

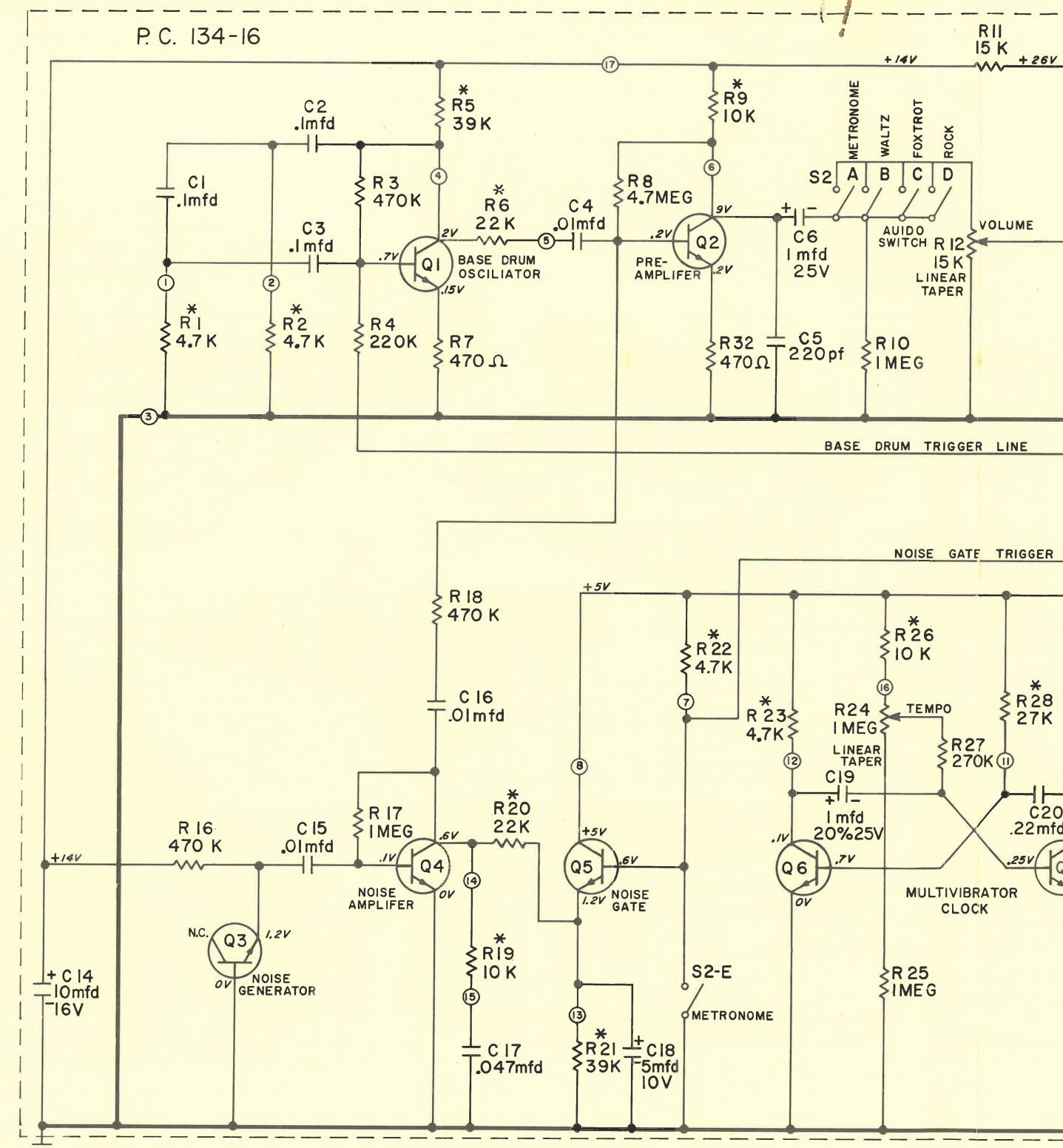
FILING INSTRUCTIONS

Refer to the Div. 57 Authorized Price List 257.00 for current selling price, availability and ordering information.

File this page in numerical order in the Div. 57 Organ Technical Manual.

PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
RESISTORS		MISCELLANEOUS PARTS		
(All resistors 1/2W., 10% unless otherwise noted)		IC1	159-1050	AMPLIFIER, AUDIO
R1, 2, 5, 6, 9, 19, 20, 21, 22, 23, 26, 28, 29, 30	199-1	142-25		BUTTON (PUSH)
		139-4		CORD A.C. POWER
		142-28		KNOB (ROTARY)
R3, 16, 18	120-474222	IC2	159-1060	RHYTHM GENERATOR
R4	120-224222	SP1	138-4	SPEAKER 8" 16 OHM
R7, 32	120-471222	S2	124-1	SWITCH, AUDIO
R8	120-475222	S1	125-4	SWITCH, POWER SPST
R10, 17, 25	120-105222	T1	135-12-2	TRANSFORMER, POWER
R11	120-153222		234-16	P.C. BOARD ASSEMBLY
R12	122-18-1533		176-2	CHORD MECHANISM ASSEMBLY
R14	120-331222		175-4	CHORD REED BLOCK
R15	120-010222		142-19	CHORD BUTTON COVER
R24	122-17-1053			(CHEEKBLOCK-LEFT HAND)
R27	120-274222		142-21	CHEEKBLOCK-RIGHT HAND
R31	120-102222		175-5	TREBLE REED ASSEMBLY
			195-1	MOTOR ASSEMBLY
CAPACITORS			125-4	SWITCH-ON/OFF
C1, 2, 3	114-10405022		195-4	BLOWER COVER (2 pcs.)
C4, 15, 16, 21, 24	112-10305032		195-3	IMPELLER AND COLLETT
C5	112-22105032		153-3	AIR VALVE-SPRING & WIRE
C6	118-0100251		153-4	EXPRESSION PEDAL & HINGE
C8, 9	118-2500165		147-18	KEY SPRING TOOL
C10	112-10205032		141-20	BLACK KEYS
C11, 20, 23	114-22405022		157-4	SPRING-BLACK KEYS
C12	118-2210255		157-5	SPRING-WHITE KEYS
C13	118-2510351		141-21	WHITE KEYS F1
C14	118-1000165		141-22	G2
C17	114-47305022		141-23	A3
C18	118-0500105		141-24	B4
C19	118-845		141-25	C5
C22	118-1000105		141-26	D6
			141-27	E7
			141-28	C8
TRANSISTORS			165-3	MUSIC RACK
Q1, 2, 4, 5, 6, 7, 8	127-6080		146-20	KEY NUMBER STRIP
Q3	127-7010		180-19	MUSIC BOOK
			142-23	MUSIC BOOK STOP MOULDING
			152-27	CABINET
			151-6	BACK-CABINET
			180-37	TECH MANUAL
			190-17	CARTON-INNER PACKING
DIODES				
D1, 2, 3, 4	126-3			DIODES
D5, 6, 7, 8	126-2			DIODES



SCHEMATIC DIAGRAM FOR MODEL

*RESISTORS INCLUDED IN PACK NO. 199-1.

VOLTAGE READINGS ARE MEASURED WITH A 20K/V V.O.M.
ALL VOLTAGES MEASURED FROM GROUND.
VOLUME CONTROL SET TO MAX. COUNTER CLOCKWISE.
TEMPO CONTROL SET TO MAX. CLOCKWISE.

MODEL NUMBER
257.47122200

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AUDIO
(SH)
OWER
(ARY)
NERATOR
16 OHM
DIO
VER SPST
MER, POWER
ASSEMBLY
HANISM ASSEMBLY
D BLOCK
TON COVER
(LOCK-LEFT HAND)
K-RIGHT HAND
ED ASSEMBLY
EMBL Y
OFF
VER (2 pcs.)
ND COLLETT
SPRING & WIRE
PEDAL & HINGE
TOOL

