

Analysis of the Maintenance of Operational Facilities for the PKP-PK Unit in Supporting Aviation Safety at Iskandar Pangkalan Bun Airport

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Abstract

Care and maintenance of PKP-PK operational vehicle facilities, one of the things that must be done by personnel to provide accident services in the airport area, is the same as at Iskandar Pangkalan Bun airport for the care and maintenance of main and supporting vehicles in accordance with the Regulations of the Directorate of Civil Aviation KP.14 of 2015. The purpose of this study was to find out qualitatively about the components that must be considered every day in maintaining operational vehicles at Iskandar Pangkalan Bun Airport. The research design is a qualitative study in the form of a case study using observation sheets and in-depth interviews with PKP-PK personnel and PKP-PK units at Iskandar Pangkalan Bun Airport. The results of the study indicate that the obstacles experienced by PKP-PK personnel in carrying out maintenance and maintenance of operational vehicles, namely the procurement of vehicle parts, in which the PKP-PK unit at Iskandar Airport has various car brands (manufacturing factories).

Keywords: PKP-PK Unit of Iskandar Pangkalan Bun Airport, Operational Vehicle Maintenance, Spare Parts Procurement Constraints.



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INTRODUCTION

Aviation safety is a system which is a major factor that is necessary for every airport. Aviation safety is a condition that is realized from the operation of flights in which the system complies with operational procedures and technical feasibility requirements for aviation facilities and infrastructure and their supports. Aviation safety is very important at the airport. In Law number 1 of 2009 aviation safety is a condition of fulfilling safety requirements in the use of airspace, aircraft, airports, air transportation, flight navigation, as well as supporting facilities and other public facilities.

Iskandar Pangkalan Bun Airport is a class II airport which is located in West Kotawaringin district, Central Kalimantan province. Iskandar Airport has an airport code (IATA: PKN, ICAO: WAGI). This airport has work units to support safety facilities around the airport environment. One of the work units is Aviation Fire Assistance and Fire Fighting (PKP-PK), where the PKP-PK work unit assists in dealing with aviation accidents in the Iskandar Pangkalan Bun Airport area.

The Aviation Accident Assistance and Fire Fighting Work Unit (PKP-PK) is one of the work units contained in the airport organizational structure which is part of the field of ground operations, which has the task of carrying out Aviation Accident Assistance and Fire Extinguishing as well as handling emergencies in the airport environment. air and rescuing people and goods from an aircraft that has an accident or fire during take-off or landing.

According to Regulation of the Directorate of Civil Aviation number KP.04 of 2013 concerning Instructions and Procedures for Civil Aviation Regulations section 139-20 guidelines for Operation, Maintenance and Vehicle Reporting Systems or Aviation Accident

and Fire Extinguishing Equipment (PKP-PK). Each airport is required to provide PKP-PK vehicles according to the airport category for PKP-PK. The types of PKP-PK vehicles can consist of main vehicles and supporting vehicles. multipurpose. In order to maximize operational performance in accordance with the airport category for PKP-PK, each airport operator is required to carry out maintenance of vehicles and equipment supporting the operation of said PKP-PK. For the category of airports, it is necessary to have facilities that meet technical standards and operational services for PKP-PK services.

At Iskandar Pangkalan Bun Airport, it has operational facilities such as the main vehicles, namely foam tenders and Nurse Tenders as well as supporting vehicles such as ambulances and command cars, The facility has a total of 7 (seven) fleet units, which initially was 8 (eight) units. Damage to the foam tender unit resulted in a shortage of PKP-PK fleets at Iskandar Pangkalan Bun Airport, this provides an evaluation of maintenance at the PKP-PK.

Literature review

Aviation Safety

In Law number 1 of 2009 concerning aviation, Aviation safety is a condition of fulfilling safety requirements in the use of airspace, aircraft, airports, air transportation, flight navigation, as well as supporting facilities and other public facilities. On military and civil aviation, flight safety is carried out by the government. ICAO has defined the term “safety” in Doc 9859 as follows: Safety is the state in which the risk of harm to property can be reduced, and maintained at or below, an acceptable level through an ongoing process of hazard identification and risk management. In setting requirements for safety management, there are two programs required by ICAO, namely the Safety Program and the Safety Management System, the differences between the two programs are:

1. The Safety Program includes rules and instructions for the conduct of safe operations from the perspective of aircraft operators and those providing air traffic services, aerodromes and aircraft maintenance. A safety program may contain provisions for activities as diverse as incident reporting, safety investigations, safety audits and safety promotion. So to carry out safety activities as above in an integrated manner requires a safety management system.
2. Safety Management System (Safety Management System) is a systematic approach to managing safety including the necessary organizational structure, obligations, policies, and procedures. Airport operations safety management system is a management system including organizational structure, responsibilities, procedures, processes and conditions implemented as a safety policy.

