

# JC-120    JC-160    **SERVICE NOTES**

Applicable to following serial number:

**JC-120    380100~779499**

*Third Edition*

**JC-160    440100~782919**

## TECHNICAL SPECIFICATIONS

**JC-120:** Serial No. 380100 - 471649

**JC-160:** Serial No. 440100 - 470549

Rated Output Power	22mV rms/channel	@ 1kHz	
Input Sensitivity	11mV	@ 1kHz	
	4mV	@ 10kHz	
	11mV	@ 100Hz	@ full power
Power Consumption	200VA	@ 1kHz	@ full power
Tone Control Range	Treble	35dB	@ 10kHz
	Middle	0.8dB	@ 1kHz
	Bass	18dB	@ 100Hz
	Sensitivity Ratio H/L	10dB	@ 1kHz
Residual Noise	15mV/channel	@ SP	Vol. TC. max.
Chorus Effect Sensitivity	100mV	@ 1kHz	
Line Out Level	100mV	@ 1kHz	

**JC-120:** Serial No. 481650 and higher

**JC-160:** Serial No. 480550 and higher

Input Sensitivity	15mV	@ 1kHz	
	6mV	@ 10kHz	
	30mV	@ 100Hz	
Tone Control Range	Treble	37dB	@ 10kHz
	Middle	0.6dB	@ 1kHz
	Bass	17dB	@ 100Hz
	Sensitivity Ratio H/L	7.8dB	@ 1kHz
Residual Noise	6mV	@ SP	Vol. TC. max.

\* Refer to WAVEFORM CHART for:

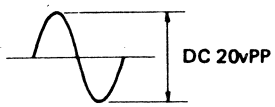
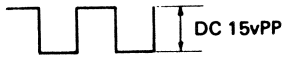
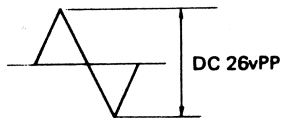

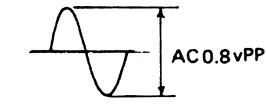
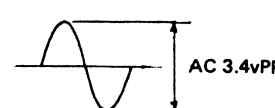
BBD Clock Frequency

Chorus Effect  
Vibrato Effect

Clock Modulation Frequency

Chorus Effect  
Vibrato Effect

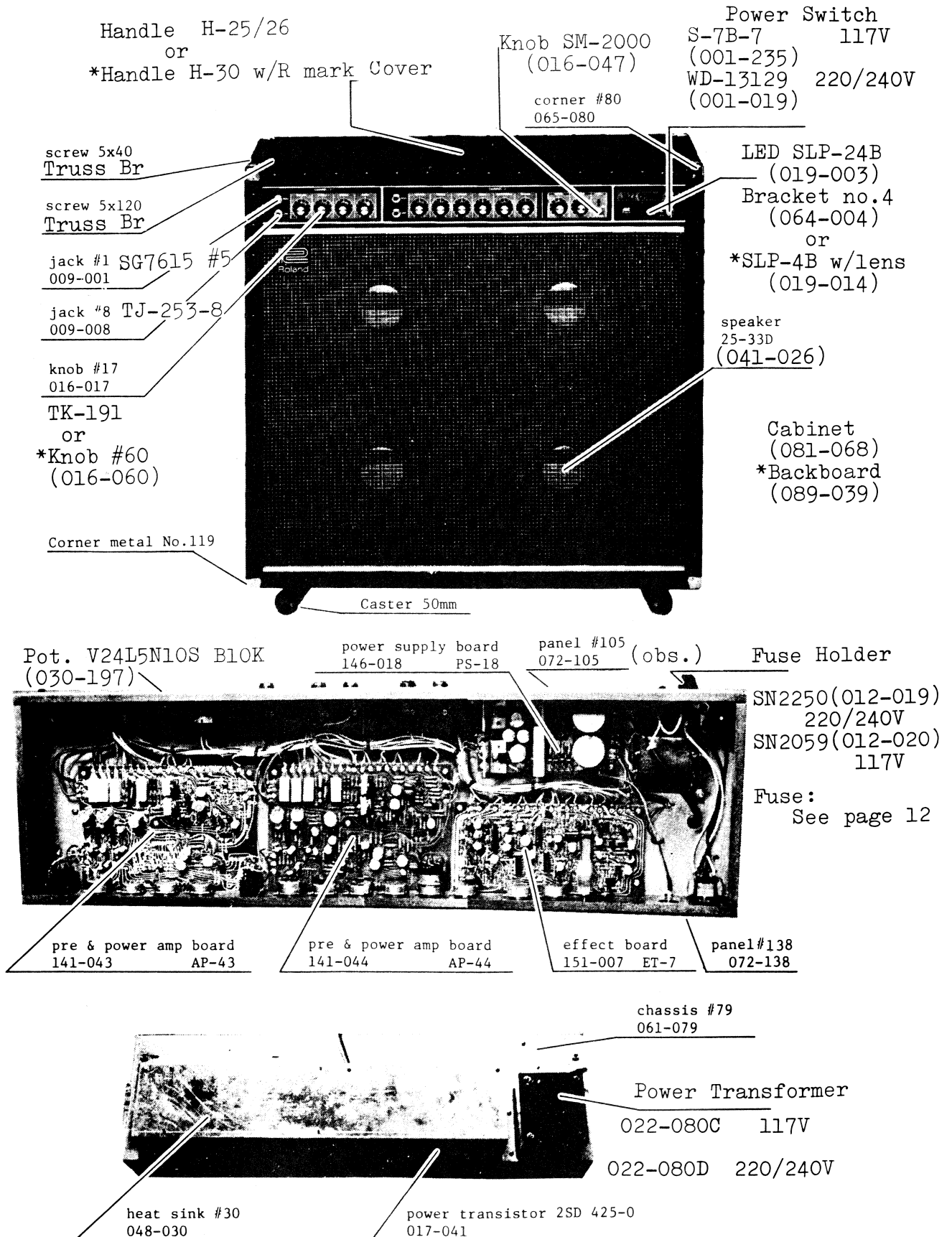
WAVE FORMS

CIRCUIT	WAVEFORM	FREQUENCY	APPLICABLE SERIAL NUMBER
Vibrato OSC		1.9 - 11Hz Q41 base	JC-60 380100 - 471649 JC-120 420100 - JC-80 440100 - JC-160 -
Clock OSC (Vibrato)		100k - 166kHz (10u - 6μsec)	JC-60 380100 - 471649 JC-120 420100 - 470499 JC-80 440100 - 470549 JC-160 -
		28k - 41.6kHz (35.5μ - 24μsec)	JC-60 481650 - 502399 JC-120 481650 - 502499 JC-80 480500 - 500949 JC-160 480550 - 500849
		52k - 71.4kHz	JC-60 512400 - JC-120 512500 - JC-80 510950 - JC-160 510850 -
Chorus OSC		1.24Hz IC 3 output	JC-60 380100 - JC-120 380100 - JC-80 420100 - JC-160 440100 -
Clock OSC (Chorus)		65k - 208kHz (15.4μ - 4.8μsec)	JC-60 380100 - 471649 JC-120 380100 - 471649 JC-80 420100 - 470499 JC-160 440100 - 470549
		26k - 111kHz (39μ - 9μsec)	JC-60 481650 - 502399 JC-120 481650 - 502499 JC-80 480500 - 500949 JC-160 480550 - 500849
		45k - 130kHz	JC-60 512400 - JC-120 512500 - JC-80 510950 - JC-160 510850 -
BBD Output (18dB/oct filtered)		1kHz	JC-60 380100 - 471649 JC-120 380100 - 471649 JC-80 420100 - 470499 JC-160 440100 - 470549
			JC-60 481650 - JC-120 481650 - JC-80 480500 - JC-160 480550 -

