ANDEX

INTERNATIONAL

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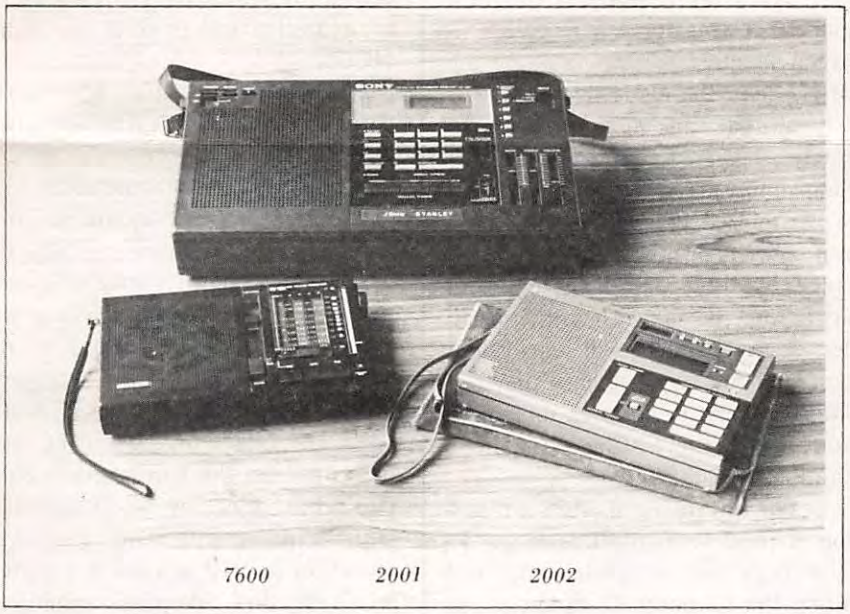
COMPARING SONY RECEIVERS

by John Stanley



7600 2001 2002

which one you should own depends on who you are

Of the many receivers that Sony has produced in the last several years, the ones you are most likely to see are the 2001, 2002 and 7600. Some ANDEXers may be pondering the purchase of one of the above or recommending one to a friend. Technical sheets from the manufacturer can provide some information, but an unbiased user report sometimes helps also.

I owned a 2001 for two years, had the use of a 2002 for six weeks and presently own a 7600. Each has served me well. Which one you should own depends on who you are. Let me say which one I would buy if I were a certain type of person and why.

IF I WERE A SERIOUS DXER (WHICH I AM SOME OF THE TIME), I WOULD CHOOSE THE 2001. The ghastly battery consumption problem is pretty much solved by use of Gates cells--see ANDEX, Oct-Nov 1982. In any case, a serious DXer stays at home most of the time with his various outside antennas. When used with a big antenna, the poor sensitivity of the 2001 is not too serious.

The memories are of use in checking a number of frequencies simultaneously while waiting for an ID. And the 1 kHz resolution and nice fine tune are a must for SSB monitoring of the ham bands and utilities.

Size is no problem for the stay-at-homer, and the S-meter system, while of marginal design, is at least of some use to the DXer.

Complex and difficult to service, the 2001 should not be exposed to rain and extremes of temperature. An additional IF filter to provide narrower bandwidth is possible in a receiver of this size, and would be something a serious DXer would appreciate.

ON THE OTHER HAND, IF I WERE A CAMPER, TRAVELER OR BACKPACKER, I WOULD CHOOSE ONE OF THE 7600 SERIES RECEIVERS. It is, first of all, light and has excellent battery life. It covers the broadcast bands only but with good sensitivity so that no external antenna is needed.

In fact an extra wire usually degrades overall reception. This is because it loads the input circuit and destroys the already inadequate image rejection of the 7600. That image problem is my biggest gripe about the receiver. It results from the single conversion circuit with a low IF frequency and manifests itself as whistles and beats, often with CW or RTTY signals that change in audio note as you tune.

Those beats do provide a nostalgia trip for old-timers who associate shortwave with tweets and whistles but are otherwise a pain. Only the fact that shortwave broadcasts are usually many times stronger than the interfering utilities makes the situation tolerable.

continued on last page

FEARLESS FORECAST: SOLAR FLUX AND K INDEX

JOHN STANLEY is
Director of Engineering
at HCJB

Last issue I began to tell about how short-term predictions of shortwave reception are made. We saw that the major factor affecting the ionosphere is the output of the sun. But what is it about the sun that is important?

