

Operational Analysis of the Apron Movement Control (AMC) Unit in Handling Aircraft at Abdulrachman Saleh Airport Apron Malang

Wahyu Ashari Tri Gunawan¹ Rahimudin²

Air Transportation Management Study Program, Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta, Bantul Regency, Province of Daerah Istimewa Yogyakarta, Indonesia^{1,2}

Email: wahyuasharitrigunawan@gmail.com¹

Abstract

Apron Movement Control (AMC) is an airport personnel who has a license and rating to carry out duties as responsible for flight operations, supervision, aircraft movement, vehicle traffic, passengers and cleanliness supervision in the airside area and records flight data on the apron. Supervision carried out by AMC aims to create flight security and safety and create discipline from service users which can affect activities on the air side. The purpose of this study was to find out how the Apron Movement Control (AMC) Unit Standard Operational Procedure is in handling aircraft on the apron and the obstacles faced by the AMC unit at Abdulrachman Saleh Airport Malang. This research is a qualitative research using primary data and secondary data. Data collection techniques used are observation, interviews and documentation. The observation is to conduct a review or direct observation in the working area of the AMC unit. The interviews in this study were AMC officers consisting of the head of the AMC unit and 2 personnel. The documentation is collecting data at the time of observation and interviews, as well as taking pictures during field activities. The results of this study can be concluded that the Standard Operational Procedure unit Apron Movement Control (AMC) in handling aircraft on the apron, namely service and supervision. Services, namely arranging aircraft movements, plotting parking stands, services for emergency aircraft using follow me vehicles. Then the supervision referred to is supervision of vehicle traffic, movement of people/passengers, loading and unloading of goods, routine inspections of FOD, supervision during refueling, and when the engine is running up. The performance of AMC officers is said to be good because they carry out their duties in accordance with the Standard Operating Procedure (SOP) from the Ministry of Transportation and UPT. Obstacles in operational activities, namely the determination of parking stands still refers to the Indonesian Air Force and radio communications that often break up between ATC and AMC, AMR's accurate data is delayed in entering ATC and GH/airline units, heavy damage to aprons and taxiways, and airlines are late in delivering flights schedule. The solution to this problem is that the AMC unit holds internal and external meetings with ATC, GH and the Indonesian Air Force, so that the three parties can determine the best solution regarding flight operations.

Keywords: Operations, Apron Movement Control, Aircraft Handling



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

INTRODUCTION

Air Transportation is one of the best alternative choices for today's society because of its time efficiency, price competition and the security it offers, compared to land and sea transportation. Air Transportation is currently experiencing rapid growth following the development of the tourism industry in Indonesia. The airport as a supporting infrastructure for air transportation has an important role, because it can connect areas that were previously difficult to reach by other transportation, now it can be reached by air transportation. For example, Abdulrachman Saleh Airport in Malang.

At each airport many activities are carried out, to carry out the tasks and functions of the activities at the airport, the airport management forms several divisions, offices and service

units to manage an airport. One of the airport service units is the Apron Movement Control (AMC). The Apron Movement Control Unit is under the auspices of the Airport Operations Service and is headed by the Assistant Manager on the Air Side. This unit has a very important role in providing safe and comfortable services for every company engaged in the field of airports and for users of air transportation services.

Regulation General of Air Transportation Number KP 038 of 2017 concerning Apron Management Service, defines that Apron Movement Control is a unit authorized to control and supervise movements on the Apron, regulate the movement of incoming aircraft and coordinate the movement of aircraft leaving the apron with flight navigation service providers., as well as the task of determining where to park the aircraft.

Apart from that, other units working on the apron are the Ground Handling unit which works to handle aircraft in the process of boarding and disembarking passengers, and using ground service support equipment using GSE (ground support equipment) equipment which has been regulated by Law no. 1 of 2019 concerning Aviation, Article 219 concerning airport facilities. The handling of aircraft must be optimal and there needs to be good coordination regarding information regarding aircraft that will arrive and those that will depart. The information referred to is in the form of estimated time of arrival, runway, parking stands, aircraft registration that will be used. This information is very important for officers working in the apron area, especially regarding the allocation of aircraft parking stands so that in this case the ground handling can immediately provide GSE and non-GSE equipment so that when the plane lands all officers can be in their respective positions.

