

# It's a Modern Classic

## The Yaesu FT-736R

Richard Newton GORSN has had the chance of trying out a truly versatile transceiver from Yaesu, first reviewed in the magazine during the 1980s. It must have been good...because he wasn't very keen on returning it to the owner!

● Close-up view of the transceiver's front panel. The comprehensive selection of controls rather daunted GORSN at first (see text).

With the Royal Golden Jubilee in full swing as I write this, and nostalgia foremost in the mind of the Nation it's perhaps appropriate that I was asked to review a transceiver as part of the It's A Modern Classic series of articles. The radio that is to re-enter the spotlight is the Yaesu FT-736R, which was first reviewed in *Practical Wireless* in June 1988.

Although I'm a regular contributor to *PW*...this was an unusual commission. I really didn't know what to expect when I called into to the *PW* offices in Broadstone to pick up the transceiver.

On arrival I was greeted by an awesome sight! Personally, I think that anyone could be forgiven for thinking FT-736R was a state of the art h.f. base station...complete with all the trimmings, and just off the shelf. However, in actual fact this radio is a v.h.f./u.h.f base station that was **first on the market about 15 years ago**. And I can tell you honestly, this rig made a considerable first impression on GORSN!

### Very Professional

The transceiver has a very professional look indeed and it's finished in a charcoal grey metal and plastic. It measures approximately 368 wide x 129 high x 286mm deep, weighing in at a reassuring 9kg.

When it comes to powering the rig, it offers



● Yaesu's modern classic...the FT-736R, which was tried and tested by *PW*'s review team of Richard GORSN and Terry G7VJJ/M3TJW.

complete versatility. This is because it will operate either direct from a 240V a.c. mains supply (plugging directly into a domestic wall socket) or it can run from a 13.8V d.c. power supply. And for ease of portability the FT-736R has a handy carry strap on one of the side panels, very useful indeed for this robustly built transceiver.

### Well Stocked

The well stocked rear panel is home to the separate outputs for each band. These include an N type connector for the 1.2GHz band, and another N type for the 430MHz band. There's also an SO239 connector each for the 144 and 50MHz bands.

Incidentally, on the FT-736R each band is independent. So if the operator is using the same antenna for more than one band a duplexer or coaxial switch would be needed.

Also on the rear panel

there's a 3.5mm jack socket for **DATA IN** and **OUT**, plus a Phono type socket for external transmit switching by a packet TNC or a foot pedal. There's also another 3.5mm jack socket which provides for an extension speaker, and a 0.25 inch jack socket is for a c.w. key.

Finally, there's a **Ground** terminal and two DIN sockets. One of the DIN sockets is for the connection and the control of external transmitter amplifiers, whilst the other is a serial CAT interface for computer control.

### Front Panel

The front panel of the FT-736R is home to all the controls. However, **I'm not going to list them one-by-one!** Suffice to say that although (at first) the transceiver's front could be a little daunting...all the controls are very well labelled and they're beautifully set out. Functions such as the tone burst, voice processor and **Voice Operated Transmit (VOX)** have green illuminated indicators assigned to them. This is so that you can see at a glance that they are 'enabled' (very useful).

The Yaesu FT-736R has what I would





describe as 'real' controls. **It has real button switches** that operate with a **very reassuring click** and knobs that you can operate **without the use of tweezers**.

The main dial is 'weighted' to true perfection in my opinion and it's the prime method in the transceiver is tuned. However, the operator can also choose to use the multi-function direct entry keypad for tuning purposes.

## Band Coverage

When originally supplied the Yaesu FT-736R covered the 144 and 430MHz Amateur bands. Depending on the owner's requirements this could then be increased to four bands by purchasing and adding modules for the 50MHz and the 1.2GHz bands. A 220MHz option was available for the US market.

The rig that I'd been loaned for the review period had been fitted with both modules and so had a very impressive coverage. In the one package it covers 1.2GHz and the 430, 144 and 50MHz Amateur bands.

## Multi-mode Transceiver

The Yaesu FT-736R is a multi-mode transceiver operating f.m, narrow n.f.m, s.s.b. and c.w. There is, however, no a.m. facility.

Using the n.f.m. setting the normal i.f. bandwidth of 15kHz is reduced to 8kHz (ideal for the modern 12.5kHz channel spacing). With optional extras the rig will also operate Fast Scan Television.

The Yaesu FT-736R has an output of 25W on 144 and the 430MHz bands on all modes. The output drops to 10W on the 50MHz band and approximately 2 to 3W when operating on the 1.2GHz band.

## Large Display

The transceiver's main display is large and well illuminated with the read out being very plain and easy-to-read. In operation the different functions appear as the operator selects them on the display.

