

# R4 KIT



**ORECA**  
THE MOTORSPORT COMPANY

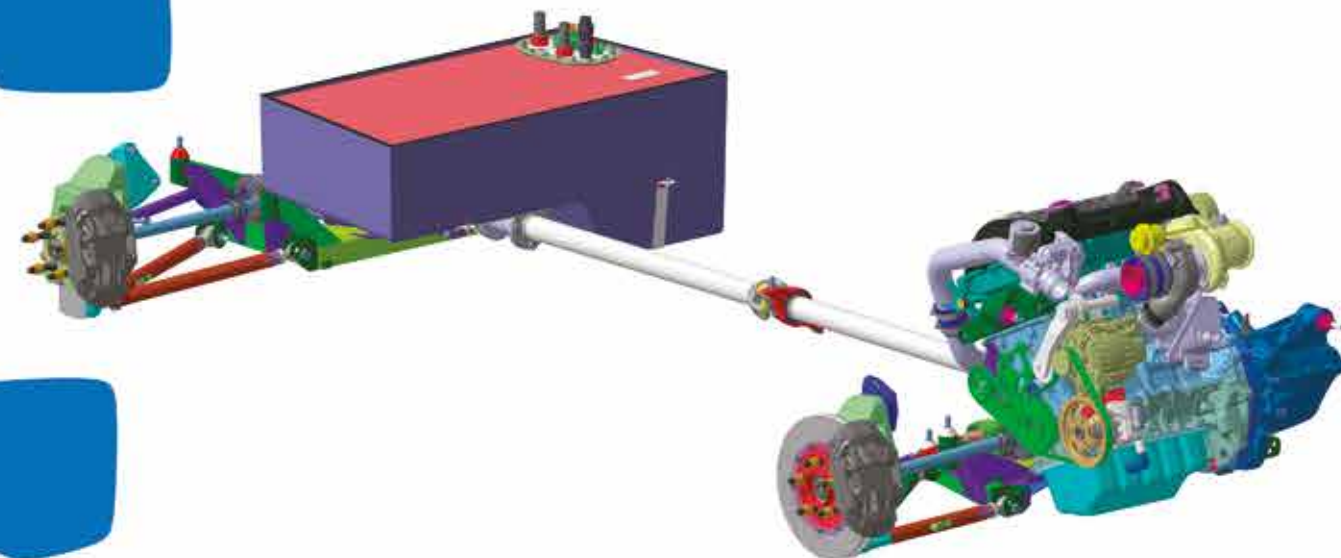


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## #1. THE R4 CONCEPT



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## R4: CONCEPT OVERVIEW

### FILLING A REAL DEMAND

The R4 class was added to the World Rally Car hierarchy in order to fill the gap between FWD (R2 and R3) categories and the 4WD R5 class. This was a real demand from competitors!

### AN INNOVATIVE APPROACH: A REAL UNIVERSAL KIT

R4 category cars are equipped with an universal kit that consists of a turbocharged petrol engine and a 4WD transmission. The R4 kit can be fitted to all kinds of mass-produced vehicles, thereby empowering preparation companies while enabling many different brands, concessions and importers from around the world to enter motorsport competitions with a model of their choice.

### A HIGH-PERFORMING CATEGORY WITH COMPETITIVE BUDGETS

The R4 kit's performance indicators are targeted below R5 level, at moderate purchase prices and most importantly with considerably lower running costs. Most of the kit's consumable parts are standard and can be purchased locally.

### A GLOBAL MINDSET

Based on technical regulations that suit both FIA national and regional championships across the world, the R4 kit has been developed so that it can be used all over the world.

## R4: THE BEST BUDGET/PERFORMANCE RATIO

### A TRUE TOP CLASS

R4 category vehicles will be positioned to perform on average 1 second per kilometre slower than R5: 1.6 L turbo engine, 5-speed sequential gearbox, 4WD and large suspension travel to be competitive on gravel and tarmac.

### AN ATTRACTIVE ENTRY FEE

The R4 price has been calculated so that a complete car can be ready to race at a very competitive budget considering the performance level. All parts which are not supplied within the kit can be sourced freely - they must all be homologated within specific limitations imposed by regulations. Hereby, each preparation company can allocate their budget according to their needs in the production of each car.

### "ENTRY LEVEL" RUNNING COSTS

The R4 kit has been developed with one main philosophy in mind to minimise running costs thanks to two main factors:

- Parts reliability.
- Philosophy behind each part's design.



