

MATERIAL MANAGEMENT AND MOVEMENT IN ASHOK LEYLAND -HOSUR

Submitted in partial fulfillment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

By

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Register No: 40410086



SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

APRIL 2022



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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the Bonafede work of **KRISHNAPRAKASH K (40410086)** who carried out the project entitled "**Material Management and Movement in ASHOK LEYLAND.Ltd-Hosur**" under my supervision from September 2021 to October 2021.

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Internal Examiner

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August 30, 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that

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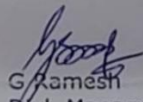
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MATERIAL MANAGEMENT AND MOVEMENT

in PEP Department at Ashok Leyland, Hosur-I
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During the above period he has evinced keen interest in the training.


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DECLARATION

I **KRISHNAPRAKASH K (40410086)** hereby declare that Project report entitled “**Material Movement and Management in ASHOK LEYLAND.Ltd-Hosur**” done under the guidance of **Dr. Dhivya Sathish** and **Mr. Tojan Antony (AGM), Mr. Ramesh. A (Deputy Manager) & Mr.Ramesh.G (Divisional Manager – HR)** at Ashok Leyland is submitted in partial fulfilment for the award of Master of Business Administration.

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SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **DR. BHUVANESWARI G**, Dean-School of Management Studies and **DR. PALANI A**, Head-School of Management Studies for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **DR. DHIVYA SATHISH**, Faculty, School of Management Studies for her valuable guidance, suggestions, and constant encouragement paved way for the successful completion of my project work.

I would like to express my sincere and deep sense of gratitude to my External Guide **Mr. TOJAN ANTONY**, Assistant General Manager- Ashok Leyland, for his valuable guidance for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the School of Management Studies who were helpful in many ways for the completion of the project.

(KRISHNAPRAKASH K)

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ABSTRACT

Materials management became a vital function of management and the department of materials management was started at the time of World War I in the United States of America. The advancement of principles of scientific management in the 20th century by F.W. Taylor decreased the cost of production and proper utilization of materials was enhanced. Charles Babbage was known as “materials man” because of his book on an economy of manufacturing and machinery which explains about the functions of purchasing. Between the years 1970 and 1999 materials management enhanced a lot.

The study pattern used in this study is face to face interaction. Experts of different departments have been consulted. Most of the data has been gathered from stores department of the company. The various aspects covered during the interaction were need & features of inventory control, Supply chain management. An attempt is made to cover each & every macro of functioning of inventory cell

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

MATERIAL MANAGEMENT:

Materials management is a core function of supply chain management, involving the planning and execution of supply chains to meet the material requirements of a company or organization. These requirements include controlling and regulating the flow of material while simultaneously assessing variables like demand, price, availability, quality, and delivery schedules.

FUNCTION OF MATERIAL MANAGEMENT & MOVEMENT:

- Material Planning and Controlling
- Procurement
- Value Assessment
- Stores management
- Transportation
- Goods Receiving and Dispatching (GR&D)
- Material Handling
- Just In Time (JIT)
- Material cost reduction
- Management Information system (MIS)
- Bill of Material (BOM)
- Inventory Control

SCOPE OF MATERIAL MANAGEMENT & MOVEMENT:

The scope of Materials Management varies greatly from company to company and May include material planning and control, production planning, Purchasing, inventory control, in-plant materials movement, and waste management.

It is a business function for planning, purchasing, moving, storing material in an optimum way which help organization to minimize the various costs like inventory, purchasing, material handling and distribution costs.

INVENTORY MANAGEMAEENT

Meaning:

- 1) Inventory means List of goods
- 2) Inventory meaning in OXFORD DICTIONARY “All of the stock of a business, including materials, Components, Work in Progress and finished goods”
- 3) Inventory is detailed list of movable goods which gives the quantity and value of each item or movable goods with quantity and value

What is Need of Inventory?

To improve inventory management technique, it is necessary to maintain inventory with investment but consistent with adequate service level.

Types of Inventories:

- ❖ Raw Materials
- ❖ Work In Progress (WIP)
- ❖ Finished Goods
- ❖ Maintenance, Repair and Operations Goods (MRO)
- ❖ Safety Stock and Anticipation Stock
- ❖ Cycle Inventory
- ❖ Service Inventory
- ❖ Transit Inventor

Inventory Control:

Inventory control is indispensable for businesses to stay competitive. Through inventory control, you will be able to maintain minimum inventory levels, ease your liquidity situation, keep costs down, maximize profits, and succeed in keeping your customer satisfied by delivering orders on time.

Manual inventory control might help to an extent. But as you scale, it leaves open a huge window for human error. To sustain certain growth in business and tap sales through multiple channels, you will need to take a more disciplined and structured approach to inventory control.

Inventory Control vs. Inventory management:

The two terms mean different things and deal with different aspects of inventory.

INVENTORY MANAGEMENT:

Inventory management encompasses the entire gamut of aspect related to your supply chain – right from tracking raw material through to order fulfillment. Thinking of it as an umbrella term that includes what, when and How much you buy, Stocks and sell; Managing Suppliers and customers, how you manage product pricing, Order fulfillment, returns, etc.

INVENTORY CONTROL:

Inventory Control specifically refers to how you manage your stocks, also called warehouse inventory. Managing warehouse inventory system gives you the ability to optimize your stock in related to sales in the most profitable manner by considering several factors that affect demand and supply for a product.

WHEN TO CONTROL THE INVENTORY?

- Positive approach is to control the inventory from beginning stage (Procurement stage or PR stage).

-
- Inventory is harder to move with longer it sits
 - Increase in 20% sale = Reduction in 5% inventory so our aim should be to reduce the inventory
 - Inventory accounts are a) Price (required negotiation) b) Service Level (% of demand fulfilling)
 - Lead time (time required from feeling need to availability)

REASON FOR ORGANIZATIONS SHOULD CARRY INVENTORY CONTROL:

Staying away from Lost Sales:

Excessive amount of stock/Inventory can higher the cost for the business, not keeping/controlling right amount of stock/ Inventory is also a big problem. If a company do not have

Control over its inventory, it runs the risk of lost sales due to running out of key inventory components.

If customers can't find what they want from your business, they'll probably go for someone else. They may

Decide not continue business in future.

Maximizing Space:

Small business owner probably has limited storage space in their business area. According to SCORE, inventory control allows you to maximize the space by identifying the faster and slower seller in your product mix. As a result, you can provide for space for better seller while wiping out slow moving item

Turning over stock:

Inventory control system are extremely important because they help you keep an accurate record of stock level. These systems tell you exactly how much stock you have, which stock you no longer have and which products you need to recorder.

Manually counting stock is a method which is lead to error, and it is small mistakes like these which can have a negative impact. An inaccurate inventory record risks

Disappointing customers by under-ordering and you also risk over-ordering. These things may stifle your profitability and frustrate your customers.

1.2 INDUSTRY PROFILE

OVERVIEW OF ENGINE MANUFACTURING INDUSTRY:

An engine is the heart of a vehicle's operating system and ultimately what makes the vehicle a successful form of transportation. Without the engine, a vehicle is just another big piece of stamped out metal appearing in various shapes and sizes.

In addition to being manufactured for vehicles, engines are also built for aircraft and large machinery equipment, such as Caterpillar excavators and dozers. They are also used in trailer manufacturing for the hydraulic systems.

