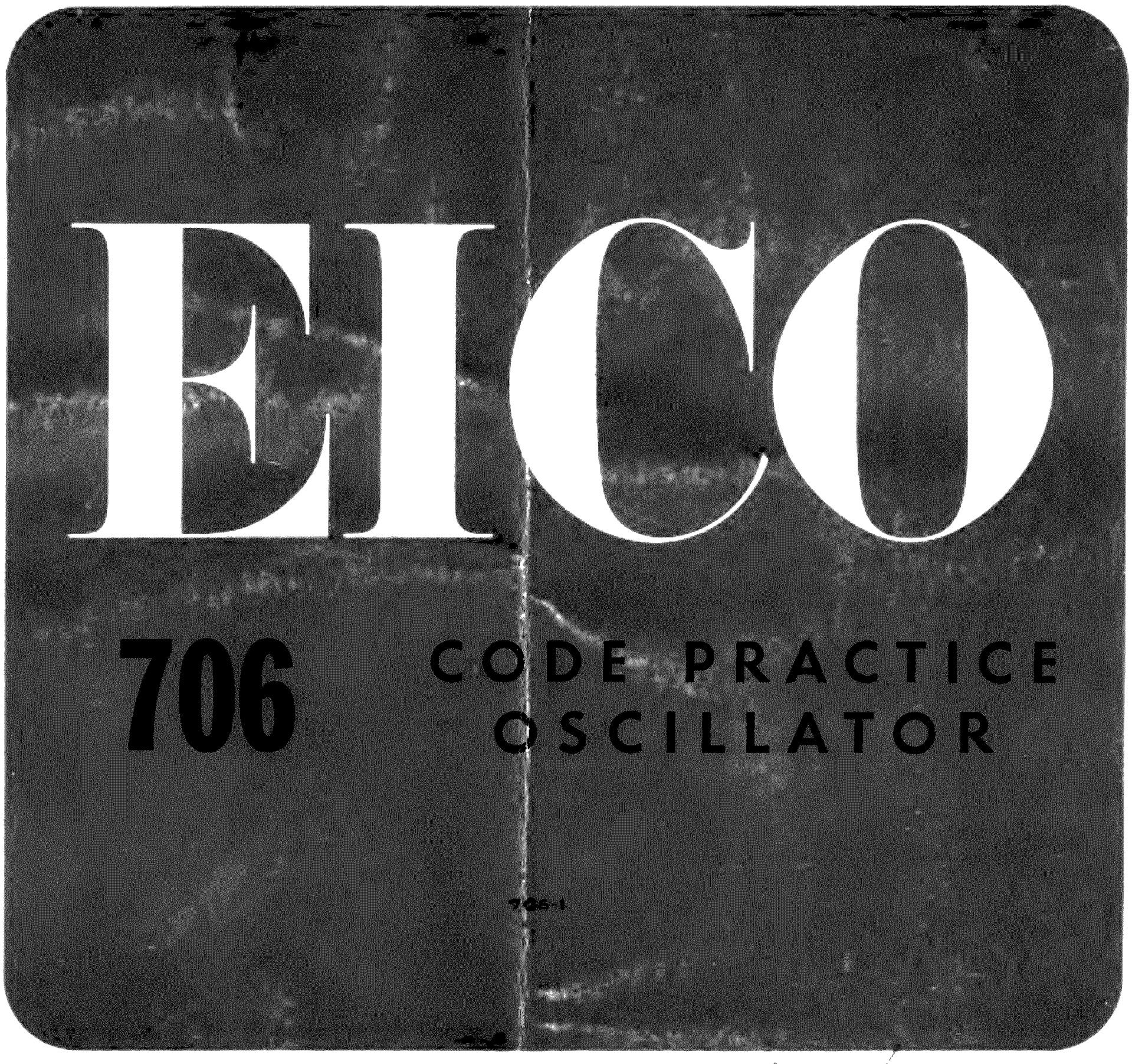
INSTRUCTION MANUAL



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FINISHED

EICO

131-01 39th Ave., Flushing, N. Y. 11352

MODEL 706

CODE PRACTICE OSCILLATOR

general description

The Model 706 Code Practice Oscillator is a valuable aid in the study and practice of Morse code, so important to novice radio amateurs, Boy Scouts, and others interested in radio communication. As a kit, there is additional value in the skill and knowledge developed in the construction, and it offers the novice a chance to become acquainted with transistor circuitry.