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## R4: REDISCOVERING THE PREPARATION'S DNA

### AN OPEN "KIT SPEC" PHILOSOPHY

The R4's philosophy is to address the widest variety of preparation companies, including those with little or no experience in manufacturing race cars, with one single base kit. They will all be able to make their own technical choices directly impacting the performance of their car.

### REDISCOVERING THE ADDED VALUE OF PREPARATION

The R4 kit has been designed so that each preparation company can fully demonstrate its know-how. The frame, bodywork, protections, engine bay, suspension and cockpit are developed freely to allow the price/performance ratio to be fully flexible and adjustable.

### A CATEGORY FOR ALL PRODUCTION MODELS

Thanks to the R4 class, each importer, group of concessions or private team can enter a model of their choice (produced in more than 2,500 units over a period of 12 months) in FIA regional and national rally championship events.



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## R4: FULLY COMPLIANT

### NATIONAL CHAMPIONSHIPS ON ALL 5 CONTINENTS

R4 class cars will be allowed to enter all kinds of championships worldwide (under the agreement of local Federations).

### REGIONAL CHAMPIONSHIPS ON ALL 5 CONTINENTS

The R4 class has been approved by all kinds of regional championships.

The FIA is currently considering including R4 in its WRC programme in the near future.





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TECHNICAL PHILOSOPHY

R4 KIT CONTENTS

DESCRIPTION OF THE R4 KIT

DETAILS OF THE R4 KIT

R4 KIT DESCRIPTION: RUNNING GEAR

R4 KIT DESCRIPTION: ENGINE & TRANSMISSION

R4 KIT DESCRIPTION: SETUP

KIT OVERALL DIMENSIONS: SIDE VIEWS

KIT OVERALL DIMENSIONS: UPPER SIDE VIEW

#2. ABOUT THE R4 KIT



## STRENGTH AND RELIABILITY

The elements of the kit have been developed to withstand the challenges of gravel and tarmac rallying.

## REDUCING MAINTENANCE COSTS

Parts undergoing major wear and tear are standard and available locally (ball joints, ball bearings...).

## CONTROLLED ENGINE COST

The engine is very close to its standard spec which allows moderate running costs and good reliability for high levels of performance.

## MULTIFUNCTION PARTS

Hub carriers and brake calipers are identical on all 4 wheels and compatible on both tarmac and gravel versions. Suspension triangles are also identical on both sides of the vehicle as well as on gravel and tarmac configurations.

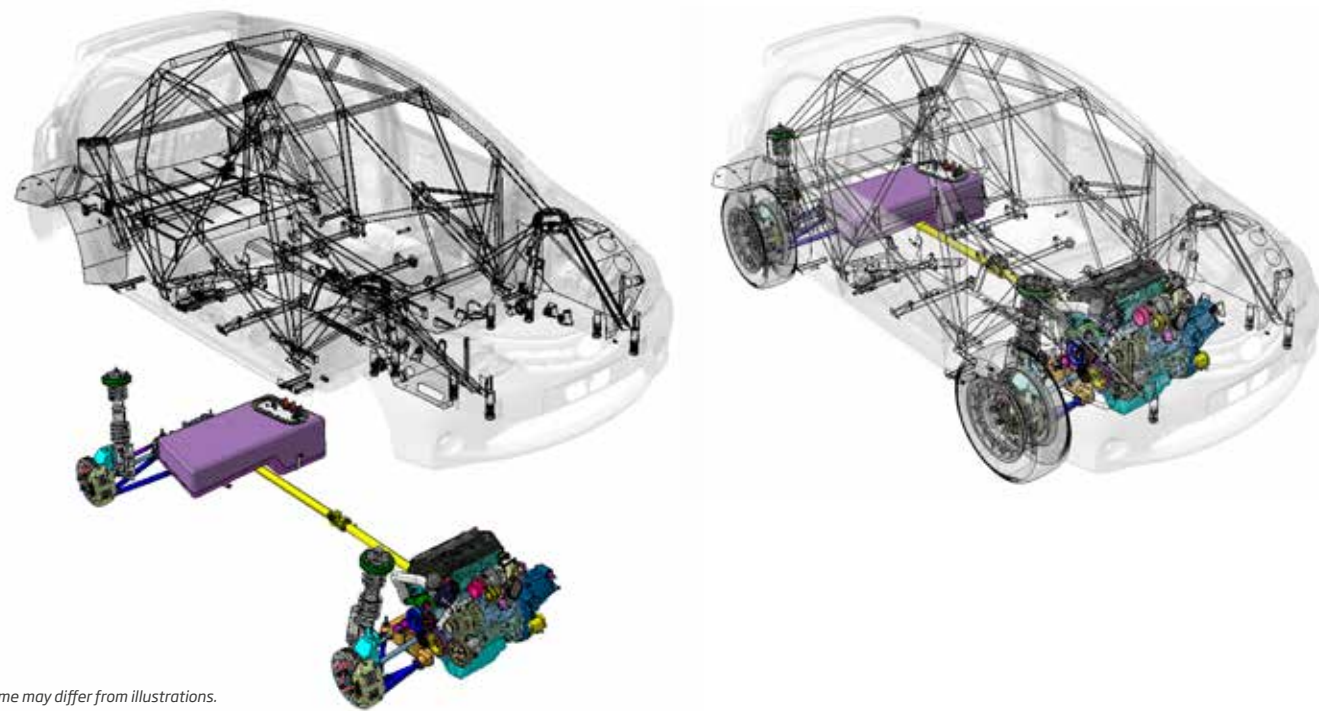
The only parts differing between tarmac and gravel versions are:

