

Futaba FIELD FORCE 3

Futaba's newest and most comprehensive R/C car system is reviewed by Bob Errington.

The Futaba FP-3UCP, or Field Force 3 as it is commonly known, is the latest specialist radio system on offer from Futaba. Not only is this a PCM 1024 system (previous sets were 512) but it differs greatly from previously available radio sets.

Firstly, the old style of trim adjusters have gone, to be replaced by one-touch buttons, grouped in convenient places on the transmitter.

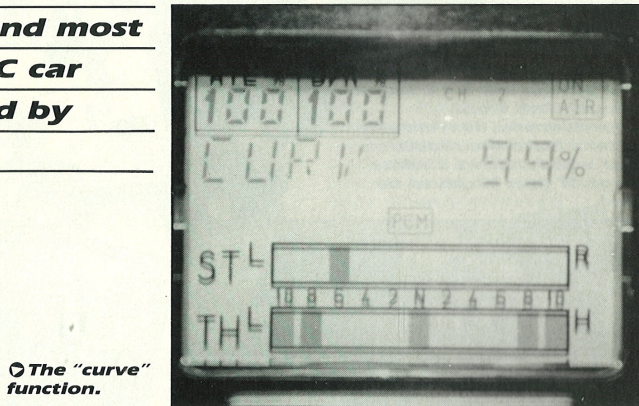
Secondly, the set is capable of being programmed to operate up to six different vehicles, each having different servo directions, rates, centres, etc, all at the touch of a button.

Lastly it is completely programmable in its operation of the three channels via the large segment liquid crystal display panel which is positioned on the front of the set.

Looking at the operational side of the set first we see the reference to 1024. This is within the PCM, or Pulse Code Modulation system that the set utilises, and means that it is capable of twice the resolution of movement with a faster response time than previous models. The handset itself fits comfortably in to your hands. The length of the sticks can be fully adjusted, either by screwing them down, or by the use of stick adapters, which makes them quite long.

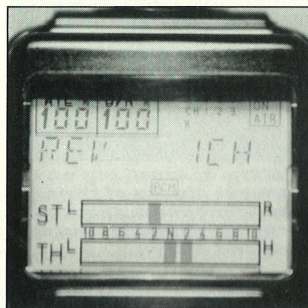
Even the strength of the return springs can be adjusted by taking the back of the set off, and turning the relevant screws. There is also a mechanical limit adjuster for the throttle stick movement on the front of the set.

The receiver is a three channel model and is smaller than ever, measuring 43 x 29 x 16mm, and weighing just 21 grammes. There are no fly leads on the unit as per the 27 mhz micro unit, which may be considered an advantage or

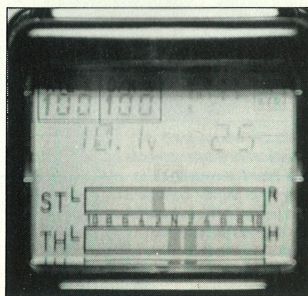


◻ The "curve" function.

disadvantage. There are spaces for four plugs (three servo and one battery) and the crystal. Range on the ground, is quoted as 300m which is certainly more than adequate for a car or boat.



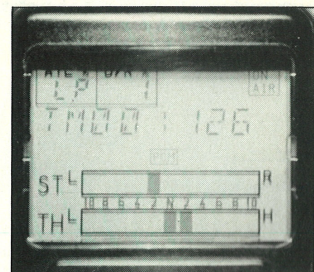
◻ "Reverse mode" for reversing the servos.



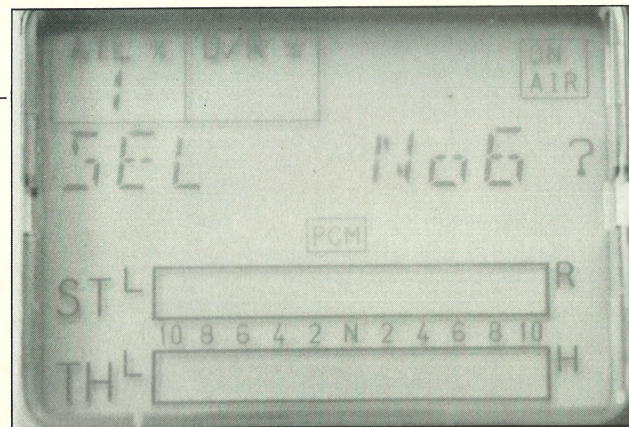
The two normal trim adjusters are replaced by a pair of buttons on the top of each side of the transmitter. With just one touch the trim can be moved a set amount and is confirmed by an audible "bleep" if desired. Even the amount moved by one touch can be altered within the program itself. The rate switches too, are replaced by a pair of buttons on either side of the top plate, just above the trim buttons. The amount of rate selected is shown clearly on the LCD panel and once again, the amount altered by one push of the button, can be varied.

