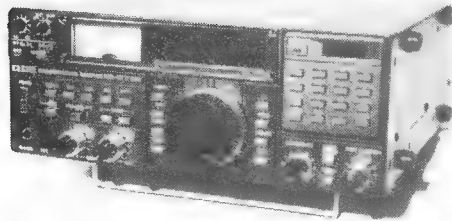




# EQUIPMENT REVIEW

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## THE ICOM IC-R71A RECEIVER



If the Icom IC-R70 receiver had a few short-comings, the new IC-R71 has certainly put most of these to right. The superb performance of the R70 has seen that receiver in use in many professional locations running twenty four hours a day month after month. However reference to the review of the R-70 in the September 1983 issue of *Amateur Radio* shows that there were some strange omissions from the operating facilities. The lack of a memory system was odd to say the least. Icom transceivers released much earlier had a memory system of sorts and although not perfect, the IC-R70 did not even get the benefit of this.

However this is all changed. Just look at what the R-71 has. First off, thirty two tuneable memories. Direct entry frequency selection via the front panel key board. Variable rate continuous tuning from 100kHz to 30MHz. Remote control via an infrared hand held control unit, from an external computer interface, or over telephone lines for remote operation. A voice synthesiser is an available option for frequency readout for handicapped operators, or to feed information back to the operating point with a remote control set up.



**Remote Control Unit.**

In addition to all of this, most of the desirable features of the old IC-R70 have been retained. It is

also interesting to look at the features that are shared with the two current Icom transceivers, the IC-751 and IC-745.

In appearance the R70 and R71 are much the same except for one important point. The front mounted speaker of the R70 has gone to make way for the direct entry keyboard of the R71. The internal speaker is now in the more usual, but not so satisfactory, location in the top of the cabinet. Well you can't have everything and probably most operators prefer an external speaker anyhow. The RIT control of the R70 has gone and certainly won't be missed. The memory selector control now occupies this position.

The two VFO system has been retained and combined with the memory selector gives the operator an incredibly versatile tuning set up. Of course all reception modes are available, but with FM as an option as usual. Narrow CW and a high grade SSB filter are among some of the other options available, but more of this later.

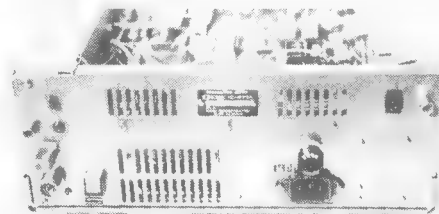
The R71 also has a scanning facility for either the memories or a programmed band scan.

Primary operation of the R71 is from AC power mains of 100, 117, 200, 220 or 234 volts, 50 or 60Hz. Operation from a 12 volt DC source is possible with the optional DC cable kit.

### THE IC-R71 IN OPERATION

As the Icom advertising says, 'The Best Just Got Better'. Yes and no. Let me start off by saying that it is very hard to level any real criticism at the R71 but a few points of complaint with the old R70 have been carried over and some of the new features come in for a bit of adverse comment. In general terms though, the receiver performs in superb fashion and having recently tried a couple of receivers in the \$4000 price bracket from European origin the R71 runs rings around them in most (not all) aspects.

Setting up the R-71 is quite straight forward. Two antenna input connectors are provided, one for reception below 1.6MHz using a high impedance antenna, the other a standard S0239 connector providing a 50 ohm input right across the whole received frequency range. A change over switch selects the required impedance for low frequency reception. Several other facilities are available on the rear panel. These include an output for a panadaptor scope, a tape recorder control terminal which is operated by the receiver squelch, and an external speaker jack which uses a now standard 3.5mm socket. Covered cut outs are included for the optional computer interface unit and the 12 volt DC input. A ground terminal, AC input connector and fuse holder round out the facilities.



**Rear Panel.**

The frequency and memory channel display used on the R71 are similar to the 751 transceiver. It is a very distinct blue white fluorescent type which displays frequency down to 100Hz resolution, the memory channel selected, the mode the receiver is switched to and the VFO (A or B) selected. The overall effect is excellent and is, without doubt, one of the best displays around at the present time.



