

Radio Shack's New TRF

by Gerry Thomas

As we all know by now, the revered Radio Shack TRF Model #12-655 is no more. In its place Radio Shack is offering the 12-656, a radio which shares the same aim as the old TRF, namely reception of distant MW stations, but at an increased price of \$34.95. What's the story on the new TRF and how does it compare with the old? Read on:

Appearance: The cabinet of the new TRF was cast from the same mold as the old so their sizes and overall configurations are identical with the exception of color. Whereas the old TRF was grey, the new model sports a black front half and a greyish beige back half. On the later model the dial markings are a little "finer" and the pointer significantly narrower which should result in improved stock frequency resolution. Also, gone is the slide pot which continuously varied tonal quality on the earlier model, it being replaced by a two-position, horizontal-throw toggle switch. The rears of both cabinets are identical with the earphone jack and external antenna/ground terminals similarly located.

From a purely visual standpoint, I personally find the new TRF a little more appealing, but there was certainly nothing distasteful about the older version.

Circuitry: Although both models are single-conversion superheterodyne designs and employ tuned RF stages, the circuitry beyond the mixer differs in several important ways. The older TRF used two IF stages and depended upon a ceramic bandpass filter resident in the first IF transformer to provide above average selectivity. The current model has done away with the filter and instead has added a third IF transformer to handle the selectivity parameter. (Like the older version, the new TRF uses discrete transistors to provide IF amplification.) In the audio section, the new TRF has replaced discrete components with an integrated circuit.

Another noteworthy difference between the two TRF's is the ferrite rod antenna. The antenna in the previous model measured 6 1/2" x 3/8", whereas the current model's antenna has decreased in size to 5 9/16" x 3/8". Assuming that both ferrite materials are of similar permeability values and that the primary and secondary windings are comparable, we can expect somewhat lower signal levels being fed to the RF stage of the newer TRF.

Performance: Okay, now that we've finished the visual once-over, how does the new TRF stack up as a DX machine? To answer this question, brand new, right-out-of-the-box, TRF's were compared. The older 12-655 and the current 12-656 were equipped with fresh C-cells and a midday test sequence begun. This sequence (which was conducted at my new location, several miles distant from my previous RF-jungle QTH) encompasses both selectivity and pure sensitivity tests and provided the following results.

600 kHz (next to local masterblaster WHYM-610)--On the old TRF, CMW was in at a fair-plus level and was experiencing minor slop from WHYM; and the Cuban was audible (but at weak level) WVOG, New Orleans. On the new TRF, CMW was judged to be at a fair level, but was being severely troubled by intelligible splatter from WHYM; there was no sign of WVOG.

750 kHz (test of pure sensitivity)--WSB, Atlanta was weak but audible on the old TRF, but not a trace of WSB on the new model.

970 kHz (local WBOP on 980) On the old TRF, WFLA, Tampa was at a good level with only impulse slop from 980 audible. WFLA also at a good level on the new TRF, but the slop from 980 was steady and intelligible.

1220 kHz (next to local WNVY-1230)--CMGY--was very weak but readable on the old TRF, despite heavy, but unintelligible, QRM from the local. Only the local spilling over to 1220 was audible; no sign of the Cuban on the new TRF.

1380 kHz (5 kw local WCOA on 1370)--The old TRF provided WLCY, St. Petersburg at a fair-good level with significant but unintelligible slop from WCOA. On the new TRF, WLCY was nowhere to be found.

After obtaining the preceding results, the new TRF was carefully "tweaked" (i.e. RF and IF stages aligned) and the sequence re-run.

600 kHz--CMW at fair level; slop still moderate but now unintelligible; WVOG now audible under the Cuban but very weak.

750 kHz--WSB now audible, but weak.

970 kHz--WFLA still good but WBOP QRM remains intelligible, though slightly less heavy.

1220 kHz--still no sign of the Cuban

1380 kHz--Not a trace of WLCY.

As you can see, tweaking resulted in an improvement in the new TRF's performance, especially on the low end of the band, but it still didn't match that of the earlier model. (Incidentally, the GE Superadio was also put through this domestic test sequence, and provided reception equal to or better than the old TRF under all conditions.)

One advantage which the newer TRF did have was in the area of current consumption. At "normal" listening levels the earlier TRF consumed about 35 mA of current whereas the present model requires only about 18 mA; therefore, batteries should last longer. Finally, the two-position audio filtering of the new TRF seemed to be as effective as the old model's variable filter in most situations.

Final thoughts: Well, on the basis of this one-sample evaluation, it looks as though we've taken a step backwards. The new TRF, while it is undoubtedly better than most portable or table-top "AM" radios, does not match the model it replaced in either overall sensitivity or selectivity.

It is highly likely, however, that modifying the IF's with "transfilters" or even a high quality bandpass ceramic filter and adding a Radio West "Shotgun" antenna booster would make this a very serviceable DX device. Besides, other than the leviathan GE Superadio, we MW who require a portable, under-\$100, DX rig have little other choice nowadays. 73's---GT