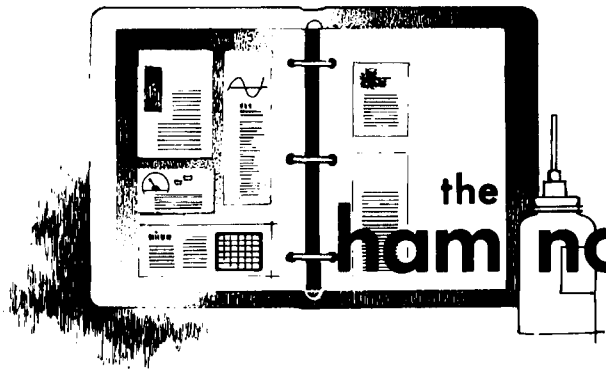

the ham notebook

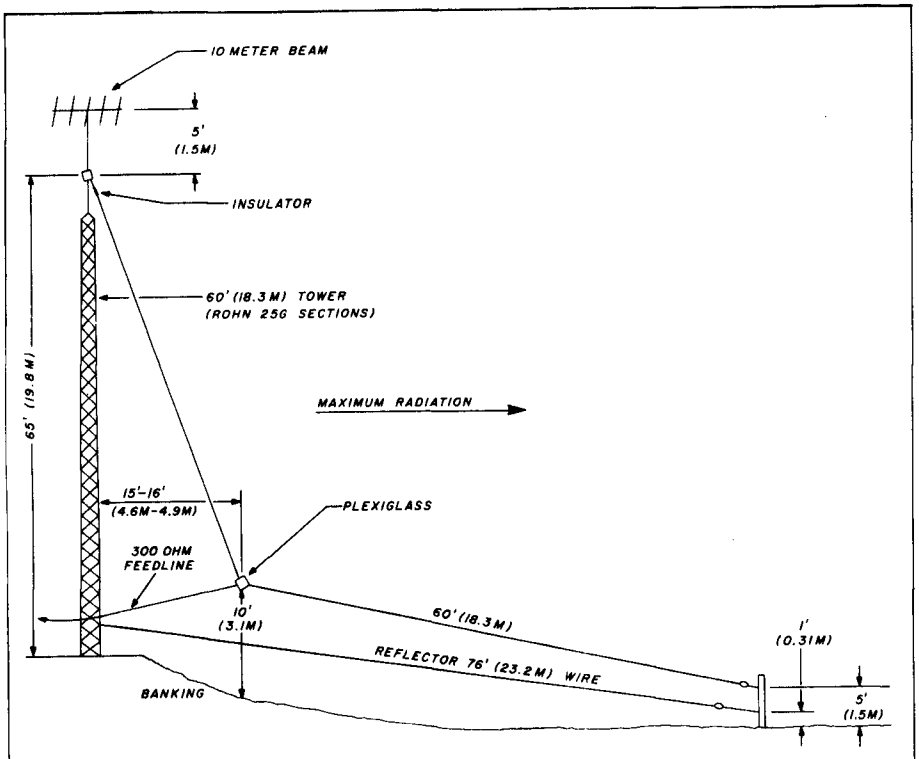

fig. 1. Two element 80 λ parasitic array produces low-angle radiation. (The tower is guyed with Dacron rope. If wire is used, insulate every 15 to 20 feet with egg strain insulators.)

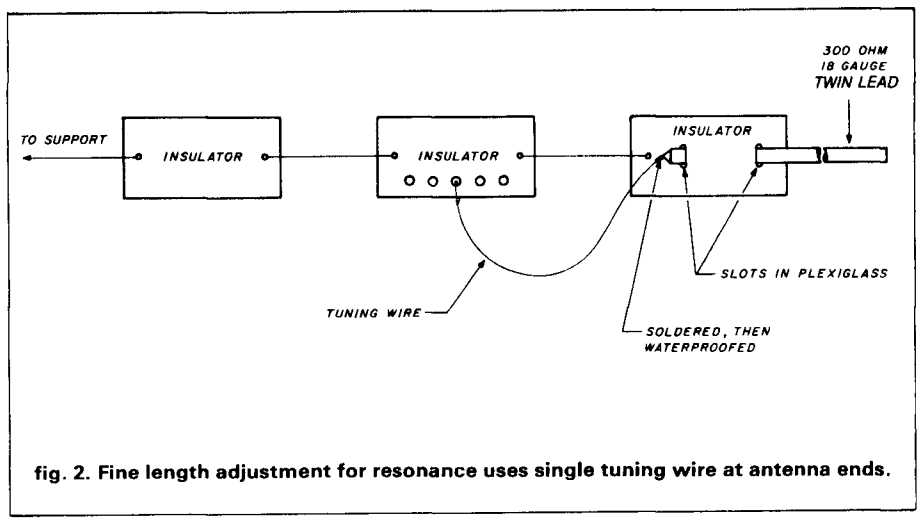

fig. 2. Fine length adjustment for resonance uses single tuning wire at antenna ends.

