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QST Issue: Apr 1992
Title: Eliminating AM-Broadcast Interference on 160 Meters
Author: Zack Lau, KH6CP

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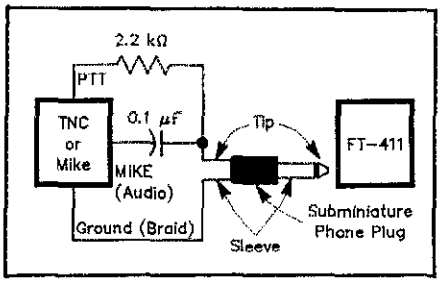


Fig 3—Jay Jeffery uses this hookup to operate packet or use an external microphone with his Yaesu FT-411 hand-held.

ELIMINATING AM-BROADCAST INTERFERENCE ON 160 METERS

☐ At the ARRL HQ club station, W1INF, the signal from WPOP on 1410 kHz produces a healthy 100 mW in a 50-Ω resistor connected across our 160-meter dipole. I reduced this signal with a narrow band-pass filter (Fig 4). Aligned for a center frequency of 1824 kHz, its 1-dB bandwidth is 37 kHz and its insertion loss is 2.4 dB. The filter is simple to tune: Just peak up its center-frequency response. You can tune it up on band noise, since noise figure is not a factor with full-size 160-meter antennas.—*Zack Lau, KH6CP, ARRL Lab Engineer*

TRAP DRAINAGE SOLVES RAIN-RELATED SWR RISE

☐ Rain-dependent SWR rise with early HyGain Explorer 14, TH5Mk2S and TH7DXS antennas occurs because the trap cap covers on the outboard side of their traps retain water. To solve this problem, drill 1/8-inch holes at the edge of the trap cover (Fig 5). This will allow water to leave the trap.

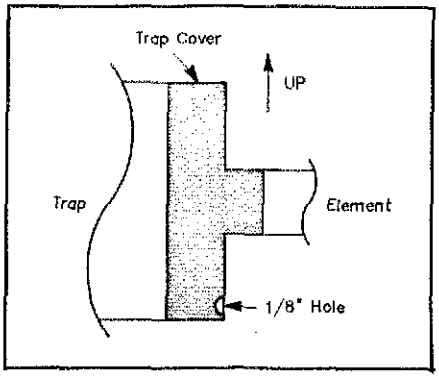


Fig 5—You can cure rain-related SWR rise in the HyGain Explorer 14, TH5Mk2S and TH7DXS antennas by modifying their trap covers as shown here. Align the 1/8 inch holes with those on the bottom of the trap.

Modified trap covers are also available through Telex Communications, 8601 E Cornhusker Hwy, Lincoln, NE 68505, tel 402-465-7022. These are shipped UPS—no charge. State which of the three models has the problem.—*Alan B. Caplan, WØRIC, Sales Manager, Telex Communications, Inc, Minneapolis, Minnesota*

PROTECT YOUR TOWER CRANK-UP MOTOR FROM MOISTURE

☐ In the Pacific Northwest, we have a pragmatic attitude towards rain: It is often better to provide a controlled path for rain to follow than to try to keep it out. Antenna manufacturers recognize this when they drill holes along the underside of trap covers to let any accumulated water that enters via the end seals go on its merry way.

I have a US Tower Inc crank-up tower fitted with a model *MDP-750* motor drive unit. The tower and the motor are giving excellent service. However, on one occasion, after several days of rain, the motor's slow-blow fuse did its job. Of course, this happened when the tower was fully extended and a windstorm was expected during the next eight hours! Storms notwithstanding, I have a gentlemen's agreement with my neighbors to lower the tower when it's not in use.

To lower the tower, I had to get the motor running again. That meant finding out why the fuse blew. In my tower drive system, the motor's start/run capacitor is mounted beneath the motor—directly in the path of any rainfall that runs off the motor. Noticing a trace of moisture around the motor/capacitor cover seal, I shut off all power and removed the two screws that attach the capacitor cover to the motor. The capacitor was completely immersed in water, and one terminal had corroded off. The fuse had blown because the motor stalled without the capacitor in the circuit.

I ordered a replacement capacitor from the motor manufacturer. But there was still the problem of lowering the tower. With induction motors, the start/run capacitor helps create a rotating field. Once started, some motors are able to sustain the rotating field without the capacitor if the load is light. With a new fuse installed, I placed one hand on the power switch and grasped the V-belt with the other. By throwing the switch and pulling on the belt (and after installing one more blown fuse to get the direction right, and sustaining a slightly skinned finger), I coaxed the motor into action.

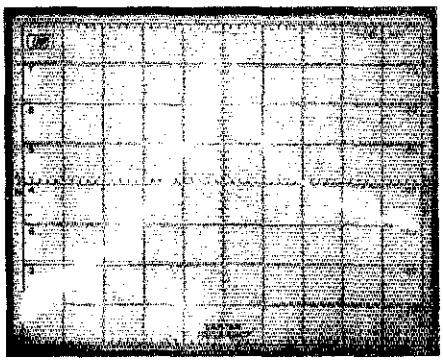
Before installing the replacement capacitor, I drilled one 1/8-inch hole on the underside of the capacitor cover at each end. Occasionally, during a heavy rain, water can be seen dripping from the drilled holes. But I've encountered no more blown fuses and no problems with tower operation. If I were just starting with a new tower, I would drill the holes before first use.—*Bruce McCaffrey, K7PXV, Poulsbo, Washington*

A SPINNER KNOB FOR THE YAESU FT-747GX/HEATH SB-1400 TRANSCEIVER

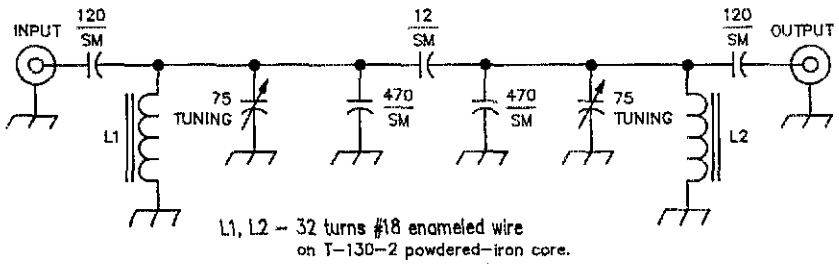
☐ Many of the newer pieces of equipment do not have a spinner knob. This is how I added one to my Heath SB-1400 transceiver.

Remove the wide rubber band from the knob to expose its Allen-head setscrew. Remove the knob and replace it with a RADIOKIT PS-210FSP spinner knob.[1] The shaft hole in the new knob is 1/64 inch larger than the one removed, but it is easily shimmed with a paper clipping from the cover of *QST*.—*Harold C. Potter, W1BPO, York Beach, Maine*

Fig 4—Zack Lau uses this filter (A) at ARRL HQ's W1INF to knock down a 1410-kHz local when operating at the low end of 160. For best performance, use *air-dielectric* **TUNING** capacitors; the lower Q of solid-dielectric variables won't let you achieve the filter's narrowest possible bandwidth. B shows the filter's measured response when adjusted for a center frequency of 1824 kHz. Each horizontal division is 100 kHz; each vertical division, 10 dB.



(B)



(A)

[1]RADIOKIT, PO Box 973, Pelham, NH 03076, tel 603-635-2235. QST