Sunspots are associated with shortwave in the minds of many people, but actually sunspots themselves **DO NOT** affect the ionosphere! Rather they are a symptom or indicator of something else occurring on the sun. This may seem an unnecessary distinction, but just as yellow eyes are not the cause of jaundice but rather a symptom, so sunspots are a symptom of solar activity. The 11-year cycle of solar activity produces both sunspot variations AND variations of solar output of various types. The solar flux, for example, rises and falls more or less with sunspots, but one does not cause the other.

Solar flux is replacing sunspot count as an indicator of solar activity. This refers to the intensity of "white noise" emitted by the sun and measured at a frequency of 2800 MHz. Values of flux are measured daily and broadcast over WWV at 18 minutes after each hour. Listen for WWV on 2.5, 5, 10, 15 or 20 MHz. Pick the frequency that gives the best reception in your area. Keep a daily record of flux numbers as they are announced. You will then have a running record of the intensity of solar radiation striking the ionosphere. But of what use is it?

The F-layer, which is the most important layer for DX reception, is several hundred kilometers above the earth where the air is very thin. At that altitude air molecules are so widely separated that they seldom bump into each other. Often a molecule is ionized (i.e. split into an electron and a positive ion) by being struck by ultraviolet light or by an x-ray from the sun. These two particles, once separated, will remain ionized for hours or days since they can not recombine to form an un-ionized atom until they chance to meet. Isn't that romantic?

For this reason shortwave reception is possible at night since the F-layer does not completely die out during the 12 hours of darkness. In fact, a significant amount of ionization can carry over from day-to-day. Therefore, the amount of F-layer ionization present on a given day is due to the cumulative effect of the radiation falling on the earth from several days previously.

By keeping a record of daily flux values we can anticipate that MUF's may be higher than usual if the flux has been high for several days. A single day of high flux will pull MUF's up some, but several days of building up of ionization will produce the higher MUF's.

Also announced on WWV is the current K index. This is an indication of disturbances in the earth's magnetic field. When K indices are really high (six above, for example) you may find it interesting to observe carefully the pointer of a sensitive magnetic compass. With a magnifying glass you will perhaps see small vibrations of the pointer, indicating rapid fluctuations in the direction of magnetic north.

The effect of the earth's magnetic field on the ionosphere is complex, but generally speaking, high latitude paths will show a marked reduction in MUF's when K numbers are high, and reception conditions will be poor. However, MUF's on low-latitude paths may actually increase. This is especially true on trans-equatorial paths during daylight.

For the next several years, those DXers hoping for 10-or 11-meter "openings" would do well to listen on days when the flux is high. On days with a high K index you will hear more low-latitude signals. On days of low K index, more high-latitude signals will be heard.

Another effect of high K indices is auroral activity. If you live far enough from the equator, you may see displays in the sky towards the magnetic poles (north or south). You may also hear a flutter on signals traveling near the magnetic poles.

This information given on WWV at 18 minutes after the hour will give a good idea of what to expect on the shortwave bands. This information is useful not only at the time it is given, but may also serve at later dates. More about that next time.

Photograph of the sun at sunspot minimum

Photograph of the sun at sunspot maximum

ANDEXING

LOST YOUR WATCH? Need to synchronize equipment? Then call 1-900-410-TIME to hear a constantly updated recording that quotes the time, complemented by a precise ticking in the background. The recording of the most accurate time in the world was made available last year by the U.S. Naval Observatory in Washington, D.C., when the American Telephone and Telegraph Co. divestiture caused some local Bell operating companies to eliminate time services. The observatory's Marter Clock, as it is called, provides the national time standard and the constant ticking that can be used to synchronize instruments.

The service can complete 8000 calls simultaneously; therefore, callers can stay on the line and will not be cut off as in other time services. Callers will be charged a small fee for the service. Both eastern standard time and UTC (GMT) are updated every 10 seconds.

A NEW JAMAICAN PAYMENT SYSTEM starts at the first of the year. It has been difficult for our members in Jamaica to remain members as there was no way to get dollars out of the country and there was no local office payment system. Now there is.

