

# TARGET SSB INTERVIEW

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### Bs3 vs Bs4 Engine Bikes: 3 Important Things You Should Know About It

## THE BAN ON BS-III VEHICLES AND ITS IMPACT



### WHY THE BAN: WHAT SC SAID

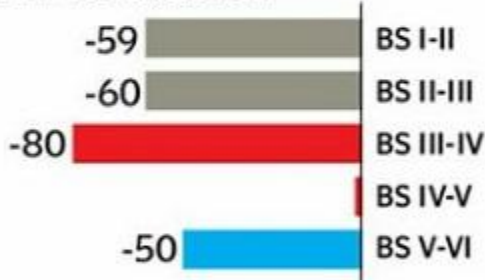
Health of citizens more important than commercial interests, BS-III (Bharat Stage III) could aggravate already deteriorating air quality

### WHY: BS-IV

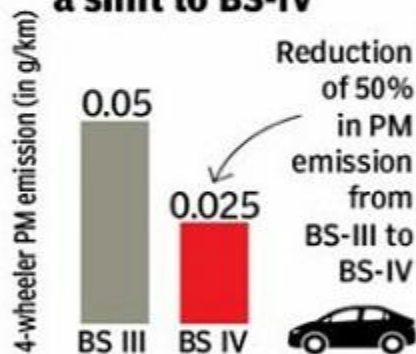
A shift from BS-III to BS-IV will result in an 80% reduction in PM emissions by heavy duty vehicles



#### PM % reduction



### Reduction in PM emissions by diesel 4-wheelers if there's a shift to BS-IV



Source: 2017, Indian Emission Regulation Booklet, ARAI



### WHAT THE AUTO FIRMS WANTED

SC nod to dispose of existing stock of 8.2 lakh BS-III vehicles, as it is not possible to convert old stock into BS-IV vehicles

### THEIR OPTIONS

Export vehicles or turn them into scrap

To the auto industry, it is set to make the complete transition on BSIV (which is also known as Bharat Stage 4) vehicle starting from 1st April 2017.

So people are trying to figure out what is BS4?

BS stands for Bharat Stage and BS4 are emission standards which have been set up by Central Government of India to regulate the amount of air pollution caused by motor vehicles.

So there are three gasses that are released

1. Carbon Monoxide
2. Nitrogen Oxide
3. Hydrocarbons

So these three gasses need to be regulated which is increasing health issues and major cities have increased with pollution levels.

Regulatory norms are set by BS4 levels which are set by Central Government.

So the implementation norms were initiated in 2010 that is almost 6 six years from now and we are still waiting to implement a country-wide implementation of these norms.

The reason for the delay in implementing the norms was non-availability of Bharat Stage 4 fuel because BS4 norms to become effective fuel also need to be refined further.

Unfortunately, this is not a case in India until now.

Transport Minister Sri Nitin Gadkariji has earlier tweeted in January that India will be jumping rather making frog leap from BS4 to BS6 standards by 2020.

So this jump from BS4 to BS6 will have the cost of around Rs.50,000 crore to Rs.80,000 crore to upgrade their refinery procedures in order to refine their fuels to BS4 standards.

So until fuel is refined further BS6 will not enter into play.

When we talk about increasing pollution in our country the automobile sector is usually taking the blame on it.

But as you would have possibly guessed by now more than the automobile sector it the fuel which is contributing towards increasing pollution and due to which BS4 levels has not been complied with.

So hope fuel standards are at par in coming days to match BS4 and BS6 standards.