Companies in the engine manufacturing industry manufacture and assemble diesel engines, electric engines, industrial engines, and natural gas-powered engines. The engines built will eventually be used as the workhorse for automotive vehicles, heavy-duty trucks, mid-duty trucks, and RVs.

We cover more below on which industries engines are built for, where the workers are located, and, most importantly, the PPE workers require when manufacturing engines. First, though, a little bit about the engine's history, engine companies, and the industry's economic impact.

The first successful four-stroke internal combustion engine was built in 1876 by Nicolaus Otto. His invention, called the "Otto Cycle Engine", offered the first practical substitute to steam engine as a power source.

Combustion is the chemical process of releasing energy from a fuel and air mixture. The expanding combustion gases push the piston, which rotates the crankshaft. Then, through a system of gears in the powertrain, motion drives a vehicle's wheels.

Throughout the 20th century, the two most common internal combustion engines manufactured were the diesel and petrol engines. Today, in the 21st century,

Electrical engines are starting to become mainstream with newer technology being introduced every day. This is an important point to mention, as PPE needing worn by employees must change within different manufacturing plants. Example being, workers that manufacturer electric engines are using thinner gauged metals and will need even higher levels of cut-resistant gloves.



Gasoline Engines

In this internal combustion engine, fuel is mixed with air and then inducted into the cylinder during intake. With fuel-air inside the engine, a spark ignites, causing combustion. Hot gases produced are used to drive the pistons.

This type of engine is the primary engine used in automobiles. Other applications for this engine include aircraft, motorcycles or boats, and small engines.



Diesel Engines:

In this internal combustion engine, only air is inducted into the engine and then compressed. The diesel engine then sprays fuel into the hot compressed air, causing it to ignite.

Heavy-duty diesel engines are primarily manufactured for freight trucks; however, they may also be found in light- and medium-duty trucks. They are used for several purposes: **heavy-duty transportation, medium-duty trucks, and for industrial machinery engines.**

In 2017, there were roughly 900,000 diesel engines manufactured in the U.S.



Electric Engines:

Electric engines are powered by an electric current that generates a magnetic charge and turns the driveshaft. These engines utilize large lithium-ion batteries or batteries made with newer technologies.



An Electric Vehicle's Battery

There are two basic types of electric engine: all-electric vehicles (AEVs) and plug-in hybrid electric vehicles (PHEVs).

1.3 INTRODUCTION TO COMPANY:



ASHOK LEYLAND, flagship of the Hinduja group, is the 2nd largest manufacturer of commercial vehicles in India, the 3rd largest manufacturer of buses in the world, and the 10th largest manufacturers of trucks. Headquartered in Chennai, 9 manufacturing plants gives an international footprint – 7 in India, a bus manufacturing facility in Ras Al Khaimah (UAE), one at Leeds, United Kingdom and a joint venture with the AL-teams Group for the manufacture of high-pressure die-casting extruded aluminum components for the automotive and telecommunications sectors, ASHOK LEYLAND has a well-diversified portfolio across the automobile industry. ASHOK LEYLAND has recently been ranked as 34th best brand in India.

A US \$ 2.30 billion company, and a footprint that extends across 50 countries, ASHOK LEYLAND is one of the most fully-integrated manufacturing companies this side of the globe. ASHOK LEYLAND has a product range from 1T GVW (Gross Vehicle Weight) to 55T GTW (Gross Trailer Weight) in trucks, 9-to-80-seater buses, vehicles for defense and special applications, and diesel engines for industrial, genset and marine applications. ASHOK LEYLAND launched India's first electric bus and Euro 6 compliant truck in 2016. Over 70 million passengers use ASHOK LEYLAND buses to get to their destinations every day and their trucks keep the wheels of the

Economy moving. With the largest fleet of logistics vehicles deployed in the Indian Army and significant partnerships with armed forces across the globe, ASHOK LEYLAND helps keep borders secure.

Pioneers in the Commercial Vehicle (CV) space, many product concepts have become industry benchmarks and norms. ASHOK LEYLAND has ISO/TS 16949 Corporate Certification and is also the first CV manufacturer in India to receive the OBD-II (on board diagnostic) certification for BS IV-compliant commercial vehicle engines, SCR (selective catalytic reduction), iEGR (intelligent exhaust gas recirculation) and CNG technologies. ASHOK LEYLAND is the first truck and bus manufacturer outside of Japan to win the Deming prize for Panthnagar plant in 2016 and the Hosur Unit II being awarded the Deming Prize in 2017. Driven by innovative products suitable for a wide range of applications and an excellent understanding of the customers and local market conditions, ASHOK LEYLAND has been at the forefront of the commercial vehicle industry for decades.

The Company's wide-spread customer base is served through an all-India sales and service network, supplemented by close to 3000 touch points. A global network of over 550 touch points that facilitate on-road service for millions of vehicles. With technology-enabled customer engagement processes and knowledge on the specific applications of the product range, Ashok Leyland sales team are well equipped to fulfil customer's needs. Ashok Leyland manages driver training institutes across India and has trained over 8, 00,000 drivers since inception. On-site service training for technicians is provided by Ashok Leyland's service training institutes located in 9 locations across India.

People, Planet and Profit for all stakeholders especially ASHOK LEYLAND's customers is at the core of Ashok Leyland which resonates with our Philosophy of **'AAPKI JEET, HAMARI JEET'**

INTERNATIONAL OPERATIONS:



REGIONAL OFFICE:

- Dubai, UAE- International Operations Headquarters
- Dhaka, Bangladesh
- Moscow, Russia
- Abidjan, Ivory Coast (West Africa)

MANUFACTURING ASSEMBLY UNIT:

- Ras AL Khaimah, UAE
- Dhaka, Bangladesh
- Sri Lanka

INTERNATIONAL PRESENCE:

GCC:

- UAE
- Saudi Arabia
- Kuwait
- Qatar
- Bahrain

AFRICA:

- Kenya
- Nigeria
- Tanzania
- Malawi
- Uganda

SAARC:

- Bangladesh
- Nepal
- Sri Lanka

• Oman	Mauritius
	Seychelles
CIS:	Zimbabwe
	Burkina Faso
Russia	Republic of Congo
Ukraine	Cote D'ivoire
	Ghana

ASHOK LEYLAND UNIT-1, HOSUR _ ENGINE MANUFACTURING HUB

A gold standard in quality, the Hosur Plant facility is the key manufacturing hub for engines within ASHOK LEYLAND. The wide range of engines assembled here span across BS3, BS4 and BS6 Compliant Diesel and CNG engines, made in dust proof assembly lines with latest technology. It also manufactures critical components like cylinder Block and Head. This facility spread over 101.2 acers, with 44 acers are utilized by manufacturing shops and buildings including State of the art engine R&D test cell facilities.

CHAPTER 2

LITERATURE REVIEW

2.1 REVIEW OF LITERATURE:

In 1960, Agencias Universales S.A., globally known as AGUNSA, has grown to be one of the leading maritime port agencies, primarily operating in Latin America. Through the decades, AGUNSA's expertise has rapidly grown through the integration of new technology, new services, and new investments around the world.

As the 20th century came to an end, the growing export markets around the globe (see examples in Table 1) aided AGUNSA's expansion through the increasing demand for its services. In 1994, Empresas Navieras S.A. became aware of AGUNSA's critical role in South American agency services and acquired a substantial portion of the company's stocks, boosting AGUNSA's available capital. As well as a financial asset, ENSA further extended AGUNSA's network. ENSA is the majority stockowner of Compañía Chilena de Navegación Interoceánica S.A. or CCNI (69.73%), Portuaria Cabo Froward S.A. (69.83%), and AGUNSA (66.00%). This allowed for AGUNSA to offer all of the services it offers today, ensuring a wide range of resources through this agency network.