# JC-160

Jacks on front panel  
all TJ-253-8 (009-008)  
Serial no.631700 and higher

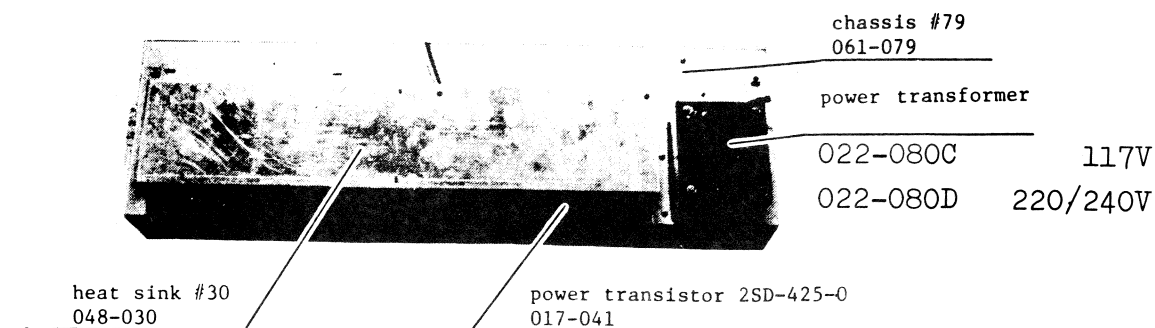
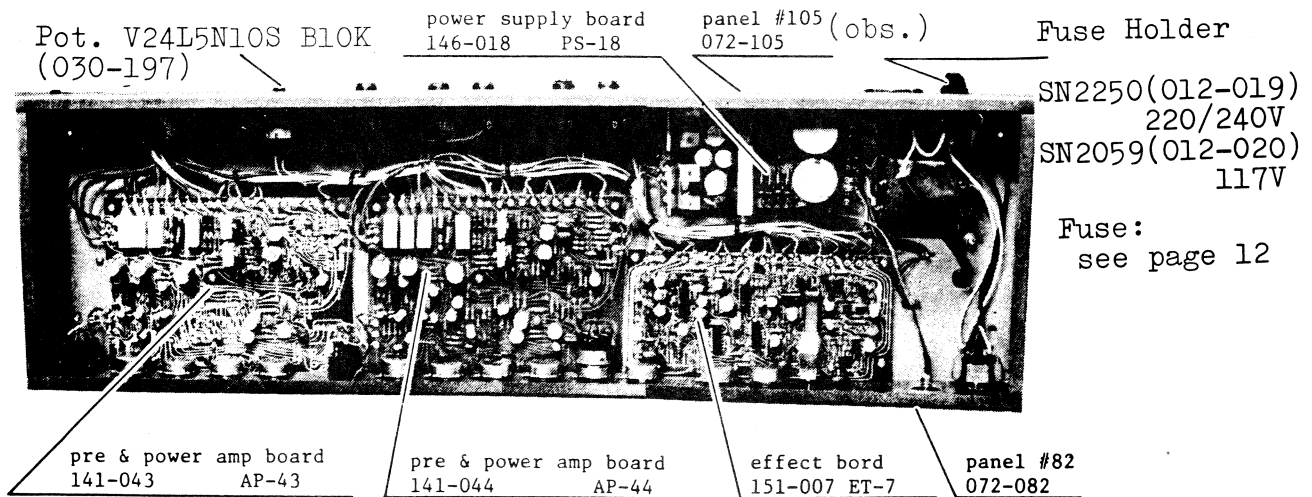
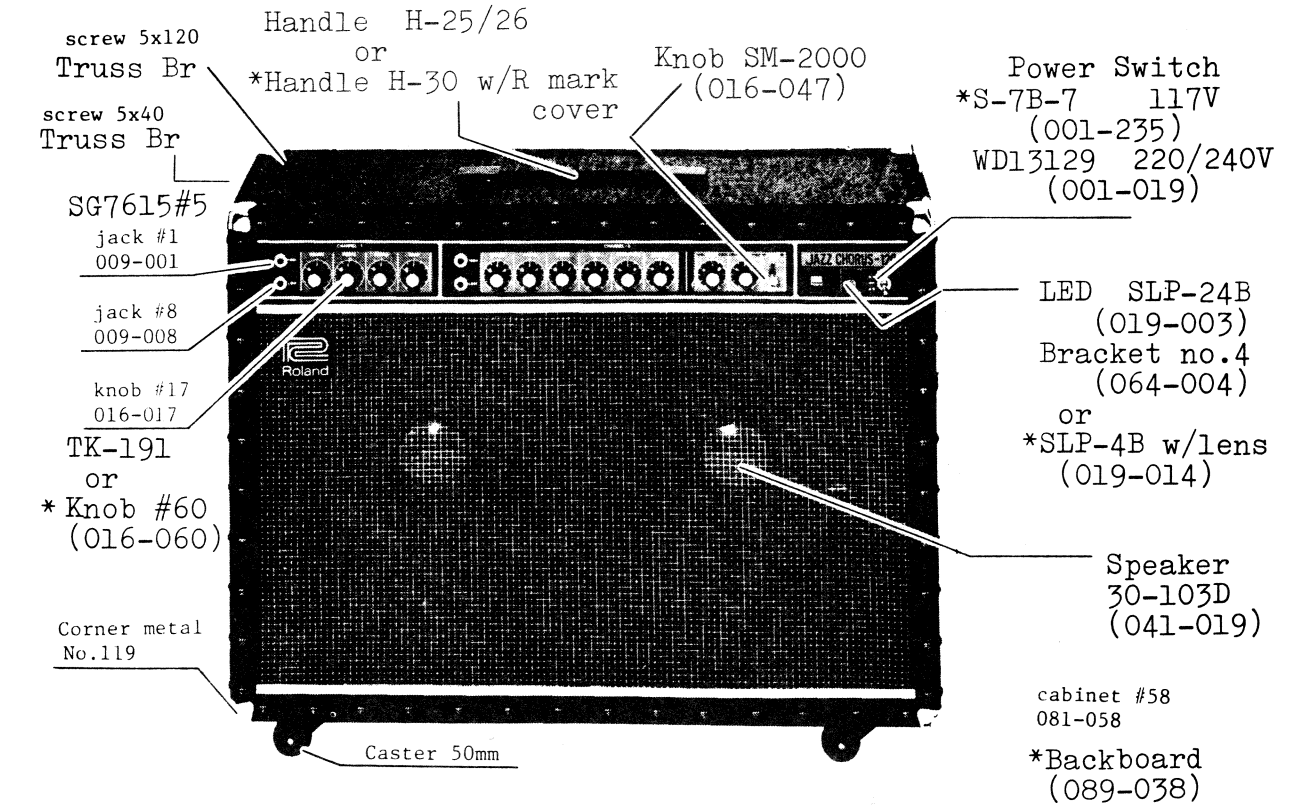
\* indicates parts on later product  
- compatible with predecessor -



# JC-120

Jacks on front panel  
all TJ-253-8 (009-008)  
Serial no. 636050 and higher

\* indicates parts on later product  
- compatible with predecessor -





Feb. 1, 1979

JC-120 JC-160

The table below shows the Serial Numbers of the engineering changes that caused PCB alteration.

PCB assembly designations remain unchanged despite of changes in component and pattern layout.

The diagram(s) and PCBs pertaining to particular circuitry are grouped into section under Serial Numbers.

When ordering replacement PCB, the following information is mandatory to obtain correct one:

