CHAPTER - I

INTRODUCTION
CHAPTER-I

INTRODUCTION

1. Introduction

Everybody in this world is a consumer. We need a variety of goods and services right from our birth to the end. Varieties of consumers particularly in the transport and communication wing entirely depend on the quickest means of transport. Those who took to buy bi-cycling the distance found it quite in-convenient and added petroleum reservoir with more powerful chain and better hub.

Many road events are organized as “Time Trials” competitors are sent off at half a minute in travel. An endurance trial is an event in which a cyclist tries to reach a longest distance in the shortest time. In 1939 there has been development through inventions. The most revolutionary method is to equip the bi-cycle with the light internal combustion engine; thus turning into a motorcycle.

Several kinds of small petrol engines are marketed for this purpose and their use has become increasingly popular, especially among older people and those who regard a bicycle as no more than a convenience.

The need for urban product has sprung up in rural market. The development of rural market is in large measure due to significant importance, since the late eighties. There has been a marketed increase in the proportion of households moving up from the lowest income category while the number in the middle and high income categories have virtually doubled between 1995 and 2000.
Despite a slowdown since then the proportion of households in the high income groups continues to rise. The most striking trend has been the lowering of differences between the tastes of urban and rural consumers as seen in the sharp and continuous growth of the number and range of products bought.

Business today presents an exclusive preview of two and a quarter million automobile owners and consumer products, offering a sweeping panoramic overview of the terrain that marketers comb in their quest to consumers.

It is the most important innovation no longer as household income being used as the most single important factor in defining consumers. In the past, income led classification has left millions of Indians out of the ambit of consumers on the assumption that their earnings endow them with no alternative purchasing power and yet, the countries lowest income earners define such schemes.

The two-wheeler industry in India, over a long period of time was absolutely unimpressive and unspectacular. Although they existed for a little more than 2 whole decades, they had done practically nothing to captivate the imagination and mind of the consumer. Besides, the two-wheeler was never accorded the priority status by the government. As a result the existing two-wheeler manufacturers had to be content with a modest growth and an even more modest marketing strategy.

Only towards the late seventies the Government recognized the need to satisfy, the growing demand in this field. The consumer till then was not getting the benefit of the latest development in engine technology from outside India, which resulted in a sizeable saving of fuel consumption.
The Government not only permitted foreign collaborations in the field but also accorded all the important priority status to the two-wheeler industry. This paved the way for some large industrial houses to invest in the two-wheeler industry in India. Leading two wheeler manufacturers and market leaders in the world collaborated with some large industrial house in India and thus was born.

One of the earliest products to be thrown open to free competition, the two-wheeler industry, had benefited by catering to the demand for affordable personal transport. Fuel efficiency, style, power and innovation had a great impact on the Indian consumer. In the mid-eighties, finance for the purchase of two wheelers was also easy. Hence, there was a real surge in the production.

The following causes could be attributed to this overall demand recession.

- High cost of vehicles
- High cost of maintenance
- High cost of petrol (the only fuel for two wheelers)
- Sharp rise in the cost of living
- Costlier finance
- Growing disparity between the Rupee and the hardening foreign currencies.

During the year 1990 the Budget Memorandum presented by the then Finance Minister, Dr. Manmohan Singh, left the two-wheelers industry disappointed. There was only one segment in the entire automotive sector which was over looked by the Finance minister’s path-breaking Budget for excise duty relief, and that was the two-wheeler industry.
The end of the boom in the two wheeler market has been a matter of disappointment to the two-wheeler manufacturers, distribution houses and the many ancillary units which cater to the needs of the two-wheeler manufacturers. The enormous market for two-wheelers should not be artificially suppressed through an unimaginative fiscal policy.

The development of this industry has a positive multiplier effect and we need to take the benefit of it to stimulate all urban and rural growth. Of late, a certain amount of stability has been established, thus, paving a way of recovery from the recession.

By mid 1990, India had become the world’s larger market for two-wheelers edging Japan into second place. By that period two wheeler sales in India totaled 17.5 lakhs as against 16.88 lakhs of Japan’s which meant that the erstwhile leader had taken a sound beating. TVS motorbikes clearly eclipsed the performance of their contemporaries in the market.

