117V or FH-032 SN-2250 (12199515) 220/240V or FH-033

**PRE-MAIN BOARD CH-2**  
(7011629000)  
(pcb 2291023801)

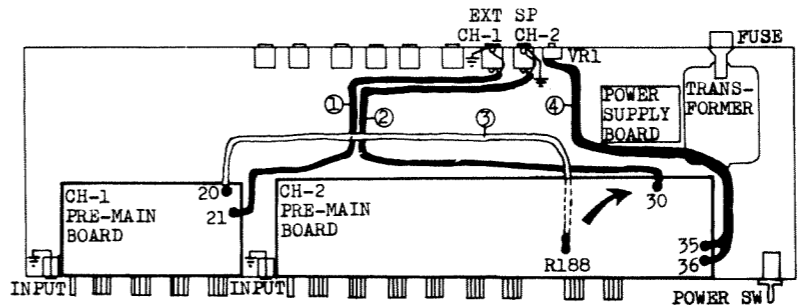


**PRE-MAIN BOARD CH-1**  
(7011628000)  
(pcb 2291023701)



	FUSE	FUSE HOLDER
100/117V	MGC 6A	TF-757
220/240V	CEE T3.15A	TF-758

**POWER SUPPLY BOARD**  
100/117V (7011627100)  
220/240V (7011627400)  
(pcb 2291023901)



**IMPORTANT**  
As shown on P.7, earlier speaker system (built in and EXT) is parallel connection.

When replacing PRE-MAIN BOARDS shown in the fourth edition with PCB on this page, take the following procedure.

**REPLACING CH-1 ONLY**

1. Remove insulating rubber from CH-1 INPUT jacks (Hi and Lo) and CH-1 EXT SP jack.
2. Place metal washer (1.6mm thick) between chassis (inside) and the jacks. Remount the jacks which are now chassisgrounded.
3. Remove wire ①. It becomes redundant and CH-1 terminal 21 on new PCB should be left unconnected.
4. Resolder wire ③ at 20 of the new PCB.
5. Remove R25 (100 $\Omega$ ) connecting to terminal 23 of new PCB.

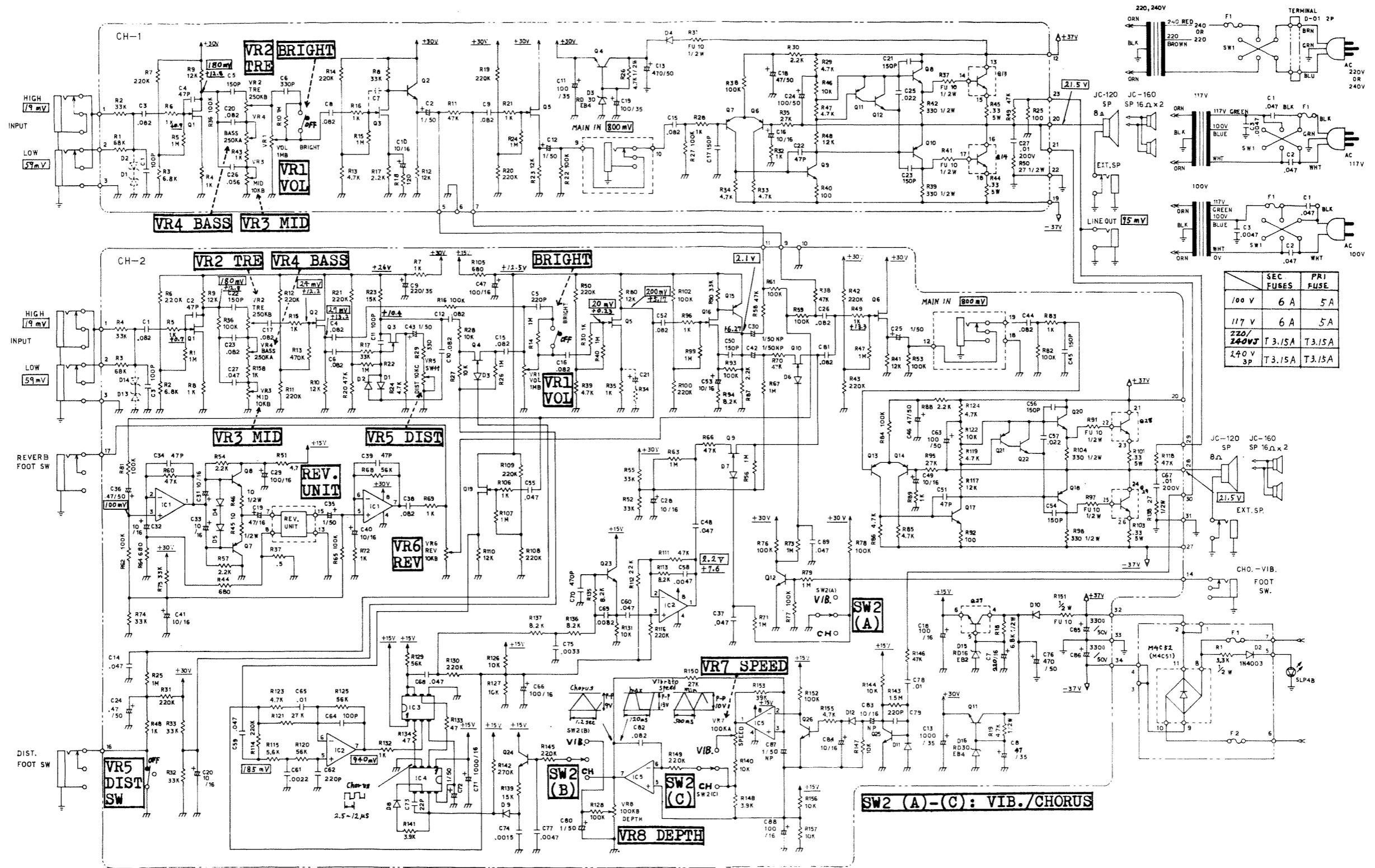
**REPLACING CH-2 ONLY**

1. Replace jack washers of CH-2 INPUT and EXT SP in the same manner as for CH-1.
2. Remove wire ②. Solder wire ③ from CH-1 terminal 20 at 30 of new CH-2.
3. Delete wire ④ and VR1 (terminals 35 and 36 are absent on new CH-2).
4. Remove R81 (100 $\Omega$ ) connecting to terminal 29 of old PCB and solder the 100 $\Omega$  across terminal 29 and IC3 pin5 (GND) of the new PCB.

