Glossary of Driving Terms

ACTIVE SUSPENSION – A computer-based suspension system that is capable of dynamically changing springs, shocks and other components in accordance with road disturbances and handling loads. Many newer vehicles are equipped with such systems.

ANTI LOCK BRAKES (ABS) - A factory installed computer and hydraulic system that can adjust brake pressure at individual wheels and prevent the problems of brake lockup. The system is an advantage for untrained drivers, but takes away some control possible by a skilled driver.

APEX - The point at which your driving line touches, or comes closest to, the inner radius of a curve. See also Late Apex and Early Apex.

APEX, THEORETICAL - The geometric mid-point along the inside radius of a curve. Also known as the "Classic Apex."

BALANCE – The dynamic relationship between the load on individual wheels and their ability to turn, brake or apply power. This relationship is greatly influenced by vehicle design (i.e., motor placement, transmission placement, sway bars, etc.).

BEDDING IN BRAKES - The process of stopping a vehicle repeatedly until brake fade occurs. This eliminates lower temperature composites in the brake lining, and raises the lining's operating temperature.

BRAKE FADE - Overheating the brake pads results in a hard brake pedal with very little braking effect, overheating the brake fluid results in no brake pedal resistance or brake effect.

BRAKE LOCKUP - When one or more wheels are not rotating, but skidding.

BRAKING POINT – The designated point at which you begin to apply the brakes, usually associated with some visual cue in advance of a curve.

BRAKING THRESHOLD - The maximum amount of brake force that can be generated and not stop the tires from rotating.

CENTRIFUGAL FORCE - The force that tends to move a car outward when turning.

EARLY APEX – Placement of the vehicle to the inside of a curve at a point before the geometric/classic apex, normally the result of turning prematurely toward the inside of the curve. An early apex usually results in running out of road surface before exiting the curve, often punctuated by an "off track" excursion.

ENTRY POINT – The point at which one begins to turn into a curve. In geometric terms, it is the tangent point between a straight path and a curved path.

EXIT POINT – The point at which the path of a vehicle transitions from curve to straight.

FRONT WHEEL DRIVE (HANDLING EFFECTS OF) - With driving wheels at the front or at all wheels, weight and traction are still transferred in the exact same manner. Since front wheel drive cars lack the heavy rear drive axle, they are forward weight biased. To keep the light rear end from skidding, front wheel drive cars are often designed to have a great tendency to understeer. Front wheel drive cars have a traction advantage on slippery surfaces because weight is always on the steering and driving wheels.

INPUT (VEHICLE) - A command given a vehicle through its controls (i.e., acceleration, braking, steering).

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KINETIC ENERGY - The energy of mass in motion. Braking is described as converting rolling or kinetic energy into heat energy.

LATE APEX – Placement of the vehicle to the inside of a curve at a point after the geometric/classic apex, producing an exit from the curve that has ample margin for error… thus minimizing risk. A late apex can almost always be achieved by delaying the point at which the turn is initiated until you can just see the end of the curve (see the roadway straighten or turn in opposite direction).

LINE THEORY - Applied to curves so as to give the vehicle optimum stability and speed, characterized by using all available road space at entry, apex, and exit to minimize weight shifts and steering resistance.

MODULATION - A soft or small adjustment, such as small adjustment of pedal pressure during threshold braking.

OCULAR DRIVING - A technique in which the central vision is focused far ahead on a positive goal, such as a corner entry, apex, and exit.

OFF-ROAD RECOVERY - A situation in which a vehicle has gone off the paved surface and is able to return onto the paved surface under control

OVERSTEER - A loss of traction in the rear tires while cornering.

PUMPING THE BRAKES - A technique characterized by rapid hard applications and complete or partial lifts of the brake pedal.

PROGRESSIVE BRAKING - A braking technique in which the initial pressure of the braking event is light but continues to increase until the end of the stop (i.e., braking in a corner).

SKID - A condition in which the force applied to two or more tires is beyond their traction capabilities in which they lose directional response (i.e., locked tires, spinning tires, sliding).

SPIN – An uncontrolled slide or skid in which the vehicle rotates the direction in which it is pointed.

SQUEEZE BRAKING - A braking technique similar to progressive braking but gentler, and not used to stop. TARGET

PRESSURE - The pressure you try to achieve when you initiate a braking event.

TECHNICAL DRIVING - The master plan of driving that provides maximum control and minimal risk, allowing safe high speed operation.

THRESHOLD BRAKING - A braking technique in which the brakes are rapidly applied up to the pressure, just prior to locking them (see Braking Threshold).

TRACTION - The amount of grip a tire can provide under given conditions. The more weight a tire has upon it, the more traction it provides. It is a function of both the coefficient of friction between tire and road and the weight on the tire.

TRAIL BRAKING - An advanced braking technique in racing used to continue a straight braking event into a corner to pass or gain a position advantage.

TRANSITIONAL BRAKING - An advanced braking technique that controls weight transfer prior to, and into, a corner that compliments a vehicle's turning ability.

TURN-IN – The transitional change in direction that occurs between traveling in a straight line and cornering.

UNDERSTEER - A loss of traction in the front tires while cornering.

VEHICLE DYNAMICS - The specific laws of physics that determine what a vehicle does while in motion and how it responds to certain inputs.

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VEHICLE LANGUAGE - The signals the vehicle sends to the driver reporting its operating status.

WEIGHT TRANSFER - The weight of the vehicle sits upon its suspension and tires. When the driver makes any input (see Input), the weight will transfer from one set of tires to another. What makes this so critical to understand is that the weight a tire has upon it affects its traction (see Traction). When combination weight transfers occur, the situation becomes more complex (i.e., Turning will cause weight to transfer to the outside tires, braking will cause weight to transfer forward, in combination the weight will transfer to the outside front tire.)