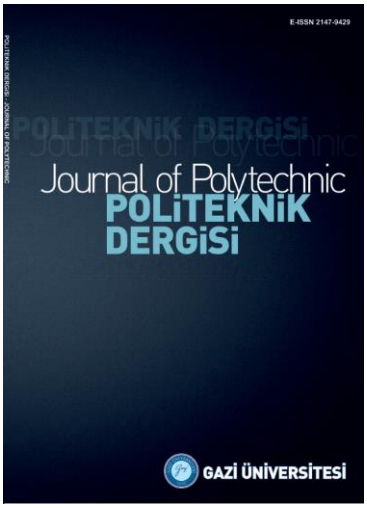

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The impact of aircraft's chassis maintenance on the health of mechanics

Uçak gövde bakımının teknisyenlerin sağlığı üzerindeki etkileri

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The Impact of Aircraft's Chassis Maintenance on The Health of Mechanics

Highlights

- *Impact of aircraft chassis maintenance in mechanics health.*
- *positive and negative impact on mechanics.*
- *Aircraft maintenance safety.*
- *This study will thus result ultimately in the safety of aircraft mechanics and the methods that have to be followed in order to do so.*
- *The overall study is a summarized overview of the data collected from the company Roder Component Service Center s.r.o Airport Košice Slovak Republik.*

Graphical Abstract

Point out the relation between various factors and mechanics in aircraft chassis maintenance parts. On the basis of a questionnaire aimed at the company's employees, that the company's priority is to follow safety instructions when maintaining aircraft landing gear and especially individual parts such as brakes and others.

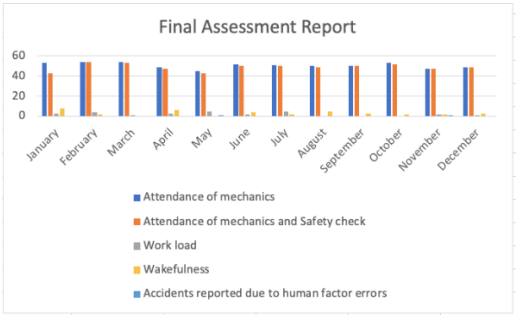

Figure. The final evaluation report

Aim

This study concerns with the impact of maintenance workers in an aircraft chassis maintenance. The main aim of the study is to find out whether it has a positive or negative impact on mechanics.

Design & Methodology

The methods and materials used in this study are to project the results of the mechanic's point of view and the data-driven from a basic questionnaire took among the workers of the company named Roder Component Service Center s.r.o Airport Kosice Slovak Republik.

Originality

The paper summarizes research performed in the aircraft production and repair industries around the globe and pointing out some important case studies and describing briefly the impacts, pros and cons, and the measures taken to make a change in the existing scenario.

Findings

We can state the rate of wakefulness and workload has reduced as fact that the employer considered the facts and grievances of the mechanics. Regular safety checking was initiated from the beginning of the year and that was monitored accordingly. As a result, the rate of accidents was acute, and the performances and morale of the workers stayed legit.

Conclusion

Point out the relation between various factors and mechanics in aircraft chassis maintenance parts. On the basis of a questionnaire aimed at the company's employees, that the company's priority is to follow safety instructions when maintaining aircraft landing gear and especially individual parts such as brakes and others.

Declaration of Ethical Standards

The author(s) of this article declare that the materials and methods used in this study do not require ethical committee permission and/or legal-special permission.

The Impact of Aircraft's Chassis Maintenance on The Health of Mechanics

Araştırma Makalesi / Research Article

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ABSTRACT

Aircraft maintenance has always been a significantly important area as it ultimately deals with the safety of all passengers and cargo traveling in the aircraft. Aircraft mechanics that handle such operations have always been in danger concerning their safety. This study concerns with the impact of maintenance workers in an aircraft chassis maintenance. The main aim of the study is to find out whether it has a positive or negative impact on mechanics. This paper summarizes the literature outline and evidence of the relationship between certain exposures important to the maintenance of the aircraft's chassis on the health of mechanics and the causes of this. This part of the studies consisted of relevant chemical components, individual company health danger reports, and limited case study notes documenting symptoms of exposure intoxication, which may have been a result of the database and search form that was used. This study will thus result ultimately in the safety of aircraft mechanics and the methods that have to be followed in order to do so. The overall study is a summarized overview of the data collected from the company Roder Component Service Center s.r.o Airport Košice Slovak Republik.