- Brake discs and their mounting bells.
- Interface between hub carriers and suspension triangles.

Sub-sections	Components
Engine	Intake and exhaust manifold, throttle body, turbo, ECU, electrical harness, alternator, starter, power steering pump, flywheel, clutch.
Transmission	Drive shafts (longitudinal and transversal), gearbox, rear differential.
Front axle	Suspension cradles and triangles, complete hub carriers, steering rack, steering tie rods.
Rear axle	Suspension cradles and triangles, complete hub carriers.
Braking system	Brake calipers, brake discs.
Fuel system	Fuel tank complete with internal pumps.
Chassis	Suspension mountings to be welded to chassis.
Documents / Manuals	All assembly plans and 3D files available on demand. Design guides for body frame, roll cage and electrical harness. Manual for assembly and maintenance.

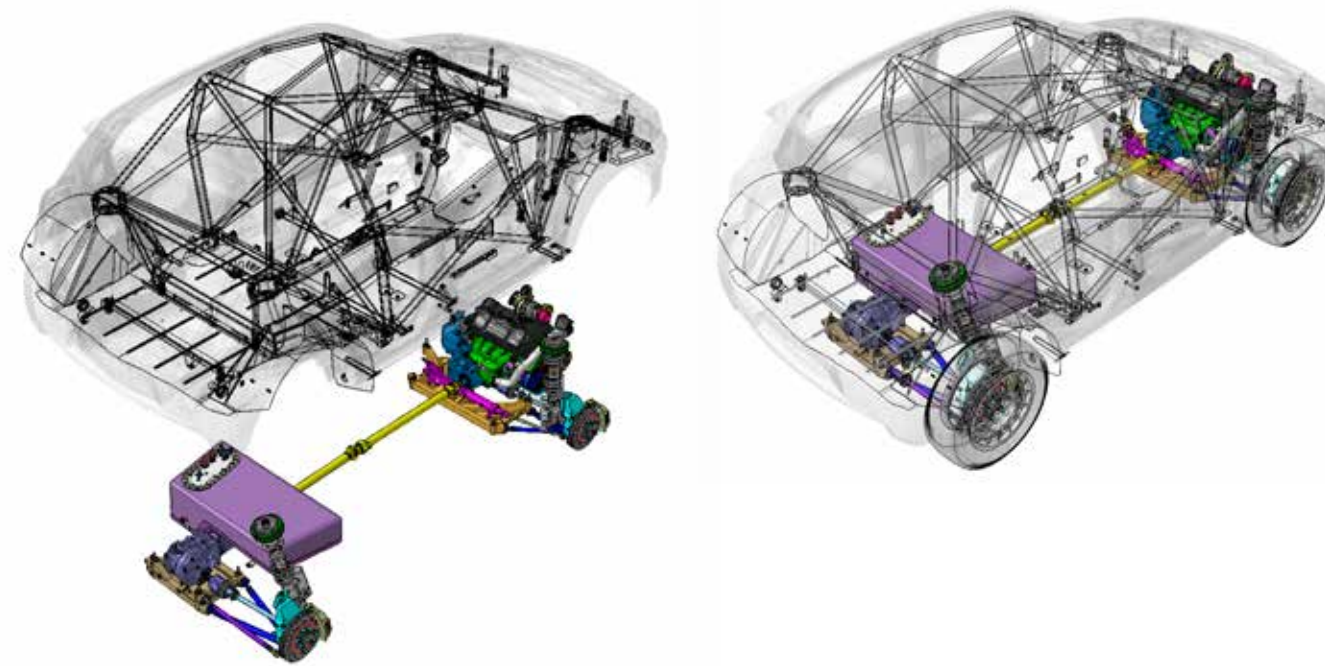


## DESCRIPTION OF THE R4 KIT



\*Outcome may differ from illustrations.

## DESCRIPTION OF THE R4 KIT



\*Outcome may differ from illustrations.

## DETAILS OF THE R4 KIT

Front suspension



Complete front axle assembly



Power steering rack



Rear suspension



Rear axle



Gearbox

## DETAILS OF THE R4 KIT

Rear cross member



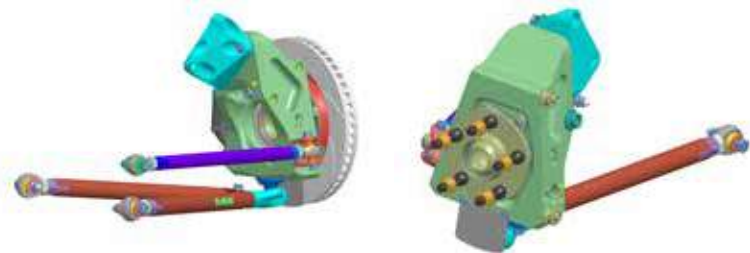
Fuel tank



## R4 KIT DESCRIPTION: RUNNING GEAR



FRONT



REAR

The running gear is designed to be competitive against the current most high-performance vehicles, integrating original solutions to reduce maintenance costs:

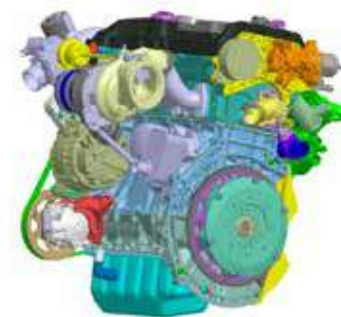
- Wheel bearing and hub are standard car parts.
- Cradles and triangles are designed for increased robustness.
- Ball joints are standard parts and available at several local distributors.

