

promotional hype notwithstanding, the CD-108 is the easiest to tune of any set tested. To hear, say, Prague on 7345kHz, the listener turns on the set, pushes three buttons, then dials "7345" on the frequency display. During this process the radio is silent, but when it is completed Prague's voice automatically breaks the silence. This sudden, almost terrifying, appearance of the desired station might prompt proud smiles of achievement to shortwave newcomers on our review panel.

Also bringing compliments was the CD-108's simple and unobtrusive design, decidedly unlike the control-festooned designs of other sets tested. Not a single knob or control is on the front panel.

The CD-108's foolproof tuning and freedom from confusing controls should make it welcomed by shortwave listeners who suffer through, rather than enjoy, shortwave as a broadcast medium. The set may also interest consumers who heretofore avoided shortwave listening.

Unfortunately for the shortwave enthusiast, the simplicity which makes the CD-108 so attractive to others makes it unattractive to him. The set's tuning range is sharply limited, no external antenna or ground connections are provided, there is no "S" meter, and the audio mutes when the frequency meter is activated. By muting the receiver during the tuning process, the Babel of noise heard on other sets is absent. Bandscanners, though, will find this an annoyance, as the only way to know the frequency while tuning is to take periodic sample readings.

Lack of shortwave coverage is the CD-108's most serious drawback. Omitted are the 4 and 25MHz international broadcast bands; the 3 and 5MHz tropical bands; plus many out-of-band channels used by shortwave broadcasters. Most Venezuelan shortwave broadcasters are beyond the CD-108's tuning range, as are Israel on 9009, Iran on 9022, Spain on 9360, Korea on 9977, the USSR on 12070, China on 12080, Kuwait on 12085, or the USSR on 12095kHz. Almost all Vietnamese and Indonesian channels are similarly excluded. This limitation may or may not be a deciding factor in any given case. The simplest way to find out is to check the "Shortwave Stations of the World" listing in the WRTH.

In many instances the problem can be alleviated by adjusting the oscillator transformers. In some cases, such as the BBC on 9915kHz, a choice must be made, as shifting 31 metres upwards to include 10046kHz causes stations formerly heard on the low end of the band, e.g. BBC 9410kHz, to disappear. It's questionable whether the CD-108 will be adequate after the 1979 World Administrative Radio Conference (for details, see the 1977 WRTH). Substantial band expansion or creation of new bands would aggravate the problem of limited frequency coverage.

The CD-108 has lesser shortcomings. Spurious signal rejection is barely adequate. Audio is mediocre, lacking punch and tonal flexibility, but, fortunately, not lacking in distortion at high volume settings or during modulation peaks. Hum is an occasional annoyance, though easily overcome. The automatic volume control (AVC) is poor.

The sensitivity and selectivity of the CD-108 are similar to those of the Japanese portables tested. Additionally, the unit has a 5kHz audio filter to suppress heterodyne interference from adjacent channels; it did make listening more pleasant. The

set resists front end overloading relatively well. The CD-108 performs commendably on mediumwave and acceptably on FM. Alone of the sets tested, the CD-108 covers the longwave broadcast band found in Europe, North Africa and the USSR. According to the manufacturer, the set will operate on any voltage between 115-220V a.c. — a real convenience in locations where voltage is unstable.

At present the CD-108 is available only in Central Europe. US residents travelling abroad may legally bring back up to three samples, provided they are for personal use.

NATIONAL PANASONIC RF-2200

Matsushita Electric Industrial Co. Ltd., Radio Dept., Kadoma, Osaka 571, Japan. Panasonic, One Panasonic Way, Secaucus NJ 07094 USA. List price (USA): \$169.95. Bargain.

Highlights: Advantages: Excellent FM performance. Handy MW operation. Good audio fidelity on all bands. Easy access to circuitry for repairs. Dial well lit. Two year warranty (USA). Disadvantages: Relatively difficult to tune. Does not tune 3MHz tropical band. Poor "S" meter. Marginal reception of SSB/CW signals. Play in mechanical bandspeed tuning system. Both tested samples, new, were misaligned. Spurious signal rejection only fair. Overall: A bargain for pleasant listening on shortwave, MW, and FM.



National Panasonic's first entry into the international market, the RF-2200 delivers a great deal of performance at a modest price, provided the intricacies of its mechanical shortwave tuning system can be mastered. Its performance on shortwave is similar to that of the popular Sony ICF-5900W and, aside from the lack of a digital frequency readout, it performs comparably to the more expensive RF-2800. FM performance is superb, suffering only from a tendency to overload in the front end. MW performance is good and made simpler by the rotatable ferrite rod antenna atop the case. Most controls are thankfully well lit for use in darkness. The tone is good not only on shortwave, but also on MW and FM. This results in part from unusually flexible tone controls, which allow the audio passband to be shaped according to the characteristics of the received signal.