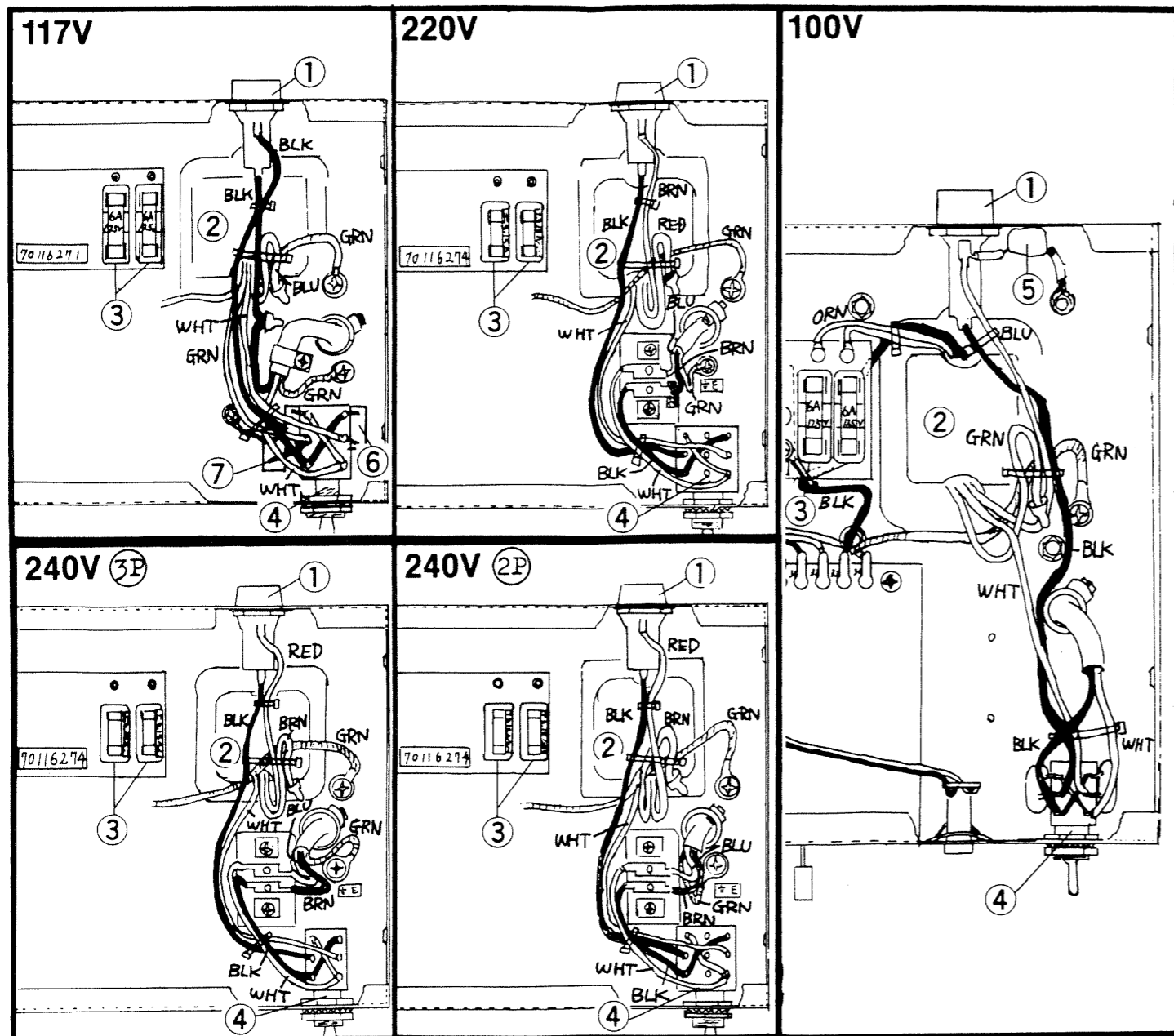
NOTE: New CH-2 PCB requires no adjustments.

**REPLACING CH-1 and CH-2**

1. Replace jack washers, referring to above paragraphs.
2. Remove wires ① ② ④. Rewire the remainder; most of wiring arrangement is similar to that on previous PCBs. Make sure of speaker connection and associated terminals:  
CH-1 . . . 20 and 21, CH-2 . . . 28 and 30.



- |   |                      |                               |                              |
|---|----------------------|-------------------------------|------------------------------|
| CH-1  |                      | CH-2                          |                              |
| Q1, 3, 5 : 2SK117-GR                          | D3: RD-30EB4         | Q1-3, 5, 6, 16, 19: 2SK117-GR | Q20 : 2SD669-AC              |
| Q2, 12 : 2SC2240-GR                           | D4: 1N4003 or S5500G | Q4, 9, 10 : 2SK246-GR         | Q22 : 2SC2240-GR             |
| Q4 : 2SC667-C                                 |                      | Q7 : 2SB647-C                 | Q27 : 2SD313E                |
| Q6, 7, 11 : 2SA970-GR                         |                      | Q8, 11 : 2SD667-C             | or 2SC1624, 2SD880           |
| Q9 : 2SC2229                                  |                      | Q12, 23-26 : 2SC1815-GR       | Q28, 29 : 2SD845 or 2SC3182, |
| Q8 : 2SD669-AC                                |                      | Q13-15, 21 : 2SA970-GR        | 2SC2773, 2SC2564             |
| Q10 : 2SB649-AC                               |                      | Q17 : 2SC2229                 | IC1, 2, 5 : NJM4558DD        |
| Q13, 14 : 2SD845 or 2SC3182, 2SC2773, 2SC2564 |                      | Q18 : 2SB649-AC               | IC3 : MN3007                 |



	100/117V	220/240V
1. PRI FUSE FUSE HOLDER	MGC 5A SN-2059 or FH-032	CEE T3. 15A SN-2250 or FH-033
2. SEC FUSE FUSE HOLDER	MGC 6A TF-757	CEE T3. 15A TF-758
3. TRANSFORMER	(22450273N0)	(22450274D0)
4. POWER SWITCH	DS-239 6P (100V) S-7B-7 (117V)	S-33 (220/240VJ) WD-13129 (240V3P)
5. Line Capacitor	ECQ-M6472MZ (100V)	
6. Line Capacitor	ECQ-UC1A473MC (117V)	
7. Line Capacitor	ECQ-UC1A472MC (117V)	

**PARTS LIST**

Parts marked with • are the same as those on early model. Only part numbers changed.

**CABINET ASSEMBLY**

(Including Handle, Badge, Corner Protector, Rubber Feet and Baffle Board)

- 2101013401 JC-120
- 2101015501 JC-120 (with caster)
- 2101013501 JC-160
- 2101015701 JC-160 (with caster)

**PANEL**

- 2221020900 JC-120
- 2221021000 JC-160
- 2281019900 Chassis

**SPEAKER**

- 2241020400 30-103D JC-120
- 2241030200 25-33D JC-160

**SWITCH**

- 13139511 DS-239 6P POWER 100V
- 13139507 S-7B-7 POWER 117V
- 13139505 S-33 POWER 220/240V2P
- 13139515 WD-13129 POWER 240V3P
- 13139109 SLR-022 BRIGHT
- 13139140 ESL-3654 VIB/CHORUS

**JACK**

- 13449105 SG-7615#1

**POWER TRANSFORMER**

- 22450273N0 100/117V
- 22450274D0 220/240V

**REVERB UNIT**

- 12389101 Z-3F

**FUSE**

- 12559119 MGC 5A pri. 100/117V
- 12559120 MGC 6A sec. 100/117V
- 12559516 CEE T3.15A 220/240V

**FUSE HOLDER**

- 12199514 SN-2095 pri. 100/117V  
or FH-032
- 12199515 SN-2250 pri. 220/240V  
or FH-033
- 12199518 TF-757 sec. 100/117V
- 12199519 TF-758 sec. 220/240V

**PCB ASSEMBLY**

Compatible with the preceding revision only. See P.2 for detail.

