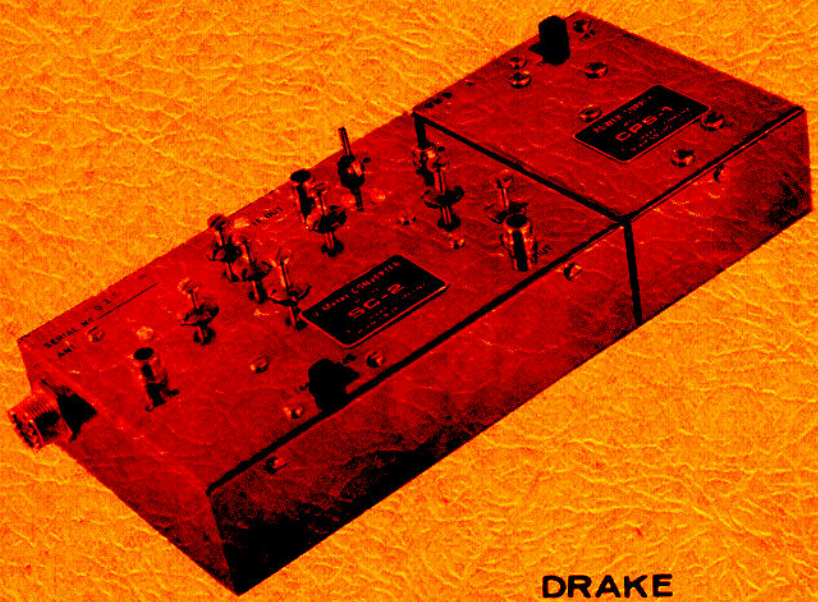
INSTRUCTION MANUAL



DRAKE

MODEL

SC-2

2 Meter Converter

Price of manual $2.00

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DRAKE MODEL SC-2 CONVERTER

Specifications

Frequency Range	144-148 MHz
I. F. Range	14-18 MHz
Power	18 Volts D.C. at 40 milliamperes
Input Impedance	50 ohms
Output Impedance	50 ohms
Image Rejection	70 dB at 115.5 MHz
I. F. Rejection	80 dB at 14 MHz
Gain	15 dB
Noise Figure	2.5 dB
Frequency Tolerance	.003 %

Semiconductor Complement

one TIS34	R.F. amplifier
one TIS34	Mixer
one 2N3394	Oscillator
one 2N3663	Frequency Tripler
one 1N714	Zener regulator
one 1N483	Reverse Polarity Protection

Circuit Description

The SC-2 converter consists of an unilaterialized grounded source FET radio frequency amplifier (Q2), a grounded source FET mixer (Q4), a series resonant 43 MHz crystal-controlled oscillator (Q1), and a frequency tripler (Q3).

The signal from the antenna is matched into the gate of Q2 via a tuned circuit comprised of L1 and the input capacitance of Q2. A portion of the drain signal of Q2 is fed back to its gate through C4. C9 is used to adjust the magnitude of the feedback. The bulk of the drain signal of Q2 passes through a band-pass network to the gate of mixer Q4. The local oscillator signal is inductively coupled to the gate of Q4 through L5 and L6.

The difference frequency (14 to 18 MHz) appearing at the drain terminal of Q4 is matched to the 50 ohm output by the band-pass network formed by L8, C26, C28, C29, and L9.

Injection

Approximately 200 millivolts of 130 MHz signal is available at the INJ. socket for use with the transmitting mixer. Connection of a load to the INJ. socket may necessitate realignment of L3, C22, and C18. (See page 4).

Calibration

A signal level of approximately 5 microvolts applied to the CAL. socket is adequate for calibration of the SC-2.

Operation

Connect your 2 meter antenna to the ANT. socket of the SC-2, connect your receiver antenna terminals to the IF OUT socket of the SC-2 with RG-58/U coaxial cable, and connect a source of 18 volts d.c. to the power plug of the SC-2. The cable between the SC-2 and the receiver should be kept as short as possible, and a short ground strap should connect the two chassis, in order to minimize 14 MHz interference.

