

To Study Fault Finding Methods at Esston Technology Private Limited

Mr. Satish Bagal¹, Mr. Harshad Memane²

1 (Asst Professor, Department of Management, Zeal College of Engineering & Research, Narhe, Pune).

2 (PG, Student, Department of management, Zeal College of Engineering & Research, Narhe, Pune.)

ABSTRACT

Testing after assembly of every product is essential task, which reduces customer complaints. During testing faults are noted and those are rectified before final packing. In this we have undergone through various fault finding techniques used for electrical equipments specially manufactured for motors those are used for lifting water from wells and underground tanks. This study reveals fault finding techniques and suggests remedies to minimize the malfunctioning in equipments prior to packing. It also deals with dealer and customer expectation about quality of product.

Key words: -Testing, Fault finding,

Introduction

In manufacturing industry, the quality of product is the important thing. The whole business is depending on quality of product, so that, it has to be perfect. The lesser numbers of faults during testing helps in improve the quality and life of product.

Fault: Mistakes or Errors which may occur in product while manufacturing, where the device faces problem while performing the operations.

Fault Finding: The mistakes or errors if occurred in product during assembly; then how they have occurred, finding the reasons behind them. Also, we can say that it is the investigation of the cause of malfunction in devices i.e. the disturbance in operation in machine, especially electronic equipment.

Purpose of Study

- To understand fault finding techniques in electrical equipments.
- To study nature of faults observed in electrical equipments.
- Interpretation of facts through data analysis.
- To analyze prominent fault observed during inspection.

- To suggest techniques to minimize fault during manufacturing.

RESEARCH METHODOLOGY

This research is based on primary data. The research methodology adopted for this study is based on analytical research.

Primary data: - For collection of primary data 928 units were taken for testing the quality and performance of the equipments. 5 different variants of products were tested. Using Digital MultiMeter, clamp meter, Screwdriver set, 1.5HP motor, Mobile & LED Light Box for checking the tracks of PCB the process of testing is carried out. After testing, 206 units were found faulty. Commonly faults were found in Soldering, Assembly, Connection tightness, insulation & wrong component. So, Data is generated among these faults noticed.

Research design: - **Analytical Research** is used for this study.

Analytical Research is use facts or information which is already available and analyzes this to make a critical evaluation of product. Analytical Research is based on Interpretation of supervisor while testing the equipments.

DATA ANALYSIS

The products were given for testing and after testing , the General Inspection Report of testing is as follows;

Name of products	No. of units manufactured	No. of units defective found
1. Mobile Auto Switch	77	21
2. Dry Run auto Switch	84	27
3. Water level controller	37	5
4. Single phase fully automatic starter	300	72
5. Three phase automatic starter	430	81
Total	928	206

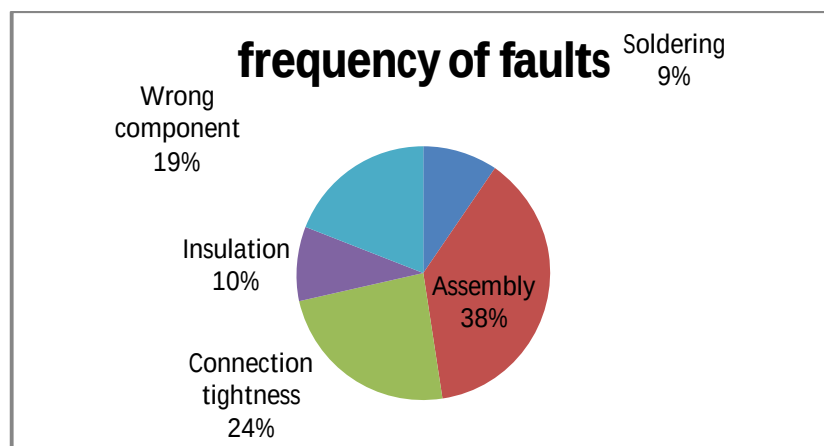
Here all variants of products are tested by various techniques.

Total 928 products are checked and out of these 206 are found faulty.

Following results shows frequency in each variant of defective product.

Mobile Auto Switch:

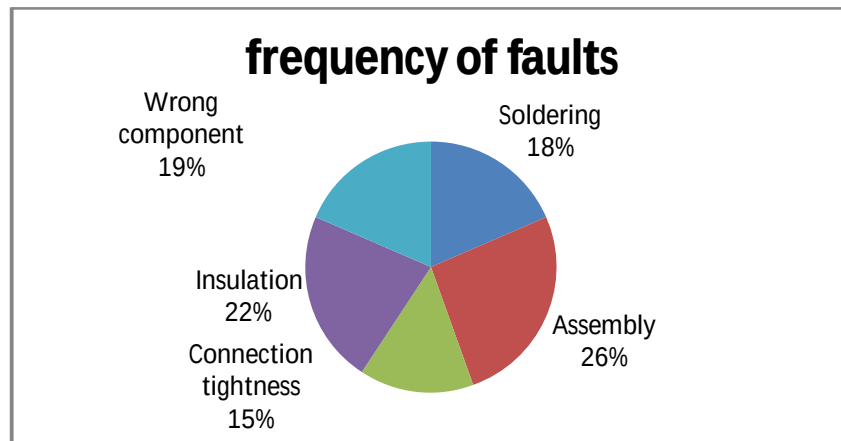
Nature of fault	Frequency
Assembly	8
Connection tightness	5
Wrong component	4
Insulation	2
Soldering	2