- 7011628000 PRE-MAIN BOARD CH-1 (pcb 2291023701)
- 7011629000 PRE-MAIN BOARD CH-2 (pcb 2291023801)
- 7011627100 POWER SUPPLY BOARD 100/117V (pcb 2291023901)
- 7011627400 POWER SUPPLY BOARD 220/240V (pcb 2291023901)

**POTENTIOMETER**

- 13219212 EVH-6PA361B14 10kΩ  
MIDDLE, REVERB
- 13219210 EVH-6PA361A15 100kΩ  
VIB. SPEED
- 13219213 EVH-6PA361B15 100kΩ  
VIB. DEPTH
- 13219239 EVH-6PA361AF5 250kΩ  
BASS
- 13219282 EVH-6PA361BF5 250kΩ  
TREBLE
- 13219283 EVH-6PA361B16 1MΩ  
VOLUME
- 13219801 EVH-6PGK20C14 10kΩ w/SW  
DISTORTION

**IC**

- 15189102 NJM-4558DD
- 15219205 MN-3007BBD
- 15169504 MN-3101  
CLOCK GENERATOR/DRIVER

**TRANSISTOR**

- 15119111 2SA970-GR
- 15119602 2SB647-C
- 15119604 2SB649-AC
- 15129114 2SC1815-GR
- 15129409 2SC2229
- 15129120 2SC2240-GR
- 15129602 2SD667-C
- 15129604 2SD669-AC
- 15129820 2SD313-E  
or 2SC1624, 2SD880
- 15129818 2SD845  
or 2SC3182, 2SC2773, 2SC2564

**FET**

- 15139106 2SK117-GR
- 15139112 2SK246-GR

**DIODE**

- 15019103 1S2473
- 15019205 1N-4003 or S5500G
- 15019560 RD16EB2 zener
- 15019582 RD30EB4 zener
- 15019238 M4C-51 or M4C-52 rectifier
- 15029114 SLP-4B LED

**CAPACITOR**

- 13659234J0 NM50VNSN3300MA2 3300μF/50V  
electro.
- 13549625M0 ECQ-M2103KZ 0.01μF/200V  
polypropylene
- 13549871M0 ECQ-M6472MZ 0.0047μF/600V  
polypropylene
- 13589452M0 ECQ-UC1A472MC 0.0047μF  
polypropylene
- 13589453M0 ECQ-UC1A473MC 0.047μF  
polypropylene

**RESISTOR**

- 13869301 0.33Ω 5W cement
- 13829802M0 ERD-12FJ 27Ω½W non-flammable
- 12559702 FRNB 10Ω½W fusible

# JC-120/JC-120A **R&P**, JC-160

## SERVICE NOTES

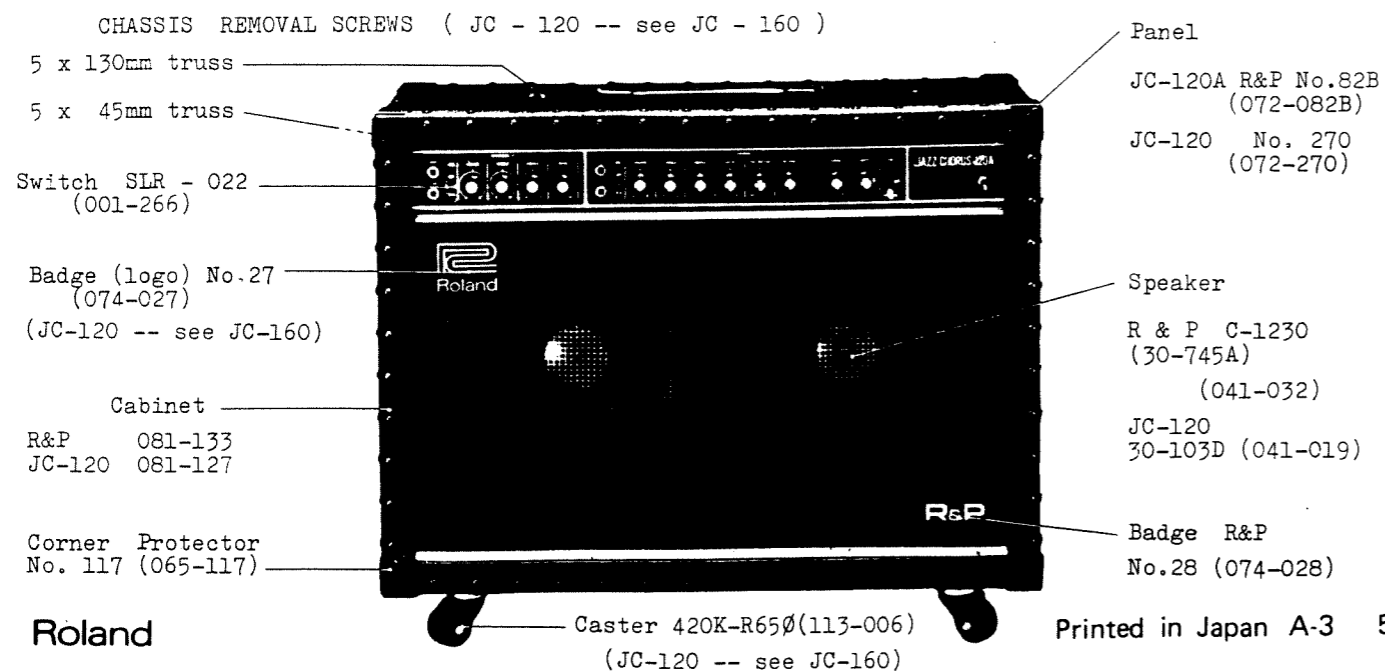
### APPLICABLE TO FOLLOWING SERIAL NUMBERS

JC-120	789500	— 248099	
JC-120A R&P	810600	— 001099	<i>Fourth Edition</i>
JC-160	782921	— 244509	

