



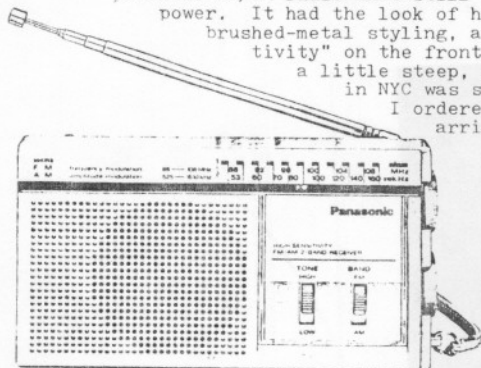
the irca technical column

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The Panasonic RF-081

by Randy Tom

While looking through the 1982 Panasonic catalog, this radio immediately caught my eye, and appeared to be just what I had been hoping for: an extremely compact, coat-pocket sized or small portable AM/FM radio that still had good sound and good pull-power. It had the look of high quality, with contemporary brushed-metal styling, and had the words "high sensitivity" on the front. The list price of \$60 seen a little steep, but I found that 47th St. Phc in NYC was selling them for under \$40, so I ordered one via telephone and it arrived in 5 days by US Air Mail-



complaints to the Postal Service possible on this deal

Upon receiving the new Panasonic, I was immediately impressed at how well it worked for such a small radi. AM pull-in was just slightly behind that of my Realistic TRF, and selectivity was just as good. Sound quality was much, much better than the TRF's. In trying the FM band I found that the sensitivity was not all that great (the

whip antenna is rather short), but the sound quality was extremely good, especially considering that it's coming from a tiny 2½" speaker. Overall I was so pleased with the new RF-081 that I've been calling it the "Miniature Superadio" ever since. It is extremely nice for easy-chair tuning when a big heavy portable isn't desired, and it makes an extremely handy travelling portable. It works quite well with a Shotgun tuner and is DXable with one.

Its main disadvantage in DX'ing is its lack of good dial calibration due mainly to its small size, which makes it almost impossible to include a long, well spread-out dial. Also, its dial pointer is very broad in width because it contains an LED tuning indicator. The tuning indicator is pretty to look at but isn't much use in tuning; it does have some usefulness in nulling, however, and makes a good "on-off" indicator. What little calibration the dial has is accurate.

Looking at the schematic diagram in the service manual it's easy to see why the RF-081 works well: it has a tuned-FET RF amp in the AM band (the FM band has a broadband RF stage) and also has a small ceramic IF filter on AM for selectivity. Mixer, local oscillator, IF amplifier and AM detection as well as FM IF and detection are all on one IC, while audio power amplification is on another IC. Overall, the RF-081 is an excellent performer considering its diminutive size and is just the ticket when a small as possible receiver is desired.

should give you an idea of the capabilities of another recent Panasonic radio.

The Panasonic RF-6300

by Don Moman

The Panasonic RF-6300 is a recent addition to their SW line. It is a portable LW, MW, SW and FM receiver with totally synthesized performance and a 12 channel user programmable memory system. Add to that a built in LCD time module with alarm and snooze functions and you have a lot of radio. But at a \$1200 Canadian list, you should get "a lot of radio"! Do vou?

Physical Features Large for a portable, the 6300 is 17½" wide by 11" high by 5½" deep and weighs an arm tiring 12 pounds before you load it with 6 "D" cells and 4 "AA" memory back up cells. Complete with built in AC supply and detachable cord--a nice touch as I hate having to always wind up the AC cord and then stuff it in a little compartment in the back! Good sound and 4 watts of audio through the 4 3/4" speaker.

Electrical Features Current consumption using Ni-Cad rechargeable cells was 200 mA at normal volume. Add 75 mA for the dial lights, if you choose to use them. Subtract 100 mA if you turn the digital display off. Antennas are built in for all bands. LW and MW use a 3/8" x 7" ferrite rod while SW-1 uses a shorter 4" rod. A 40" whip is used for SW 2-5 and FM. There are no switches to remove internal antennas if desired. The antenna and ground connections are the usual "one-touch" type. Other outlets are provided for a recorder, external speaker, ¼" headphone jack, AC and DC power connections.

