

tested on a dynamometer, where are the results and how can you interpret them.

There is probably a simple maxim to remember, you can't get out more than you put in. So draw more current and it is possible to produce more power. This is only true of course if the motor is properly adjusted, clean and in good condition. Of course it is possible to draw lots of current and produce very little motive power but an awful lot of heat. This is a pretty clear sign that something somewhere is not working properly.

I suppose the best way of testing a motor to see if it is better than all the rest is simply to compare it with the others. The most accurate way to do that is by applying certain fixed loads to the motor and measuring the result. There are a number of suitable cheap motor testers available. Sadly the results of tests such as these do not tell you if your motor will be good on this or that type of track. So in the end there is only one answer, make your choice, pick your gear ratio and get out there and drive it, but, don't believe all you read in the ads.

The B&R Motorworks motors are now available in the UK.



Motor-WORKS

There are around four prime manufacturers of the type of motors used in RC Racing. For the most part the factories are in Japan, Hong Kong and Taiwan. These manufacturers in turn source their raw materials and components from yet more manufacturers. Thus to say that this or that motor is made in the U.K. or USA is perhaps a little misleading. The name that appears on the can is probably the company that chose the specification and imported the original motors and indeed may well have put the finishing touches to the product or even carried out the winding of the armature. Even here one can be misled. Some suppliers simply buy motors from this or that importer, stick on the labels and hey presto another motor hits the market place. So in the end how do you choose. Firstly be on your guard. Read the advertisements closely and do not swallow all the hype. If you like the look of this or that label, and that is what you want in your car, fine.

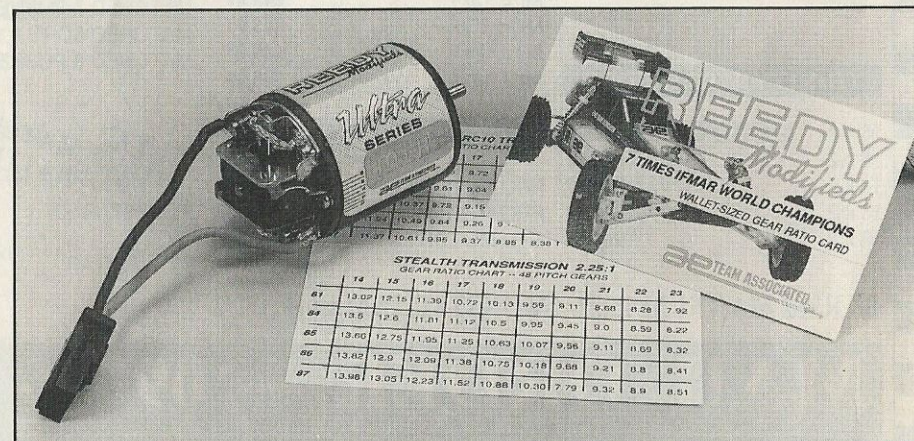
Claims about staggering R.P.M. may look good, but it is of little help. You need to relate that to the amount of power available at the specified R.P.M. A motor that has a free running speed (unloaded) of 50,000 R.P.M. but does not have enough power to move the car off the start line is not a lot of use. Also does the advert guarantee that all motors can reach these speeds or just a "sample" motor was capable of reaching those speeds. It is also worth remembering that as soon as a small DC electric motor is used, the performance will start to fall off. All sorts of things happen to it. The commutator will start to erode as well as

Recently the USA RC controlling body has introduced new rules governing the amount of "advance" a stock motor is permitted. Although the rules do not directly affect U.K. racing, motors imported from the USA may be constructed to abide by that ruling.

oxidise, hence contact resistance will build up. The brushes will start to heat up, break up and of course wear. Brush springs will heat up and gradually lose their tension. The magnets will be affected by shock, heat and flux reversals, which will eventually bring about a reduction in magnet energy. So from the moment the motor starts to run it is on the decline. Dyno tested is another neat phrase. What does it mean? Perhaps more importantly if the motor has been

There are now many manufacturers - Geoff Driver investigates what's available

Power Products,
P.O. Box 12, Aldershot, Hants.
Power Products have one of the largest ranges of motor types available, and among the cheapest to be found. Apart



The Reedy name has many championships behind it, although others feel they are catching up.

from their own exclusive design of endbell, motors are offered with "ceramic, wet or cobalt" magnets. Power Products are the only company to offer cobalt magnets on RC car motors.