This company capitalized on the existing boom in the industry and did precisely what their contemporaries failed to do. And, when the Government decided to allow foreign technical collaborations for TVS motorbikes, it was little to know the extent of the demand these machines would generate.

The two-wheeler market turned dramatically from a seller market to a buyers market and it increased its output substantially. The demand for two-wheelers was steadily increasing since the introduction of the fuel efficient Indo-Japanese motorbikes. The motor cycle manufacturers slogged it out on the technology platform of two-stroke and four-stroke engines.
The manufacturer is trying to push his product on the strength of technical prowess. The initial euphoria which was created with the rise in production and demand is not so now.

With the pressure on the public transport system, the best solution is to have personal transportation for which two-wheelers become the stomatic choice. The gulf crisis seems to have subsided and the two-wheeler has become a multi-purpose vehicle for the common man and many car owners are switching over to two-wheelers.

There is an enormous market that still is left untapped with sales in urban areas soon to reach saturation levels. Sales thrust will progressively be shifted from urban areas to rural areas (where the majority of the country’s population resides). This shift will definitely increase the demand for motor cycles, which are more suited for rural conditions.

1.1 Two-Wheeler Industry in India- Overview

India is one of the leading manufacturers of two-wheelers worldwide. The Indian two-wheeler market has a size of over Rs.1, 00,000 million with the sales of more than 4.3 million units in 2001-2002 and has been growing at 7% CAGR over 1997-2001. In terms of two-wheeler population, Maharashtra, Gujarat and Tamilnadu lead the Indian market.

Two-wheeler industry is both labor and capital intensive. Competition between players in the two-wheeler industry is largely on the basis of power, fuel efficiency, and maintenance requirement, ease in handling, style, looks and ergonomics.
The Indian two-wheeler sector contributes the largest volumes amongst all the segments in automobile industry. Though the segment can be broadly categorized into three sub-segments viz; scooters, motorcycles and mopeds; some categories introduced in the market are a combination of two or more segments e.g. scooterette and stop thru’s.

The market primarily comprises five players in the two-wheeler segment with most of the companies having foreign collaborations with well known Japanese firms earlier. But with most of the companies now planning 100% subsidiaries in India and a few JV’s have fallen out.

In the last 5-6 years, the two-wheeler market has witnessed a marked shift towards motorcycles at the expense of scooters. In the rural areas, consumers have come to prefer sturdier bikes to withstand the bad road conditions. In this process the share of motorcycle segment has grown to 66%, the share of scooters declined drastically to 15%, the share of scooterette also declined to 9%, while that of mopeds declined to 10% during the year 2001-2002.

The Euro-emission norms effective from April 2000 led to the existing players in the two stroke segment to install catalytic converters. Four stroke motorcycles are now replacing all new vehicles. Reduced exercise duty and fierce competition has led to a fall in prices of certain models.

1.2 TVS Motor Company Ltd.

TVS motor company is one of the three companies that account for more than 80% of the industry. The company has 18% market share in domestic two-wheeler industry. TVS motor company (TMC) is present in three segments of the two-wheeler market viz; mopeds, vario-scooter and motorcycles. The company is India’s largest
manufacturer of mopeds with the market share of 65%, and dominates the southern part of India. It is also a market leader in the fast growing vario-scooter market with a market share of 34%. In FY02, motorcycle sales contributed to 66% followed by sales in mopeds to 19% of total sales of Rs.19,302 million. TVS Motor Company’s first stroke premium segment motorcycle ‘Suzuki Fiero’ had achieved about 3% market share within the first year of its launch. Most recently the 19 year old joint venture with Suzuki Motor Corporation (SMC) has fallen off and TVS has been renamed as ‘TVS Motor Company Limited.’

TVS Motor Company has been the largest manufacturer of mopeds, which are predominantly prevalent as a means of low cost transportation and provide a tremendous potential in all the parts of India. However the company is likely to face threat from domestic competitors like Bajaj Auto Ltd. Since the two-wheeler industry has grown vigorously in the past, there has been excess capacity and cost pressures will lead to reduced margins.

The removal of quantitative restrictions has also led to a threat from the Chinese players. In addition to this there has been a decline in the demand for mopeds, which is matter of concern for the company. Consequently the company has launched a four stroke vehicle named Victor. They have got plans to introduce other four stroke models also.

