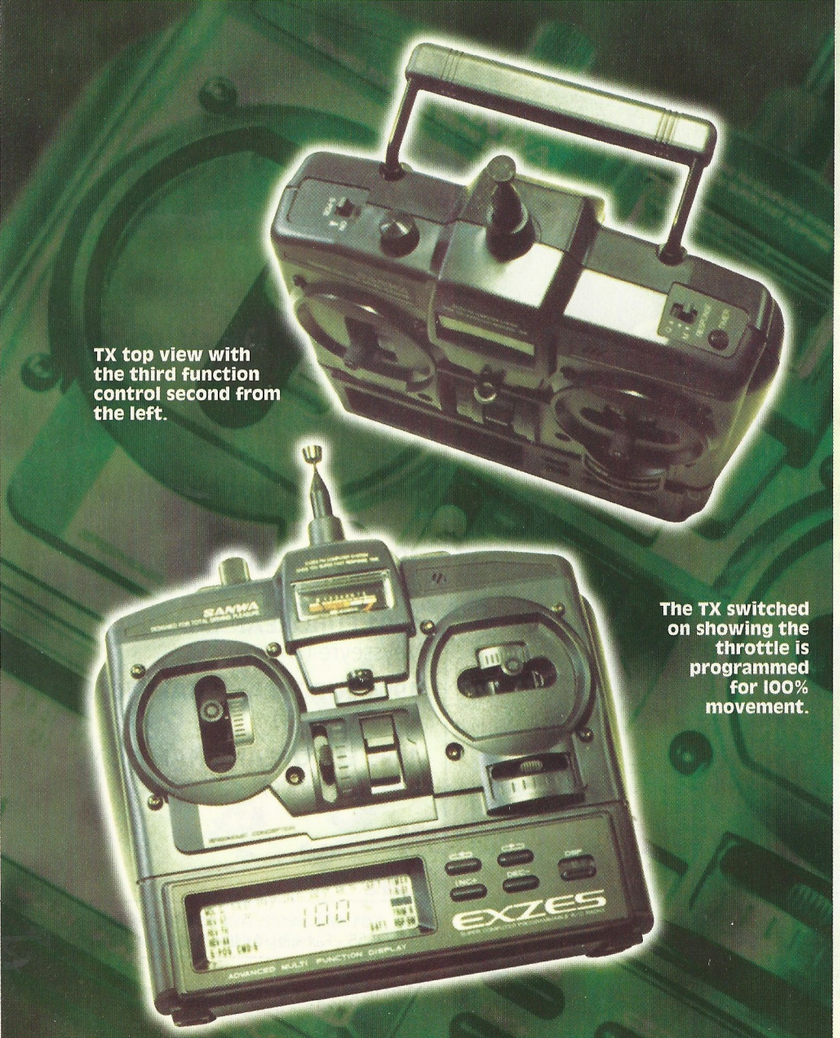
sanwa exzes

COMPUTER CONTROL



TX top view with the third function control second from the left.

The TX switched on showing the throttle is programmed for 100% movement.

in depth review

Hugh Bright's 'hands on' in depth two part review of the SANWA EXZES - A programmable radio control system.

Introduction.

The radio frequency (27mhz, 35mhz, 40mhz etc.) part of today's systems has been virtually settled over the past few years with only minor 'tweaking' of the design by the manufacturers. The coding part of the system has been where most development has occurred resulting in systems that have brought smiles to scale buffs who like to have many working functions. Its now possible to achieve twenty two functions from one channel with a mix of servos, electronic speed controls and switching circuits for lights and turn indicators etc. For those unfamiliar with radio race cars it is a revelation to examine the 'top' winning cars. The first thing you realise is that they are NOT models but properly engineered miniature racing machines driven at high speeds with great skill by the top drivers. Steering, suspensions and power control are built to close tolerances and it is this 'racing machine' that has created the need for a close tolerance and precise radio control link. High quality precise electronic speed controllers have also been developed for car use but their full potential cannot be realised with modest priced gear. How- ever these ESCs have the ability to 'brake' a car in a much more sophisticated way when used in conjunction with the type of gear under review. The point I'm driving at is that, make no mistake, this gear has been developed to race highly tuned machines in highly competitive environments. Electronically design wise the gear is compatible with precision built racing machines and as one would expect this is reflected in the price.

