



## Scrambler Bike

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### ABSTRACT:

In the nowadays motorcycle is mostly used vehicle for travelling. Demand of two-wheeler motorcycle is high. Scrambler bikes are a type of motorcycle that has a unique aesthetic and is good for both on and off-road riding. Unlike dual-sport bikes, which are made for speed and agility, a Scrambler's shape and design make it comfortable to ride. This combination of raw power and a low seat makes it ideal for rough terrain. Scrambler motorbike is very popular in current market so many companies release a new models of scrambler bike to keep up with market

We want to build a motorcycle which is categorized into scrambler type motor cycle. To build a bike we use a rx200 bike as base. To increase a Bike performance, we have reduced weight of bike and made it lighter. All the changes in bike done to help it to tackle both off road and on road condition.

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### 1. Introduction

There are so many scramblers bike which are developed by various automobile company and they have their own advantages so it difficult to give clear explanation of scrambler bike Scrambler bike are motorcycle that are develop for off road and on road travel. Due to their tackle ability. The scrambler bike provides more speed and agility.

These bikes able to stand out in various situation because of their unique design. These bikes are light in wight compare to other motorcycle and have better off road performance then other bike. The scrambler bike first introduces in 1962. In the 1960s, it was considered a cheap alternative to the expensive sport of trail riding. However, the word "scrambler" was originally used in the 1920s to describe bikes with off roading potential. In 1968 the scrambler become most popular bike among those who want to build cafe racer.

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### 2. Methodology

The scrambler bike most popular bike in EUROPE and ASIA the scrambler bike new manufactures enter in the market. Here are some model of scrambler bike.

#### Herald Scrambler 125

This bike has 125cc engine. And wire spoked wheels are used. The twin shocks in the rear suspension is used to reduce a vibration, in case of gearbox 5 speed gear box is used. The herald is made in China but sold in international market. The specification of this bike is weight 275lbs, low in mounted exhaust, led lighting and two clocks this bike has classic look.

#### Ducati Desert Sled Scrambler

Ducati first introduced their scrambler as a motorcycle with a 125-450 cc single engine and the company produce them from 1962 through 1974.the engine of Ducati is 803cc air cooled twin -cylinder engine. The horse power of Ducati is 73hp at speed 8250 RPM. The fork front suspension is 46mm. Ducati have hydraulic clutch control.

#### Triumph Scrambler 1200 XE

Triumph motorcycle is start to popular from 10 year ago. They release their scrambler bike which is durable and aggressive looking also highly efficient these scrambler bikes are still in demand. the engine of TRIUMPH is 1200cc liquid cooled 8 valve engines having horse power 89 at speed 7400 and sequential electronic fuel injection.

We have used CD100 as our base model the scrambler bike is mostly use for enjoy riding so it should be light in weight if bike is not light weighted there is no fun to play. The scrambler bike should be easy to repaired by simple tools or tool kit. We choose CD100 as base model because it less expensive as compare as compare to another bikes. And easily available in market.

#### ○ **Tires**

Our bike old tires are wear out because of that bike slip on road that is not safe for rider. The rider safety is most important so we change the tiers of bikes. There are many companies which manufacture tires but We use CEAT tires for bike which is mostly used tires in India. The CEAT tires is popular because of there quality and long life.

#### ○ **Fork-Gators**

Fork gator is one of the accessories of bike. They protect a front fork tube from stones, bugs, dust and any debris. They have great advantage for off road bike which is mostly used to travel in dusty condition.

#### ○ **Handlebar**

As we know that handle is use to control two-wheeler so it should be easy to reach by rider. We use splendour handle bar which is made up of iron and suitable for bike and reduce the vibration on the hands of rider. It easily available in market.

#### ○ **Fuel Tank**

We all know that to drive vehicle we need fuel in any vehicle fuel tank is use to store a fuel. But the fuel tank design is important in case two-wheeler because two-wheeler appearance mostly depend on fuel tank shape and size. We use the fuel tank of hero splendour which having capacity 10 litres. which look attractive and have better capacity to store fuel. As we know that there are two types of indicator analogue and digital but for indicating fuel level, we use analogue fuel indicator. Which is less expensive as compare to digital fuel indicator.