ANDEX fees for one year will be J$25 and should be sent to HCJB, Jamaica Office, P.O. Box 31, Kingston 6, Jamaica.

A PRIZE DX LOGGING took place when Jawahar Almeida of Goa, India sent a reception report to La Voz del Istmo (Radio HOXO--sister radio station to HCJB) located in Panama.

The catch took place on April 18, 1984 at 1230 UTC on 760 kHz with a SINPO of 22222. The receiver used was a National Panasonic 5500 with a mediumwave loop antenna.

HOXO runs 5 KW and is on the air from 1030 until 0315 UTC. Maybe you can try for it too. As you are listening for it, check the distance from India to Panama to appreciate this special logging.

THE WORLD IN MY EARS was donated to Tom Kennedy, our 5000th ANDEX member, by author Arthur Cushen. Perhaps some of you other members would like this book also. It includes the amazing story of a blind radio listener who has become a world authority in radio listening. Arthur Cushen has confirmed over 2,500 mediumwave and 5,000 shortwave stations--certainly an achievement never bettered.

Along with the story of how he began listening are many sections of interest concerning propagation, antennas, time-conversions, receivers and much more.

Mr. Cushen's book is available for $9.95 (USA dollars) either from Gilfer Associates, Box 239, Park Ridge, New Jersey 07656, USA, or direct from the publisher and author, Arthur Cushen, 212 Earn Street, Invercargil, New Zealand. In areas where there is a problem with foreign currency, he will be happy to accept 20 IRC's for a copy to be sent registered mail.

Arthur Cushen is an honorary ANDEX member, having been associated with ANDEX since its founding in 1974.

SONY [continued]

Finally, the 7600 is cheap enough to lose without major trauma.

IF I WERE SOMETHING BETWEEN THE TWO EXTREMES ABOVE AND MODERATELY RICH, I WOULD GO WITH THE 2002. (Incidently, the 2002 is sold in Japan as the 7600D which has confused a lot of people. Shame on you, Sony! Are there so few numbers in the world?)

The 2002 is physically the size of the 7600, but much more powerful. Its battery life is only marginally better than the 2001. It has no S-meter. Like the 7600 it has only a light to indicate a station is present. This, as far as I can tell, benefits only the deaf listener.

The "smart" tuning scheme of the 2002 is helpful only to the broadcast listener. For hams and utilities it is difficult to tune between 5 kHz segments. Even HCJB on 21,477.5 is hard to tune in. I liken the 2002 to a fully-automatic camera with no override--fine for the public, but the professional wants the finer control the 2001 gives him.

The 2002 is somewhat more sensitive, hence more portable, than the 2001. It works fairly well without an outside wire.

Buying a radio is after all a very **personal** thing. What kind of a person are you?

Best wishes to all ANDEXers

John, Ruth, Doris

SPECIAL DXERS

George listed his hobbies--gardening, golf, fishing, pool, lawn bowling--"You name it, I'll have a go." In 1982 our Special DXer, George Thompson decided to have a go at shortwave listening.

Using a National DR 49 receiver and a couple of antennas; a long wire of 20 meters and a random dipole, George spends approximately four hours a day listening to his new hobby. He also uses a tape recorder to save some programs from time to time.

George joined two radio clubs. He is a member of the Australian Radio DX Club and is ANDEX 4656 of our own Andes DXers International, having joined in March of 1983.

George is retired now that he is 63 years old, but started his work career as a brick layer. He stopped laying bricks for several years during World War II to help out the British Army as a bombadier assistant. After the war, back to bricklaying for a time, then into sub-contracting and finally, to a 20-year job of salesman/sales manager.

In addition to practicing all his hobbies, George practices being a grandfather to his eight grandchildren. I am sure that is a job he enjoys.

Write your congratulations and new year wishes to George Thompson, 2 Hamilton Street, Wallaroo, South Australia, 5556.

George Thompson

A. W. Henderson

Our Special DXer from the USA for this issue has been interested in shortwave listening since the year 1940 and heard HCJB for the first time so many years ago that he can't remember when it was.

