

An A R Special - A Review of the Atlas Transceiver

The ATLAS 210/215 transceivers are five band fully solid state single sideband transceivers and as such represent a new approach to both electronic and physical design. They are manufactured in the USA by Atlas Radio Inc. of Oceanside California, and sold in Australia by Vicom International Pty. Limited of 139 Auburn Road, Auburn. The units used in our tests were obtained from Vicom and readers requiring information on delivery and price should contact them.

The Atlas is the smallest and lightest HF transceiver on the market at the present time. It is only slightly larger than many of the current two metre FM transceivers. Dimensions are 24.1 cm wide, 8.9 cm high and 24.1 cm deep. It weighs in at 3 kg or a shade under 7 lbs.

Current drain at 12 volts is 500 milliamps or less in the receive mode and 16 amps peak transmit. Average current drain while transmitting would however be only about 4 to 5 amps. This represents many hours of operating from an average car battery.

TECHNICAL FEATURES

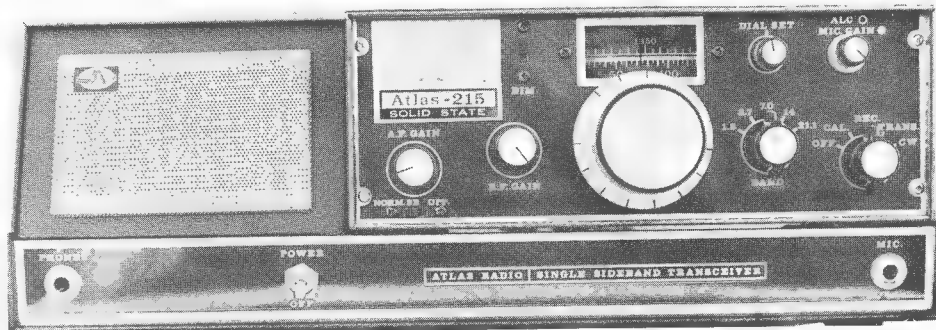
The 210 and the 215 are identical in all respects except for frequency coverage. The 210 tunes 350 kHz of the 80, 40, 20 and 15 metre bands with 700 kHz on the 10 metre band. As imported, the 80 metre band starts from 3.7 MHz, however full details are given in the instruction manual to retune this to 3.5 MHz to suit local conditions.

The 215 differs in that the 160 metre band is included and the 10 metre band omitted. Coverage on 160 is from 1.8 MHz.

Operation of the Atlas is simplified by the use of broadband output transmitter circuits which require no tuning on the part of the operator and so long as a reasonably matched 50 ohm load is presented to the rig, full output will be obtained. Receiver input is treated in a similar manner and no peaking is provided or needed.

All circuits are powered directly from 12 volts DC, so mobile operation requires only connection to the normal 12 volt car battery. No power supplies are required. Transmitter power is a very healthy 200 watts PEP input on the 160 to 15 metre bands with 120 watts on the 10 metre band.

The inbuilt VFO is calibrated in 5 kHz increments on all bands except for 10 metres which is double this figure. A separate calibration scale for the 160 metre band is provided on the 215, whilst the 210 has a separate scale for the 10 metre band. The tuning drive is exceptionally smooth and has a tuning rate of 15 kHz per revolution. The circumference of the knob is divided into fifteen segments giving approximately one kHz calibration. A 100 kHz calibrator is included



as is opposite sideband selection. Provision is made to index the dial setting against the calibrator.

Some very interesting circuitry is employed in the Atlas. In order to overcome front end overload problems common to solid state receivers, no RF or first mixer gain is used. Instead, the input from the antenna goes via individual tuned circuits for each band to the first receiver mixer which is a double balanced diode ring. A low noise high gain IF strip provides all the actual RF gain of the receiver. Single conversion is employed with an IF frequency of 5520 kHz. Selectivity is well taken care of with a special eight pole crystal filter giving a band pass of 2.7 kHz at the 6db points and a total rejection of 130db.

The 'S' meter is calibrated in the usual way to S9 and 50db over S9. In the transmit mode, the meter is switched to read final collector current and is calibrated to 16 amps. Both the meter and tuning dial are indirectly illuminated, with switching to lower the intensity for night time mobile operation.

THE ATLAS ON THE AIR

Unfortunately the time spent testing the Atlas was limited. We were therefore unable to carry out many of the technical tests that make up the usual 'AR' reviews. However the time was quite sufficient to form many definite opinions. As the AR-230 AC power supply console was supplied with the test units we were able to try them out in the comfort of the home shack. As no doubt many amateurs will be purchasing this unit to go with their Atlas transceiver some comments on the AC power supply are also in order.

First impression was the extreme smoothness of the tuning dial. With only 15 kHz per knob rotation, SSB resolution is easy. Because a different VFO range is selected for each band, drift varied slightly from band to band. However the maximum drift from a cold start did not exceed 1.5 kHz most of this occurring during the first five minutes of operation. Although no actual measurements were made, it appeared that the VFO drift was slightly higher during the transmit function than during receive. Receiver AGC action was

smooth with only a small amount of harshness occurring on the very strongest signals.

The Atlas specifications claim that the AGC will handle signal levels up to 3 volts. As a test, the normal station transceiver was fired up and the Atlas was used as a monitor for this. Excellent copy was obtained in this extreme situation.

Used with a standard high impedance dynamic microphone, reports on audio quality were excellent however it appeared that it was easy to overdrive the final resulting in a dramatic falling off of intelligibility. While a front panel ALC adjustment is provided, the instruction manual suggests a try and see approach to its setting.

Tuning up for any band seems almost too easy. Select your band, flip the function switch to the CW position, check that the collector current is around 12 to 14 amps, and you are in business. Speak into the microphone and adjust the MIC gain for a peak current reading of 8 amps. It's rather hard to resist the temptation to adjust the final tuning, but the Atlas does not have or need any peaking controls.

A small loudspeaker is built into the transceiver, but it is on the wrong side for mobile operation in Australia. This also applies to the rear mounted microphone input socket. The Atlas is of course designed to actually plug into its companion mobile mounting bracket. All connections are then made to the bracket allowing easy removal to the home station power supply unit.

With the AC console the Atlas turns into a very elegant home station taking no more space on the operating table than any comparable all band transceiver. Over long periods of transmission the supply remained quite cool. Under very quiet conditions a small amount of both mechanical and via the speaker hum could be heard.

CONCLUSION

There is no doubt the Atlas breaks new ground in HF mobile operation. It would be entirely feasible to fit it into the smallest of cars while the current drain over a period of time would average only two or three amps. No doubt this little rig will catch the imagination of many amateurs. ■