CK KEYS
TE KEYS

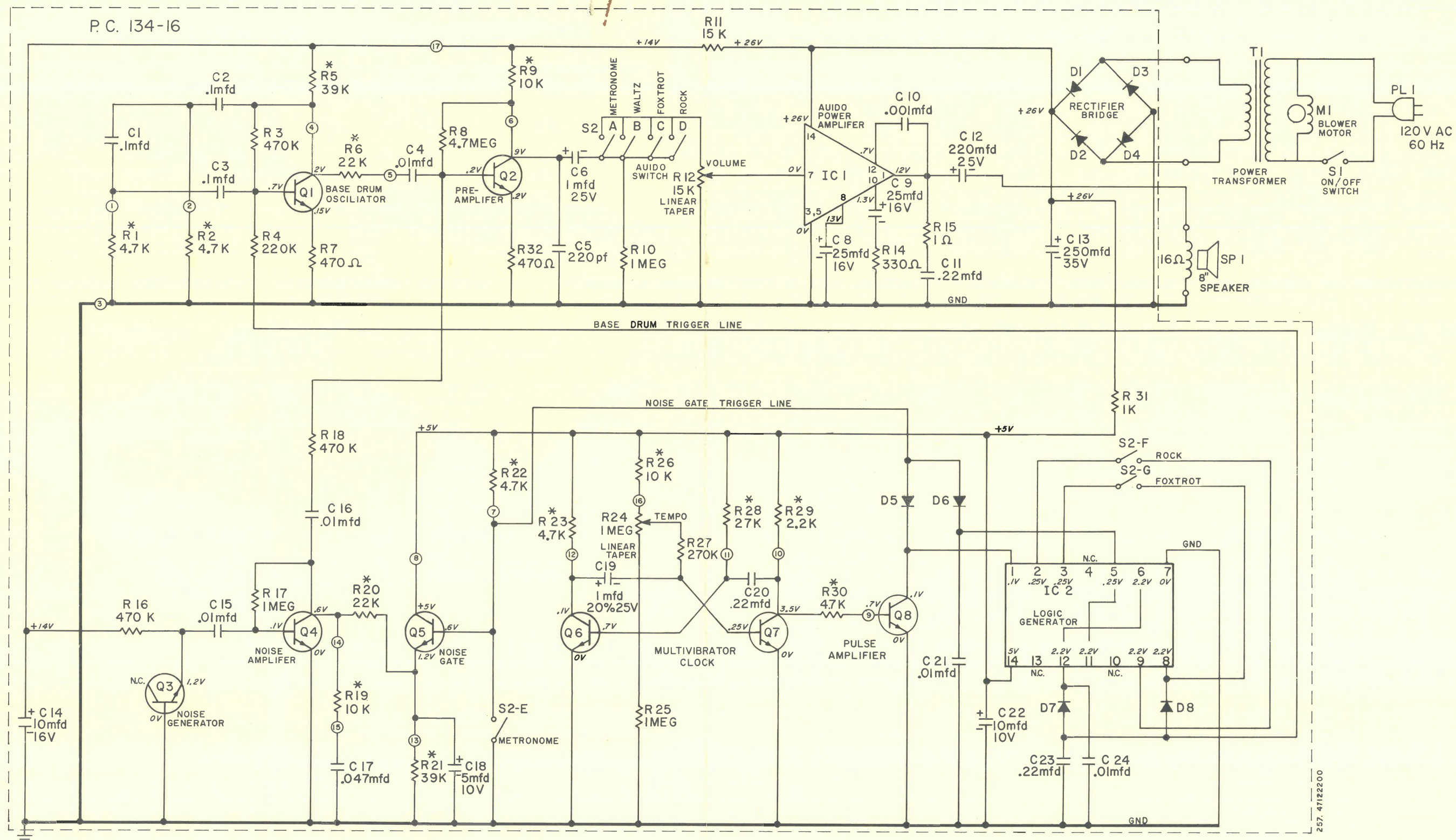
F1
G2
A3
B4
C5
D6
E7
C8

3 STRIP

STOP MOULDING

ET
AL
ER PACKING

SM72