A single needle multi-function meter is provide. This shows relative power out, a.l.c. levels and received signal strength.

Everything about this radio oozes professionalism and quality. One look leaves you with the impression that it was intended for the very dedicated and serious v.h.f./u.h.f. operator!

When I was first licensed I

could have only dreamed of owning or even operating a radio like the Yaesu FT-736R. I was in no doubt that when new to the market this rig definitely turned heads. I also had the suspicion that it could still hold its own today and I was looking forward to finding out.

## Read The Manual

As I settled down to read the manual I started to get a feel of how ground-breaking this rig must have been for the discerning v.h.f./u.h.f. operator. It offers the kind of controls you would normally expect to find on a top class h.f. base station: it has an adjustable i.f. shift and i.f. notch controls, a noise blanker and a three speed selectable automatic gain control (a.g.c.) to mention a few.

There's also a facility for a masthead pre-amplifier for the 430 and 1296MHz bands. (This is controlled by a front panel button which puts a voltage onto the coaxial cable feeder).

To be quite frank...**I was quite amazed** to see that the Yaesu FT-736R has a dedicated packet output. A 3.5mm socket provides for simple **DATA IN, DATA OUT** and **GROUND** for AFSK packet use. For this mode, an additional TNC is obviously required.

Another indication that Yaesu were keen that this rig was to be at the cutting edge, was the fact that the FT-736R is also ready to be used for satellite working. For this it employs the dual v.f.o.s to provide full duplex operation.

With an optional unit fitted the FT-736R offers full CTCSS operation and selective calling And for the keen c.w. operator...it can be

fitted with an electronic keyer.

## Versatile Memory

The Yaesu FT-736R also offers an impressive and very versatile memory system. It comprises of 100 memories and a programmable **Global Call Channel** for the rig, accessible from any band **with a single button press** and a **Programmable Call Channel** for each individual band. It also has a priority watch facility where the rig will automatically monitor a programmed frequency while you operate elsewhere.

The rig also offers scan facilities on the memories and programmable band scan limits. The operator may also use the **Programmable Band Scan Limits** to create a small sub band within a band they want to scan. For example, they may wish to scan the f.m. simplex portion of the 144MHz...but exclude the repeater portion of the band...a simple job for the '736R.

## On The Air

So, it was then time to see what the Yaesu FT-736R could do on the air. But would it perform as well as it looked?

Although I don't have a specific antenna for the 1.2GHz band, I connected the transceiver to a discone antenna. Unfortunately, although I had a tune round no signals were heard. However, although the 1296MHz band is not - apparently very busy here in Dorset - the Editor tells me that in Japan (particularly) it's very popular indeed! Perhaps it will become a busier band eventually?

As is usual with equipment trials and reviews on behalf of

### Product

The Yaesu FT-736R

### Company

Yaesu UK Ltd.

### Pros & Cons

**Pros:** "The Yaesu FT-736R remains a force to be reckoned with 14 years after PW first reviewed it"....."The Transmitted and received audio is very good"...."very impressive and highly effective 'classic' transceiver".

**Cons:** Richard said "The only thing that I could find that may separate it from the modern rigs is the power output...especially on 50MHz. However, in my opinion this would not be a sufficient reason to dismiss this very impressive and highly effective 'classic' transceiver".

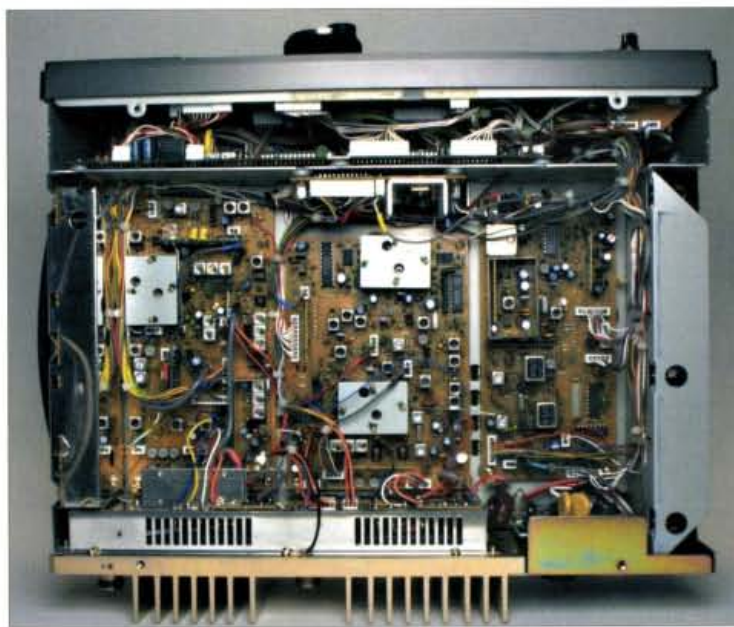
### Price

Available second-hand (occasionally, as original owners tend to keep them). Price depends on modules fitted - examples have been advertised for sale from approximately £850 to £1300.