1.2.i Background

TVS Suzuki was a joint venture between the TVS group and Suzuki Motors of Japan, and it was the first Indo-Japanese motorcycle venture in India. The TVS group has been in the business of auto components since the seventies. It started manufacturing mopeds in the early eighties as a part of Sundaram Clayton Ltd., a group company. The
moped business was transferred to TVS in 1987 at a consideration of Rs. 320 million. The company passed through a host of problems such as cost escalations, teething problems with new product, labor problems (100 day lock out in 1990), marketing short comings etc.

The problems were compounded by a severe recession in 1991-1992. The company then made one of the most remarkable comebacks. The restructuring involved pruning of labor force, major cuts in fixed overheads, value engineering, dealer network revamp and a number of new models. It started manufacturing Suzuki 100cc motorcycles in 1984. The joint venture with Suzuki has been called off in Financial Year 2002

1.2.ii Plant Locations

TVS first plant is located at Hosur, in the state of Tamilnadu. Recently after parting ways with SMC the company has planned to enhance the production of ‘Victor’- its first indigenous motorbike at its Hosur plant. TVS has set up a second plant at Byathaallli village near Mysore about 70kms.from Bangalore (Karnataka) for manufacture of scooters.

1.2.iii Vision Statement

“We are committed to being a highly profitable and socially responsible, leading manufacturer of high value, environmentally friendly, life time personal transportation products for customers in global market and to provide fulfillment and prosperity for employees, dealers and vendors”.

1.3 Rationale

1.3.i Two wheeler market is booming

The two wheeler boom: - The Indian industry after riding the rough road in 1992 began providing the necessary kick start for a major boom in the two wheeler industry, and since there is no looking back. The two–wheeler industry has shown a remarkable resilience with a growth rate of about 20 percent.

Today, despite the impending deluge of sheer brands, the domestic two wheeler industry has shown several new sneezy brands, from all players in the industry and it is again changing gears to acquire a sizeable space in the automobile market.

1.3.ii Big Increase

Indeed the production of two-wheelers motorcycles, and scooters, has already been jacked up considerably with the first category of vehicles dominating the market, according to the latest figures of the Association of Indian Automobile. Manufacturers, the total production of motorcycles has increased from 461,955 vehicles in 1993-94 to 647,523 vehicles in 1994-95.

The overall sales, reported in 1994-95 for motor cycles were 652,011 vehicles respectively. TVS motorbikes have also managed to convince the consumers about the company’s leadership in product quality, range, power and aesthetic value of two-wheeler. All of them are focusing mainly on fuel efficiency and redesigning of vehicles for comfortable riding.
1.3 iii Bright Future

Confident of the two-wheeler industry’s future, the company is launching two more models, with more power and fuel efficiency, 125 cc RTZ motor cycles. It also proposed to introduce 250cc into the motorcycle segment.

Mr. Venu Srinivasan chairman and Managing Director of TVS company feels that despite the explosion of the two-wheelers industry has a bright future. Since, the target customers with their income and affordability bands for two product categories and are different. The success of TVS may be evitable, its rivals too are nor for too behind to fall in line with the changing consumer preferences.

1.3.iv Rural Market

TVS Suzuki expects a major growth in the large size high power motorcycle. The company’s own motorcycle model such as Samurai and Shogun bikes are running in race for their niche positions. The rural income is increasing. And people are shifting more and more to motorcycles, because of its multi usage.

It can bear abusive loads and it able to take on the rigors of the rural road. Success will depend on being a full range producer and timely responses of customer needs. TVS Suzuki is to have in the race which promises never to go into the proverbial slumber. It dominates the market with the sale of 202,627 vehicles 1994-95 leaving its rivals behind in pursuit.
1.3.v Exports

1. The Thrust on exports does not seem to be on the immediate agenda of many two-wheeler manufacturers. The total exports of all two-wheeler in 1994-95 were 140,512 vehicles, of which motorcycles were 34,484 vehicles respectively. Mr. Venu Srinivasan points out that statistics of penetration collaborate the future growth potential of two-wheelers in the domestic markets.

2. This is a very economical and reliable method for transportation in the country, which is characterized by severe commuter transportation bottlenecks.