In addition to the magnet types, three options of magnet strength are available. All "adjustable" motors are precision balanced by Power Products in the UK. Full spares and rebuild service available. Magnetising of magnets, comm truing and balancing available for Power Products and Demon motors.

Standard
27 x 1 BRCA stock motor. 30 deg timing
17 x 1 Fixed timing. Fast for 4WD
20 x 1 fixed timing. Fast for 2WD

Modified
13 x 1
14 x 1
15 x 1
16 x 1
17 x 1
18 x 1
19 x 1
20 x 1
21 x 1
10 x 2 also in x 3
11 x 2 also in x 3 also in x 4
12 x 2 also in x 3 also in x 4
13 x 2 also in x 3 also in x 4
14 x 2 also in x 3 also in x 4
15 x 2 also in x 3 also in x 4
16 x 2 also in x 3 also in x 4
17 x 2 also in x 3 also in x 4
18 x 2 also in x 3 also in x 4
19 x 2 also in x 3 also in x 4
20 x 2 also in x 3 also in x 4
21 x 2 also in x 3 also in x 4
22 x 2 also in x 3 also in x 4
23 x 4
24 x 4

Kyosho

The original Le Man series have been added to and in some cases superseded by an alternative. Although not widely appreciated it was Kyosho who were responsible for a lot of the work that went into the so called wet magnet motors, and

were among the first to release this type of motor onto the market. Now of course just about everyone has a wet magnet series.

Le mans
480 Gold Special
480 WT
360 PT
H-240 S
600 E
240 SB
AP29
AP29BB
Speed 240T
DMC20BB GP
Super Stock 20
Super Stock 34
SPA240 WS
480 WT
Mega Motors
12 x 2 Paved Oval
14 x 2 Dirt Oval
16 x 2 4WD Off Road
18 x 2 Off Road
20 x 2 On Road
22 x 1 Outlaw Stock
360 Monster Truck

MRI Motors
Wetmags and ballraces
31 x 2
15 x 2
15 x 3
17 x 2
19 x 2
19 x 3
21 x 1
27 x 1

Yokomo CML

Yokomo motors have long been the source for other manufacturers to rework. No less a person than Mike Reedy used Yokomo motors for many years. Of course nowadays sourcing at the best price tends to have manufacturers looking further and further afield.

Esprit
Lightening

Just about any wind can be obtained, but the motors usually reappear with other labels on.

Reedy

Still at the top of the motor heap despite claims by all the competition.

Whether the success is just a result of the Reedy motors or the Associated cars or, as is more likely a wise choice of driver it does not matter. At the end of the day it is the Reedy name that appears on the winners rostrum. The support that Mike Reedy and Team Associated give to the hobby is legendary. Sponsoring race meetings world wide not only keeps the Reedy name alive but also continues to promote top level competitive driving in many countries. Reedy motors feature cord wrapping around the armature windings to ensure there is no winding movement at high speed.

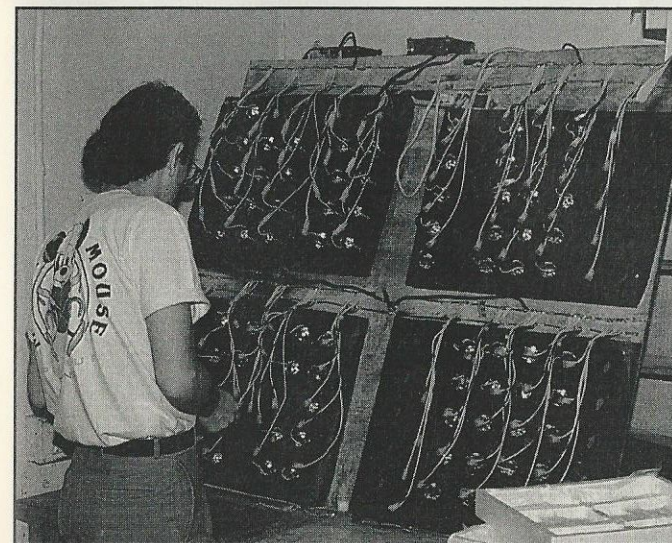
Ultra series
21 x 2 Silver dot
17 x 2 Red dot
13 x 2 Pink dot
19 x 2 Gold dot
20 x 3 Gold star
12 x 2 Blue dot
13 x 2 Green dot
16 x 2 Yellow dot
21 x 2 Silver dot
19 Brown dot
27 advanced timing 35 fixed timing