**Interpretation;**

From above pie chart it is observed that for the Mobile Auto switch, 38% of fault observed in the assembly of the product. While 09% of fault observed in the Soldering of the product with that 10% in the Insulation of the product. 24% of faults are observed in connection tightness so, that also be taken into consideration.

Dry Run auto switch:

Nature of fault	frequency
Assembly	7
Insulation	6
Soldering	5
Wrong component	5
Connection tightness	4

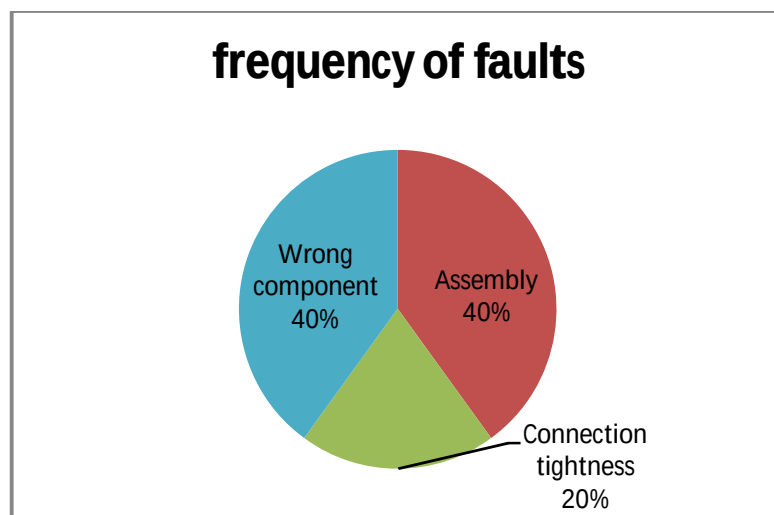


Interpretation;

From above pie chart it is observed that for the Dry Run Auto switch, 26% of fault observed in the assembly of the product. While 15% of fault observed in the connection tightness of the product which is nearly to 15% of connection tightness & 19% of wrong component taken.

Water Level controller

Nature of fault	frequency
Wrong component	2
Assembly	2
Connection tightness	1
Insulation	0
Soldering	0

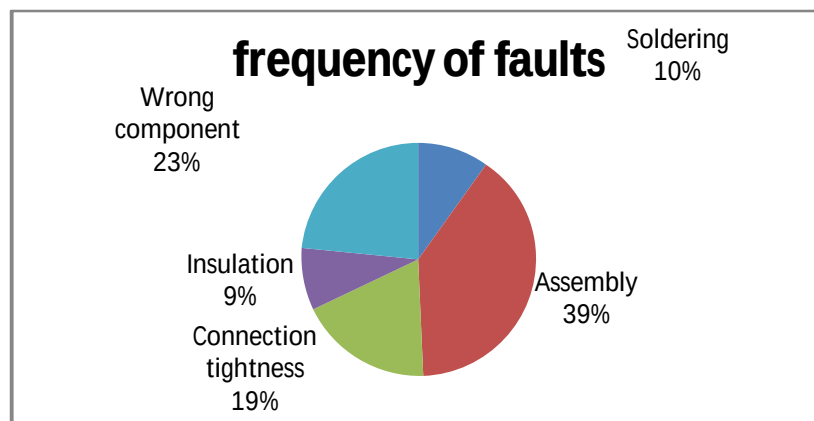


Interpretation;

From above pie chart it is observed that for the Water Level Controller, 40% of fault observed in the assembly as well as Wrong components of the product. While No fault is observed in the connection of Soldering & Insulation of the product. No change required in working methods of Insulation & Soldering as there is 0% fault.