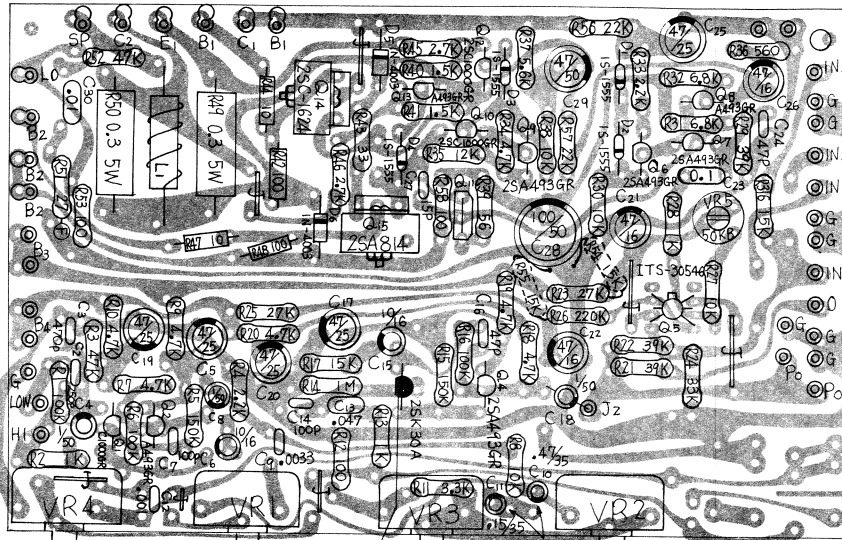
MODEL

PCB ASSEMBLY NAME with NUMBER on the foil side

SERIAL NUMBER

(Example -- AP-43(052-125) JC-120 SN 380100-410599

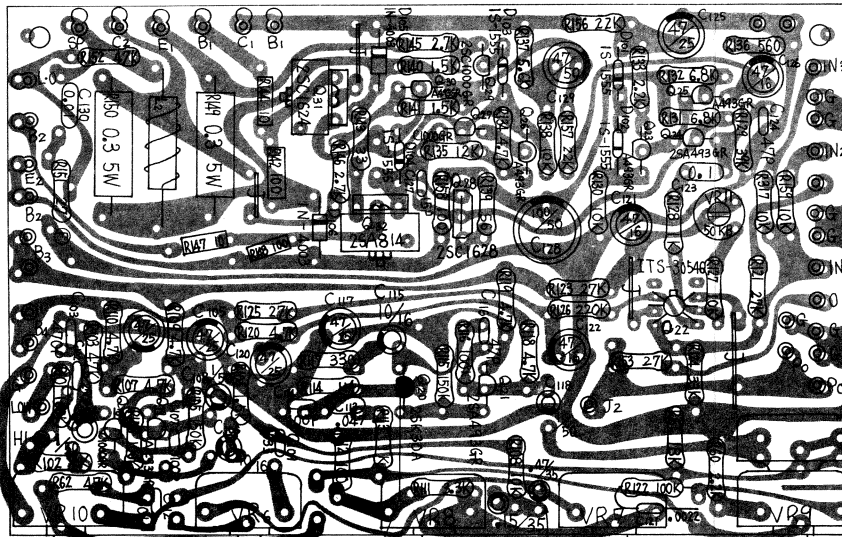
Serial number	AP-43 (141-043)				AP-44 (141-044)					ET-7 (151-007)			
	VOL	TRE	BASS	MID	VOL	TRE	BASS	MID	DIS	REV	VIB.S	VIB.D	
JC-120 380100 -- 410599	VR4 100KB	VR1 50KB	VR2 100KA	VR3 5KB	VR10 100KB	VR6 50KB	VR7 100KA	VR8 5KB	VR9 100KB 100KB	VR12 10KB	VR14 250KC	VR13 10KB	Circuit configurations to ET-6 and ET-7 are almost the same, but component identifiers ( numbers) are different.  Resistors differ in value between two: ET-6 ET-7
PCB no. 052-125 foil side				PCB no. 052-125 foil side					PCB no. 052-124 foil side				
JC-120 426060 -- 471649	VR4 100KB	VR1 50KB	VR2 100KA	VR3 5KB	VR9 100KB	VR5 50KB	VR6 100KA	VR7 5KB	VR8 100KB 100KB w/sw	VR10 10KB	VR12 250KC	VR11 10KB	R302 - R149 R312 - R159 R318 - R167 R323 - R172 R324 - R165 R325 - R166 R340 - R188 R341
JC-160 440100 -- 470549	PCB no. 052-125A foil side				PCB no. 052-125A foil side					PCB no. 052-124 foil side			
JC-120 481650 -- 502499	VR4 100KC 10KC	VR1 50KB	VR3 100KA	VR2 5KB	VR10 100KC 10KC	VR6 50KB	VR8 100KA	VR7 5KB	VR9 100KB 100KC w/sw	VR12 10KB	VR15 250KC	VR14 10KB	Some PCBs have circuit pattern on both sides.
JC-160 480550 -- 500849	PCB no. 052-181 foil side (052-188 component side)				PCB no. 052-181 foil side (052-189 component side)					PCB no. 052-182 foil side (052-190 component side)			
JC-120 512500	VR4 100KC 10KC	VR1 50KB	VR3 100KA	VR2 5KB	VR10 100KC 10KC	VR6 50KB	VR8 100KA	VR7 5KB	VR9 100KB 100KC w/sw	VR12 10KB	VR15 250KC	VR14 10KB	Use 052-199 as replacement for 052-182A.  JC-120 serial NO. 543650 and higher JC-160 serial NO. 541050 and higher
JC-160 510850	PCB no. 052-181A foil side (052-188A component side)				PCB no. 052-181A foil side (052-189A component side)					PCB no. 052-182A foil side (052-190A component side)  052-199 both sides			



**AP-43 (141-043)**  
left  
pattern (052-125)

**PS-18 (146-018)**  
right  
pattern (052-123)  
compatible with  
PS-18 on page 8

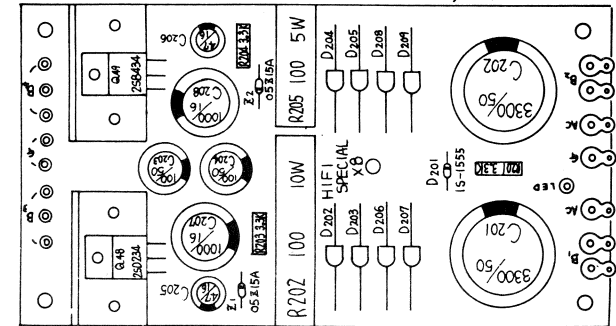
Potentiometers  
V24L5PHIN20KC type  
can be substituted  
by EVCSOAK20 type



**AP-44 (141-044)**  
left  
pattern (052-125)

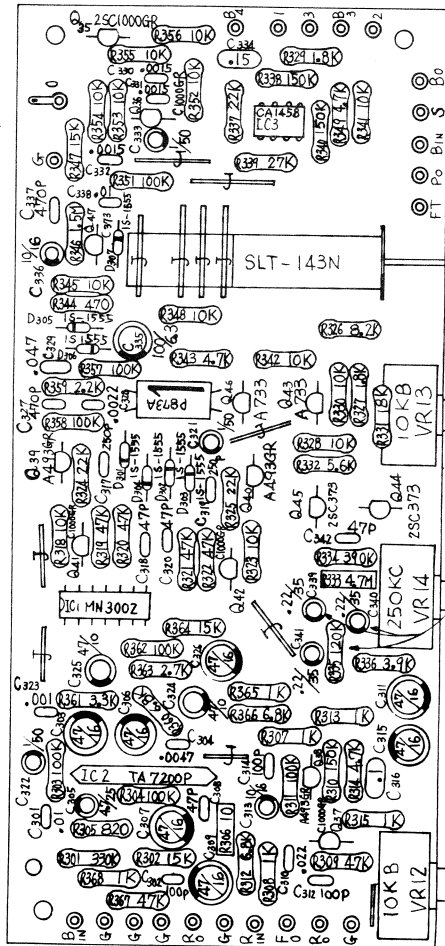
read ITS-30546 as  
E-412

When ordering  
PCBs and/or Pots,  
specify  
SERIAL and  
PATTERN NUMBER



**ET-6 (151-006)**  
pattern  
(052-124)

SLT-143N  
(001-082)

