

# 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

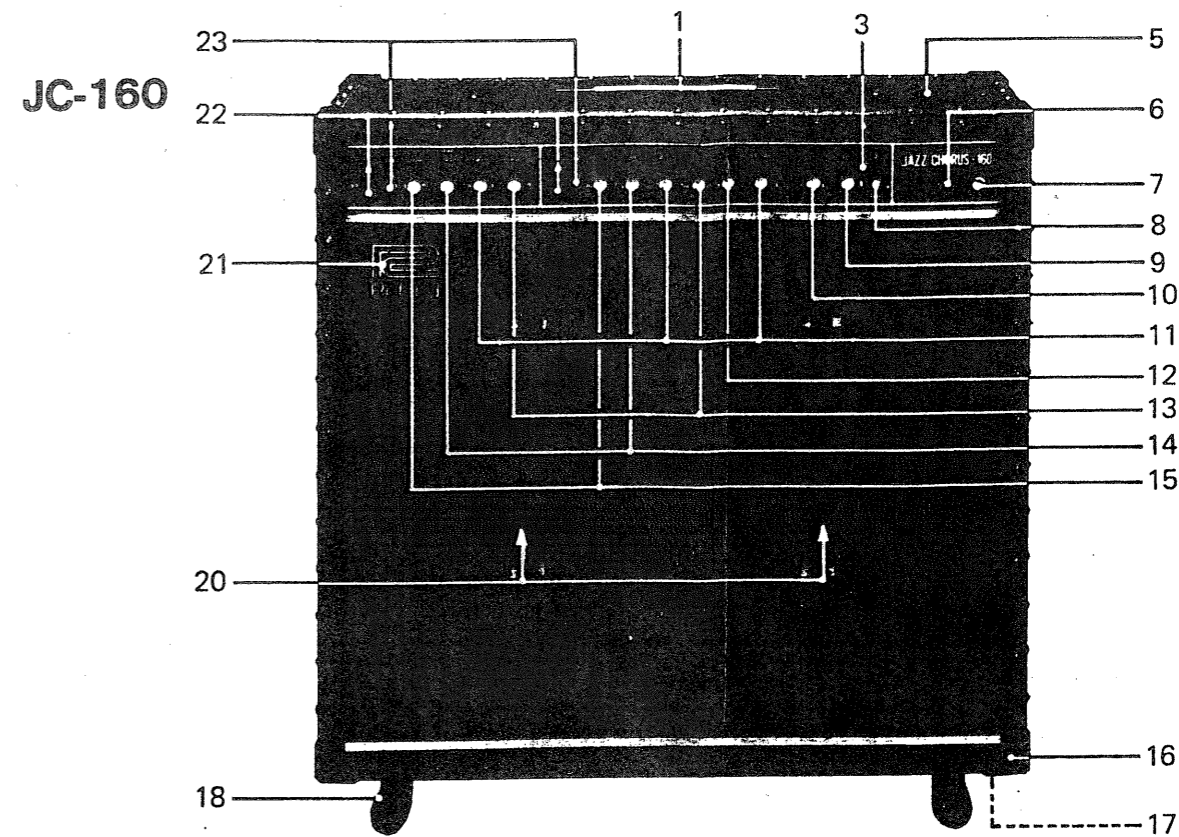
PART 2 (PP. 5 thru 8) JC-120 789500-248099  
950100-283149 (USA only)

JC-160 782921-244509

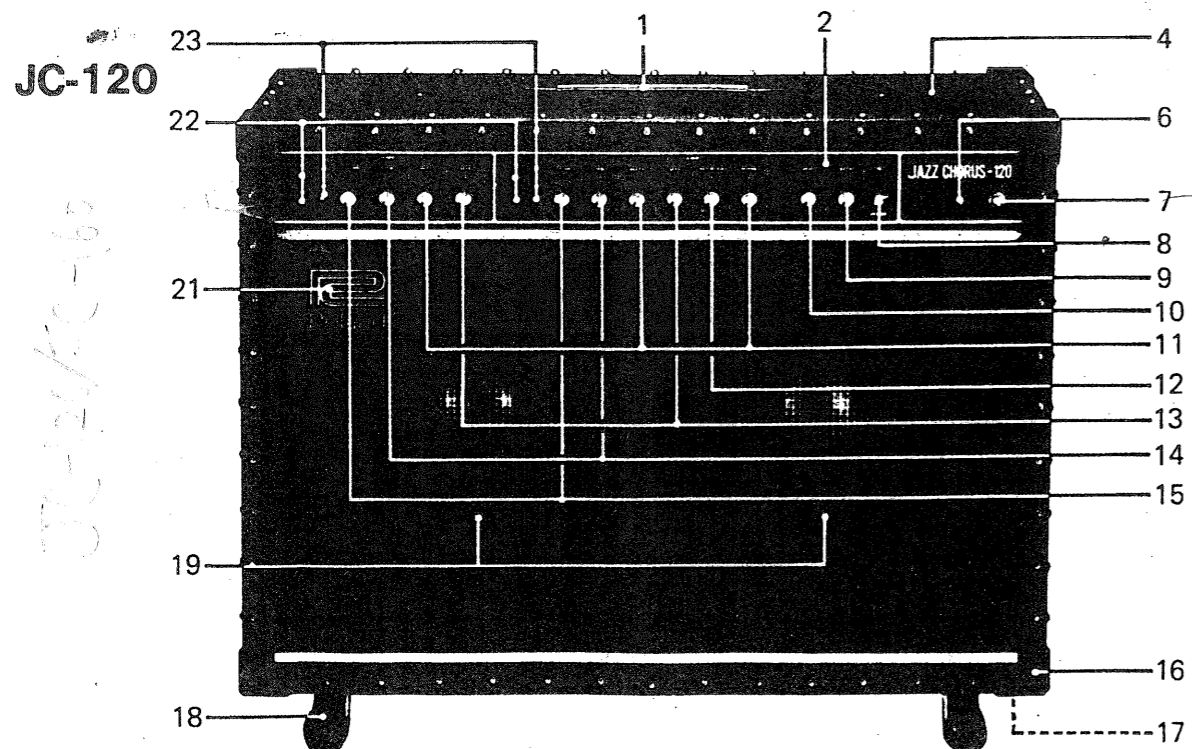
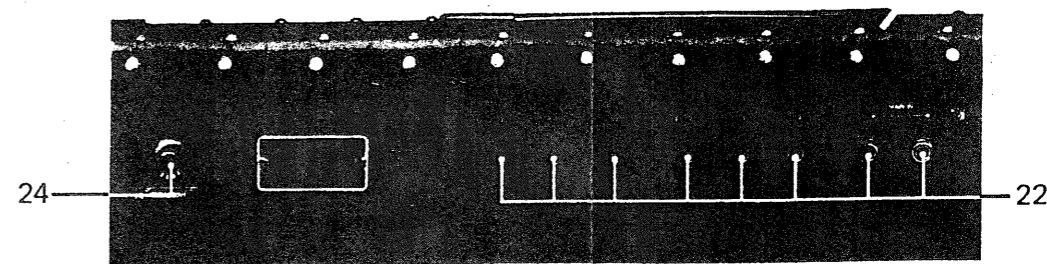
JC-120A 810600-001099

