

DRIFTING: PROFESSIONAL DRIVING SKILLS
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Drifting refers to a driving technique and to a motorsport where the driver intentionally oversteers, causing loss of traction in the rear wheels through turns, while maintaining vehicle control and a high exit speed. A car is said to be drifting when the rear slip angle is greater than the front slip angle prior to the corner apex, and the front wheels are pointing in the opposite direction to the turn (e.g. car is turning left, wheels are pointed right or vice versa), and the driver is controlling these factors.

Modern drifting as a sport started out as a racing technique popular in the All Japan Touring Car Championship races over 30 years ago. Motorcycling legend turned driver, Kunimitsu Takahashi, was the foremost creator of drifting techniques in the 1970s. He is noted for hitting the apex (the point where the car is closest to the inside of a turn) at high speed and then drifting through the corner, preserving a high exit speed. Keiichi Tsuchiya (known as the Drift King) became particularly interested by Takahashi's drift techniques. Tsuchiya began practicing his drifting skills on the mountain roads of Japan, and quickly gained a reputation amongst the racing crowd. One of the earliest recorded drift events outside Japan was in 1996, held at Willow Springs Raceway in Willow Springs, California hosted by the Japanese drifting magazine and organization Option. . Drifting has since exploded into a massively popular form of motorsport in North America, Australasia, and Europe.

Drifting competitions are judged based on line, angle, speed, and show factor. Line involves taking the correct line, which is usually announced beforehand by judges. The show factor is based on multiple things, such as the amount of smoke, how close the car is to the wall, and the crowd's reaction. Angle is the angle of a car in a drift, speed is the speed entering a turn, the speed through a turn, and the speed exiting the turn; faster is better.

There are typically two sessions, a qualifying/practice session, and a final session. In the qualifying sessions, referred as Tansou (speed run), drifters get individual passes in front of judges (who may or may not be the final judges) to try and make the final 16. This is often on the day preceding the final.

The finals are tandem passes, referred as Tsuiso (chase attack). Drivers are paired off, and each heat comprises two passes, with each driver taking a turn to lead. The best of the 8 heats go to the next 4, to the next 2, to the final. The passes are judged as explained above, however there are some provisos such as:

- Overtaking the lead car under drift conditions almost always wins that pass.
- Overtaking the lead car under grip conditions automatically forfeits that pass.
- Spinning forfeits that pass, unless the other driver also spins.
- Increasing the lead under drift conditions helps to win that pass.
- Maintaining a close gap while chasing under drift conditions helps to win that pass.

A proper mechanical limited slip differential (LSD) is almost considered essential for drifting. Attempting to drift with an open or viscous differential in a sustained slide generally yields relatively less impressive results. The most preferred form of LSD for drifting is the clutch type, in "2-way" form, for its consistent and aggressive lockup behavior under all conditions (acceleration and deceleration). Gearbox and engine mounts are often replaced with urethane mounts, and dampers added, to control the violent motion of the engine/gearbox under these conditions.

The suspension in a drift car tends to have very high spring and damper rates. Sway bars are upgraded, particularly on the rear. Caster is often increased to improve the car's controllability during a slide. Most cars use an integrated coilover/shock combination. This type of suspension allows the ride height to be adjusted independently of the suspension travel. There is no perfect height setting or spring/shock combo for any car, but each driver will have their own personal preference. Many suspension manufacturers offer suspension tuned specifically for drifting, allowing many people to enter the sport competitively.

Because of the large centripetal force encountered during drifting, drivers find it preferable to be retained firmly by a bucket seat, and harness. This allows the hands to merely turn the wheel, as opposed to bracing oneself against the wheel. The steering wheel should be relatively small, dished, and perfectly round, so that it can be released and allowed to spin through the hands as the caster returns the front wheels to center. The locking knob on the hand brake is usually replaced with a spin turn knob, this stops the hand brake locking on when pulled. Some drivers move the hand brake location or add an extra hydraulic hand brake actuator for greater braking force. Many drivers make use of additional gauges to monitor such things as boost levels, oil, intake and coolant temperatures.

Engine power does not need to be high, and in fact if a car has too much power, it can be very hard to handle during a drift. Each driver has their own preference, and drift cars can be found with anything from 100 bhp (74 kW) to 1000 bhp (745 kW). Typically, engine tuning is oriented towards achieving linear response rather than maximum power output. Engines also must be equipped with upgraded cooling systems. Not only are the engines pushed very hard, creating lots of heat, but being driven at an angle reduces the airflow through the radiator. For turbocharged engines, intercooler efficiency is similarly reduced. Oil coolers are almost essential. V-mounting the intercooler and radiator improves flow through these components, and keeps the expensive intercooler out of harm's way in the case of a minor accident.

Chassis preparation is similar to a road racing car. The interior is stripped of extraneous seating, trim, carpet, sound deadening; anything that is not essential is removed to reduce weight. Body kits are often attached with cable ties. When the body kit meets the wall or curb, the cable ties snap, releasing the part, as opposed to breaking it. Aero helps for cooling while the car is sideways. As drift cars are pushed faster, aerodynamic tuning becomes more important as well. Rear spoilers and wings usually are useful only in large, open tracks where the cars develop enough speed to create a need for more downforce. Wheel arches are often rolled or flared to allow the fitment of larger tires. Airflow to the engine is critical, so the hood is often vented.

Due to the nature of the hobby, drift cars are typically involved in many minor accidents. Thus, those involved with the sport tend to avoid expensive or easily damaged body kits and custom paintwork.

The cars quite often have different tires on the front and back, and the owner may have quite a few sets. This is because a single afternoon of drifting can destroy several new sets of tires. As a rule, good tires go on the front for good steering. On the back, hard-compound tires are used, quite often second-hand ones tend to end up in a cloud of smoke. More advanced drivers require the most grip possible from all 4 tires, so as to retain control adequately during high speed drifts. The grip is required for control, speed, and a fast snap on the initial entry. Generally drifting consumes tires rapidly and multiple sets may be necessary for a single professional event.