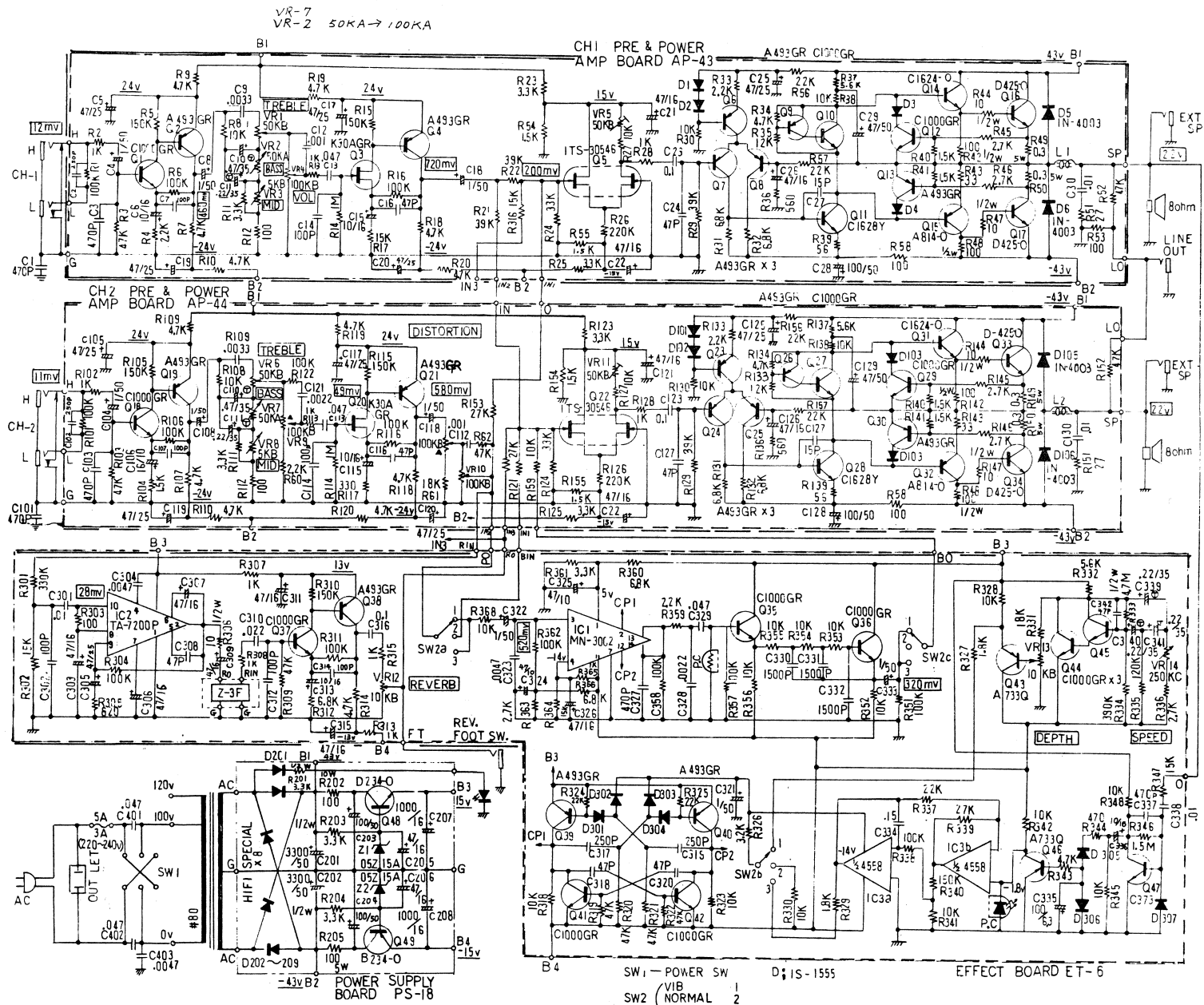


VIB. DEPTH  
V24L5PHIN  
20KC 15  
BLOK  
(030-180)

VIB. SPEED  
V24L5PHIN  
20KC 15  
C250K  
(030-193)

REVERB.  
V24L5PHIN  
20KC 15  
BLOK  
(030-180)

- |  |   |  |  |  |
|--|---|--|--|--|
| VOLUME<br>V24L5PHIN<br>20KC(15)<br>BLOK<br>(030-183) | TREBLE<br>V24L5PHIN<br>20KC 15<br>B50K<br>(030-182) | MIDDLE<br>V24L5PHIN<br>20KC 15<br>B5K<br>(030-179) | TANTALUM<br>BASS<br>V24L5PHIN<br>20KC 15<br>A100K<br>(030-174) | DISTOTION<br>EWFN1AK20<br>100KB x 2<br>(029-076) |
|--|---|--|--|--|