AGUNSA continues to improve its services, fulfilling their mission to empower and expand the service to cargoes, passengers, means of transportation and terminals networks, with an effective offer adding value to clients, vendors, employees, and shareholders. AGUNSA's high level of service is demonstrated through its membership in the S5 Agency Organization – the association for the leading service agencies worldwide.

In 2017 Mr. Nikhil Gopal Wagh submitted paper on Inventory management under the guidance of Prof. Mr. Tushar Savale at the University Of Pune.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 RESEARCH

Research is the process of systematic and in the depth study of any particular topic, subject or area of investigation, backed by collection, compilation, presentation, and interpretation of relevant details of data.

Research is an art of scientific investigation. The advanced learner's dictionary of current English lays down the meaning of research as, "A careful investigation or inquiry especially through the research for the new facts in any branch of knowledge.

3.2 SCOPE OF STUDY

- To study about the Movement of materials
- To eliminate the unwanted movement of material
- To eliminate the unwanted material handling
- To reduce cost on material management

3.3 OBJECTIVES OF STUDY

PRIMARY OBJECTIVE

- To Study the effective Material Management System at ASHOK LEYLAND Ltd.

SECONDARY OBJECTIVE

- To know about the stores process in manufacturing industry
- Minimizing over flow of goods / avoiding additional Location for the Particular inventory/Part
- Valuation Of goods/Inventory according to its clause/Value of goods
- Stepping towards Industrial Revolution 4.0
- Proper usage of Storage location
- Attain Just-in-Time
- Reduction multiple process in Inventory Inward and Outward
- Reduction of multiple handling of goods inside and outside stores
- To identify the hindrances in process of material management and movement
- To understand the material flow in and out of stores and global warehouse of ASHOK LEYLAND
- To understand the implementation of Industrial Revolution 4.0 in Supply Chain Management system for manufacturing industry.

3.4 RESEARCH DESIGN

A “research design is a specification of methods and procedures for acquiring the information needed to structure or to solve problems”. It is the overall operation pattern or frame work of the project that stipulates what information is to be collected, from which sources, and by what procedures.

The arrangement of conditions suitable for collection and analysis of data varies depending upon the type of research study the types of research can be represented of several types

3.5 ANALYTICAL RESEARCH

The researcher has to use the information and the facts that already available. Analyze the information make critical draft of material in a technical manner is Analytical research.

3.6 PERIOD OF STUDY

The duration of study is from July 2021 to August 2021

3.7 TOOLS FOR CONDUCTING ANALYSIS

- ABC Analysis
- XYZ Analysis
- STRING DIAGRAM
- TIME STUDY ANALYSIS
- MATERIAL STUDY ANALYSIS
- MUDA ELIMINATION

3.8 LIMITATIONS OF STUDY

- Only secondary data was collected for conducting study
- Only the process of one 3rd party logistics provider was considered among 2 parties for conducting study

ABC ANALYSIS

ABC analysis is an inventory management technique that determines the value of inventory items based on their importance to the business. ABC ranks items on demand, Cost and risk data, and inventory manager's group item into classes based on those criteria. This helps business leaders understand which products or services are most critical to the financial success of their organization

The most important stock keeping units (SKU), based on either sales volume or profitability, are "Class A" item, the next-most important are "Class B" and the less important are "Class C". Some companies may choose a classification system that breaks products into more than just those three groups.

ABC analysis in cost accounting, or activity-based costing, is loosely related but different from ABC analysis for inventory management. Accountants uses activity-based costing in manufacturing to assign indirect or overhead costs like utilities or salaries to products and services.

ABC analysis and Pareto Principle (80/20 rule)

The law is named for VILFERDO PARETO, an Italian economist who studied land ownership in Italian in the early 20th century and found that roughly 20 Percent of the population held title to about 80 percent of the land. Legend has it that he further developed the theory upon observing that 20percent of the pea pods in his garden produced 80percent of the peas. For this reason, Pareto's law is often referred to as the "80/20" rule. There's nothing "magic" about the 80 percent figure, though. Many businesses system do in fact show an 80/20 relationship; others don't. But the overall point still stands: A relative handful of things will generate the bulk of the results.

Classes in Inventory Management

Type / Class	Importance	Percentage of Inventory	Annual consumption value	Controls	Records
A	High money value	10%-20%	70%-80%	Tight	High Accuracy
B	Medium money value	30%	15%- 20%	Medium	Good
C	Lower money Value	50%	5%	Basic	Minimal

Benefits ABC Analysis

Inventory Optimization:

The analysis identifies the products that are in demand. A company can then use its precious warehouse space to adequately Store the materials and maintain lower inventory level for the “**B and C Class**” inventories.

Improves Inventory Maintenance:

It allows the staff members to collect and monitor the data about products that are frequently moving either for Consumer or for the machine shop. Company can use information to set inventory level to increase overall revenue.

Supplier Negotiation:

Companies earn 80% of the revenue from the “Class A” items, it makes sense to negotiate better terms with suppliers for those items, If the supplier not agrees to lower the cost try to negotiating post-purchase services, down payment reduction, or other cost saving.

Strategic Resource Allocation:

ABC analysis is one of the best ways to continuous evaluation of resource allocation to ensure that Class A items are align with the planned sequence for manufacturing process or with the customer demand. When demand lowers, reclassify the item to make better use of time and space for new “Class A” products.

Reduces Storage Expenses:

By carrying the correct proportion of stock based on “A, B, or C Class”. Company can reduce the inventory carrying costs that come with holding over /excess inventory.

Simplifies Supply Chain:

ABC analysis of inventory data to determine if it’s time to consolidate supplier to reduce carrying cost and simplify operations.

XYZ Analysis

ABC analysis can be improved by pairing it with XYZ analysis, a framework that classifies products based on their amount of demand variation. Like ABC analysis, XYZ analysis classifies products into three groups based on their level of demand predictability and how much they deviate from their forecasts:

- X items are ordered frequently, perhaps daily. With frequent replenishment, they should have low demand variation that is predictable.
- Y items are ordered less frequently, such as every few weeks or less. There is more variation in the demand amount.
- Z items orders are infrequent and irregular. They have the most demand variation and are the most difficult to predict.

With the combination of ABC analysis to consider item value and XYZ analysis to factor in demand variation, inventory managers can then collaborate with other key functional managers in production, accounting, information technology, logistics and procurement.

The departments should all work together to both establish inventory management policies and develop systems and processes to implement these policies.

ABC – XYZ Relationship

	A	B	C
X	AX CLASS High consumption value Even demand High Predictive value	BX CLASS Average Consumption value Even demand High Predictive Value	CX CLASS Lower consumption Value Even demand High Predictive Value
Y	AY CLASS High consumption value Fluctuating demand Average Predictive value	BY CLASS Average Consumption value Fluctuating demand Average Predictive value	CY CLASS Lower Consumption Value Fluctuating demand Average Predictive value
Z	AZ CLASS High consumption value Irregular demand Low Predictive Value	BZ CLASS Average Consumption value Irregular demand Low Predictive Value	CZ CLASS Lower Consumption Value Irregular demand Low Predictive Value

STRING DIAGRAM

Meaning of String Diagram:

This diagram is a layout drawing on which a length of string is utilized to record the extent as well as the pattern of movement of operators, materials and machines working in a limited area during a certain period of time. It is a special type of flow diagram generally drawn when the paths are many and repetitive and a flow diagram becomes congested and it is neither easy to trace it nor to understand.

