

Construction essays - road works equipment



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Road Works Equipment

Road Works Equipment/Compaction/Asphalting

- Executive Summary

Roads are the lifeline of any economically vibrant nation. In this perspective, the road works equipment assumes a special significance as it not only impacts the overall quality of roads in a country, but also influences the economies associated with the construction and maintenance of roads. Road works equipment is a billion dollar industry that is growing and expanding at an exponential pace. The construction and maintenance of roads involves many technical and procedural nuances that demands special procedures and specialities. The purpose of this report is to analyse these micro and macro details associated with road works equipment and to delineate the role played by the modern road works equipment in the dynamics and economics of road works. Get help with your essay from our expert essay writers...

The contemporary road works equipment has completely altered the way road works companies conceptualize and plan their work and the way they allocate their resources. Traditionally speaking, the road works industry has been a labour intensive and capital intensive venture, a factor that significantly added to the costs of the construction and maintenance of roads. In such a scenario, the allocation of scarce resources and manpower used to become a cumbersome task that added to the complexity of the road works operations. One objective of this study is to delineate the changes and contrasts in the earlier practices and the modern day practices.

Not only this report mentions the major companies, manufacturers and suppliers of road works equipment but also takes a look into the hire, purchase and leasing arrangements feasible in this industry.

- Introduction

The road works and highway maintenance has become a field of astute specialization in itself. Hence all the aspects of this business are undergoing through a process of refinement and specialization with the passage of time. The way road works operations were managed in the past are a complete contrast to the ways things are done today. With the advent of mechanization in all the aspects of construction industry in the last few decades, the road works equipment has assumed a special significance and importance of its own.

The main task before this report is to compare and contrast the earlier practices in the road works operations with the contemporary trends and practices. Though the roads always played a special significance in the economic and cultural well being of a nation, their importance has increased manifold in the new liberalized and globalized economic scenario. With the advent of trading blocks like the European Union (EU) on the scene, the roads have become a vital instrument of change and harmonization. The unprecedented increase in the number of automobiles over the years has necessitated the need for improvisation and ingenuity in the road works industry. Till the last few decades, the road works procedures in Europe were primarily capital intensive and labour intensive. A major chunk of the budgetary allocations in the road works assignments were set aside for the labour costs and the purchase of road works equipment. This massive

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augmentation into the costs of factors of construction unleashed a revolution into the road works equipment industry.

It is well said that necessity is the mother of invention. Till now the manual approach in the road works operations was not only compromising on the quality of roads, but also coasted immensely in terms of time and assets. Soon a need was felt that the salient aspects of the road work ought to be mechanized by using the innovative and specialized equipment. This vital need was catered to by the companies specializing in the road works equipment. The impact of this change was felt acutely in the major road works tasks like compaction and asphaltting. The new equipment not only saved much time and money but also performed the above mentioned tasks with an enhanced efficacy and refinement. The specific objective of this report is to deliberate on the changes unfolded by the arrival of mechanized procedures and new equipment. This new approach towards road works definitely increased the efficiency and savings associated with all the procedures.

- Discussion

Innovation and specialization are the hallmarks of the scientific and economic development. Roads are an important aspect of the economic and cultural development. This aspect of the national growth has certainly undergone rapid and multifarious changes in terms of technological and procedural inputs. The way road works operations were planned and carried on in the past are definitely a far cry to the modern state of the art road works techniques and equipment. Today the roads are expected to satisfy a

number of criteria and expectations which were never heard of and expected in the days of the yore. It will be really interesting to delve on the compromises and contrasts between the earlier practices and the modern day practices.

3. 1 Earlier and Modern Day Practices

Roads always played a special significance in the British financial, cultural and social life. The British rulers always paid a special attention to the roads and well understood their relevance in maintaining and upholding the economic and cultural growth in this vibrant nation. However, the roads of the yore were predominantly un asphalted and narrow and though they successfully catered to the needs and the aspirations of the times, they were no match to the modern metalled roads that were designed to meet the realities of industrial revolution and economic growth.

The invention of automobiles and the industrial revolution proved to be a turning point so far as the history of road works is concerned. The new automobiles and transportation vehicles demanded very different types of roads, the construction of which required special features and procedures. This need gave birth to the nascent road works industry that was later to evolve into an important and vital aspect of the British business and cultural life.