All other components such as steering rack, toe links, front and rear triangles, hub carriers, cradles, brakes (calipers and discs) and transmission parts are designed to the highest performance standard.


Sets of dampers, struts and springs are not included in the R4 kit. Their dimensions and interfaces must be respected, yet they are an open component which allows all preparation companies to adapt each car to their individual needs and those of the country, leveraging their know-how.



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## R4 KIT DESCRIPTION: ENGINE & TRANSMISSION

- Engine 1600cc turbocharged, latest generation direct injection (motorised butterfly valves, aluminium cylinder block).
- Performances close to R5 category: 263 horsepower and 39 m.kg of torque (98 octane unleaded fuel).
- Engine and mapping development is rally-specific, providing full versatility.
- The engine specification is very close to its standard configuration which guarantees a low maintenance cost. It is provided together with the turbo, restrictor, alternator, sensors and actuators. We recommend to use ELF HTX lubricant. 
- Magneti Marelli type SRG-340 electronics, identical to most R5 cars.
- Software specifically developed by ORECA for rallying: multi mapping, road/stage mode management, multiple corrections in real time, back-up strategy in case of engine sensor failure.
- Data acquisition system proposed as an option.
- Gearbox and rear differential straight out of an R5 guaranteeing performance and reliability.
- Robust transversal and longitudinal shafts.
- Mountings for both engine and gearbox are provided within the kit, only the interface with the chassis must be done.