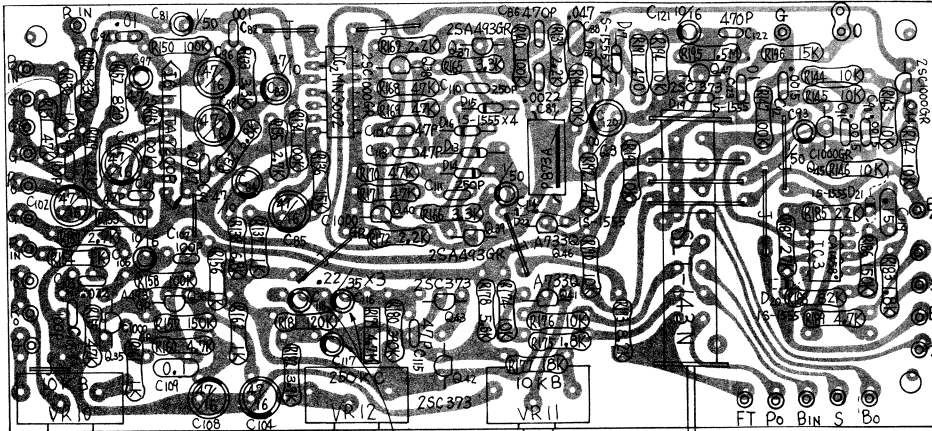
JC-120 Serial No. 380100-410599

ET-7 (151-007) pattern 052-124

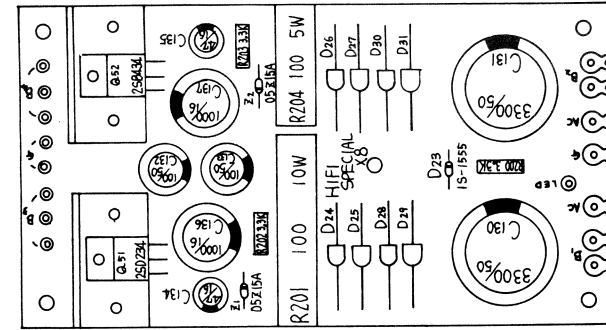
JC-120 JC-160

PS-18 (146-018) pattern 052-123 same, as on p6

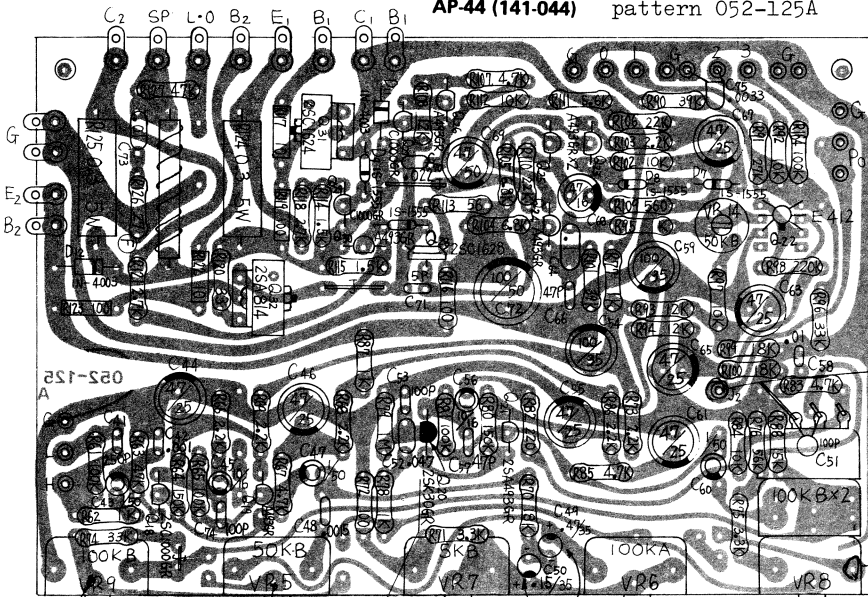
Feb. 1979



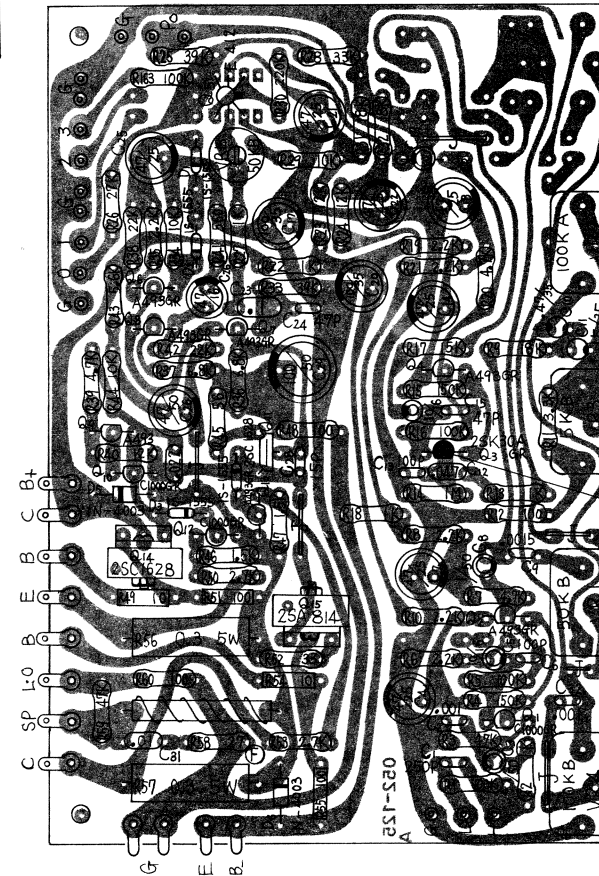
REVERB DEPTH V24L5PHIN20KC 15B10K(030-180)  
 VIB. SPEED V24L5PHIN20KC C250K(030-193)  
 VIB. DEPTH V24L5PHIN20KC 15 B10K(030-180)  
 SWITCH SLT-143N (001-082)



AP-44 (141-044) pattern 052-125A



VOLUME V24L5PHIN20KC 15 B10K (030-183)  
 TREBLE V24L5PHIN 20KC15B50K (030-182)  
 MIDDLE V24L5PHIN 20KC15B5K (030-179)  
 BASS V24L5PHIN 20KC15A100K (030-174)  
 DISTORTION EWFNOLK20 100KB x 2



AP-43 (141-043) pattern 052-125A

BASS V24L5PHIN 20KC15A100K (030-174)

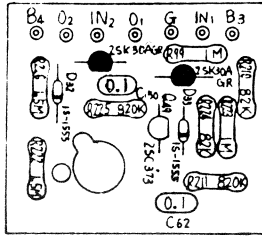
MIDDLE V24L5PHIN 20KC15B5K (030-179)

TREBLE V24L5PHIN 20KC B50K (030-182)

VOLUME V24L5PHIN 20KC 15 B10K (030-183)

OP-36 (149-036)  
pattern 052-180

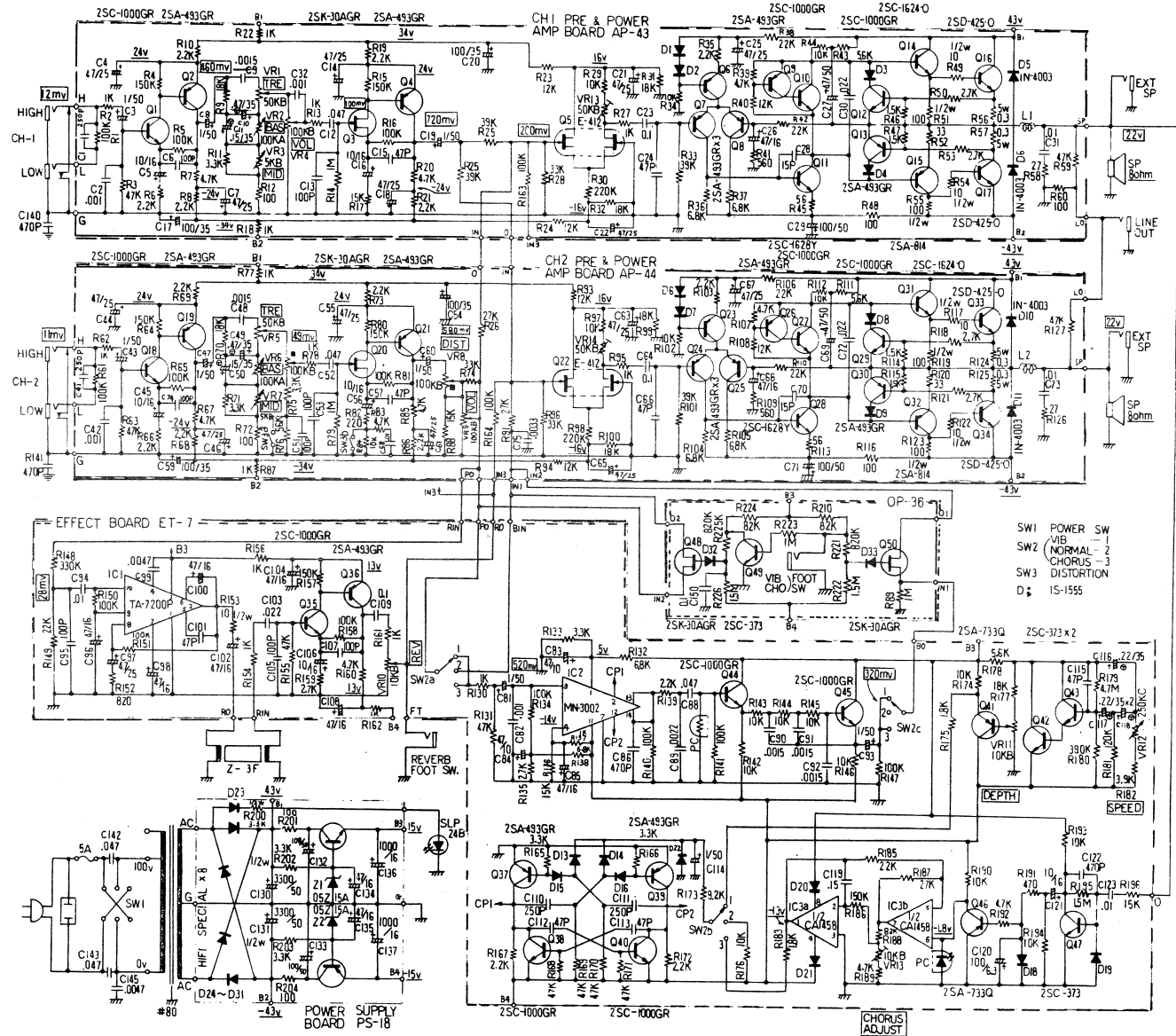
Mounted on product  
bearing the serial  
number in this page



Potentiometers  
V24L5PHIN type  
can be substituted  
by EVCSOA type.

**IMPORTANT**

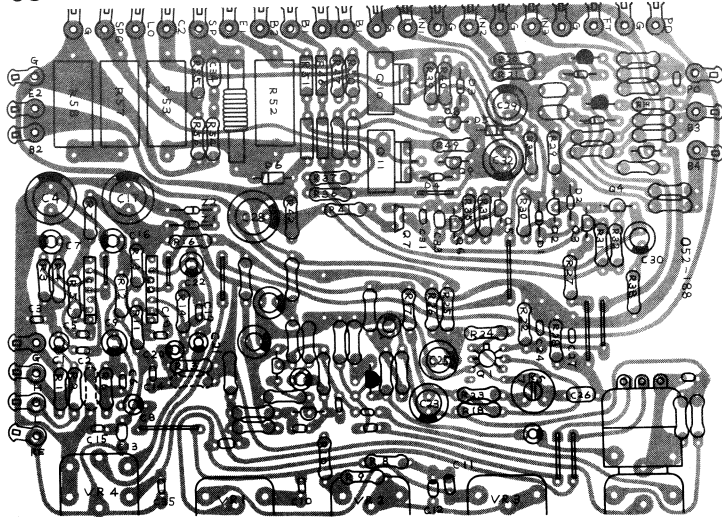
When ordering PCB  
or POT., specify  
SERIAL and PATTERN  
NUMBERS.