3. The country would benefit by this boom because a large number of job opportunities would be created.

1.3.vi Two-wheelers on fast track

The automobile industry in India is usually thought of as a manufacturer of vehicles. Many realize that a major component of the industry is manufacture of two-wheelers which accounts for a gross turnover of about Rs.5000crores and provided direct and indirect employment for about two lahks.

1.3.vii Wide Choice

Two-wheelers are getting increasingly differentiated with wide choice available to the customers such as gear drive or variomatic in bikes.

The Indian consumer now has access to latest information with old class bikes through the media. A two-wheeler has become more than a medium of transportation. It has become a personal statement especially in the case of motorcycles.
Periods styling changes and technology upgrades have become necessary for retaining and attracting customers. The Trend towards model changes will further accelerate.

1.3.viii Capital Structure

There have also been alterations in the capital structure of the industry. A variety of models are also being planned by TVS Suzuki in the next four to five years, making the market even more competitive. The Indian Two-wheeler Industry has good scope for exporting its vehicles especially to the developing countries. The Two-wheeler industry is basically an assembly operation. However, with technology up-gradation, newer styling parts, the tooling and material costs will inevitably increase; If two-wheelers are to remain attractive in pricing savings will have to be found in improved productivity and logistics management. This poses a major challenge to the industry.

1.3.ix Petrol Price

Improving the fuel economy of two-wheelers is another major thrust. Indian two-wheelers will undergo considerable change in the next few years with emphasis on low emission, and low fuel consumption. The two-wheeler industry play a vital role in the day-to-day life of our citizens and is a major contributor to employment and revenue generation. It merits the nurturing support of the government to fulfill its role effectively.

1.3.x Riding on the Boom

Motorcycles led the growth in two-wheeler segment with a whopping 42 percent growth rate. Increased production of automobiles, both in the domestic markets worldwide has boosted the confidence of auto ancillary units. Also the excise cuts in the
last Budget helped them face competition from small scale industrial units on the price
front. However, export income has slowed down and only those units which are up-
grading technology and adding capacities can stand the heat.

1.4 Definition of Technical Terms and Acronyms

1.4.i CC: Cubic Capacity

A lot of people refer to the bullet as a three and half horse power bike and yezdi as a
two and half horse power bike. There was a convention to consider 100cc as equal to one
horse power. Today with different two stroke portings, timings, compression ratios,
torque characteristics, number of cylinders and so on, 100cc engine can produce more
than four times the power of another 100cc engine. So engine cubic capacity has hardly
remained a true measure of the power than an engine can produce. What really matters is
the power that an engine can develop per ‘CC’ of cubic capacity.

1.4.ii Horse Power

The name Horse power is defined as “The rate of doing work”. Mathematically it
is the work divided by time how much work can an engine do per unit of time such as per
second or per minute work is defined as force multiplied by distance. Force is measured
in kilograms or in pounds. Distance is measured in metres or feet in the above two
systems respectively.

1.4.iii Torque

All engines produce rotating motion. The to and fro motion of the piston is
converted into rational motion of the crankshaft. Torque is a measure of the effort
required to produce rotation. In order to produce the same speed, the required force
would be least if applied at the periphery of the wheel. The Torque characteristics depend on ignition timing/advance/retard, configuration, carburetion, and lot of other factors. Low end torque is the measure of torque produced at low engine speeds. High end torque is not important for city riding since one can hardly exceed 60 km/h in our cities.

1.4.iv Compression Ratio

It is the ratio of the minimum value inside an engine cylinder when the piston is at the lower most position to the maximum volume inside the cylinder when piston is at its topmost position. As a rule, higher compression ratios produce more power for the same size of engine, other things being held constant. However in actual practice, different compression ratios need different grades of fuel having different values, which are not available at our petrol pumps. Thus shaving off the cylinder head to increase the compression ratio of an engine will not help at all unless matching fuel is available. If matching fuel is not used, increasing the compression ratio may actually harm the engine.

1.4.v Engine Life Factor

Similarly (though not exactly) is the case with any other container inside which high pressures are maintained and developed. No matter the container is made up of rubber or metal and the basic fact is that higher pressures give rise to higher stress forces, and holds true. Higher speed will cause greater wear and tear. Based on these facts is defined the Engine Life Factor (ELF) of any engine.