Table 1: Indian Emission Standards (4-Wheel Vehicles)

Standard	Reference	YEAR	Region
India 2000	Euro 1	2000	Nationwide
Bharat Stage II	Euro 2	2001	NCR*, Mumbai, Kolkata, Chennai
		2003.04	NCR*, 13 Cities†
		2005.04	Nationwide
Bharat Stage III	Euro 3	2005.04	NCR*, 13 Cities†
		2010.04	Nationwide
Bharat Stage IV	Euro 4	2010.04	NCR*, 13 Cities†
Bharat Stage V	Euro 5	(to be skipped)	
Bharat Stage VI	Euro 6	2020.04 (proposed) <sup>[11]</sup>	Entire country
* National Capital Region (Delhi)			
† Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad, Pune, Surat, Kanpur, Lucknow, Sholapur, Jamshedpur and Agra			

Starting With 3 Important Questions & Answers About Bharath Switch 3 Or BS3

### **1. What is BS3 ?**

BS is basically the emission standards given by Government of India to regulate the air pollutants coming from the internal combustion engine.

BS stands for Bharat Stage and is set by the central pollution control board.

BS standard is generally applicable to all the vehicles that are running in the country.

Other standards like Euro that is in Europe and Tier 1, Tier 2, used in the USA.

More the number assigned, less air polluting the engine or fewer pollutants, the engine is releasing.

In India, the BS 4 Engines are applied for the NCR and some other cities while BS 3 Engines are applied nationwide.

From April 1st BS4 Engines should be applied to all vehicles and BS3 engines should completely stop.

### **2. Will new BS norms can get you a new 600cc bike for less than Rs.1.00 lakh?**

With Supreme Court ruling has kicked in as a disaster for two wheeler sales affecting auto industry which is still recovering from demonetization.

So this is a big blow for the auto industry since their unsold inventory is piled up and now with BS3 norms thing has just worsened.

Most potential buyers are making the best out of this situation on Supreme Court ruling to disallow the sales of BS3 vehicles.

Most bike makers and showrooms of companies of well-known brands like Honda are offering heavy discounts on BS3 models.

The party is still not over even though sell by date of 31st March 2017 has been breached.

There is still a possibility on 600CC bikes which are typically available in very fewer numbers and sales in a slow pace.

Bike makers have managed to use one more day to sell their motorcycles and fewer prices.

Some of the 650CC bikes are selling little higher than two lakh rupees and 600CC bikes are going with one lakh plus price tags.

### **3. BS III Vs BS IV Vehicles: Mechanical Differences ?**

BS3	BS4
Carbon monoxide 2.30 g /km	Carbon monoxide 1.00 g/km
HC 0.20 g/km	HC 0.10 g/km
NOX 0.15 g/km	Nox 0.08 g/km

Changes from BS3 to BS4 for motorcycles are more than just tailpipe emissions.

Regulations also restrict evaporation emissions from fuel tanks, which mean a new breather valve and additional or changed stamps in the body structure.

Or

Additional brackets that hold these new systems. This is very difficult to retrofit considering the fact that major design changes might be needed.

Coming to tailpipe emissions, BS4 motorcycles in most cases require larger catalytic converters in terms of flow volumes to eliminate harmful nitrogen-based gasses. And Although that could be adapted to the exhaust system, most bikes also need a secondary airflow system that adds oxygen (or natural air) to the exhaust stream just before the catalytic converters.

This, of course, is a more complex system for which retro fitment is more difficult.

Many manufacturers have also resorted to a more complex ECU and ignition control setup that has more than the standard idle map and full throttle map.

For a better control of the ignition timing which in turn makes for a cleaner burn and thus, less pollution. The byproduct of this is also a more linear acceleration curve and better fuel economy.

BS4 has turbocharger with intercooler.

Also, it has common rail injection system controlled by the electronic control unit. Whereas BS3 has rotary type injection system and intercooler is optional.