Under such circumstances a string diagram is preferred. String diagram is a scale plan of the shop, in which every machine or work bench is marked and a peg is struck in the area representing a facility. A continuous coloured string traces the path traced/adopted by the operator or materials or machines while performing particular activity.

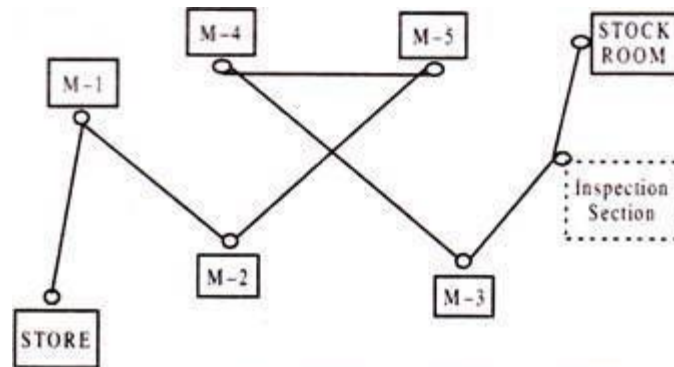
Procedure for Construction of String Diagram

Study and record the complete information about the movement of various resources. Draw a scale layout of the shop area and mark various features such as machinery, work benches store etc.

Mark and insert panel pins at all the workstations between which the journeys are made. More pegs/pins may be stretched in between the facilities to trace more or less the actual path followed by men or materials.

A continuous coloured un-stretchable string, taken from the first to last work point to trace the path followed by operators or materials. Use strings/threads of different colors if the movement of more subjects is being shown so that their movements are easily recognized and distinguished.

Remove the string to measure their lengths which approximately gives distances travelled by a worker or machine or the material. The string diagram is shown



Benefits of String Diagram:

- (1) A string diagram represents the record of an existing set of conditions and thus helps the methods engineer in visualizing the actual situation.
- (2) It indicates complex movements, back tracking, congestion, bottle necks and over and underutilized paths on the shop floor.
- (3) It is an aid for comparison between different layouts or the methods of doing a job as far as the distances moved are involved.
- (4) It helps in tracing existing paths of movement for incorporating necessary modifications if any.
- (5) It is preferred when movements are not regular as far as frequency and distance moved are concerned.
- (6) Indicates the pattern of movements and thus helps in deciding the most economical routes to perform a particular operation

CHAPTER - 4

DATA ANALYSIS & INTERPRETATION

4.1 ABC ANALYSIS:

Classification of Inventories is more important before making any changes in the process of flow of materials in and out of plant for the effective material management as it plays a vital role on making profit for the business, so ABC Analysis was taken into consideration at first before planning the string diagram for the movement of materials.

Classes in Inventory Management

Type / Class	Importance	Percentage of Inventory	Annual consumption value	Controls	Records
A	High money value	10%-20%	70%-80%	Tight	High Accuracy
B	Medium money value	30%	15%- 20%	Medium	Good
C	Lower money Value	50%	5%	Basic	Minimal

A Class Items – 10

B Class Items – 12

C Class Item – 170

RESULT OF ABC ANALYSIS:

Here,

A class items are 10%-20% of the total quantity.

This 10% items covers 70%-80% of cost

B Class items are near about 30% of the total quantity.

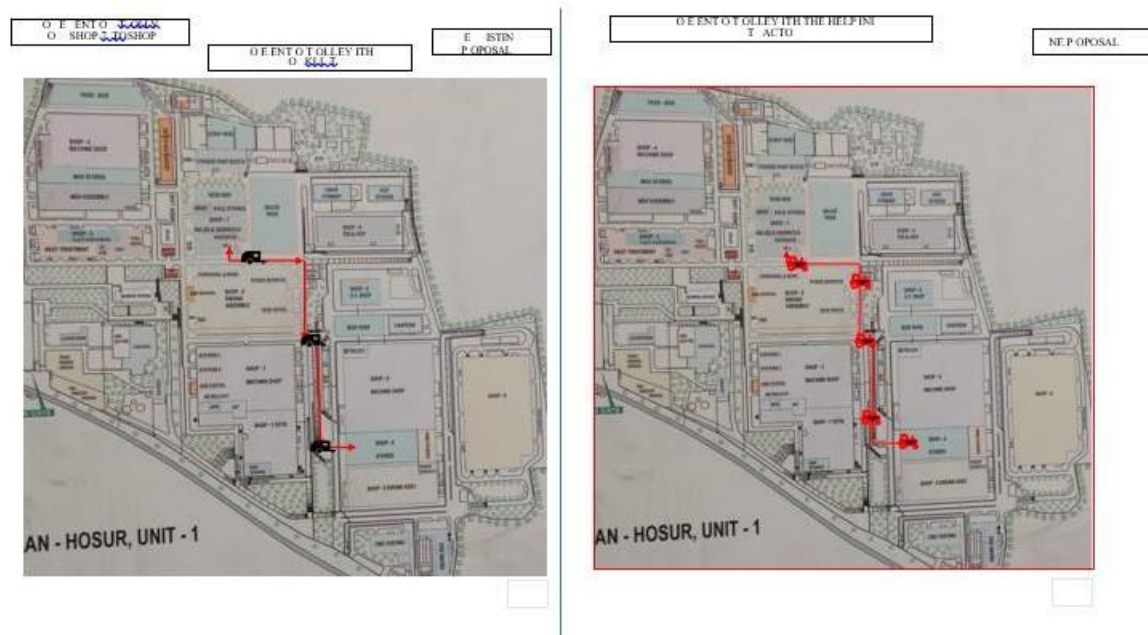
This 30% Item covers 15%-20% of cost

C Class items are 50% of the total quantity.

This item covers 5% of Cost.

PROPOSAL ON MATERIAL MOVEMENT:

STRING DIAGRAM FOR THE PROPOSAL



4.2 TIME STUDY ANALYSIS:

Time Study was taken before and during the demo for the success of the proposal with the help of STOP WATCH.

TIME STUDY ON FORKLIFT- 1 Kit trolley: (SPEED LIMIT = 8km/hr.)

- Total time for loading of material trolley at Shop 7 = 1.5mins
- Total time for Unloading of material trolley at Shop 5= 1.5mins
- Total time for the transportation for materials from Shop 7 – Shop 5 = 10mins (round trip)
- Total time consumption on FORKLIFT = 13 mins/trip

TIME STUDY ON MINI-TRACTOR WITH TRAILER - 3 Kit trolley: (SPEED LIMIT = 7km/hr.)

- Total time for loading of material trolley at Shop 7 = 3mins
- Total time for Unloading of material trolley at Shop 5=3 mins
- Total time for the transportation for materials from Shop 7 – Shop 5 = 10mins (round trip)
- Total time consumption on MINI-TRACTOR = 16 mins/trip

4.3 MATERIAL STUDY ANALYSIS:

Material study was taken 2 times with at most care on material which was given for studies

1st time: Before entering into the project:

- 1) Study on nature of material
- 2) Nature of package
- 3) Quality check on the material

2nd time: During the demo

- 1) Weight of the material
- 2) Dimensions of the material (Length, Width, Height)
- 3) Pulling Capacity of Tractor
- 4) Pay Load capacity of the Tractor

JIT Concept:

JUST IN TIME (JIT):

JIT is generally accepted as being a concept invented by Taiichi Ohno of Toyota; after World War2 resources were very scarce in Japan so using them to create something that the customer did not actually want right now was not a good idea.