#### ○ **Air Filter**

The main purpose of air filter is protected an engine from dust particle and any debris to increase airflow rate. It also increases the performance of engine. The air is required to burn a fuel in cylinder. There are mainly three types of air filter use in motorcycle

- i. Paper pleat air filter
- ii. Foam air filter
- iii. Cotton gauze air filter

In scrambler bike we use paper pleat air filter this is most common air filter. they are cheap and economical. This type of air filter is made up of thin porous paper material that filter dust particles and dirt from the air. Paper pleat air filter easily available in market.

#### ○ **Custom Seat**

We made a custom seat for scrambler bike because previous bike seat is damage and also uncomfortable for rider. The main purpose of seat is providing a comfortable feeling to rider and also reduce the vibration during a travel. We made seat in this way that it completes these two conditions of seat. We also change the outer look seat which is look more attractive.

#### ○ **Headlight Grill**

The head light grill is one of the small accessories of bike. But play important role to protect head light and useful for off road purpose there are many modifications of headlight grill from various material. We made a head grill from stainless steel and applied on headlight to protect it from bug, chips, stone.

#### ○ **Rear Shock Absorbers**

The shock absorbers are one of the important part of bike it helps to bike tyres to keep contact to road surface by it suspension spring.

#### ○ **Exhaust**

We replace our old bike silencer to new silencer which give good look to bike like a sport bike and also increase the clearance between ground and silencer the exhaust is made up of stainless steel it is one of the harder materials. There are three types of bike silencer.

1. Glass wool silencer.
2. Ceramic wool silencer.
3. Free flow silencer.

#### ○ **Body Panels**

We did not change the body panel of bike but we made some changes in it. We remove the unwanted material from bike that help us reduce the bike weight and we also did some customization in body panel that help us to change outer look of bike.

### Scrambler Bike Design

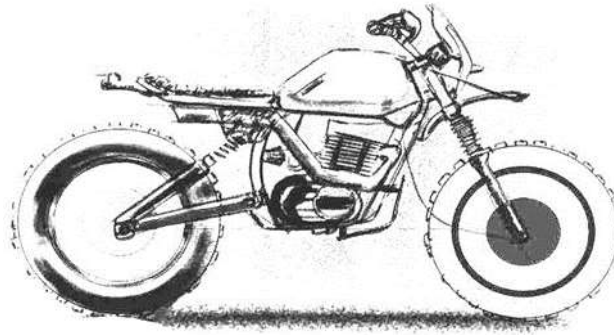


Fig no 1 Design of scrambler bike

### Scrambler Bike Various Part

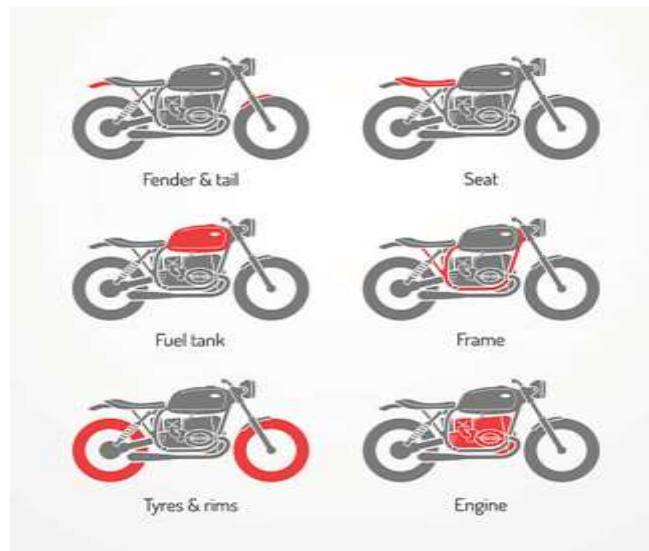


Fig no 2 Parts of scrambler bike

#### 1) Test requirement

- Torque check on nuts and bolts
- Tire pressure check
- Assembly and fall Function check
- Riding test.
- Noice and abnormal sound check
- failure test,
- Breaking system assembly check
- Brake pad Assembling security test
- hard operating breaking System string in test
- Breaking distance test

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## Conclusion

We successfully convert CD100 to new scrambler bike. Which is light in weight and also have better performance than previous. The vehicle is known able to repair by simple tool kit. We are successfully able built new scrambler bike. Several motorcycle companies are not releasing great looking scrambler so we built a great looking scrambler bike. We cover the all point required for built scrambler bike. The scrambler bike mostly known for their off road use so we built a scramble bike by keep this in mind.we also increase efficiency of bike.

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