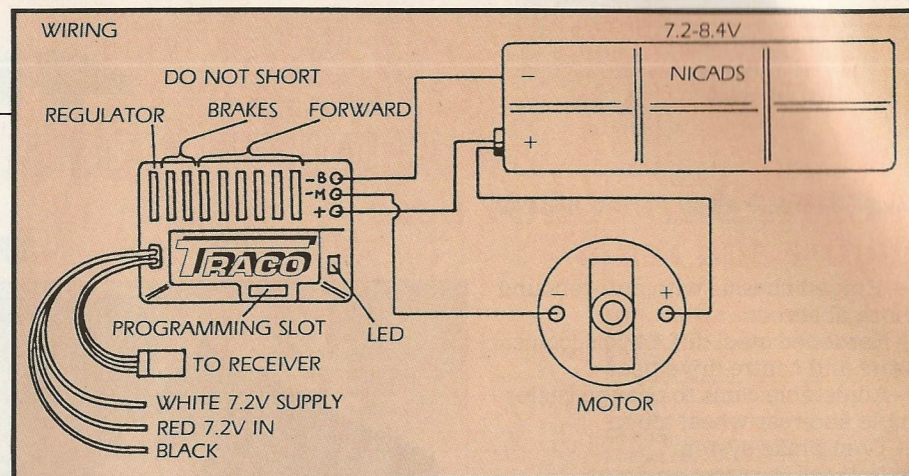


Schumacher's new Traco is quite different from other electronic speed controllers.



Schumacher, the company well known for their world class 1/10 scale off road buggies, have now released an ESC to complement their range of electric cars.

The 'Traco', which is a novel name for an electronic speed control, is aimed at the highest level of competition. The 'Traco' features a micro processor control, ABS anti-lock braking and programmable acceleration.

This all sounds very impressive but has the 'Traco' got the match of the established market leaders, Novak, Corally and Tekin?

Innovative?

The Traco's design is based around a solid state microprocessor, which gives it most, if not all, of its novel features outlined above. The microprocessor chip sits inside the high quality, snug fitting yellow case, directly under the Traco sticker. Sneaking a look inside the case reveals two printed circuit boards sitting on top of each other, adjacent to the customary Fet's. (A design similar to that used by Novak). The Traco is quite large and heavy, in comparison to the competition, but the construction looks very robust and should prove hard wearing.

The Traco utilises a programming button rather than adjustable dials, to match your chosen radio to the ESC (more about this later).

A feature introduced by Corally on their Motor Management ESC, was current limiting, which improves the efficiency of a speed controller. The other main manufacturers Novak, Tekin and Nosram saw the benefit and followed suit. Schumacher has assessed this principal and have opted for a variation of the theme. Current limiting controllers prevent excess current being wasted by the motor, generally under acceleration. These controllers require setting to suit the motor used and the traction available, it is difficult to maximise the benefit of such limiters due to the vast number of variables.

In fact, many top drivers, especially in circuit racing, leave the current limiters on minimum (max current) and 'stroke' the throttle, to balance the power given to the wheels with the traction available on each corner. Unfortunately few of us have access to left thumbs like this, so we rely on current limiters to prevent us from 'spinning out' on each corner. This is, of course, a compromise as maximum 'punch' is reduced by the torque limiter.

Schumacher's Traco does not feature current limiting, but a microprocessor controlled 'superstars left thumb'. It applies power to the motor in a smooth 'curve', like a superstar's left thumb and minimises wheelspin and wasted current. This 'curve' is adjustable, again by the programming button, and can be set to suit the motor and circuit. It is possible to delay the application of full power for up to 1/10 of a second, which makes for very smooth acceleration indeed.

ABS braking is another feature novel to the 'Traco'. Under braking the 'Traco' continually checks the drive motor, and only brakes while it is still moving. This prevents 'major' lock up and lost control on slippery surfaces, but still allows the car to be thrown into corners sideways if that is the style you prefer.

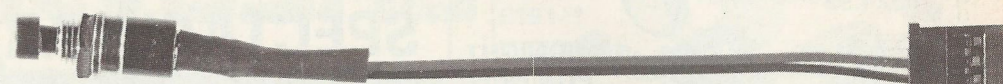
Construction

As mentioned the Traco comes in a yellow plastic which differentiates it from the competition. Heatsinks are fitted to both brakes and forward Fet's to help the Traco out in warm weather, and maintain efficiency. A switch is fitted to a rather short lead which may cause problems when fitting. The plug in 'programming lead' is convenient but make sure you don't lose it. Heavy duty wire is fitted in the usual format, ie one red, two blue, one for the motor two for the nicads.