Keywords: Aircraft maintenance, technical procedures, mechanic health.

Uçak Gövde Bakımının Teknisyenlerin Sağlığı Üzerindeki Etkileri

ÖZ

Uçak bakımı, uçakta seyahat eden tüm yolcuların ve kargoların güvenliğini ilgilendirdiğinden, büyük bir öneme sahip olmuştur. Bu tür operasyonları gerçekleştiren teknisyenlerin güvenlikleri her zaman tehlikede olmaktadir. Bu çalışma, uçak gövde bakım çalışanları ile ilgilidir. Çalışmanın temel amacı, teknisyen üzerinde olumlu veya olumsuz bir etkisinin olup olmadığını ortaya çıkarmaktır. Bu makale, uçak gövde bakımı için önemli olan teknisyenlerin sağlığı üzerindeki belirli maruziyetler ve nedenleri arasındaki ilişkinin literatür taslağını ve kanıtını özetlemektedir. Çalışmaların bir bölümü, kullanılan veri tabanı ve arama formunun bir sonucu olabilecek ilgili kimyasal bileşenler, bireysel şirket sağlık tehlike raporları ve maruziyet zehirlenmesi semptomlarını belgeleyen sınırlı vaka çalışması notlarından oluşmaktadir. Bu çalışma uçak mekaniğinin güvenliği ve bunun için izlenmesi gereken yöntemler ile sonuçlanacaktır.Bu çalışmada, "Roder Component Service Center S.R.O Airport Košice Slovak Republik" şirketinden toplanan veriler kullanilmiştir.

Anahtar Kelimeler:Uçak bakımı, teknik prosedürler, mekanik sağlık.

1. INTRODUCTION

The aircraft maintenance staff is the most important component of the aircraft renovation process. The fundamental part of the maintenance specialists is to classify and pass judgment on basic issues that can compromise the airworthiness of the airplane, and whenever discovered basic perform suitable upkeep so that the aircraft will be able to keep flying. Understanding how the human body and mind work, as well as how performance barriers can affect a technician's ability to paint, is critical. Several elements can affect a protection of technician's performance. In this paper, the influences of stress on the high-quality of the work achieved by way of an aircraft upkeep staff are investigated. Some mechanical-related accidents are examined alongside the desired criteria in aviation maintenance legislation, whether this element is casual or contributory. Thus, the role of human factors in aircraft renovation has been attempted to be emphasized. It is anticipated that these human factors research and injuries will result in more research paintings on aviation safety. The aircraft protection technician is the most critical aspect of an aircraft's repair framework [1] [2]. The bodily and intellectual characteristics of a person's vision, hearing, statistics processing, attention and cognition, memory, judgment, and decision making are among the bodily and

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intellectual human overall performance characteristics that can influence the exceptional of his work. Time pressure, stress, responsibility, weakness, interruption, pomposity, absence of discussion and focus, and so on. May affect a technician's overall performance.

The scope of human variables is to include the order's relationship to other science and engineering disciplines. [2]. Human factors are well known to play a role in aircraft maintenance accidents, and they may be causal factors. According to Gammopathy and Drury, conventional research and interventions in the area of human factors have focused on the errors of flight crews and air traffic controllers, but an increase in repair and inspection errors has prompted more human factors study and intervention[3][4]. The word "human factors" is only recently being used in the context of aircraft maintenance operations. Accidents as Aloha Airlines Flight 243 in 1988 and the BAC 1-11 windscreen mishap in June 1990 highlighted the need for human factors improvements in this area [5]. This is not to suggest that human factors or human error were not present prior to these dates did not trigger other incidents; it clearly indicates that it required explicit mishaps to bring these problems and planned arrangements to light. We've discovered that maintenance errors cause Maintenance failures cost the US industry more than 2 billion a year, according to 15% of air carrier accidents. "Human factors" coverages a huge scope of exercises, and they encroach on all that AMTs do at work, from discussing successfully with partners to guaranteeing that they have sufficient lighting that is precise and effective [6] [7][8].