## SPECIFICATIONS

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



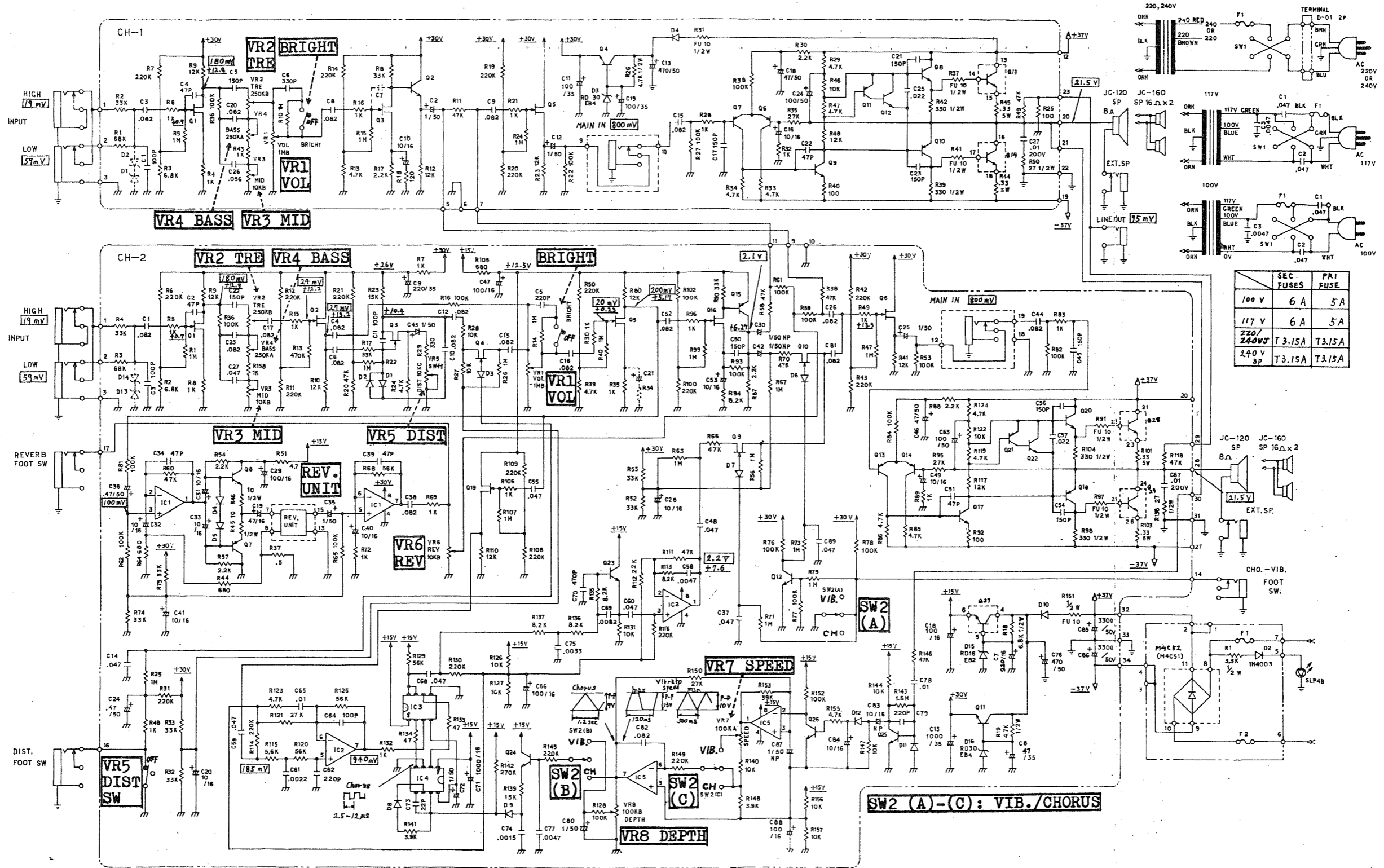
## REAR



| 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<br>Cabinet Ass'y (2101015501) w/o caster   | 9-15 | Knob (2247012300)   |
| 5   | Cabinet Ass'y (2101013501) w/ caster<br>Cabinet Ass'y (2101015701) w/o caster   | 16   | Corner Protector (2234020200)   |
| 6   | LED SLP-4B (15029114)   | 17   | Rubber Foot G-5   |
| 7   | POWER Switch<br>DS-239 6P (13139511) 100V<br>S-7B-7 (13139507) 117V<br>S-33 (13139505) 220/240V2P<br>WD-13129 (13139515) 240V3P | 18   | Caster 420K-R50φ (detachable)   |