The new roads needed to be compact and levelled, the achievement of which required procedures like asphaltting and compaction. In the earlier times, these procedures were performed mostly manually and were predominantly labour intensive. The crews associated with compaction tasks

had to hustle to get their jobs done and open the roads to traffic. These compaction procedures performed manually required large amounts of time and investments. This augmented the public pressure to minimize the time spent with lane closures and traffic disruptions. These compaction procedures were mostly performed using bulky road rollers that produced nearly 2400 vibrations per minute and influenced the quality of roads. Thus the outcome achieved also proved to be flawed and not as per the ideal quality requirements. However, the advent of modern equipment has drastically changed the things. Today there are available the highway compactors that yield a miniscule 4000 vibrations per minute (ZOOM Info, 2008). This enables the construction crews to control the impact per foot that definitely magnifies the smoothness and the density of roads. The new compactors also enable the construction companies to perform the jobs well before the expected time limits and have minimized the frequency and time of lane closures and resultant traffic disruptions.

As was with compaction, so stands true for the awesome task of asphaltting. The process of asphaltting involves paving the roads with a mixture of gravel and asphalt. This primarily involved the twin procedures of mixing and paving of asphalt. The asphalt mixing equipment used in the past was primarily manual and thus did not allow the mixing of asphalt as per the desired proportions and density. The modern asphalt mixing machines are totally automatic and allow the road works crew to choose the density and viscosity of the asphalt mixture as per their requirements (APELLC, 2008). This has certainly revolutionized the concept of road works. So also stands true for the bothersome task of asphalt paving. The asphalt laying and

paving today is no more done manually as was the practise in the past.

Today there are available such machines that perform the task of asphalt paving and laying at one go and that too automatically. This not only helps in constructing smoother and flawless roads but also allow the road works crews to achieve pavements pf desired thickness and with.

Though the road works industry is a vital constituent of the national growth, the fact is that like any other business it is a business and has to abide by the norms and aspirations expected of all the successful ventures. Like other industries, the road works industry also aspires to cut down on its time related commitments and investments, modernize and automate its operations and use its finances to the optimum level. The road works ventures of today are way apart from the practises of the past in the sense that the usage of modern road works equipment and accessories enables them to achieve efficiency and savings which was not possible with the predominantly manual road works procedures of the past. The advent of modern road works equipment especially in the segment of asphaltting and compaction has totally revolutionized the contemporary road works industry.

3. 2 Major Companies/Manufacturers/Suppliers

Today their exist many companies in the world that specialize in the manufacturing and supply of increasingly sophisticated and automated road building equipment that is in tandem with the changing industry needs (SED, 2008). Especially considering the lack of skilled labour in this industry in the West, the services rendered by these companies are increasingly in demand. Some of the major road works equipment manufacturers and suppliers are;

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- Caterpillar
- Tadano
- Haulotte Group
- Ingersoll-Rand Company
- JCB Inc.
- Multiquip Inc.
- Stone Construction Equipment Inc.
- Dynapac
- Prater-Sterling
- Sebright Products Inc.
- Reynolds Industrial L. P.

3. 3 Methods of Procurement

Road works industry is primarily a capital intensive industry that needs the optimal utilization of the assets at its disposal. Hence it prefers to procure its equipment using a spectrum of methods like procurement, hiring, outsourcing, purchasing, purchasing on instalments and leasing. Hence most of the major companies dealing in the road works equipment offer a range of options and facilities to their customers. This not only ensures the optimum utilization of scarce resources but also enforces customer loyalty, brand preference and accountability in the long run.

3. 4 Drivers and Barriers

The recent upsurge in the number of automobiles and the stringent pollution norms has necessitated the up gradation of the existing roads throughout the developed world. The economic boom in Asia and South America has also motivated most of the international road works companies to shift their operations to these lucrative climes. This has enhanced the demand for the road works equipment related to compaction and asphaltting. However, the availability of cheap unskilled labour and a shortage of skilled labour in Asia and Europe are hampering the introduction of sophisticated road works equipment. The recent recessionary trends in the West and the upsurge in the oil prices are also proving to be a major barrier to the expansion and growth of road works equipment industry.

4. 0 Conclusion

The introduction of the sophisticated road works equipment and machinery has definitely altered the face of road works industry. Courtesy the better and accurate compaction and asphaltting machines, the quality of roads has improved drastically along with the optimal achievement of requisite economies and parameters. Considering the latest statutory guidelines pertaining to pollution in the developed world and the economic boom in the Asia and South America, the market for the road works equipment is expected to expand further. However, the road works industry being strictly capital intensive, the companies involved will have to offer a wide spectrum of procurement options and facilities to its customers.

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