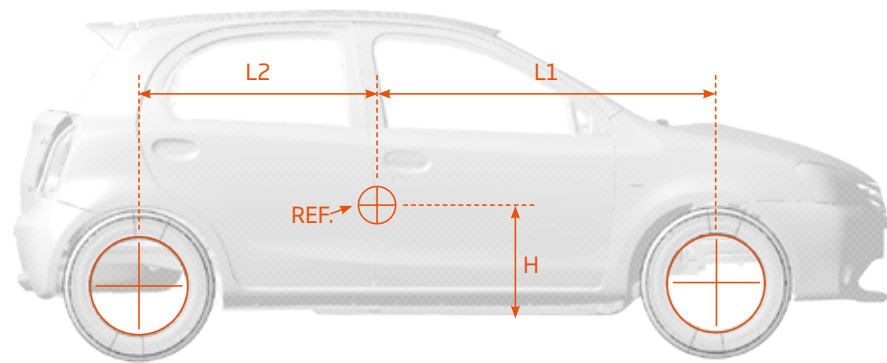


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## R4 KIT DESCRIPTION: SETUP

Definition of the reference point "REF." same as that on the standard vehicle used:

- Reference point "REF." is clearly identifiable on the door mounting point (holes, bosses...).
- "H" is the vertical distance between "REF." and the lowest point on the standard vehicle.
- "L1" is the distance between the front wheel centre and the "REF." point.
- "L2" is the distance between the rear wheel centre and the "REF." point.



## R4 KIT DESCRIPTION: SETUP

Front axle / powertrain / strut towers setup:

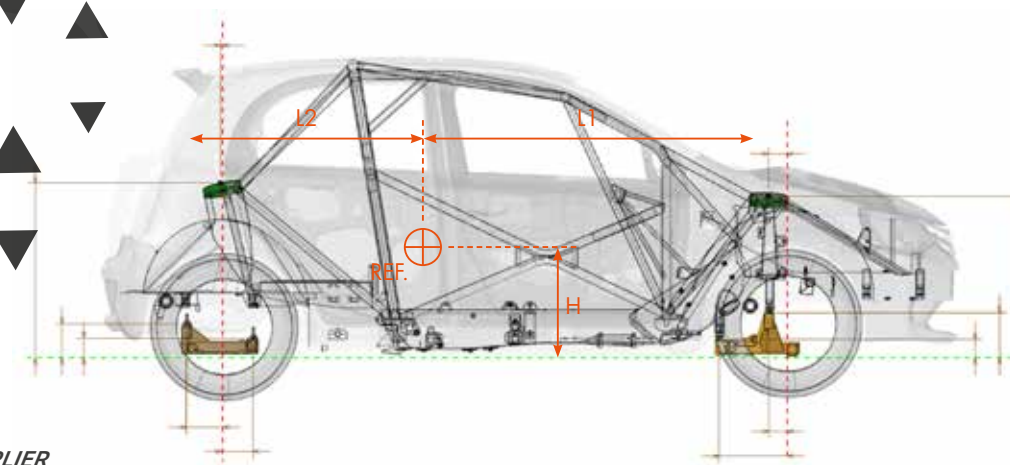
Positioning in reference to:

- Horizontal reference plane (H)
- Vertical reference plane (L1)

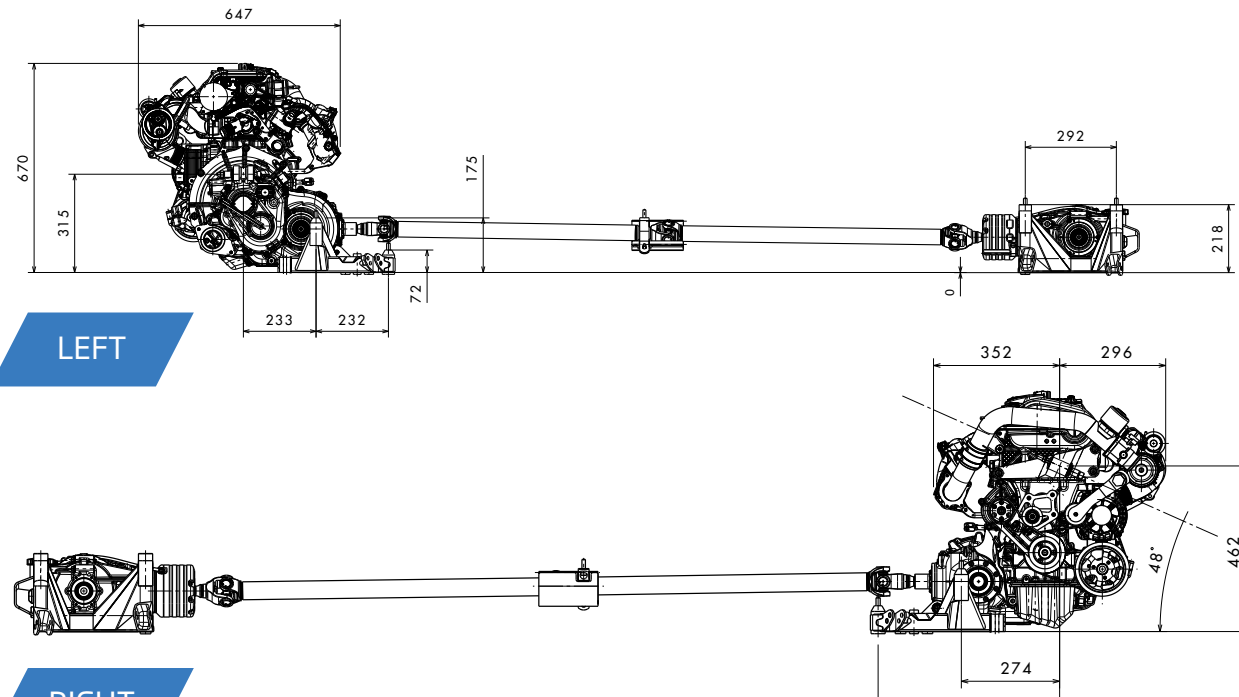
Rear axle / strut towers setup:

