



An explanation on how to win in DYO.

What in the world is **DYO** you say ? I guess I have to start by not presuming any knowledge of drag racing. For those of you who already understand what drag racing is all about bear with me as we bring the new guys up to speed.

Heads up racing means both cars leave the starting line at the same time with one flash of light on the tree. In **Top Fuel, Top Alcohol, Pro Stock** the first person to the finish line is the winner. This is tough racing where only the strong (rich) survive.

Handicap racing is where you pair cars with different performance levels against each other. Handicap racing is divided into two groups one is based on a set index and the other is "dial your own" (DYO) The start is staggered to allow for the differences in performance between the cars. If the performance of each car was the same each car should reach the finish line at the same time. In theory each car should reach the finish line at the same time. Very accurate electronic race timing and small differences in performances will always have one car winning since the timing is down to one thousand of a second.

Index handicap

The differences are based on national records and indexes that determine how much head start one of the cars will get. With the timers reading times in thousands of a second this does not happen. Competition Eliminator is what the group of race car classes that compete in this group are called. You will find a lot of Pro Stock technology in the non supercharged cars in this group and a lot of Top Alcohol technology in the supercharged cars in this eliminator. This is tough racing where only the strong survive.

DYO (dial your own) handicap

Just imagine if you could pick the national record or index that you wanted to race with ! This is called by one of several names. The name that covers all types of cars that race in this group is Dial Your Own or DYO. You get to pick or set your own index. To keep people from "sandbagging" and picking a very slow index and then going much faster and winning you have a "break out" rule stating that if you go quicker than the selected index you "break out" and lose. On the basis of the elapsed times of the cars and the configuration of the cars they are also called **Modified Eliminator (centre steer)** cars and the **side steer cars** are some times called **Super Sedan or Super Street**. Dial your Own allows the driver to nominate the elapsed time that he wants to race his opponent with. His opponent does the same. Now here comes the trick. You have to get to the finish line first (to win) without going quicker than your nominated time.

How easy is this ! Pick a number you can run every time and leave on time. If you say this real quickly and don't think about it too much it does sound easy. The problem is that every one else is doing the same thing.

Winning in maximum performance based Eliminator like *heads up* or *index handicap* takes lots of horsepower. Let me say this another way. It takes lots of **money**. The first 80% of the power you need to win in these Eliminator comes reasonably cheap and will get you close, maybe close enough to qualify for a race. The last 20% of the horsepower you need to win will cost you three times as much as the first 80% that you started with. Winning in *Heads up* or *Index Eliminator* is very tough. (**Expensive**)

Now that you understand the differences between **DYO** handicap racing and **Index** handicaps racing. **DYO** looks real easy because it's not the horsepower that wins the race. Driving savvy looks like the winner here and it certainly is very important but let me take a moment and raise a few questions for you to ponder on. Since horsepower doesn't win the race, how can you let the competition make the a mistake first ? Let them leave the starting line first. They get the chance to red light first and if they do you win. This does mean that you have to have the quicker car though.

If you are the slower car, how do you go faster so you get to leave last.?

- *Horsepower makes you go quicker.
- *Horsepower costs money, more horsepower cost more money.
- *The car with the most horsepower isn't always the quickest though.
- *The car with the best horsepower to weight distribution will be the quickest or fastest.
- *Get the performance with efficiency of a Maximum Acceleration Device. (MAD)

You can use the horsepower more efficiently.

Look at the structure of Top Alcohol these cars all race each other and in theory are all matched evenly. In theory each car should reach the finish line at the same time. Look at which type of car carries the most weight to make it perform with the others. That is correct, the dragster has the most weight per cubic inch, and performs at the same performance level. This shows that if you have 500 horsepower or 2000 horsepower in your engine nothing leaves harder and runs straighter than a dragster. If the dragster ran on the 3.9 weight break like the altered does it would run three tenths of a second quicker. There is not any type of car that you put your engine into will run quicker than a dragster. If you put your engine on a go-kart by the time you got done modifying the go-kart to use all the horsepower your engine is making the go-kart would look like a dragster any way. Why not just put it in a dragster now.

Now you are letting the other guy leave first.