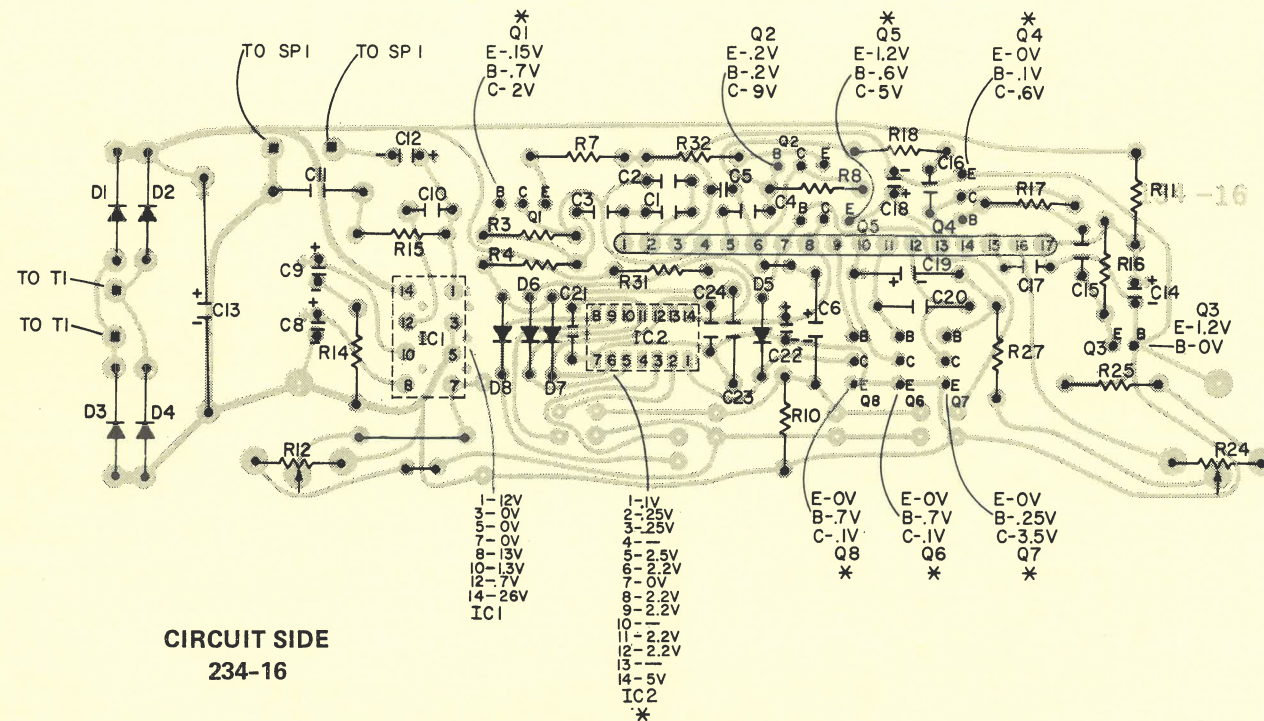


SCHEMATIC DIAGRAM FOR MODEL 257.47122200

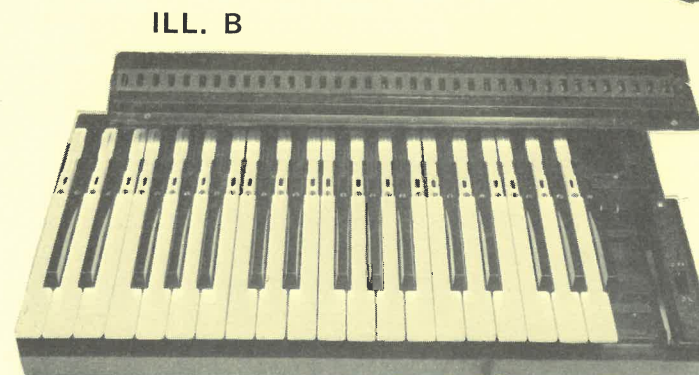
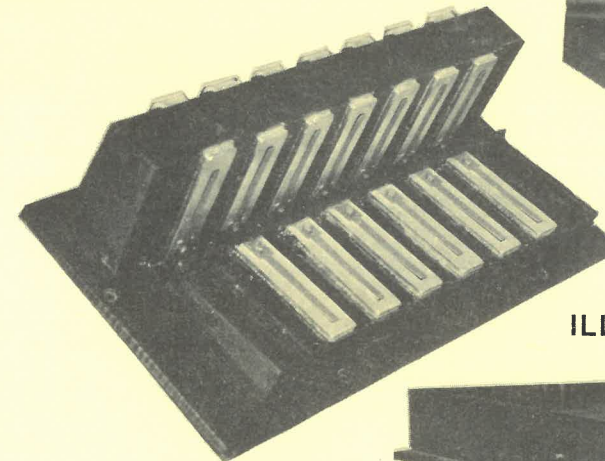
