Drag Racing 101

The basics of the sport, from Staging and Starting, to ETs, RTs, Dial-in and Breakout . . .

A drag race is an acceleration contest, from a standing start, between two vehicles over a measured distance. The accepted standard for that distance is either a quarter mile (1320 feet), or an eighth mile (660 feet). The losing vehicle in each race is eliminated, and the winning drivers progress into succeeding rounds of competition. This series of races continues until one winner remains.

The contests are started by means of an electronic device commonly called a Christmas Tree because of its multicoloured starting lights. On each side of the Tree are seven lights; four small amber lights at the top of the fixture, followed in descending order by three larger amber bulbs, a green bulb, and a red bulb.

Two light beams cross the starting-line area and connect to trackside photocells, which are wired to the Christmas Tree and the electronic timers in the control tower. When a car's front tire breaks the first light beam, called the pre-stage beam, the pre-stage light is illuminated on the Christmas Tree to indicate to the racer that he or she is approximately seven inches from the starting line.

When the racer rolls forward into the stage beam, the front tires are exactly positioned in the starting line and the drivers will turn their attention to the three large amber lights that dominate the centre of the Christmas Tree.

The Christmas Tree will light the three amber bulbs consecutively one-half second apart, followed one-half second later by the green light (a full Tree)

If a driver and car react too quickly and the car leaves the starting line prematurely, the red foul light will illuminate, signalling a disqualification.

Two separate performances are monitored for each run: the elapsed time and the speed. Upon leaving the staging beams, each vehicle activates an elapsed-time clock, which is stopped when the same vehicle reaches the finish line. The start-to-finish timing is the vehicle's elapsed time, which serves to measure performance. Speed is measured in a 66-foot "speed track" that ends at the finish line. Each lane is timed independently of the other.

ET and Handicap Racing

Some racers choose to race vehicles built to a certain specification that fits into an NHRA class out-lined in the NHRA rulebook. However, an ever-growing number of racers choose to race on a local level in categories (or brackets) divided according to elapsed time, such as 0 to 9.99 seconds, 10.00 to 13.50 seconds, and so on. This is commonly known as ET bracket racing. This form of drag racing offers a good starting point for the

novice. Thousands of drag racers enjoy ET racing and have participated for many years.

Whenever two vehicles of different performance potentials race, they can do so fairly with a handicap start. The anticipated elapsed times referred to as "dial-in" for each vehicle are compared and the slower car receives a head start equal to the difference.

Dial-in

For example, car A has been timed at 15.96, 16.02 and 16.99 seconds for the quarter-mile, the driver determines that a dial-in of 16.00 is appropriate. Meanwhile, the driver of car B has recorded an elapsed time of 13.37, 13.52 and 13.56 on the same track and he has opted for dial-in of 13.50. Accordingly, car A will get a 2.5-second head start over car B when the Christmas Tree counts down to each car's starting light. This puts the emphasis on driver reaction.

Because the lanes are timed independently of each other and the elapsed-time clock does not begin ticking until the vehicle moves, if both vehicles should run exactly on their dial-in, the win will go to the driver who reacted quickest to the starting signal. The reaction to the starting signal is called reaction time.

Reaction Times

Reaction times are measured in thousandths of a second. The reaction-time counter begins when the last yellow light flashes on the Christmas Tree and stops when the racecar clears the stage beam. (Although some reaction timers begin counting when the green light flashes, this is not the case in the majority of starting systems). A perfect start- one in which the racecar clears the beam at the very instant the green light flashes- will produce a .500 on a full Tree (the difference is due to the length of time between the final yellow and the green light in the sequences). Reaction times also measure the amount of a red-light violation. For example, if a Full Tree car leaves the starting line with a .490 reaction time, the driver will be fouled by .010 second.

Technique in staging and starting is one of the most vital skills an ET racer can develop because a majority of races are won or lost at the starting line. A driver with a quicker reaction time can overcome an opponent's performance advantage- whether it's in a heads-up race or if the opponent runs closer to his or her dial-in- and record the win. Because of this, a vehicle may sometimes appear to have a mathematical advantage in comparative elapsed times but actually lose the race. This fact makes starting-line reflexes extremely important in drag racing. Close observations and lots of practice pay off.

Breakout and other reasons for disqualification

Should a driver go under his or her predetermined ET dial-in it is termed a breakout, and is grounds for disqualification. In the case of both drivers running under their dial-in, the win goes to the driver who runs closest to his/her dial-in. If both drivers violate their dial-

in by an equal amount, the winner is the driver who crossed the finish line first.

Other disqualification reasons include leaving the lane boundary (either by crossing the centreline, touching the guard-wall or rail, or striking a track fixture, such as the photocells), or failure to stage.

The NHRA employs a "First-or-Worst" rule of disqualification. For example, a red-light is considered worse than a breakout; crossing a lane boundary is considered worse than a red-light, even though it may have occurred after the red-light; and all technical reasons for disqualification supersede any on-track disqualification.