Positioning in reference to:

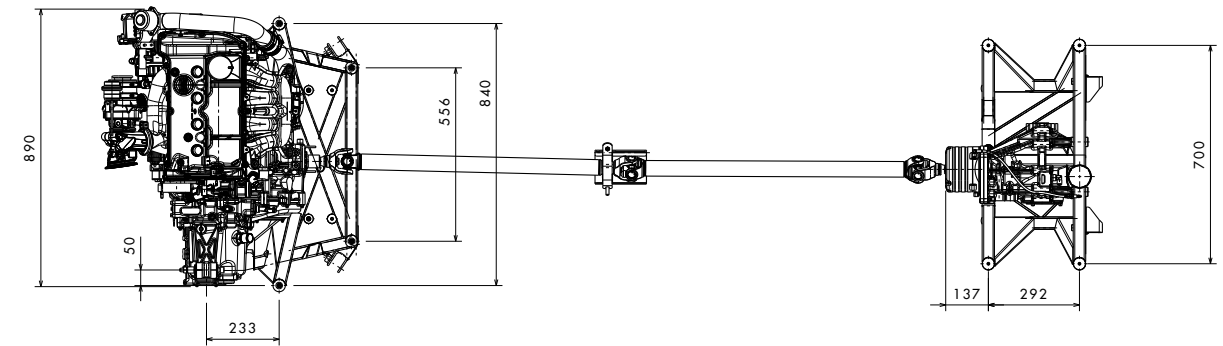
- Horizontal reference plane (H)
- Vertical reference plane (L2)



## KIT OVERALL DIMENSIONS: SIDE VIEWS



## KIT OVERALL DIMENSIONS: UPPER SIDE VIEW







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R4 PERFORMANCE POSITIONING

R4 ECONOMIC POSITIONING

R4 STRATEGIC POSITIONING

### #3. R4 KIT STRENGTHS & POSITIONING



## R4 PERFORMANCE POSITIONING



- R4 is not a competitor to R5 – slower 0,5 to 1 sec/km.
- R4 fills the gap between R3 and R5.
- R4 is a stepping stone into 4WD rallying for young and gentlemen drivers.

## R4 ECONOMIC POSITIONING

- A complete new R4 car costs between **196 000 USD** and **213 000 USD<sup>(1)</sup>**. **20% less expensive than the R5.**
- **42 USD by kilometer** (based on a 6,000 kilometer season)<sup>(2)</sup>. **35 to 40% less expensive than the R5.**
- Designed as a single make with a focus on **reliability** and **serviceability**.
- **Standard components** easy to source worldwide.
- **Local production** reducing transport costs and taxes.
- A road car engine **easy to source** and **rebuild locally**.
- **FIA pricelist** for spare parts and R4 kit.

<sup>(1)</sup>Estimation with assembly in France - French labour. <sup>(2)</sup>Estimation for the whole kit for a 6,000 kilometers season.



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## R4 STRATEGIC POSITIONING

**20%**  
less expensive  
than R5

**42**  
USD by kilometer\*

\*38 € by kilometer.

