

A Review on Side Cart Multipurpose Ambulance

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Abstract: The Motorcycle ambulances are a type of emergency vehicle which either carries a solo paramedic or first responder to a patient; or is used with a trailer or sidecar for transporting patients. Because of its size and performance, a motorcycle ambulance is able to respond to a medical emergency much faster than a car, van, or fire truck in heavy traffic, which can increase survival rates for patients suffering cardiac arrest.

Keywords: Side Cart, Air Conditioner, Aerodynamics, Compact, Detachable, Value Engineering.

1. Introduction

This ambulance is a vehicle for transportation of sick or injured people to, from or between places of treatment for an illness or injury and in some instances will also provide out of hospital medical care to the patient. The word is often associated with road going emergency ambulances which form part of an emergency medical service, administering emergency care to those with acute medical problems.

The term ambulance comes from the Latin word "Ambulare" as meaning "to walk or move about which is a reference to early medical care where patients were moved by lifting or wheeling. The word originally meant a moving hospital, which follows an army in its movements.

The study describes the successful trials of a motorcycle ambulance trailer (MAT) in India regard to setting up an emergency transport service based on low-cost ambulances.

From the survey of Public Awareness of the Emergency Medical Services in Maharashtra, purchase price of a motorcycle ambulance was 19 times cheaper than for a car ambulance.

2. Literature analysis

A. Double decker motorcycle ambulance (by Wood Bill)

It was invented in year 1918, during the First World War by British French and Americans. This Motorcycle consist of 8 BHP (6kw) power with side car.

Due to lighter weight they were said to be less like to get stucked and could be pushed out easily.

As it was a Motorcycle so it required a small turning area of 2.7m, as compared to Motorcar. Ambulance which required

huge turning area about 11m.

The Economy was also high compared to Motorcar Ambulance.

B. Motorcycle ambulance (R. Sittamparam)

It was launch on April 16, 2015 in Bengaluru, India.

It was founded by person name "Karimul Haque" which later received Padmashri in 2017.

This ambulance has EHS to ferrying pregnant women.

This type of motorcycle ambulance has also been launched in many other states.

The Making of this Motorcycle was Rs. 37, 000.

C. Motorbike ambulance reporter from Indian express

M. S. Khan from Deccan motor garage invented bike ambulance to overcome city traffic jam hurdles for patients.

It has the facility of oxygen tank for 3 litres each last for 5Hrs, First aid kit.

The side car consists of foldable stretcher which can bare up to 95 KG of weight.

It was constructed in 35 days.

If the injury is minor, then the sitting then the sitting system also available in side car.

The making cost of ambulance is 65k.

D. Emergency bike ambulance/micro hospital, (Ong ME, Chan YH, Anantharaman. V.)

This service started in the year 2017 by "MAX LIFE" IN DELHI, INDIA.

They have total 150 no. of bike ambulance working day and night in Delhi.

They have only sitting arrangement system in ambulance.

They have facility like first aid kit, portable oxygen cylinders along with lifesaving drugs.

They also have CPR machine which is used if the person is having cardiac arrest costs 1 lac.

It is actually a moving Micro Hospital.

The total cost is 6.6Lac.

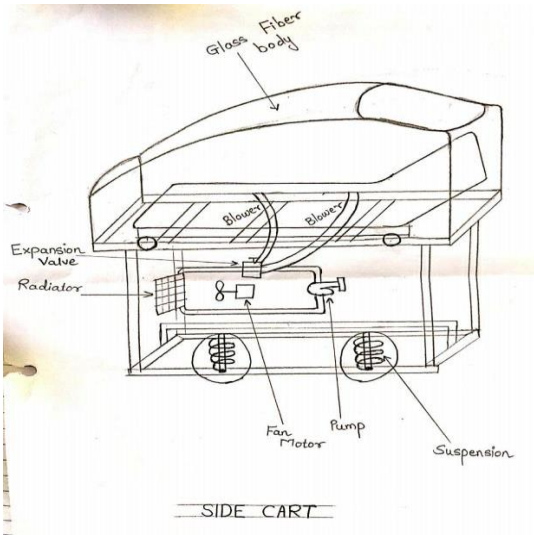


Fig. 1. Proposed diagram

3. Gap analysis

- 1) As we see in above literature analysis large no. of ambulance are produced in many different countries.
- 2) But they are only semi sleeper ambulance, sitting ambulance and that also cost up to 6.6 lakhs which is too much higher price for bike ambulance.
- 3) Due to high cost of such type of ambulance it will be very difficult to provide such type of ambulance in every villages and rural areas and outsource of the country.
- 4) So our main aim is to develop the sidecar ambulance with less costing as compare to our analysis.

From above GAP ANALYSIS our ambulance fulfils all the needs and requirements of the patients during emergency.

It will have a close air conditioner sleeper compartment with all the best facilities like first-aid kit, 5 litre portable oxygen tank.

It is favourable in any weather condition.

It is designed according to value engineering concept.

Special type of suspension with adjustable height is embedded.

The compartment is detachable.

4. Objectives

A. Why multipurpose?

- Side Car to overcome the traffic problem in urban areas and can run on narrow roads in rural areas.
- Easy access compartments and user-friendly arrangement for handling the health care equipment.
- Use of High grade NVH materials makes the Cabin silent and the ride comfortable.
- The reason for Multipurpose is, Since the side car is Detachable so when ambulance car not required, it can be

used as commuter bike, mortgage van, for blood donation camp.

- Considering the day-to-day life there are various types of patients in rural and urban areas as well, so the main objective is to provide basic first aid for those patients.
- Planning of various equipment arrangements such that it will help patient for in transit treatment.
- Designing the side car such that any type of patient can be accommodated.
- To increase the function and value by applying Value Engineering concept which helps to reduce the cost of Ambulance.

5. Merits and demerits

A. Merits

- Costs less compared to Motorbike Ambulance.
- Suffers very less traffic hurdles.
- It is "Detachable".
- It can also be used as "Commuter Bike".
- It can travel through narrow roads due compact size.
- Air-conditioning is provided, modification than previous versions of Bike Ambulance.

B. Demerits

- Can accommodate only one patient at a time.
- Low health components provided.
- Can't carry oxygen more than 5 litres.
- Apart from Driver and Patient only one person can be accommodated.
- Design is complex.

6. Conclusion

From the above study and data, we conclude that, we can accommodate the patient more comfortable and provide more healthcare facilities.

By applying value engineering concept, we can reduce the overall cost of the side cart. Due to compact design it can commute in rural and narrow roads.

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