BRAKING SYSTEM

- An RC car uses a combination of Disc brakes but Cam is used for actuation instead of hydraulic pressure.
- When servo is rotated in opposite direction, the carburettor is in closed state, thus throttle gets cut off. At this position Brake cam bushing pushes brake pad on its side against rotor.
- As result rotor gets pressed against brake pads and thus RC Car stops.

PARTS REQUIRED

The following parts are required for manufacture of basic brake system:

- Brake pad/disc (Each rotor needs 2 brake pad).
- Brake callipers (If you use hydraulic brake system. 1 on each brake rotor). • Master Cylinder & Spring (For hydraulic brake system)
- Brake rotors
- Brake cam.
- Brake cam linkage.
- Brake cam bushings.

Parts common to transmission and brakes are:

- Drive shaft cups.
- Transmission box onto which driveshaft are attached.
- Servo motor to regulate Throttle opening position in carburettor.

ELECTRONICS

RECEIVER / TRANSMITTER SYSTEM

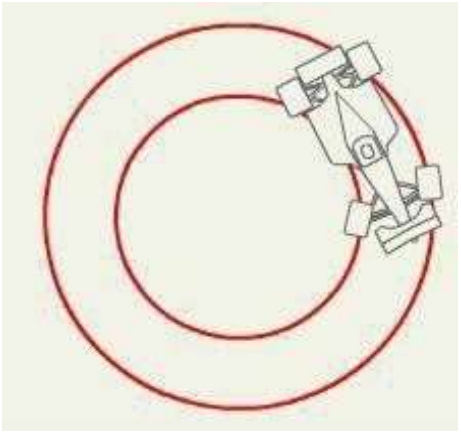
- For controlling a simple Nitro RC Car a simple 2 channel RC controller will serve the purpose.
- The servo reads pulses from the receiver and moves the servo output arm to a certain position.

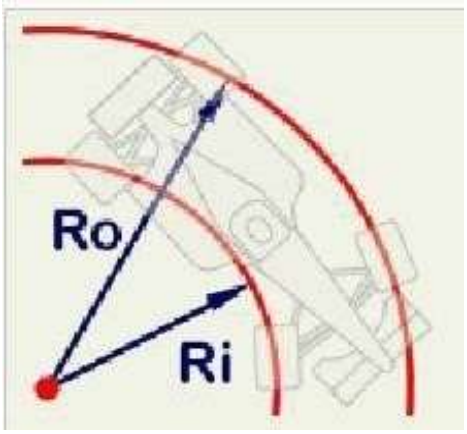
SERVO MOTORS

- 2 motors required.
- Used to control throttle, brakes and steering.
- Contains three wires coming out of it, two of them give power and the third controls the rotation.

CORNER CONDITIONS

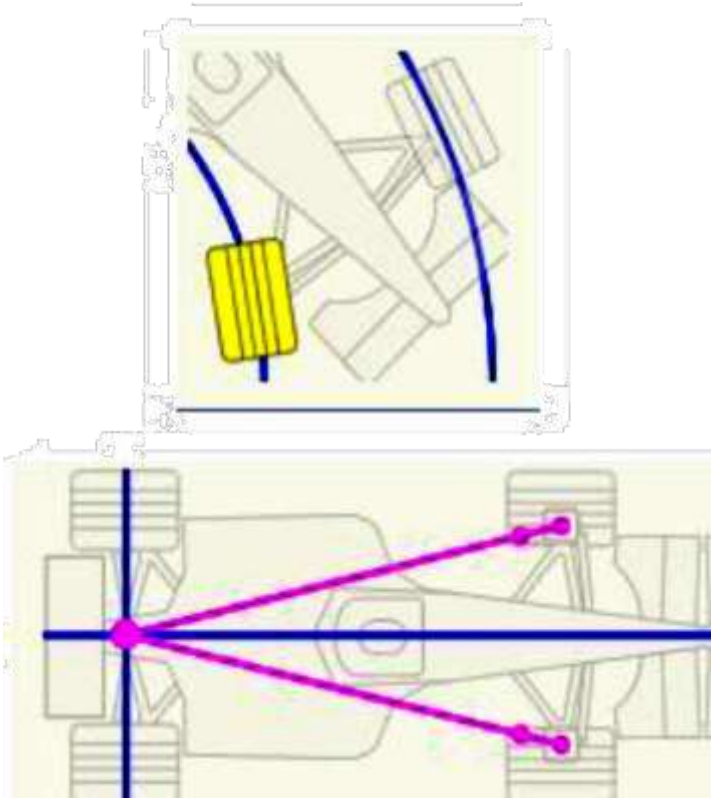
- When the vehicle negotiates a turn the two front wheels must carve different arc, the outside wheel travels a further distance than the inner.