What other advantage can you gain by letting him leave first. You install a **cross over delay box** to trigger the trans brake release. If you don't know what this stuff is let me explain. A trans brake locks the transmission in reverse and low gear at the same time preventing the car from moving with the engine revved up and ready to go. Releasing the trans brake releases the reverse gear allowing low gear to operate. The trans brake is a electrical solenoid that controls the oil flow in the transmission. The **cross over delay box** is a little more complicated. I will presume that you do know that you do not wait for the green light to start your race. You do have to anticipate the green light coming on by leaving just a little early. How much ? Here is the trick. There is exactly 4 tenths (.4) of a second between each yellow bulb on the starting tree lights. There are 3 yellow bulbs before the green or 1.2 seconds from when the first bulb flashes. Different cars and different drivers react differently so normally you have to develop your own starting line technique to always leave early as possible to anticipate the green but not to red light (foul). You have to do this every time and on time. Now this gets real hard. The delay box allows you to leave off the first flash of light on the top large yellow bulb of the tree and delay the start by adjusting the delay in the box to suit you and your car. Without a delay box you have to pick your spot on the tree to leave from and you can see the lights flashing before your light comes on and as

such you can anticipate "your" leave bulb coming on and cause you to red light. Factors such as ambient light, adrenalin and others will all affect this in the driver. If you don't know when the top bulb will come on (the start line official does this) then you cannot anticipate it. With the delay box you just leave from the top bulb and adjust the delay box to suit you and your car. The delay box is now adjusted for the proper amount of time and when the timer runs out it will release the trans brake and you are away on the race. OK this is the simple delay box a cross over -delay box allow you to "leave" off the top bulb on the slower competitors tree (the other lane). Remember this is all very precise there is .4 of a second between each bulb and there is a precise amount of time difference between your opponents side of the tree and yours. You leave off the first flash of color on his tree (crossing over) now you can leave off the first flash of color on the top of your side of the tree. Since you can't anticipate a bulb that you do not **KNOW** when it is coming on the presumption is that between the two leaves one is going to be better (close to the magic perfect leave of .400) than the other. The box will take the best one and trigger the trans brake with this one. The cross over box also gives the driver a third chance at the tree and you can leave off your bottom bulb as well. This is a third chance and if you know you were late on both of the top bulbs you do have a slim chance of using the bottom bulb to save your ass. Now do you see why it is so much better to let the other car leave first? You only let the other car leave first if you are the quicker one. Which car do you think has the advantages? You can install a cross over delay box in any car but you can only use it to its full advantage if you are the quicker car. Are you going to be the quicker car in a dragster or something else??? Now you are faster and coming from behind are there any advantages left? Yes, in DY0 you just want to win by a whisker just to keep yourself from "breaking out" (going quicker than your DY0). As you set in your very comfortable dragster seat the action takes place in front of you and you can watch it all develop. If the other guy wants to see what is happening, so he can let off early to keep from breaking out, he has to look over his shoulder to have a look at you. At 130 mph (200 kph) !! He won't have a long look to make any decisions by. So even if he does look he can't make a good clean decision. The advantages just keep on coming don't they. If the other guy cuts a light and runs on his dial in he is going to be real tough to beat in any type of car. At least in a quicker car you have some advantages. There are some other "tricks" that we save for our customers to use on their race cars. You didn't think we would tell it all here did you?

You pick the best....value.

How much money does it take to build a 500 hp engine?

How much money does it take to build a 1000 hp engine? Twice as much power usually takes at least four to six times the amount of money

A 2800 pound car needs 968 horsepower to run 8.30 seconds elapsed time.

A 1600 pound car needs 553 horsepower to run 8.30 seconds elapsed time.

Now lets look at this a different way. A 1600 pound car with a 968 hp engine will run 6.90 ET !

Where do you get your best value ?

This doesn't even consider wind resistance or frontal area! The dragster will have 25% of the frontal area of any sedan. Our dragsters have a smaller frontal area than most other dragsters any way due to the fact we tuck in the rear tires as close as practical to put the tires behind the engine. This is not the main reason that we do this but this is a side benefit from this.

Which car would be **cheaper** to build ?

Which car would be more **consistent** ?

Which car would need **less maintenance** ?

Is a high horsepower heavy car going to be harder on transmissions, converters, and drive line ?

Is a high horsepower car going to be more consistent on a slippery track ?

Is a high horsepower car going to be more consistent on a good track ?

How big is your wallet ?

How much do you want to win ?

I give you the facts. I ask the questions. I let you decide which rocket to ride and I let you pay the bills. **Where do you get the best value ?**

There are many other "tricks" to winning in **DYO** classes that are not so apparent. Many of these "tricks" are built into our cars to take advantage of every possible situation and since horsepower doesn't win the race we have to think of other things to give us the advantage. Some of the advantages are things we explain to our customers about winning in this Eliminator.