The exposures that occur in the aircraft manufacturing industry have been Too many solvent mixtures, zinc chromate paints, and resins were included as a related area of interest in this research. According to the literature, some staff employed in the productions and repair of both commercial and military aircraft suffer from negative health impacts as a result of their employment. The key source of concern has been an increase in the number of cancer cases [9]. Several reports have looked into the mortality of employees in the aircraft manufacturing industry. Cancers of the oesophagus, pancreas, and bladder were observed in non-significant excesses in 14,067 subjects working between 1958 and 1982. Melanoma, mesothelioma, and central nervous system tumors were not present in abundance in the sample. Both some cancer sites and malignant neoplasms showed major excesses in a Washington State surveillance sample of relative mortality by occupation (including several digestive organs, the haemato-lymphopoietic system, and melanomas) among aviation engineers from various firms, as well as Boeing officials, managers, and supervisors. A preliminary investigation of central nervous system neoplasms in Los Angeles County (another US state with a high concentration of aircraft manufacturing) found that aircraft manufacturing staff, mainly engineers, are at an elevated risk [10] [11]. A mortality cohort study in a north Italian aircraft factory showed no excess of either oesophageal cancer or central nervous system tumors, despite the authors' concerns that the study's 15-year follow-up duration was inadequate for cancers with long latency times. It was recently recorded Since 1960, a cohort study of 77,965 workers employed in a California aircraft productions factory has been conducted. There were no substantial changes in risk for any of the 40 particular causes of death inspected once more.

A study concludes that 18% of all reported fatal injuries happened during the years 2004 – 2005 were caused due to contact with objects mainly being instrumental equipment. It has been shown in as shown above [12]. One of the key issues posed in all of the studies was the staff' exposure to a large number of different solvent mixtures. Zinc chromate paints and chromium exposure were investigated in a group of employees at two military aircraft upkeep facilities that used zinc chromate paint for spray painting [12]. Painters were found to have a higher prevalence of respiratory tract cancers, cirrhosis of the liver, and cerebrovascular disease than the general population. Between 1952 and 1956, a team of reports looked at the all-cause mortality and malignant growth level of airplane maintenance staffs at Hill Air Force Base in Utah. This team has been experimenting with a number of solvents, including trichloroethylene. The early study discovered substantial mortality excesses in women for non-lymphoma Hodgkin's and men for A follow-up analysis found no significant cancer or mortality excesses in the liver and biliary passages. More newly, there has been concern about employees who have been exposed to jet fuels [13] [14] [15].

Another article addressed various aspects of a study that looked into the effect of exposure to JP-8 jet fuel, which is now used by the US Air Force, on the sperm of mechanics who serve on planes. Low levels of exposure to benzenes, one of JP-8's constituents, at levels as low as 6 parts per million, were found in a group of painters who were also exposed to solvent mixtures, were found to minimize sperm motility and increase the frequency of sister-chromatid exchanges.

Dünya'da güneş enerjisi kullanımı yaygınlaşmaktadır. Türkiye'de güneş enerjisinden faydalanma genellikle sıcak su hazırlama şeklindedir. Güneş enerjisinin farklı bir faydalanma şekli olan hava ısıtma yönteminin kullanımı da önem kazanmaya başlamıştır. GEHK genellikle mahal ısıtma ve tarımsal ürünlerin kurutulmasında kullanılmak

tadır. Türkiye'nin; ortalama yıllık toplam güneşlenme sü-

resi 2640 saat (günlük toplam 7,2 saat), ortalama toplam ışınım şiddeti 1311 kWh/m²-yıl (günlük toplam 3,6 kWh/m²) olmak üzere iyi değerlere sahiptir. Bu çalışmanın icra edildiği Manisa ili için Eylül ayı 4,63 kWh/m^2 global radyasyon ve 9,26 saat güneşlenme süresi ortalama değerlerine sahiptir [1].

GEHK basit cihazlar olup konvansiyonel bir GEHK iyi izole edilmiş bir kasa, bu kasa içine yerleştirilen bir yutucu plaka ve en üste ise bir saydam örtüden meydana gelir. Hava akımının doğal veya zorlanmış olması durumuna göre de sistemde fan yer alır. Güneş enerjili hava kollektörlerinde yutucu plaka ve hava arasındaki ısı transfer katsayısı düşüktür. Bu nedenle bu kollektörler istenilen ısıl verim değerlerinde çalışamamaktadır.

Termal güneş kollektörlerinin performans parametreleri özellikle de çıkış sıcaklığı ve buna bağlı olarak termal verim modellemesi uzun yıllardır araştırılmaktadır. Araştırmacılar açısından modellemelerde en uygun sistem değerlerini makul hassasiyette ve pratiklikte belirlemek önem arz etmektedir. GEHK'nin performansı ışınım, hava sıcaklığı, akışkan debisi gibi başlıca değişkenlere bağlı olup modellenmesi oldukça zordur. Termal sistem mühendisliğinde ana amaç minimum maliyet ve süre ekseninde maksimum sistem verimliliğinin elde edilmesidir. Termal kollektörlerin performans analizleri oldukça karışık olup büyük miktarda bilişim teknolojisi ve zamana ihtiyaç duyulmaktadır.