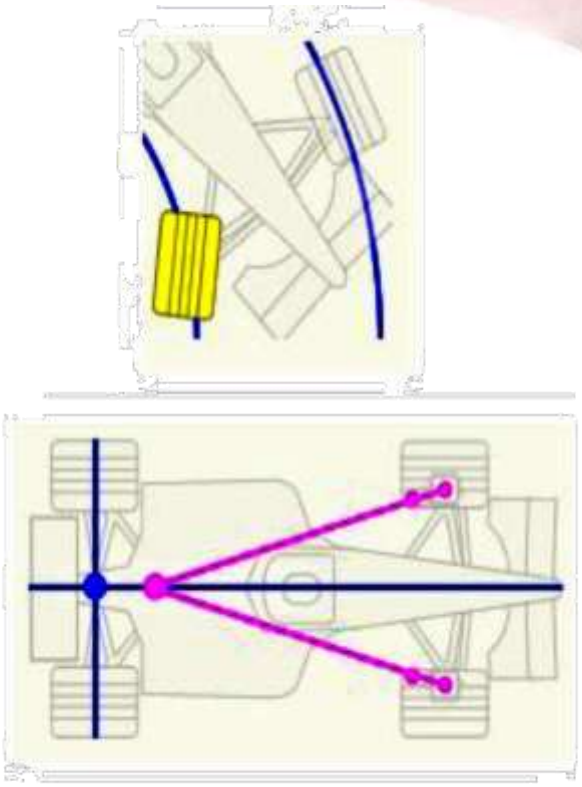
TRUE ACKERMAN

- For a vehicle to have true Ackerman all of the wheels must pivot around the same point.
- This ensures that no tire is unnecessarily scrubbing, so this means that both tires are traveling tangent to the circle the vehicle is traveling on.
- When the outer steering attachment falls anywhere on the pink line the vehicle will have the same true Ackerman



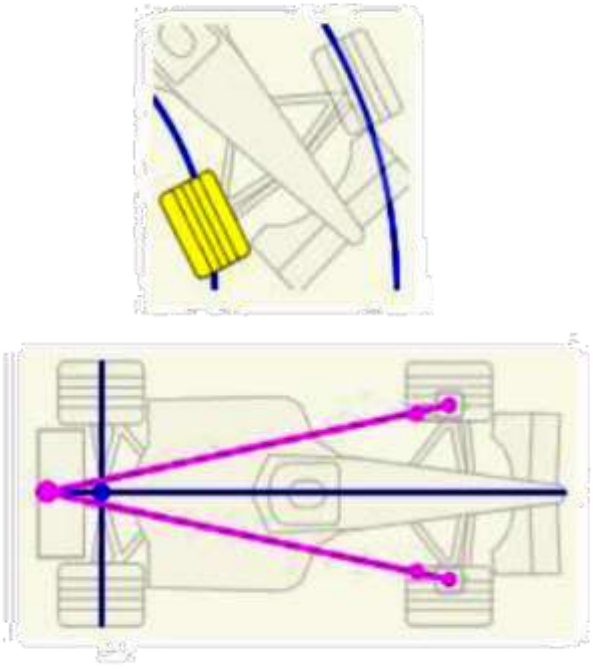
OVER TRUE ACKERMAN

- Over Ackerman refers to the inside tire turning more then the amount required to travel the desired arc.
- In most cases this is done for low speed cars that require nimble quick turning, the vehicle will have increased steering response at low speeds.



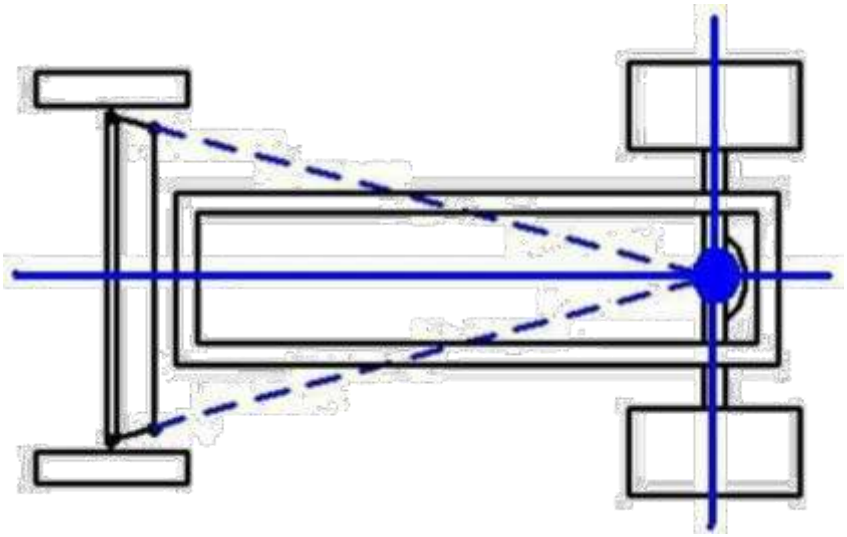
UNDER TRUE ACKERMAN

- In this setup the intersection point falls behind the axle centre.
- This causes the steering response of the vehicle to decrease slightly.
- So it could be described as have toe in in relation to the turning circle.



Steering Ratio

- The steering ratio can be adjusted by moving the outer steering pickup point along the Ackerman Axis (dotted line), and still maintain the Ackerman geometry.
- This action will decrease the steering effort required, but it will also slow the steering.



STEERING ASSEMBLY