Using the Traco

The Traco fits snugly between the nicads on the ProCat and the wires can be cut nice and short. It also fits nicely in the Cougar as you would expect, but I suspect that problems may occur when fitting it into cars with less space to spare. The dimensions are 53 x 40 x 30mm so check before you separate yourself with the cash.

Setting up is very simple, plug in the lead, connect the ESC, motor and nicads. Switch on your radio and ESC. Push the stick to full throttle, press the button, push the stick to full reverse, press, hold the stick where you wish full power to come in and press. The Traco is now set up. Settings will be stored and will not drift as can occur with some of the competition units.



Setting the required acceleration rates and brakes is also very simple. This time plug in the programming switch while the ESC is switched on. To set the acceleration move the stick forward, the LED will go off and on as you move it. It will come on and go off a total of seven times to signify the acceleration rate. Pressing the button at the desired acceleration rate will set the ESC, No 1 minimal stick movement gives minimal delay. No 7 move stick movement gives maximum delay (1/10 of a second).

Brakes are set in a similar fashion, which is a lot easier to do than put down on paper. Brakes can be adjusted to your liking or can be programmed to be proportional, so that the stick position (and hence the driver) controls the braking rate.

In Car

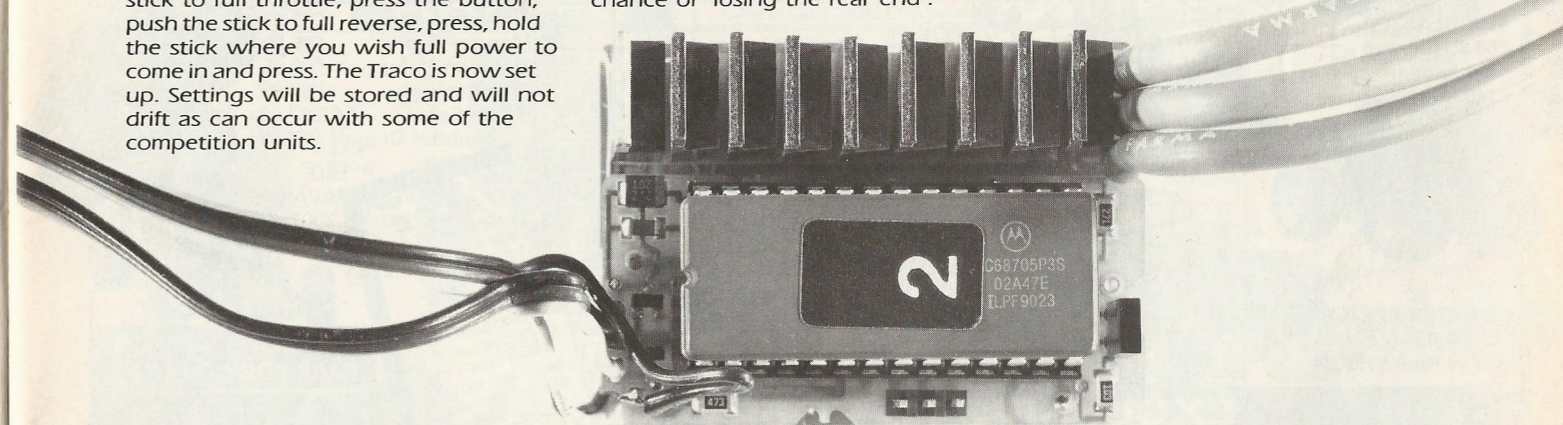
The 'Traco' is like any other top level ESC when set with no delay and proportional brakes. It is wonderfully proportional and so has great 'feel'. The brakes are a revelation, they can pull the car to a rest very quickly, hence allowing very late braking. The ABS feature, really does make a big difference on slippery surfaces. The car can be braked with great confidence and there is much less chance of 'losing the rear end'.

The programmable acceleration rates really do work, the car can be made to accelerate hard out of a corner with little fuss (assuming you have set it to the correct Acc. rate). This is all OK if all the corners on the circuit are the same, but like current limit controls a compromise must be made.

We feel there is little to choose between prog. acc. rates and current limiting. If you have access to a superstars left thumb however, or can train yours in the same way then that's the way to go!

Conclusion

The Traco is a quality product at a competitive price and should find many happy customers. The programming button is convenient, but if lost, could be less user friendly. Efficiency is on a par with the competition, and the brakes are phenomenal. The only real disadvantage with the 'Traco' is its size and weight, so check it will fit before you buy. A major advantage over the competition is that there is a repair service with a maximum charge at £20, which is nice when you are spending £125 on an ESC.



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