Three phase starter

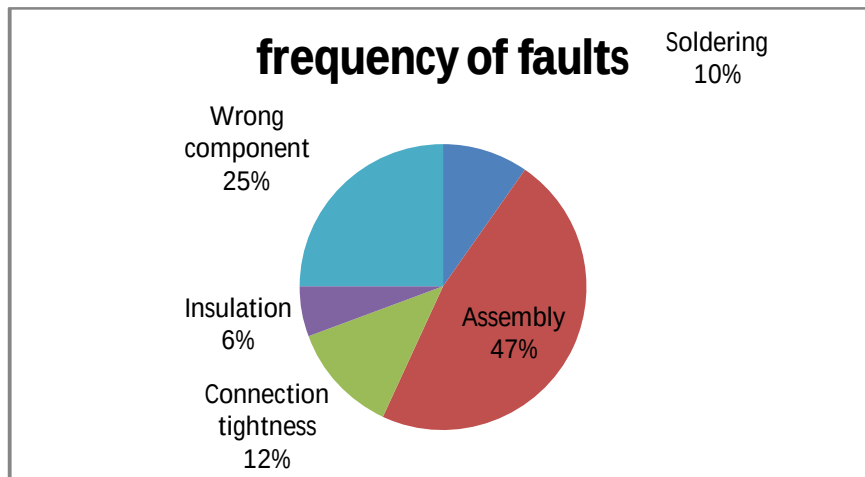
Nature of fault	frequency
Assembly	32
Wrong component	19
Connection tightness	15
Soldering	8
Insulation	7

**Interpretation;**

From above pie chart it is observed that for the Three Phase automatic starter, 39% of fault observed in the assembly of the product which is actually high. While 09% of fault observed in the Insulation of the product equal to that 10% of fault observed in the Soldering of the product.

Single phase starter

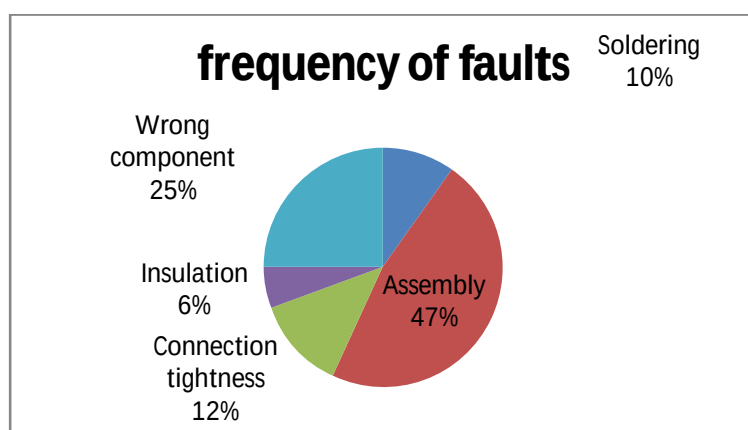
Nature of fault	Frequency
Assembly	34
Wrong component	18
Connection tightness	9
soldering	7
Insulation	4

**Interpretation;**

From above pie chart it is observed that for the Single Phase automatic starter, 47% of fault observed in the assembly of the product. While 06% of fault observed in the Insulation of the product. Also, 10% of fault observed in Soldering & 12% of fault observed in Connection tightness of the product which are less.

As per faults following table shows the frequency for all variants of products;

Nature of fault	Frequency
Soldering	22
Assembly	83
Connection tightness	34
Insulation	19
Wrong component	48
Total	206



Interpretation:

Here from above pie chart , 47% of assembly & 25% of wrong components taken while manufacturing are major type of faults observed in company while manufacturing the product. And 6% Insulation, 10% soldering & 12% connection tightness are quietly less observed in company.

FINDINGS: -

- It is observed that manufacturing defects are more in Dry Run auto switch.
- It is observed that while manufacturing assembly issues are more than the other faults.
- When assembly is going, the components which are taken for every product for connection, the selection of components are not properly.
- In water level controller less faults has been observed.

➤ CONCLUSION:-

To be there in market quality of product should be excellent. Quality of product is decided by quality of components and workmanship. Here we state that components which we have tested are supplied by Esston Technology Private Limited. This company is not manufacturing any component but they are using all component provided by supplier and uses them to assemble the electrical equipments. Hence quality check should be there prior to installation. The workmanship of assembly is to be always monitored by experienced supervisor. So that quality of manufactured equipments will be excellent. If quality of component and workmanship is excellent the no faults will be observed and rework is avoided.

SUGGESTION:-

Soldering:

The material which are using is to be proper i.e. the soldering metal is good. The wax should used for the soldering. The gun which are using the temperature of that should be properly maintained.

Assembly:

No. of components using are should be proper in design. The lugs, screws, nuts, bolts & cable ties are should in proper number. As per size & weight of the components the assembly should be designed.

Connection tightness:

Use proper tools for assembly & fitting of the components. Use OfRachet Set in proper required pressure is to be there, There should noexcees force applied while tightening the connections. Appropriate length of cables are to be used.

Insulation:

The stripping of cables while connection & joints of cables should be in appropriate length. Use of lugs should be there. Proper joints of cables should be there.

REFERENCE:-

- www.esston.in
- www.google.com
- Manufacturing And Technology Management, Prof. L.C. Jhamb, Everest publishing House.
- Electrical Workshop, Prof R. P. Singh, I.K. International Publishing House.
- Operations & Supply Chain Management, Thakkur Publications.