JC-120 serial no.420600 - 471649  
JC-160 serial no.440100 - 470549

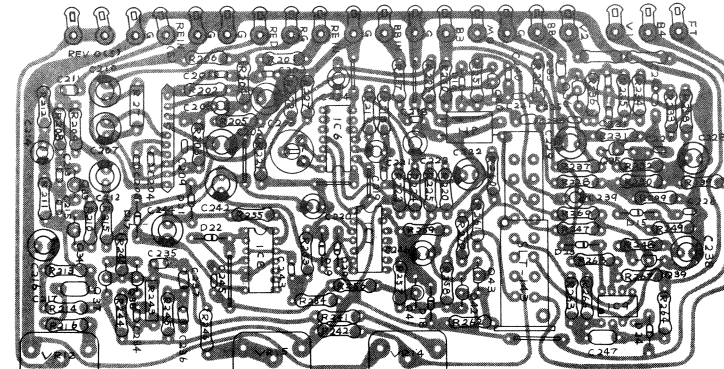


JC-120 JC-160



AP-43 (141-043)

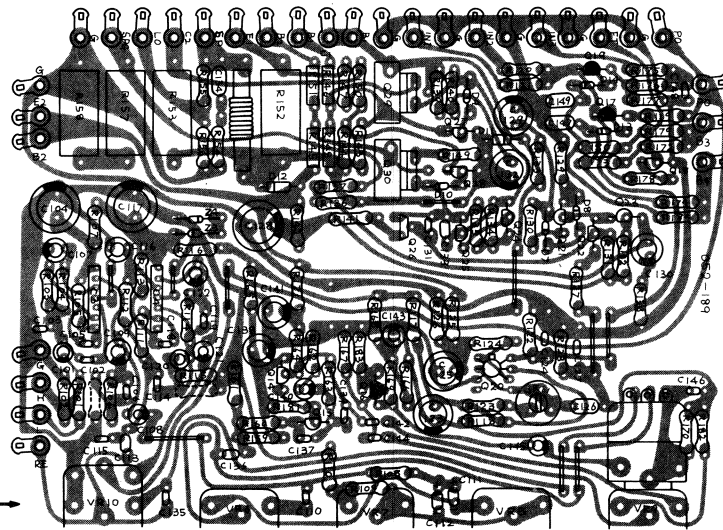
052-188 (parts side)  
052-181 (pattern side)



REVERB DEPTH V24L5PHIN20KC  
V24L5PHIN20KC 15B10K(030-180)  
VIB SPEED V24L5PHIN20KC  
C250K(030-193)  
VIB DEPTH V24L5PHIN20KC  
15B10K(030-180)  
SWITCH SLT-143N  
(001-082)

ET-7 (151-007)

052-190 (parts side)  
052-182 (pattern side)



AP-44 (141-044)

052-189 (parts side)  
052-181 (pattern side)

PS-18 (146-018)

See page 13

VOLUME  
V24L5G3PHIN  
20KC  
100KC+10KC  
(030-196)

TREBLE V24L5PHIN  
20KC15B50K  
(030-182)  
MIDDLE V24L5PHIN  
20KC15 B5K  
(030-179)  
BASS V24L5PHIN  
20KC15A100K  
(030-174)

DISTORTION  
EWFNOHK20,836 or V24L5GPHISB9ME  
(029-060) 20KC C100K + B100K

**IMPORTANT**  
Always give the SERIAL  
and PATTERN NUMBER  
as well as PART NUMBER  
when ordering PCB.

Potentiometers of  
V24L5PHIN type:  
can be substituted  
by EVCSOA type.

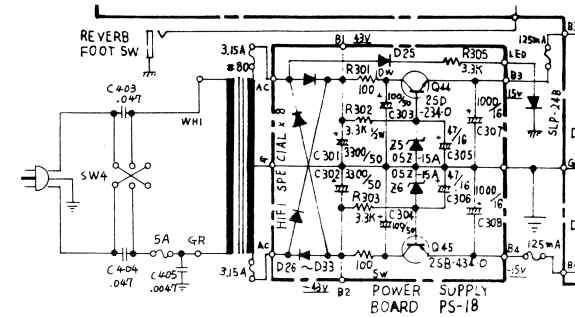
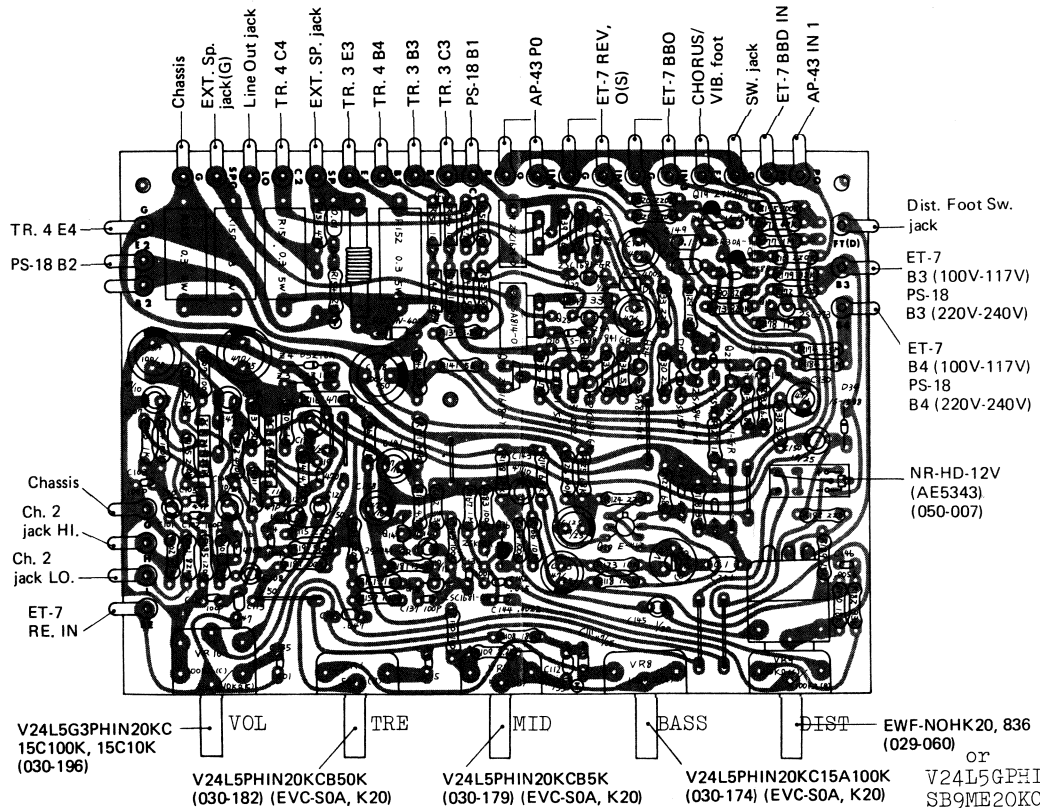


JC-120 serial No. 512500 and higher (up to 779499)  
 JC-160 serial No. 510850 and higher (up to 782919)

JC-120 JC-160

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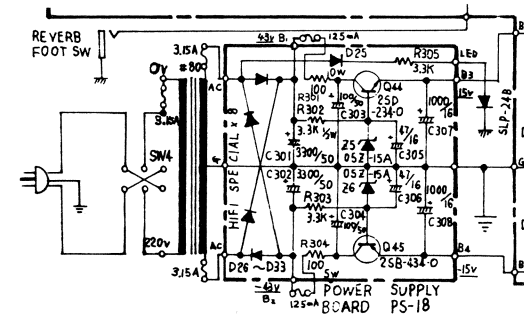
AP-44 (141-044) PCB 052-189A (parts side) 052-181A (pattern side)



117V

FUSES:

