Evaluation of the Effectiveness of Personal Protective Equipment During an Aircraft Maintenance

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Abstract: - Keeping the safety and health of the Aircraft Maintenance Technicians should be the top priority of the company or organization. By providing personal protective equipment, the risk of an Aircraft Mechanic getting injured or acquiring work-related health issues can be reduced.

Key Words: — ***Maintenance and Repair Organization, Safety Management System, Aircraft Maintenance Technician, Personal Protective Equipment.***

I. INTRODUCTION

Maintenance Repair and Overhaul (MRO) is the major business related in Aviation in the Philippines. It has the most important role in keeping its safety and health at the highest level at all times during its operation. Commercial Aviation and Approved Training Organization (ATO) are the other 2 businesses which completes the Aviation Industry in the Philippines. The MRO company should provide proper PPEs to the Aircraft Maintenance Technicians to maintain their safety and health. The improvement of an effective PPEs for the use of maintenance is fundamental in guaranteeing high level of safety and health of the aircraft maintenance technicians. Aviation industry is the top regulated industry internationally quality of work must be at high level at all times, there are no room for error in aviation industry one wrong move can cause the company a hundred of lives and a hundred or even millions of dollars. According to Katz, Friedman, Eisenstein, Johnson, Bareck & Bertuca, PC (April 4,2015) Maintaining aircraft involves a complex group of skills including diagnosing, cleaning, restoring, testing and replacing equipment. These tasks expose workers to all of the following dangers:

- Inhalation of carbon monoxide and other dangerous fumes
- Repetitive stress from handling heavy tools
- Vibration injuries and other ergonomic issues
- Toxic spills and skin irritation
- Hearing loss from aircraft noise
- Kidney disease from chemical exposure

The research aims to evaluate and improve the effectiveness of PPE during an aircraft maintenance to minimize the health and safety hazards that AMTs have to endure every time they get to work.

II. OBJECTIVES OF THE STUDY

2.1 General Objective

The study aims to evaluate the effectiveness of PPEs being used at Maintenance Repair and Overhaul in Clark, Pampanga.

2.2 Specific Objectives

Specifically, the research aims to:

- To improve the existing PPEs being used by the Aircraft Maintenance Technicians.
- To evaluate the effectiveness of the PPEs being used by the Aircraft Maintenance Technicians.

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III. Research Methodology

It will be shown in this chapter the research design, participants, sampling technique, instrument, data collection and data analysis which will be used in this study.

3.1 Research Design

Qualitative design will be utilized to identify the effectiveness of using PPEs being used by Aircraft Mechanics while working on aircrafts. The participants will share their experiences and knowledge on how effective are the PPEs being used and how to improve the effectiveness of the said PPEs.

3.2 Participants

Participants in this study will be the Aircraft Maintenance Technicians, Avionics Technicians, and Maintenance Engineers in an MRO company located at Clark, Pampanga. A request letter will be given to the Manager, Supervisor and Maintenance Team Leader to ask for their permission to conduct this study and to have a dialogue among the participants.

3.3 Instruments

Data will be collected through the use of close-ended questionnaire sent via online using google forms. Hard copies questionnaire will also be provided, if the company will allow face to face survey. Focus group discussion will also be utilized to achieve the desired viewpoints of the selected Aircraft Mechanics. Focus group discussion can be done via zoom or other online video conferences. The research will stick on the specific questions to determine the perspective of Aircraft Maintenance Technicians about the effectiveness of PPEs being used.

3.4 Data Collection

If the company will approve the request letter, the questionnaires will be distributed to the participants. Taking into consideration of their busy schedule, the researcher will collect the questionnaire after three days to give enough time to the participants to answer the questionnaire

3.5 Ethical Consideration

Proper consent by the management and participants of the study will be sought by the researcher. The researcher will provide consent form which will show the purpose and nature of the study. The data gathered will be kept in strict confidentiality. The researcher will ensure that the data collected are secured to promote trust between the researcher and the participants.