- R4 will enable to bring a **wide variety of cars** to rallying.
- R4 will reinstate technical roles for teams and local tuners and generate **new business opportunities**.

- R4 will ensure **high safety** standards.

- R4 will enable dealers and small manufacturers to establish racing programs:

At **limited running costs**.

- > Based on models that have no homologation in R5 or WRC: **real potential for business activation**.
- > With **limited one-time** investment and homologation costs.

- R4 will enable to renew the field of **old Group N cars** that is dying off.

- R4 will enable close competition as most of the components which are key to **car performance** are included in the R4 kit and therefore common to all cars.

- R4 kit is approved for 7 years minimum.

- R4 kit is not concerned with the escalation of performance: no performance jokers.





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HOMOLOGATION PROCESS

FIA GUIDELINES

PROCESS SUM UP

R4 CAR ELIGIBILITY

#4. HOMOLOGATION PROCESS





## HOMOLOGATION PROCESS

- The homologation forms of the R4 vehicle are completed by the preparation company with its local Federation. The Federation must be informed about the launch of the project.
- The homologation form must be progressively completed with photos and technical informations:
  - > Generic dimensions.
  - > Positioning of the kit in the body frame in relation to reference points defined on the chassis (reference points to be validated and approved by ORECA).
  - > Modifications done to the frame (for setting up kit components, seat mountings, etc).
  - > Safety elements.
  - > Bodywork elements.



## HOMOLOGATION PROCESS

- During this homologation process, the Federation and ORECA can command certain modifications to guarantee full compliance with technical and safety specifications.
- Once the homologation form is completed it is:
  - Validated by the Federation and by ORECA,
  - Sent to the FIA for approval.
    - > The car is homologated as an R4 National-level car.
  - Once National homologation is granted, an International homologation request may have to be filed with the FIA.
    - > The car is homologated as an FIA R4 International-level car.
- ORECA will provide an assembly guide to support and facilitate the work of preparation companies during the homologation phase with the Federations, guaranteeing a reliable and high-performance car.



1st  
STEP

## FIA and R4 KIT SUPPLIER

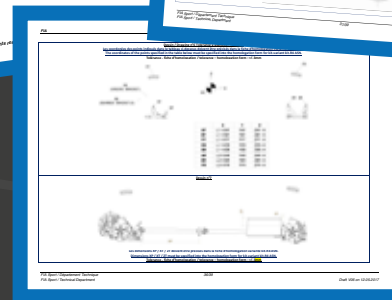
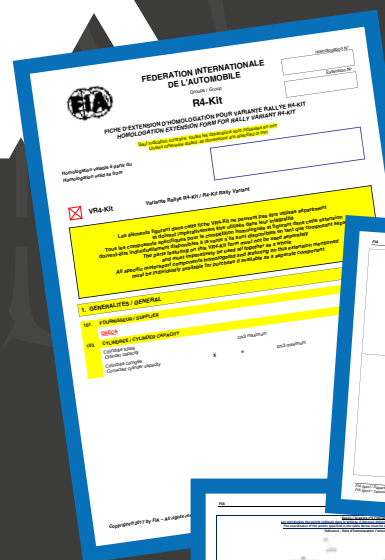
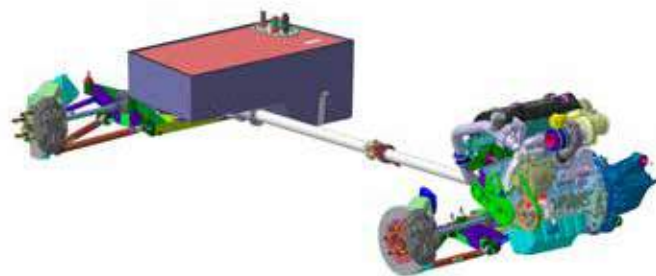
**Homologation:** FIA / **Scheduled:** between 15 November and 15 December 2017.

**FIA Homologation form:** FIA homologation will be issued only for the R4 kit.

**Validity:** 7 years, to be renewed twice for 2 years each time.

**Supplier:** designated by tender / **ORECA for 2017-2018-2019.**

**Adaptability of the R4 kit** to several types of car and to a minimum of 4 different car makers.

2nd  
STEP

## TUNER / COMPETITOR - Type of car selected

Series Production Cars with 2-wheel drive or 4-wheel drive produced in a quantity of at least 2,500 units within 12 consecutive months.