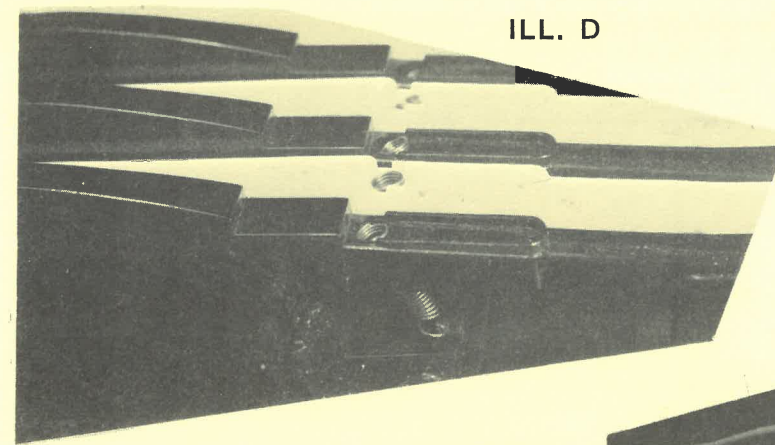
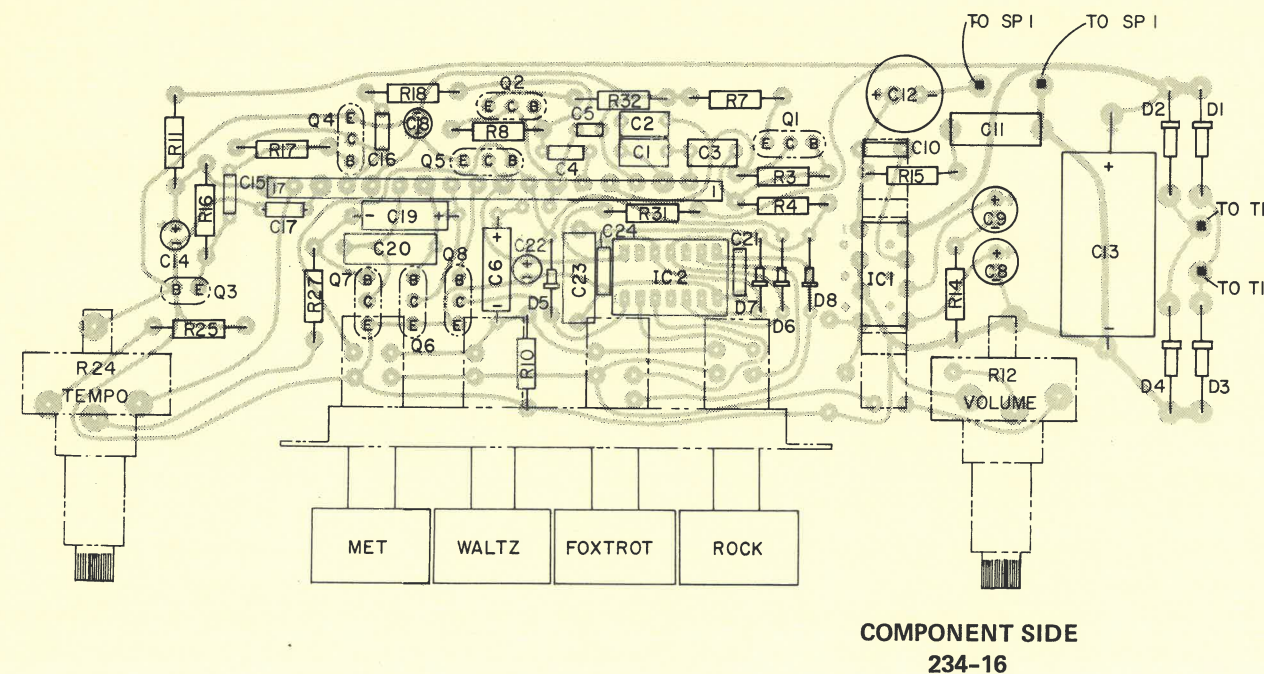
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