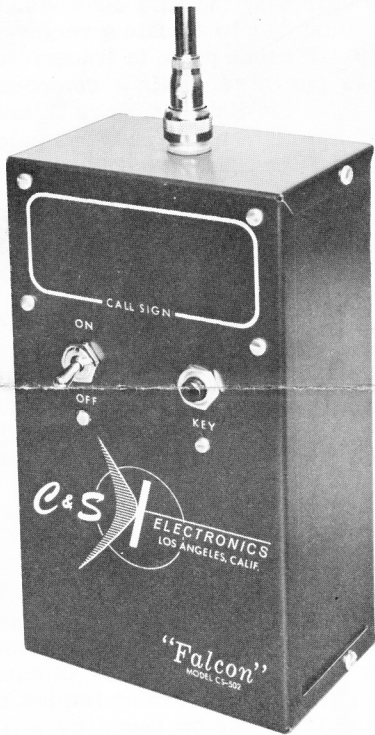


7377 BEVERLY BOULEVARD, LOS ANGELES 36, CALIFORNIA



Operating Instructions

for the "Falcon"

TONE TRANSMITTER

(MODEL CS-502)

DESCRIPTION

Your CS-502 Tone Transmitter is the most compact full power hand held single channel tone transmitter presently available. It is designed to operate with any existing tone receiver responding to modulation within the 400-1000 cycle tone range. Tone frequency is approximately 700 cycles, providing maximum performance with the CS-501 and CS-503 Receivers. Long range and extended battery life is obtained from standard full size batteries.

Transmitter circuitry is basically a crystal-controlled vacuum tube oscillator doubling into a power amplifier

section which feeds the antenna circuit. Output frequency from the transmitter is in the 27 mc "C" band, exact frequency being determined by the crystal employed. Doubler operation, together with the MOPA circuit, provides minimum drift with maximum output and frequency stability. Placing your hand on the antenna does not affect frequency but merely reduces transmitter output by absorption. The CS-502 Transmitter meets all FCC "C" band requirements.

A single transistor Hartley oscillator is used to supply the sine wave audio tone (700 cps) for grid modulation of the output stage. Due to the LC circuit employed, tone frequency is stable regardless of battery voltage.

SPECIFICATIONS

Operating Voltages	"A" - 1-1/2 volts
	"B" - 135 volts
Power Amplifier Input Power	1.2 watts
Audio Modulation	700 cps nominal
Modulation Percentage	90-95%
Tuning Range	26.995 to 27.255 mc
Frequency Tolerance005%
Operating Temperature Range	0°F to +130°F
Dimensions	2-7/8 inches deep
	4-3/8 inches wide
	7-1/2 inches high
Standard Antenna Length	
Retracted	21 inches
Extended	57 inches
Special Antenna Length	
Retracted	12 inches
Extended	54 inches

PREPARATION FOR USE

Remove the four self-tapping screws holding the rear case cover, and slide the cover off. Connect the battery leads to the batteries, and install the two "B" batteries and the "A" battery as shown in the photograph.

Use a piece of corrugated cardboard below the batteries to allow retaining screw clearance. After batteries are installed, place a multi-layer piece of cardboard above the "A" battery to prevent up and down motion.

Using a voltmeter (250V scale), check the "B" voltage (from switch to ground) with transmitter switch on. This should read 130-140 volts with new batteries. Depress the KEY and observe that the battery voltage does not drop significantly.

Check the voltage of the 1-1/2 volt "A" battery, then turn transmitter OFF.

NOTE

Replace "A" battery when voltage drops to 1 volt, "B" batteries when voltage reaches 100 volts. Loss of range is caused by weak batteries.

Replace the rear cover and retaining screws. Install antenna, and your transmitter is ready for use.

NOTE

Batteries are not supplied with the CS-502 Transmitter. Use the following battery types.

QTY REQUIRED	USE	MFG	PART NO.
1	"A" (1-1/2V)	Eveready	720
		Burgess	2D
		RCA	VS069
2	"B" (67-1/2V)	Eveready	467
		Burgess	XX45
		RCA	VS016

