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DISPOSITION OF DEFECTIVE MATERIALS BY IMPLEMENTING VARIOUS JAPANESE TECHNIQUES

Sonal Darekar[1], Vikram Chillal[2], Bhaktipriya Kale[3], Anuja Auchare[4]

[1] *B.E (Mechannical), Department Of Mechanical Engineering, NBN Sinhgad School Of Engineering, Pune, India.*

[2]*B.E (Mechannical), Department Of Mechanical Engineering, NBN Sinhgad School Of Engineering, Pune, India.*

[3]*B.E (Mechannical), Department Of Mechanical Engineering, NBN Sinhgad School Of Engineering, Pune, India.*

[4]*B.E (Mechannical), Department Of Mechanical Engineering, NBN Sinhgad School Of Engineering, Pune, India.*

Abstract - *Today in these rapid growing world, the Industrial sector is developing vastly. Various issues may occur due to many valid reasons. But in case if due to improper handling and no tag on the defective material; then there are more chances of affecting the quality and customer dissatisfaction.*

Non Confirming Material is a term which means segregation of defective materials according to various issues. A proper decision making is done and then the material's disposition is done. Decision is taken on daily basis and a DFR i.e Defect Feedback Report is completed daily to keep the record in the system.

In our project we are going to implement various techniques like 5s, Kaizen, JIT etc for proper segregation and disposition. We are going to design a layout for defective materials. This implementation of NCM will help the production line to disposed the material properly.

Key Words: **NCM (NON CONFORMING MATERIAL), Kaizen, JIT (Just In Time), 5s, DFR (Defective Feedback Report), BIS (before In Service).**

1.INTRODUCTION:

During adherence of production line of cylinder head and cylinder block we came to know about various quality issues, which are as follows:

- Supplier issues.
- Blow hole in various parts.
- Rust issues.
- Excess/Less materials.
- Crack, Scratch on material.
- Notch missing on connecting rod.
- Bar code issue.
- Component number missing or wrong.
- Ergonomic issues.
- Thread missing.
- Fitment issue.
- Sand inclusion in various part.
- Machining surface uneven.

All those mentioned issues further affects the quality and may lead to increase the B.I.S issue, also sometimes if these defective head and block are further moved ahead to customer i.e. here in this case the customer of production is assembly area; if these defective material is moved to assembly then there are lots of chances of breakdown, failure, customer dissatisfaction also it can tend to affect the reputation of company which is a severe problems.

1.1 Objective :

The main aim of our project is disposition of defective materials properly and segregate them according to their issues. This will reduce the quality problems and also the customer dissatisfaction. We have introduced the NCM to overcome on the issues.

1.2 Non Confirming Materials:

- The basic definition of NCM is that, "any part or product which has been identified as not confirming to any product or process specification. This will be identified through pre determined location, tags, stickers or bin as required."
- In quality management, nonconformity is a deviation from a specification, a standard, or an expectation. Nonconformities are classified as critical, major, or minor.
- In software engineering, ISO/IEC 9126 distinguishes between a defect and a nonconformity; a defect is the non fulfillment

of intended usage requirements, whereas a nonconformity is the non fulfillment of a requirement. A similar distinction is made between validation and verification.

- The NCM is further classified in three parameters of segregation, they are as follows:
    1. Rework
    2. Scrap
    3. RTV (Return to Vendor)

1.2.1 Description:

1. **Rework:** Action taken on non confirming product so that it will meet the specified requirements. Basically it is the work done to correct the defects found associated with a deliverable product plus any root cause analysis, effort to identify the task to be re-performed.
2. **Scrap:** The material which is of no further use is categorized under scrap. It is identified as an detached material from the flow of production due to various un solved issues or those issues which can't be reworked or rectified.
3. **RTV:** RTV means Return to Vendor. The material which is supposed to revert to the vendor due to their issue. In this case the material found defective and the issue is due to the supplier itself then the action of reverting the material to the vendor is executed and for these process there is a online system transaction through which the number of materials are booked and return back to vendor.

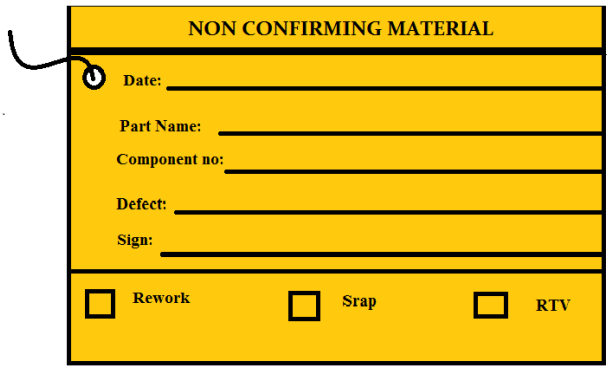

Image1:-Tag of Non Conforming Material

2. WORK INSTRUCTION (STEPS)

The material which is found defective on production line then it is term as non conforming material then the identification of issue tag is tie on the material and the material is shifted to NCM area.

- Jointly review with MIW, Quality and purchasing a decision is taken on the defected parts and the execution of decision is carried. A quality point leader is supposed to look after whether the segregation is carried properly or not. All these information of the defective part is stored in a system.
- Identification will be given for NCM part. A proper tagging is done which makes the operator or the employee easy to identify the NCM parts. The tag includes part name, part number, quantity, defect found, and decision to get implemented and signature of the quality point leader.

  Following are the steps to be followed for NCM process:

  1. Reject and scrap part will be painted with red & RTV or Scrap is written on NCM tag. Following are the area where the tag is tied:

  i) In case of cylinder block on front and rear side of block the tag is tied.

  ii) On air intake for head.

RTV or scrap part will be move to RTV or scrap area.

1 Rework will be written on tag for rework component.

  i) After rework quality person will give decision either the part is ok or not

2 Ok will be written and sign by quality person on ok part NCM tag. Ok component will be moved to MIW.

Before	After
NCM area was not there for defective materials.	NCM area was designed.
No proper segregation of defective materials.	Proper segregation of defective material.
No tagging.	Tagging is there.
No color coding.	Color coding is used.
Daily meeting was not carried on defective materials.	Daily meeting is carried.
Online System transaction is not there.	Online System transaction is used.
Daily meeting was not carried on defective materials.	Daily meeting is carried.
No proper segregation of defective materials.	NCM area was designed.

3. EXECUTION OF JAPANESE TECNIQUES IN NCM

Now a days the Japanese techniques are implemented in various industries to make the process more effective. We studied various techniques like 5 ‘s’ , Poka yoke, Kaizen ,Just In Time, Jidoka and one western technique Six Sigma too. After proper study and comparison of all the techniques on basis of various parameters we decided to execute these three mentioned techniques:

- 5 ‘s’
- Kaizen
- Just In Time

We found it beneficial after executing these techniques. This helped the process become more effective, easier as well as full proof.

4. CONCLUSIONS

After executing the NCM, the process became easy and effective too. Proper disposition of material is done with less usage of time. Less number of workers are needed to carry the process. As the online system transaction is used in NCM , the Return to Vendor issue is carried in least time. Also as we studied and executed the Japanese technique. This made the process full proof. Due to this execution the NCM area is neat and clean.

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