| 8   | VIB/CHORUS Switch Knob<br>ESL-3654 (13139140) (2247011500)  | 19   | Speaker 30-103D (2241020400)  |
| 9   | VIB DEPTH Pot.<br>EVH-6PA361B15 100kB (13219213)  | 20   | Speaker 25-33D (2241030200)   |
| 10  | VIB SPEED Pot.<br>EVH-6PA361A15 100kA (13219210)  | 21   | Badge (2251040200)  |
| 11  | MIDDLE. REVERB Pot.<br>EVH-6PA361B14 10kB (13219212)  | 22   | Jack SG-7615#1 (13449105)   |
| 12  | DISTORTION Pot. w/SW<br>EVH-6PGK20C14 10kC (13219801)   | 23   | BRIGHT Switch SLR-022 (13139109)  |
|     |   | 24   | Fuse Holder<br>SN-2059 (12199514) 100/117V<br>or FH-032<br>SN-2250 (12199515) 220/240V<br>or FH-033 |



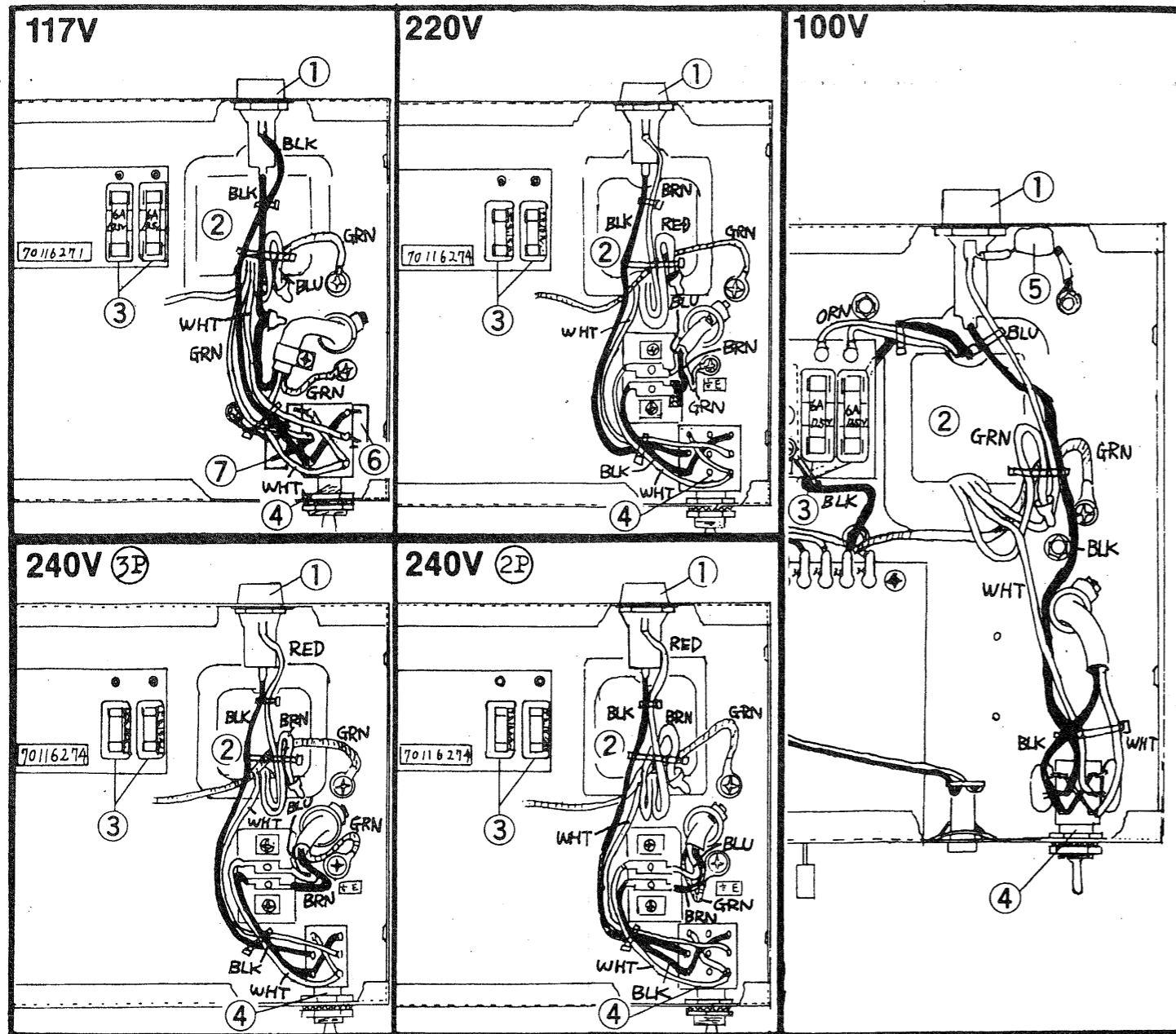
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41