The Model 706 is basically a battery-operated transistor audio oscillator, tunable over the range from 500 to 2000 cycles by the pitch control on the panel. An efficient loudspeaker is built in. If desired, a headset may be plugged into the phone jack on the panel, which automatically cuts out the loudspeaker.

A convenient flashing light on the panel can also be used for signaling after dark, when the flashing light can be seen for great distances. A panel switch selects tone alone, light alone, or both tone and light.

External key terminals are provided on the front panel. A formed metal spring and a #6 solder lug are included to serve as a temporary key if a real key is not immediately available.

The Model 706 surpasses other units in offering a pitch control, a phone jack, an outstandingly efficient 3" speaker, and a life-time deep-etched satin aluminum panel. Furthermore, its ruggedness and simplicity assure many years of trouble-free service.

specifications

Tone Frequency Range: Approx. 500 to 2000 cps. continuously variable.

Controls: Pitch, Tone and/or Light.

Current Drain (Tone): 40ma at 3VDC

Current Drain (Light): 300ma at 3VDC

Current Drain (Tone and Light): 340ma at 3VDC

Terminals: Key, Phones

Case: High-impact bakelite

Panel: Satin Finish, deep-etched aluminum

Size: 6 1/2" high, 3 3/4" wide, 2 3/4" deep

Shipping Weight: 2 lbs.

circuit description

The transistor Q1 is a PNP used in the common emitter configuration. The oscillator is basically a Hartley type with the tank circuit comprised of C2 and T1. The tone frequency is controlled by the RC time constant of coupling capacitor C1 and the series combination of resistor R1 and rheostat R2. The tapping of the T1 primary is for the purpose of providing feedback to start and sustain oscillation. T1 is also the output transformer matching the high output impedance of the transistor to the low impedance of the speaker voice coil. The switch S1 applies battery power to either the oscillator circuit alone, the lamp alone, or both together. The only power required is supplied by two size "C" batteries providing 3 volts.

APPLICATIONS

USE AS A KEYING MONITOR

Some people will find use for the Code Practice Oscillator as a keying monitor, since they find it difficult to send code legibly without some way of hearing it. A double pole, single throw keying relay (Advance GHA/2C/6VA or equivalent) is required for this application and the hook-up is shown in Figure 1 above.

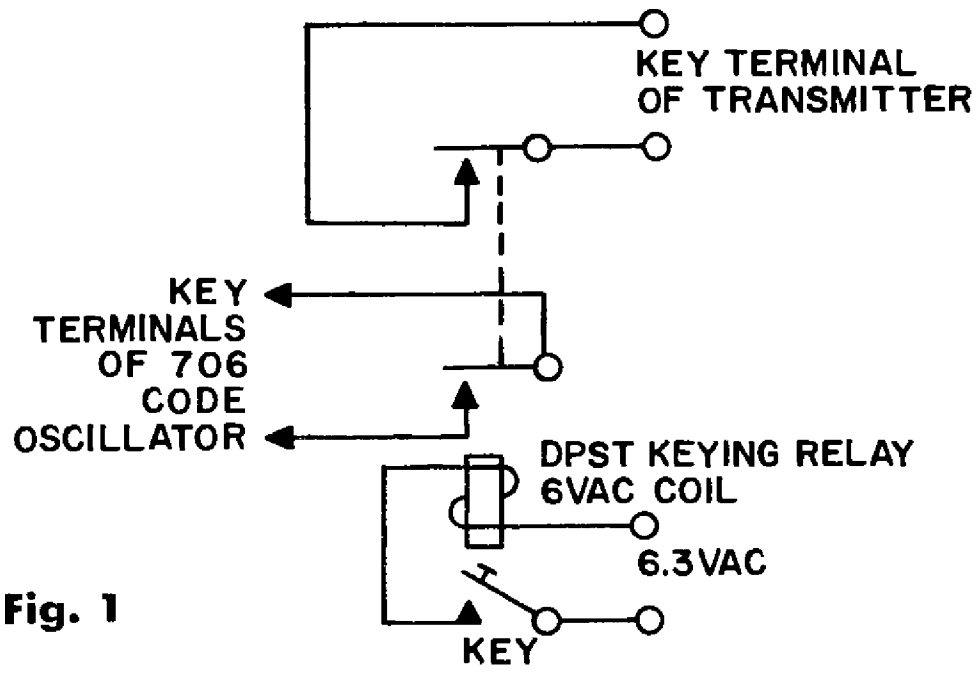


Fig. 1

KEYING TECHNIQUE

A proper "straight" key of the conventional type is essential to the study of keying, as otherwise your technique will not develop properly. Such a key is depicted in Fig. 2 below. The contact spacing should be adjusted to about one-eightieth of an inch (about the thickness of a calling card).