The steering rate is a dual rate type, i.e. it varies the percentage

◻ The lap timer/stopwatch mode.



◻ Normal display. Battery voltage on the left, time the transmitter has been on to the right (25 mins).



◻ How to select the required number.

limit either side of neutral by the same amount, whereas the throttle rate only alters the limit on the lower side of the stick movement, without altering the upper side or the neutral position i.e. in most cases, this would be used as a brake adjuster.

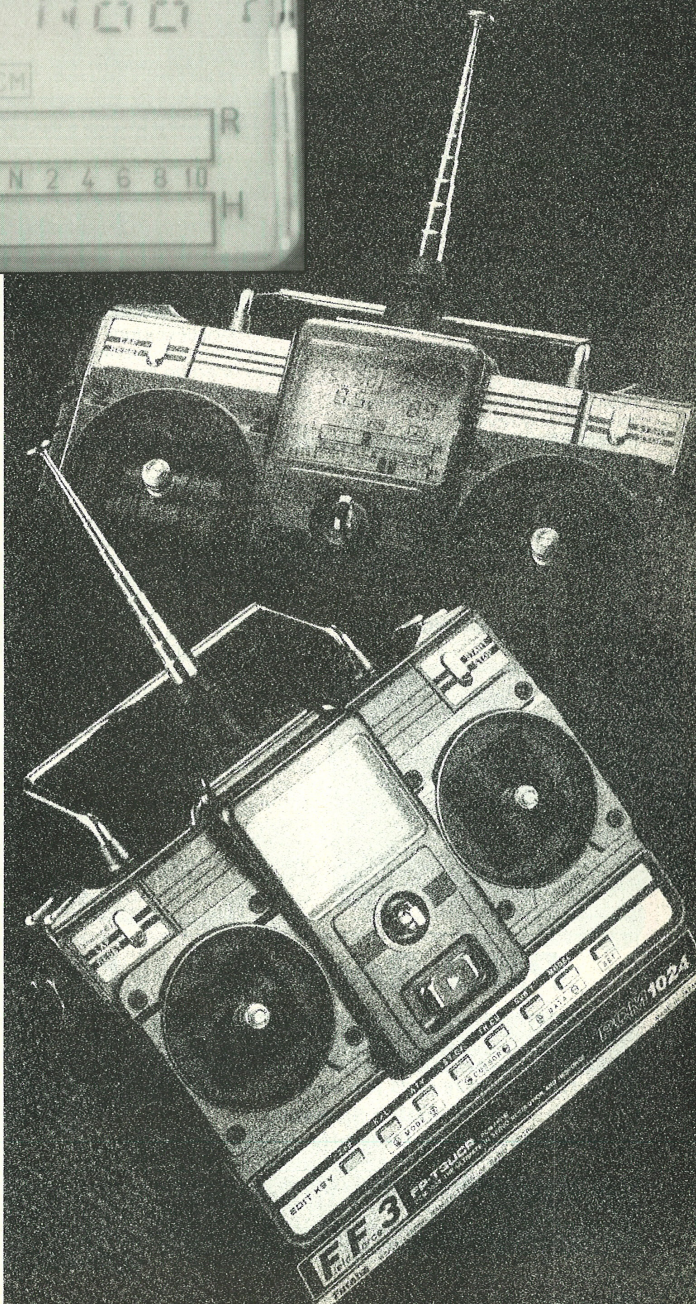
The amount of offset on the throttle stick can also be programmed without the stick being offset! Normally a servo moves from 0° to +45° (30° travel) in one direction and from 0° to -45° in the other. This could be offset so that the neutral is 15° off centre, hence giving from +15° to +45° in one direction and from +15° to -45° (60° travel) in the other, get it?

All four sets of these push buttons do fall easily to hand and also have another advantage that once the radio is switched off, all the buttons are ineffective, thus making it impossible to accidentally alter the settings.

The programmable options allow all sorts of other features and are accessible via a few control buttons on the face of the transmitter, all being visible on the LCD panel. There is a sub trim feature, which allows a replacement servo to be set in exactly the same position, without altering any other settings.

Exponential is available on the steering only and can be adjusted from full positive to full negative exponential. The "curve" that the servo follows can be changed from the standard straight line, to any shape you select from the seven different selection points.

