

ARRL Handbook CD

Template File

Title: Crystal Filter Evaluation

Chapter: 12

Topic: Crystal-Filter Evaluation

Template contains:

Table of VCO coil construction data.

Close-up photos of construction details.

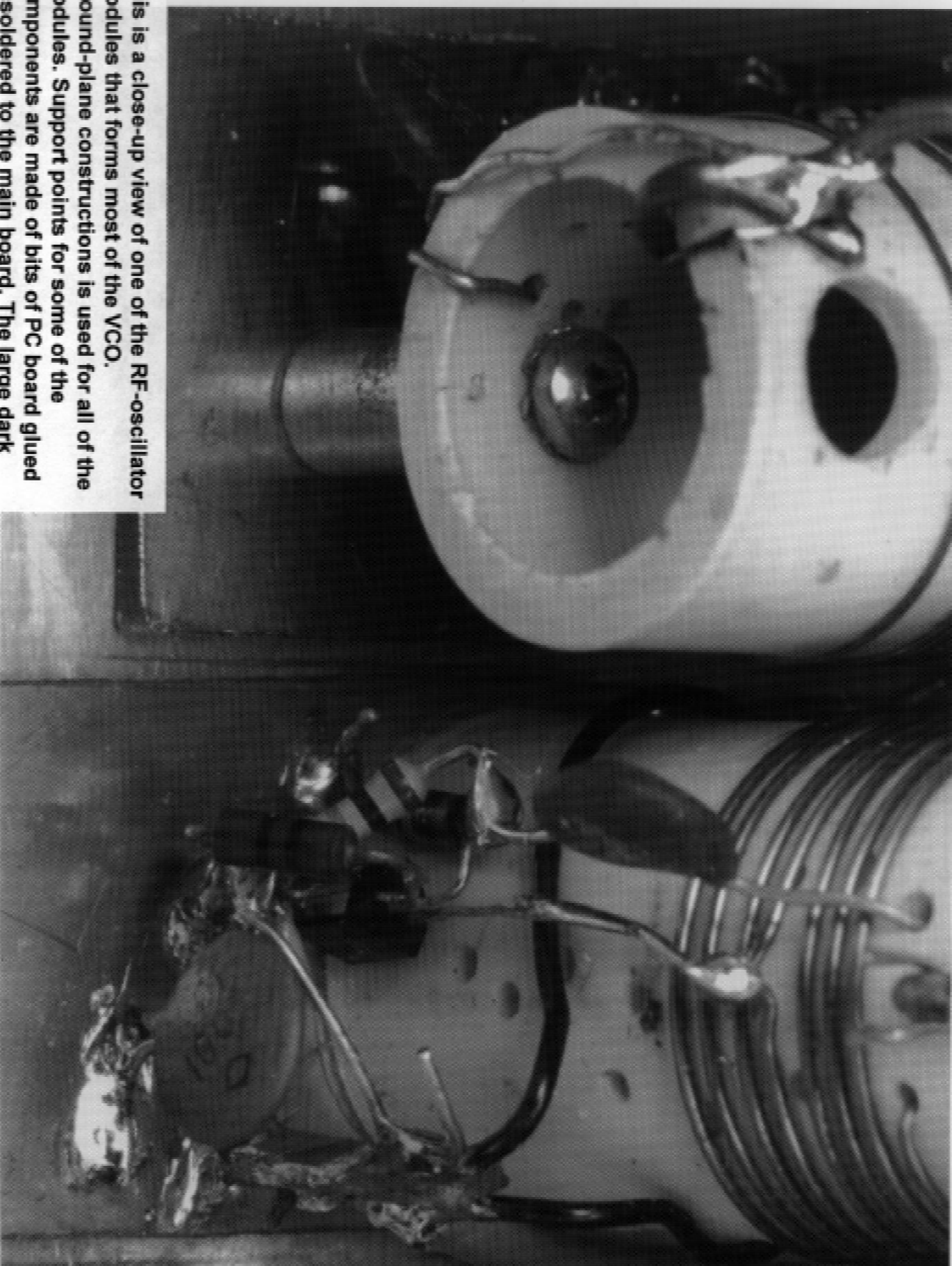
VCO Coils

| <i>Coil</i> | <i>Inside diameter (inches)</i> | <i>Length (inches)</i> | <i>Turns & wire</i> | <i>Inductance (μH)</i> |
|-------------|-------------------------------------|------------------------|-------------------------|--|
| Large | 0.85 | 1.1 | 18 t, # 28 | 5.32 |
| Medium | 0.85 | 0.55 | 7 t, # 22 | 1.35 |
| Small | 0.5 | 0.75 | 5 t, # 14 | 0.27 |

The two larger coils are wound on 3/4-inch PVC pipe and the smaller one on a 1/2-inch drill bit. Tuning coverage for each oscillator is obtained by squeezing or spreading the turns before gluing them in place. The output windings connected to A1, A2 and A3 are a single turn of #14 wire spaced off the end of the tapped coil.

This is a close-up view of one of the RF-oscillator modules that forms most of the VCO.

Ground-plane constructions is used for all of the modules. Support points for some of the components are made of bits of PC board glued or soldered to the main board. The large dark piece of enameled wire is the output link for the oscillator.



The deflection and sweep circuit layout follows the circuit diagram. Almost any style of construction is suitable for this circuit. Although not shown here, the wide-bandwidth amplifier and detector are in this same enclosure.



This compartment houses the VCO and buffer-amplifier circuits. It's a 4 X 2 1/8 X 1 5/8 aluminum box from Radio Shack. VCO modules are on the left. The coarse-tuning capacitor and varactor diode are in the upper right. Buffer amplifiers along with the band switch and decoupling network are at the lower right. The VCO output links are wired with miniature 50- Ω Teflon coaxial cable.