- |      |   |                      |                               |   |                        |
|------|---|----------------------|-------------------------------|---|------------------------|
| CH-1 | Q1, 3, 5 : 2SK117-GR                          | D3: RD-30EB4         | Q1-3, 5, 6, 16, 19: 2SK117-GR | Q20 : 2SD669-AC                               | IC1, 2, 5 : NJM4558DD  |
|      | Q2, 12 : 2SC2240-GR                           | D4: 1N4003 or S5500G | Q4, 9, 10 : 2SK246-GR         | Q22 : 2SC2240-GR                              | IC3 : MN3007           |
|      | Q4 : 2SC667-C                                 |                      | Q7 : 2SB647-C                 | Q27 : 2SD313E                                 | IC4 : MN3101           |
|      | Q6, 7, 11 : 2SA970-GR                         |                      | Q8, 11 : 2SD667-C             | Q28, 29 : 2SD845 or 2SC3182, 2SC2773, 2SC2564 | D1-9, 11, 12 : 1S2473  |
|      | Q9 : 2SC2229                                  |                      | Q12, 23-26 : 2SC1815-GR       |   | D10 : 1N4003 or S5500G |
|      | Q8 : 2SD669-AC                                |                      | Q13-15, 21 : 2SA970-GR        |   | D15 : RD16EB2          |
|      | Q10 : 2SB649-AC                               |                      | Q17 : 2SC2229                 |   | D16 : RD30EB4          |
|      | Q13, 14 : 2SD845 or 2SC3182, 2SC2773, 2SC2564 |                      | Q18 : 2SB649-AC               |   |                        |

Secondary Winding Ratings (DC) 37V x 2 @2.5A 3300μF INPUT

Signal Voltages Taken Under Conditions:  
 Input ..... 1kHz sine  
 Tone controls ..... BASS-FCW  
 TRE-FCW  
 MID-FCCW  
 JACK COLD terminals not connected to PCB terminals are to chassis.



|                            | 100/117V                          | 220/240V                              |
|----------------------------|-----------------------------------|---------------------------------------|
| 1. PRI FUSE<br>FUSE HOLDER | MGC 5A<br>SN-2059 or FH-032       | CEE T3. 15A<br>SN-2250 or FH-033      |
| 2. SEC FUSE<br>FUSE HOLDER | MGC 6A<br>TF-757                  | CEE T3. 15A<br>TF-758                 |
| 3. TRANSFORMER             | (22450273N0)                      | (22450274D0)                          |
| 4. POWER SWITCH            | DS-239 6P (100V)<br>S-7B-7 (117V) | S-33 (220/240VJ)<br>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**

- 12389104 Z-3F
- 17055104

**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

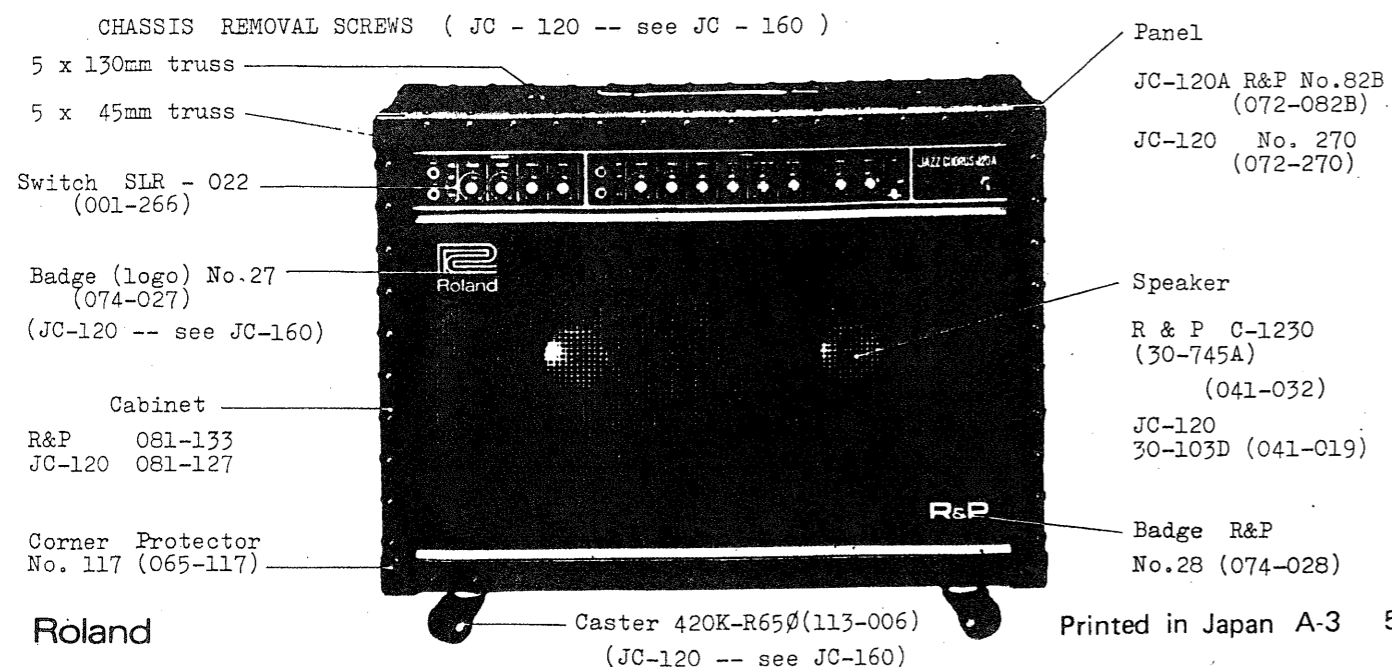
### APPLICABLE TO FOLLOWING SERIAL NUMBERS

|             |        |          |                |
|-------------|--------|----------|----------------|
| JC-120      | 789500 | — 248099 |                |
| JC-120A R&P | 810600 | — 001099 | Fourth Edition |
| JC-160      | 782921 | — 244509 |                |