### SPECIFICATIONS

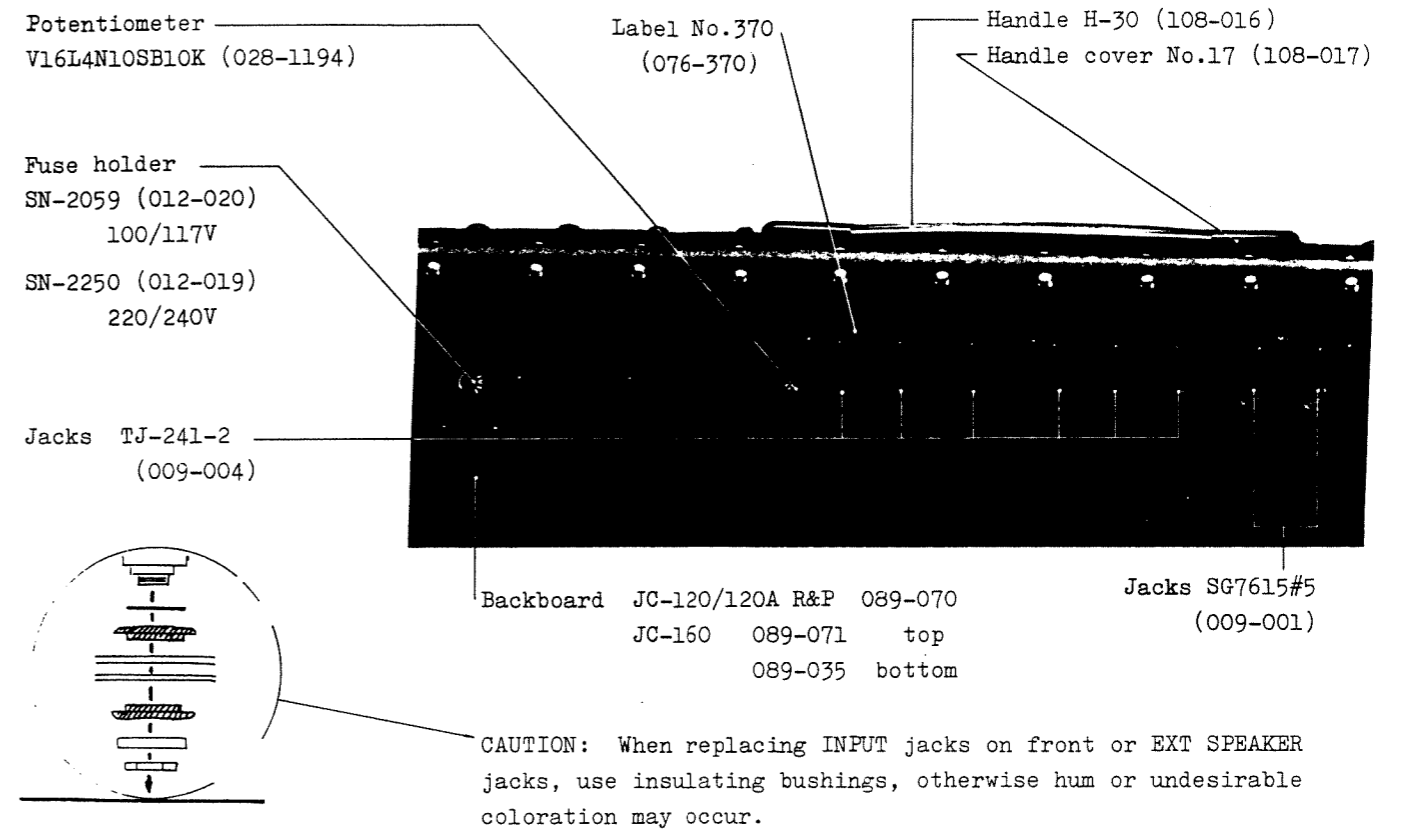
OUTPUT POWER	-----	22V RMS		per channel		into 8-ohm
INPUT SENSITIVITY	-----	HIGH	LOW		MAIN IN	700mV
		22mV	72mV	@ 1kHz		
		38mV		@ 100Hz		
		11mV		@ 10kHz		
INPUT IMPEDANCE	-----	220k-ohm	82k-ohm	@ 1kHz	MAIN IN	68k-ohm
LINE OUTPUT	-----	Level	100mV	@ 1kHz	IMPEDANCE	100-ohm
RESIDUAL NOISE	-----	9---20mV				per channel (varies with controls setting)
TONE CONTROL RANGE	-----	TREBLE	38dB	@ 10kHz		
		MIDDLE	2dB	@ 1kHz		
		BASS	18dB	@ 100Hz		
		BRIGHT	4dB	@ 10kHz	VOLUME at center	
POWER CONSUMPTION	-----	500VA				
DIMENSIONS	-----	JC-120	750W x 540H x 270Dmm(29.6 x 21.2 x 10.6 in.)			
		JC-120A R & P	774W x 634H x 270Dmm(30.5 x 25 x 10.6 in.)			
		JC-160	750W x 700H x 240/300Dmm(29.5x27.6x94/118 in.)			
WEIGHT	-----	JC-120	28Kg (62 lbs)	JC-120A R&P	40Kg(88 lbs)	
		JC-160	35Kg (77 lbs)			