**Channel Display.**

Selecting the required receive frequency can be accomplished in two ways. Firstly by using the key board. In this case the whole frequency down to the last digit (100Hz) point is dialled up, the enter button pressed and there you are. If an exact MHz point is required then it is only necessary to press (say) 07, then Enter and you are on 7MHz. Using the tuning knob, it is possible to tune continuously from 100kHz to 30MHz but it's possibly easier to push the 'Band' button where the tuning control becomes a MHz selector.

While on the subject of tuning, I have the same complaint with this that I had with the 745 transceiver. The only tuning rate available is the very slow 10 Hz step. Ah, I hear you say, what about the 50Hz rate and the 1kHz rate. Sure enough, but to select the 50Hz rate it is necessary to rotate the tuning knob at a fast speed while the 1kHz speed is perhaps OK for AM reception but is really too fast. There is no doubt that the slow 10Hz rate is great for tuning SSB but is far too slow for looking over one of short wave AM broadcast bands. Icom should provide a 100Hz tuning rate which would allow faster tuning for both SSB and AM reception.

As mentioned earlier, the memories are fully tuneable. To explain further many current transceivers with memory facilities allow a fixed frequency to be memorised. If you need to tune up or down from this, it is necessary to transfer this to one of the VFOs. You then lose the VFO frequency. With the Icom system, when a memory channel is selected just turn the tuning knob to shift frequency as far as needed. The original memory can be instantly recalled by selecting the next memory position and then return to original memory. This system gives the Icom receiver the ultimate flexibility.

One feature that will not please the keen listener is the shift in frequency when changing modes. This is noted when changing from upper to lower sideband. This produces a 3 kHz shift. Chasing weak AM stations on the short wave bands it is very often necessary to pick the sideband with the least interference. With the R71 you must tune either up or down 3 kHz every time you do this. I find this strange as the original Icom transceiver, the 701, had the ability to swap sidebands and remain on the same frequency. Why not now?

The filter selector switch is effective but rather confusing to use. Firstly the selectivity produced depends on the mode selected and, in any case, it is sometimes hard to see if the buttons are in or out. A simple three position switch would remove all the confusion. The notch and band pass tuning are retained in similar form to the older R70. The action of the BPT is handy to reduce interference and on SSB would, no doubt, be better with the optional FL-44A high grade filter.

The notch filter is reasonably effective on SSB and CW reception but is not available for AM. Perhaps a sharp cut off 5kHz filter could be added in the future for this mode.

The R71 provides three scanning modes. First it is possible to scan all 32 memories. Second, memory channels with a selected mode can be scanned and thirdly a programmed band scan can be set. With this, memory one and two set the limits of the scan.

As with the 745 transceiver, the scan system is useful to operate. For the scan to stop on a channel it is necessary to set the squelch control to a given point. The trouble is that this is different for each signal. Perhaps a better way would be for the scan to stop on each memory for a preset time and then resume. This would then give the operator a chance to evaluate what is on the channel and then stop the scanning process if required.

Like the R70, the frequency stability is superb, but if you require this same stability under conditions of extreme temperature fluctuation, a high stability master crystal is available. Operating in a normal situation, the stability with the standard setup is beyond reproach. Maybe Icom could provide a 10Hz readout on their next model. The stability is quite adequate for this right now.

Perhaps one of the more impressive aspects of the R71 is the front end performance. The use of the attenuator was not required under any conditions encountered when operating the receiver and even with the pre-amp in, no trace of overload was detected.

The review R71 did not have the voice frequency readout fitted but luckily I did have access to an R71 with one fitted a few weeks earlier. The quality could not be described as good, but it is quite intelligible I have discussed the use of this with some of my sightless friends. They are unanimous in their praise for its inclusion, but would prefer that the operating button was placed clear of other controls. It is too easy for them to push the wrong button and hop to another frequency rather than get the voice readout. Just as a thought, perhaps it could be placed down near the phone jack.

The infra-red remote control unit was supplied and many hours were passed having fun using it.

To put it into use, the remote button must be pushed and then all control takes place from the remote unit. Power on/off, audio gain, mode selection, frequency selection from the key pad and memory channel selection are available. Even the voice readout is selectable. As to its practicality, I must leave this to the intending purchaser. Enough to say that it works and works well up to a distance of about five metres from the receiver, so try a bit of real arm chair copy. Noise blanker action has been up-graded over the R70 with the addition of a level control. The wide/narrow facility has been retained and the blanking action is usually satisfactory even with the Wood Pecker. The R71 however lacks the continuously variable ATC control of the IC-745 and so the fine tuning technique with the Woodpecker blanker is not available.

