



Futaba

Chris Hardisty

reviews this top-of-the-range steerwheel transmitter from Futaba.

The steerwheel and trigger Megatech/PCM/1024 from Futaba sounds as though it could be a western/sci-fi movie!

Well, it's from the East and although it's well over a year old in the market place the sci-fi link still holds. Already a substantial number of the top drivers in the world use this unit, but not in the UK. Why not? In 1/12 circuit racing the generic radio is the JR Apex stick set, reliable and solid. It reminds one of a steam engine. The look and feel is an important factor, but why sticks?

Time for some history

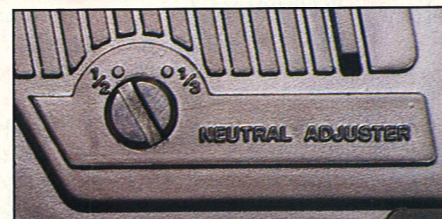
In the dark ages of RC the choice was limited to where the buttons were on the box. You pressed a button and an escapement unwound to move the appropriate control on the model. Tedious and tricky, it required skill to say the least! The main advance came with digital encoded radio and servos that are not too dissimilar to the ones we use today.

Digital Proportional Control — you pushed a stick and a stick on a box in the model moved in proportion to it. Sounds familiar doesn't it. From then until now the market and various controlling authorities around the world dictated improvements to the radio transmission aspects of our humble 'trannies' but it was the revolution in electronics that gave us the clever bits that we now take for granted, such as variable servo throw and channel mixing.

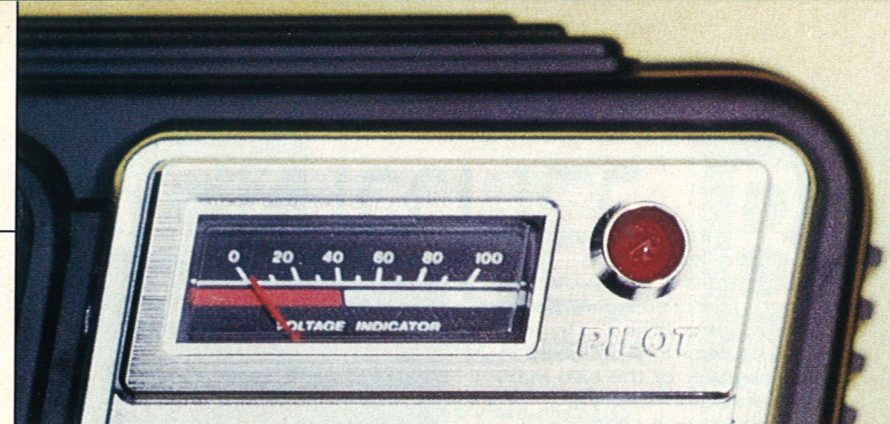
Model aircraft buffs were the first to benefit from this change, the black art of servo linkage geometry had prevented many exotic designs from taking to the air and now it seems that only the laws of physics can restrain their imaginations.



Neutral adjuster gives different amount of throw on the trigger.



Trigger operated throttle and brakes.



Voltage and power indicators.

position the controls as preset. There used to be a small penalty for this luxury which was reduced servo response. In the early sets only half the amount of positional data was sent to the Rx when compared to the Megatech, so PCM was not considered suitable for cars. Other models could tolerate half-a-second of isolation but that amount of time could be 4% of a lap in 1/12 racing. This is no longer the case, in fact PCM Rx feed the servos with a 14ms frame rate, that's 71 times per second, the PPM Rx frame rate is 18ms, only 55 a second. Perhaps this makes PCM look the mode to use. Well, perhaps not. Interference goes almost unnoticed until it's too late, the odd missing instruction to the servos are hard to "feel".

The Megatech can cater for both modes (PCM and PPM) so there's no

The adjustments are quickly and easily accessible.