IV. Analysis

Based on the data gathered and interviews conducted, we were able to identify the main issues that needs to be addressed to improve the effectiveness of the PPEs being used during and aircraft maintenance. Identifying these issues can aid in the improvement of the current system used by organizations.

4.1 Training

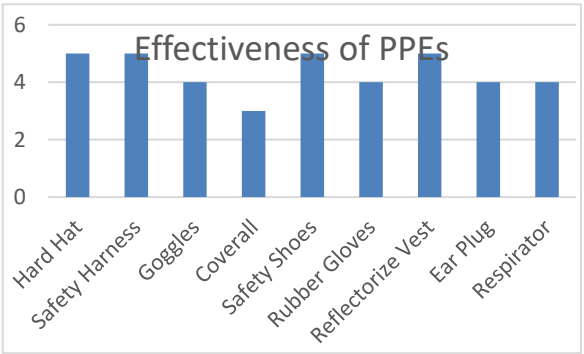
The lack of training or refresher program on how to properly use or wear the PPEs being used. They lacked training because they refused to accept the offered training's due to the company's high demands and conditions, which include the requirement that they work for the company for 2-3 years and that if they want to resign and expand their working experience to other companies, they must pay for the training that they attended that was provided by the operator.

4.2 Resources

The availability of PPEs on the workplace, this is to prevent aircraft maintenance technicians of improvising PPEs. It should be the employer is responsible for paying for all PPE, and correct clothing (purpose and size) must be supplied to all employees. Replacement protective equipment must be readily available, and the employer is legally obliged to provide all training with regards to the proper use and maintenance of PPEs.

4.3 Supervision

Inspection of the PPEs if it is suitable to use. Because it is time consuming, most of the time safety officer disregarding this procedure. They are confident that their PPEs are always safe and into the standard and because of the workload, inspection of the PPEs will be set aside.



Based on the figure provided above, the PPEs that are frequently being used by the aircraft maintenance technicians during their tasks obtain the highest rating of 5. Although for the Coverall, it has received the average rating of 3. Based on the data obtained in the survey, our current weather affects the effectiveness of the said protective equipment.

Aircraft maintenance technicians sometimes leave the zipper in the upper portion open for the air to enter thus, it is lessening the effectiveness of the coverall. Nevertheless, coverall is not always required on the tasks given to the aircraft maintenance technicians. What is important are the PPEs being used frequently gained the highest rating of effectiveness.

V. CONCLUSION

The three major concerns must be improved to improve the effectiveness of the PPEs during an aircraft maintenance in MROs in Clark. The personnel education and training, resources of the organization, and the supervision of the officer. Safety is the highest priority of all involved in aviation. It is important to remember that the correct use of PPE is highly dependent on the particular work environment involved, as well as the person wearing it. There is no "one size fits all" approach, and time and care must be taken to ensure that each item if fully compliant with the relevant sections of the Occupational Health and Safety Act. PPEs should be safely designed and constructed, and should be maintained in a clean and reliable fashion by the company or organization. Strictly executing the SMS that has been implemented, and making sure that it is being followed to improve the effectiveness of the PPEs.

An aviation safety officer also can improve the effectiveness of the PPEs by regularly checking the personal protective equipment available. The responsibility of the safety officer is to ensure that all PPEs being used on a certain task is being worn correctly. Aviation safety officer does not only oversee the PPEs being used, it is also responsible to ensure that the workplace is environmentally safe and compliant to the environmental rules and regulations set by the government.

The organization must also ensure that the PPEs that are being used regularly and the PPEs that are re-usable are always on top condition for example is the safety harness which is used when an aircraft maintenance technician is working at a minimum height of 4 feet. MRO companies must provide trainings, seminars or refresher courses regarding on personal protective equipment to make sure that every aircraft maintenance technician have enough knowledge on how to use or wear the personal protective equipment.

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