The Review.

At first glance a price of around £290 for a three function dry set without servos is hard to take in. So what is the difference between EXZES and other three function sets at a third of the price and further include two servos ? You begin to under-stand why when you hold the transmitter for the first time. But beware the TX must have its power batteries fitted as its 'feel' and balance is very much dependent on its weight.

Ergonomically it cannot be faulted, however there is one minor criticism. Stick length adjustment. There are only two options with or without spacers. As supplied the sticks are 'short'. They can be lengthened by inserting a spacer between the plastic top half of the stick and the base stem. This increases the length by 5mm which I found more acceptable. All the controls fall naturally to hand with the fingers in the deeply recessed rear 'wells' giving a confident comfortable 'feel'. The TX is all matt black moulded in what appears to be impact resistant plastic. All edges are rounded & in addition to finger wells there are soft plastic 'crackle' finish palm grips that can be seen in one of the pics. The two power switches, we'll cover the operation later, are recessed to prevent accidental movement. Lettering is minimal, white, simple and functional. Maker and model name are a matt violet and unobtrusive that is as it should be when total concentration is required when in use. The telescopic aerial is matt black that again is an advantage as there is no chance of disturbing reflections from bright chrome work when used in bright sunlight. The front panel follows a conventional layout with the throttle on the left hand stick & steering on the right hand stick. The usual trim levers are located to the right for throttle and below for steering. Bottom left houses the display panel with its five operational buttons to its right. In the centre between the sticks is located the power switch, with the neck strap lug and power meter above. Above the SANWA name you can see the third function control in the shape of a 10mm diameter knob. This is fitted with a 'ratchet' so that precise setting can be obtained. Turning now to the top plate to the left of the third function is the starting position switch. This is to pre set a higher idling throttle position when starting IC engines. The right hand controls is the Timer button and the three position response switch. The rear of the TX gives access to the battery compartment, the RF module for Xtal change and the steering dual rate & brake trimmer adjustments. Lastly but no means least the left hand end houses the Nicad charging jack with the right hand end giving access to the Direct Servo Connection jack. This jack has a thoughtful addition in the form of a captured soft plastic 'bung' to maintain cleanliness of the socket.

The 40MHz RF module is released via two catches top and bottom. The eight pin plug is at the bottom of the module and holds the module in very tightly. The battery compartment houses the usual 'dry' battery holder which plugs into a shrouded pin recess which will also accept a TX Nicad if required.

To Charge or be Dry ?

To some extent this is a personal choice and I must admit that in the past I have always recommended Nicads. Sanwa recommend their SN-600 Pt No 107A10253A but as we all know nicads are, to say the least, 'odd beasts' and if not used within a disciplined regime will fail sooner or later. When we get into part two next month you will see that the system has potential to produce a competitive edge over more modest priced gear but this potential is only as good as the whole system's power supplies. Using high quality AA dry cells for racing I would suggest is the option to go for with say a nicad for practice etc., There has been quite significant developments in dry cell technology over the last few years and as long one realises that a constant watch must be maintained by checking the contacts within the battery box for corrosion plus the fact that the TX will tell you when to replace batteries then dry cell is a viable option. The choice is yours.

Altering the Stick Tension.

Now we come to my only 'niggle'. For the life of me I cannot understand why Sanwa have stuck to the old system of asking the user to remove the back of the TX to adjust the stick tension. I do not expect to have to do this with gear of this quality. We all know that course thread screws being removed and replaced in plastic 'threads' will very quickly destroy those threads. If that is not enough to get 'inside' first you have to remove the RF Module, then the battery pack followed by four screws all to adjust at worst two small spring tension screws !! This you may have to do between heats. Not an ideal situation to disturb the power supply and the Module during racing unless you are prepared to fully test and prove the system afterwards. Access to these adjusters could have been easily provided by moulding into the back cover shrouded access to guide the screwdriver onto the screw head with a 'bung' to keep out dirt. This would make stick tension adjustment a 'doddle' and at the same time be in keeping with the overall quality of the gear