The Steerwheel

Steerwheel Tx's did appear, a notable one being from Futaba which had a thumb controlled throttle, but most of the early car enthusiasts already had RC gear that they flew their planes with. When you enter a sport it's wise to see what the good guys are using and purchase the same, so this would be a set of "chopsticks" as American drivers

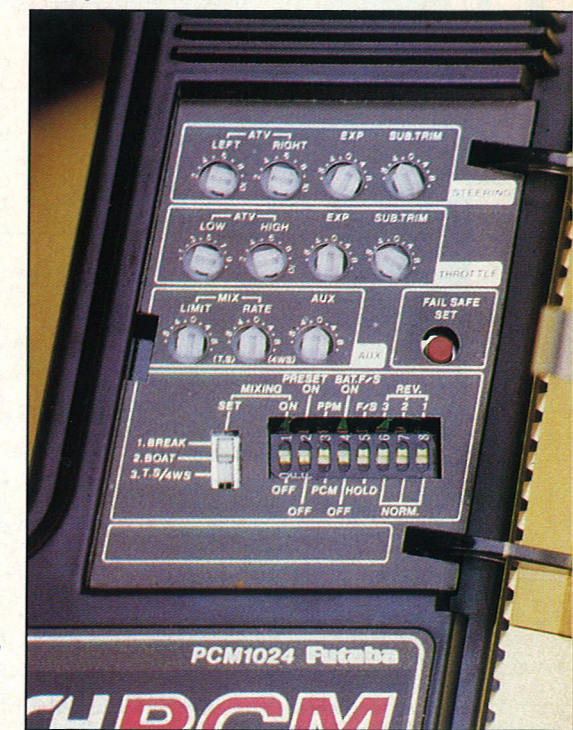
laughingly call them. With the rise of popularity in model car racing more steerwheel sets appeared. After all, what could be more logical for driving a car?

Futaba Megatech/PCM/1024

The Megatech's performance is impressive. On the bench, with spectrum analyser to hand and a fresh set of dry cells, the output is stable and strong. No stronger than it should be and with flattish cells its own meter showed the reduced output in proportion to what was indicated on the spectrum analyser. When the signal is reduced further the pilot light flashes and a "bleeper" sounds to warn you of this. When using the Tx in PCM mode even loss of signal does not mean you will lose control. By setting the failsafe your model will, if you choose, come safely to a halt. PCM offers "glitch-free" control. Should the Rx receive garbage it will not allow it to be decoded and attempt to drive the servos accordingly. Instead it will position everything as preset for failsafe or carry on as normal if the garbage is short-lived. This failsafe can also be applied to the Rx power supply. When it falls too low the Rx will



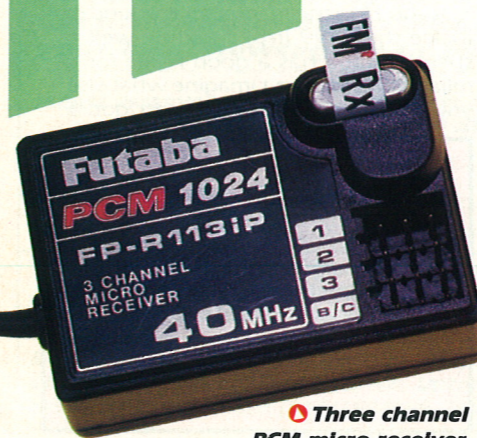
40MHz module.