OPERATION

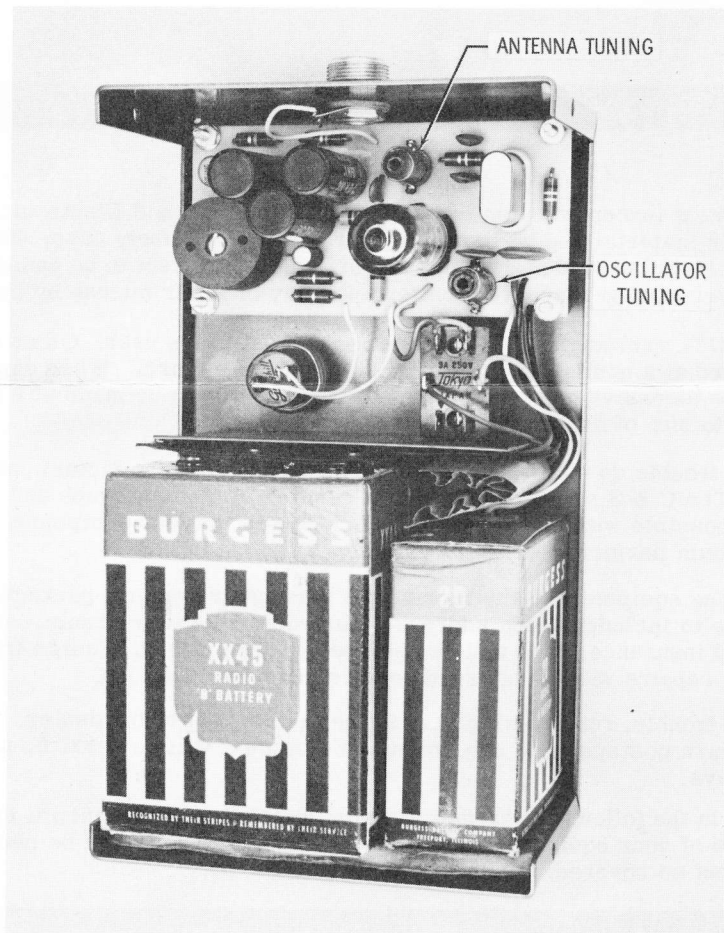
Turning the transmitter switch "ON" applies voltage to the circuit and causes the continuous carrier wave to be emitted. Depressing the KEY causes audio tone modulation of the carrier to actuate a receiver tuned to this frequency. One tone pulse is transmitted each time the KEY is operated. With a compound type escapement, such as the Babcock Mark II, one pulse and hold provides a right command, two pulses and hold a left command, three pulses and hold an up elevator command. A quick blip can be used to provide engine control through a relay receiver and engine escapement hook-up. Except for long range control, the transmitter may be operated without extending the antenna.

NOTE

It is illegal to operate this transmitter without a Citizen's Band license. Form 505 for securing this license is available from your dealer or the nearest Federal Communications Commission office.

TUNING

Unless otherwise specified, your transmitter is supplied with a crystal for 26.995 mc. The equipment is factory tuned for the crystal supplied and should require no further tuning except in event of equipment failure or damage. Since FCC Regulations require that equipment of this type be tuned by a licensed Commercial Operator, no tuning instructions are included herein. However, the following photograph shows the location of tuning points for information purposes. The photograph also shows the arrangement of batteries within the case. A standard plastic hex tuning wand obtainable at any radio supply house (General Cement #8282-7 or Walsco #2543) is required for tuning. Use of a field strength meter should be made by any Commercial Operator doing the tuning.





WARRANTY

This equipment (except vacuum tubes) is warranted by C & S Electronics to be free of defects in material and workmanship for a period of ninety days. However, this guarantee is void should the manufacturer judge the defect to be caused by abuse, crashes, over-voltage, incorrect battery polarity or other misuse by the customer.

Repairs within warranty will be provided at no cost to the user. Other repairs will be performed at a nominal charge of \$3.00 plus cost of parts. When damage occurs which is too extensive for repairs, unit replacement will be made at a cost to user equivalent to 65% of original retail price of equipment.

In event of trouble do not hesitate to return equipment to the factory for service or checkup. The C & S service policy is to perform minor checkups and adjustments whenever possible without charge; in short, to see that our equipment continues to give maximum performance.

When sending equipment to the factory for service or repairs, package it carefully and be sure to include return address. For equipment in warranty, include return postage and insurance, or it will be returned postage C.O.D. Equipment sent to the factory for repairs will be returned repairs and postage C.O.D.

In event of trouble, return unit direct to the factory, not to the dealer. Include sufficient return postage with equipment. Equipment will be serviced and returned within 3 days.

Please fill in the following warranty form within 10 days and return it to the factory as a record of your equipment purchase. Warranty service will be performed only on equipment so covered.

Litho in U. S. A.

Cut along dotted line and mail warranty to C & S Electronics