A.W. Henderson lives at 2582 Brandywine Drive in Dallas, Texas 75234, USA. A.W. works in the accounting department for Dallas Power and Light Company and has been with them for 36 years. In another year when he is 62, he will probably retire.

The photo shows A.W. in his communications headquarters . He has in front of him the microphone that goes with his CB transmitter (his hand is on this piece of equipment). The transmitter is a Navaho TRC 458 and on top of it is a SWR bridge. Both A.W. and his wife, Betty, belong to the Avalanche QSL Club of British Columbia which has its headquarters in Houston, Texas. They both talk on the CB often, and A.W. uses it to monitor his wife home from work at night.

Next in the photo is his Kenwood R1000 with its matching speaker, SP100. And next to the speaker is his tape recorder which he uses for recording all his DX work on his CB and also to record special programs of interest such as when his name was read on DX PARTY LINE announcing him as ANDEX member 4420. He says he still has that tape even though he joined in August of 1982.

The control box for his three-element Yagi is also on his desk, and a television set which he uses to listen to the news and weather channel in Dallas.

His roof looks like a porcupine with his Yagi for CB work, his 10-element beam for FM-DXing, a trap dipole for his Kenwood receiver, a system of using the guy wires anchoring the antennas for a long-wire antenna, plus a couple of TV antennas and another antenna to listen to utility stations. Hope your roof doesn't fall in, A.W.!

In additional to his radio hobby, A.W. enjoys photography and cooking. He is also chairman of the prayer ministry of his 300-member Bible class.

Hope the new year promises some good listening for you in your communications headquarters . Congratulations, A.W. Henderson.

VARIETY AND SPICE

New, different, exotic scenes. Borders to cross. Oceans to travel. Different cultures and people. All this and more you can enjoy when you have a passport. And you find it all on HCJB's PASSPORT program Monday through Friday at 0100 and 0530 UTC to the Americas and 1900 UTC to Europe; and Tuesday through Saturday to the South Pacific at 1000 UTC.

Do you like variety? PASSPORT presents everything from commentaries and interviews to humor and music. Many from the HCJB staff talk on the program--engineers, nurses and doctors, programmers, secretaries, and housewives.

ANDEX will focus on one frequent contributer to PASSPORT, Marian Osborne. This tall, dignified mother of three grown children brings a wide spectrum of experience to the program. In her 11 years with HCJB she has been active in painting (part of one of her paintings is shown in the picture), decorating, flower arranging, piano, drama, and a great deal of radio programming. Marian's busy schedule requires early rising to play her favorite sport, tennis.

Marian was born in Chicago and moved to California at age 16. She earned a B.A. in education and later at HCJB an M.A. in communications. She and her husband John managed a home for delinquent-oriented and emotionally-disturbed boys for 17 years before coming to HCJB. They continue to work with young people in Quito through church and high school activities, and with college students involved in HCJB's summer missionary program.

Marian's flair and creativity shine out on PASSPORT as she shares recipes and cooking hints on "Sugar and Spice," and dramatizes scripture on the segment called "Mini Dramas."

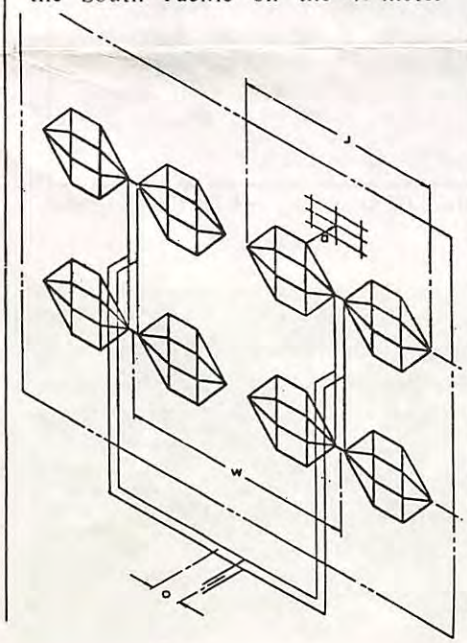
She is hostess of SONSHINY DAY, a program built around a topic and using contemporary music geared to young people. You can also hear her voice (and laugh) on the popular program, MUSICAL MAILBAG.

So take a variety of features, add the spice of interesting people, and we have PASSPORT, an HCJB program you'll want to check out for yourself.

