

# Ténéré 700 Development

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## Abstract

Under the condition of adventure category expansion globally, we decided to start development of all new middle-class adventure motorcycle with CP2 PF engine in YMRE under the brand “Ténéré”. In parallel, its manufacturing sites were decided as both MBK in France and YMC in Japan to be as close as possible to main markets.

For YMRE, it was very first time to develop such a global model with high development rank. Though we faced a lot of difficulties, we accomplished it together with all the related divisions and companies, and as a result, this motorcycle has been very well appreciated in the global market after its launch.

## 1 INTRODUCTION

Under the condition of adventure category expansion globally, we decided to start development of all new middle-class adventure motorcycle with CP2 PF engine in YMRE under the brand “Ténéré”. In parallel, its manufacturing sites were decided as both MBK in France and YMC in Japan to be as close as possible to main markets.

We’re going to introduce our development summary of Ténéré 700 in this article.

## 2 DEVELOPMENT TARGET

We started the development of Ténéré 700 with the concept; **Top of Adventure Ténéré**.

First of all, we reviewed what was Ténéré brand with 40 years history, and we concluded its promises as follows;

- Can have dream to go anywhere you want.
- Can fulfill customers’ challenging spirit and adventure

mind.

- Can feel riding emotion and fun on various surfaces.
- To fulfill those promises above, we focused on “total controllability” & “riding confidence” with light weight, excellent rider’s ergonomics, and the best controllable engine character. In addition, we aimed to achieve simple, functional and beautiful styling fitting to any possible riding scene, eg. off road, city riding, & etc. (Fig. 1)



Fig. 1 Simple & functional styling

And after long discussion and big effort among development team, we set our target in detail; Who the target customer is, How we want him/her to feel, In which riding scene, In which speed range, In which maneuver, and etc.

### 3 DEVELOPMENT CONTENT

At the beginning of development, we had only CP2 engine in our hands. To achieve our target mentioned above, we put only this engine on the blank paper. In the basic planning, we struggled to find the best balance among excellent rider's ergonomics, seat height, ground clearance, fuel tank capacity, and even beautiful silhouette. We solved it not only by development team but also by cooperation from other divisions; marketing, sales, quality assurance, factory engineering, etc.

In parallel, regarding the riding performance, one of the keys of our development was to achieve both good agility and high speed stability at the same time. Thanks to excellent engineers/testing riders in YMRE and global testing riders from Japan, US, Australia, and Europe, we could cooperate strongly to find the solution.

#### 3-1. Engine

CP2 (Cross-Plane Twin, 689cc) engine was selected due to:

- Compact and light with 54kW @ 9000 rpm, considered enough performance
- Very controllable without electronic support
- Torquey/responsive with fun/strong character

And to achieve and improve:

- Optimized mid range torque
- Quick revving & direct response

We modified items shown in Fig. 2.

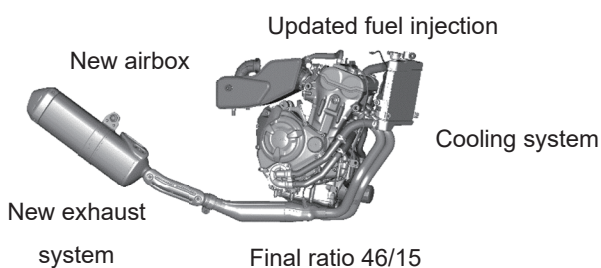


Fig. 2 Modified items on engine

#### 3-2. Chassis

Completely newly developed, not an adapted road bike chassis with the following target (Fig. 3):

- Light, slim, compact
- Strong, robust with good rider ergonomics
- Balanced rigidity/flexibility in order to allow natural and intuitive handling

Carefully synched to work in harmony with CP2 Chassis type:

- Diamond frame with high tensile steel
- Doubly braced headstock
- Removable down tubes
- Triangular rear frame to handle heavy loads



Fig. 3 Newly developed frame

#### 3-3. Suspension

We adopted high-spec suspensions with target “fun, natural, intuitive, controllable” maneuverability to build rider's confidence.