Aircraft handling on the apron includes coordinating between AMC units, ADC units (Tower) and Ground Handling units, namely handling preparations for placing aircraft parking stands, with procedures from the AMC Unit receiving ETA messages (estimated time of arrival) from ADC (Tower), then AMC replied by providing the Parking Stand Number for the aircraft and from the ADC (Tower) unit providing Parking Stand Information to the Pilot, the first arriving aircraft is usually always parked at parking stand number 1, because they are used to this, it has become a habit for the ground unit handling to prepare GSE equipment at Parking Stand number 1 (Dennish, 2020).

The problem that often occurs, for example at Frans Keisiepo Biak Airport, is that sometimes the preparation at parking stand number 1 is not in accordance with what was given by the Apron Movement Control unit to the ADC (Tower), the Ground Handling unit has prepared its GSE equipment and Marshaller has guided it. parking stand number 1. However, the parking stand given to the aircraft by the Apron Movement Control unit is parking stand number 3, it makes a pilot confused, the pilot can only adjust to the existing conditions, there is no good coordination between the three units. it is also not good for the smooth movement of aircraft on the apron, it will be dangerous if the parking stand is undergoing damage or repairs and is occupied by aircraft and GSE tools that are working (Dennish, 2020).

Another problem that often occurs at the airport apron based on researchers' observations is the incident at Kualanamu Airport in Medan, Tuesday April 3 2018, a Lion Air PK-LQK aircraft with flight number JT 383 to Medan - Jakarta was hit by a tractor car carrying a pax step crashing into the wing of the plane is on the left, so that some parts are damaged (iNewsSumut.id). The Lion Air PK-LJZ aircraft collided with the Wings Air PK-WFF aircraft on the apron of Medan's Kualanamu Airport, which resulted in severe damage to both wings of the aircraft. Another incident occurred at Halim Perdanakusuma Airport, when the Batik Air PK-LBS aircraft collided with a TransNusa ATR 72-600 aircraft which resulted in the wings of both aircraft being heavily damaged (Tempo.com).

In accordance with Regulation General of Civil Aviation No. KP 038 of 2017 concerning Apron Management Service, Apron Movement Control is the unit tasked with determining where to park the aircraft after receiving the estimate time from the ADC (Tower) unit. Before determining the aircraft parking stand, the Apron Movement Control (AMC) unit must coordinate with the airline or operator so that the loading and unloading process runs smoothly. After determining the parking stand, the Apron Movement Control (AMC) unit immediately provides this information to the ADC (Tower) unit. In general, Apron Movement Control (AMC) is an airport service unit that plays a role in monitoring all traffic movements on the apron which includes the service of placing aircraft parking stands.

Research Objectives: To find out how the Standard Operational Procedure of the Apron Movement Control (AMC) unit is in handling aircraft at Abdulrachman Saleh Malang Airport apron and to find out what obstacles are faced by the Apron Movement Control (AMC) unit at Abdulrachman Saleh Airport Malang.

Relevant Research

1. Novariani Amri (2022). The Role of the Apron Movement Control Unit (AMC) in Ensuring Aviation Safety at Sultan Hasanuddin International Airport Makassar. airside operations. The supervision is supervision of all traffic movements on the air side, officers working on the air side, personnel vehicles, passenger movements, maintaining cleanliness in the apron area and coordinating with ATC and GH regarding aircraft handling. The work system of the AMC unit at Sultan Hasanuddin Makassar International Airport is by using a shift system, namely morning, afternoon and night shifts. Then the supporting equipment for the AMC unit as a whole, namely Follow Me Car, VHF Radio, HT, PABX, Ear Muff, Binoculars, Computers, Printers. For personnel support equipment in the field, it is enough just to use the Follow Me Car and HT.
2. Petrus Dennish Febrian Letsoin (2020). Optimization of Coordination Between the Apron Movement Control Unit and the Ground Handling Unit in the Placement of Aircraft Parking Stands at Frans Kaisiepo Biak Airport. The results of this study are the lack of coordination and communication between the Apron Movement Control Unit and the Ground Handling Unit because there is often a mis-coordination between the two units, causing errors in parking stand placement. Things like this are still not in accordance with KP 038 of 2017 concerning Apron Management Service and SOP for Apron Movement Control units.
3. Salfiando Aritama Aprilianto (2020). Evaluation of Violations That Occurred in the Juwata Tarakan International Airport Apron Area. The results of this study show that there are many violations that occur in the process of flight operational activities at Juwata Tarakan International Airport, these violations include, violations by BTT drivers who transport people in BTT, BTT and Dolly vehicles that are left unattended, operational cars that are parked in the wrong place , the entry of vehicles that run on diesel fuel and do not wear safety attributes, there are officers who do not use safety equipment when entering the airside area. The efforts of the management of Juwata Tarakan International Airport to anticipate and follow up on violations that occur in the apron area include making SOPs, holding meetings if there are new regulations, carrying out routine and scheduled supervision, and following up on violations in the apron area.