### SPECIFICATIONS

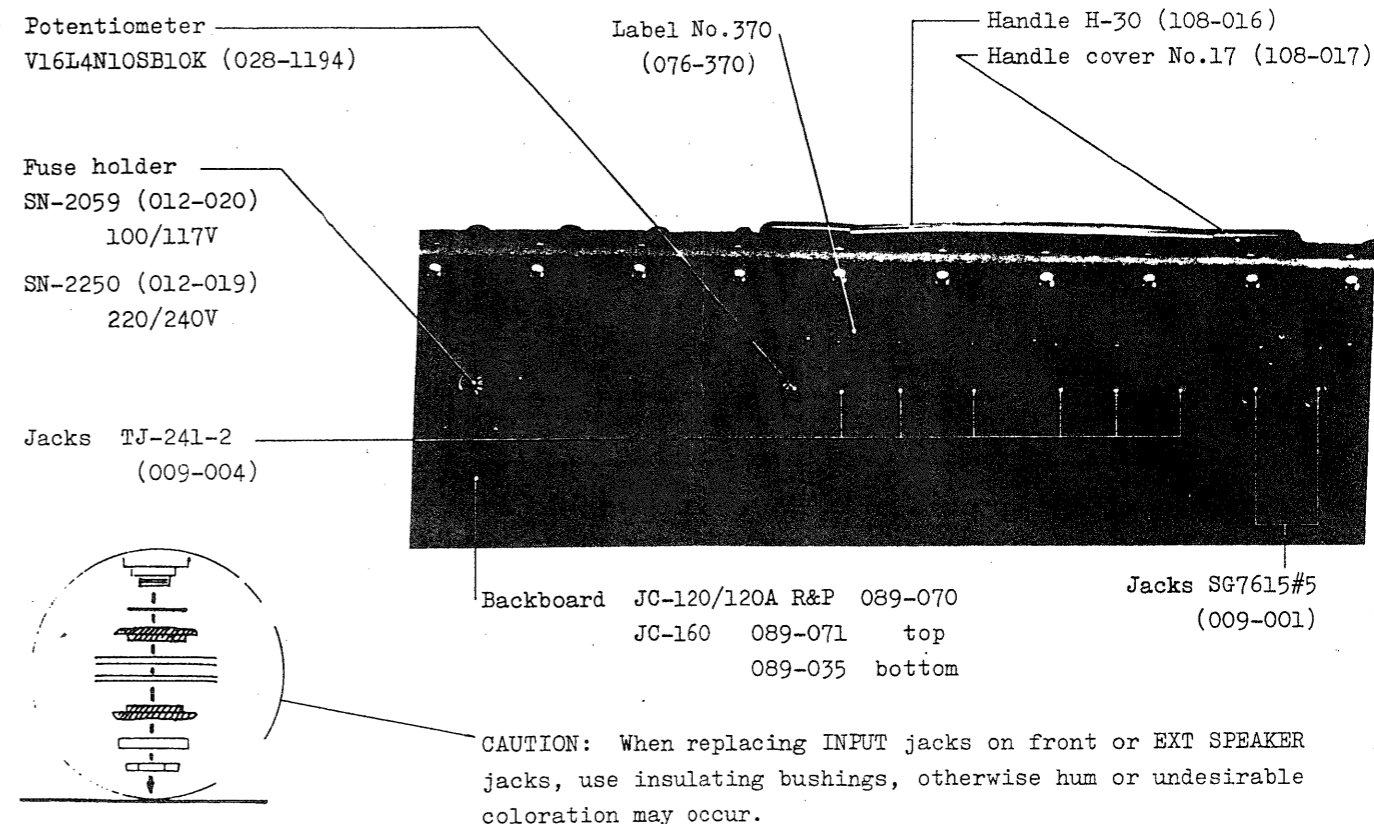
|                    |                |                          |                          |              |  |
|--------------------|----------------|--------------------------|--------------------------|--------------|--|
| OUTPUT POWER       | ----- 22V RMS  |                          | per channel              |              | 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)