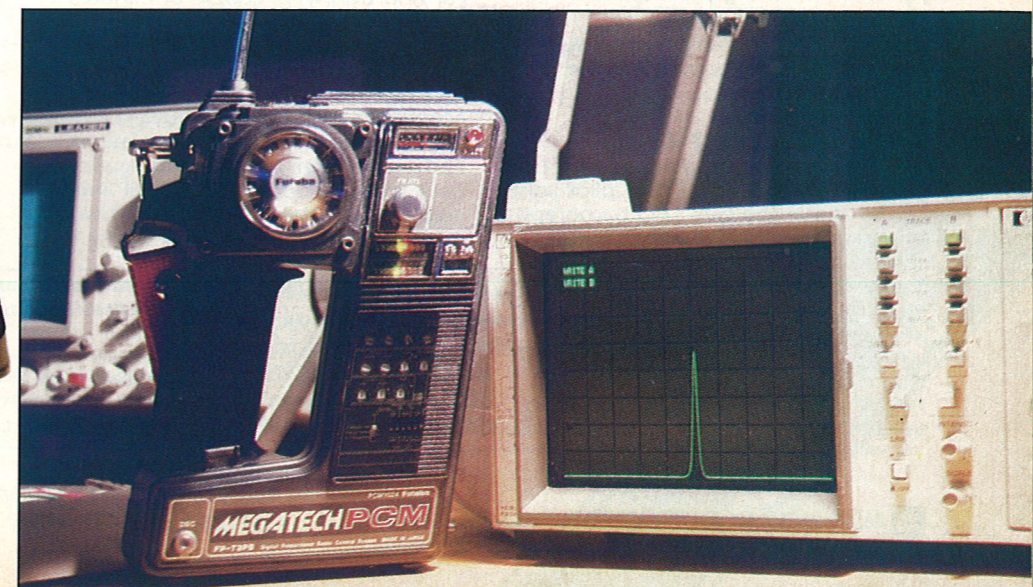
The Megatech PCM displaying a good, clear signal on a spectrum analyser.

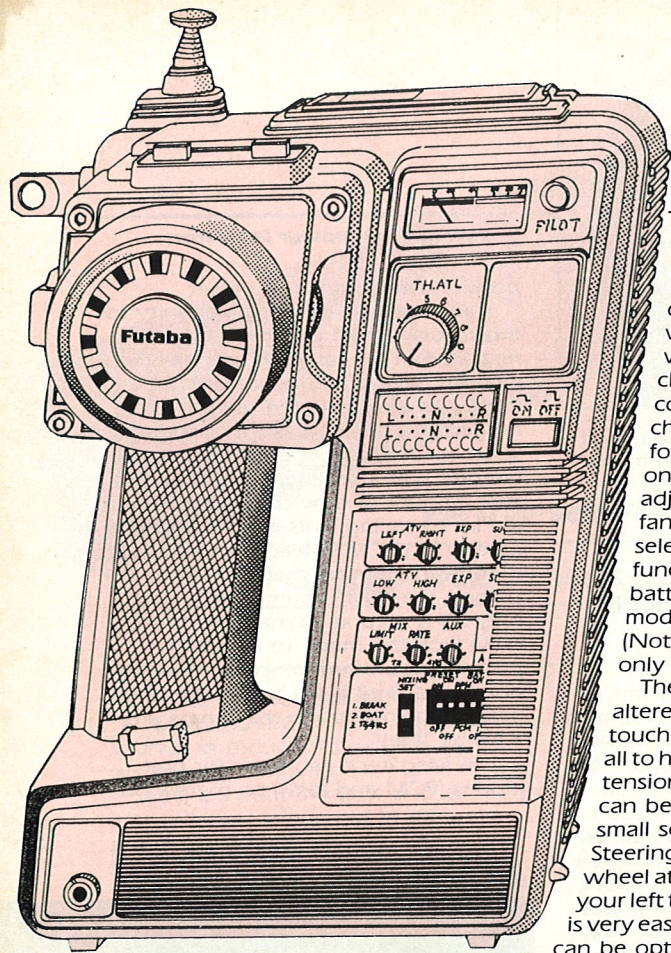
Futaba MEGA TECH

PCM 1024



Three channel PCM micro receiver comes as standard with the 1024 system.



