

TOZA Hybrid

P R E S E N T S

A GUIDE TO THE BTCC HYBRID ERA



INTRODUCTION



1ST
IN THE WORLD

The BTCC is the first major touring car championship in the world to integrate hybrid power.

A Kwik Fit study revealed nearly two thirds of drivers believe that using hybrid or electric power in motor racing will help convince those who remain sceptical that these cars are credible alternatives to traditionally fuelled vehicles.

This number increases among motorsport fans with the majority saying that these developments have a direct impact on their own views of hybrid and electrification; that seeing cars with hybrid in racing makes them more likely to consider buying a low emission vehicle themselves.

The new hybrid system has been under development since 2019 and has undergone a rigorous two-year track testing programme.



The hybrid system gives drivers an additional performance element that they can use in their race strategy and battles.

By incorporating hybrid power, the BTCC remains relevant within our changing world.

THE TECH



Battery charging (if needed between races) is carried out via a 240v wall socket, taking less than one hour to be fully charged.

However, normally the hybrid battery regeneration during the race is more than sufficient to keep the battery fully charged.

The electric motor generator unit (MGU) is incorporated into the BTCC Xtrac gearbox for better packaging and also to satisfy the requirement for the cars to run on full electric power when exiting the pits the first time in each session.

The MGU has its own cooling system.

The MGU has no impact on the turbo engine or its exhaust sound as it is deployed through the gearbox.

The 48v battery is contained in a crash proof structure and has its own cooling system. It is mounted on the floor of the passenger compartment, inboard of everything in the car and is inside its own carbon-fibre safety cell designed to withstand a 60g impact.

The entire vehicle strategy system has been packaged into one unit. This means that the battery management, motor control strategies, cooling and all of the control surrounding the internal combustion engine is managed by the Cosworth Antares 8 ECU (Electronics Control Unit).

HOW IT WORKS



The driver is in control of when, where and how much they choose to deploy the hybrid system - via a button on the steering wheel - providing they have reached a minimum 120 kph (approx. 75 mph).

A maximum of 15 seconds hybrid deployment per lap is available, which will provide an approx. 15 metre advantage against a car without hybrid deployed.

15
SECONDS

An on-car LED light system, mounted in the rear side windows, will display when hybrid is deployed for the benefit of spectators.

During braking, hybrid battery regeneration takes place.

Success ballast will be replaced by the new Hybrid Energy Management System (HEM) with drivers able to deploy the hybrid for a dedicated amount of time per lap in qualifying and for a number of laps in the races - depending on their championship position (for qualifying) and their race finishing position on race day.

After lap one, drivers will have control over the amount of their hybrid energy they use or regenerate - and when - during the course of each race. Hybrid cannot be used until after the first lap in each race or after the first lap following a safety car.

A light is displayed on the driver's dashboard when the minimum deployment speed of 120 kph has been reached. A driver who attempts to deploy hybrid below this minimum deployment speed will trigger a timed lockout, preventing hybrid deployment for two seconds.

HYBRID ENERGY MANAGEMENT SYSTEM (HEM)

The Hybrid Energy Management System (HEM) will replace the current success-ballast system by limiting the amount of hybrid deployment time (in qualifying) and number of 15 second deployments (per race) available to successful drivers.

Dashboard display will show each driver the number of HEM seconds, or laps, they have remaining.

POSITION	QUALIFYING	RACE	
		LAPS WITHOUT HYBRID	
	HYBRID SECONDS / LAP	LESS THAN 17 LAPS	MORE THAN 17 LAPS
1	0	10	15
2	1.5	9	13
3	3	8	11
4	4.5	7	9
5	6	6	7
6	7.5	5	5
7	9	4	4
8	10.5	3	3
9	12	2	2
10	13.5	1	1
11+	15	0	0

SUSTAINABLE FUEL



From 2022 the BTCC will use 20% sustainable fuel

TOCA has selected a fuel that is considerably more sustainable than that which has recently been introduced to petrol station forecourts throughout the UK (E10).

The BTCC's new-for-2022 fuel – designated Hiperflo® R20 – has a total of 20% renewable components, comprising 15% second generation ethanol content and 5% of renewable hydrocarbons.

It is calculated by the manufacturer that this will give approximately an 18% reduction in greenhouse gasses when compared to current pump fuel, significantly lowering the fuel's impact on the environment.

MORE INFO

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TOCA Hybrid