Tuning with a Rotary Encoder The conventional tuning knob hides an unconventional click stop, rotary encoder unit. The tuning capacitor is not used here--rather you are turning a knob that supplies pulse data to a synthesizer unit. In the "slow" mode each click of the dial means 1 kHz (10 kHz on FM) and in "fast" each stop is 10 kHz (100 kHz on FM). While fast mode is good for scanning the MW band, it has little use on SW other than to allow faster tuning rates. A 5 kHz rate would better suit the SWL. In the 1 kHz slow speed it takes quite a while to get anywhere. To slow you down even more the coverage is divided in 8 bands: FM, LW, MW and SW 1-5. The unit automatically goes to a predetermined frequency near the center of each band, much like the Drake R-7. Here you have no 500 kHz UP/DOWN to help; you must tune all the way up or down manually. For example on band 5 (20-30 MHz) the set "comes up" on 25 MHz. To get to the 13 meter band means a lot of dial turning. Do this often and you will soon come up with a partial solution--store a 13 meter frequency in the memory and you will be there with just one push of a button!

In case you're wondering how it handles SSB tuning with 1 kHz steps--fortunately the BFO is tuneable to make up the difference. However SSB performance is poor due to the simple BFO circuitry used and the relatively wide IF filters. More on that later.

For those of you who like to tune around the bands stealthily, the loud clicking of the dial will give you away every time!

Memory The 12 channel memory capability is the biggest feature of the 6300. Each channel is easily programmed by the user to any one frequency anywhere in the 8 bands. Unlike other memory capable sets, the 6300 is somewhat less than totally frequency agile. Example: you're tuned to a 31m station but want to check a 19m channel for better reception. Assuming the frequencies have already been stored, you just press the appropriate memory button and...nothing happens except the display starts flashing and indicates "4". You see, 31m is in band 3 while 19m is in band 4. So you must rotate the bandswitch to the proper position; other sets use electronically switched bandpass filters.

Performance Even though the 6300 is a recent introduction, it still uses old technology in the RF circuitry. The present level of the technology calls for bandpass filters and an "up-converted" front end using an IF in the 40 MHz or higher range. As mentioned the 6300 uses mechanical bandswitches instead of filters. It also uses conventional IF layouts. On LW, MW and SW-1, a single conversion stage (455 kHz) is used. On the higher SW bands they use dual conversion with the first IF being at 2.6 MHz. Earlier Panasonics had a distinct problem with images and one would think the 6300 would suffer from a 5.2 MHz image problem. The problem does exist but is virtually undetectable under normal conditions even coupled to a large outside antenna. The only place it becomes a problem is in the MW band with its very high signal levels. In real life, a signal must be strong enough to really "peg" the S meter before one will find an image problem. This rarely happens on SW in Edmonton; MW is another thing however...

Sensitivity, using the built in antennas, was equal to other sets tested over most bands. Both the 6300 and its companion, the 3100, were somewhat less sensitive on the FM band than the Sony 2001. On AM the Panasonics were superior, as the Sony seemed to be very susceptible to local electrical interference, and produced a very noisy signal comparatively. With an external SW antenna the 6300 easily kept up to the R-7 in

pulling out weak tropical band signals. On the higher SWBC bands like 11 and 13m it was a little less sensitive. The manual rates SW sensitivity to be approximately 1 uV (6 dB S/N). MW is rated at 30 uV/m.

Selectivity is 5 kHz in wide, 3.4 kHz in narrow. Shape factors are very poor at 6:1 and 3½:1. In actual listening tests the narrow position is quite acceptable for general SWL'ing and some DX'ing. It's too wide for listening in the crowded ham and utility bands.

FM rated sensitivity is 2 uV/75 ohms. Two signal selectivity is rated at 70 dB for +/- 400 kHz.

Conclusions As compared to other portables the 6300 offers decent performance; but with a price tag higher than the superior performing Yaesu 7700, a prospective buyer should weigh the pros and cons of the 6300 very carefully first. Sizeable discounts on list price should be available. Shop carefully. (R. West quotes \$550--ed.)