Literatürde, yutucu plaka ve hava arasındaki ısı taşınım katsayısını artırmak için birçok düzenleme önerilmiştir. Yutucu plaka geometrisinin değiştirilmesi ısıl performansı yükseltme metotlarından biridir. Naphon, çift geçişli bir havalı güneş kollektöründe absorber plaka üzerine boyuna doğrultuda kanatçıklar yerleştirerek ısıl verimin değişimini incelemiştir. Çalışmasının sonuçlarına göre kanatçık sayısının ve yüksekliğinin artması ile ısıl verimin arttığını belirtmiştir [2]. Hachemi, absorber plaka üzerine kanatçıklar yerleştirerek ısıl performansı deneysel olarak incelemiştir. Hava akışına paralel olarak yerleştirilen kanatçıkların ısıl verimi önemli ölçüde arttırdığını belirtmiştir [3]. Isıl verimi iyileştirmenin diğer bir yolu ise kollektör içerisinde gözenekli yapılar kullanmaktır [4-6]. Aldabbah vd., tek ve çift geçişli güneş enerjili hava kollektörlerinde akışkan yatağı olarak tel örgü yapısını kullanmışlar ve bunun performansını deneysel olarak test etmişlerdir. Tel örgü yapısı ile ısıl verimin konvansiyonel yapıdaki düz absorber plakalı güneş kollektörlerine kıyasla önemli bir ölçüde arttığını gözlemlemişlerdir [7]. Çalışmalarda, hava akışına türbülans etkisi verecek engellerin absorber plaka üzerine yerleştirilmesi yoluyla da ısıl verimde önemli artışlar sağlandığı belirtilmiştir [8-10]. Esen, güneş enerjili hava kollektöründe absorber plakanın her iki yüzeyine de farklı şekillerdeki engelleri yerleştirerek enerji ve ekserji analizi yapmıştır. Çalışmasında engellerin şekline göre ısıl performansın düz absorber plakalı duruma göre geliştiğini belirtmiştir [11]. Benli, farklı şekillerde absorber plaka yüzeylerine sahip güneş kollektörünün ısıl verimlerini deneysel olarak incelemiştir. Yutucu plaka üzerinde bulunan engellerin artmasıyla ısı transferinin arttığını fakat bunun yanında basınç kayıplarının da önemli ölçüde büyüdüğünü tespit etmiştir [12]. Akpınar vd., çalışmasında dört farklı yutucu plaka tipinin ısıl verimini deneysel olarak araştırmışlardır. Yutucu plaka tipi olarak üçgen, yaprak, dikdörtgen engelli ve düz tip yutucu plakalarda en yüksek ısıl verim değerinin yaprak tip yutucu plakalı kolektörde tespit etmişlerdir [13]. Gedik vd., zigzag ve düz yutucu plakalı GEHK'ni deneysel olarak enerji ve ekserji analizini yapmışlardır [14]. Altıntaş vd., yutucu plaka üzerine konik yayların yerleştirildiği GEHK'nün ısıl verimini ve kollektör çıkış sıcaklığını YSA ile modellemişlerdir [15]. Benli, iki farklı tip güneş enerjili hava kollektörünün ısıl verimini deneysel olarak incelemiştir. Çalışmasında ısıl verimin tahmini için yapay sinir ağlarını (YSA) kullanmıştır. YSA'nın güneş kollektörlerinin ısıl verimini tahmin etmede kullanılabileceğini vurgulamıştır [16]. Esen vd., güneş enerjili bir hava kollektörünün ısıl verimini deneysel olarak incelemiş ve sistemin YSA ve dalgacık sinir ağı modelini oluşturmuştur. Çalışmasında YSA'nın ısıl verimi yüksek bir hassasiyetle tahmin ettiğini belirtmişlerdir [17]. Abuşka ve Akgül GEHK'nde yutucu plaka üzerine konik yaylar monte ederek sistemin deneysel verilere dayalı olarak ısı transfer analizini yapmışlar ve yutucu plaka üzerindeki konik yayların termal verimi artırdığını belirtmişlerdir [18].

