The Realistic DX-160
(applies to DX-150A and B as well)

Although the DX150/160 receivers are no longer made, there are a good many around, and are likely to turn up on the second hand market. All three receivers cover 535 kHz - 30 MHz in four bands; the DX160 has a fifth band covering 150-400 kHz.

Sensitivity is rated at 100 microvolts on BCB using the internal ferrite loop (much better SW sensitivity though), so the radio needs some help to snag weak signals. Connecting a good longwire to the antenna terminal causes overload, however. Some have had success using an amplified loop antenna with this radio, but the loop should be far enough from the radio to stop feedback. The antenna trimmer must be tuned carefully to stop the radio overloading in some cases, but using a loop with the DX150/160 usually gives enough front-end selectivity to keep overloading to a minimum.

Selectivity is rated at 4 kHz at -6 dB and 18 kHz at -40 dB, so is not great, but I think that this must be an average figure. The IF "filter" is cheap and its bandpass seems to vary from one set to another. I've heard one DX160 which gave us stations 10 kHz away from locals and gaps between semi-local channels; this set had no modifications. Other sets have had poorer selectivity. In general, tuning sharpness is good enough for domestic DX along with the odd loud split frequency.

The radio has a slide rule dial with markings every 50 kHz at the low end of the band and 100 kHz at the high end. The dial is big enough to make a guess at which 10 kHz channel you're tuned to (if the radio is properly aligned). The bandspread works on BCB as well, so it is possible to interpolate to the nearest 1 kHz if you wish to.

Audio quality is reasonable and the speaker gives a bassy response which cuts down somewhat on noise. The ANL is rarely really effective on BCB although it does a reasonable job on ignition noise in the high SW bands. The S-meter pins easily; you have to turn down the RF gain to find a null on a strong station. The BFO is adjustable and can be used easily to spot carriers.

If you DX other bands, there are image problems on the higher SW bands, and the longwave band suffers from BCB mixing products. However, for a second-hand price, this could be a fair DX receiver, particularly if you take time to modify it a bit. (See pp. 81-82 for modifications)

The Kenwood R-300

This is a general coverage receiver with a range of 170 kHz to 30 MHz; there is a gap between 410 and 525 kHz for the IF frequency. BCB is split between band B (525-1250 kHz) and band C (1220-3000 kHz). Dual conversion with an IF of 4.034 MHz is used on band F (18-30 MHz). Controls include broad/sharp selectivity, RF and AF gain controls, antenna trimmer, a "tone" switch, ANL, variable BFO, a 500 kHz calibrator, and bandspread useable on all bands but calibrated only for SWBC bands.

Sensitivity is quoted at 1 microvolt on BCB using AM; selectivity is quoted at 5 kHz -6dB/ 17 kHz -60 dB (broad) and 2.5 kHz -6dB/ 12 kHz -60 dB (narrow). The "sharp" selectivity is not bad, but not good enough to entirely eliminate interfering signals within 3 or 4 kHz of the desired station. The radio is calibrated every 50 kHz on BCB and can be interpolated to 10 kHz on the main dial. A logging scale on the bandspread dial allows interpolation to the nearest kHz, if you're willing to work out charts. Audio quality of signals received is good, though naturally more bassy in the narrow selectivity position. The "soft" position of the tone control is a passive low-pass audio filter and can allow better readability in some cases. The ANL is not particularly useful for splatter or atmospheric noise and reduces signal along with noise. The S-meter is better than some, as it does not pin easily, and indicates loop nulls well.

The manual which comes with the radio is quite informative and includes alignment information. Looking at the circuit, this receiver seems well designed for BCB DX--MOSFETs in the front end and shielded BCB antenna coils--little is heard if an antenna isn't hooked up to the R-300. But there are real problems with spurious responses. In an urban area (and even rural ones), there are birdies and cross-modulation all over the BCB using a longwire. An antenna tuner or good selective loop are necessary for serious DX--and then only if you're some distance from your locals. A pity, because this is a nice radio in most other respects. Part of the problem is the good sensitivity, but even turning the RF gain control down all the way did not eliminate some spurious responses, though it made the radio relatively insensitive. Therefore, this radio is to be approached with caution as a BCB DX machine.