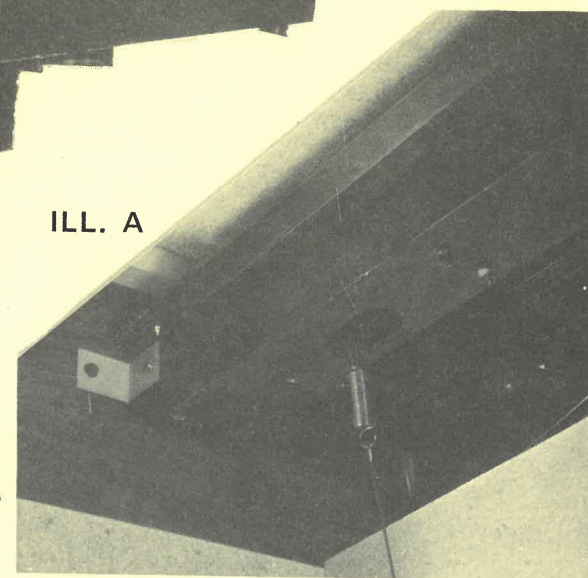
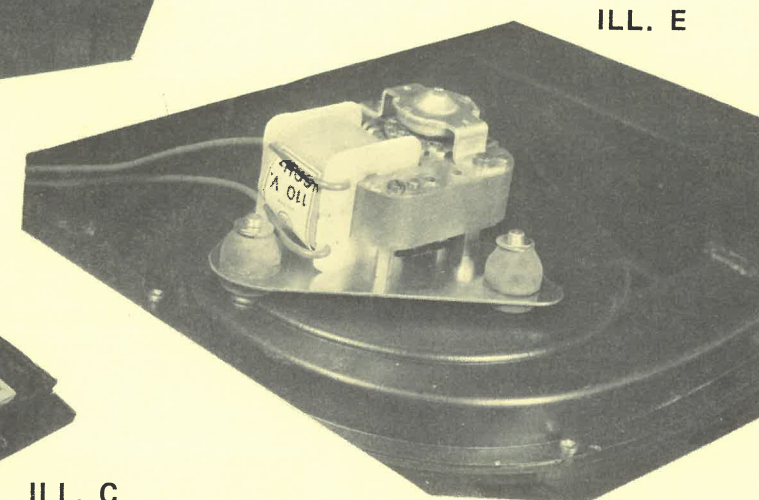
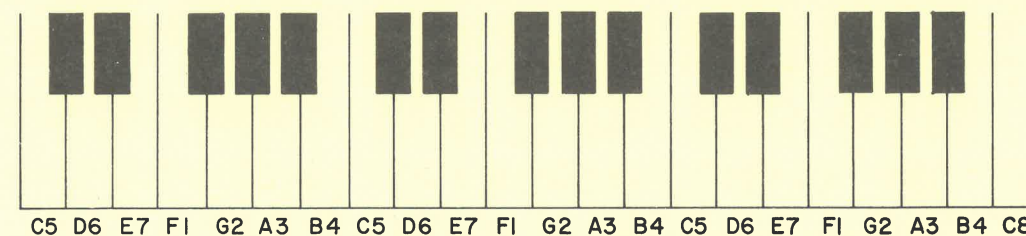
**MODEL NUMBER
257.47122200**