Esprit series
17 fixed timing
20 fixed timing
19 x 2
15
23
13 x 2

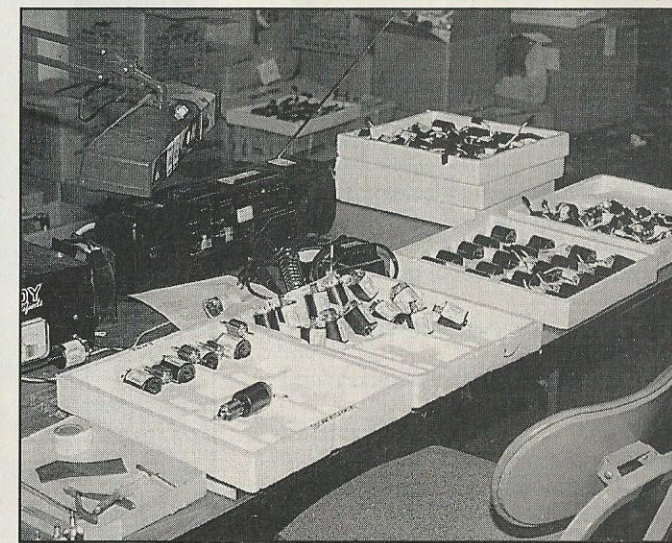
Ultra Torque series
Mr. K 17 x 2
Mr. R 16 x 3
Mr. D 14 x 2
Mr. C 13 x 3
Mr. J 12 x 4
Mr. E 13 x 3
Mr. H 12 x 2

Trinity

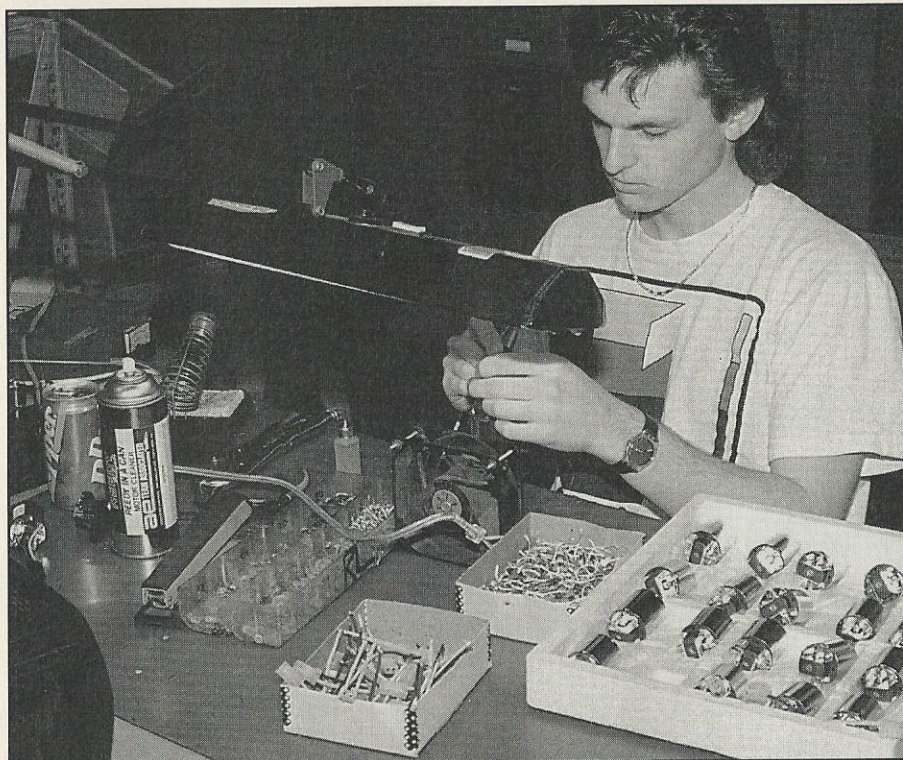
The U.S. ruling body for RC racing have recently decreed that fixed timing motors



Associated motors being tested in the factory.



Boxes of motors before being sent out.



Motors having their brushes and springs assembled.