Airport

1. Definition of Airport. In Ministerial Regulation Number 77 of 2015 concerning Standardization and Certification of Airport Facilities article 1 paragraph 1 the definition of an airport is an area on land and/or waters with certain boundaries that is used as a place for aircraft to land and take off, board passengers, unload. loading of goods, and places for intra and intermodal transportation, which are equipped with aviation safety and security facilities, as well as basic facilities and other supporting facilities.
2. The function of airports in the new paradigm is as follows: Providing facilities for airplanes to land and take off, As a center of economic activity and center, and Place for transferring modes of transportation from ground to air.

Aviation Accident Assistance and Fire Fighting (PKP-PK)

1. Definition of PKP-PK. The Aviation Accident Assistance and Fire Fighting Work Unit (PKP-PK) is one of the work units contained in the airport organizational structure which is part of the field of ground operations, which has the task of carrying out Aviation Accident Assistance and Fire Extinguishing as well as handling emergencies in the airport environment. air and rescuing people and goods from an aircraft that has an accident or fire during take-off or landing. According to the Regulation of the Directorate General of Civil Aviation KP.14 of 2015 concerning Civil Aviation Safety Technical and Operational Standard Requirements part 139 volume IV Aviation Accident Relief Services and Fire Extinguishers (PKP-PK), stated that Aviation Accident Assistance Facilities and Fire Extinguishers (PKP-PK)) are all PKP-PK vehicles, PKP-PK operational equipment and supporting materials as well as personnel provided at each airport to provide assistance for aviation accidents and fire fighting.
2. PKP-PK operational facilities. According to the Regulation of the Directorate General of Civil Aviation KP.14 of 2015 concerning Requirements for Civil Aviation Safety Technical and Operational Standards section 139 volume IV Aviation Accident Relief Services and Fire Extinguishers (PKP-PK), it states that PKP-PK Vehicles are Main Vehicles equipped with supporting equipment PKP-PK operations and Support Vehicles are used by PKP-PK units to carry out operational tasks. Meanwhile, according to Regulation of the Directorate General of Civil Aviation number KP 14 of 2015 section V concerning the types and requirements of Aviation Accident Assistance and Fire Fighting vehicles, it states that each airport is required to provide PKP-PK vehicles, the number and type of which are adjusted to the amount of fire extinguishing agent required on airport category for PKP-PK. The main types of PKP-PK vehicles are grouped as follows: Foam tender and RIV (Rapid Intervention Vehicle) type vehicles. Types of PKP-PK supporting vehicles are grouped as follows: Command Car, Nurse Tender Car, Ambulance Car, Multipurpose Car, Mobile Command Post Car

Airport Category for PKP-PK

According to the Regulation of the Directorate General of Civil Aviation number KP 420 of 2011 part IV concerning Categories for Aviation Accident Assistance and Fire Fighting (PKP-PK), Stating that every airport is required to provide PKP-PK facilities according to the airport category for the required PKP-PK. The airport category for PKP-PK consists of 10 level categories. The length and width of the aircraft for determining the airport category for PKP-PK, namely:

Table 1. Airport Category for PKP-PK

Airport Category for PKP-PK	Overall Length of Aircraft (m)	Lebar Maksimum Badan Pesawat Udara (m)	Airport Category for PKP-PK	Overall Length of Aircraft (m)	Aircraft Body Maximum Width (m)
1	< 9	2	6	$28 \leq \text{length} < 39$	5
2	$9 \leq \text{length} < 12$	2	7	$39 \leq \text{length} < 49$	5
3	$12 \leq \text{length} < 18$	3	8	$49 \leq \text{length} < 61$	7
4	$18 \leq \text{length} < 24$	4	9	$61 \leq \text{length} < 76$	7
5	$24 \leq \text{length} < 28$	4	10	≥ 76	8

RESEARCH METHODS

This research is a type of qualitative approach in the form of a case study. According to Saryono (2010:1). Qualitative research is research that is used to investigate, find, describe,

and explain the qualities or features of social influence that cannot be explained, measured or described through a quantitative approach.

RESEARCH RESULTS AND DISCUSSION

Aviation safety operational facilities at the PKP-PK unit at Iskandar Pangkalan Bun Airport

In the PKP-PK (Aviation Accident and Fire Extinguisher) unit, operational vehicles are an important tool to support the performance of personnel, these operational vehicles are also divided into two groups, namely the main vehicle and the supporting vehicle.