On a visit to the US the management team of Toyota were inspired by, of all things, how they saw a supermarket (Piggly Wiggly) handle their inventory. Only what was removed from the shelves by the customers was actually replenished and ordered from suppliers. In this way shelves never became empty, nor did they end up overflowing with excessive inventory.

Taiichi Ohno was tasked by Eiji Toyoda to make production more efficient through implementing these ideas and pull production with just in time concepts was developed. It took more than 15 years for Toyota to perfect their ideas and it was not introduced into western manufacturing until the end of the 1970's.

With a JIT system each process pulls from the preceding process' "supermarket" and that process will then work to replenish those shelves.

Aim of JIT:

To provide fast, reliable and flexible response to customer requirement at least cost and minimal dependence of inventory

Objectives:

- Reduction of order to payment time
- Reduction of inventory cost
- Reduces the storage space
- Reduction of cost in material handling
- Reduction of Total Lead time
- Improves quality
- Increase Productivity
- Easily identifies the issues

JIT implementation at ASHOK LEYLAND:

ASHOK LEYAND has formed 8 main committee for the implementation of JIT, they are.

- Just In Time (JIT) Logistics and Material Handling
- Planned Maintenance

-
- 5S
 - MUDA
 - Early Management of assets.
 - Individual equipment Improvement.

MUDA:

Muda implies inefficiency, pointlessness and uselessness, which is negating esteem expansion. Worth added work is an interaction that increases the value of the item or administration that the client will pay for.

There are TWO types of Muda they are,

Type 1 Muda

Type 2 Muda

Type 1 Muda:

Type 1 Muda includes non-value-added activities in the process that necessary for the end customer.

Type 2 Muda:

Type 2 Muda includes non-value-added activities in the process but they are not necessary for end customer. Type 2 Muda should be eliminated.

There are 7 wastes under Type 2 Muda they are,

- Over Production
- Inventory
- Motion
- Defects
- Over Processing
- Waiting
- Transport

Proposal on Muda elimination:

S.NO	COMPONENT	STORAGE LOC	COMPONENT DESCRIPTION	PACKING TYPE	QTY/PCK	MOVEMENT 1	MOVEMENT 2	MOVEMENT 3	MOVEMENT 4	MOVEMENT 5
1	04809425W	I-07.08	CONICAL WASHER			Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
2	04864084W	I-264.265	BANJO BOLT			Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
3	12647124W	Y 24	TRIMMED COLLAR806045			Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
4	B2F14001	Y 38	COOLANT ELBOW	PP BOX	06 / 08	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
5	B2G03301	Y 30	EGR PIPEHOT SIDE	PP BOX	25	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
6	B2G03302	Y 29	EGR PIPE COLD SIDE	PP BOX	25	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
7	B2G03303	Y 32	SUB ASSEMBLY EGR COOLANT IN PI	Returnable Bin	25	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
8	B2G03304	AM.01.06	SUB ASSEMBLY EGR COOLANT OUT P	Returnable Bin	25	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
9	B2W00719	G14-01	SUB ASSEMBLY FIP HSG OIL PIP	Returnable Bin	100 / 200	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
10	B2W01307	AM.01.07	SA OF FIP HOUSING	PP / Carton Box	8	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to S/A in kit room	S/A area to fitment stage	
11	B2W01312	AM.01.08	SUB ASSEMBLY ASSY	Returnable Bin	50 / 100	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
12	B2W01313	AM.01.09	HOSE INJECTOR LEAK OFF ASSY	Carton Box	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley and moved to kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
13	B2W01315	AM.03.06	SUB ASSEMBLY RAIL LEAK OFF	Returnable Bin	100	Supplier to GR&D	GR&D to Stores	Pick up in trolley and moved to kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
14	B2W02704	S7BLKAREA	SUB ASSEMBLY OF FUEL IN PIPE	Returnable Bin	100	Supplier to GR&D	GR&D to Stores	Pick up in trolley and moved to kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
15	B3B00802		SA OF CYL BLOCK 4CYL WO JET-B-PF	Pallet	6	Machine shop to stores	Picked in trolley and moved to loading area	Loaded in conveyor and moved to fitment stage		
16	B3C09302		Rocker cover	Pallet	70	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
17	B3C13502	FW AREA	S/A of Cylinder Head for B54	Pallet	10	Machine shop to stores	Picked in trolley and moved to loading area	Loaded in conveyor and moved to fitment stage		

18	B2F01301	Q92 8AY7	SA OF FLYWHEEL 4CYL B54 B-PF	Carton box with wood base	26	Supplier to GR&D	Picked in trolley and moved to loading area	Loaded in conveyor and moved to fitment stage		
19	B3201805	SUMP AREA	SUBASSEMBLY OF OIL COOLER WITH SPINON F	Returnable Bin	02 / 03	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
20	B4H02901	AM.03.07	SUMP H4 HIGH CAPACITY SINGLE PIECE	Returnable trolley	15	Supplier to GR&D	GR&D to Stores	Moved from stores to washing in pallet	Moved from washing to kit room in trolley and loaded in conveyor	
21	B4K17402	AM.03.08	SUB ASSEMBLY LUBE OIL PIPE TO	Returnable Bin	100	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
22	B4K17403	AK.06.07RH	PIPE TC OIL DRAIN	Returnable Bin	100	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
23	B4L16401	G 33.02LH	SUB ASSEMBLY OF THERMOSTAT HO	Returnable Bin	04	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
24	B6E04701	B18-01	DIPSTICK GUIDE AND GAUGE AUB	Gunny bag	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley and moved to kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
25	B7007801	G' RACK	SA OF PIPE OIL SUPPLY-BLOCK TO COMPR	Returnable Bin	200	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
26	B7014502	WASHING AR	SA OF IDLER GEAR SHAFT	Returnable Bin	24	Supplier to GR&D	GR&D to Stores	Pick up in trolley with bin and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
27	B7015004	G ROW	VALVE PUSH ROD -H SERIES	Returnable Bin	300	Supplier to GR&D	GR&D to Stores	Pick up in trolley with bin and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
28	B8728702	I-537,538	S/A ARM, VALVE ROCKER	Pallet	96	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
29	B8781205	I-342,343	SA OF PIPE WATER OUTLET COMP	Returnable Bin	200	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
30	B8781206	E 19. 01	SA OF PIPE WATER INLET TG Case to Comp	Returnable Bin	200	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
31	B8783801	D 01.01,02	SA OF IDLER GEAR-6BT	Pallet	200	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
32	B8784703	AL 06. 02	PISTON COOLING JET BODY -E2/E3	Carton Box	600	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
33	B8791001	W42,42A	OIL PUMP ASSY PCN (H6/H4)	Returnable Bin	10	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
34	B9255801	W 06,6A	SA OF OIL STRAINER SUMP	Returnable Bin	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
35	B9282601	AM.04.07,0	SUB ASSY OF ALTERNATOR BRACKET	Carton Box	6	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting

36	BH200302	AM.03.09.1	SA OF NOx BRACKET	Carton Box	25	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
37	BH200304	AM.04.09.1	SA OF HC DOZER COOLANT IN	Returnable Bin	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
38	BH200305	Y 08	SA OF HC DOZER COOLANT OUT	Returnable Bin	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
39	BH200606	AM.08.08.0	SUB ASSEMBLY SA OF HEAT SHIELD	Carton Box	5	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
40	BH201001	AM.04.06	SUB ASSEMBLY OF FUEL IN PIPE	Returnable Bin	25	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
41	F0101314	I-34,35	Nipple ADAPTOR HOT WATER CIRC	Carton Box	250	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
42	F0130711	I-232,233	Adaptor	Carton Box with Bin	100	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
43	F0132711	INU 48,49	ADAPTOR	Carton Box with Bin	75	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
44	F0245410	AH.04.06	BALL BRG FLYWHEEL H-SERIES-(6203)	Carton Box	245	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
45	F0825510	I-44,45	CLIP Dia18	Carton Box w	2000	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
46	F0954415	I-47,48	PIN STRAIGHT	Carton Box with Bin	2000	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
47	F0954515	D 08.02RH	PIN STRAIGHT-C	Carton Box with Bin	3000	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
48	F0954615	D 15.01LH	PIN STRAIGHT SK10	Carton Box with Bin	1500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
49	F0954715	I-52,53	PIN REAR (DIA 12 DOWEL)	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
50	F0954915	I-54,55	KEY CR-SHAFT -GD	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
51	F0955115	TC 04	KEY	Carton Box with Bin	1500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
52	F0987615	AO.09.10	DOWEL PIN	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
53	F0801115	AM.05.07	Banjo Adaptor	Carton Box	100	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting

54	F0707611	F 19.01.02	ADAPTOR OIL IN TO VACUUM PUM	Carton Box	245	Supplier to GR&D	GR&D to Stores	Pick up in trolley with primary packing and moved to Kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
55	F1200210	I-21	SPACER	Carton Box	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
56	F1761200	B18-02	GASKET O P COVER	Carton Box	300	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
57	F1762100	G RACK BAY	GASKET CYL HEAD COVER 4D	Gunny bag	50	Supplier to GR&D	GR&D to Stores	Pick up in trolley and moved to kit room	Change from stores trolley to kit room trolley	Kit room trolley to kitting
58	F1N00500	I-31	ALTERNATOR	CONPACK	60	Supplier to GR&D	GR&D to Stores	Moved from stores to kit room in pallet	Change from pallet to kit room trolley	Kit room trolley to kitting
59	F2701650	I-41	O Ring 43.7 x 3.5	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
60	F2702050	I-146	O RING HOLDER SEAL 9.8X2.4	Polythene Cover	1000	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
61	F2702150	I-51	O RING-C	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
62	F2702450	I-56&61	O RING-C	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
63	F2702650	I-66	O RING	Polythene Cover	250	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
64	F2702750	I-71	O RING	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
65	F2702850	I-81	O Ring 104.4 x 3.1	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
66	F2749200	AL.03.09	O Ring 81.2 x 3.3	Polythene Cover	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
67	F2501511	AM.05.08	Banjo Bolt 23MM	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
68	F2700711	AM.05.06	BANJO CONNECTION 10mm WITH Q	Carton Box	100	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
69	F3103815	AM.05.09	BANJO BOLT	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
70	F3111915	I-69.70	SCREW PLUG M14X1.5 DIN908	Carton Box with Bin	300	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	
71	F3143815	I-84.85	Banjo Bolt	Carton Box with Bin	500	Supplier to GR&D	GR&D to Stores	Stores to supermarket	Super market to Assembly	

ANALYSIS:

Material Study was done at every movement of material.

MATERIAL STUDY:

Material study was done with at most care on material which was given for studies for the purposes given below

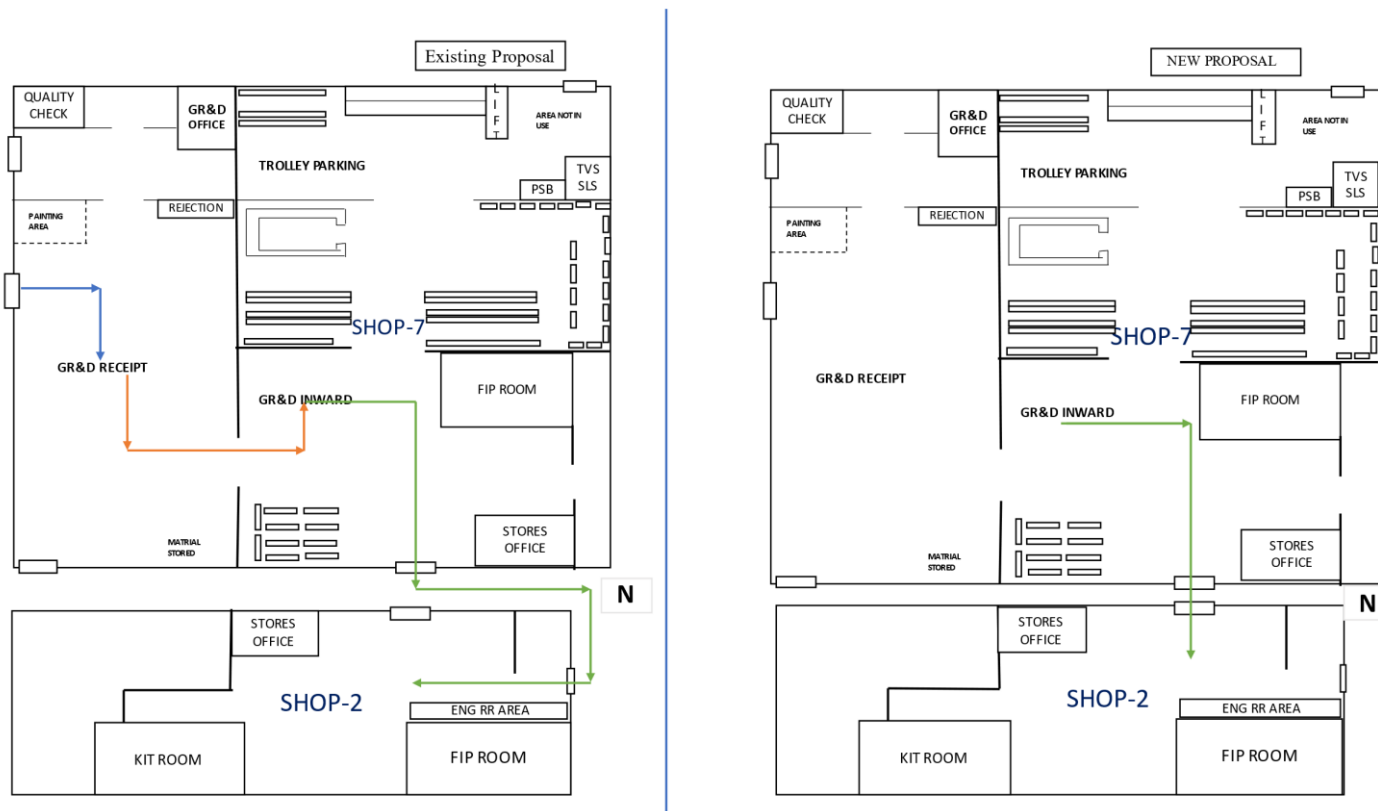
- 1) Elimination multiple handling
- 2) To eliminate cancellation of material
- 3) For proper follow of inventory management
- 4) To enhance the reduction of Lead time
- 5) To ensure proper follow of JIT during manufacturing

INTRODUCTION TO GREEN CHANNEL MOVEMENT:

Green Channel movement is a process of supplying material directly to the production area (JUST-IN-TIME). The process of “**GREEN CHANNEL**” concept of establishment of vendor performance rating and cost reduction in the process of inventory storage. The suppliers who pass the devised guidelines will be tagged as “**GREEN CHANNEL SUPPLIERS**”. The items which are supplied by the GREEN CHANNEL SUPPLIERS will be inspected very rarely. This process reduces the cost of inspection (Quality Check). Vendor Selection and the evaluation supplier is very important function in the process of green channel movement.