Bu çalışmada ısıl verim artışı sağlayacak yeni bir yutucu plaka tasarlanarak imalatı yapılmıştır. Tasarlanan kollektörün ısıl verimi ve havanın kollektörden çıkış sıcaklıkları, deneysel veriler baz alınarak bulanık mantık ile modellenerek karşılaştırılmıştır.

2. MATERIAL and METHOD

This section summarizes research performed in the aircraft production and repair industries around the globe and pointing out some important case studies and describing briefly the impacts, pros and cons and the measures taken to make a change in the existing scenario.

The methods and materials used in this study are to project the results of the mechanic's point of view and the data-driven from a basic questionnaire took among the workers of the company named Roder Component Service Center s.r.o Airport Kosice Slovak Republik. Where we made a couple of questions related to their

work to get a conclusion regarding the total scenario and to find out the health and safety-related issues faced by the mechanics, following them is an overview of one of the processes taking place in an aircraft maintenance workshop where the workers are Re-assembling the tire assembly.

The study of the process involved in flight landing gear

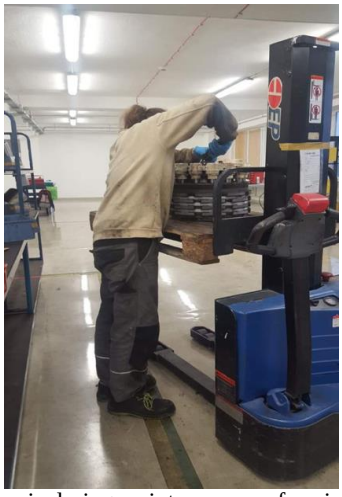

Figure 1. Mechanic during maintenance performing.

Figure 1 shows the mechanic that performs visual inspection of the incoming brake. This action is used forklift for easier manipulation with the brake unit because of its weight. The mechanic can inspect the brake unit properly and he spares his spine. Since the equipment and the whole assembly is indeed rather heavy. The figure above shows importance of keeping company rules to avoid injuries during maintenance chassis component as break and wheels. The mechanic must use strong ergonomic shoes, gloves, glasses, and good safety gear before handling such equipment [16] [17].

Figure 2. Processes maintenance of the parts of chassis aircraft

During visual inspection the mechanic makes the decision if the brake should be repaired or overhauled. The first step of the disassembly is loosening of screws from the hydraulic crown, see Figure 2 above. The dismantled hydraulic crown is cleaned and inspected for leaking or any discrepancies according to the manual. all processes should be performed under the certain of safety, during the maintenance process, mechanics must have guards to prevent a sudden incident. responsible person inspects or mechanics comply with safety rules when maintaining individual parts of aircraft landing gear.

When the mechanic decides about the status that overhaul should be performed, the brake unit is completely disassembled and prepared for sandblasting. After that components go for non-destructive testing. Parts are divided according to related NTD action which should be performed on them, see Figure 3 below. Tanks with active coal for filtering water need for NDT. As was mentioned parts were blasted, it is very important to restore the finish coating in the painting room. Painter restores finish according to the service manual. all of the previous steps contain chemical substances which are have a big effect on mechanicians' health.

Figure 3. Tanks with filter for water needed for NDT penetrant inspection.

Aircraft maintenance is the repair of something to restore functionality. It is an unplanned activity without a schedule and is usually associated with greater hazards and higher levels of risk. Aircraft chassis maintenance no specific domestic installers and mechanics. It is the responsibility of almost all workers in every sector and is performed in almost every work environment. During the Aircraft chassis maintenance process, the health and safety of workers may be affected, but this may also be due to a lack of or insufficient maintenance. The safety and health of maintenance workers are also significantly affected by the construction equipment and the working environ [18].

Maintenance is one of the activities in the workplace that can affect not only employees who work directly on it involved, but also other employees, if safe working procedures are not followed and the work is not performed properly.

Maintenance activities can cause harm to employees and others in three main ways:

- Injury or injury may occur during maintenance - for example, employees repairing a machine can be injured, if the machine is accidentally switched on, if they are exposed to danger substances or if they have to work in the unnatural positions;
- poor maintenance quality, such as the use of incorrect parts when replaced or repaired, can result in seriousness accidents;
- insufficient maintenance can not only shorten service life equipment and also affect the health of workers, but it can also be the cause of accidents - for example, unrepaired damage to the floor in the warehouse can cause a forklift accident, injury to the driver, but also damage to property.