80-meter half-wave sloper uses reflector

This antenna was the result of a desire to work 80-meter DX running low power. Many excellent reports have been received, including long path to VK, ZL, and JA.

The antenna, basically a dog-legged, 1/2-wave sloper, uses a full-length reflector (**fig. 1**). The reflector is the tower plus enough wire hooked to the base and extended out under the sloper to give a full-length (1/2 plus 10 percent) reflector. The driven element is a folded dipole which can be fed with 300-ohm feedline or used 50-ohm line when a 4:1 balun is inserted (I used the 300-ohm feedline). Because the amount of doglegging affects the feed impedance, it should be adjusted for minimum SWR. (The closer the antenna is to the tower, the lower the impedance). I used 18 gauge 300-ohm ribbon for QRP; later, when I ran 800 watts, no heating was noted. 18 gauge can easily handle 2 amperes, or 1200 watts at 300 ohms; open wire 300-ohm line is a better choice if available. The dog-legging causes the pattern to "squint" in the direction of the dipole. I estimate the gain (over a dipole) to be 4 to 6 dB. The angle is low enough to produce good long path results. (The author has been able to consistently contact VK6LK-Robin almost throughout the entire year — **Ed.**)

Use very good end insulators for the driven element to prevent arc-over or leakage. Plexiglas (1/4-inch thick) works very well and is easy to obtain as scraps from manufacturers or others working with it. With the feedline connected to the physical center of the antenna, the portion of the dipole toward the tower may have to be shortened 6 to 15 inches in order to

maintain electrical symmetry. The end of the folded dipole is connected to a single wire to facilitate tuning (see **fig. 2**). Last but not least, use a rope and pulley to connect it to the top of your tower unless you really like to climb.

Bruce Clark, KO1F

Argonaut 509 conversion for 30 meters

As declining HF propagation renders the 10-meter band less of a dependable mainstay for the QRP operator, the new allocation at 10 MHz is coming into its own for this mode of activity. The operating restrictions imposed upon 30 meters actually help rather than hinder QRP operation.

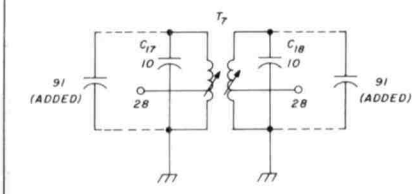

fig. 1. Modification of the Argonaut Model 509 transmitter section only requires adding two capacitors to the T7 tuned circuit on the 80262 board.

The Ten-Tec Argonaut 509 may easily be modified to cover 30 meters with the same performance found on its five bands. All that is required for the modification is five minutes of time, four components, and a jumper wire.

Ten-Tec uses a 9-MHz IF with appropriate VFO frequencies. On 10 meters, the VFO ranges from 19 to 21 MHz. If we use the difference mixer product, rather than the sum, as in the original design, output occurs on 10 MHz rather than 28 MHz. Since the 509's transmitter stages are broadband amplifiers, the only changes required for 10 MHz transmit are to re-resonate the appropriate bandpass filter, composed of T7 and capacitors C17 and C18 on the 80262 front-end board (see **fig. 1**). Shunt C17 and C18 each with an additional 91 pF of capacitance. Depending upon component tolerances, retweaking T7 cores may be necessary for adequate output. The addition of the two 91-pF capacitors completes transmitter modification.

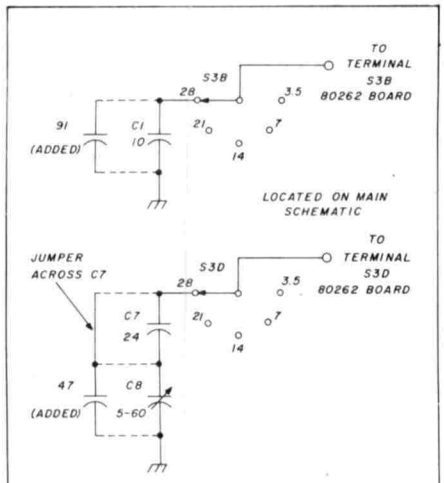

fig. 2. Modification of the receiver section of the Argonaut 509 requires minor additions to components switched by S3B and S3D.

The receiver will function with much reduced performance without modification by turning the receive preselector completely counterclockwise, as mentioned in the 509 manual for WWV reception. To improve 10 MHz performance the receiver front end needs additional capacitance.

C1, on the main schematic, is switched across T1 to resonate at the desired band. For our purposes, C1 needs to be shunted with another capacitor, again of 91 pF, as seen in **fig. 2**. T2, on the other end of the RF amplifier front end, must also be resonated at 10 MHz. Shorting C7 with a piece of tinned bus wire and paralleling variable C8 with an additional 47 pF completes our modification.

The modification is simple and quick. Lifting one end of each added component easily restores 10-meter operation when the sunspot activity increases.

Modification of the newer Model 515 is identical. The rig that began it all, the 505, is not broadbanded on transmit.

Raymond Henry, AA4LL