*VOLTAGE MEASURED UNDER PULSE CONDITIONS.
NEEDLE OF V.O.M. WILL SWING BACK AND FORTH AROUND GIVEN VOLTAGE.



KEY PARTS ILLUSTRATION



1. RHYTHM
The rhythm time circuit, transistors tempo or speed is collector of transi-
sures the pulse wi-
IC2 is a flip-flop c-
the use of decodi-
ed outputs of the
lator and noise ger

The bass drum osc-
lator. It is allowe-
D7 and D8 are pos-
ground (forward b-
ing the drum from

Likewise, the dioc-
to operate only w-
are at ground the 1-
erator, Q3 is an NP-
reversed biased to
snare component
turned on from a p-
charges when noi-
white noise to be
C17 and amplified

The bass drum ou-
by Q2; the output
es, so rhythm swi-
present at the outp-

The metronome sv-
off so only the ba-
logic is set to divid

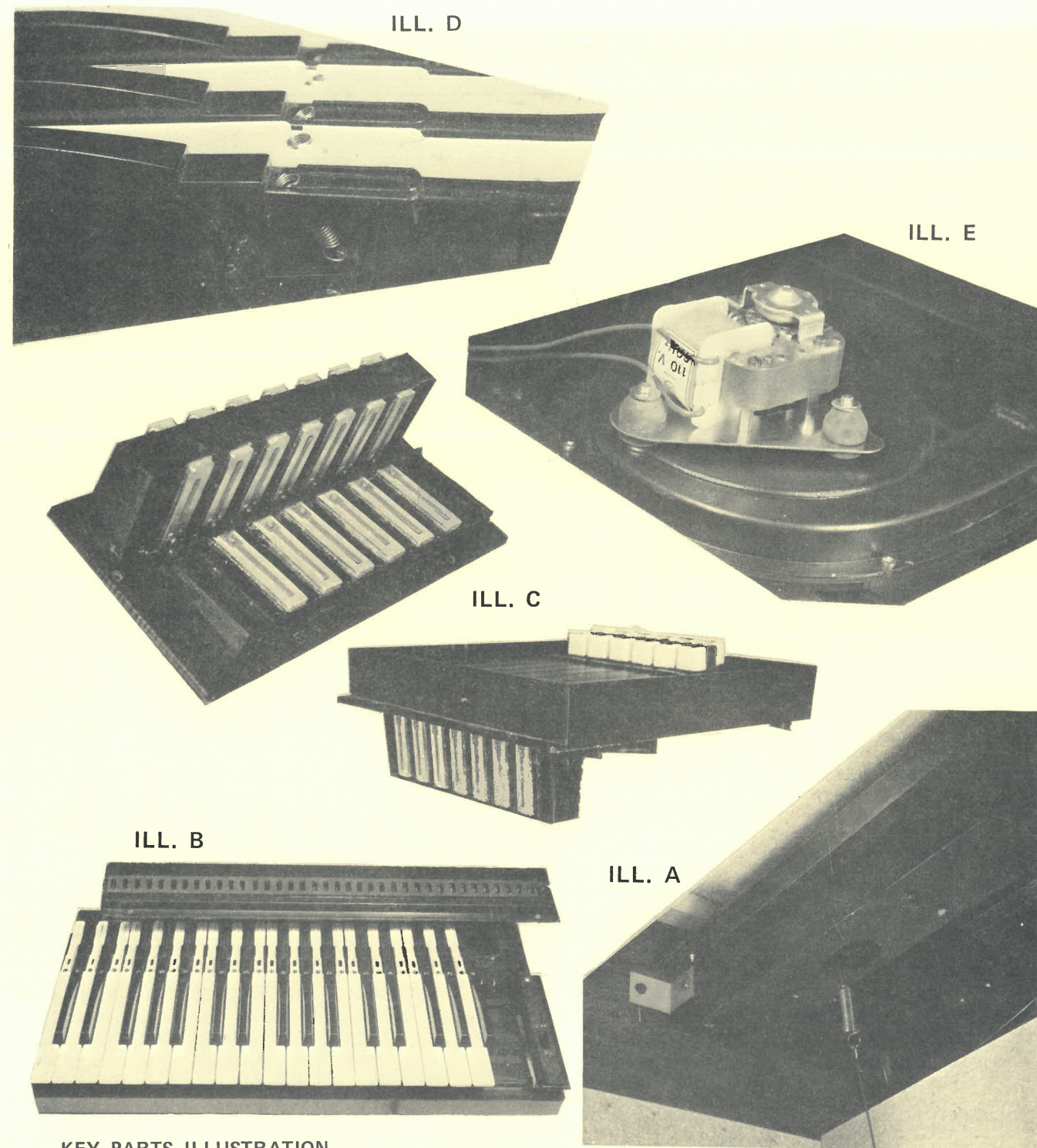
For the foxtrot, th-
the logic is set to c

2. AUDIO OUTPUT
IC1 is a monolith
and drives a 16 of
put of IC1 or the c

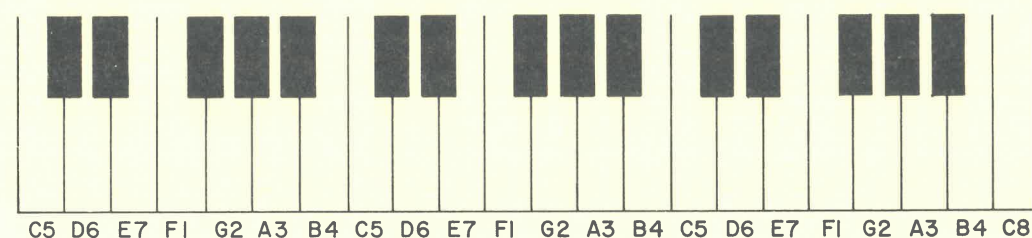
TRO

Problem

No Snare, Just
No Drum, Just
No Rhythm Lo
No Rhythm Au
Clock Operates,
No Rhythm
No Audio



KEY PARTS ILLUSTRATION



KEYBOARD CHART

CIRCUIT OPERATION

1. RHYTHM

The rhythm time points are generated by a multivibrator circuit, transistors Q6 and Q7, and associated circuitry. The tempo or speed is adjusted by control R24. The pulse at the collector of transistor Q7 is shaped by transistor Q8. This insures the pulse will reliably operate the logic generator IC2. IC2 is a flip-flop circuit. It will divide by 2, 3, or 4, through the use of decoding diodes D2, D3, D4 and D5. The decoded outputs of these diodes are what operate the drum oscillator and noise generator.