Proposal:

REDUCTION OF DISTANCE ON THE MOVEMENT OF KIT-PARTS TO ASSEMBLY LINE FROM STORES:



Result:

The proposal was successfully executed and approval was signed budget was allocated for the proposal by management only after showing the successful demonstration.

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS on Material Movement on Unit Load System:

1. In the existing proposal kit parts are being transported in trolley from Shop 7 to Shop 5 stores with the help of **FORKLIFT** each trip
2. Total no. of trip travelled by Forklift = 30/day
3. Total no. of km travelled by Forklift/trip =1.2km/trip
4. Total no. of km/day = 36km/day
5. Total Cost per day on Forklift =**Rs.2448/day**
6. Total cost per year on FORKLIFT = 7,34,400/-

Findings on Muda Elimination:

- 1) Multiple handling supermarket material
- 2) Multiple change of material in the trolley
- 3) Passing of material through unwanted stage of production

Findings on GREEN CHANNE PROCESS:

1. In the existing plan forklift has to travel about 190M/trip from shop 7 – Shop 2 for the movement of Kit Trolley
2. Total trips travelled by the forklift is 27 trip/day
3. For the movement of forklift we have spent about Rs.348.84/day, i.e.) Rs.1,04,652/annum

5.2 SUGGESTIONS:

UNIT LOAD SYSTEM:

- In the new proposal Kit are being transported in Mini-Tractor(30hp) which can

carry multiple trolley in its trailer from “shop 7 – shop 5”

- By transporting materials in mini-tractor will reduce no. of trips to 10trips/day from 30trips/day
- Total cost per day on forklift = **Rs.408/day**
- Total Cost per year on Tractor = **Rs.1,22,400/-**
- By using Mini-Tractor(30hp), we can **save Rs.6,12000/- per year**

Green Channel Process:

1. In the New plan forklift has to travel only 90M/trip
2. Total trips travelled by the forklift is 27 trip/day
3. For the movement of forklift we have spent about Rs.165.24/day, i.e.)
Rs.49572/annum
4. SAVINGS IS UPTO Rs.55080/annum

5.3 CONCLUSION

Inventories constitute the most significant part of the asset of a large majority of companies in India. On an average inventory are approximately 30% of current asset is private limited companies in India. It is possible for a company to reduce its level of inventories to a considerable degree without any adverse effect on production and sales.

The stores of ASHOK LEYLAND have been done remarkable jobs so far related to material control function but with the changing scenarios the importance of material management has acquired enormous dimensions. Despite of the facts that material management system being followed in the company has strong structure. But suffers from lack of automation and sophisticated techniques in near future due to the expansion and other stringent measures of quality programme like TPM, WCM and ISO the company shall have to adopt latest techniques of inventories control.

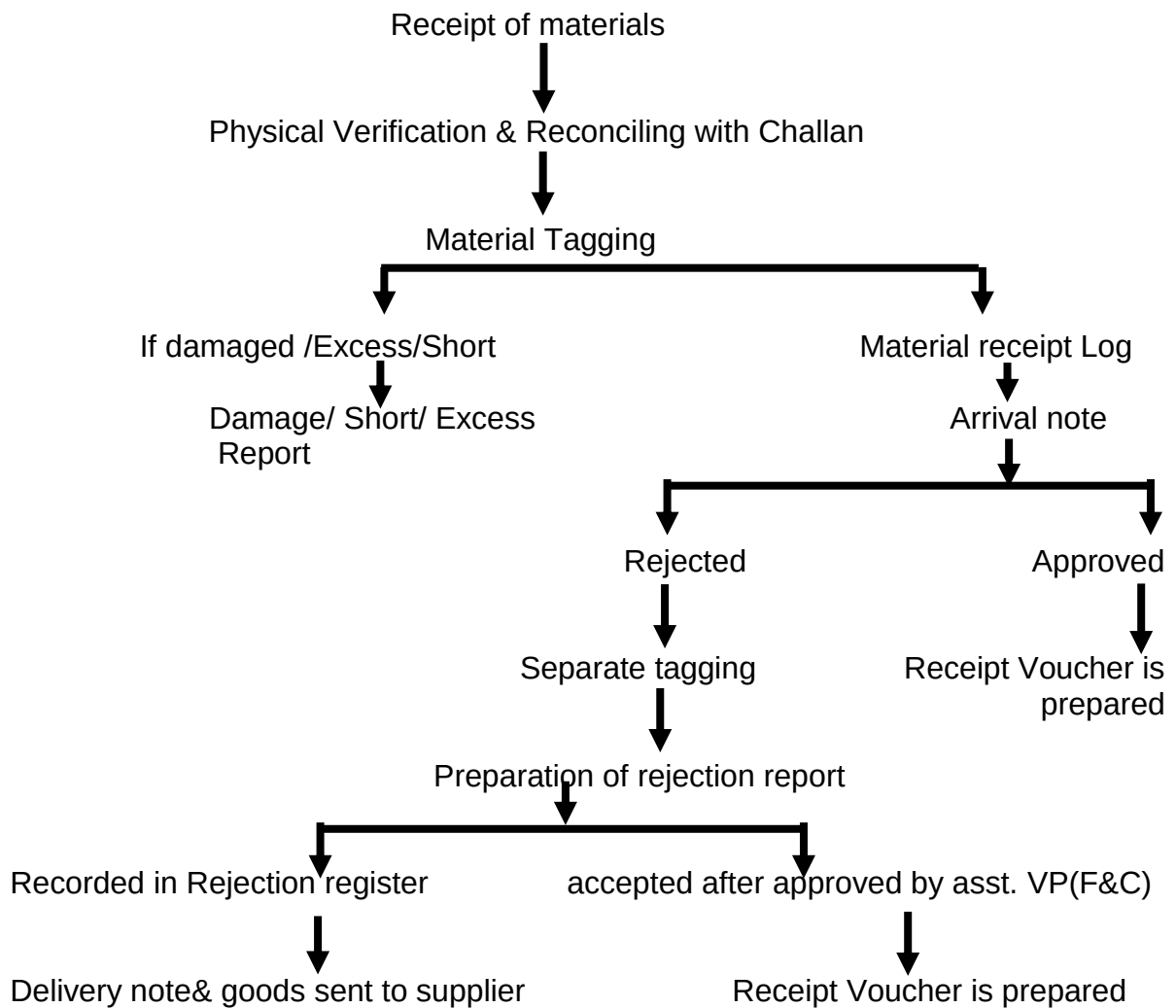
5.3 STORES MANAGEMENT AT ASHOK LEYLAND:

Stores is managed by two senior managers and supported by a deputy manager. It is divided into two sections i.e.,) Running Stores & Expansion Stores

