Rule changes introduce F1 hybrids

A raft of new rules for next season is intended to make F1 a more dramatic spectacle, encouraging overtaking by reducing the effect of aerodynamics on performance – such as when following another car – and storing braking energy to supply a boost of acceleration

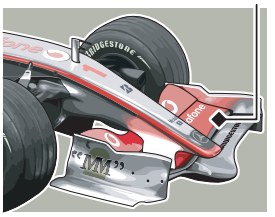
Front wing
Width 1.8m
Up from 1.4m

Tyres: Change from grooved to slick control tyres – provides 18% increase in contact area

Height
75mm
Down from 150mm

Driver-adjustable section to alter front downforce when overtaking

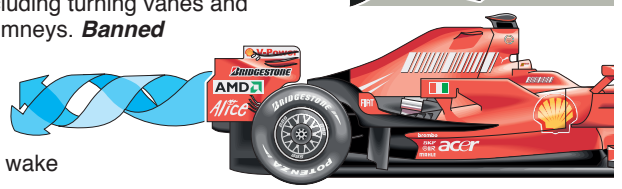
Bargeboards: Generate around 15% of downforce and affect transverse airflow when following another car. ***Banned***



Winglets: Extraneous aero devices including turning vanes and chimneys. ***Banned***

Diffuser: Longer and further back – reduces both downforce and turbulence in wake

Rear wing: Larger gap between surfaces for less turbulent wake



KINETIC ENERGY RECOVERY SYSTEM
Energy normally lost during deceleration is stored in either an electrical system – like current hybrid road cars – or a mechanical flywheel system

Total weight of system: **24kg**
Maximum energy storage capacity: **400 kilojoules**

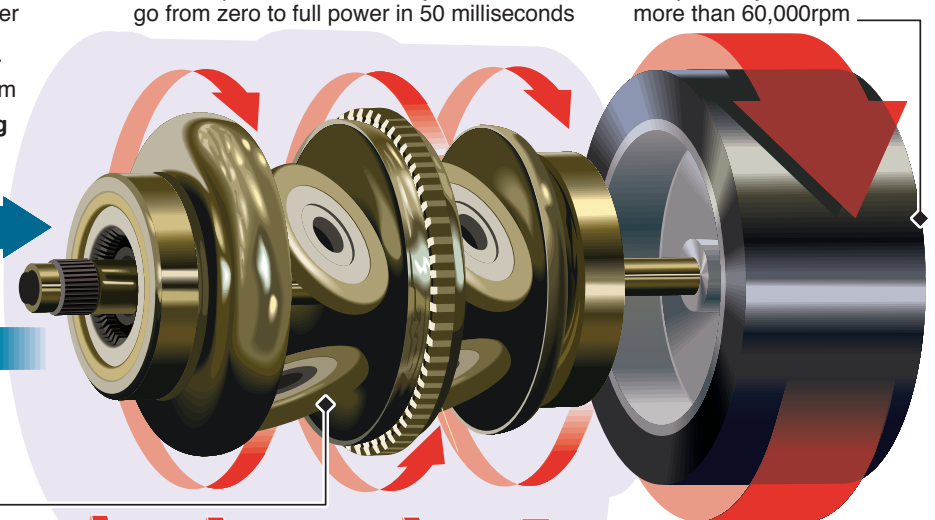
CVT receives energy from driveline during deceleration

Energy released into driveline for acceleration

Highly viscous traction fluid enables maximum power transfer between discs

Continuous Variable Transmission (CVT)
Delivers power to and from flywheel – can go from zero to full power in 50 milliseconds

Flywheel: Vacuum sealed, composite cylinder rotates at more than 60,000rpm



Adjustable rollers
Angle determines speed delivered to flywheel, or torque from flywheel to driveline. Curved inner surface of discs allows continuously variable ratio change – up to 6-to-1 within one revolution

1 Rollers straight

IN OUT

Both discs rotate at equal speed

2 Rollers angled

IN OUT

Output speed greater than input

Equivalent gear ratio

Contact point diameter of roller and input disc

Contact point with output disc

Reverse input-output direction for acceleration boost of 60kW (80bhp) for 6.67 seconds per lap

Sources: Flybrid, Torotrak