It is mathematically defined as:

\[
ELF = \frac{1,00,000}{CR \times rpm}
\]
When CR is the compression Ratio of the engine and rpm is the highest speed rating of the engine. Engine Life Factor (ELF) is a measure of the last ability (Life span) of an engine. The higher the ELF, the longer the engine will last, provided of course that when comparing the engine life factors of two different bikes, it is assumed that both engines are made of exactly identical materials, which may are not be true. Even otherwise ELF does give a very good idea of possible engine life span.

1.4.vi Power to weigh Ratio

The absolute power developed by a bike is not the true measure of how the bike will perform on the road. By load we mean the weight of the rest of the bike plus the weight of the rider. Finally the engine has to move the whole bike along with the mounted rider. There is a tendency among some manufactures to give pure power to weight ratio (i.e.) exclusive rider’s weight. This is incorrect since a bike cannot move without a rider. The manufacturers especially of the higher bikes do it this way because it shows their bikes in much better weight.

1.4.vii Bittzkrieg

It is the controversy TVS which started the two stroke (VS) four stroke with a media focusing on the fuel efficiency said “Fill it, shout it, and forget it”.

1.4.viii Hefty Budgets

It is an adding muscle to the marketing efforts on advertising.

1.4.ix RR Units

It is the “Rust Rubber” component which is used to check the wear out, weakness, and the front Alignments.
1.4.x Wobbling

It is a deviation and sign that the frame or the body could be bent or twisted.

Where the wheel, Rim of the tyre may not be “true” it may need to be replaced.

1.4.xi Ergonomics

In TVS motorbikes it means the convenient shape, size and location of various controls and adjustment mechanisms.

1.5 Consumer Perception

Perception is defined as the process by which an individual selects, organizes, and interprets, stimuli into a meaningful and coherent picture of the world. A stimulus is any unit of input to any of the senses. Examples of stimulus include products, packages, brands names, advertisements, and commercials. Of stimuli that are above the level of conscious awareness is called supraliminal perception.

1.5.i Perceptual Selection

Consumers subconsciously exercise a great deal of selectivity regarding which aspects of the environment, which stimuli they perceive. An individual may look at some things, ignore others, and turn away from others. In total people actually receive, or perceive, only a small fraction of the stimuli to which they are exposed. Each of these factors can serve to increase or decrease the probability that the stimulus will be perceived and each can affect the consumer’s selective exposure and selective awareness of the stimulus itself.
1.5.ii Expectations

In the marketing concept people tend to perceive products and product attributes according to their own expectations. On the other hand stimuli that conflict sharply with expectations often receive more attention than those that conform to expectations. In other words novelty tends to promote perception.

1.5.iii Motives

People tend to perceive things they need or want. The stronger the need the greater the tendency to ignore unrelated stimuli in the environment. An individual’s perceptual process simply tunes itself more closely to those elements of the environment that are important to those persons. In this way the marketer can vary the product advertising to specific market segments so that consumers in each segment will perceive the product in meeting their own specific needs, wants, and interests.

1.5.iv Product Positioning Strategy

It is the essence of marketing mix; it compliments the company’s segmentation strategy and selection of target markets. The marketer must create product distinctiveness in the minds of the consumer. A successfully differentiated product gives the marketer pricing and distribution leverage.

1.5.v Product Image

The result of successful positioning is a distinctive brand image and every aspect of the products design, price, promotion and distribution should reflect that image. Consumers rely on their perceptions of brand image, product image, and people image in making consumers choice.
Brand image should be clear and distinct in the minds of consumers. In today’s highly competitive environment, a distinctive product image is most important. Consumers tend to distinguish one brand from another on the basis of the promotional message and the use or ownership of the brand. As products become more complex and the market place get crowded, consumers rely more on the product’s image in making purchase decisions.

1.5.vi Perceptual Mapping

The technique of perceptual mapping helps marketers to determine how their products appear to consumers in relation to competitive brands on one or more product characteristics. It enables them to see gaps in the positioning of all brands of the product class, and to identify areas in which consumer needs are not met adequately.

