



FACTORY SHUT-DOWN TIME REDUCTION DURING PHYSICAL INVENTORY

R. Maheswaran¹, T. Balasathuragiri²

¹M.Tech., Computer Science and Engineering, Prist University

²Assistant Professor Faculty of Engineering and Technology
Department Of Computer Science and Engineering, Prist University

ABSTRACT

Physical Inventory is a statutory process in any Manufacturing Industries. The output of the results are subjected to audit/legal compliance. This should have been done minimum twice in a year and must be done end of financial year.

The main prerequisite for this activity is Factory shut down time till completion / approval of concerned Costing and Plant Heads. This shut down helps the team to count the stocks available at their end without any difficulty and confusion which will lead to minimize the impact of major deviation from the Book stock to Physical stock in terms of Quantity and cost which will reflect in Company's Profit and Loss Account.

In our Company we have 10 Plants covering 2, 00,000 materials involving app 6 man power in completing this activity. This takes nearly 6 hours to complete the entire process and release the Factory for regular production.

One of our Customer's audit views on reducing this factory shut down time triggers our mind to approach this problem with open mind.

In this paper, we consider the problem involved due to more shut down time viz not meeting the customers' schedule and less utilization of machines.

After analyzing the goals and challenges inherent in the process both on Human Resources Aspect and Technical aspect, we present a set of techniques sufficient for implementing a simple but

highly reliable and useful tool to achieve our goal.

INDEX WORDS: SAP, ERP, Physical Inventory, Materials.

INTRODUCTION

1.1 PROJECT DESCRIPTION

The project entitled "FACTORY SHUT-DOWN TIME REDUCTION IN PHYSICAL INVENTORY" we demonstrate the following techniques which we adopted for project implementation through SAP.

In the SAP R/3 System, physical inventory can be carried out for Stock at available at Shop floor area:

- Finished Materials – those materials available at Warehouse and ready for dispatch
- Semi Finished Materials – those materials available at Shop Floor area waiting for next process.
- Raw materials – those materials drawn from the raw material stores for processing at shop floor

Stock available at Raw material stores:

- Raw materials – those materials available at Raw Material Stores received from various Vendors' and waiting for transfer to shop floor for processing.

Scope of this project:

Scope of this project is restricted to Stock at available at Shop floor area for the following bottlenecks:

- More factory shut down time leading to production loss

- User fatigues in handling multiple excel files with out any error proofing.
- Multi persons using multi files leading more verification.
- Lot of manual errors.

1.2 COMPANY PROFILE

Wheels India limited was incorporated on 13th June 1960. It is the first manufacturing unit of TVS group. Wheels India limited has its plant at Rampur in Uttar Pradesh, which was started in the year 1963, cutting to the needs of tractor segments in the Northern part.

Wheels India limited manufacturing wide range of wheels, such as commercial vehicle wheels, light commercial vehicle wheels, tractor wheels, centre wheels (for exports) low pressure wheels, Earth moving wheels, wire wheels (for export) thus making a significant

contributing to Indian automobiles and road transport industries. In short wheels India limited caters to 85% of the total requirements of Indian automobiles industries.

Wheels India limited has at present a manufacturing capacity of around ten million wheels per annum. Wheels India is the leading manufacturer of wheels for passenger cars, utility vehicles, trucks, buses, agricultural tractors and construction equipment in India.

Wheels India has developed capability in product and process engineering. That enables innovate solutions in both high volume and niche application segments. Wheel India designs and manufactures wheels to meet specific individual customer’s requirements. It has manufacturing facilities at Padi at Chennai, Pune, Rampur, Bawal, Pantnagar and Sriperumbudur.

MAIN CUSTOMERS		
Domestic Customer		Export Customers
Ashok Leyland Ltd	Bharat Earth Movers Ltd	Caterpillars
Tata Motors Ltd	Hyundai	Player Wheels
Eicher Mitsubishi	Punjab tractors	Komatsu
Maruthi Udyog Ltd	Hindustan Motors Ltd etc	VOLVO
Ford India & Australia	Caterpillars	JCB
Toyota	Komatsu	Kawasaki Heavy Industries
General Motors	JCB	Doosan Heavy Industries
Fiat	Barath Earth Movers Limited	Hyundai Heavy Industries
Tafe	Telecon	BELL Equipment
Escorts Ltd	L&T	Case New Holland
Mahindra & Mahindra Ltd	Escorts	Doosan Infracore

Also exports to Australia, Hungary, UAE, Malaysia, Singapore and South African countries, wire wheels manufacturing in wheels India limited is a 100% export unit catering to the

- Australian
- British
- U.S.A
- European markets

The only disadvantage in exports for Wheels India is the freight, since it is a heavy product. Wheels India has been awarded the engineering exports promotion council award for the export of wire wheel for 3 consecutive years.