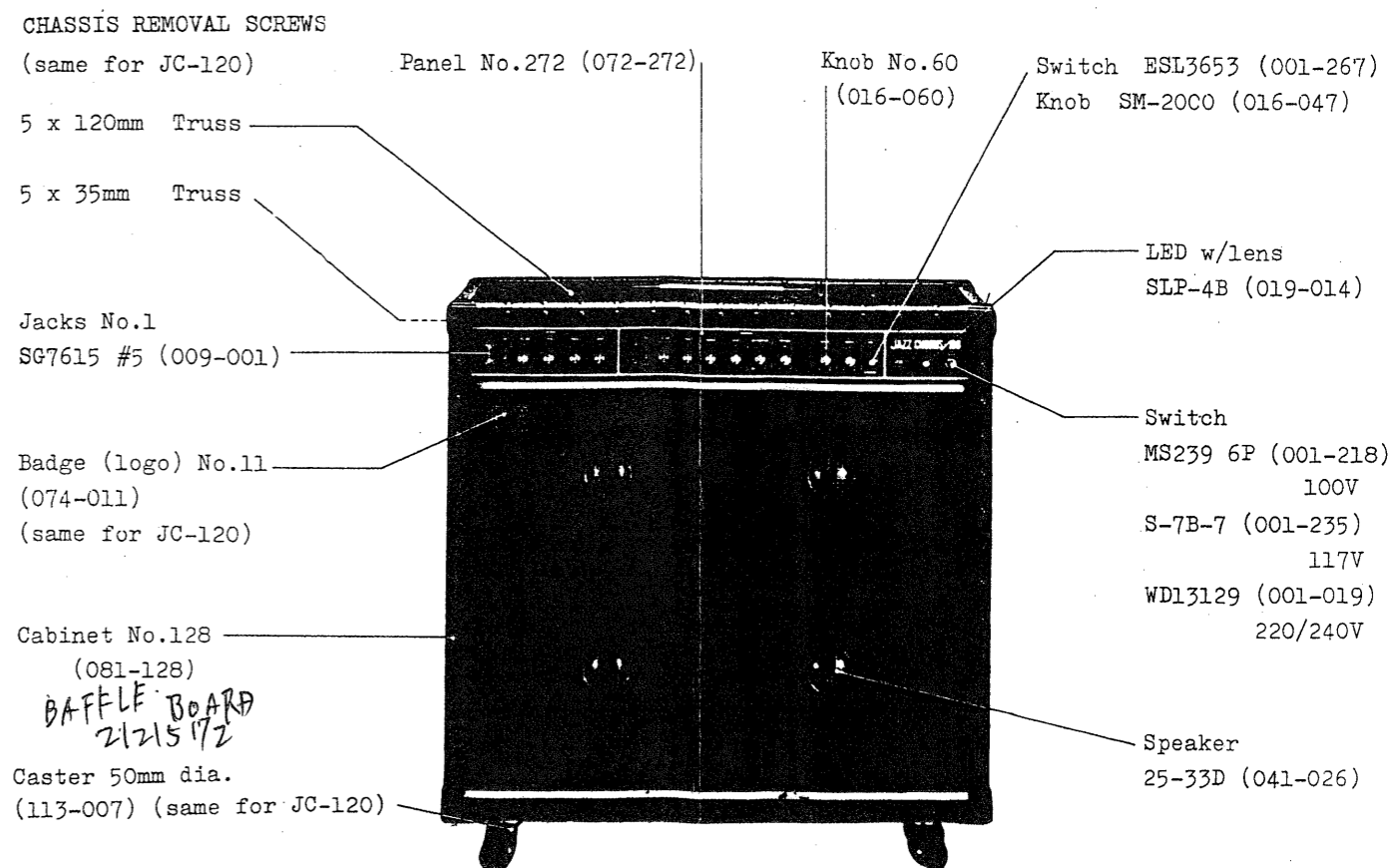


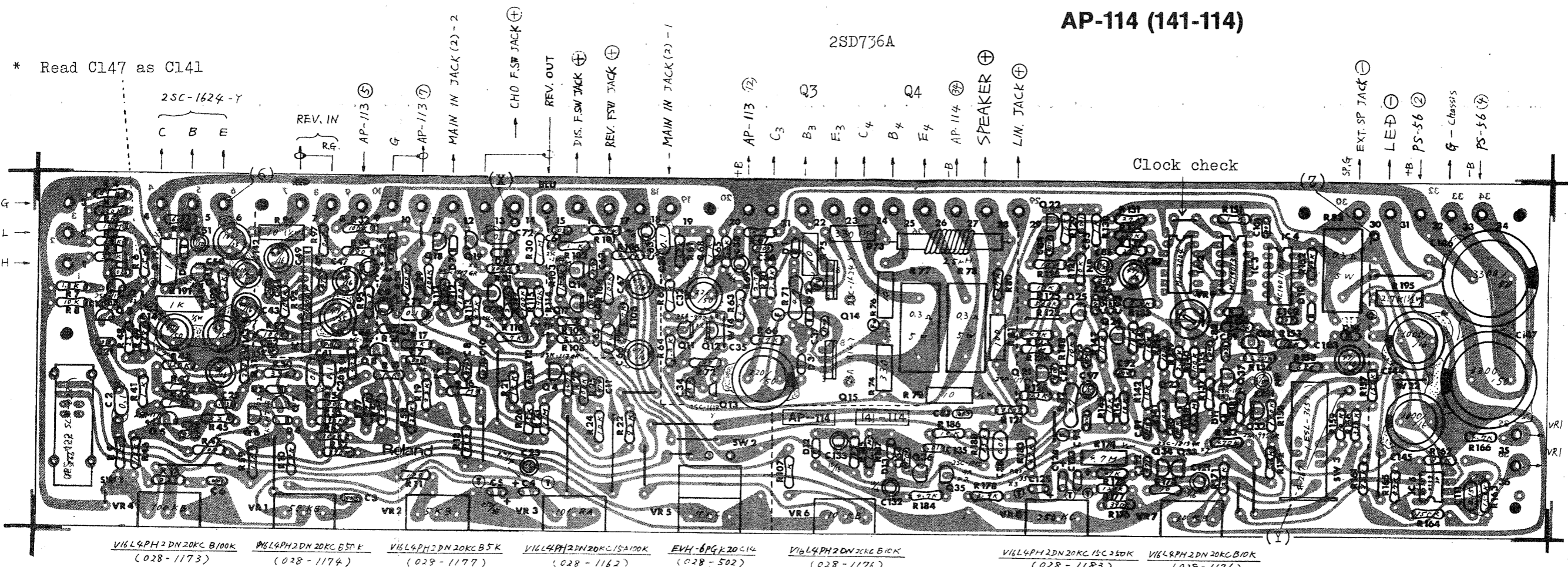
### PART COMMON TO JC-120, JC-120A R&P and JC-160