What's inside

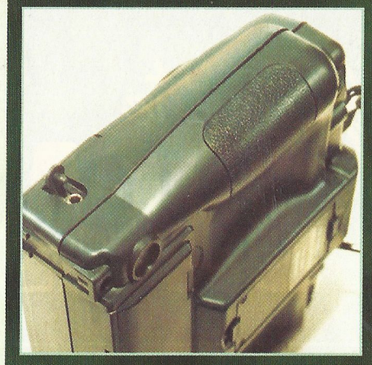
The inside pic shows the right hand adjuster and the internal electronics. The lower board is glass fibre with 'state of the art' surface mounted technology (SMT) components. The remaining boards are resin type quite adequate for interconnections to the main coding board. Note the three power pins to the left of the three wire plug in the bottom right hand corner. These are believe it or not just under 20mm in length and take the battery plug when the back is in place. In their naked state with the back off they are very vulnerable to damage so extreme care is needed when tension adjusting the LH stick. Note also the large disc component top left on the coding board. This is the lithium memory battery which has, claim Sanwa, a five year life. Its need for replacement will be indicated by a continuous audio signal and ERR on the display. This replacement indication occurs whilst there is still 'life' in the battery so that replacement can occur before all stored data is lost. This data also includes the functional data that was factory input when the unit was manufactured. Replacement is by Irvine Engines Ltd only and should not be attempted by the user as lithium batteries must be handled with extreme care.

Tech Spec

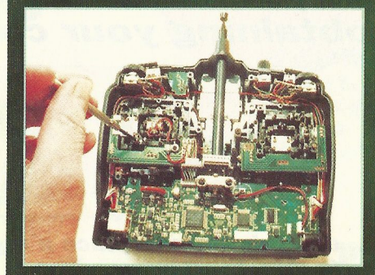
TX Model No. SRD-3173TS. Display - Digital. Three function computer programmable. Three Data model memory. Trim memory. Adjustable Rate Control with variable point. Steering servo adjustment during operation. Servo Reverse. Trim Rate adjustment. Direct Servo Control. Stop Watch with Alarm. (I've listed the main features only. Part two of the review will cover all features and the programming.) The set is only available in 40MHz FM-PPM. Weight of TX with dry batteries 860gms. Xtals and green TX flag channel identified.

As I said at the beginning of the review there are no servos included so the rationale behind this I'll discuss in part two the rest of the gear & the servos recommended and the reasons behind that. We'll also look at using Electronic Speed Controllers (ESCs) with the gear and then we'll get down to the very user friendly programming of the system and tidy up any points which I may have missed so far. There's always one !! If in the meantime you want further info you can contact the importers:-IRVINE ENGINES LTD., Unit 2, Brunswick Industrial Park, Brunswick Way, New Southgate, London. Nll lJL. tele (0181)361 1123 or Fax (0181)361 8684.

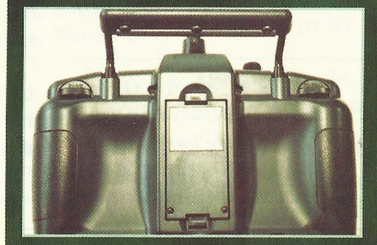
Have fun. Be safe and May Your RC Force Never Leave You.



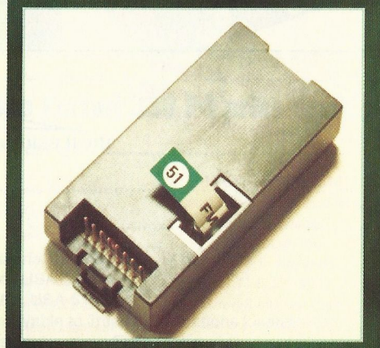
The DSC socket mid left. Note the protective bung.



Rear view of the TX. Adjusting the RH stick spring tension. See text.



TX rear view with the deep finger wells and the soft palm grips. Steering Dual Rate and Throttle Trim can be seen top left and top right.



The RF Module. Note the way the delicate connecting pins are protected.