#### THE IC-R71 CONCLUSIONS

The R71 is a receiver of the highest quality that will be at home amongst the top priced receivers from Europe and the USA. In fact if the choice was available, I would suggest that most operators would prefer the feel and handling of the R71. Icom have overcome most of our earlier complaints with the R70 but still have a way to go with others. I feel that most of our current criticisms could be put right at no increase in cost.

However there is little doubt that the R71 is in a class of its own. If you are in the market for a top grade communication receiver at an affordable price, look no further.

#### EVALUATION AND ON AIR TEST OF THE ICOM IC-R71 RECEIVER

##### APPEARANCE

Packaging \*\*\*\* Excellent carton with foam inserts.  
 Size \*\*\* Same size as the R70 with more features.  
 Weight \*\*\* Quite reasonable. 7.5 kg.  
 External Finish \*\*\* Well finished, but rough paint finish tends to pick up and hold dust.  
 Construction Quality \*\*\*\* Up to the usual high Icom standard.

##### FRONT PANEL

Location of Controls \*\*\*\* Excellent layout.

Size of Knobs & Buttons \*\*\* Some concentric, but generally good.

Labelling \*\*\* Improved over the R70.

'S' Meter \*\*\* Good illumination. 'S' and Sinpo calibration.

Status Indicators \*\* Could use a few more.

VFO Tuning Action \*\* Not up to the R70. Tuning rates not well chosen.

Dial Readout \*\*\* Bright and clear. Needs 10Hz digit.

##### REAR PANEL

\*\* With optional extras fairly comprehensive but little information supplied.

##### RECEIVER OPERATION

VFO Stability \*\*\*\* Impossible to fault.

Digital Dial Accuracy \*\*\*\* Within readout limits, spot on.

Memories \*\*\*\* With 32, it's top of the pile.

Scanning \* Icom need to rethink this.

Bandpass Tuning \*\* Reasonably effective.

Notch Filter \*\* Useful but not up to others.

'S' Meter \*\*\* Realistic response.

Signal Handling \*\*\*\* The R70 was very good. This is better.

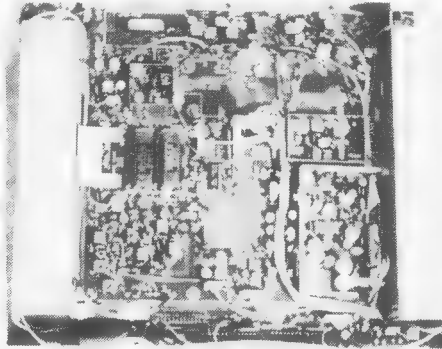
Sensitivity \*\*\* Quite adequate. Up to everything compared with.

Pre-amp, Attenuator \*\*\* Works well.

RF Gain \*\*\* Smooth progressive action.

Tone Control \*\*\* Well chosen top cut response.

Noise Blanker \*\*\*\* About as good as they come.



##### QUALITY OF RECEIVED SIGNAL

Internal Speaker \*\* OK if nothing else available.

Reception of AM \*\* Have heard cleaner, but satisfactory unless you are a Hi-Fi buff.

Reception of SSB \*\*\* Very clean response.

Reception of CW \*\* Would no doubt be better with optional filters.

Reception of AM (exalted carrier) \*\* Would be better if frequency didn't change with change of sideband.

Headphone Output \*\*\* Stereo compatible.

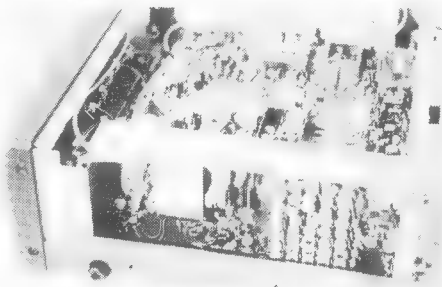
Audio Power Output \*\* OK but could use a bit more.

##### MANUAL

(Owners Handbook) \*\* Covers operation well but generally needs more information.

Rating Code Poor \* Satisfactory \*\* Very Good \*\*\* Excellent \*\*\*\*

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