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



### JC-160

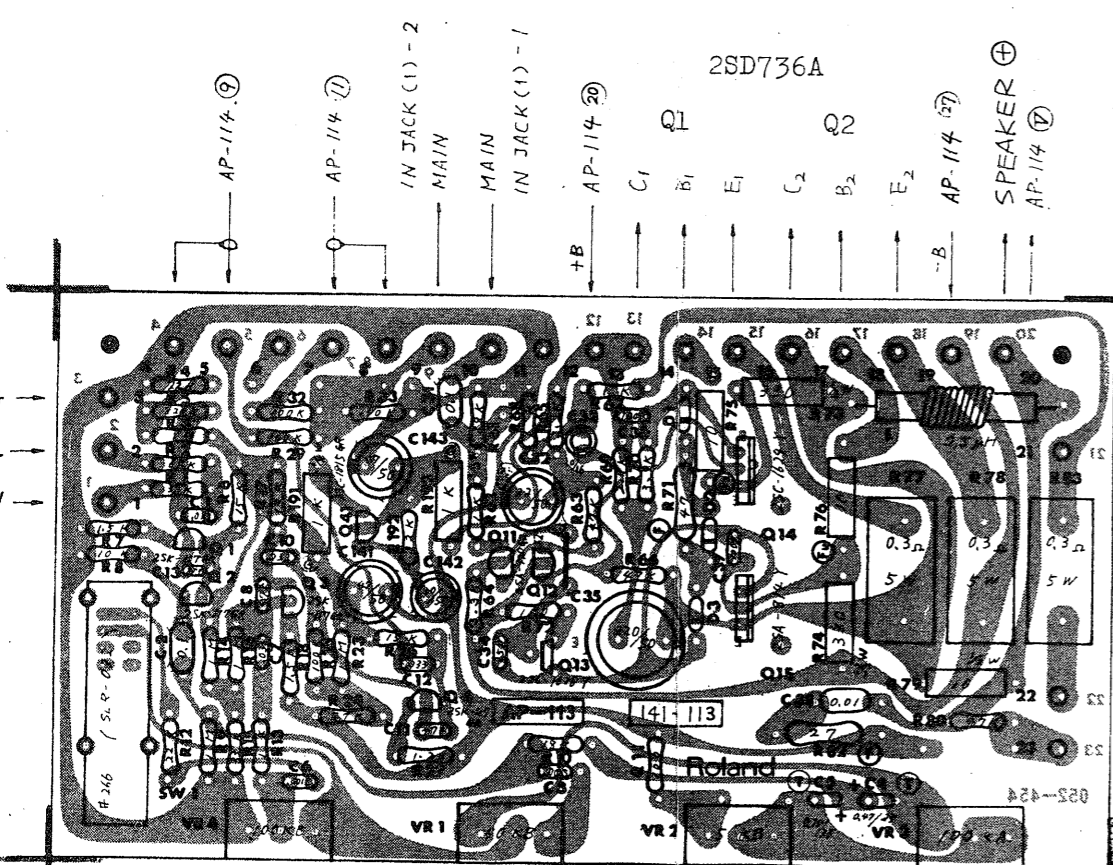




V16L4PH2DN20KC B100K (028-1173) V16L4PH2DN20KC B50K (028-1174) V16L4PH2DN20KC B5K (028-1177) V16L4PH2DN20KC 15A100K (028-1162) EVH-6PGK20C14 (028-502) V16L4PH2DN20KC B10K (028-1176) V16L4PH2DN20KC 15C250K (028-1183) V16L4PH2DN20KC B10K (028-1176)

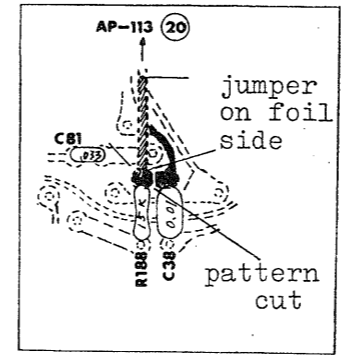
NOTE: AP-114 (X)--(Y) (6)--(Z) jumper wired

AP-113 (141-113)



V16L4PH2DN20KC B100K(028-1173) V16L4PH2DN20KC B50K(028-1174) V16L4PH2DN20KC B5K(028-1177) V16L4PH2DN20KC15 A100K (028-1162)

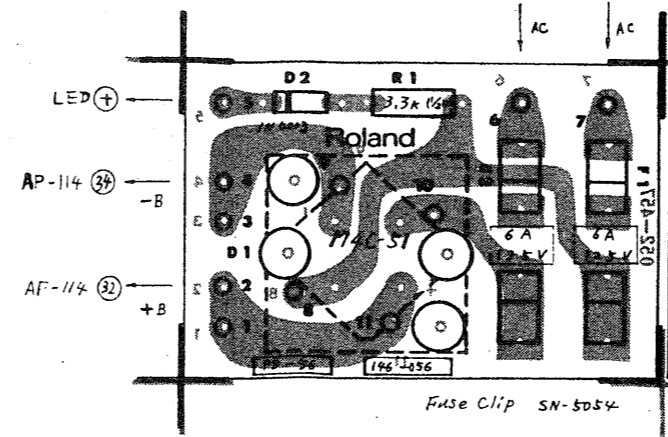
**IMPORTANT**  
If, as a substitutive for this board, PCB ASS'Y 701162800 or pcb 22910237\*\* is supplied, see page 2 for replacement procedure.



CHECKING & ADJUSTMENT

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

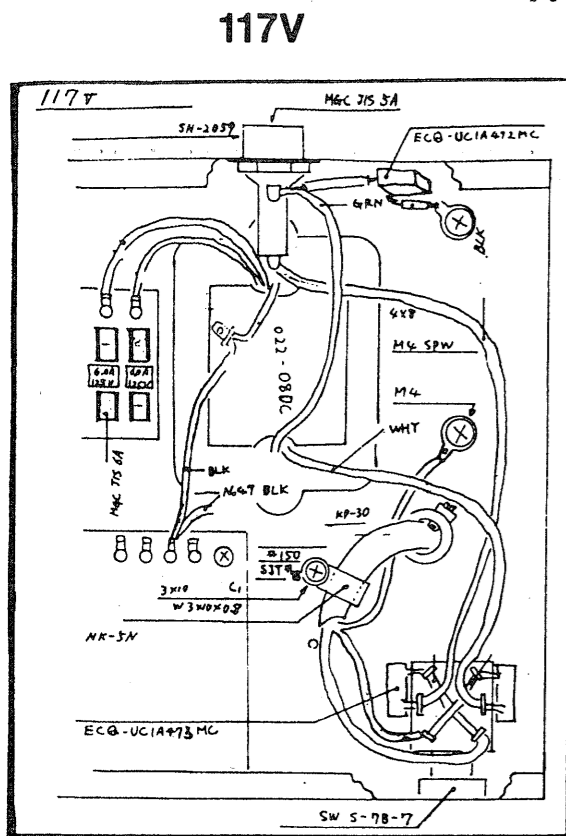
PS-56 (146-056)