### JC-120/JC-120A R&P (Photo)

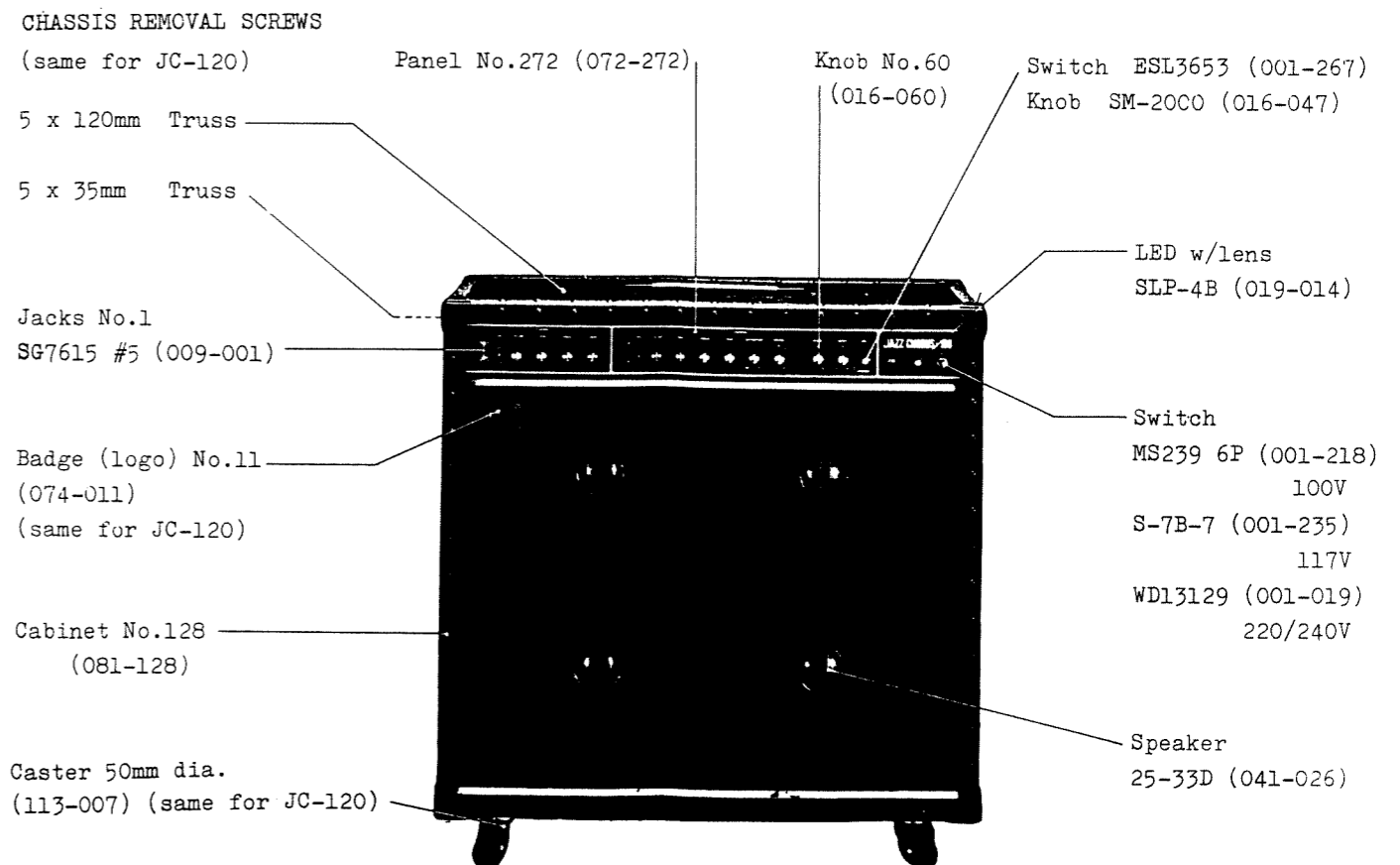


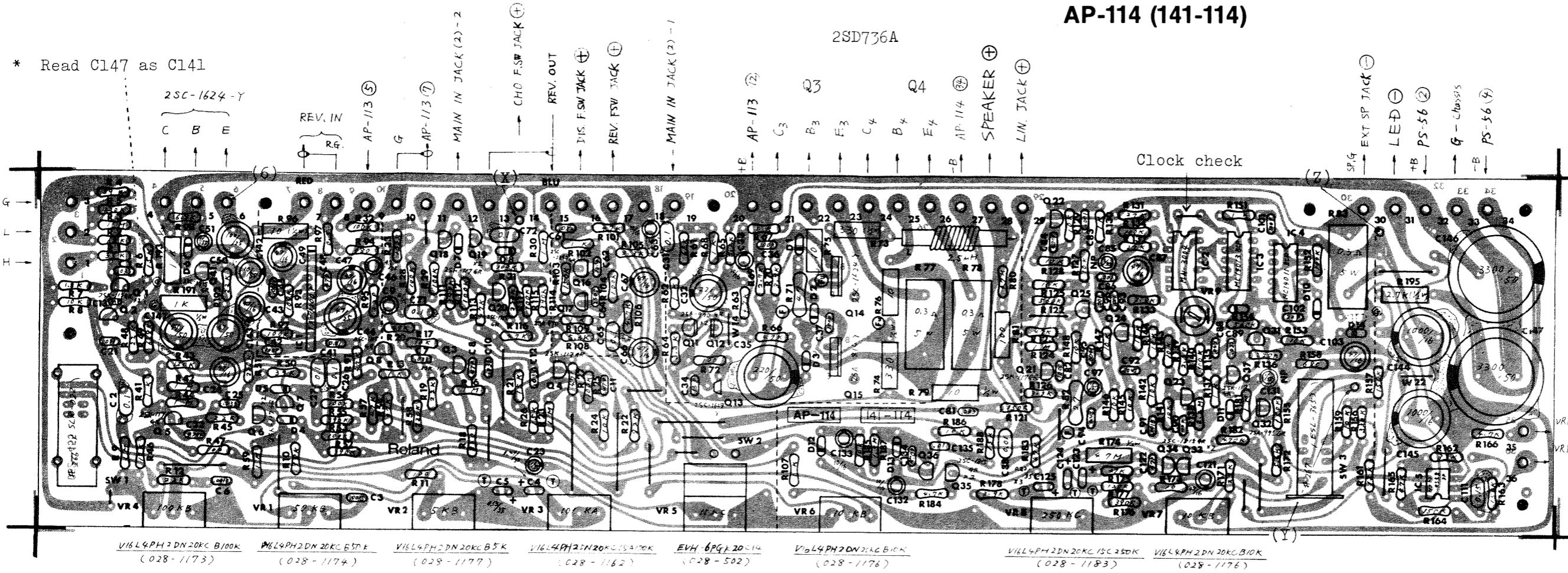
### PART COMMON TO JC-120, JC-120A R&P and JC-160

PARTS COMMON to ALL THREE MODELS are only once rather than being shown in each photograph.