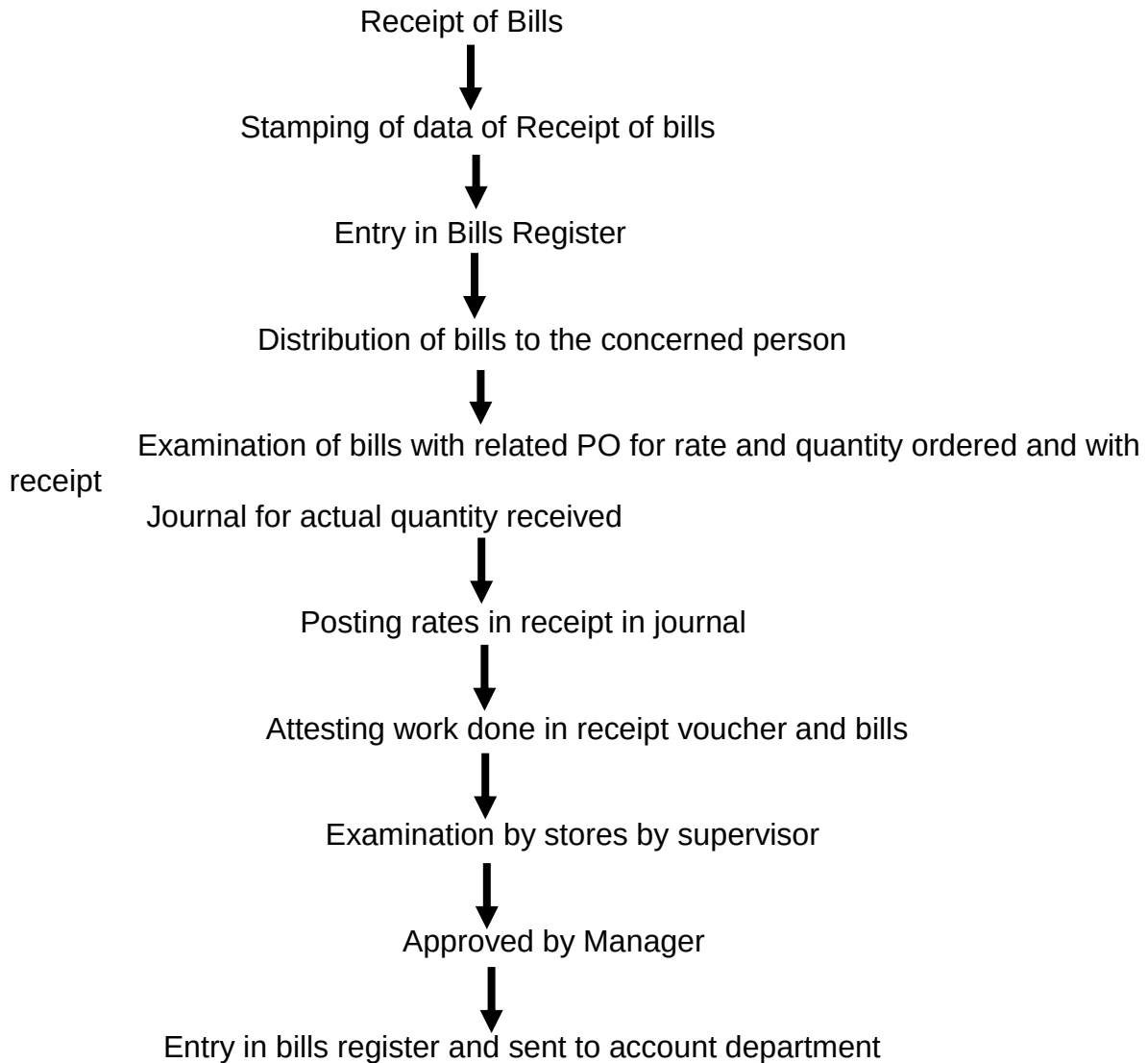
Running Store is further divided into 2 sections:

- 1) Receipt Section
- 2) Billing Section
- 3) Issue Section

RECEIPT SECTION:



BILL SECTION:



Issue of Material:

Receipt of Material

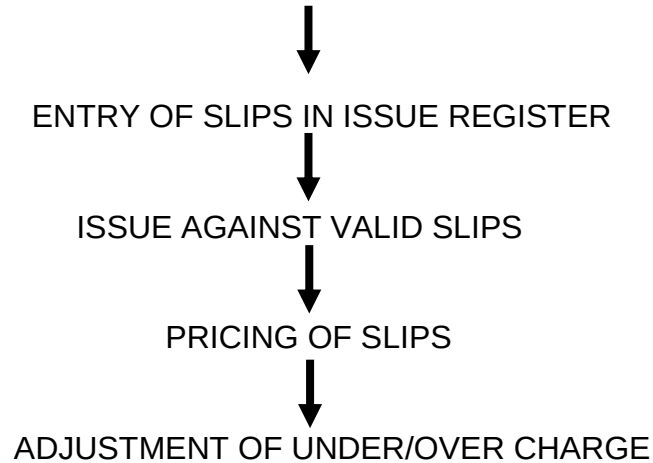
Taking Receipt of material FROM RECEIPT SECTION AS PER RECEIPT VOUCHER



POSTING RECEIPT, STORING OF MATERIALS, SPECIFYING LOCATION ADDRESS IN TAG

ISSUE OF MATERIAL:

COLLECTION OF VARIOUS DEPARTMENT DULY APPROVED BY AUTHORIZED PERSONS



5.4 DUTIES OF GENERAL SECTION:

- ⊗ Checking and posting of issue in consumption register
- ⊗ Preparing consumption statement and sending to finance department on monthly sequence
- ⊗ Sending weekly report to Joint president and to accounts department
- ⊗ Preparing monthly stock statement
- ⊗ Supervision at the time of loading
- ⊗ Supervision during weighing
- ⊗ Supervision during the movement empty pallets from stores

QUALITY POLICY AT ASHOK LEYLAND:

QUALITY POLICY:

ASHOK LEYLAND IS COMMITTED TO PROVIDE WORLD-CLASS PRODUCTS AND SERVICES TO DELIGHT CUSTOMERS BY:

- ✿ ALIGNING ALL ACTIVITIES TOWARDS OUR VISION TO BE A TO 10 GLOBAL CV PLAYER', CREATING RELIABLE AND DIFFERENTIATED PRODUCTS AND SOLUTIONS, WHILE DELIVERING OUTSTANDING STAKEHOLDERS VALUE.
- ✿ PRACTICING 'TOTAL QUALITY IN BUSINESS MANAGEMENT' ACROSS THE ORGANISATION
- ✿ NURTURING A CULTURE OF EXCELLENCE AND INNOVATION

Quality Objectives:

Customer satisfaction:

- ✚ Supply of quality products
- ✚ Minimal Re-work
- ✚ Continuous Improvement
- ✚ Maintenance of cleanliness
- ✚ Reduction of process time in introducing new equipment and Technology
- ✚ Reduction of time in new product development

Chapter 6

6.1 REFERENCE:

<https://www.netsuite.com/portal/resource/articles/inventory-management/abc-inventory-analysis.shtml> - ABC analysis

<https://www.netsuite.com/portal/resource/articles/erp/supply-chain-planning-scp.shtml> - SUPPLY CHAIN Planning

https://www.logisticsmgmt.com/article/breaking_down_the_unit_load

- UNITLOAD SYSTEM

<https://www.mcrcsafety.com/en/industry/automotive/engine-manufacturing> - Industry Profile (Engine Manufacturer)