FORMULA-2000 RACING

by Paul Pfeiffer

Concerned about the trend of declining participation in wing car racing at local, regional, and national levels, I determined to try something different, something which would have a better chance of success. Now, some folks will say that the good economy, the internet, or video games have hurt slot racing in recent years. There may be some truth to that. But there are still a good many people, of both sexes and of every age group that love cars and racing, and need to get their hands on them. They want to play with something real, that they can build, tune, and race. And it is because of these people, that slot racing has lasted for more than forty years as a hobby worldwide.

But especially in the wing car areas, many former racers have fallen away and would-be racers will not try it. They are staying away in droves. Why? It seems to me obvious that the intense competition for many years has brought about huge increases in the speed, cost, and the complexity of the cars. The racer needs a greater level of skill and technical expertise to build and race them. Over the years, the sport matured. We became a group of experts. Those who were unwilling or unable to become an expert gave up on it. Some did not have the money it would now take to be competitive. They gave it up. Some could not spend the time it would take to be competitive. They also gave it up. And for these same reasons, there were few new racers to replace those who had quit.

In motor racing, all the successful organizations have realized that they must implement rules and regulations devised to control cost and stabilize the technology from year to year. Nascar, IRL, CART, even Formula 1 have many such rules. But in slot racing, rules that would control the cost, the complexity, or the speed of cars, were rare. Development continued almost unchecked (as in the spectacular but short lived Can-Am racing series of the mid 60's and early 70's).

The Red Queen Effect...

If a new technology becomes available (such as hollow axles, or 6, 8, 10 magnet motors, aluminum chassis, etc.) then at first the new technology give an advantage to those who possess it. But soon, everyone who is racing has the new technology and no one has an advantage. Everyone now has to work harder or spend more money for the latest thing to keep pace (lighter chassis, motors with more magnets, etc). But still, everyone is right where they were before... no one has gained an advantage. This is known as the "Red Queen Effect", after Lewis Carroll's Alice in Wonderland / Through the Looking Glass. In that story, Alice met up with the Red Queen. They began to run, and to Alice's surprise, after running as fast as they could for a long time, they were still in the same place. "Now here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!" said the Red Queen. How many slot racers must have experienced the frustration of just building or buying the latest thing only to learn as they race it for the first time that it's already obsolete? Now think of how this affects the industry... a manufacturer may hesitate to make a new product for fear that in a couple of months it will no longer be state of the art. Distributors and raceways are reluctant to stock many of these fast-changing items because they don't want to be stuck with "yesterday's news" (obsolete products that don't sell). So there will be shortages and supply problems. And fast changing technology drives up prices... Any time a new product is introduced, there are tooling, design, and production costs. If these costs will have to be recovered in just a very short time (before the product becomes obsolete), then the final cost of that product to the customer will be higher than if the product is expected to be on the market for years. It is possible to nullify much of the "Red Queen Effect" simply by adopting a few carefully chosen restraints on technology.

Why limit technology in slot racing? For the same reason that Nascar, CART, Formula 1, and all other successful forms of motor racing have agreed upon. It is necessary to put limitations in the rules to prevent the costs and the technology from getting out of control. And the rules must stay the same from year to year. This is beneficial for manufacturers that are trying to decide what sort of products to make, and for distributors and raceways deciding what to stock. Rules that are ever changing, (or are not restrictive enough) contribute to supply problems, premature obsolescence of parts, or items not even being produced at all!

The Formula-2000 rules are the result of applying common sense to (wing car) slot racing. Much of the credit (or blame) for them goes to the racers I have talked to over the years. Discussions with Jim Mayer inspired several of the rules. In general, the car specifications are the same as the USRA rules. Where Formula-2000 rules differ, a brief explanation will follow. No question, the Formula-2000 cars and racing are a bit slower than full bore USRA glue racing. But it is fast, competitive, affordable, and challenging.