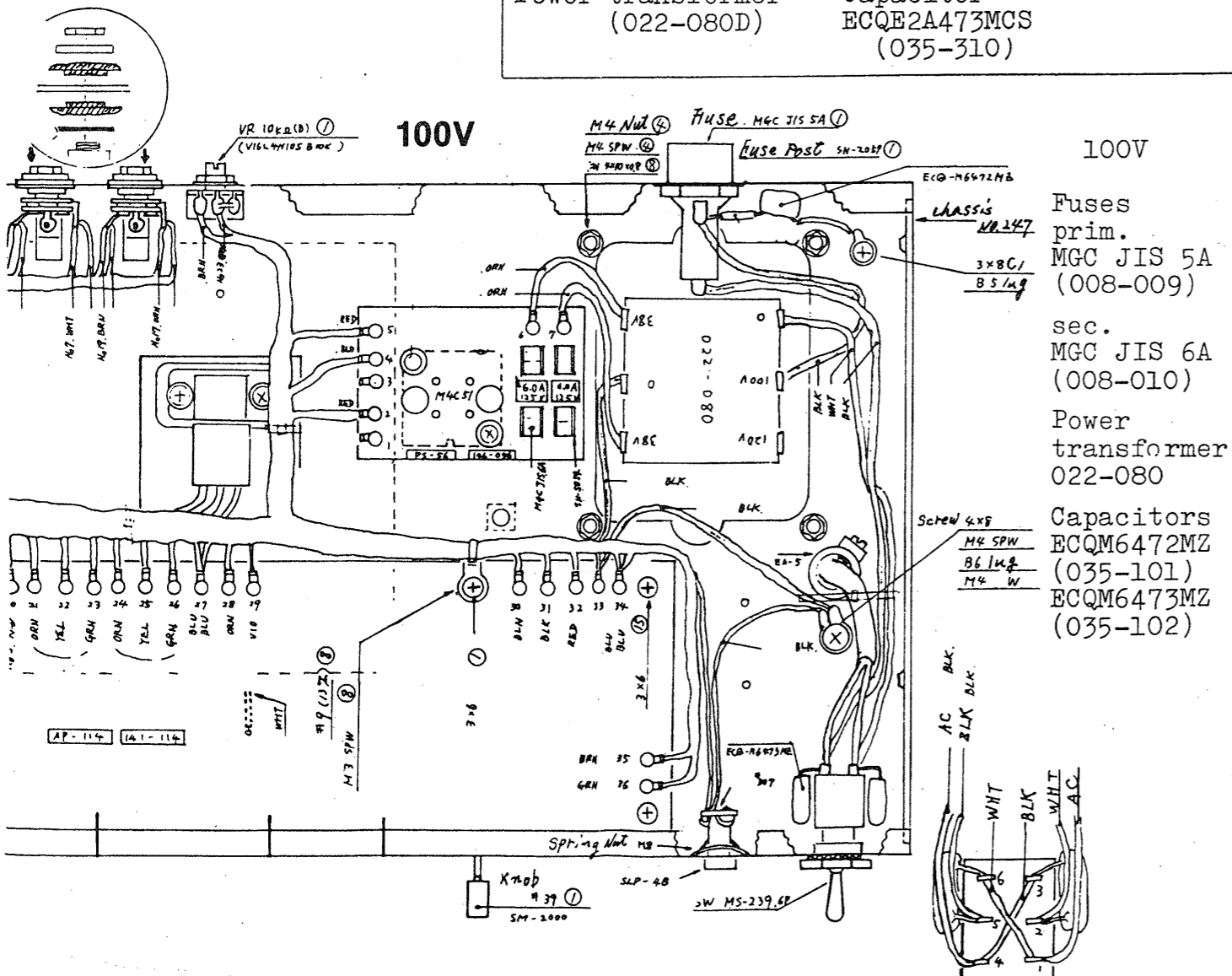
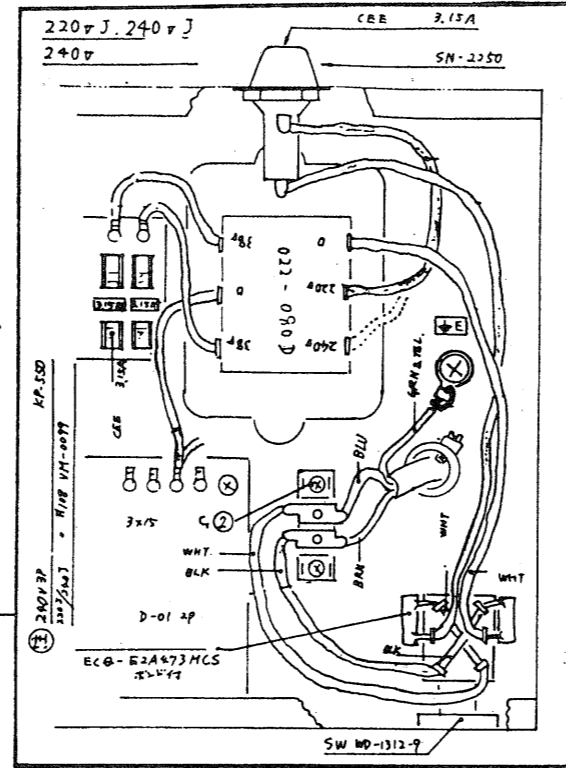


AC CONNECTIONS

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



- 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
- Capacitor ECQE2A473MCS (035-310)



PARTS LIST

- 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 (529415)  
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.