LOCATIONS:

The company has strategically located plants that give it a logistical advantage and allows flexibility in manufacturing.



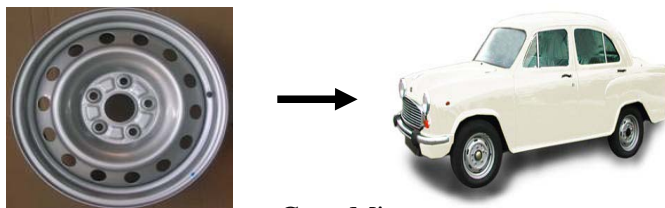
UNIT AND PRODUCT PROFILE

- **CV-Unit:** Commercial vehicles - for Heavy Vehicles



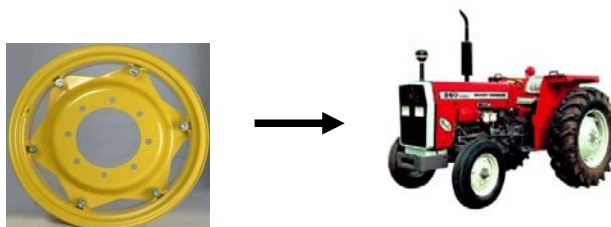
(Trucks, Buses, Light Commercial Vehicles, Trailers, Tippers etc.)

- **LP-Unit:** Low Pressure - for Light Vehicles



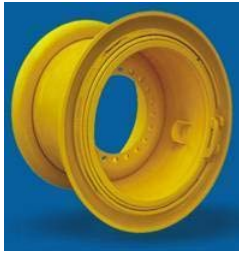
(Passenger Cars, Mini Vans, etc.)

- **TR-Unit:** Tractor - for Agricultural Applications



(Tractors, Farm Equipments etc.)

- **EM-Unit:** Earth Mover - for Off-Road Construction Equipments.



- **WW-Unit:** Wire Wheels - for Light Vehicles



(Classic Cars)



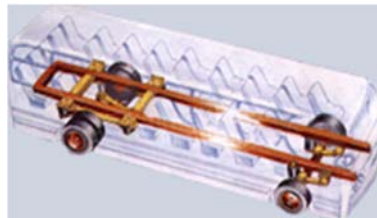
- **FAW-Unit:** Forged Aluminum Wheel



- **Defense:** Defense Wheel



- **AS-Unit:** Air Suspension.



- **SHL:** Hydraulics Cylinder



1.3 CONCLUSION

This project “FACTORY SHUT-DOWN TIME REDUCTION IN PHYSICAL INVENTORY” which has been launched successfully and further tested in a real inventory system provided us not only great confidence but also the following

- Team Building effort: - we have better understanding amongst our users/Managers which brought us better clarity and avoided unnecessary confusions in the Planning and Implementation phase.
- Time: - We have achieved our target of time saving as fixed to a great extent
- Cost: - Every effort take should be beneficial to Company. Here we have made considerable Cost Saving in terms of Opportunity Cost.
- Knowledge: - Though at the start of the project we presumed we had knowledge, while understanding the requirement and real time scenario, we are forced to refer materials and meet experts in our Company. This provided us Huge Asset in terms of knowledge.

1.4 FUTURE ENHANCEMENT

After obtaining feed back from our internal customers, as an enhancement, we decided to extend this facility to Raw materials where we have more challenges as defined below:

- Raw materials are procured in terms of Metric Tons with alternate units with Quantity.

- Raw materials subjected to various cuttings at different subcontractor’s end
- Apart from raw materials, bought out items are also to be included.
- In bought out items we need to differentiate which are going along with the product eg, bolts, nuts, washers.
- In bought out materials available in shop floor only need to be subjected to Inventory.
- Here users are in different segment and training/getting their requirement is separate

However, since the Inventory Project done for Semi finished/Finished materials executed successfully, we have further enhanced idea to extend this features for Raw materials inventory also.

We have also analyzed TGW (Things Gone Wrong) and minuted these points so as to avoid this in our next project.

1.5 REFERENCES

1. Bosler G. E.(1986) “Physical inventory verification”
2. Chandra Bose D (2006) “Inventory Management”
3. Gopalakrishnan P (2002) “Handbook of Materials Management”
4. Rudolf Avenhaus (1977) “Material accountability, theory, verification and application”
5. Neuschel F (1946) “How to take physical inventory”