**FIA Homologation:** not required.

3rd  
STEP

## TUNER / COMPETITOR and R4 kit supplier

The following items must be approved by the R4 kit supplier (ORECA for 2017-2018-2019):

- Positioning (coordinates/dimensions) and installation of the R4 kit in the series production bodyshell.
- Installation of engine & transmission.
  - Installation of fuel tank.
- Bodyshell modifications.

4th  
STEP

## TUNER / COMPETITION and ASN

**Homologation form ASN-R4.**

Template will be issued by the FIA including the following information:

- Overall length & Overall width.
- Width of bodywork at front and rear axle centerline.
- Front and rear overhangs.
- Wheelbase.
- Positioning (coordinates/dimensions) of the R4 kit in the series production bodyshell.
- Bodyshell modification dossier (see article 900-f).
- Seat supports and anchorages for seat support.
- Safety foam for lateral crash.
- Door panel.
- Windscreen.
- Longitudinal driveshafts (to be selected within R4 kits).

**R4**SAFETY  
CAGE

**Homologation:** ASN. **Template:** use FIA template for ASN.

For each R4 type car, the ASN must declare to the FIA:

- The ASN technical passport number.
- The homologation number and the homologation certificate of the roll cage (including the installation declaration with serial number of the roll cage).

## ASN and TUNER / COMPETITOR

5th  
STEP**Final car:**

Car fitted with a R4 kit and which are used on open road must be officially registered for road use.

**Homologation:** ASN.

**Validity:** same as R4 kit.

**Eligibility:** All FIA Championships (TBC by FIA Rally Championship).





## PROCESS SUM UP

1

R4 kit ORECA approved.

2

Car selected by the team.

- > Eligibility of the car validated by ASN.
- > ORECA validates the R4 kit implementation inside the production car.

3

ASN Homologation.

- > Chassis by ASN > Technical passport with chassis number (template roll cage Certificate ASN).
- > Complete car > Overall dimensions / body (template form ASN R4 / FIA)...



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## R4 CAR ELIGIBILITY

R4 class cars are approved by the ASN on a standard FIA process and thus allowed to race in:

- All countries that have approved R4 class.

- All regional FIA championships.

- All WRC events outside Europe.



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R4 KIT PRICE & ORDERING PROCESS

#5. PRICING & ORDERING PROCESS



## R4 KIT PRICE & ORDERING PROCESS

FIA R4 KIT GRAVEL OR ASPHALTE PRICE: **108,000€ HT** (shipping cost not included).

THE ADDITION OF ALL SPARE PARTS IS EQUIVALENT TO THE KIT'S PRICE.

### ORDER CONFIRMATION

A 30% upfront payment transfer will confirm the order. The remainder 70% will be paid at the time of shipping.

### DELIVERY PLANNING

The R4 kit will be available from November onwards, following the order sequence.

### LIFECYCLE OF THE KIT

The kit's homologation is valid for a period of 7 years, and eligible for an extension of up to 11 years.



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COMMERCIAL DEPARTMENT

TECHNICAL SUPPORT

#6. R4 CUSTOMER SUPPORT



## COMMERCIAL DEPARTMENT

### A COMMERCIAL TEAM AT YOUR DISPOSAL



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### A COMMERCIAL PLATFORM AVAILABLE 24/7

ORECA has developed a digital platform for the sale of motorsport parts and accessories; all R4 parts will be available for order on that platform.

### AN R4-DEDICATED OFFER

ORECA has developed R4-specific kits to be ordered as options: Suspension (dampers, anti-roll bar...), cockpit (steering, handbrake, pedals...), chassis (protections, pannels...), engine (cooling, exhaust...), electrical systems (sensors, cables...), tools (chassis structure, geometry tools...).

### THE WIDEST MOTORSPORT OFFER

In addition to the R4 kit itself, ORECA can provide all equipment and accessories required for the assembly of your car.



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## TECHNICAL SUPPORT

### A TECHNICAL SUPPORT HOTLINE DEDICATED TO R4

Technical support is at the disposal of all R4 customers so they can be best guided in the assembly and running of their R4 kit.



**Matthieu BASSOU**

*Technical Representative R4*

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### A WEALTH OF DOCUMENTED SUPPORT AVAILABLE ONLINE

Our digital platform will also be useful to share all technical documents and assembly manuals.





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THE MOTORSPORT COMPANY

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