### JC-160

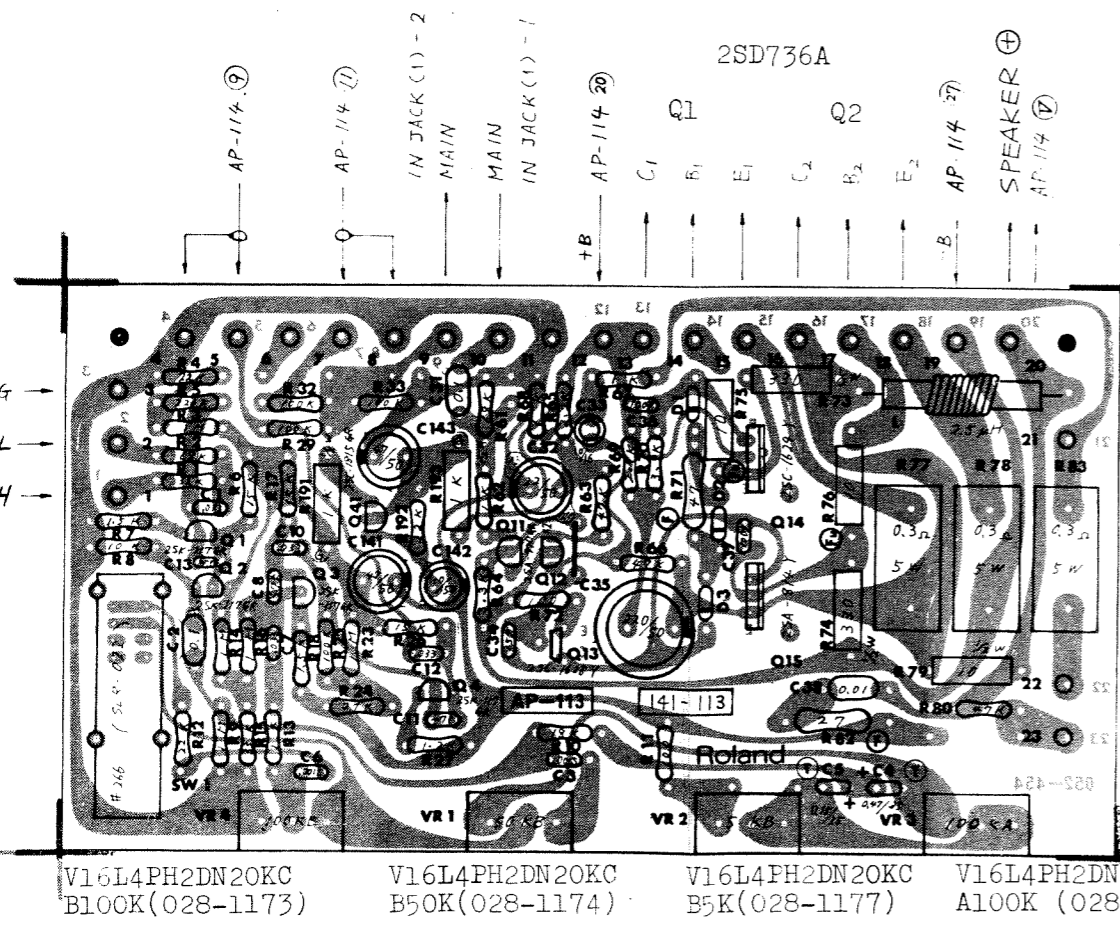




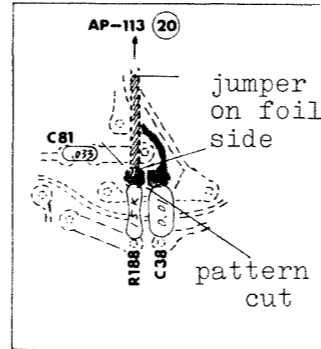
AP-114 (141-114)

NOTE: AP-114 (X)--(Y) jumper wired (6)--(Z)

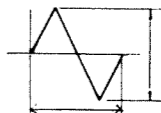
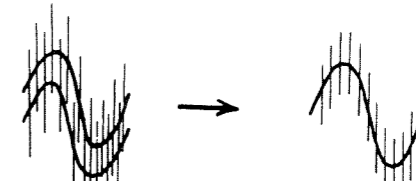
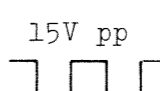
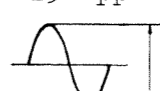
AP-113 (141-113)



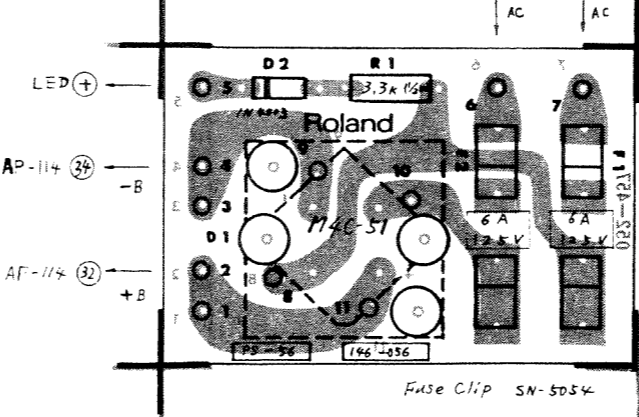
**IMPORTANT**  
If, as a substitute for this board, PCB ASS'Y 701162800 or pcb 22910237\*\* is supplied, see page 2 for replacement procedure.

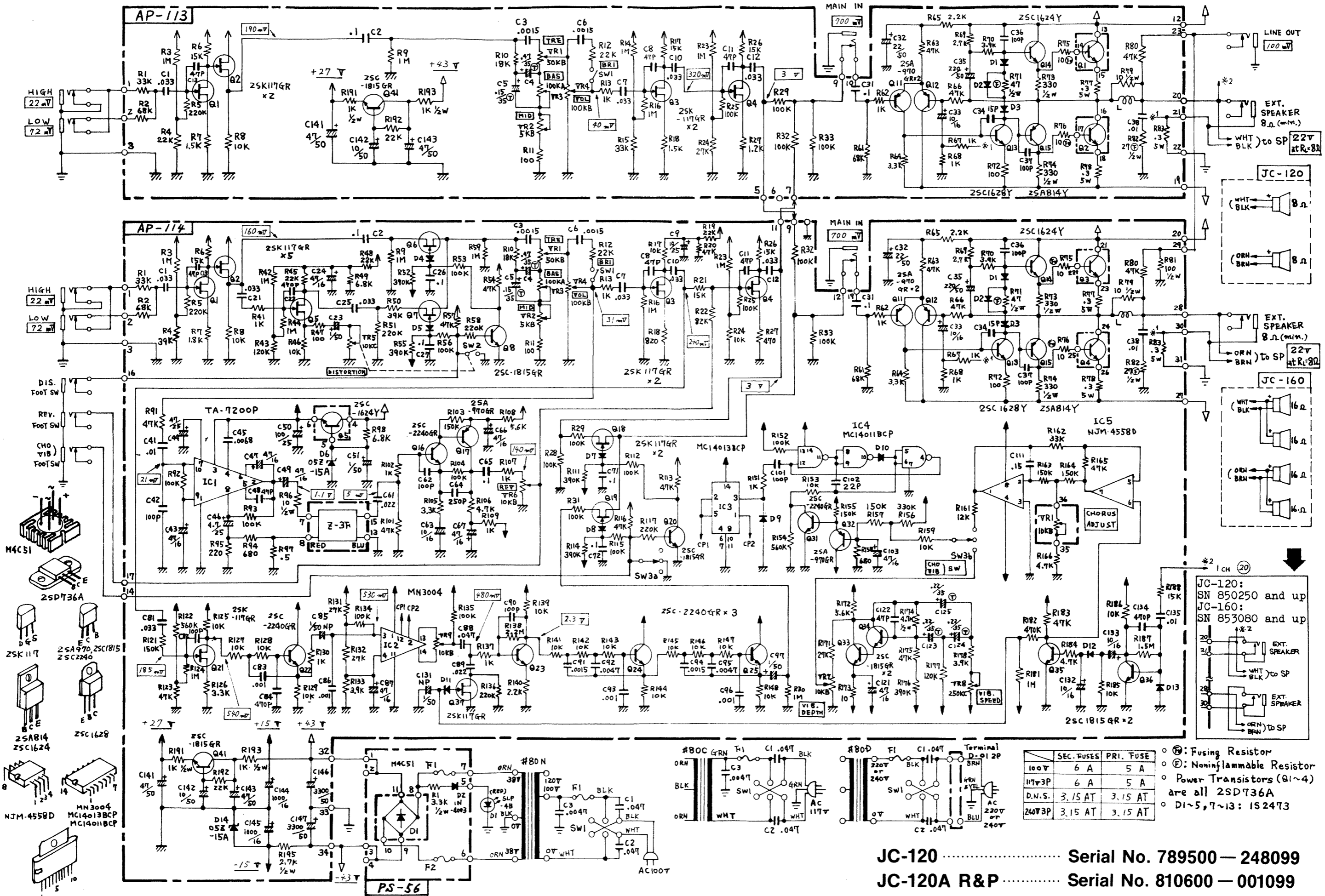


CHECKING & ADJUSTMENT

<b>CHORUS ADJUSTMENT</b>		25V pp (AP-114)
Adjust VR1 (rear panel) for 1.3 sec (0.77Hz) at R161		
<b>SENSITIVITY</b>		
Chorus starts to effect with 100mV rms output at channel 1 speaker		
<b>BBD OUTPUT ADJUSTMENT</b>		
Clock Composition Elimination		
Adjust VR9 (trimpot) for fig. at R137(AP-114)		
<b>CLOCK OSCILLATOR Sweep Range</b>		15V pp
Vibrato 65k - 130kHz Chorus 50k - 220kHz		
at IC3 pin 1 (CP-2)		
<b>VIBRATO OSCILLATOR Frequency</b>		25V pp
at Q33 C		
1.8 - 9Hz		