5. RESULTS AND DISCUSSION

The result of the study is acquired from an industrial visit made in the company named Roder Component Service Center s.r.o. Airport Košice Slovak Republík. From the basic field notes and a questionnaire made for the workers regarding their basic routine, we concluded that a majority of the workers are aware of the risk involved in their work and future health problems related to the activities. The study shows the case study of the health and exposure of aircraft mechanics who are involved in the maintenance of the aircraft. The case studies show a wide range of examples of tests and experiments conducted on animals that have undergone the similar exposure to an aircraft mechanic. We have finished fundamental substance examinations dependent on the survey, and the example of results on those inquiries seem to help our assumption that the most difficult parts of being a lead technician, and the difficulties respondents were ready for such specialized issues as they have been all around prepared and trained by a mindful power. The arranged reactions to the inquiries, "What is the most difficult aspect of your responsibilities?", "What parts of your work do you believe you were least ready for?", and "What are the main abilities you should be compelling in your present position?", The reactions of the lead mechanics to this strategy of solicitations all the specialists are appropriately engaged and absolutely mindful of the chance of their work and the threats. As our data and our recounted encounters have shown us, the specialized capability is essential yet not adequate for powerful administration. Our findings, at last, will be taken care of once more into the preparation educational plan for new lead mechanics and will empower us to build up a more refined arrangement of instruments for distinguishing and getting ready promising contenders for lead repairman positions right off the bat in their professions.

Series1 represents the Attendance of mechanics, while series 2 represents the mandatory Safety check conducted in the workplace, Series3 represents the Hours of wakefulness

Table 1. Modeling data table

Month	Attendance of mechanics (n:54)	Safety check (n:54)	Hours of wakefulness	Accidents reported due to high workload	Accidents reported due to lack of safety measures
January	53	43	3	8	0
February	54	54	4	2	0
March	54	53	1	0	0
April	49	47	3	6	0
May	45	43	5	0	1
June	52	50	2	4	0
July	51	50	5	2	0
August	50	49	0	5	0
September	50	50	0	3	0
October	53	52	0	2	0
November	47	47	2	2	1
December	49	49	1	3	0

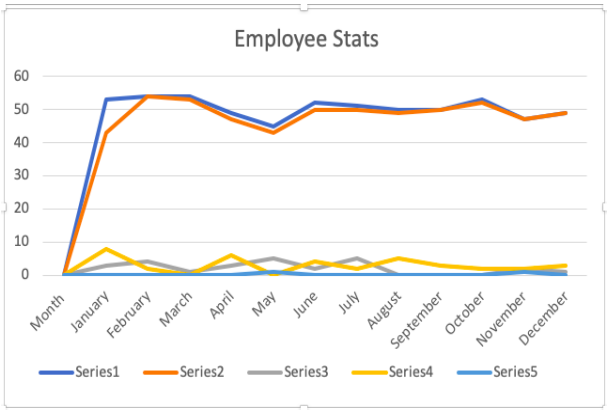

Figure 4. Annual employee statistics.

Series 4 represents the accidents reported due to high work load and finally the series 5 represents accidents reported due to lack of safety measures.

From the above table mentioning "Annual employee statistics "we have made a graph stating all attributes which we have taken into consideration to compare the relation between each of them to find the performance of the company and to know the exact position of the company based on following safety measures and making their workers to follow them up. As we know safety is an important term when it comes to work in which more human forces are involved. It is necessary for the company to monitor its safety measures to avoid further future accidents. AS we know aircraft maintenance work is a risk involved activity even life loss can occur even caused by a small error. From Figure

4., above we can understand the attendance and the safety going together along throughout the year, it is clear that the company is having a safety check almost all the working days throughout the year and the company is tracking the record of the workers not following safety checks. The other related attributes are wakefulness, accidents reported due to the high workload and accidents reported due to lack of safety measures. All these attributes are human-related issues and the rate of these factors reported very less in the company and the company trying its maximum to keep these rates at the minimum.

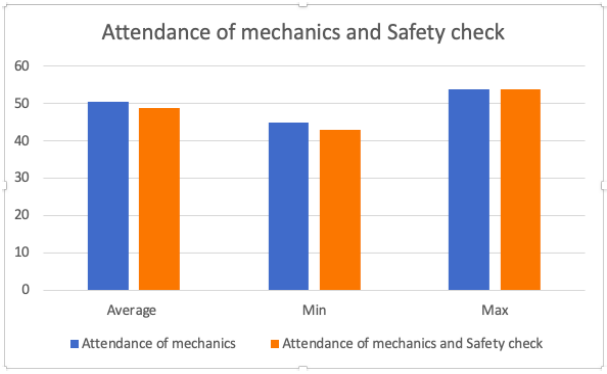

Figure 5. Relationship between attendance rate of the mechanics and routine safety check.

