

OPTIMIZATION OF APRON MOVEMENT CONTROL OPERATIONAL SERVICES FOR THE SUPERVISION OF AIRSIDE FACILITIES AT RADIN INTEN II LAMPUNG AIRPORT

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ABSTRACT

Airside infrastructure is one of the cornerstones that supports airport operations services. Consequently, Apron Movement Control is tasked with monitoring these establishments. The author's observations suggest that the airside facilities, supervision, and service at Radin Inten II Lampung Airport remain subpar. By optimizing the operational services now in place for the supervision of airside facilities at Radin Inten II Airport Lampung, this research aims to achieve this goal. This study uses a qualitative descriptive methodology to conduct literature studies, direct observations, and direct interviews. The airside facilities that were already in existence at Radin Inten II Lampung Airport were observed, and Apron Movement Control supervisors were directly interrogated. Three workers at Apron Movement Control acted as.

Keyword : Apron Movement Control, Service, Supervision, Airside Facilities, Radin Inten II Lampung Airport.

INTRODUCTION

The airport, according to Law No. 1 of 2009 (Government, 2009), is the center of all aviation activities. Therefore, to support the efficiency of transportation modes from year to year, several airports have been built in various regions. One of them is Radin Inten II Airport in Lampung. Radin Inten II Airport (IATA: TKG, ICAO: WILL) is the only airport in Lampung Province, located in Natar District, South Lampung Regency. From its establishment until 2019, the ownership status of this airport was held by the Ministry of Transportation, commonly referred to as UPBU Airport. However, on October 14, 2019, ownership was taken over by Angkasa Pura II through an agreement involving the utilization of state assets in the Class I Radin Inten II Airport. Radin Inten II Airport operates from 07:00 to 19:00, with regular flights amounting to eight flights and sixteen movements per day, though there are often extra and unscheduled flights, reaching up to twenty-eight movements in a day. Currently, the airlines scheduled daily at this airport include Garuda Indonesia, Super Air Jet, Lion Air, and Air Asia, with Susi Air scheduled every weekend and Batik Air frequently used for charter flights. Unscheduled flights include calibration aircraft, police helicopters, and aircraft carrying government officials.

Airport facilities are regulated under Law No. 1 of 2009 (Government, 2009), Article 219, paragraph (1), which states, "Every airport business entity or airport operator unit is required to provide airport facilities that meet the safety and security requirements of aviation, as well as airport

service standards as stipulated." Airport service operations are guided by the service standards for airport service users as regulated in PM 41 of 2023 regarding Airport Services at Airports. Facilities or infrastructure play a crucial role in the operation of the airport, as when these facilities meet the required standards, the services provided will be optimal.

Airport facilities and services are divided into two categories: Landside and Airside. The Landside starts from the airport entrance, consisting of a terminal with an area of 9,650 m² and a four-story parking building with an area of 22,500 m², accommodating up to 695 vehicles. Operational services on the Airside, especially the apron, are the responsibility of Apron Movement Control (AMC). Radin Inten II Airport in Lampung has three Apron Movement Control personnel. The main task of AMC is to oversee all movements on the apron. Additionally, as per the existing SOP, AMC is responsible for inputting flight data, including apron movement sheets and operation and services data systems. Supervision of Airside facilities includes the apron, garbarata (passenger boarding bridges), apron markings, parking stand identification boxes/stand number lights, floodlights, apron guidance lights, hydrant pits, ground support systems (GSS), and visual docking guidance systems.

The PCN (Pavement Classification Number) value of the apron listed in the table indicates that the apron surface is recommended for ATR-type aircraft. However, in actual implementation at Radin Inten II Airport, the apron is used for Boeing and Airbus aircraft, leading to frequent collapse wheel incidents due to the apron surface not being strong enough for these

aircraft types. Frequent incidents of this nature suggest that the apron at Radin Inten II Airport does not comply with SKEP 77 of 2005 (D. P. Di. J. P. Udara, 2005), which states that the strength of each part of the aircraft parking area must be able to withstand the traffic load of the aircraft it serves (at least equal to the runway). The apron dimensions are also regulated in SKEP 77 of 2005, which governs apron capacity, including the spacing of aircraft on the apron and the distance between aircraft at each parking stand.

On January 2, 2024, around 14:00, a collapse wheel incident occurred when Garuda Indonesia flight GA-075 was pushing back from parking stand 1 towards taxiway alpha, resulting in a departure delay. The condition of the apron and its markings necessitates routine updates, with the last update occurring in 2020 when the airport's status changed to Angkasa Pura II ownership. Aside from this, no routine updates have been performed, except when incidents occur.