PS-56 (146-056)





- M4C51
- 25D736A
- ZSK 117
- 2SA970, ZSC1815
- ZSC2246
- 25A814
- ZSC1628
- NJM-4558D
- MN3004
- MC14013BCP
- MC14011BCP
- TA-7200P

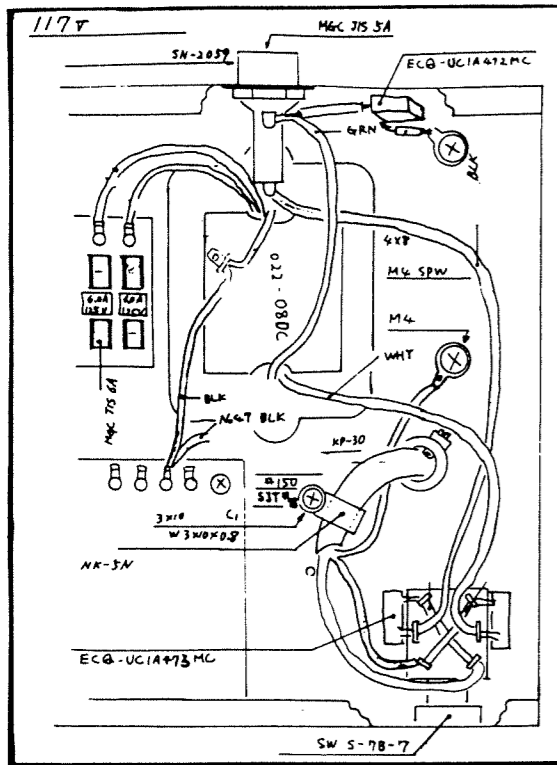
	SEC. FUSES	PRI. FUSE
100V	6 A	5 A
117V3P	6 A	5 A
D.N.S.	3.15 AT	3.15 AT
240V3P	3.15 AT	3.15 AT

- ⊕: Fusing Resistor
- ⊖: Nonfusing Resistor
- Power Transistors (Q1~4) are all 25D736A
- D1~5, 7~13: 1S2473

JC-120 ..... Serial No. 789500 — 248099  
 JC-120A R&P ..... Serial No. 810600 — 001099  
 JC-160 ..... Serial No. 782921 — 244509

AC CONNECTIONS

117V



117V

Fuse prim. MGC JIS 5A (008-009) sec. MGC JIS 6A (008-010)

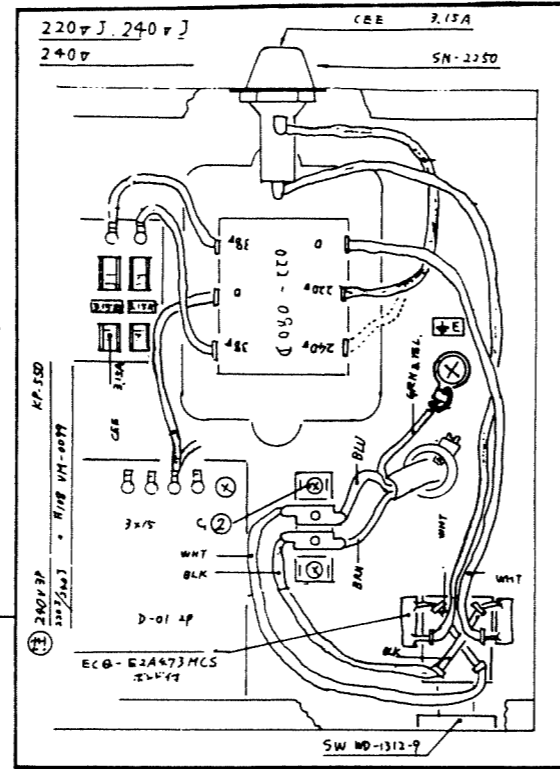
Power transformer 022-080C

Capacitors ECQUC1A472MC (035-107) ECQUC1A473MC (035-108)