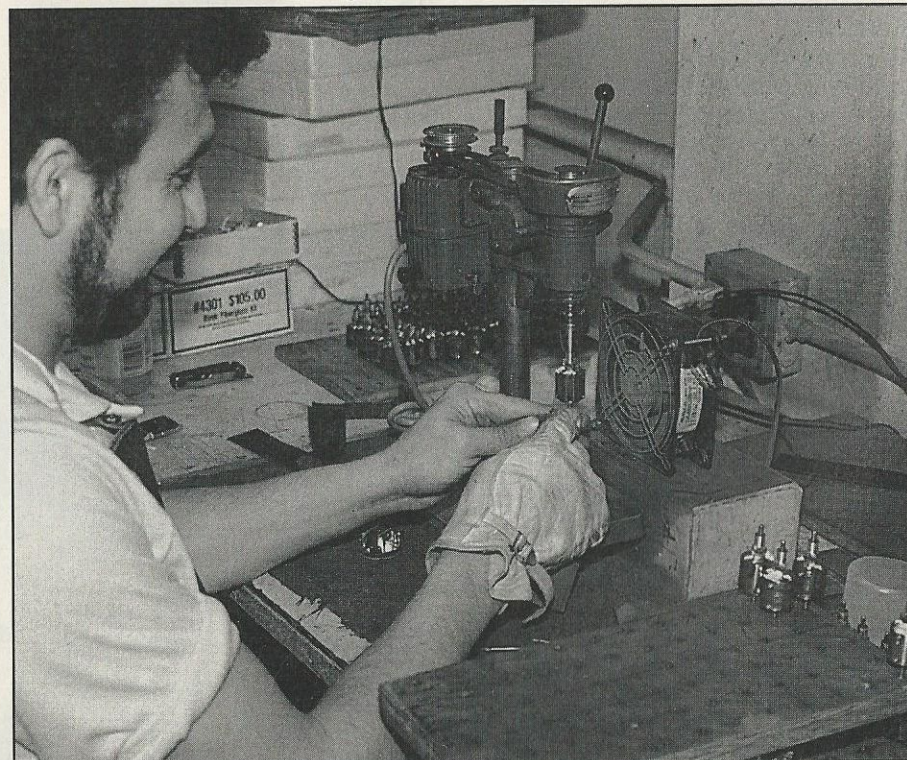
can be up to 24 degrees of advance but the armature must be locked. This means that the armatures cannot be forced into greater amounts of advance as was done previously. Trinity have responded to this ruling by introducing "the Slot Machine". A redesign of the armature stack they claim, provides the fastest stock motor to meet the new rules. A similar spec but with a different wind designed for 4WD and trucks is the "Boss".

A new design of armature known as the "Tri-Rotor System" has been introduced to the adjustable timing motor range. Claimed to provide better cooling by letting air circulate around the centre of the wire mass. Cans are 1.3mm thick and fitted with wet magnets. Motors come in 9, 11, 12, 13, 14 and 15 turn single winds priced at 46.00. Armatures are available in a similar range of winds but include double and triple wind options, all priced at 21.95.

Clodbuster
17 RC2012
17 RC2013 reverse rotation
17 RC2010
19 RC2006
16 RC2030 9
RC1700 Nuclear assault fastest motor
10 RC1701 Big Daddy 2 min.run
12 RC1703 Godzilla Oval track motor 13
RC 1704 King Kong needs good cells. For 4WD cars
14 RC1705 Maximum Overdrive. Oval track motor.
15 RC1706 Behemoth. Based on World Championship motor
16 RC1707 Gargantua. Good for on and off road.
17 RC1708 Magic Speed Joel Johnson Signature.
18 RC1709 Heavy Metal Thunder
19 RC1710 Tyrannosaurus Rex

Twister

Pete's Awesome Products, 316a High



Putting the windings on at the factory.

Road, Tottenham London.