### Summary

Richard GORSN said: "All in all Terry and I had great fun getting to know the Yaesu FT-736R. So, if you're wondering 'What did Richard really think of it?' I'll answer in this way..."I would be very proud to be the owner of one".

• A compact and recognisable lay-out is visible when the top cover is removed. Although integrated circuits are in evidence - this modern classic was not dominated by surface mount components!



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● The rear panel on the FT-736R. Although the transceiver has a relatively low power output compared to equipment manufactured today, the heat-sinking cooling fins are prominent.

PW...I employed the help of my father-in-law, **Terry Wood G7VJJ/M3TJW** for the on-air testing. Terry has a lovely little attic shack in his bungalow on the northern reaches of Bournemouth at locator IO90BS and I really don't know what I'd do without his

f.m. Lou is a local Amateur living about 13km away from Terry in West Moors. Lou was very helpful and was a huge signal with us; he was running 3W into a ground plane antenna.

Lou reported that the audio from the FT-736R was "very good indeed", we reduced our power out using the variable drive control to the absolute minimum and we were still end stop. Lou again commented "it really is very good audio Richard".

Both Terry and I agreed that the received audio was also very good. The rig's internal speaker provides a very full, yet mellow audio that's easily listened to. And for those occasions where you need a bit more 'top' there's a very effective Tone control.



IM98. We called a couple of times and noticed that the twin needle s.w.r./power meter we had in line was showing 7W output.

Just as I was wondering whether the 7W would be enough to reach Spain and break the ever increasing 'pile-up'...Andreu replied to me! I thought it might be rather good to use the special Golden Jubilee call sign so I worked Andreu using GQ0RSN/P and got a 5 and 9 signal report from him!

We then heard, Antonio EH3BFX from JN11CO but sadly we lost the band before being able to make contact with Antonio. Such is life on 50MHz!

Although the FT-736R doesn't have a separate RIT control for s.s.b. operating, it does have a function called the Clarifier. This uses the main dial, and when it's activated the transmit frequency remains unchanged. The main tuning knob then only controls the receive frequency within  $\pm 10\text{kHz}$ .

We did not have any luck on 430MHz so Terry volunteered to operate the FT-736R and I would go and speak to him from my mobile station.

The mobile tests on 430MHz f.m. simplex were very successful. We operated over very demanding terrain through town and in areas where we would not have expected to keep contact and we were both very impressed indeed with the results. I'm also in a position to be able to say that the transmitted audio from the Yaesu FT-736R is of the highest quality.

Terry was now finding his way around the controls and starting



● Underside of the transceiver, with screening panels mounted.

help. (Thanks Terry).

For the on-air testing we used Terry's tri-band collinear for 144 and 430MHz f.m. working, his 9-element beam for 144MHz s.s.b. and his two element HB9CV antenna for 50MHz. All these antennas are about 8 metres off the ground and Terry's QTH is about 30 metres (100 feet a.s.l.).

After some rather prolonged and fruitless "CQ" calls on all three bands we finally got our first contact via GB3WR, the repeater high up on the Mendip Hills on 145.600MHz near to Wells in Somerset.

**Alun G0TJP** (also from the Mendip Hills) returned our call. To access the WR repeater from Terry's area of Bournemouth is no mean feat in itself. So, we weren't a very good signal in and to be honest I was amazed we were in at all!

**Lou G1ULZ** was our next contact on 145.450MHz simplex

The next contact was on 144.275MHz s.s.b. when **Geoff G3NAQ** from Newbury (IO91HL) answered our CQ and we had a very enjoyable chat. Geoff was using a home-brewed station which sounded very impressive indeed. He was a massive signal with us and gave us a similar 5 and 9 plus report. When asked to comment on our transmitted audio he remarked "It sounds fine, good".

Geoff helped us out with a quick test of the speech processor.

We did a comparison and Geoff confirmed that although it did not make any major difference to the signal strength the audio was much better with the processor switched on.

I noticed that the S-meter reading on rig was only showing about 5 and 7 but Geoff was a massive signal. Because of this I felt the meter was not really representative of what I was hearing...but was not unduly concerned.

Next was the turn of 50MHz, and what a band! We spent an hour tuning round a completely flat band and then, suddenly, on 50.139MHz on s.s.b. there was **Andreu EH5FKX** (Spain) giving his location as the first four characters of a locator,



● (Far right): Something you don't see on many transceivers - the phono sockets for the ATV mode on 1296MHz. These are located in a recessed area under the carrying handle (see text).