Based on the previous research references above, it is clear that this research is different from existing studies because in this study researchers will examine "Operational Analysis of the Apron Movement Control (AMC) Unit in Handling Aircraft at Abdulrachman Saleh Airport Apron Malang".

RESEARCH METHODS**Research Design**

In this study the approach taken is through qualitative. This means that the data collected is not in the form of numbers, but the data comes from interview scripts, field notes, personal documents, memo notes, and other official documents, so that the aim of this qualitative research is to describe the empirical reality behind the phenomenon in depth, detailed and thorough. Therefore the use of a qualitative approach in this study is to match the empirical reality with the prevailing theory using a descriptive approach.

According to Moleong in Besse (2022) states that qualitative research is research that intends to understand phenomena about what is experienced by research subjects such as behavior, perceptions, motivations, actions and others holistically and by means of descriptions in the form of words and language, in a special natural context and by utilizing various natural methods. Meanwhile, according to Nasution in Putri (2022) defines that qualitative research is essentially observing people in their environment, interacting with them, trying to understand their language and interpretation of the world around them. According to Sugiyono in Dennish (2020) explains that the qualitative research method is a method based on post-positivism philosophy, whereas for research on natural objects, where the researcher is a key instrument, data collection techniques are carried out by means of triangulation (combined), data analysis is inductive or qualitative, and research results emphasize meaning rather than generalization.

Based on the three definitions above, it can be concluded that qualitative research is research that is carried out in its entirety to research subjects where there is an event where research becomes a key instrument in research, then the results of the research are described in the form of written words which empirical data has been obtained and in this study also emphasizes meaning rather than generalization.

The qualitative approach in this study will answer the problem formulations listed in the introduction, the first and second problem formulations will describe through a qualitative approach. In this study, researchers will use a descriptive qualitative strategy approach. Researchers will collect data and analyze qualitative data which is built based on the results of the data obtained from AMC unit officers at Abdulrachman Saleh Airport Malang.

Time and Place of Research

The location of this research will be carried out at the AMC (Apron Movement Control) unit at Abdulrachman Saleh Airport, Malang. The time of the research was carried out from 24 August to 29 August 2022.

Data Types and Sources

This study uses the following types of primary and secondary data sources:

1. Primary Data. Sugiyono (in Besse, 2022) explains that primary data is a data source that directly provides data to data collectors. Primary data sources were obtained through interviews with research subjects and by observation or direct observation in the field. Another opinion states that primary data is a source of data that directly provides data to data collectors. Words and actions are sources of data obtained from the field by observing and interviewing the source directly.
2. Secondary Data. Sugiyono (in Besse, 2022) also explains that secondary data is a source of data that does not directly provide data to data collectors, for example through other people or through documents. Arikunto (2013), secondary data is data obtained from graphic documents (tables, notes, SMS, etc.), photographs, films, video recordings, objects,

and others that can enrich data. primary.

Researchers will carry out direct research activities at Abdulrachman Saleh Airport Malang in the AMC (Apron Movement Control) unit. Researchers will collect data through primary data and secondary data, which means that data collection is obtained by observing the phenomenon directly, as well as collecting existing data during the research process at the AMC unit at Abdulrachman Saleh Airport, Malang.

Data Collection Technique

Data collection is a very important step in research, therefore a researcher must be skilled in collecting data in order to obtain valid data. Data collection is a systematic and standard procedure to obtain the required data. Data collection in conducting research at Abdulrachman Saleh Airport in Malang on the AMC unit is as follows:

1. Observation Method. According to Sugiyono in Dennish (2020) explains that observation is an activity of loading research on an object. The observation method is a data collection technique by making direct observations on research objects at Abdulrachman Saleh Airport Malang in order to get an overview in providing information regarding operational responsibility procedures at the AMC unit in handling aircraft at the apron of Abdulrachman Saleh Airport Malang and its supporting equipment.
2. Interview Method. Nazir (2014) explains that interviews are the process of obtaining information for research purposes by means of question and answer, while face to face between the questioner or interviewer and the person being asked or the respondent using a tool called an interview guide. Interviews in this study were conducted by preparing interview guidelines in advance. The interview guide contained various lists of questions to ask the interviewees, namely AMC unit officers at Abdulrachman Saleh Malang Airport.
3. Documentation Method. Sugiyono (in Dennish, 2020) explains documentation is a method used to obtain data and information in the form of books, archives, documents, written numbers and pictures in the form of reports and information that can support research. In this method the researcher will look for data in the form of photos to be included in the research results at Abdulrachman Saleh Airport in Malang.