Is there a down side ?

One of the most common complaints about a dragster is that they are too long and take up too much space in the garage at home. The way that we look at this is that the dragster gives you *more* room in the garage at home. How? Consider this, you do need a trailer to get the car, any car to the track. A dragster trailer is just a bit longer. Most car trailers are 6 meters long and a dragster trailer only 8 meters long. If it rains an enclosed trailer will protect the car, so lets make it an enclosed trailer. Now this trailer can be the shed that the car can stay in at home. Now you don't take up any space in your garage. The one down side is that your mates can't come to your shed and drink beer and look at your car. Is your race car to win races with or impress your mates, this you have to decide for yourself. Just roll it out in the drive way on Sunday for a wax job and impress the neighbors with your rocket ship.

One way to look at your new **Modified Dragster** is to consider is much like you would a new ski boat but with wheels. Once the expense of assembly is done the operating costs are minimal. Usually since the operating cost is so low these can become the neatest cleanest chromed and anodised cars in drag racing. Take them out on Saturday night for a race and Sunday morning you have time to take your wife out to breakfast and mow the grass that afternoon and go to work on Monday. The *Heads Up* or even the fastest *index handicap* racing sure isn't like this. These cars are coming apart to find what is used up so you can order new parts and have it back together for the next race.

Maximum Acceleration Device racing (**MAD**) gives you the biggest bang for your buck, best value for your dollar, or in business terms, the best ROI (return on investment). If you build a quality car race it for 5 years and then decide to sell it you will probably get 70-80% of your money back. Evaluate the total cost at the end add in the winnings and divide you the number of years that you raced the car. How much was your real cost? How much enjoyment did you have? You might even have made some money. When you are 100 years old and ready to kick the bucket will you say "I wish I would have worked harder" or "I wish I would have had more fun"? It is my job here to ask the questions you have the hard job of getting the answers right. After all this if you decide to race a dragster almost any dragster chassis is going to be better value than a heavier sedan chassis. I would hope that you would consider getting one of our cars due to some of the "tricks" that are built into our cars to assist you in winning in a class where brute horsepower doesn't win races. When you become a member of the **KEN LOWE RACE CAR** family you are kept abreast of all the latest ideas on how to win in your particular eliminator.

Drag Racing Eliminators and the classes of cars in them. This is not meant to be a definitive explanation of the details of each class but just an overview to help understand the differences between each class and eliminator structure.

Top Fuel Eliminator - one class of car and all *heads up* start
Top Fuel Class (T/F)

Top Alcohol Eliminator - *heads up* start
Top Alcohol Dragster (TAD) 4.4 lb / cube inch displacement
Top Alcohol Funny Car (TA/FC) 4.0 lb / cube inch displacement
Top Alcohol Altered (TA/A) 3.9 lb / cube inch displacement

Pro Stock Eliminator - one class of car and all *heads up* start
Pro Stock Class (PS)

Competition Eliminator - *index handicap* start
AA Dragster (AA/D) 4.40 lb/cube non supercharged hemi head only
AA Dragster (AA/D) 4.10 lb/cube non supercharged wedge head only
BB Dragster (BB/D) 4.40 lb/cube non supercharged hemi head iron block
BB Dragster (BB/D) 4.10 lb/cube non supercharged wedge head iron block
CC Dragster (CC/D) 4.50 lb/cube non supercharged wedge head iron block with supercharger restrictions

A Dragster (A/D) 3.65 lb/cube non supercharged
B Dragster (B/D) 4.50 lb/cube non supercharged
C Dragster (C/D) 4.50 lb/cube non supercharged wedge head only
A Altered (A/A) 3.40 lb/cube non supercharged
B Altered (B/A) 4.50 lb/cube non supercharged
C Altered (C/A) 4.50 lb/cube non supercharged wedge heads only

Modified Eliminator - DYO, centre steer chassis

Super Sedan - DYO, side steer chassis 10.99 quicker

Super Street - DYO, side steer chassis, 11.00 - 12.99 ET

Super Gas - 10.90 index - *heads up* start - one class - 10.90 break out lose.

Fixed index, no engine limits, side steer required.

Although this is a *heads up* class the *fixed index* and the open engine rules allow a racer to assemble an inexpensive reliable low maintenance engine which keeps the lid on initial costs as well as keeps a lid on operating costs.