As we can see from the above Figure 5 the company has followed up the safety measure to keep up the safety and discipline within the working environment and was completely well prepared for the uncertain risky events that can happen naturally. as we can say safety inspections are done more often irrespective of the attendance or any kind of events.

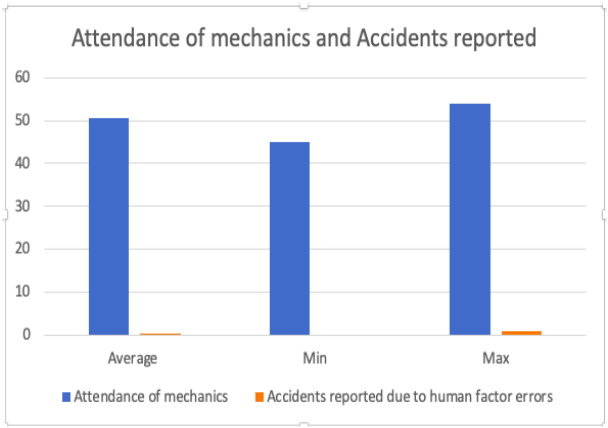

Figure 6. Relation between the Attendance and accident Due to human factor Error.

Figure 6 above represents the relation between accidents reported and the employee strengths. But according to the data, there was a slight rise in the rate of accidents reported when the whole plant was on full strength. Even though it's a slight setback for the firm, it is a lower value when compared with other related industries with the range. The company is taking so much effort to minimize the errors and accidents and protecting its employees under any circumstances.

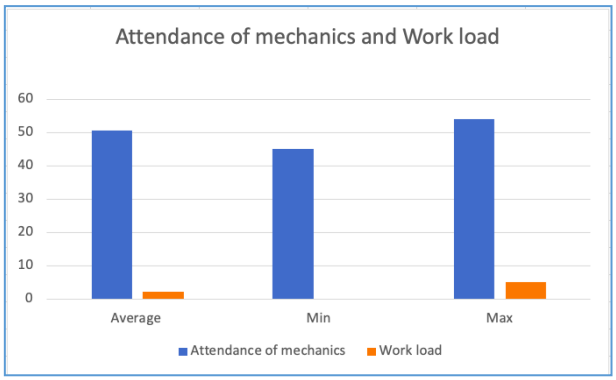

Figure 7. Relation between the Attendance and accident Due to human factor Error.

Figure 7 above describes the relationship between workload and the employees. In certain months the company faces immense workload activity and less mechanics to distribute the work and faces less productivity and leaving pending works carried forwarded to the next consecutive month. Even accidents happen uncertainly due to the lack of labour on some activities with involve prescribes number of labour to accomplish the work. According to the data some incidents are reported and the company solved the issue and tracking these errors to avoid in the future by providing better working schedules to the employee and always tracking the attendance and the workload.

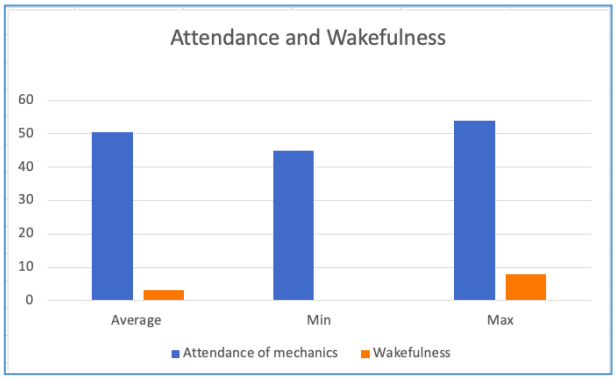

Figure 8. Relationship between wakefulness and mechanics.

Figure 8 above represents the relation between wakefulness and the employees/ mechanics. Wakefulness usually refers to sleeplessness, fatigue, stress, anxiety, depression. It is usually referred to as a state of mind where the person feels wakefulness or being alert. The data shows that there is a slight increase in the rate of

Discussion

We now explore the relationship between safety and organizational culture, in accordance with our theoretical

framework. The majority of workers in the investigated company thought the safety requirements were adequate. However, the evaluation of safety standards is not the main aim of this paper. We aimed to search for the changing meanings of safety concerning organizational culture. All the more explicitly, we contemplated the inward surface of the security culture regarding discontinuity, coordination, and separation. An aircraft maintenance organization was the subject of our case study. We concentrated on the process aspect of organizational growth. Previous research into safety cultures found that various types of safety cultures exist both within and between organizations. Here we are showing a model of maintenance resource management (MRM) model [19] [20].