The bass drum oscillator is a standard phase shift type oscillator. It is allowed to oscillate only when the cathodes of D7 and D8 are positive. (Reversed biased). When they are at ground (forward biased), they bias off transistor Q1, keeping the drum from sounding.

Likewise, the diodes D5 and D6 allow noise gate driver Q5 to operate only when the cathodes are positive. (When they are at ground the transistor Q5 is turned off). The noise generator, Q3 is an NPN transistor with the emitter-base junction reversed biased to provide a source of white noise for the snare component of the rhythm. When transistor Q5 is turned on from a pulse from the logic circuit, capacitor C18 charges when noise gate Q5 is turned on. This allows the white noise to be amplified by Q4 and voiced by R19 and C17 and amplified by pre-amp Q2.

The bass drum output from Q1 collector is also amplified by Q2; the output of Q2 is connected to all rhythm switches, so rhythm switch must be depressed for the signal to be present at the output.

The metronome switch keeps the noise gate drive Q5 turned off so only the bass drum will sound. For metronome, the logic is set to divide by 3; this is also used on the waltz.

For the foxtrot, the logic is set to divide by 2, and for rock, the logic is set to divide by 4.

2. AUDIO OUTPUT

IC1 is a monolithic integrated circuit with 4 watts output and drives a 16 ohm speaker. Do not short circuit the output of IC1 or the device will be damaged.

TROUBLE SHOOTING HINTS

Problem	Possible Cause
No Snare, Just a Click	Q2
No Drum, Just a Click	Q1 or C1, 2, 3 or 4
No Rhythm Logic	Q6, 7 or 8
No Rhythm Audio	Q2
Clock Operates, but No Rhythm Pattern	IC2
No Audio	IC1 - Q2

SERVICE INFORMATION

LID:

Loosen all of the screws around the back enough to lift the back up and off. Remove screws in blocks under lid and swing lid up and back.

P.C. BOARD

Take off knobs, remove nuts and washers from controls.

KEYBOARD:

Remove spring from foot pedal linkage on underside of keyboard. Remove screws from keyboard into cabinet. SEE ILLUSTRATION A.

REED BLOCK:

Remove two (2) screws securing sound chamber cover to chassis. Remove screws securing reed block to chassis. SEE ILLUSTRATION B. There is a sealant between the reed block and the chassis. A thin knife, or other such object, slid between the parts will break the seal. Carefully lift up the rear edge of the reed block and slide the reed block assembly to the rear. When replacing, use a thin application of "Elmer's Glue" or equivalent around the perimeter of the reed block to act as a sealant. Depress all keys and slip the reed block under the keys. Replace screws.

NOTE:

An obstructed reed can be cleared by using a tool such as a soldering aid. Flip the reed to loosen any foreign matter.

A reed that chatters can be adjusted by sliding a thin knife blade thru the reed opening on either side of the reed until it is aligned. Flip the reed to see that it clears the opening freely.

AIR VALVE:

To replace the complete assembly, which is located inside the sound chamber, remove the reed block.

CHEEKBLOCKS:

The cheekblocks are held in place (right hand - one screw; left hand - two screws) at rear and locking tab at front. Remove screw(s), lift rear of cheekblock and slide forward.

CHORD MECHANISM:

Remove four (4) screws, two at rear and two at sides. Lift rear of unit up approximately 1/2" and pull unit to rear. (The front of chord mechanism locks into chassis box.) The chord mechanism also has a sealant which may have to be pried slightly with a thin knife.

CHORD REED BLOCK:

Remove chord mechanism from keyboard keeping chord button cover on. Remove reed block from underside (reed block also has a glue sealant). SEE ILLUSTRATION C.

NOTE:

Do not remove chord reed block when chord button cover (cheekblock) is off.

KEY REPLACEMENT:

To remove keys unhook spring (SEE ILLUSTRATION D) using tool provided, thru slot in rear of keys. To remove black keys, first remove white keys on either side.