Battery fail safe function is well taken care of and servos can either "freeze" on the detection of interference, or go to any pre set position. In either case, once interference is cleared, then the servo will restore to normal operation. For any I.C. car it is



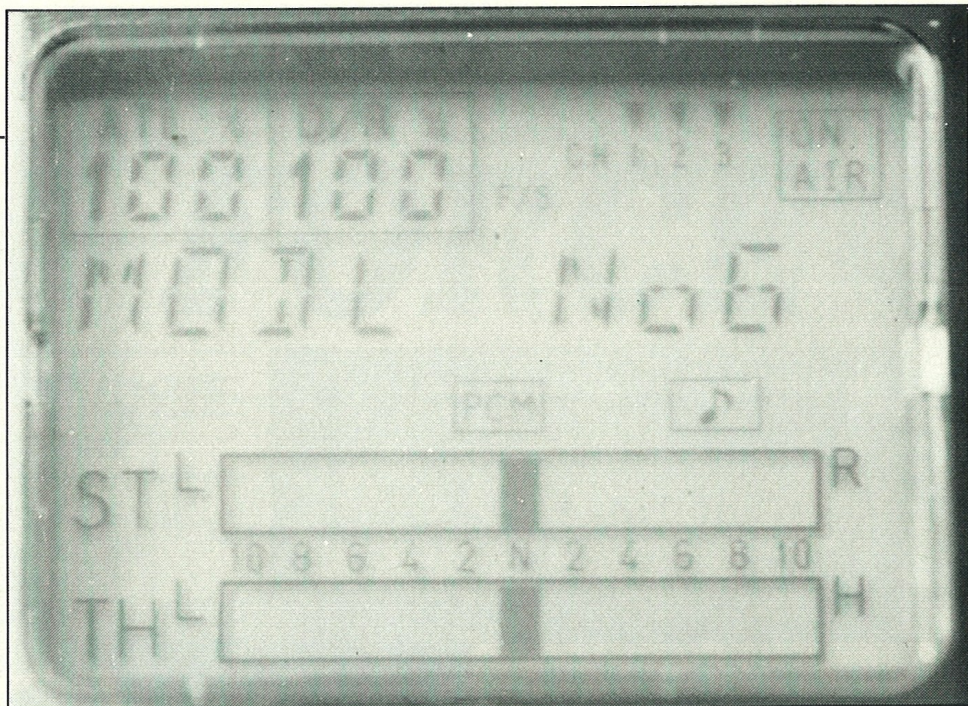
☉ **Model number 6 in use.**

probably best to set the steering to freeze in whatever mode it is in, and to have the throttle reset to neutral so that if a "glitch" of interference was detected whilst on the straight or in a corner, the car would not seem to be affected. If the model did lose the signal just at the end of the straight, then the car would go straight on and crash, but at least the engine would be shut down and wouldn't be running wildly away into destruction!

A secondary fail safe feature of the transmitter occurs when the handset voltage falls below an acceptable level, if this occurs the throttle servo will move to a set position.

Another nice idea is the servo operation display. This illustrates graphically the relationship between stick and servo movement, including any reverse, trim or rate settings. Also there is the stopwatch function which allows you to take your own lap times by a push of the button, without taking your hands off the sticks. So in the future if you see someone crashing every lap, just after the start line, then they could well be concentrating on lap times!

☉ **Three channel micro PCM receiver.**



Other facilities include the ability to copy from one 'model' to another, then go in and 'edit' it to exact requirements. The system also has the ability to transfer data from one FF3 to another. But where this FF3 set really scores is in its ability to mix channels.

For instance, twin steering servos are often employed on I.C. powered cars. With the FF3 set there is no need to connect them with a Y connector. Instead, channels one and three would be used and the FF3 set to "Twin" operation. This could be in sympathy with each other, or in opposite directions depending upon the type of linkages in use. One advantage of this is the ability to alter the toe in by adjusting the centering of one of the servos.

Tilt mixing is another clever feature that is more akin to outboard motor boats. Twin servos are employed. For steering, channel three is slaved to channel one and would operate in sympathy (one pulling and one pushing to get the turning motion), whilst in 'tilt' mode, operation of channel three

(with channel one in slave) would cause both servos to pull, lifting the engine up.

The ultimate mix to my mind is the 'four wheel steering' mode where not only can the rate of the rear steering be adjusted, but also its direction during travel so that, as in fullsize, a little steering movement would cause the rear to steer in the same direction (this giving stability to high speed changes of direction), then, when more lock was applied, the rear would change direction to oppose the front, thus giving greater turning ability. Really quite impressive eh?

Finally, there are two programme mix channels which are there for you to dream up any other uses you can think of, the mind boggles!

All in all this is an excellent set with a lot of very useful features. The FF3 set comes with one of the new 9302 servos. These new units have 40% more power than the old faithful 131S. We look forward to testing this new servo soon.

The FF3 is available from your nearest Ripmax stockist. ●