

FOUR WHEEL LEANING SUSPENSION VEHICLE - A Review

Mr. Pranjal Rajankar¹ , Mr. Anurag Choudhari², Mr. Bhushan Raut³,

Ms. Sneha Patil⁴, Prof. B. A. Bohra⁵ , Ms. Utkarsha Raut⁶.

¹Final Year Student, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

²Final Year Student, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

³Final Year Student, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

⁴Final Year Student, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

⁵Assistant Professor, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

⁶Final Year Student, Mechanical Engineering, DES'sCOET Dhamangaon (Rly), Maharashtra, India

Abstract - Four wheel leaning suspension vehicles have been acknowledged as a mainstay in the industrial commercial and domestic domain. The idea is to change the perception remote area for actuating manual operated four wheel leaning suspension vehicle. Four wheel leaning suspension vehicles is a system combining many subsystems that interact among themselves as well as with the environment in which the four wheel leaning suspension vehicle works. In this vehicle, front swing and Rear swing, shockups, hinges, universal joint, end bearing, plane bearing, bearing with bearing hub, are the devices etc. designed to interact with the environment it is gradually making its headway into the domains of military, and vehicle applications domain. The use of four wheel leaning suspension in hilly as well as off road condition becoming more popular in recent years. The trend seems to continue as long as the leaning technology meets diverse and challenging needs of the producers. By utilizing new hardware and software tools, design of these complex systems that need strong integration of distinct disciplines is no longer difficult compared to the past.

Key Words: Front Swing, Rear Swing, Hinges, Universal Joint, End Bearing, Plane Bearing.

1. INTRODUCTION

The four wheel leaning suspension vehicle is widely used in offroad condition, muddy areas and hill stations also. Four wheel leaning suspension vehicle is also used in railway stations for carrying the luggage from one place to another place and this is very convenient to use. Design is very simple that's why lots of complexity at the time of manufacturing is totally eliminated that's why easily manufacture this vehicle with minimum cost.

1.1 Scope of Study

- The four wheel leaning suspension vehicle is very effective than the traditional one in anywhere any time.
- The four wheel leaning suspension vehicle is easy to design as well as develop in future.
- The most basic consideration when choosing four wheel leaning suspension vehicles is the fluctuation you need to reach.

2. WORKING:



Figure 2.1: Working

As far as working is concern when the vehicle start power is transmitted from engine shaft to the chain sprocket with help of chain this chain sprocket is further connected to the hub and a shaft is connected to the hub which will rotated the rear wheel when there is any type off rode condition our vehicle maintained the stability and take care of comfort of the rider

When any wheel subjected to irregular surface that time another wheel will try to maintained stability of hole vehicle. We can used this vehicle in hilly and remote areas As well as on rode and off condition also.

3. Advantages

- It provides anti-skidding effect.
- Bike can be used for on road as well as for off road purpose.
- Tilting provided is maximum up to 36 degrees.
- Assembly is reliable.
- Bolt on assembly gives redundancy to use vehicle as per requirement.
- Rider is safe while taking sharp turn on the road cause possibility of skidding or falling of bike is almost negligible.
- Normal people can take experience of off road biking.
- Wet road driving with tadpole is easier than two wheel arrangement.

4. Disadvantages

- Slight misalignment can cause huge difference in turning of wheels.
- RTO Permissions are necessary in some reasons.
- Fuel consumption increases.

5. Application

- Leaning suspension vehicle is used avoid the damping effect, that's why used in off road as well as on road condition.
- It also Minimize the shocks when driving, so we can used for comfort purpose also.
- It offers comfort to the rider in off rode areas.

6. CONCLUSION

We successfully fabricated the entire vehicle during the eighth semester, and its performance met our expectations. As our feasibility study anticipated and our testing proved, both of the suspensions work independently. We designed and installed steering and braking system that did not interfere with the motion of the vehicle. Our static and dynamic testing showed that the vehicle leans 11 degrees, exactly matching the design.

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BIOGRAPHIES

Mr. Pranjal R. Rajankar

He was born in Dhamangaon (Rly), Dist. Amravati, Maharashtra, India in 1995. He completed his Diploma with First Class Distinction Division in Mechanical Engineering from L.A.M.I.T. Dhamangaon (rly) and pursuing B.E Degree in Mechanical Engineering from Sant Gadge Baba Amravati University (SGBAU), Amravati, India, in 2014-2017.



Mr. Anurag G. Choudhari

He was born in Dhamangaon (Rly), Dist. Amravati, Maharashtra, India in 1995. He completed his Diploma with First Class Distinction Division in Mechanical Engineering from L.A.M.I.T. Dhamangaon (rly) and pursuing B.E Degree in Mechanical Engineering from Sant Gadge



Baba Amravati University (SGBAU),
Amravati, India, in 2014-2017.

Miss. Sneha S. Patil

He was born in kharda , Dist. Yavatmal, Maharashtra, India in 1995. He completed his Diploma with First Class Division in Mechanical Engineering from L.A.M.I.T. Dhamangaon (rly) and pursuing B.E Degree in Mechanical Engineering from Sant Gadge Baba Amravati University (SGBAU), Amravati, India, in 2014-2017.

Mr. Bhushan N. Raut

He was born in Pulgaon, Dist. Wardha, Maharashtra, India in 1995. He completed his 12th and pursuing B.E Degree in Mechanical Engineering from Sant Gadge Baba Amravati University (SGBAU), Amravati, India, in 2014-2017.

Miss. Utkarsha Raut

He was born in Pophali , Dist. Yavatmal, Maharashtra, India in 1995. He completed his 12th and pursuing B.E Degree in Mechanical Engineering from Sant Gadge Baba Amravati University (SGBAU), Amravati, India, in 2014-2017.

Prof. Bhavesh A. Bohra

He completed his B.E. in Mechanical Engineering from Ram Meghe Collage of Engineering Badnera, Amrawati in 2012. He also completed his M.E. in CAD/CAM from Amrawati in 2015. He registered for PhD. He has 4 years work experience as Assistant professor in DESCOET.