Formula-2000 Rules (Box 12, Cobalt 12, Group 27, Group 7)

* ***General (wing car) rules and specifications are the same as USRA with these exceptions...***
* ***No Motor Changing***
  Only one motor is allowed. (In races where there are qualifying heats, one motor is allowed for the qualifying race, a second motor is allowed for the main. No motor changing is allowed in any race. The maximum number of motors you could use is two. The obvious reason for this rule is to reduce the cost and time associated with building and using many motors in a race. It has not escaped us that with this "one motor rule"; a racer may borrow a motor from someone who has extras, increasing the number of entrants.
* ***Minimum weights for cars. (72 grams for Box 12, 50 grams for Cobalt 12 and 52 grams for Gp 27 & 7.)***
  This rule is needed to stabilize the technology and to minimize the use of lightweight and exotic materials for chassis construction. The 72-gram minimum for Box 12 is also the (current) minimum in USRA rules. The 52-gram minimum for the other classes may seem to have been arbitrarily chosen, but is was selected with a purpose. The purpose was to use minimum weights, which would be sufficiently high, so that chassis made of spring steel would be competitive with chassis of aluminum or other materials on all tracks. We consider this important because spring steel chassis are less expensive and more durable than aluminum ones. Steel is easier to solder and does not require plating to make it solderable.
* ***Motors may have only "single" magnets.***
  Single magnets cost less and are much less likely to come out of the can during a wreck. This is particularly important in "one motor racing" where you cannot just change it when you break a motor. If a single magnet motor does break a magnet (they do), it is easier and less expensive to repair.
  Dennis "Foamy" Hill first used a 4-magnet cobalt motor in 1978 and Jim "Turkey Man" Stevens built and raced (10) 6 magnet motors in the 1983 Nats. Since then, the advantage of multi magnet motors has been exploited by the top racers and builders. But the advantages of multi magnet motors come at a high price. They cost a lot more and are much more difficult to build, and repair. They are much more likely to spit out a magnet segment during a race. Also, the number of magnet segments, which is "state of the art", has been going up. Eight and ten magnet motors are here and that number will increase.
  The sensible thing seemed to be to freeze the number of magnets at two per motor.
* ***Only solid steel axles may be used (no lightweight, filled, or hollow axles).***
  The hollow axles can cost nearly $20.00 and are easily bent. Gluing a carbon graphite rod into a hollow axle is a neat trick but it costs even more. We stick with strong, solid steel axles ($2.00).

That's it, two rules on the motors (no motor changing, two magnets per motor), and two rules about weight (minimum weight for cars, and solid steel axles).

Racing Procedure

* ***The glue format is spray glue.***
  This was selected because it is much easier on motors (we are only allowing one motor per race). Spray glue is also easier to learn for a new driver or for a scale racer trying wing racing. In spray glue, the skill of the driver is prominent, the cars are not quite so hooked up. We view this as a good thing.
* ***There is no qualifying.***
  Starting lane is chosen at random. All entrants run in an 8-segment qualifying race.
* ***Only one motor many be used per race.***
  You may use one for the qualifying race, another for the main.
* ***Driver Classification.***
  It is important that drivers with more skill and experience be separated from those who are newer to the sport. There must be the opportunity for everyone to race in a class with other drivers roughly of the same ability. In Formula-2000, the car classifications also represent differences in driver experience and ability.

It is a ladder system. The least experienced racers are in Box 12. As they gain skill and experience, they move up to faster classes. The most skillful racers run Group 7 cars. It is clear to me that the dismantling of the ladder system of driver classification that once existed in USRA racing was a major mistake. Allowing racers of "professional" status to race in every category has in the last several years driven off many racers.

Formula-2000 racing may not appeal to every slot racer. But I think it will have appeal for a good many existing wing car racers and more importantly, for those who have quit racing, and those who might try it. Many steel chassis or six magnet motors (with magnets broken out) may enjoy another career in Formula-2000.

The Formula-2000 style of racing has gained attention and praise from individuals and groups from other parts of the US and in other countries. The Ontario wing car series, with races in Canada and the US, is trying Formula-2000 open class and Cobalt 12 racing.
Several USRA series now include one or more spray glue classes in their programs. One motor open races are being run in Southern CAL USRA. And the USSCA is running a Formula-2000 Open race in their championship.

If you have questions or comments concerning Formula-2000 wing car racing, or would be interested in obtaining rulebooks, please do not hesitate to contact me.

Paul Pfeiffer
Alpha Products
PO Box 1069
Fond du Lac, WI 54936-1069
USA

Telephone: 920-922-6509
Fax: 920-922-2944
E-mail: alphapjp@dotnet.com