NEW 49-METER ANTENNA

by Don Hastings, Staff Engineer

HCJB's newest antenna is now under construction at the Pifo, Ecuador, antenna farm. This antenna will provide coverage of Europe and the South Pacific on the 49-meter band with a power capability of 500,000 watts. It will be our second largest antenna structure with a width and height both of about 355 feet (108 meters). Only our steerable beam antenna is larger than this. The active elements of the antenna are indicated in the sketch. They consist of four flat "cage" type dipoles one-wavelength long and one-fourth wavelength wide; this shape prevents excessively high voltage on the elements even at 500 kw of power.



The large size of the antenna provides good directivity of the signal power in the direction of the target countries. The power is concentrated 130 times stronger in the target direction (gain = 21.1 dB I) than for an antenna that radiates in all directions. This is twice as strong as the old antenna it is replacing. As a result our European listeners will be getting ten times more signal power than we have ever provided in the past.

The structure will actually contain two separate four-dipole arrays separated by a reflecting screen in the center of the structure. This arrangement will permit simultaneous broadcasts to Europe and to Australia and New Zealand, which could not be done with our old antenna. Initially we will broadcast with 100 kw to the South Pacific and 500 kw to Europe.

Our broadcasts to Europe will cover from the southern edge of Russia north to above Lapland at the northern-most tip of the Scandinavian peninsula. This will provide excellent coverage of all of central and northern Europe. In the South Pacific direction the coverage will extend from Sydney south to include Melbourne, South Australia, and Western Australia where our other antenna beams have been weaker in the past.

This new antenna is expected to be in operation by the end of January, 1985.

PEN PALS INTERNATIONAL

WILLIAM KENNEALY -- 2115 Silver Bell Road, Eagan, Minnesota 55122, USA - ANDEX 3134 - 27 years old - a jeweler and Bible college student.

JIJI JOHNSON -- 16450 Gardner Avenue, Riverside, California 92504, USA - ANDEX 5125 - speaks English, French and sign language - will answer all letters.

ART ANDERSON -- 738 Lincoln Avenue, Lovell, Wyoming 82431, USA - ANDEX 5041 - 23 years old - a restaurant cook - as a new Christian, he would like to find a Christian pen pal in another country - interested in SWL, literature, science, astronomy, geology, classical music and other cultures.

BRUCE L. De SHAZO -- 1710 Whitman Road, Memphis, Tennessee 38116, USA - ANDEX 4470 - 37 years old - would like to correspond by tape letters only with people interested in shortwave.

TONY BOOLS -- 74 Digby Avenue, Mapperley, Nottingham, England, NG3 6DU - ANDEX 4726 - interested in DXing, SWL, electronics and railways.

THOMAS W. ROSS -- 7840 Forestview Drive, Orland Park, Illinois 60462, USA - ANDEX 4947 - would like a pen pal from anywhere in the world - has a sister, Stephanie, who would like to write to someone from France or England.

MAKING TIME

"THERE ARE CERTAIN THINGS IN LIFE for which we must **make** time for." So said William Barclay, the Scottish New Testament scholar. He listed four:

1. We must make time to think.
2. We must make time to pray.
3. We must make time to talk.
4. We must make time to do nothing.

As for the time to think and pray, I agree with him. I often am so busy **working** for the Lord that I've no time or energy left to **worship** Him.

But make time to talk? Barclay said that we don't take time to talk any more. TV (or DXing) has taken over. And when we do talk it is too often about trivia.

But what about "doing nothing?" In this day and age! The Bible says, "Be still and know that I am God." (Psalm 46:10)

Do you have the TIME to make a New Year's resolution? Try the four above for 1985.

DO YOU WANT TO SEE YOUR PICTURE IN SPECIAL DXERS? Send a good, clear picture of yourself and your equipment, either black and white or color. Write up the details about your equipment, how you got started in the hobby and any other interesting facts about you, your town, your equipment or your listening habits. Send to ANDEX, Casilla 691, Quito, Ecuador. We'd like to hear from you!

Smithsonian Institution

Honeymoon with radio *(Radio pioneer Edwin H. Armstrong with his bride and the world's first portable radio), 1923*

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