The surface on which the key is placed must be large enough for you to get your forearm and elbow on it in a relaxed position in front of the key. If the key is not weighted, it will have to be fastened to the working surface to prevent it from "traveling" as you operate it.

Before sending, your hand and arm should form a gentle arch with the wrist at the highest point and your thumb, forefinger and index finger resting lightly on the knob. Sending is accomplished by downward wrist action transferred to the hand, which is opposed by the spring tension of the key. The spring tension should be set for free and effortless operation.

MORSE CODE

Morse Code is a sound code. The code characters are read phonetically — "dit" for a dot, "dah" for a dash. A dot-dash sequence (the letter A) is read "didah", dropping the "t" because it is phonetically unnecessary. Characters should be studied a few at a time in the "didah" language until the sound of each is instantly recognized. If you find that you are weak on certain characters, study these additionally until you recognize them with as little trouble as the others. If possible, have a person with good technique "send" to you with the code practice oscillator to help you build up facility. The time between letters can be longer at the beginning and shortened bit by bit as you gain facility at recognizing the sound for each letter.

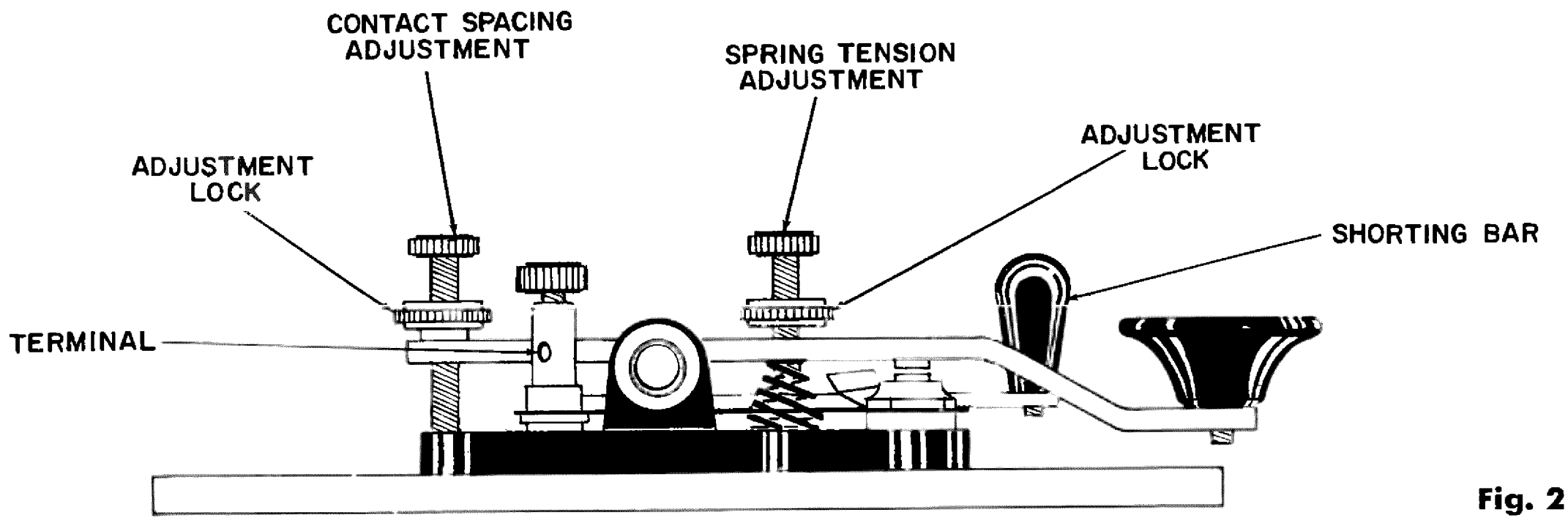


Fig. 2

THE INTERNATIONAL MORSE CODE

A	didah	P	didahdahdit	5	dididididit
B	dahdididit	Q	dahdahdidah	6	dahdidididit