Set the slide switch on the SC-2 to 144. You can now receive 144 MHz signals with your receiver tuned to 14 MHz. Changing the slide switch to 145 position selects an alternate local oscillator crystal, and allows reception of 145 MHz signals with the receiver tuned to 14 MHz.

Alignment

Alignment of the SC-2 converter requires precision equipment and a working knowledge of band-pass alignment procedures. The minimum equipment required for satisfactory alignment includes a sweep generator, a sensitive oscilloscope, a signal generator with a calibrated attenuator (such as the Hewlett-Packard 608D), a marker generator, a video detector, and 50 ohm attenuators to properly terminate the input and output circuits of the converter.

Any attempt at peaking the adjustments on a signal will result in the destruction of the

Alignment (cont'd.)

4 MHz bandpass characteristic.

The converter may be returned to the factory for alignment for a fixed charge of $5.00. The factory alignment procedure is available upon request.

Alignment of the local oscillator injection system (L3, C22, and C18) may be accomplished without affecting the band-pass alignment of the converter. These elements are adjusted so that the gain of the converter is the same with the slide switch in either the 144 or 145 position. (See Figure 1, page 6).

Accessories

Accessories available for use with the SC-2 include a matching power supply (Model CPS-1), a VHF calibrator (Model SCC-1), and a converter mounting console (Model CC-1). The CC-1 has provisions for mounting the CPS-1, the SCC-1, the SC-2, the SC-6 6 meter converter, and a spare position for an extra converter. These accessories are available from your dealer.

Using with R-4A and 2C

Table I, page 5, gives the combination of receiver crystals, IF tuning range, and 2 meter input frequencies for use with the Drake R-4A and 2C receivers.

2 METER BAND (MHz)

CONVERTER SWITCH		144.0		145.0		146.0		147.0	148.0
144	RECEIVER FREQUENCY (MHz)	14.0 14.5	14.5 - 15.0			16.0 - 16.5	16.5 - 17.0		
	R-4A CRYSTAL (MHz)	25.1*	25.6*			27.1	27.6		
145	RECEIVER FREQUENCY			14.0 - 14.5	14.5 - 15.0			16.0 - 16.5	16.5 - 17.0
	R-4A CRYSTAL (MHz)			25.1*	25.6**			27.1	27.6

NOTE: *The 25.1 MHz crystal, supplied with the R-4A Receiver, covers 144 - 144.5 MHz and 145 - 145.5 MHz.
**The 25.6 MHz crystal along with the 25.1 MHz crystal covers 144 to 146 MHz.
Auxiliary crystals 27.1 and 27.6 MHz, along with the 25.1 and 25.6 MHz crystals will cover entire 2 meter band.

FOR DRAKE MODEL R-4A RECEIVER

2 METER BAND (MHz)

CONVERTER SWITCH		144.0		145.0		146.0		147.0	148.0
144	RECEIVER FREQUENCY (MHz)	14.0 - 14.5	14.5 - 15.0			16.0 - 16.5	16.5 - 17.0		
	2-C CRYSTAL (MHz)	18.0*	18.5*			20.0	20.5		
145	RECEIVER FREQUENCY (MHz)			14.0 - 14.5	14.5 - 15.0			16.0 - 16.5	16.5 - 17.0
	2-C CRYSTAL (MHz)			18.0*	18.5**			20.0	20.5

NOTE: *The 18.0 MHz crystal, supplied with the 2-C Receiver, covers 144 - 144.5 MHz and 145 - 145.5 MHz.
**The 18.5 MHz crystal, along with the 18.0 MHz crystal covers 144 to 146 MHz.
Auxiliary crystals, 20.0 and 20.5 MHz, along with the 18.0 and 18.5 MHz crystals will cover entire 2 meter band.

FOR DRAKE MODEL 2-C RECEIVER

TABLE 1.