Inside, the RF-2200 is roomy and sensible, making service unusually practical. Unlike most sets tested, the MW frequency readout was reasonably accurate. In the US, where the RF-2200 is marketed under the trade name "Panasonic", the unit carries a two year warranty.

The drawbacks, aside from the cumbersome tuning arrangement, are minor. The "S" meter operates poorly. The 2 and 3MHz tropical broadcast bands are beyond the set's tuning range. Spurious signal rejection is only fair. The tuned frequency

drifts annoyingly in outdoor sunlight. The tuning mechanism, a complexity of gears and pulleys are prone to looseness, or play. Quality control left room for improvement: both samples tested were misaligned, and one had a defective whip antenna.

In all, the National Panasonic is an excellent buy. Those not interested in digital frequency readout on shortwave, but who are regular listeners to FM, should be delighted with the modestly-priced RF-2200. Listeners who like the set, but prefer a simpler shortwave tuning arrangement, can obtain, for another \$80, the very similar RF-2800.

NATIONAL PANASONIC RF-2800

List price (USA): \$249.95.

Highlights: Similar to RF-2200, except: **Advantages:** Digital frequency readout. Covers 3MHz tropical broadcast band. **Disadvantages:** Fairly large and heavy. No rotatable MW antenna. Overall: Best portable tested for shortwave, MW, and FM listening.



The main advance in the RF-2800 over the small RF-2200 is the replacement of the RF-2200's tricky mechanical shortwave tuning system with a simpler electronic frequency readout. Also, the 3MHz tropical band is within the tuning range of the RF-2800.

The RF-2800 has two drawbacks over its smaller sibling. The RF-2800 is bulkier and heavier than the RF-2200, in part due to the additional two batteries required to power the digital readout. The manufacturer deleted from the RF-2800 the rotatable MW antenna found on the RF-2200, forcing the listener to twist the unit about to obtain the proper beam heading from the fixed internal antenna. Air travellers will probably prefer the lighter RF-2200 or, better, the company Sony ICF-5900W.

For further details, refer to the evaluation of the RF-2200, preceding.

SONY ICF-5900W

Sony Corporation, 7-35 Kitashinagawa, 6-chome, Shinagawa-ku, Tokyo, Japan. Sony Corporation of America, 9 West 57th Street, New York NY 10019 USA. List price (USA): \$149.95. Bargain.

Highlights: **Advantages:** Light, compact, easy to carry on trips. Inexpensive. Relatively free from spurious signals and front end overloading. Powerful audio. **Disadvantages:** Relatively difficult to tune. No VFO dial light. Requires fresh cells for proper performance. No AC input. Cramped circuitry makes service difficult. Poor "S" meter. Does not tune 3MHz tropical band. Bassy audio. Marginal reception of SSB/CW signals. Overall: a bargain for truly portable shortwave broadcast listening.



The ICF-5900W covers 3.9-10.0 and 11.6-28.0MHz shortwave (10.0-11.6MHz being the IF "hole"). It is the most lightweight and compact of any set tested, making it the obvious choice for weight-conscious travellers and hikers.

Shortwave performance is good, provided the shortwave frequency readout system can be mastered. Sensitivity and selectivity are typical of the Japanese portables tested. Spurious signal rejection is better than average for a portable. MW performance is commendable, although front end overloading sometimes occurs in the presence of very strong nearby signals. The audio, though of only average fidelity, is strong - an advantage when tuning weak stations outdoors or in noisy surroundings.

The ICF-5900W has several minor drawbacks which, when taken together, are unlikely to deter most potential purchasers. There is no AC input; to operate off AC, an optional outboard converter must be purchased. The compact circuitry, a virtue for travelling, is an impediment when repairs are necessary. There is no dial light for the direct shortwave frequency readout. The three-battery system is particularly sensitive to low cell voltage, making performance relatively poor when alkaline or rechargeable nicad cells are used (fresh heavy-duty zinc cells work best). The 3.2-3.4MHz tropical broadcast band, of interest to some DX-ers and expatriates, cannot be tuned. SSB/CW reception and "S" meter performance are pedestrian. The shortwave tuning system, like that of the National Panasonic RF-2200, tends to confuse users.

The Sony ICF-5900W is the radio of choice for travelling. At \$150, it is also a good buy for the casual listener or newcomer to shortwave.

Since the tests were conducted, three more portables have appeared for the 1978 market:

- * Grundig Satellit 3000 (approx. \$675), digital readout.
- * Sanyo RP-8880* (\$299.95), linear readout and rotatable MW antenna: LW/MW/FM, plus SW 1.6-10.0 and 11.7-30.0MHz.
- * Sony "Model X" (not yet announced), digital readout (probably roughly \$250).