C	dahdidahdit	R	didahdit	7	dahdahdididit
D	dahdidit	S	dididit	8	dahdahdahdidit
E	dit	T	dah	9	dahdahdahdahdit
F	dididahdit	U	dididah	Ø	dahdahdahdahdah*
G	dahdahdit	V	dididididah	Period	didahdidahdidah
H	didididit	W	didahdah	Comma	dahdahdididahdah
I	didit	X	dahdididah	Question Mark	dididahdahdidit
J	didahdahdah	Y	dahdidahdah	Error	dididididididididit
K	dahdidah	Z	dahdahdidit	Double dash (BT)	dahdidididah
L	didahdidit	1	didahdahdahdah	Wait (AS)	didahdididit
M	dahdah	2	dididahdahdah	End of message	didahdidahdit
N	dahdit	3	didididahdah	Invitation to transmit	dahdidah
O	dahdahdah	4	dididididah	End of work (SK)	didididahdidah

* The numeral zero is usually written Ø to distinguish it from the capital O.

maintenance

There should be little in the way of maintenance required, except for normal replacement of the batteries. Weak batteries will be indicated by a dimming of the panel lamp and weak or no tone. The batteries used are standard "C" cells available everywhere. In case of breakage or burn-out of the lamp, replace it with a #14 (2.5 volts at 0.3 ampere). Do not leave dead batteries in the unit as they often will leak a corrosive acid damaging to the components.

TROUBLE SHOOTING CHART

Defect: No Tone, bulb lights.

Check:
1. Polarity of batteries.
2. Wiring on slide switch S1.
3. Open speaker on transformer.
4. Phone jack open.
5. Open resistor R1.

Defect: No light.

Check:
1. Bulb
2. Wiring on slide switch S1.

Defect: No variable pitch.

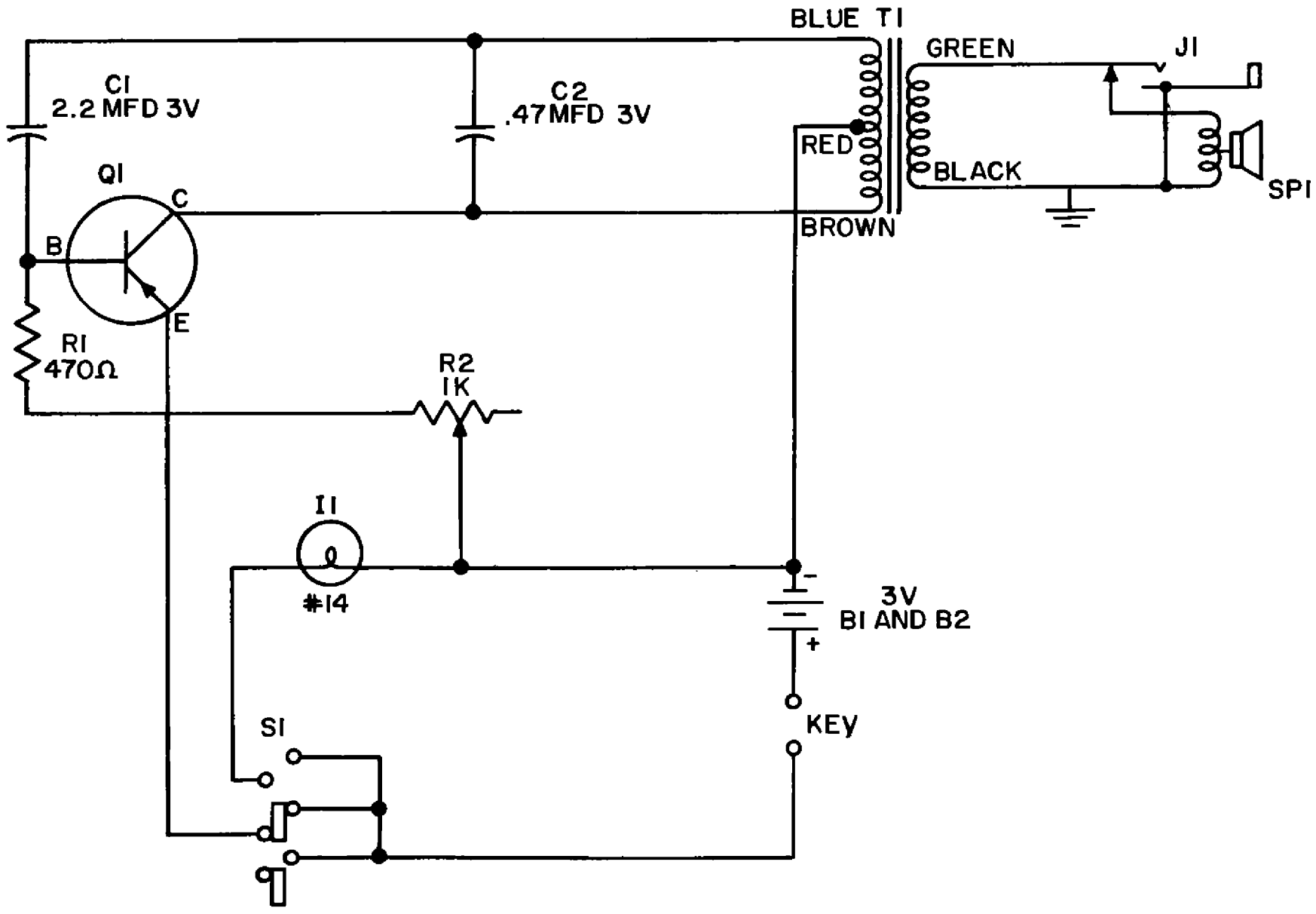
Check: 1. Wiring on potentiometer R2.