1. Main Vehicle

- a. Foam Tender. Foam tender is a fire engine equipped with various facilities to be able to spray foam or foam fire extinguishing agents. This fire truck has several types, namely Type I, Type II, Type III, Type IV, Type V and Compact emergency vehicle. The foam tender fire engine owned by PKP-PK Iskandar Airport includes a Type III fire engine. This foam tender unit has a water capacity of 4,000 L and a 500 L foam concentrate tank, 250 kg of chemical powder, with an acceleration of 80 km/h in 25 seconds, a maximum speed of 105 km/h and a minimum beam distance of 60 meters.



Figure 1. Foam Tender PKP-PK Iskandar Pangkalan Bun Airport

Source: Author Documentation, 2021

- b. RIV (Rapid Intervention Vehicle). Rapid Intervention Vehicle type vehicles are PKP-PK vehicles equipped with dry chemical powder type extinguishers. In the PKP-PK unit at Iskandar Pangkalan Bun Airport, the RIV vehicle is not available because the function of the main vehicle is the same as the operational foam tender vehicle.

2. Support Vehicles

- a. commando Car. In category 6 Airport PKP-PK, it is mandatory to have a command car, as is the case in the Iskandar Pangkalan Bun Airport PKP-PK unit. The Iskandar Airport PKP-PK unit itself has 1 unit of command car. The command vehicle has a special function to guide PKP-PK operational vehicles.



Figure 2. PKP-PK command car at Iskandar Pangkalan Bun Airport

Source: Researcher Documentation, 2021

- b. Ambulance. The PKP-PK Unit at Pangkalan Bun Airport also has supporting vehicles, namely ambulances. Ambulance is a vehicle specifically designed to transport and transfer victims of aviation accidents, the Iskandara Airport PKP-PK unit has 3 units of vehicles.



Figure 3. PKP-PK Ambulance at Iskandar Pangkalan Bun Airport

Source: Researcher Documentation, 2021

- c. Nurse Tenders. Car Extinguishing Agent (Nurse Tender) is a vehicle specifically designed to supply primary extinguishing agents to foam tender type vehicles. The PKP-PK unit at Iskandar Pangkalan Bun Airport does not have supporting operational vehicles such as nurse tenders.
- d. Multi Purpose Vehicle. Multi-purpose vehicles are PKP-PK operational support vehicles. The PKP-PK Unit at Iskandar Pangkalan Bun Airport does not have supporting operational vehicles such as multi-purpose cars, because for their own operations they can still be assisted by command cars.
- e. Mobile Command Post Car. Mobile Command Post Car is a vehicle that is used as a mobile post and functions as a gathering place for all representatives of agencies/units in order to evaluate speeding up the process of handling emergencies in the field. The PKP-PK unit at Iskandar Pangkalan Bun Airport does not have operational vehicles supporting the mobile command post car.

Maintenance activities at the PKP-PK unit at Iskandar Pangkalan Bun Airport

1. Maintenance of PKP-PK unit vehicles

In accordance with the regulation of the Directorate General of Air Transportation KP.14 of 2015 section XI, each airport is required to carry out maintenance of vehicles and equipment supporting PKP-PK operations so that operational performance can be maximized in accordance with category VI PKP-PK airports. Not only the main task of dealing with accidents, PKP-PK personnel must also have the task of caring for the tools and vehicles used to help handle flight accidents around Iskandar Pangkalan Bun Airport. Vehicle maintenance and PKP-PK operational support includes preventive and corrective maintenance activities.

- a. Preventive Maintenance. Preventive activities include daily, weekly, monthly, quarterly and annual maintenance activities for PKP-PK vehicles with the aim of maintaining the performance of PKP-PK vehicles. Aviation Accident Assistance and Fire Extinguishers (PKP-PK) must also pay attention to the vehicles and tools used to assist the main tasks of personnel, for prevention personnel have scheduled activities for maintenance and checking as well as testing the feasibility of operational tools and vehicles.
- b. Maintenance Repair (corrective). Repair (corrective) activities include damage analysis, adjustment, replacement or repair (excluding overhaul/reconditioning) components/

modules/parts of PKP-PK vehicles with the aim of returning PKP-PK vehicles that have been disturbed/damaged to normal conditions.

2. Operational Vehicle Maintenance Program

In operating activities and maintenance or maintenance of vehicles, the PKP-PK unit has a program of maintenance activities and tools (spare parts) which are treated on a daily, quarterly and yearly basis, where these activities are aimed at, as follows:

- a. Ensuring the realization of a level of safety (safety), with a level of safety (safety) provides a good performance by PKP-PK personnel. Equipment that is fully available on the main and supporting vehicles can facilitate flight safety services and the safety of these personnel.
- b. Returning the level of reliability to its initial condition, this gives performance to operational vehicle performance, namely response time because in PKP-PK flight accident handling operations need accuracy and speed in dealing with aircraft accidents and also to save passengers (victims).
- c. Minimizing maintenance costs, spare parts that are rarely available require very high costs to obtain, that's why the PKP-PK unit provides a program to minimize expenses for spare parts that are very necessary in operational vehicle maintenance.