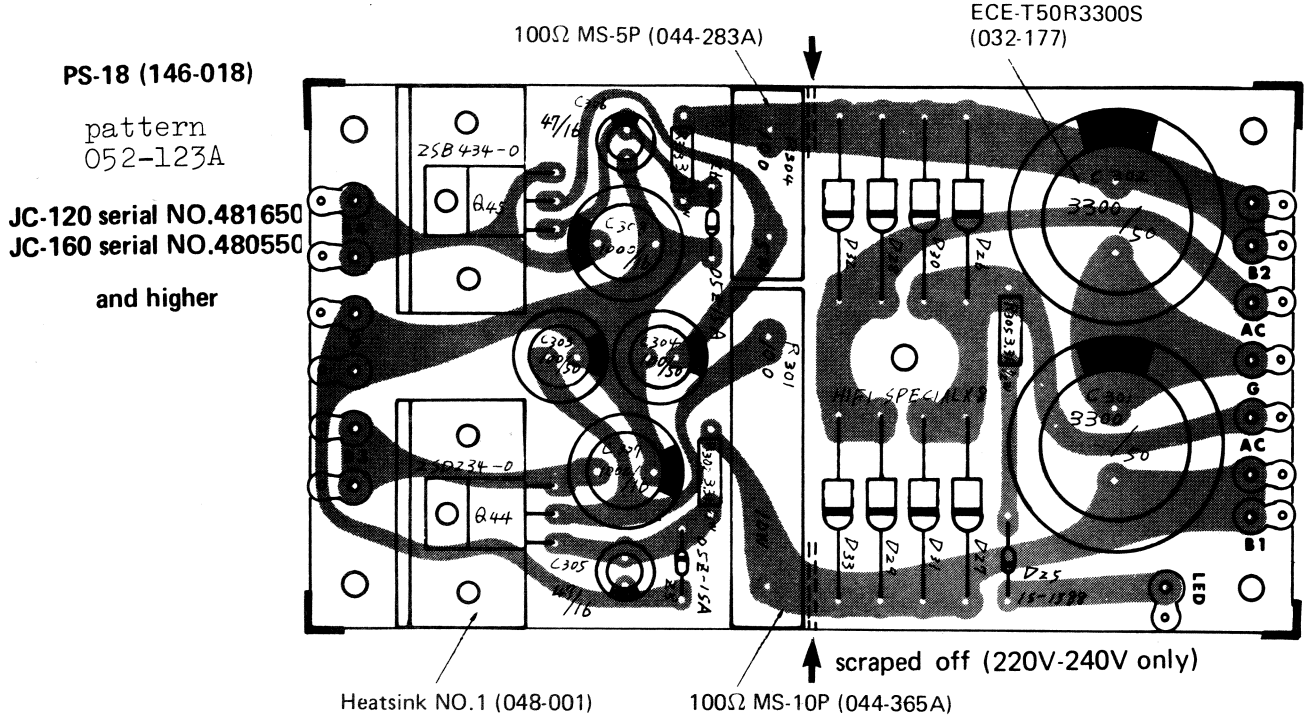
- 5A - MGC (008-009)
- 125mA - CEE (008-057)
- 3.15A - CEE (008-072)



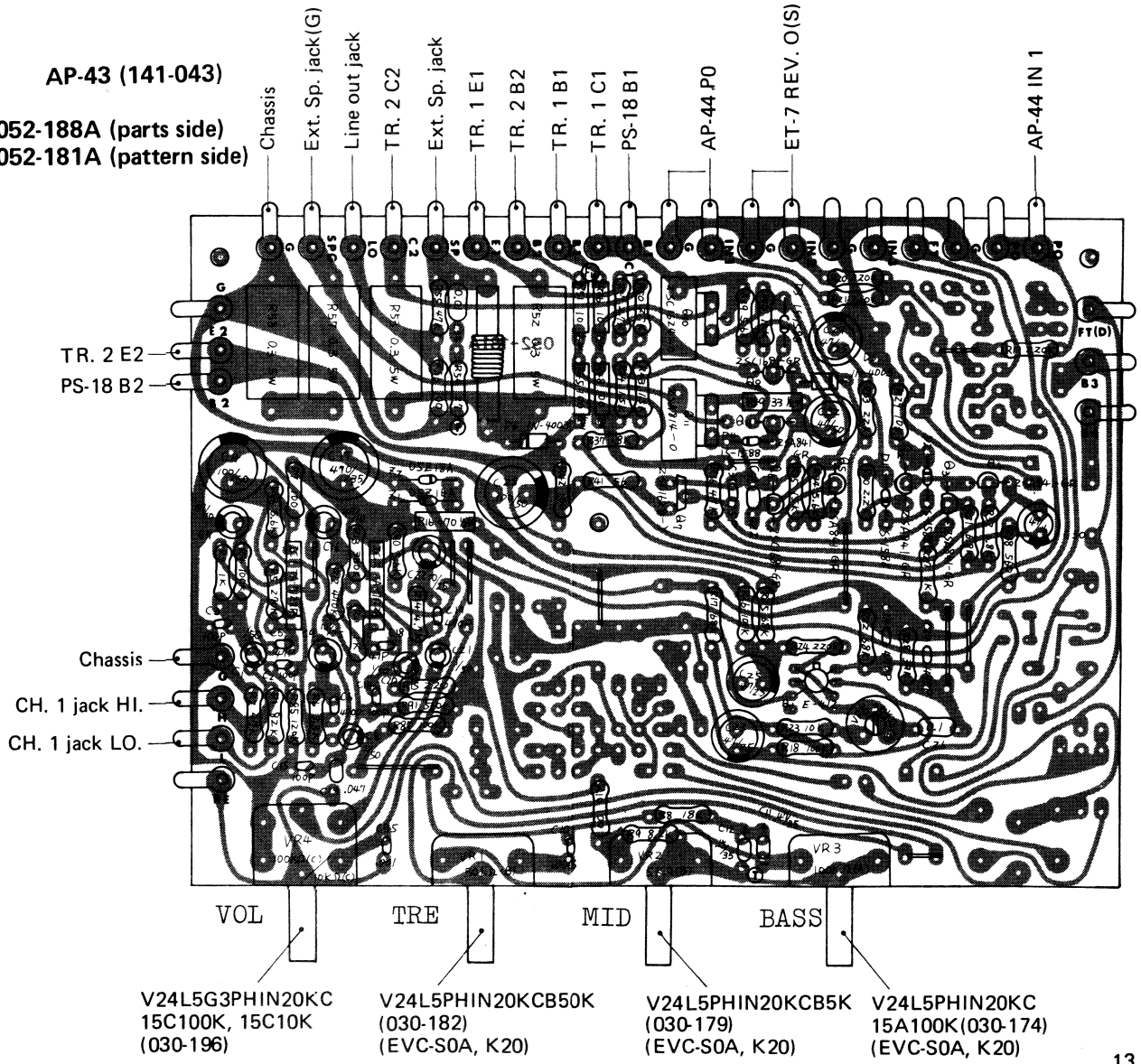
220V ~ 240V

Since PCB designation is same but circuit pattern layout is different from those on the other pages, PCB order contains pattern number on the foil side is indispensable information to obtain adequate one to replace.



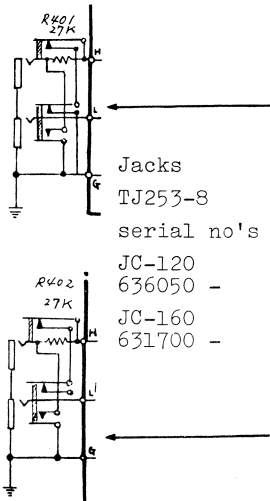


AP-43 (141-043)  
 052-188A (parts side)  
 052-181A (pattern side)