19 x 2 Kris Moore special. Championship winner.
19 x 4 Monster truck, easy driving and long run times
17 x 3 Stadium special 2WD cars and trucks.
16 x 3 Dirt Merchant 4WD or high traction circuits 2WD
14 x 2 SCE Special Takes advantage of high capacity SCE
14 x 3 Erik's Express. Very fast 44,000 RPM
13 x 1 Cyclone 48,000 RPM on road cars
14 x 1 Titan Championship winner, best in heavier cars
12 x 2 Fast Eddie's Ride Masses of torque
15 x 2 Hurricane Sprint cars
17 x 2 Terminator very flexible
21 x 2 Tornado Tremendous torque and good run time
15 x 3 Formula 10 A 1/10 on road car motor, budget price
19 x 4 Formula 12 1/12 motor
12 x 2 Typhoon Drag, 2/4WD 50,000RPM hold drag speed record at 74 MPH
11 x 2 Annihilator Hottest motor in the range. 50,000RPM
13 x 3 Carolina Mountain Mt. Fast dirt motor
14 x 3 Flash Intended for direct drive
14 x 3 Clydesdale Monster truck motor
14 x 3 reverse Clydesdale
13 x 3 Black Max suitable for 6 or 7 cells
14 x 3 Street Racer 27 standard Ultra stock 2WD Cleaned and dyno checked
27 standard Ultra stock 4WD as above
27 standard P.R. Superpro Hottest stock motor
17 standard Pocket Rocket bushes (34,000 RPM) entry level motor
20 standard Pocket Rocket bushes (as above)
15 x 2 Pocket Rocket ball races, adjustable

timing
19 x 2 Pocket Rocket ball races, adjustable timing, long life and reliable
All Modified motors now available in 'Blue Print' mode (tested and tuned)

Parma

Parma motors have a high specification and come in a good range of winds. They feature hand winds, balanced and epoxied armatures. Parma UK also offer a rebuilding service for all makes and types of motor via their dealer network.

21 x 2 1/12 on carpet motor
20 x 3 1/12 but ok for tarmac
19 x 4 Good all round and monster truck motor
17 x 3 Excellent flat track motor 2 or 4WD
16 x 1 Good short track buggy motor
14 x 2 Very fast for 2WD and some 4WD
12 x 3 Smooth and quick for longer tracks
13 x 1 Lots of punch on twisting tracks 8 x 1 Drag racer
30 x 1 Truck and pulling tractors
27 x 1 BRCA stock
25 x 1 Stock type, low price
17 x 1 Ultra stock, non adjustable
18 x 2 Good all rounder, adjustable timing, 2 or 4WD
16 x 2 Good for 2 or 4WD.
Lower pinion required
17 x 2 Fully ball-raced with adjustable timing.
Suitable top to middle range cars
15 x 2 Ball raced and adjustable.
Excellent for the more experienced
13 x 2 Very hot. needs a lot of experience to make the best of the performance

T.M.S.

TMS Ltd., Deanfield Mills, Asquith, Morey, Leeds TMS motor brandname is Mikado. They feature good ventilation, wet magnets and are dynamically balanced.

13 x 2
14 x 2
15 x 2
19 x 2
21 x 2
14 x 3
16 x 3

MG

M.G. continue to have many race successes with their brand of motors. They offer full rebuild service of motors (any make) including magnetising, truing and balancing.

Magnum
15 x 2

16 x 2
17 x 2
18 x 2
19 x 2
15 x 3
16 x 3
17 x 3
15 x 4
16 x 4
Super Magnum/eliminator.
Ceramic shaft large heatsink.
10 x 2
11 x 2
12 x 2
13 x 2
14 x 2
11 x 3
12 x 3
13 x 3

Red dot plus fixed timing ball raced/balanced wet mag.

18 x 1
19 x 2

20 x 1
27 x 1
15 x 2
18 x 3

Red dot
18 x 1
20 x 1

Orange dot. BRCA standard motor wet mags.
27 x 1

Schumacher

Schumacher have a limited range of motors in addition to Reedy motors that are also offered.

Ultra Stock
15 x 2 Pink Power
17 x 2 Red Heat
14 x 2 Gold Nova
21 x 2 Quick Silver
19 x 2 Gold Rush

Tamiya

Tamiya co operate with two of the major motor manufacturers in the far east to produce motors exclusive for Tamiya. Mabuchi, the worlds largest producer of small DC motors manufacture two performance motors for Tamiya.

Technigold
Techniplus
Dynatech 01R
Dynatech 02H

Tanaplan

Tanaplan offer machine or hand wound motors. Just about any type of wind you fancy can be provided. Motors have ballraces, diamond trued commutator and with wet magnets.