Here we will discuss the progress of the mechanics who are exposed to various kinds of hazardous chemicals and a disturbed environment. So, based on the following data below we will compare and evaluate the results of our study.

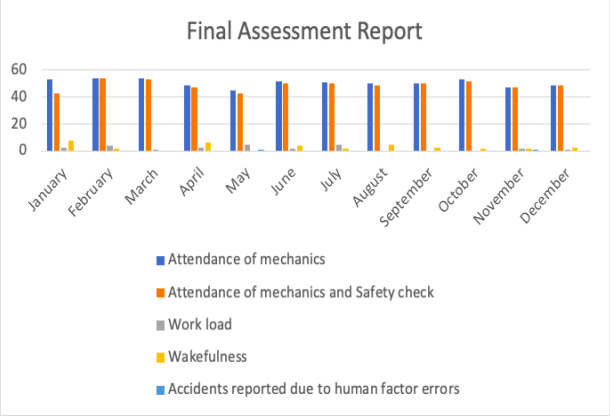

Figure 9. The final evaluation report.

From Figure 9 we can come into a conclusion that throughout the year the company was performing at its maximum and was following up its safety measures to avoid uncertain accidents and uplifting and guiding the mechanics to follow up the safety measures and teaching them the importance of safety while working in hazardous environment and risk involved in it. Throughout the year it was reported very less amount of accidents and other serious related issues faced by mechanics. Throughout the year the company was constantly monitoring the workers' safety and other parameters which are considered in order to eliminate the risk factors that can occur at any time including a huge cost that can alter the performance of the company as per the above figure it is well cleared that the company was doing preventive measures to keep the accidents low and minor level. We can see the rate of wakefulness and workload has reduced as fact that the employer considered the facts and grievances of the mechanics. Regular safety checking was initiated from the beginning of the year and that was monitored accordingly. As a result, the rate of accidents was acute, and the performances and morale of the workers stayed legit.

6. CONCLUSION

From the studies performed at the company Roder Component Service Center s.r.o Airport Košice Slovak Republic, we found out on the basis of a questionnaire aimed at the company's employees, that the company's priority is to follow safety instructions when maintaining aircraft landing gear and especially individual parts such as brakes and others. In addition, the mechanics work on aircraft maintenance, the company performs regular health checks as well as daily inspections at the workplace, or the mechanics follow the rules that increase their safety at work. The aim of the presented study is to get acquainted with Sudden injuries, they arise as a result of the influence of some factors on the health of the company's mechanics.

Not only should we think and plan for safety while performing the job at hand but consider that performing a task improperly can have a serious impact on the aircraft's reliability. A fully functioning and focused maintenance team ensures aircraft get serviced the right way. Lives depend on what maintenance technicians do, which means they need the proper tools, equipment, and a bulletproof maintenance plan.

Throughout the study, we saw the relation between various factors and mechanics in aircraft chassis maintenance parts. As the company uplifting its safety measures to avoid further mistakes and accidents and trying to eliminate further errors in the future and following up safety checking among the workers to have a track record of it to monitor the performance of the employees. Conclusion the safety of mechanics has proved to be important. Many tests and scientific research have been conducted to ensure this. The organization has done so promisingly. Hence the future of safe mechanics looks to be bright in this firm according to my observations and assumptions.

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DECLARATION OF ETHICAL STANDARDS

The author(s) of this article declare that the materials and methods used in this study do not require ethical committee permission and/or legal-special permission.

AUTHORS' CONTRIBUTIONS

Samer AL-RABEEI: Collected data, performed the experimental studies, analyzed the results and wrote manuscript.

Branislav RÁCEK: Performed the experimental studies, analyzed the results and wrote manuscript.

Peter KORBA: Performed the experimental studies, analyzed the results and wrote manuscript.

Michal HOVANEC: Performed the experimental studies, analyzed the results and wrote manuscript.

Utku KALE: Wrote, reviewed, edited, supervised the manuscript.

András NAGY: Wrote, reviewed, edited and supervised the manuscript.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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