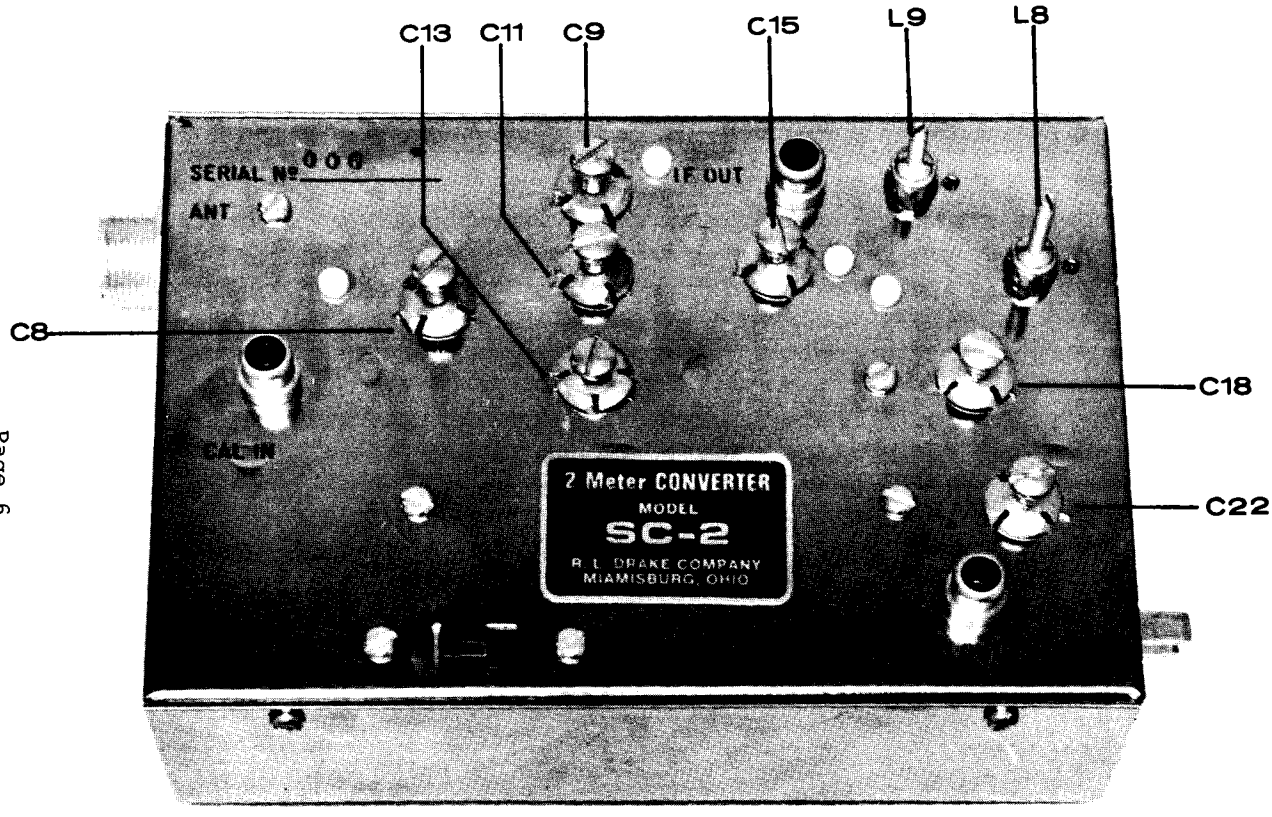
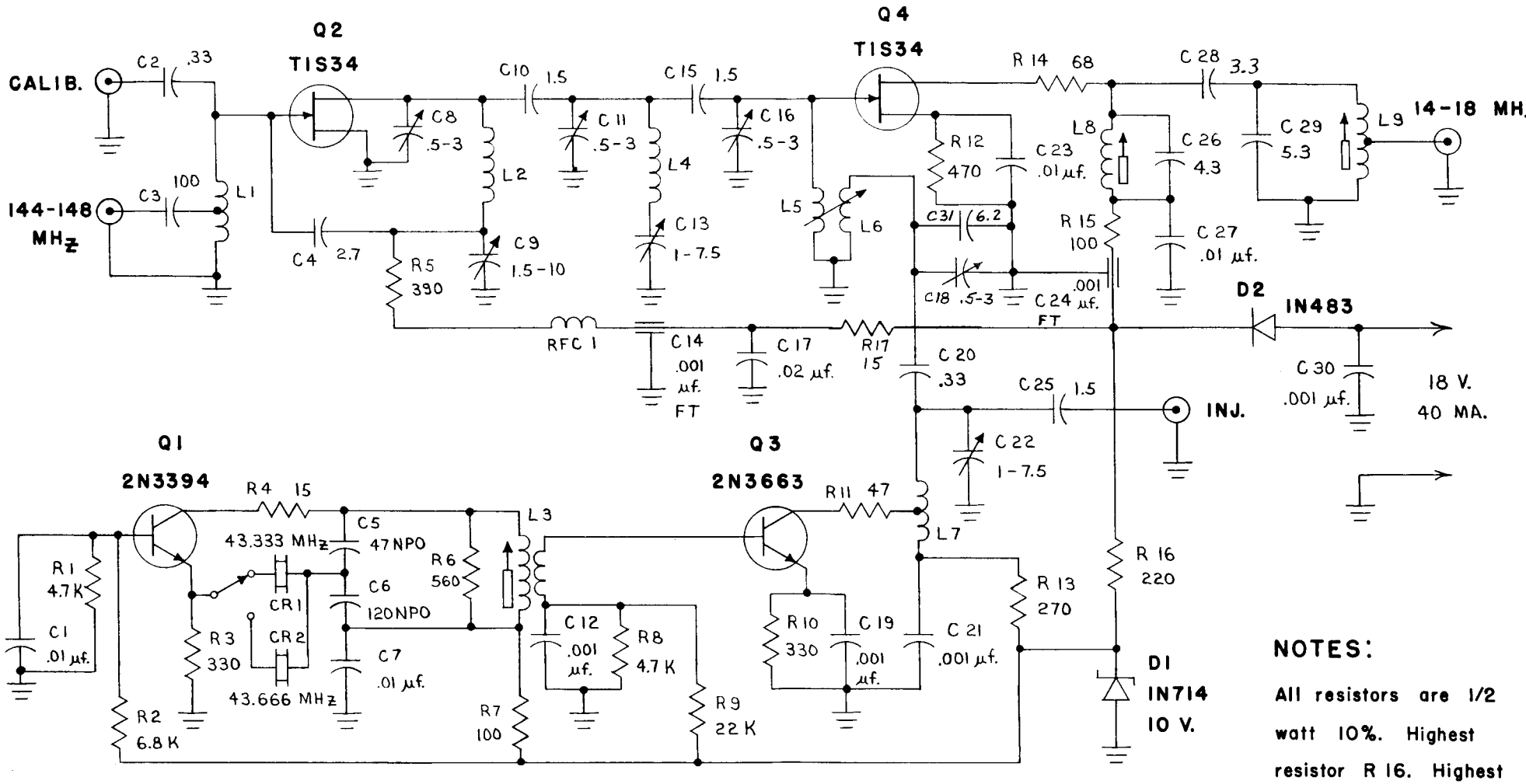


FIGURE 1 TUNING CONTROLS



SCHEMATIC DIAGRAM MODEL SC-2 CONVERTER

NOTES:

All resistors are 1/2 watt 10%. Highest resistor R 16. Highest capacitor C 30. All capacitors are in pf unless otherwise noted.

STANDARD WARRANTY

R. L. Drake Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use, and service discloses such defect, provided the unit is delivered by the owner to us or to our authorized radio dealer or wholesaler from whom purchased, intact, for our examination, with all transportation charges prepaid to our factory, within ninety days from the date of sale to original purchaser and provided that such examination discloses in our judgement that it is thus defective. Should a malfunction be suspected, write in detail to our Service Department for suggestions concerning the operation, repair or return of your unit if it should prove necessary.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside our factory, nor in cases where the serial number thereof has been removed, defaced or changed, nor to units used with accessories not manufactured or recommended by us.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products.

The R. L. Drake Company reserves the right to make any improvements to its products which it may deem desirable without obligating itself to install such improvements in its previously manufactured products.