● Richard Newton GORSN getting to grips with a transceivers which he considers to have been aimed at the specialist v.h.f./u.h.f. operator. He wrote "I'd be proud to own one".

(Photo courtesy of Terry Wood G7VJ/IM31W.)

to enjoy operating the FT-736R (he still speaks longingly about the excellent quality of the received audio!).

## Another Foray

Terry could not resist having 'another go'...and after speaking to me on 430MHz he took another foray onto 50 and 144MHz. He worked **Vic 14XSS** from Italy (JN54KN) on 50.151MHz s.s.b., getting a 5 and 5 signal report from Vic...still just using the 7W and the simple HB9CV two element beam.

Terry then heard **CT4NH** from Lisbon in Portugal (IM58JR) on 50.149MHz s.s.b. Unfortunately though...he was unable to break the massive pile-up.

Next (just to finish up) Terry decided to try a f.m. simplex on the 144MHz band. **Peter M3PEC** from Salisbury gave Terry a 5 and 9 report on 145.525MHz and reported: "Very good audio and good modulation". Incidentally Peter was using a Yaesu...an FT-480R at his end.

Next Terry contacted **John M3JKR** near St Catherine's Point

## Manufacturer's Specifications

### General

Operating frequency ranges:

50 to 50.3999MHz (with optional unit).  
144 to 145.999MHz.  
430 to 439.999MHz.

### Modes

Operating temp. range:

1240 to 1299.999MHz (With optional unit).

Supply voltage:

l.s.b., u.s.b., c.w., f.m. ATV (A3F, optional module).

Power consumption:

-10 to +60°C.

Dimensions:

170 -264V a.c. 50Hz or 13.8V d.c.. negative ground.

Weight:

Max. 250VA. Receive 1.5A, transmit 8A.

### Receiver

Circuitry:

(WHD) 368 x 129 x 286mm

&

Intermediate frequencies:

9kg (19.8lbs)

Sensitivity:

50, 144MHz bands double conversion superhet. On 430  
1296MHz triple conversion superhet.

Image rejection:

13.69MHz and 455kHz, 47.43MHz (430) and  
133.91MHz.

Squelch sensitivity:

s.s.b./c.w. better than -15dBµV for 12dB S+N:N

f.m.: better than -9dBµV for 12dB SINAD

60dB or better

s.s.b./c.w. better than 0dBµV

f.m. better than -12dBµV

### Selectivity

(-6/-60dB)

s.s.b./c.w.: 2.2/4.5kHz

Narrow c.w. (optional)

600/1.2kHz

On f.m.:

12/25kHz

Narrow f.m.:

8/19kHz

Audio output impedance:

4 to 16Ω

Audio output power:

1.5W into 8Ω with 5% THD

### Transmitter

Power input:

30W d.c. at 50MHz

60W d.c. at 144/430MHz

45W d.c. at 1.2GHz

Modulation methods

s.s.b.- balanced, filtered carrier

f.m. - variable reactance (±5kHz or ±2.5kHz max.  
deviation)

Spurious radiation:

Better than -60dB

Carrier suppression:

Better than -40dB below peak output.

on the Isle of White on 145.475MHz. John also commented on the good transmitted audio quality of the FT-736R.

Last, but by no means least came a very enjoyable contact with **Mike 2E1HC** from Warsash, 22km or so East of Southampton in Hampshire. Mike told Terry: "Very good audio, good modulation" and gave Terry a 5 and 3 signal report.

## An Old Adage

There's an old adage that says "You get what you pay for". I quote this because - with all the optional modules fitted this transceiver would have cost close to £2000 in 1988. I dread to think what this

would equate to these days, but I think that this may explain why the Yaesu FT-736R remains a force to be reckoned with 14 years after *PW* first reviewed it.

The only thing that I could find that may separate it from the modern rigs is the power output...especially on 50MHz. However, in my opinion this would not be a sufficient reason to dismiss this very impressive and highly effective 'classic' transceiver.

All in all Terry and I had great fun getting to know the Yaesu FT-736R. So, if you're wondering "What did Richard really think of it?" I'll answer in this way..."I would be very proud to be the owner of one".

*PW*

## Editorial Promotion Apology

Some readers may have been truly confused when the Next Month *Practical Wireless* promotion was published on page 69 in the July issue. The confusion may have arisen because of our mistake (a complete puzzle this because the transceiver was there in front of us when it was written) in calling it an Icom rig, with the classification including the term 'IC-736'. My apologies goes to everyone concerned...especially to Yaesu as the transceiver was of course manufactured by them. Editorial 'Sack Cloth & Ashes' are the order of the day. **Sorry everyone!**

**Rob Mannion G3XFD.**