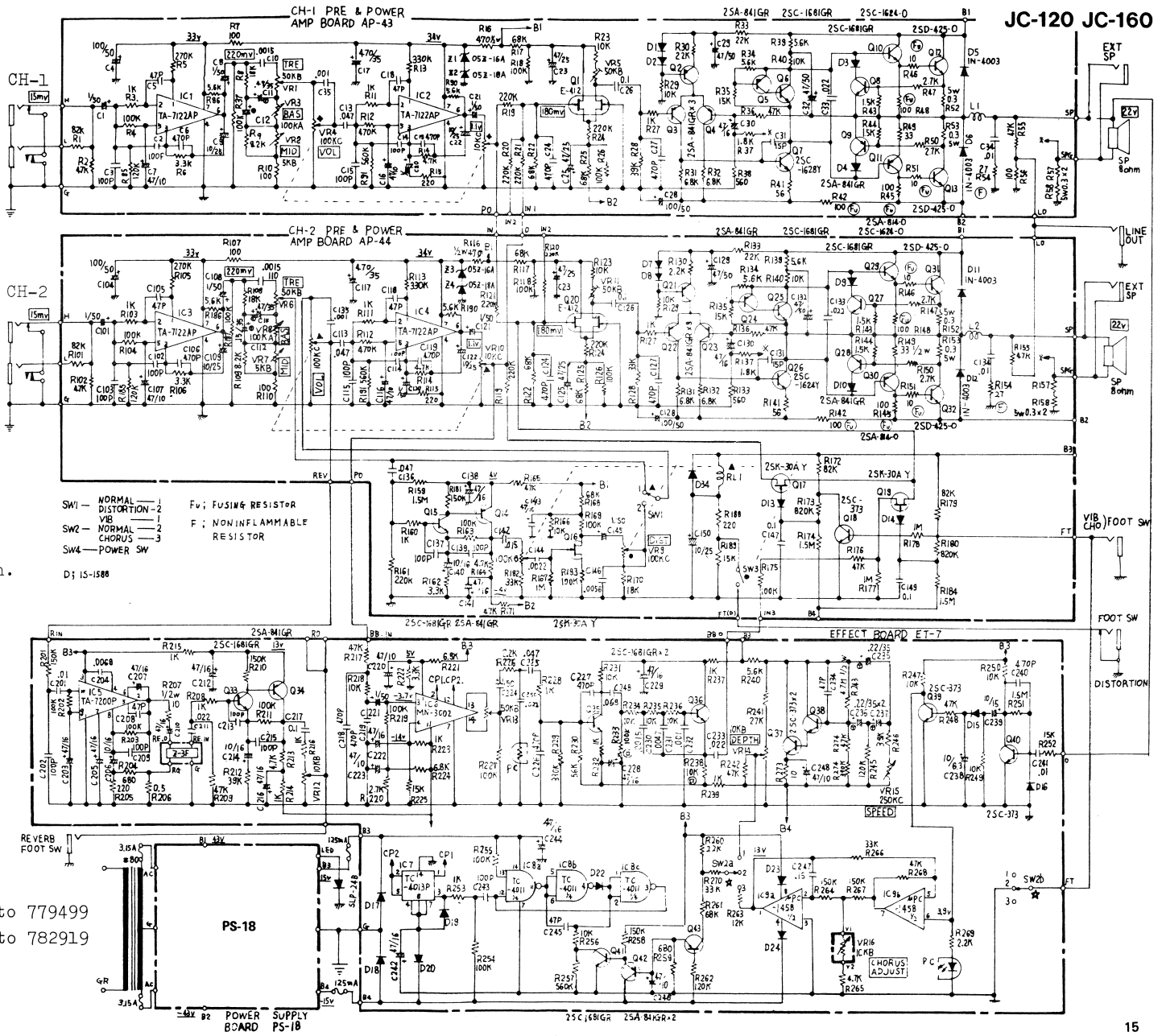
Feb. 1, 1979



Jacks  
TJ253-8  
serial no's  
JC-120  
636050 -  
JC-160  
631700 -

NOTE:

In above jack circuits  
H input is grounded  
when L input plugged in.



- SW1 - NORMAL 1
  - SW1 - DISTORTION 2
  - SW2 - NORMAL 1
  - SW2 - CHORUS 2
  - SW4 - POWER SW
- Fv; FUSING RESISTOR  
F; NONINFLAMMABLE RESISTOR  
D; IS-1588

JC-120 serial No. 512500 to 779499  
JC-160 serial No. 510850 to 782919

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JC-120 JC-160

PARTS LIST

081-058 Cabinet no.58 JC-120 (complete)  
 089-038 Backboard no.38 JC-120  
 089-039 Backboard no.39 JC-160  
 081-068 Cabinet no.68 JC-160 (complete)  
 \*Handle H-30 & Handle Covers  
 can be substitutive for H-25/26  
 \*Caster 50mm dia. swible  
 \*Corner Metal (protector) no.119  
 \*Included in cabinet assy  
 072-082 Panel no.82 front JC-120  
 072-138 Panel no.138 front JC-160  
 072-105 Panel no.105 rear obsolete by adoption  
 of backboard no.38/39  
 131-068 Vinyl Cover no.68 JC-120  
 131-073 Vinyl Cover no.73 JC-160  
 041-019 Speaker 30-103D JC-120  
 041-026 Speaker 25-33D JC-160  
 016-060 Knob no.60 or 016-019 TK-191  
 016-047 Knob SM-2000 lever switch  
 022-080C Power Transformer no.80C 117V  
 022-080D Power Transformer no.80D 220/240V  
 022-020 Choke Coil LB-2.5mH  
 040-001 Reverb Unit Z-3F  
 053-211 Reverb Cord Assy no.211 450mm lengths  
 052-212 Reverb Cord Assy no.212 650mm lengths  
 009-001 Jack SG7615 #5 two for INPUT  
 009-008 Jack TJ-253-8 INPUT  
 (for all INPUTs JC-120 636050  
 JC-160 631700 and higher)  
 001-019 Switch WD13129 power 220/240V  
 001-235 Switch S-7B-7 power 117V  
 001-082 Switch SLT-143N lever  
 050-007 Relay NR-HD-12V (AE5343)  
 Serial no. JC-120 512500  
 JC-160 510850 and higher  
 061-079 Chassis no.79  
 048-030 Heat Sink no.30 output  
 048-001 Heat Sink no.1 DC supply  
 048-018 Heat Sink SB-A driver  
 120-001 Sleeve Nut no.1 3 x 10mm  
 120-007 Sleeve Nut no.7 3 x 52mm  
 065-121 Transistor Cover Z2-104P-00 117V only  
 012-001 Transistor Socket TS-005

TRANSISTORS

017-041 2SD425-0  
 017-010 2SD234-0  
 017-022 2SB434-0  
 017-062 2SC1681-GR  
 017-069 2SA841-GR  
 017-028 2SC1628-Y  
 017-029 2SC1624-0  
 017-030 2SA814-0  
 017-011 2SC373  
 017-014 2SK30A-Y FET  
 017-036 E-412 (ITS-30546)  
 dual FET

ICs

020-028 TA7200P  
 020-040 TC4011P  
 020-041 TC4013P  
 020-060 TA7122AP  
 020-062  $\mu$ PC1458  
 020-030 MN30C2 BBD

DIODES

018-019 GP-25 (Hi-Fi special)  
 018-022 1N4003  
 018-059 1S1588  
 018-025 05Z-15A zener  
 018-026 05Z-16A zener  
 018-055 05Z-18A zener

LEDs PHOTOCCELL

019-006 P873-G35-380 red rank  
 019-003 LED SLP-24B  
 062-004 Bracket no.4  
 (lens, mate to SLP-24B)  
 or  
 019-014 LED SLP-4B w/lens  
 052-307 SLP-4B mounting PCB

RESISTORS

044-132 ERC-12GK 3.3K-ohm  $\frac{1}{2}$ W  
 044-108 ERC-12GK 33-ohm  $\frac{1}{2}$ W  
 044-122 ERC-12GK 470-ohm  $\frac{1}{2}$ W  
 044-102 ERC-12GK 10-ohm  $\frac{1}{2}$ W  
 044-398 \* ERD-12FJ 27-ohm  $\frac{1}{2}$ W  
 \* noninflammable

Wire Wound

044-253 MS-5 0.3-ohm 5w  
 044-283A MS-5P 100-ohm 5w  
 044-365A MS-10P 100-ohm 10w

Fusing

008-118 FN-1 10-ohm  $\frac{1}{4}$ W  
 008-130 FN-1 100-ohm  $\frac{1}{4}$ W

POTENTIOMETERS

030-197 V24L5N10S B10K 10KB  
 028-006 EVTR4A00B54 50KB  
 or SR19R 50KB

CAPACITORS

032-177 ECET50R3300S 3300 $\mu$ F 50V  
 032-092 0.15 $\mu$ F 35V tantalum  
 032-095 0.47 $\mu$ F 35V tantalum  
 032-093 0.22 $\mu$ F 35V tantalum  
 035-103 0.01 $\mu$ F 200V polyester

FUSE HOLDERS FUSES

012-020 Holder SN2059 prim. 117V  
 012-019 Holder SN2250 prim. 220/240V  
 012-022 Holder TF758W sec. 117V  
 012-018 Holder XN1153 sec. 220/240V  
 008-009 Fuse MGC 5A prim. 117V  
 008-057 Fuse CEE 125mAT sec.  
 008-072 Fuse CEE 3.15AT sec.  
 (prim. 220/240V)

\* Resistors of  $\frac{1}{4}$ w, mylar capacitors,  
 and small electro's are omitted.

\* PCBs and Potentiometers:  
 refer to PCB layouts.



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