According to the SOP, AMC is responsible for overseeing Airside facilities to ensure they function properly. One of these facilities is the garbarata, of which Radin Inten II Airport has two: one at parking stand 1, which can only be used for Boeing aircraft, and another at parking stand 2, which can accommodate both Boeing and Airbus aircraft. The garbarata at parking stand 1 has previously suffered damage to its drive components, limiting its use for Airbus aircraft.

The garbarata frequently experiences damage due to a lack of regular maintenance, similar to the condition of the apron markings, which are beginning to fade. Additionally, the apron lacks a stand identification number/stand number light. Another important facility for AMC operational support is CCTV. AMC's monitoring system is connected to CCTV at four points: parking stands 2 and 3, in front of the AMC room, and near the access road to parking stand 1.

Under KP 326 of 2019, CCTV is also a necessary facility for apron management service operations when required. CCTV is crucial in assisting and facilitating AMC's operational services in monitoring Airside movements.

Based on these issues, this research aims to identify how AMC's operational services oversee Airside facilities, the challenges faced, and the efforts made to overcome these challenges. One incident of particular note is the collapse wheel incident on January 2, 2024, when Garuda Indonesia flight GA-075 experienced issues during pushback from parking stand 1 to taxiway alpha, resulting in a departure delay. This incident highlights the need for regular maintenance and updates to the existing facilities. This research is titled "Optimization of Apron Movement Control

Operational Services for Airside Facility Supervision at Radin Inten II Airport, Lampung," and it aims to provide recommendations for improvements to enhance the efficiency and safety of operations at the airport.

1. METHODS

1.1 Research Design

Desain penelitian ini menggunakan metode deskriptif kualitatif untuk mengevaluasi dan mengoptimalkan pelayanan operasional Apron Movement Control (AMC) terhadap fasilitas sisi udara di Bandar Udara Radin Inten II Lampung. Berdasarkan pendekatan ini, penelitian dilakukan dalam dua tahap utama: perencanaan, yang mencakup identifikasi dan perumusan masalah, serta pelaksanaan, yang melibatkan pengumpulan dan analisis data. Meskipun pelayanan AMC dan sarana prasarana di bandara ini sebagian besar sudah memadai, masih banyak aspek yang memerlukan peningkatan. Dengan metode ini, penelitian bertujuan untuk menggambarkan kondisi aktual dan memberikan rekomendasi untuk meningkatkan efisiensi operasional guna mendukung penerbangan dengan lebih maksimal.

1.2 Research Subjects and Objects

The research subject is the Supervisor of the Apron Movement Control Unit, who serves as the primary source of information for data collection in this study. The research object is the operational services of Apron Movement Control concerning the supervision of airside facilities at Radin Inten II Airport, Lampung, which is studied to draw conclusions regarding the effectiveness and optimization needs in the management of these facilities.

1.3 Data Collection Techniques and Research Instruments

Data collection techniques in this study include observation, literature review, interviews, and documentation, aimed at obtaining accurate information about the impact of Apron Movement Control (AMC) operational services on the airside facilities at Radin Inten II Airport, Lampung. Direct observation was conducted to observe the operational services of AMC personnel and the condition of airside facilities. The literature review was used to examine related literature, regulations, and guidelines that serve as references for this study, including the Regulation of the Director General of Civil Aviation No. 326 of 2019 and the AMC TKG 2023 Standard Operating Procedure. Interviews were conducted using a semi-structured approach, allowing the researcher to ask prepared questions while also leaving room for additional questions if the informant provided broader information. These interviews focused on three AMC supervisors who play a role in operational supervision on the airside. In addition, photo documentation via mobile devices was also used to collect visual data supporting the analysis of

the services and conditions of the facilities being studied. Through a combination of these techniques, this study seeks to provide a comprehensive and in-depth overview of the subject under investigation.

1.4 Qualitative Data Analysis Techniques

Qualitative data analysis techniques in this study are conducted through a systematic process, beginning with problem formulation and continuing through to the writing of research results. This analysis involves data reduction, where data is simplified, categorized, and eliminated if not needed, so that only quality data is used to draw conclusions. Next, data is presented in an orderly and structured manner at the data display stage, making it easier to understand, and the conclusions drawn can be organized narratively. The final stage of this analysis is to draw conclusions based on the collected data, where the relationships, similarities, and differences of the existing problems are analyzed. The resulting conclusions will be considered valid if supported by strong evidence. This technique combines data from various sources, including interviews, field notes, and documentation, and is aligned with the results of a literature review relevant to existing regulations to provide a natural and comprehensive description of the research object.

1.5 Research Location and Time

This Final Project research was conducted at Radin Inten II Airport, Lampung, specifically in the operational area of Apron Movement Control and airside facilities. This location was chosen because the author was undergoing On the Job Training (OJT) at Radin Inten II Airport, Lampung, for three months, which facilitated the data collection needed to complete the Final Project. The research was carried out during the OJT period, starting from December 11, 2023, to February 28, 2024, with a predetermined schedule to ensure systematic and comprehensive data collection.