1.5.vii Perceived Quality

Consumers often judge the quality of a product on the basis of a variety of informational cues which they associate with the product. Some of these cues are (intrinsic cues) the product such as specific product characteristics, others are (extrinsic cues) the product such as price, store image, brand image and promotional message. Such cues provide the basis for perceptions concerning product quality.

a. Intrinsic Cues

Cues that are intrinsic concern physical characteristics of the product itself such as speed/power, fuel efficiency, power, size, color etc. consumers like to believe that they base their product quality evaluations on intrinsic cues, because they can justify resulting product decisions on the basis of rational or objective product choice.
b. Extrinsic Cues

Consumers often “evaluate” quality on the basis of factors quite external to the products, such as price, image of the brand, which carries the image of the manufacturer that produces it.

c. Price-Quality Relationship

Marketers have successfully used the price-quality relationship to position their products as the top quality offering their product category. Price and quality are so tenuously related and consumers continue to use price as an indicator. Such consumers show greater preference for higher priced brands than individuals who do not believe that quality varies among brands.

d. Store Image

A recent study found that when brand and retail images become associate the less favorable image becomes enhanced at the expense of the more favorable image. Thus when a low priced image carries a brand with a high priced image, the image of the store will improve, while the image of the brand will be affected.

e. Manufacturers Image

Consumer image extends beyond perceived price and store image to the producers themselves. Manufacturers who enjoy a favorable image generally find that their new products are accepted more than those who have a less favorable or a neutral image. Consumers have greater confidence that they will not be disappointed in a major name-brand product. Advertising has an important role in establishing a favorable brand image.
Most of the marketers argue that product and service advertising would do more to boost their corporate image.

1.6 Review of Two-wheeler Industry

Two wheelers are gaining popularity in developing countries for sheer economic reasons, and India has become the largest producer of two wheelers meeting world wide requirements.

However, the mood in the two-wheeler is now, of despair, and unless the government, steps in with special concessions and incentives to the industry, it will face an uphill task. The steep hike in prices of motorcycles has gone beyond the reach of the common man who mostly depends on financing from market. There has been a dip of five-six percent in growth of the industry as against the target and it will be tougher industry with the growing competition in a shrinking market.

If the companies have to survive, exports are the only answer. The two-wheeler segment had become an area for acute competition long before liberalized industrial policy of the present government. An additional factor is that motorcycle manufacturers have to compete with other consumer durables for priority claims to the shrinking purse of the consumer.

Though it is expected that the two-wheeler segment will not be affected beyond a point by the present transitional problems, this segment, also as the component sector, should be able to sustain their domestic market since it is crucial element in building the capability to increase exports on the basis of costs and quality.
1.7 Factors of TVS Motorbikes

1.7.i General

As a rule, two stroke bikes need less adjustments and less maintenance than four stroke bikes. They also give more power for cubic capacity. Prices of bikes keep going up all the time and they are quite variable. The reason for the above mentioned difference between two stroke and four stroke bikes is because four stroke bikes have more moving parts.

1.7.ii Buying Price versus Fuel Economy

For sheer fuel economy only, the TVS motorbikes are today hard to beat. It gives an even better fuel average than most 50cc vehicles, but that is achieved if you mostly ride it like a moped (i.e) slow and steady. It does not have the kind of speed and acceleration that the two-stroke bikes have. Fuel consumption is very much dependent on your style of riding. If you always have to stay ahead of the traffic zoom off at every traffic light change, use brakes frequently and change gears frequently, you will get a very poor fuel mileage no matter what bike you are riding. Remember, the higher your speed, higher will be your fuel consumption.

Along with fuel consumption one must also consider the 2T (lubricating oil) that has to be added to petrol tank, in two stroke bikes and scooters. It is good to adhere to the prescribed percentage or even exceed it by a few cc, but never starve the engine of 2T oil than the prescribed amount else it, will be seized which apart from causing extensive damage to the engine can also result in a serious accident, since the rear wheel will lock and will skid and fall.
1.7.iii Speed

Among the various bikes, the TVS Apache is the fastest and has the best acceleration. The other bikes TVS Flame, Star Sport, Star City and TVS Fiero are about 10% behind the fury and are almost neck to neck with one another.

For mopeds and mini-bikes up to 80cc speed is hardly any criterion. They are pure economy bikes. A bike which has a good low end torque is much better suited for city traffic than a very powerful bike which has very high ultimate speed. Two-wheelers with good low end torque need much less gear change to stop and go, slow down, speed up type of city traffic.

