MOTOR-DRIVEN Loading Coil

Charles T. Miser, W9MDC

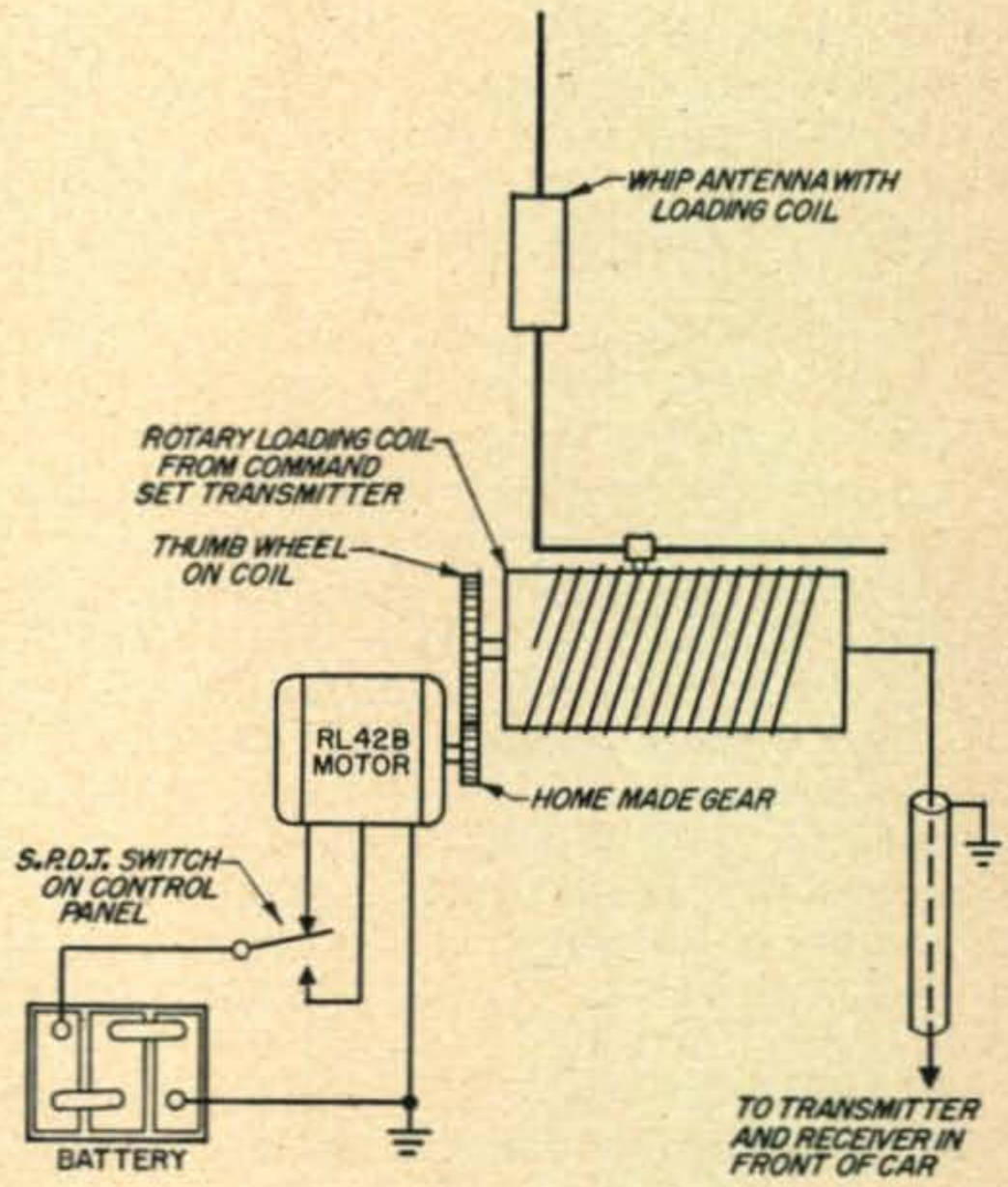
If you are one of those who have heard W9MDC demonstrate the ability to shift frequency from one end of the band to the other, without stopping his automobile or suffering any loss in signal strength, you will not require a legislative edict to read this article—Editor.

Notice

To whom it may concern: Be it known that the Honorable Mr. Charles T. Miser, a member of the House of Representatives, the State of Indiana, has long been a licensed radio amateur, with the assigned call letters of W-9-MDC. Be it further known that the Honorable Mr. Meiser operates a "seventy-five meter" mobile radio transmitter in his automobile.

It has come to the attention of this body assembled that such mobile radio stations use a "loading coil" in the antenna system. We are reliably informed that (a) for proper operation, this coil must be precisely adjusted for the exact frequency used, and (b) that it is frequently desirable to change operating frequency in the said "seventy-five meter" band to avoid interference or to contact stations in other portions of the band.

In view of these facts, some amateurs exit from their automobiles to vary manually the number of turns in the main loading coil, or in an auxiliary coil, or resort to similar expedients to maintain antenna efficiency when changing frequency. In contrast to these expedients, the Honorable Mr. Meiser employs a motor-driven loading coil, which can be, and is, in fact, adjusted for optimum performance by manipulating a switch on the automobile dashboard.



