

# ONE STEP BEYOND

**O**ne of the most exciting features of modern transceivers is their ability to adapt to a constantly changing world and provide coverage of both present and future amateur bands or frequency allocations. This flexibility to sidestep "operating range obsolescence" is achieved by using broadband RF circuits and full microprocessor-controlled tuning systems...a vast improvement over fixed coil setups and mechanically bandswitched transceivers of previous times.

Today ICOM utilizes this "high tech" frequency coverage concept in its equipment's design. And to complement ICOM's recent advances in broadband RF circuit design and solid state technology, the ICOM engineering team has developed "one step beyond" circuitry in its phase-locked loop/VFO technology.

ICOM is a world leader in PLL design — designing circuits which are praised by users for their extreme accuracy, stability, and flexibility. By clever utilization of the memory capacity inside of a transceiver's CPU, and adding to it the memory of an external RAM (Random Access Memory) unit, ICOM offers 32 **tunable** memories, plus two VFO's in each of its "top of the line" transceivers. This provides the ultimate in frequency agility. No one else has this on-

board, standard feature...and, not only is it possible to store frequencies in memory (VFO to memo), but memo to VFO is possible, allowing storage of each side of a split frequency.

ICOM's frequency-controlling RAM is contained on a **single plug-in PC board** mounted near the CPU, which also houses the lithium cell for keeping the memory alive during times of non-use. Frequency reprogramming ham band range updates can be accomplished by sending **only** that RAM PC back to ICOM America for program updating. This can be done in a padded postal mailer...fast, easy, and convenient. It is not necessary to return the whole transceiver. RAM board factory programming service for initial factory program is available on a 24-hour turnaround basis (when requested). This is only one example of ICOM's commitment to providing the best customer service in amateur radio. ICOM's committed to amateur radio, and we're dedicated to keeping you communicating without delays or excuses!

Additionally, for the experimenter, the programming information for initial factory programming is available from ICOM. With this information and a home computer, you can customize your own radio system if you wish.

An interesting technical point about the ICOM system is the life expectancy of the ICOM RAM board's lithium cell. Since these cells have only been manufactured during the last ten years, we must extrapolate the following values. Our unit's lithium cell is rated at 165 milliamphours capacity. Under normal conditions, the cell's capacity will be 91 percent of 165mAh **after ten years**.

During manufacturing, a special test jig is used to check the RAM boards. All RAM boards are checked for total current drain before they are installed in the transceiver. Measured current demands must be less than the design criterion of 100 nanoamps (.0001 milliamps), yielding an estimated lithium cell life of 180 years. Actual current values for the RAM memory typically **measure only 10 to 30 nanoamps**, yielding a calculated 600 years of battery life.

ICOM units utilizing the lithium cell-backed RAM concept include the IC-751 and IC-745 HF transceiver, IC-271A 2-meter base, IC-471A UHF base, IC-1271A 1.2GHz base and IC-R71A general coverage HF receiver.

ICOM's CPU/RAM concept might easily be considered as providing a "forever capable" radio... and change is the only thing constant in our modern age.



# ICOM