13 x 2
14 x 2
15 x 2
16 x 3

17 x 2
18 x 2
Handwound
12 x 1
12 x 2
13 x 2
13 x 3
14 x 2
15 x 2
15 x 3
15 x 4
16 x 2
16 x 3
17 x 2
17 x 3
18 x 2
19 x 2

Brushes are available in timed, hard and medium types.

Phil Greeno

Phil Greeno has been entering all types RC racing for many years his shop in north London has become something of a Mecca for RC enthusiast in the area. His own brand of motors carry the name "Lightening". They are good value for money motors for 1/10 on and off road. Lightning
27 x 1 Fixed timing

Tamiya Dyna-tech motor features alloy finning to aid cooling.

14 x 2
15 x 2
17 x 2
9 x 2

'Claims about staggering R.P.M. may look good, but it is of little help.'

LRP

This German produced motors are used by Jamie Booth with some considerable success in his race winning Tamiya cars. Now marketed by Jamie Booth.

Blue SE
Pink E
White E
Orange AE
Black
Silver

No wind information given.

Revolution

CML Distribution, 1648 Bristol Road South, Rednal, Birmingham, B45 9TZ.
USA produced motors with a good range of winds and performance options.
Dry magnets

21 x 2
19 x 2
17 x 3
15 x 2
14 x 2
11 x 4
11 x 3

Wet mags

18 x 3
16 x 2
13 x 3
12 x 1
17 x 2
19 x 2
27 stock motor

Kawada

Small Japanese company, makers of a 1/12 car
MX-1 17 turn M
X-1 15 turn
Speedworks Buggymaster Endurance motor

Checkpoint

16 x 2
8 x 2

HPI

Top Gear Models and Trading, 5
Page Close, Bean, Dartford Kent DA2 8BX
Some years ago UNO HPI (Hobby Products International) suddenly appeared from nowhere. Whether or not the HPI motor took Masami Hirotsuka to be 1986 world champion or Masami took the HPI

13 x 3
15 x 2
19 x 2

STS

Wasp Products Ltd., 13 Morninside Road, Worcester Park, Surrey KT4 8LQ Motors from the USA

Modified motors

19 x 1
20 x 1
21 x 1
13 x 2
14 x 2
15 x 2
16 x 2
17 x 2
11 x 3 1
2 x 3
Standard 27 turn
Other winds to order

Laser Lite

Wasp Products Ltd., 13 Morningside Road, Worcester Park, Surrey KT4 8LQ
USA produced quality motors from a company with an expanding portfolio

Modified Motors

19 x 1
20 x 1
21 x 1
13 x 2
14 x 2
15 x 2
16 x 2

17 x 2
11 x 3
12 x 3
Standard 27 turn

B & R Motorworks

Samifran Racing
5 Skimpot Road, Luton, Beds. LU4 0JB.
Motors from the U.S.A. offering both fixed and adjustable timing types. Stock motors are available with up to 44 degs. of advance, silver graphite brushes and in some cases wet magnets.
Modified are hand wound and epoxied, balanced armature, trued comm. wet magnets, silver graphite brushes and are tested.

12 x 2
13 x 2
14 x 2
15 x 2
16 x 2
21 x 2
12 x 3
13 x 3
15 x 3
16 x 3
19 x 3
12 x 4
13 x 4
14 x 4
15 x 4
16 x 4
17 x 4
18 x 4
12 x 5
13 x 5
14 x 5
15 x 5
16 x 5
17 x 5 1
2 x 6

Motor—WORKS

motor to world championship fame is academic. The two were an unbeatable partnership. The motor was for a long time only available in Japan, supplies filtered into the USA and now the same motor can be bought in the UK.
Original motor chassis by Air Supply.

700 Series (plain bearings)
27 turn Stock
Sports 15
Sports 18

Ball races
Club Racer 14 4WD On & Offroad
Club Racer 15 2 & 4WD Offroad, Oval
Club Racer 18 2WD On & offroad, Monster

Modified 12 4WD On and offroad, Oval
Modified 14 4WD Offroad, Ovals
Modified 18 2WD On & offroad Monster truck

Paragon

Holcomac Marketing Ltd., Britannic House, 17A George Street, Stroud, Glos. GL5 3DP
U.S.A produced motor, available in the UK in a limited range of winds.

27 x 1 Stock motor
Modified range Eclipse

The latest Associated motors are the Mr Series.