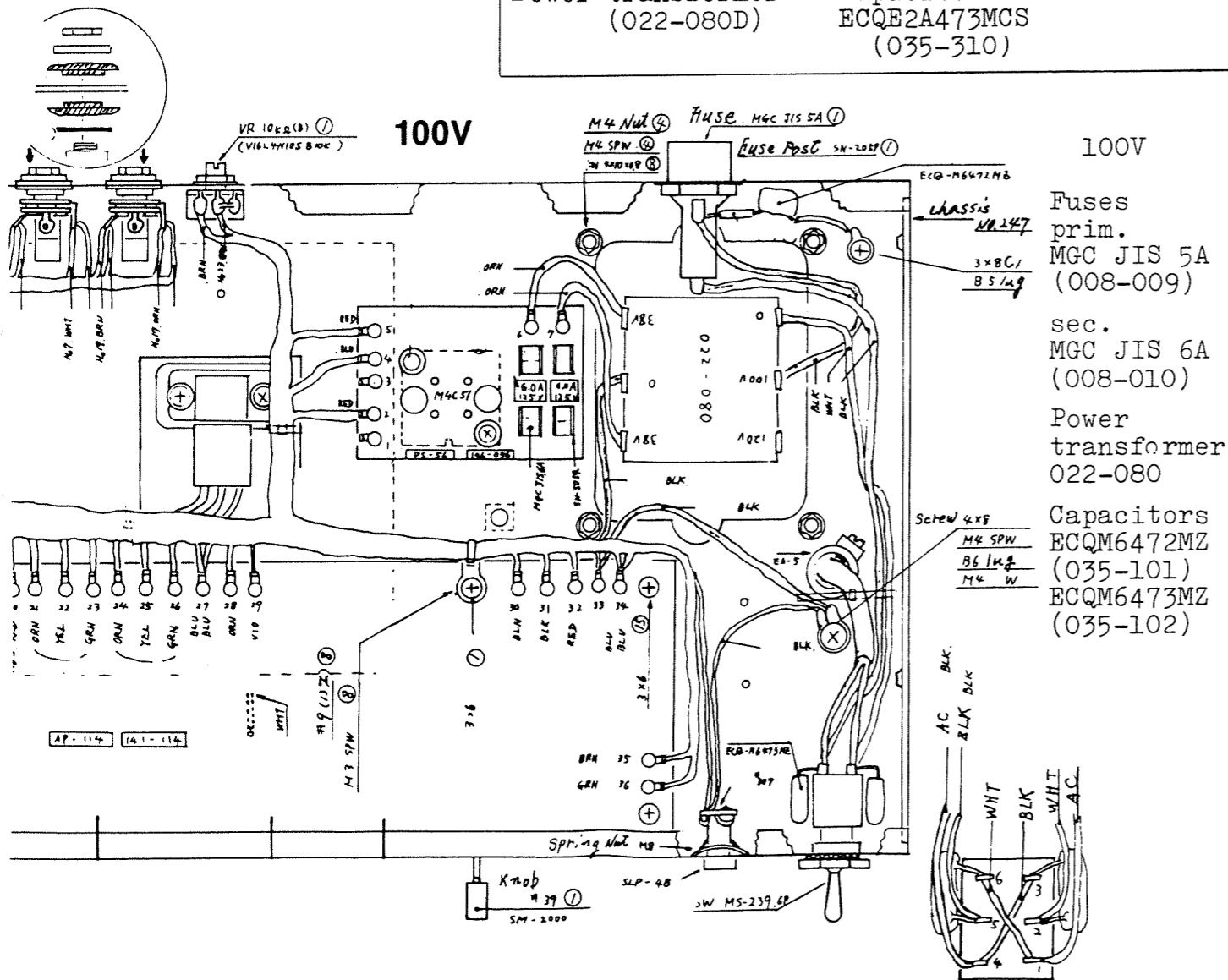
220/240V

Fuse CEE 3.15AT (008-072) Power transformer (022-080D)

220/240V



Capacitor ECQE2A473MCS (035-310)



100V

Fuses prim. MGC JIS 5A (008-009)

sec. MGC JIS 6A (008-010)

Power transformer 022-080

Capacitors ECQM6472MZ (035-101) ECQM6473MZ (035-102)

PARTS LIST

Please read new Parts List on P. 1 for reference.

- JC-120
    - 081-127 Cabinet no.127
    - 089-070 Backboard no.70
    - 072-270 Panel no.270
    - 131-068 Vinyl cover no.68
    - 041-019 Speaker 30-103D
  - JC-120A R&P
    - 081-133 Cabinet no.133
    - 089-070 Backboard no.70
    - 072-082B Panel no.82B
    - 131-098 Vinyl cover no.98
    - 041-032 Speaker C1230(30745A)
  - JC-160
    - 081-128 Cabinet no.128
    - 089-071 Backboard no.71 top
    - 089-035 Backboard no.35 bottom
    - 072-272 Panel no.272
    - 131-073 Vinyl cover no.73
    - 041-026 Speaker 25-33D
  - 061-247 Chassis no.247
  - 048-073 Heatsink no.73 2SD736A
  - 053-311 Connector assy no.311 2SD736A
  - 053-166 Connector assy no.166 Reverb 2SC1624
  - 040-001 Reverb unit Z-3F
  - 120-009 Sleeve nut no.9 3x13mm
  - 121-017 Spring nut M8 P LED
  - 047-025 Line cord strain relief EA-5
  - 009-001 Jack SG7615 #5
  - 009-004 Jack TJ-241-2
  - 016-060 Knob no.60 rotary
  - 016-047 Knob SM2000 lever
- POWER TRANSFORMERS
- 022-080 PT no.80 100V
  - 022-080C PT no.80C 117V
  - 022-080D PT no.80D 220/240V
- SWITCHES
- 001-218 MS239 6P power 100V
  - 001-235 S-7B-7 power 117V
  - 001-019 WD13129 power 220/240V
  - 001-266 SLR-022 lever BRI.
  - 001-267 ESL-3653 lever VIB/CHO
- FUSES, FUSE HOLDERS
- 008-009 MGC 5A prim. 100/117V
  - 008-010 MGC 6A sec. 100/117V
  - 008-072 CEE 3.15AT 220/240V
  - 012-020 Holder SN2059 100/117V
  - 012-019 Holder SN2250 220/240V
  - 012-029 Clip SN5054 sec.

- PCBs
- 052-307 LED mounting less parts
  - 141-113 AP-113 etch mask 052-454
  - 141-114 AP-114 etch mask 052-455
  - 146-056 PS-56 etch mask 052-457
- POTENTIOMETERS
- 028-1177 V16L4PH2DN20KC B5K MID.
  - 028-1176 V16L4PH2DN20KC B10K REV.DPT.
  - 028-1174 V16L4PH2DN20KC B50K TRE.
  - 028-1173 V16L4PH2DN20KC B100K VOL.
  - 028-1162 V16L4PH2DN20KC15A100K BASS
  - 028-1183 V16L4PH2DN20KC15C250K SPEED
  - 028-1194 V16L4N10SB10K CHORUS-adj.
  - 028-502 EVH6PGK20C14 10KC w/sw DIS.
  - 028-004 EVTR4AA00B14 (SR19R) trim.
- RESISTORS
- 044-253A MO-4P 0.3-ohm 5W wire wound
  - 044-398 ERD-12FJ 27-ohm 1/2W nonflam.
  - 044-401 ERD-12FJ 47-ohm 1/2W nonflam.
  - 008-118 FRNB 10-ohm 1/4W fusing
- CAPACITORS
- 032-092 0.15 mfd. tantalum
  - 032-093 0.22 mfd. tantalum
  - 032-095 0.47 mfd. tantalum
  - 032-195 CEO4D1H010NBPE 1 mfd. 50V
  - 032-262 ECET50R332SW 3300 mfd 50V electrolytic larg can
  - 035-103 ECQM2103KZ 0.01 mfd 200V polyester
- TRANSISTORS
- 017-119 2SA970-GR or 2SA841-GR (except Q32)
  - 017-030 2SA814-Y
  - 017-123 2SC2240-GR or 2SC1681-GR (except Q31)
  - 017-106 2SC1815-GR or 2SC373
  - 017-028 2SC1628-Y
  - 017-029 2SC1624-Y
  - 017-134 2SD736A-(B) or (C)
  - 017-103 2SK117-GR FET
- DIODES
- 018-095 M4C-51 rectifier bridge
  - 018-014 1S2473
  - 018-018 1N4003
  - 018-025 05Z-15A zener
  - 019-014 SLP-4B LED w/lens
- ICs
- 020-028 TA7200P
  - 020-170 MC-14011BCP
  - 020-179 MC-14013BCP
  - 020-063 MN-3004 BBD
  - 020-064 NJM-4558DP or  $\mu$ PC4558C

\* For the parts on the cabinets, see page 1.  
 \* Resistor of 1/4w, mylar and ordinary electrolytic capacitor are omitted.





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