1.7.iv Braking

Braking is achieved by friction between brake drum and brake shoe (in the case of conventional brakes). Friction again is of two types (a) Rolling friction and (b) Sliding friction. Sliding friction is always more than rolling friction. Rolling friction means resistance to rolling motion between two surfaces.

Good braking is achieved by increasing the sliding friction between the brake shoe and the brake drum gradually so as to achieve or exceed the rolling friction limit between the road and the tyre, and bike skids. So, one has to strike a balance between costs and effectiveness.

1.7.v Road holding

This is the function of bike, wheelbase height of a bike, centre of gravity from the ground, tyre shape, and size and treads design, riding posture, and general shape of the bike. One of the important requirements for good road holding is that the shock absorbers
on both the side must be equal. Air pressure in tyres also affects road holding very much. Finally it should be noted that road holding has some meaning only for dry tarmacadam on concrete roads.

1.7.vi Lights

The only Indian two-wheelers that have good lights are the TVS motorbikes. All other pale into significance compared with these motor bikes. This one single feature (good lights) of TVS bikes put them ahead of all other bikes in night time safety.

1.7.vii Riding Posture

This has mainly to do with the handlebar-seat, footrest geometry- often people tend to ignore this aspect though this is the one aspect which decides whether the consumer will be put to trouble. True this posture makes for greatest wind resistance which will affect speed and fuel consumption at high speed for long stretches such as intercity trips, and the resistance is inconsequential in city. The most important thing that governs posture is your height in relation to bike geometry.

1.7.viii Ergonomics

In motorcycles it means the convenient shape, size and location of various controls, and adjustment mechanisms. Another point to consider is the design of the handlebar grip itself. In this the important thing is the size. Finally one should look at the shape and design of the two levers at the handlebar grip for front brake and clutch.
1.8 Service and spares of TVS Motorbikes

1.8.i Intrinsic Reliability

The best yard stick of intrinsic reliability is of course “Time”. The intrinsic reliability depends basically on design, simplicity and quality of workmanship. Even so, basic reliability at least for the period of a vehicle designed life is a most important factor. Generally low performance, low speed, low rpm, low compression ratio vehicles will last longer for obvious reasons.

1.8.ii Ease of maintenance

This is some thing new that the TVS motor bikes excel in. Parts that need frequent attention are very easily accessible. Bikes are quickly complicated because of their high performance and high tolerances, which have very fine needs, sophisticated tools, great technical competence and dexterity. A new concept that is being engendered by the Japanese invasion is that ‘throw away’ concept. Parts are replaced rather than repaired.

1.8.iii Spare parts availability and pricing

When buying a new vehicle one should not look at only the retail selling price of the vehicle. The price of spare parts which will be definitely required overtime also be taken into consideration. One may be under impression that spares of smaller vehicles would be cheaper than those of larger vehicles. Spare part prices are not only based on material, design and manufacturing considerations, but also on factors like particular model, commonality of a part for different models, as well as price and quality of parts manufactured and marketed by parties other than the original vehicle manufacturer. Sometime prices are fixed purely as a matter of company policy.
1.8.iv Extent of dealership network and Regional bias

TVS has one of the most extensive dealership networks in the whole country, but in days, the situation has largely changed. The numbers would be worthwhile for the Ludhiana types to produce spares for the models for the open market. To that extent the dealer becomes indispensable. For some geographical reasons some make and models they have a very strong presence in certain regions. Brands are fairly well represented dealership wise through out the country.

1.8.v Dealer Commitment

The only way to know about positive dealer commitment is to ask around in our town or city. Some manufacturers have a lot of service engineers posted in metro cities and some at regional levels. If your town has a two wheeler dealer, who is a genuine two wheeler enthusiastic, nothing likes it. He is a committed dealer. Most dealers they are looking for ways to make it fast. Yet the fact remains that if a particular model is serving, well in your town, it stands to reason that there is something positive about the dealer or about the dealer plus manufacturer.

1.8.vi Dealer Competence

This is to do with the technical aspects of the dealership. The framed display of the certificate indicates that there is a sense of achievements, at least a belief in technical competence. The latter is the better way to work and gives an indication of commitment to scientific work practices if not, technical excellence. If you visit the service department of any dealership you can see how work is being done. By which we can learn a lot and help us to decide whether that particular dealership is technically competent or not.