2. RESULTS AND DISCUSSION

The results of this study focus on the operational services of Apron Movement Control (AMC) in overseeing airside facilities at Radin Inten II Airport, Lampung. Before the study was conducted, the services and supervision provided by the AMC unit were considered suboptimal, necessitating optimization. This research employs a qualitative method that depicts the natural or actual conditions, with the data collected being elaborated to provide insights and solutions to existing problems. To understand how operational services supervise airside facilities, the researcher conducted direct observations and interviews with AMC personnel in the field. According to the Standard Operating Procedure (SOP) of Apron Movement Control at Radin Inten II Airport, Lampung, the duties and functions of personnel in operational services regarding the supervision of airside facilities are clearly outlined. The SOP

stipulates that AMC personnel are responsible for ensuring that airside facilities function properly. Interviews with three AMC personnel revealed that they use the SOP as a guide for their duties and responsibilities, including procedures for supervising facilities, such as inspecting them before duty and monitoring their use. Inspections are conducted routinely at least once an hour, with inspection checklists being filled out, and any issues, such as damage, are immediately reported and followed up with the relevant units. However, during direct observations, the author found that some tasks were not being carried out optimally, such as the supervision of facilities, which did not always run smoothly during use. Sometimes, AMC personnel were not always on-site during duty hours, leading to perceived shortcomings in facility supervision. Moreover, several facilities frequently encountered issues due to inadequate handling, which requires further attention.

The observations in this study highlighted several issues related to operational services and the supervision of airside facilities at Radin Inten II Airport, Lampung. First, damage was found on the rotunda pillar of the aviobridge at Parking Stand 1, making the aviobridge usable only for Boeing aircraft. The cause was a broken spring or bolt inside the rotunda pillar, affecting the up-and-down movement of the aviobridge. To address this issue, AMC personnel relocated Airbus aircraft to Parking Stand 2. Second, on January 2, 2024, there was a collapse wheel incident involving a Garuda Indonesia flight GA-075 during pushback from Parking Stand 1 to taxiway alpha, leading to the temporary closure of taxiway alpha. This issue frequently occurs due to the apron asphalt, which has not been resurfaced since 2020, prompting AMC personnel to coordinate with the Maintenance team to find a proper solution.

Regarding the service of airside facilities according to the Standard Operating Procedure (SOP) of Apron Movement Control, the observation results indicated that the readiness and cleanliness of facilities, as well as the use of communication tools by personnel, were quite optimal. However, in terms of coordination and cooperation with groundhandling to provide alternative services in the event of facility damage, the service was considered very optimal. Overall, 50% of the service aspects were rated as optimal, while the other 50% needed improvement.

For the supervision of airside facilities, observations showed that inspections before aircraft operations began had been carried out, but not routinely. The routine inspections, which should be conducted every hour, were not well-implemented due to the limited personnel available to stand by in the AMC room. The inspection checklist form was also not filled out correctly, making re-capitulation impossible. Although coordination with related units and daily reports were in accordance with the SOP, there were still shortcomings in the implementation of routine inspections and documentation. Overall, 37.5% of the

supervision aspects were rated as optimal, while another 37.5% were not yet optimal, and only 25% were rated as very optimal.

Regarding the condition of airside facilities based on KP 326 of 2019, observations showed that the apron and apron markings had not been fully maintained, with routine maintenance not being optimal. The aviobridge also frequently encountered damage issues because maintenance was not performed according to the SOP. Some facilities, such as the parking stand identification box and the Visual Docking Guidance System (VDGS), have not been fully utilized, while other facilities, such as flood lights, apron edge lights, and apron guidance lights, have been optimally utilized. Overall, 25% of the facilities were rated as not yet optimal, 37.5% as optimal, and 37.5% as very optimal.

The services and supervision provided by Apron Movement Control (AMC) at Radin Inten II Airport, Lampung, have reached a fairly good level of optimization, but several aspects still require further improvement. Overall, these services and supervision achieved an optimal score of 37.5% to 50% out of a total of 100%, indicating that while appropriate steps have been taken, there is still room for improvement in some critical areas.

Many airside facilities at Radin Inten II Airport, Lampung, are already in the optimal or very optimal category, with a percentage of 37.5%. This indicates that the efforts made by AMC to ensure that these facilities function according to operational standards have yielded positive results. However, there are also some facilities that are not yet optimal at all, due to two main factors: the unavailability of facilities and the underutilization of existing facilities. This unavailability could include facilities that should be in place according to applicable regulations but have not been installed or operated effectively. For example, facilities such as the parking stand identification box/stand number light, which according to KP 326 of 2019 are highly necessary to facilitate the pilot's parking process, are still not available. The existence of these facilities is crucial for enhancing the efficiency and safety of aircraft operations in the apron area.