For front (Fig. 4),

- ø 43mm USD
- High-grade KYB unit, 210 mm stroke
- Compression & rebound damping adjustable
- Air bleeding possible

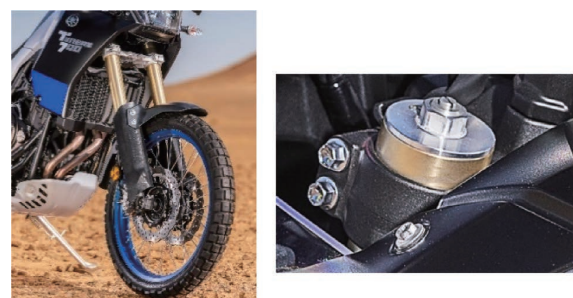


Fig. 4 Front fork

For rear (Fig. 5)

- Link-type, 200 mm stroke
- Light & strong, full aluminium swingarm
- Aluminium cylinder KYB unit with piggyback tank
- Compression & rebound damping adjustable
- Handy preload knob



Fig. 5 rear suspension

### 3-4. Wheel/Brake

21 inch front and 18 inch rear were selected for better steering precision off road & rolls easier over gaps with (Fig. 6)

- Dual front wave discs 282 mm
- Rear wave disc 245 mm
- Brembo light-weight calipers (Fig. 7)



Fig. 6 spoke wheels



Fig. 7 Front brakes

Combination of those items above brings good performance with max controllability, sensitive in off road conditions, deliberately not aggressive on first touch.

### 3-5. Off road oriented features

We carefully selected several off road oriented features as follows:

- Switchable ABS for optimized control in off road riding (Fig. 8)



Fig. 8 ABS switch on meter

- Aluminum skid plate, 240 mm ground clearance (Fig. 9)



Fig. 9 aluminum skid plate

- Blush guards (Fig. 10)



Fig. 10 blush guard

- Wide foldable pegs with removable rubber
- Foldable pedal brake and change (Fig. 11)

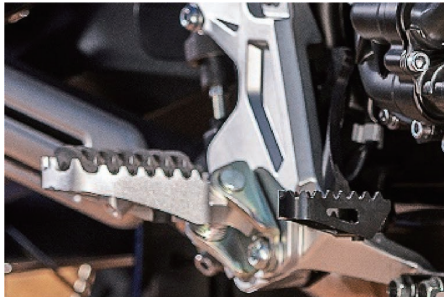


Fig. 11 footrest and pedal

### 3-6. EL Components

To get off road and adventure image, we carefully designed EL components as follows also referring and collaborating with our DAKAR bike.

- New HL (Fig. 12)

As good balance between performance and appearance, a particular HL design with strong construction details was created. 4 LED modules supported by aluminum brackets created a particular image and visible lighting effect which makes Ténéré700 easily recognizable from distance.



Fig. 12 New HL unit with 4 LEDs

- New TL

We adopted consolidate LED technology able to increase reliability and reduce power consumption.

- New Meter with ABS function control (Fig. 13)

Out of normal scheme, we created a “vertical” design for meter that can remind “rally” image. Its display which gives just basic but relevant information, just focusing on simplicity, visibility, and reliability.



Fig. 13 vertically mounted meter

## 4 CONCLUSION

After long and tough development period, we achieved the development target as follows.

Development result

- 204 kg with full fuel and liquids/187 kg dry weight
- Weight distribution 48% Fr., 52% Rr with full tank
- Seat height 875 mm, narrow shape for ground access
- Very intuitive, natural riding position, dynamic and agile that allow easy to ride in all conditions
- Harmony with engine, clear feedback and tractable feeling offering true satisfaction and excitement !

Finally, we had the global press launch event in Tortosa, Spain in May 2019 and the start of production in MBK in July 2019. (Fig. 14)

The evaluations from journalists in the event were extremely high, especially they felt very good controllability on any surface both on & off road and beautiful styling.



Fig. 14 press launch in Spain

The market, both professional media and customers, understood and embrace Yamaha's differentiating direction of keeping everything very functional, off road oriented, light, and affordable. Thanks to its specifications and efforts in pre-launch marketing (T7 concept and Ténéré World Raid) the Ténéré 700 quickly re-boosted the Ténéré culture, with proud customers using the bike for real off road and exciting adventures – and sharing their passion actively in social groups. As a result, sales have been in very good condition.

We think that one of the key success factors is collaboration as one team of all the members in value chain; business planning, cost planning, product planning, designers, engineers, testing, quality assurance, purchasing, manufacturing, marketing, sales, and service. We would like to improve and enhance the values that we will create based on our experiences during the development.

“grazie mille!!”

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1) YMRE: Yamaha Motor Research & Development Europe s.r.l.  
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