W9MDC, "Mad Dog Charlie", has come a long way since he was first licensed in 1932. 23 years, approximately. But in addition to this remarkable achievement, "Mad Dog", alias Charles T. Miser, multi-band fixed and mobile rag-chewer, holder of all available amateur class licenses, member N.E.I.R.C., Civil Engineer by trade, has been tendered a well-deserved Certificate of Appreciation by the Indiana Radio Club Council for authoring House Bill 239 providing for amateur-call license plates. Home address: Box 63, Garrett, Indiana.

Resolution

Whereas it constitutes, ipso facto, a traffic hazard to have divers amateur radio operators constantly getting out of their automobiles on our busy highways for the express purpose of adjusting any part of their mobile radio stations, be it hereby resolved that the Honorable Mr. Charles H. Meiser be requested to prepare a brief description of his antenna adjusting system for publication in a national amateur radio journal. By the secretary

Dated this first day of March, one thousand, nine hundred fifty three, A. D.

Statement

Pursuant to the above resolution; I, Charles T. Miser, called "Mad Dog Charlie," both for the purposes of identification and to describe my disposition, wish to make a brief statement, to wit:

I humbly state that my ability to write is limited to single-sentence press releases designed to assure my constituents that I am on the job in their behalf in Indianapolis. Also, that my constructional abilities are so well known in my congressional district that no Ham in it ever "haywires" anything together; he "MDC's" it. So if the following does not read pretty, be thankful that you cannot see the actual job.

Looks aren't everything, though, and always having my antenna resonant to my operating frequency is a tremendous operating help. But, heck, you know the importance of antenna resonance when using a loaded whip; so I'll just tell you what I did, and you can figure out for yourself how to do the same.

Construction

First, I requisitioned the rotary antenna coil from a BC-696 "Command" transmitter and the motor from a *surplus* RL-42B antenna reel. Next, I made a gear about one-sixth the diameter of the thumb wheel on the coil. The teeth on this gear match the indentations on the thumb wheel. Then, I fastened the gear to the motor shaft and mounted the motor and coil on a board; so that the teeth on the two gears meshed.

I mounted the board in the car trunk as close to the base terminal of the antenna as possible and connected the coil between the antenna and the center conductor of the feed line.

The RL-42B motor is designed to operate on 24-28 volts, but it performs excellently in this service on six volts. The frame of the motor acts as one terminal of the battery circuit. A little experimenting will quickly show which pair of terminals on the plug should be used in order to permit reversing the motor.

A three-conductor cable brings the motor connections to the transmit/receive control panel. A s.p.d.t., neutral-center switch controls the motor. It is mounted and wired so that in the "up" position, the inductance in the coil is decreased; in the "down" position, increased.

Operation and Adjustment

Probably the most satisfactory way to use the motor-driven coil is as an auxiliary loading coil. To do so, adjust the regular loading coil in the standard manner at 4.0 Mc., with the auxiliary coil set at minimum inductance. On lower-frequencies the additional inductance required to restore antenna resonance is supplied by the rotary coil.

In operation, I set the VFO to the desired frequency and flip the motor switch to resonate the antenna to it, at the same time, resonating the final-amplifier tank condenser. If I move higher in frequency, I push the switch up, if I move lower, I push the switch down.

The best way to check antenna resonance is to set up a field-strength meter where it can be seen through the rear-view mirror and manipulate the switch for maximum meter deflection. It is also possible to resonate the antenna by watching final-amplifier plate current, after verifying that maximum loading corresponds to maximum field strength. Depending upon feeder length, impedance, link size, and similar variables, the two adjustments may not coincide.

Notes

I make no claim for the originality of this idea. Some W2, whom I met on the west coast last summer, suggested it to me. If all your friends decide to keep their "Command-Set" loading coils after reading this article, both the *E. F. Johnson Company* and the *Barker-Williamson Company* make rotary coils that are just the thing for such an installation.[1, 2]

1. Johnson Cat. #229-201. **Barker-Williamson** Cat. #3852.
2. A possible substitute for the RL-42B motor is the six-volt motor supplied with "Erector" sets, from which source gears to make a reduction gear box may also be "requisitioned," while the junior operator is watching "Space Cadet" on TV—Editor.

Re the "Ferri-Sweeper" in SINGLE SIDEBAND TECHNIQUES

The ferrite toroidal core used for *L1* in the sweep generator, nicknamed "Ferri-Sweeper", in *Single Sideband Techniques* may be purchased in single lots from the United Products Company, Hixon Place, Maplewood, New Jersey. The price is $1.00—not the 10 or 15 cents as mentioned in the handbook. The author got his core from a large production quantity hence the price discrepancy. The manufacturer, H. L. Crowley & Company, West Orange, N. J. has arranged with the United Products Company to handle the small lot amateur requirements. The toroid should be ordered by its number of EX-5391.

RTTY SWEEPSTAKES RESULTS

Band conditions were excellent on 80 and allowed many solid cross-country contacts. Top honors again went to the Southern New Jersey Section with Ed Clammer, W2BDI, topping the scores with 59 stations worked in 24 sections, for a score of 2800 points. In second place was Bob Osborne, W8ZM, with 2600 points in 20 sections. Third was Frank White, W3PYW, with 2520 in 24 sections. Others scoring above 2000 were W8BL, with 2318, W6CG, with 2080, and W6AEE with an even 2000. A total of 94 stations participated, as compared to only 77 in last year's contest. Los Angeles led in section activity with 20 stations. Stations checked in from coast to coast, from Alaska to Louisiana.