Defect: No tone in light-tone position.

Check:
1. Correct position of slide switch S1 on panel.
2. Wiring on slide switch S1.

SERVICE

If trouble develops in your instrument which you can not remedy yourself, write to our service department listing all possible indications that might be helpful. Note number appearing in red under the word "Manual" on the front cover. If there is no number, state this. If desired, you may return the instrument to our factory where it will be placed in operating condition for $2.00 plus the cost of parts replaced due to their being damaged in the course of construction. NOTE: Before returning this unit, be sure all parts are securely mounted. Attach a tag to the instrument, giving your home address and the trouble with the unit. Pack very carefully in a rugged container, using sufficient packing material (cotton, shredded newspaper, or excelsior), to make the unit completely immovable within the container. The original shipping carton is satisfactory, providing the original inserts are used or sufficient packing material is inserted to keep the instrument immovable. Ship by prepaid Railway Express, if possible, to Electronic Instrument Co., Inc., 33-00 Northern Blvd., L.I.C. 1, N.Y. Return shipment will be made by express collect. Note that a carrier cannot be held liable for damages in transit if packing IN HIS OPINION, is insufficient.



EICO MODEL 706 CODE PRACTICE OSCILLATOR

REPLACEMENT PARTS LIST

Stock#	Sym.	Description	Am't.
56003	B1, 2	battery, 1.5V, Size "C"	2
56516	BR1	bracket, battery, double size "C"	1
22565	C1	cap., disc, 2.2mfd, 3V	1
22566	C2	cap., disc, .47mfd, 3V	1
92011	I1	bulb, #14	1
50022	J1	jack, closed circuit	1
94006	Q1	transistor	1
10429	R1	res., 470Ω, 1/2W, 10%	1
16001	R2	pot., 1K	1
62003	S1	switch, DPTT	1
55013	SP1	speaker, P.M. 3"	1
32022	T1	transformer, output	1
54018	TB1	terminal strip, 4 post, w/gnd.	1
54513	TB2	terminal board, 2 post	1
54001	TB3	terminal strip, 1 post right	1
97704	XI1	socket, bulb	1
97043	XQ1	socket, transistor	1
40000		nut, hex, 6-32	5
40001		nut, hex, 3/8	2
40007		nut, hex, 4-40	8
41000		screw, 6-32 x 1/4	5
41014		screw, 6-32 x 3/8	4
41016		screw, 4-40 x 1/4	6
41074		screw, #2 self tapping	2
41082		screw, 4-40 x 1	2
42000		washer, 3/8 lock	2
42001		washer, 3/8 flat	2
42002		washer, #6 lock	4
42007		washer, #4 lock	8
43000		ground lug, #6	2
44010		standoff	2
46012		grommet, rubber, 3/8 I.D.	1
53002		knob	1
55303		grill speaker	1
58004		wire, hook-up	length
58300		spaghetti	length
80071		panel	1
81209		chassis	1
88068		cabinet	1
89633		key spring	1
66089		manual of instructions (wired)	1
66342		manual of instructions (kit)	1