One of the facilities that frequently encounters issues is the aviobridge, especially at Parking Stand 1. The damage to the aviobridge is caused by a lack of routine maintenance, resulting in this facility only being usable for Boeing aircraft and not for Airbus aircraft. This damage is not a new occurrence; according to observations during the author's On the Job Training (OJT) at Radin Inten II Airport, Lampung, this aviobridge has experienced damage twice in the first quarter of 2024. In addition to the aviobridge, frequent damage is also found in the apron asphalt, especially near taxiway alpha. According to interviews with AMC personnel, the asphalt in that area often collapses due to the weight of the aircraft, which the asphalt structure is no longer

adequate to support. This leads to repeated collapse wheel incidents, such as the one on January 2, 2024, when Garuda Indonesia flight GA-075 experienced a collapse wheel during pushback from Parking Stand 1 to taxiway alpha, which then led to the temporary closure of the taxiway.

Although AMC has made efforts to follow the Standard Operating Procedure (SOP) of AMC TKG 2023, there are still some duties and responsibilities that have not been optimally carried out. For example, the routine inspections that should be conducted at least every hour often do not comply with the SOP due to the limited personnel available to stand by in the AMC room. Moreover, the inspection checklist form, which should be filled out as part of routine supervision, is often not completed, and reporting is only done informally to superiors without adequate documentation. This indicates that while efforts are being made to carry out supervision, the implementation in the field is not yet fully in line with the SOP, potentially leading to losses and disruptions in airport operations.

One of the main problems faced in the supervision of airside facilities is the availability and condition of the facilities themselves. Apron markings, for example, which should have bright, contrasting colors and be reflective to improve visibility, have faded due to the lack of repainting or routine maintenance. This contradicts the provisions of KP 326 of 2019, which emphasize the importance of clear markings for night operations. This lack of maintenance not only reduces the effectiveness of the markings as a navigation aid but also increases the risk of errors during aircraft movements on the apron. Besides apron markings, the availability of CCTV is also a significant issue. At an airport with 12 parking stands, ideally, each stand is equipped with at least one CCTV to monitor movements in the area. However, currently, there are only four CCTV points that cannot cover the entire apron area. As a result, AMC personnel have to increase direct supervision, which can reduce efficiency and increase their workload. In interviews, AMC personnel emphasized the importance of CCTV in supporting their services and supervision, especially when they cannot continuously be in the field.

To address the various challenges encountered, AMC personnel have taken several measures, such as increasing the frequency of inspections and further coordination with related units. For instance, when damage is found on the aviobridge or apron asphalt collapses, AMC immediately reports and coordinates with the relevant authorities to follow up on these issues. Additionally, AMC also strives to provide alternative services when facilities are not functioning, such as relocating Airbus aircraft parking to other stands that do not use aviobridges. They also take additional measures, such as using flashlights by marshalls when guiding aircraft at night, to compensate for the lack of facilities

like parkingstand identification signs..

3. CONCLUSION

Based on the issues discussed in the previous chapters, it can be concluded that the operational services of Apron Movement Control (AMC) at Radin Inten II Airport, Lampung, in overseeing airside facilities have been implemented according to the Standard Operating Procedures (SOP) of AMC. The SOP AMC TKG has outlined the duties and functions of AMC personnel, particularly in providing services and supervising airside facilities. According to the observation tables in the research findings, the services, supervision, and airside facilities have approached optimality, with a percentage ranging from 37.5% to 50%. The services and supervision begin with routine inspections conducted before aircraft operational hours and continue with routine inspections at least once an hour. However, the main challenge faced by AMC personnel in their operational services for overseeing airside facilities is the unavailability of facilities in accordance with KP 326 of 2019, particularly the Aircraft Stand Identification Sign. Efforts made by AMC to address this challenge include procuring facilities deemed suboptimal according to the observation tables, which are based on KP 326 of 2019, specifically concerning the Aircraft Stand Identification Sign.

Based on this research, the author suggests adding points to the Standard Operating Procedures of AMC, particularly concerning additional or alternative services that can be provided in case of issues, as well as more detailed elaboration on the duties and functions of AMC supervision for each facility to ensure appropriate handling according to their needs. Moreover, it is crucial to enhance the service and supervision functions by the AMC unit for the existing facilities. Many facilities that are available have not been utilized optimally, which should be a focus for AMC to maximize the utilization of airside facilities to support flight operations. Regular coordination and continuous maintenance of the available facilities should also be carried out to ensure that the facilities function properly and do not cause serious damage. If these measures are effectively implemented, airport operations can become more optimal, supported by the available airside facilities. Future researchers are recommended to conduct calculations with the distribution of questionnaires regarding the impact of optimizing airside facilities on the existing services and supervision.

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