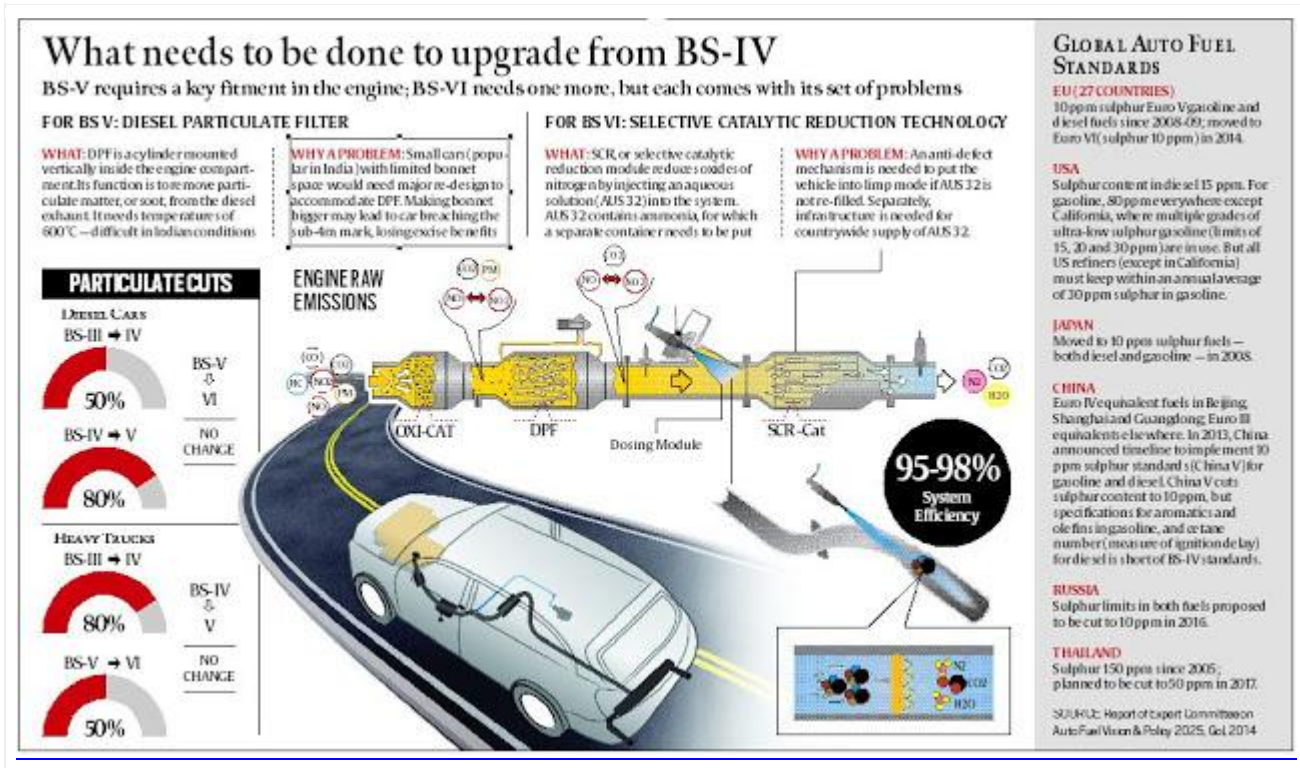
In the year 2000 CMVR(Central Motor Vehicle Regulation Act) came into existence.

So that Any car which is manufactured in India will follow the Pollution Norms that is known as BS-1, BS-2, BS-3 & BS-4, etc.

## Difference between BS2 And BS3

BS2 is Bharat Stage 2 so the technical difference between these two are that BS2 there is no catalytic converter to reduce formation of Co and HC But Whereas in the BS3 catalytic converter is available to reduce the formation of HC and Co so that reduces emission.

## What needs to be done to upgrade from BS4



With BS-III Vehicle Ban Truck Makers Could Lose Rs.2500 Crore

India's leading rating agency CRISIL has estimated that BS-III would cost Rs.2,500 crores to truck makers. But Commercial Vehicle makers have already sold their stock much before the Supreme Court ruling on BS-III ban in India. And discounts and incentives on vehicles that were sold till 31st March 2017 would have cost them around Rs.1200 crores, the agency confirmed. Crisil has estimated that total impact of BS-III ban would have cost about 2.5% of annual revenues of truck makers like Ashok Leyland and Tata Motors.

How To Change BS3 Bike As BS4 ?

Is that every BS3 bikes can be changed to BS4?

After going through above points you should have understood that it is not only the engine mechanism

But Also, the further improvement of fuel that is required.

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