3. Components and Constraints for PKP-PK Operational Vehicle Maintenance at Iskandar Pangkalan Bun Airport

The problems, obstacles and obstacles faced by the PKP-PK unit at Iskandar Pangkalan Bun Airport, regarding the implementation of vehicle care and maintenance are still inadequate for main vehicle parts, for the procurement of foam tender vehicle parts itself it takes a long time because the PKP-P unit PK Iskandar Pangkalan Bun Airport has various brands (manufacturing factories) and must order spare parts from various manufacturers for each vehicle. This makes it difficult for PKP-PK personnel to carry out vehicle rejuvenation so that it remains according to operational standards.

CONCLUSION

Based on the results of the research that has been carried out and described as presented from the data that has been obtained by researchers, the following conclusions can be drawn: Iskandar Pangkalan Bun Airport has an aviation safety unit, namely the Aviation Accident Assistance Unit and Fire Extinguisher (PKP-PK), where the main tasks have main tasks, namely operation, maintenance, and training. The SOP for maintaining vehicles owned by PKP-PK Iskandar Airport has basically been carried out in accordance with the applicable provisions in KP.14 of 2015. Basically the PKP-PK unit at Iskandar Pangkalan Bun Airport has the main task of assisting flight accidents around the airport. , in this main task PKP-PK personnel must pay attention to periodic engine maintenance which is carried out every day, quarterly and annually. This aims to optimize the duties of personnel to perform flight accident rescue services. The problem faced by the PKP-PK Unit at Iskandar Pangkalan Bun Airport with regard to the implementation of its main tasks and functions is the lack of the number of personnel/officers in accordance with the minimum number of standards required by KP.14 of 2015. Constraints faced by the Iskandar Airport PKP-PK Unit Pangkalan Bun is the age of PKP-PK vehicles and operational equipment which on average exceeds 10 years and the length of the process for proposing the procurement of new vehicles and operational equipment.

Suggestion: Iskandar Airport has an Aviation Accident Assistance and Fire Fighting Unit (PKP-PK) which provides services to passengers in flight accidents around Iskandar Pangkalan Bun Airport. As per Air Transportation Directorate Regulation KP: 14 of 2015, there are several things that are lacking in completeness according to category VI PKP-PK. In the future, the PKP-PK unit will maximize operational facilities and vehicles according to these regulations. PKP-PK operational vehicles at Iskandar Pangkalan Bun Airport that are more than 10 years old should be replaced immediately with new ones so that they can be more reliable in supporting emergency response at Iskandar Pangkalan Bun Airport in accordance with the standard response time. The process of procuring the rejuvenation of new PKP-PK operational vehicles should not be too complicated because their designation is very important in supporting the handling of emergencies at Iskandar Pangkalan Bun Airport. For this reason, good cooperation is needed from all parties involved in the operation of Iskandar Pangkalan Bun Airport to support the procurement of the new PKP-PK operational vehicles.

BIBLIOGRAPHY

- Lukinta. 2017. Pemeliharaan Kendaraan PKP-PK Di Bandar Udara Hang Nadiem Batam. Jurnal Penerbangan.
- Republik Indonesia. 2009. Peraturan Menteri Perhubungan Republik Indonesia Nomor KM 20 Tentang Sistem Manajemen Keselamatan. Jakarta: Kementrian Perhubungan.
- Saryono. 2010. Metode Penelitian Kualitatif. Bandung: Alfabeta.
- SKEP/ KP.04/III/2013. Tentang Petunjuk Dan Tata Cara Peraturan Penerbangan Sipil Bagian 139-20 Pedoman Pengoperasian, Pemeliharaan Dan Sistem Pelapor Kendaraan Atau Peralatan Pertolongan Kecelakaan Penerbangan Dan Pemadam Kebakaran (PKP-PK).
- SKEP/ KP.14/V/2015. Tentang Standar Teknis Dan Operasi Keselamatan Penerbangan Sipil Bagian 139, Pelayanan Pertolongan Kecelakaan Penerbangan Dan Pemadam Kebakaran (PKP-PK).
- SKEP/ KP.14/VII/2015. Tentang Standar Teknis Dan Operasi Keselamatan Penerbangan Sipil Bagian 139, Pelayanan Pertolongan Kecelakaan Penerbangan Dan Pemadam Kebakaran (PKP-PK).
- SKEP/ KP.420/IV/2011. Tentang Kategori Untuk Pertolongan Kecelakaan Penerbangan Dan Pemadam Kebakaran (PKP-PK).