The Lafayette BCR-101

There's not much info on this one, but here goes: This covers the longwave band and .5 to 30 MHz. A QST reviewer found it "sensitive throughout its frequency range, except for the 530 to 1600 kHz BCB where a ferrite loopstick on the rear panel is switched in". 200 microvolt sensitivity is quoted for BCB. The reviewer also noted some dial backlash, and said that the noise blanker was almost useless.

The receiver has single conversion circuitry below 4 mHz and dual conversion on higher frequencies. There are two selectivity positions specified as 3 kHz (narrow) and 8 kHz (wide) at -6 dB; no -60 dB figures are given.

Chuck Hutton used a BCR-101 for a couple of days and had these comments: "It had adequate sensitivity for MW and SW work but was sadly lacking in selectivity and the ability to handle locals. We found the BCB to be a maze of spurious responses from locals, and slop up and down the entire band. No splits were audible at the time on the BCR-101, although an SPR-4 and a TRF (!) were both producing audio from a few of the stronger ones at the time. There appears to be nothing wrong with the cosmetics--appearance, layout, accessories, etc. But the beauty is skin deep. I feel it is roughly comparable to the DX150 series in performance."

The Sony ICF-6700W
by Peter V. Taylor

This is a multi-band radio covering BCB, FM and shortwave from 1.6-10 MHz and 11.5-30 MHz, featuring digital readout on all bands. Advertised as a portable, it can be powered by 6 D cells as well as house current and 12 volts DC with a suitable adaptor. The dial lights work on battery power only if a switch is pressed and the digital display can be switched off to conserve batteries. A whip antenna is used on SW and FM, though an external antenna can be used by flicking a switch. An internal loop antenna is used on BCB; an external antenna input is coupled into this loop, but the loop cannot be switched out when using an outside antenna.

Sensitivity on BCB is reasonable using the internal loop, but for best results, an external antenna should be used. There can be feedback using an amplified loop, though turning down the RF gain helps alleviate this problem. There have been reports of overload problems when an external antenna is used, but again, judicious use of the RF gain control helps. However,a pair of strong KABL-960 spurs have been noted in San Francisco on 860 and 1060, even without an external antenna. These spurs were not nearly so strong using an R390 with an amplified loop. In urban areas therefore, check for spurious responses which don't disappear upon reducing RF gain somewhat; if these spurs are present on other radios however, they may be externally produced. Cross-modulation is only produced if an amplified loop is tuned to the wrong frequency when it is fed into the radio. In San Francisco (with FM stations spaced approximately 800 kHz apart), the ICF-6700W used with a SM-2 loop produces noise in the 700 to 800 kHz range from FM mixing products.

There is switchable selectivity between wide and narrow, but no specs are given. The wide position is too wide for anything but listening to music; the narrow is selective enough to log stronger split frequencies. If a local is not too splashy you should be able to log stations 10 kHz away from them. Serious split DX'ing is usually beyond the ICF-6700W's capability however. Some frequency drift has been noted when using the SSB position, but it shouldn't affect AM listening.

The digital display suffers from two problems. Some of these radios read one to two kHz high on BCB when you peak the signal on the S-meter, and the LEDs are rather faint, in fact, nearly unreadable in sunlight. The tuning knob is flywheel weighted and has a nice feel to it, though some may find that the frequency display changes too slowly to keep up accurately with one's tuning.

A few random observations: This radio has a BFO but it is of the USB/LSB variety. Audio quality is reasonable and response can be varied with bass and treble controls. The set is equipped with a headphone jack and a record output jack, but the latter puts out a rather weak signal. Finally, the set is somewhat bulky (12 pounds with batteries) for comfortable nulling using its internal loop antenna, but it can be managed.

The Sony ICF-6800 is vaguely similar in appearance to the ICF-6700W, but it has a more complex design in its SW section. It appears that the BCB is similar to the ICF-6700W however, so there is no advantage to spending the extra money if your primary DX is BCB. Sony is not importing the ICF-6800 into the U.S.A. at this writing, though it is available from Gilfer Associates, and can also be purchased in Canada.