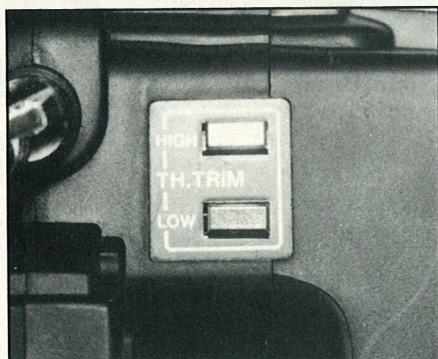


better described as adjustable servo throw, left and right. Three more pots control the "third" channel which can only be mixed with either of the two main channels and can't be controlled as a separate channel. This could be used for four wheel steering, trim tabs on boats or perhaps that adjustable wing you've always fancied. Eight dip switches select reversal of each channel, functions for both low Rx battery and loss of signal, modulation type, PCM or PPM. (Note that the failsafe functions is only available with PCM Rx.)

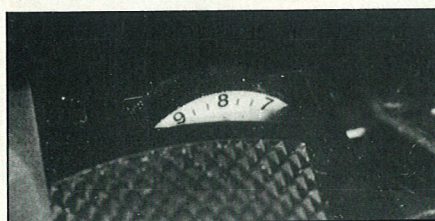
The steering wheel can be altered to suit anyone. The "one-touch" trims and steering rates are all to hand, as it were. Even the tension of the centering springs can be altered by means of a small screw in the side of the body. Steering rate is altered by a thumb wheel at the top of the pistol grip using your left thumb, making the adjustment is very easy. The throttle trigger position can be optimised physically and the amount of throw either side. To the right of the steerwheel is a knob protected with a cover described as an "adjustable throttle limiter" (ATL), the only effect of altering this was to get more or less brake applied.



Steve Stowell, test driver for our review.



Throttle trim adjustments.



Steering rates can easily be adjusted (even when racing!) with your thumb.

problem. If you already own an FM PPM receiver though you can use the Megatech system.

Interesting Bits

To its features. After reassuringly beeping at "power on" the pilot light glows above the two LED barograph trim indicators and the level meter shows the signal power strength. A smoked plastic lid hinges back to reveal a control panel, adjustments to which are made with a small screwdriver which clips at the side. Each of the main two channels has "sub trim", "exponential" and "adjustable travel volume". The latter function would be

MEGATECH

"How Did It Go?"

Having established that the Tx can be programmed to suit car with respect to linkages, whether mechanical or electronic, and all other parameters readily alterable to suit driver and course, there was no excuse not to go and try it. It only took a few laps to realise I was not able to test this rig fairly, two decades of using sticks were getting in the way. Enter test driver Steve Stowell, who has never used sticks. He was prepared to run a strange car and tranny! A couple of minutes explaining the bits he'd not come across before, then out on the track. Within two heats he was very "at home" and impressed with both, more with the Megatech than my car I feel...

Full marks for looks, feel and features. Performance on the bench was good. It gave a sweet and stable signal and I couldn't fault the PCM (I shall be fitting mine to try now!). The only dislike was the fixing of the control panel adjustment screwdriver, a very convenient location for making rapid alterations but I kept knocking it off. A spare was in the box but considering the attention to detail which everything else had, this does not make up for this one poor aspect.

I imagine that Futaba have a steerwheel equivalent of the FF3 on the drawing board but the confidence gained by the speedy access to the Megatech's many functions will take some beating. I love my FF3 but it can be a trial scrolling through its features to make a minor adjustment as the race is about to start. The only other possible problem could be if you drive with the steerwheel in your left hand, unlike the Magnum you can't turn the pistol grip around.

What you get in the normal "combo" package is the Tx, Rx (PCM), two 9301 servos, switch harness, hand straps and a poorly translated but adequate manual (actually good by comparison to some Japanese books). Optional extras include rechargeable nicad pack, DSC lead and of course a PCM receiver.

If you're in the market for this kind of tackle the £299 (rrp) could be well spent. Futaba has a good name for reliability and I can't imagine what else you'd need that this rig hasn't got.

Glossary

ATL	Adjustable Travel Limiter
ATV	Adjustable Travel Volume
F/S	Fail Safe
DSC	Direct Servo Controller
PPM	Pulse Position Modulation
PCM	Pulse Code Modulation
Rx	Receiver
Tx	Transmitter