

## HAL 2550/ID Keyer

Dimensions (HWD): 3-1/2 x 6 x 6-1/2 inches.  
Weight: 3 pounds.  
Power requirements: 117/230 V ac.  
Price class: \$125 w/i-d; \$95 w/o i-d; \$10 per additional i-d.  
Distributors: HAL Communications, Box 365, 807 E. Green St., Urbana, IL 61801.

## THE YAESU FT-101E TRANSCEIVER

Does equipment performance change when a new suffix is attached to the end of a model number; have new features been added? That is one of the most often asked questions attendant to commercial gear. The answer is usually, "yes." Certainly this is in the affirmative when one compares the original FT-101 to the current models. We thought it would be interesting to shake down the latest model of '101, as our last look at the attractive gray box was a few years back, as reported in *QST* for February, 1974.



One might look first at the front panel and note that the row of function switches just below and to the right of the meter has been changed to lever types. The earlier models had slide switches, which tended to wear and become intermittent after a reasonable period of use. The current style of switch seems more rugged and is easier to actuate because of its long, flat handle. Noted also on the front panel are two red LED indicators. One illuminates when the internal VFO is in use (an external VFO is available as an accessory for split-band operation — the FV-101B). The remaining LED indicates, when lit, that the RIT (receiver incremental tuning) is activated. In terms of cosmetics, these are the significant changes from the FT-101B version.

One can purchase either the FT-101EE or the FT-101E models. The double-E version comes without the speech processor. The single-E unit contains an rf type of processor which employs an XF-30A crystal filter. Upon release from the factory, the processor is set for optimum operation. The current version is not frequency sensitive. To secure optimum performance of the processor, it is necessary only to adjust the front-panel level control. The adjustments are done while observing the panel meter, and the steps are simple to follow. Our FT-101E was tested on 20- and 160-meter ssb. Audio quality reports were excellent on both bands, except that the voice naturalness was impaired somewhat

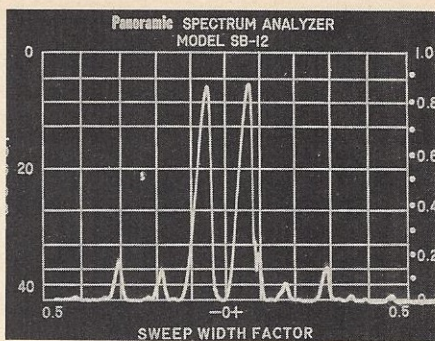


Fig. 1 — Spectrum-analyzer display of the output of the Yaesu FT-101E transceiver with a two-tone 240-W PEP input. The horizontal axis of the display represents frequency, and the vertical axis amplitude. Each "pip" represents a single-frequency component of the rf output. The display is adjusted so the amplitude of each component may be read from the scale at left, directly in decibels below the peak-envelope power (PEP) output, as rated by the manufacturer. Each reticle division represents 5 dB. Responses other than the two individual tones of the two-tone near the center are distortion products; third-order products 34 dB down may be seen here. Individual tones of the two-tone signal are down by 6 dB from the PEP output. This is because the tones are in phase, they add to produce a peak in the envelope wave-form pattern which is twice the voltage amplitude of a single tone alone. The power at the peaks of the envelope (PEP) is therefore four times that of a single tone, a 4:1 power ratio being equivalent to 6 dB.

during the processing function, which is normal with circuitry of that kind. When the processor was used as outlined in the instruction book, there was no evidence of distortion or signal broadness. Listeners reported that the ssb signal had considerably more "punch," but observed no increase in peak S-meter readings.

While on the subject of audio quality, it was noted by this writer and others who have used the FT-101 series of transceivers that the microphone supplied with the unit is fine for operators who do not have excessively bassy voices. The reviewer does not exhibit the ideal voice profile with his deep voice tones, and it was found that under marginal-copy conditions the readability suffered when using the factory microphone. Upon switching to a D-104 mic, the problem was cured.

Our review model was sent with the 600-Hz cw filter and the PA cooling fan. Copy is enhanced greatly on cw through use of the filter, and the bandpass characteristics seem better than those of the FT-101B which was tested earlier. That is, the skirt selectivity seems improved, which may suggest that some leakage was present across the filter in the B model. The cooling fan is recommended if the FT-101E is to be used in warm climates, such as the tropics. It will help in extending the life span of the sweep tubes used in the PA stage. The fan is exceptionally quiet, and one must listen carefully to hear it turning.

Various FT-101B owners have asked the ARRL technical staff if there is anything different about the receiver in the E version, as compared to the earlier models. The late

FT-101E units do have a factory modification which greatly improved the dynamic range of the receiver. Although we do not know what circuit modifications were made, we did observe during laboratory and on-the-air tests that IMD and cross-modulation effects were markedly less troublesome than was experienced with the FT-101B version. ARRL dynamic-range tests are performed in accordance with the *QST* paper by W7ZOI.<sup>3</sup> To the best of our knowledge the ARRL test procedure is accurate within  $\pm 3$  dB, as indicated by comparisons with figures supplied by various equipment manufacturers for units tested by both parties. For the late model FT-101E, we obtained a noise floor of  $-141$  dBm. Blocking above the noise floor was 108 dB, and the IMD was 81 dB. The tests were performed at an i-f bandwidth of 600 Hz with a two-tone signal separation of 20 kHz on the 20-meter band. Practical tests were performed at W1CER, only two blocks away from W1AW. During several months of use while W1AW was operating, no receiver problems were noted on 160, 40 and 10 meters. During operation on 80, 20 and 15 meters, it was necessary to switch in the 20-dB front-end attenuator to prevent cross-modulation of signals below S-9 on the '101E meter. Survival of a receiver under those severe strong-signal conditions suggests that in a normal signal environment there should be no need for the 20-dB pad. The FT-101B, on the other hand, was unsatisfactory (even while using the 20-dB pad) at the same receiving location.

The cabinet is well shielded and tight. Despite having the amateur station antennas less than 50 feet from the TV antenna, no TVI was observed on two solid-state TV sets — one a color type and the other a black-and-white receiver. High-pass filters were used with both TV sets, but no low-pass filter was employed with the '101E. Good earth grounding and ac line filtering were used with the transceiver, however. During daily use for many months there was no evidence of faulty circuit performance. Chirp-free cw signal reports were always obtained, and VFO drift was not noted by ear.

From a purely subjective point of view, the writer feels that the FT-101E represents a good buy for the price. It is a compact and functional one-package mobile or fixed-station transceiver which covers 160 through 10 meters, plus having receive capability for 27 MHz and 10 MHz. WWV is heard on the latter. — W1CER

### The Yaesu FT-101E

Dimensions (HWD) and weight: 6 x 13-1/2 x 11-1/2 inches, 33 pounds.

Power requirements: Provisions for operation from 100 to 234 volts ac. Supplied with 117-V ac and 12-V dc cables. Maximum ac power drain — 350 W. Maximum 12-V dc current drain — 21 A.

Color: Two-tone gray with black knobs.  
RF power dc input to PA: 260 W on ssb, 180 W on cw, and 80 W on a-m (all levels slightly less on 10 meters).

Price class: \$750.

Manufacturer: Yaesu-Musen, Inc., 7625 E. Rosecrans Ave., Unit 29, Paramount, CA 90723.

<sup>3</sup>Hayward, "Defining and Measuring Receiver Dynamic Range," *QST* for July, 1975, page 15.