RESEARCH RESULTS AND DISCUSSION

This study aims to determine the Operational Unit Apron Movement Control (AMC) in Handling Aircraft at Abdulrachman Saleh Airport Apron Malang. This research was conducted on August 24 – August 29 2022. The results of this research were obtained from observations, interviews and documentation and will be presented in this chapter. The reduced data will then be analyzed and discussed.

Abdulrachman Saleh Malang Airport is an airport located in Pakis, 17 km east of the city center of Malang, Malang Regency, East Java Province. This airport is also used for military purposes in national defense, so this airport is given the name Abdulrachman Saleh LANUD, dan di bandara ini adalah daerah komando operasi pertahanan Wing 2 Korps Pasukan Khas (Paskhas) Angkatan Udara serta penyimpanan pesawat Hercules C-130 dan Super Tucano. Bandara ini dikelola oleh Unit Penyelenggara Terbuka (UPT) Direktorat Jenderal Perhubungan Udara dengan kategori UPT Kelas I. Bandar Udara Abdulrachman Saleh Malang diberikan kode IATA MLG dan kode ICAO WARA dengan panjang landasan pacu (runway) 2.250 x 40 m. Bandara ini melayani penerbangan domestik dengan tipe penerbangan sipil dan militer. (sumber; ditjen.hubud.com).

1. Standard Operational Procedure for the Apron Movement Control (AMC) unit in handling aircraft at the Abdulrachman Saleh Malang Airport apron.

Apron Movement Control (AMC) is an airport personnel who has a license and rating to carry out the duties of being in charge of flight operations, monitoring aircraft movements, vehicle traffic, passengers and monitoring cleanliness in the airside area as well as recording flight data at the airport. Supervision carried out by AMC aims to create discipline from service users which can affect operational activities on the air side, especially aprons.

In carrying out operational tasks in the field, the AMC unit carries out tasks in accordance with the standard operating procedure (SOP) guidelines with the following description:

a. Apron Movement Control Unit Tasks (AMC)

- 1) Carry out supervision of officers, vehicles, Ground Support Equipment (GSE) operating on the apron to ensure that the movement of aircraft towards the parking stand is not disturbed and free from obstacles or FOD.
- 2) Ensure that the type of aircraft that arrives matches the apron capacity.
- 3) Stop the movement of aircraft, Ground Support Equipment (GSE) vehicles on the apron for safety reasons.
- 4) Enter block-on/block-off data and aircraft registration into the computer and record it in the movement sheet.

b. Scope of Work of Apron Movement Control Unit (AMC)

- 1) Monitoring the movement of aircraft by Apron Movement Control (AMC) personnel carrying out the movement of arriving and departing aircraft, aircraft from/to hangars, aircraft movement back to parking stands (RBS/RTB), as an effort to prevent aircraft collisions on the apron.
- 2) Supervision of the coordination of cleanliness on the apron, supervision and coordination to ensure conditions in the airside area and is carried out periodically according to the needs of each branch office.
- 3) Monitoring of fuel spills on the apron. Spills originating from aircraft, vehicles/GSE which may result in damage to the apron facility or may result in damage to the apron facility in the form of damage to the surface markings of the apron joint sealant. AMC officers supervise cleaning up of fuel spills.
- 4) Supervision and coordination of facilities on the air side, the Apron Movement Control (AMC) unit is responsible for the feasibility and readiness of airside facilities including the apron, parking stand/coordinate identification number, flood light, apron edge, apron guidance light, hydrant pit.
- 5) Aircraft guidance Aircraft piloting services are carried out when an aircraft is experiencing a bomb threat, sabotage, hijacking or technical problems.
- 6) Non-aircraft pilotage services are carried out if the administration of a vehicle that is not equipped with the requirements that apply on the air side.
- 7) VVIP vehicle guidance service is the guidance of state protocol vehicles whose passengers are state officials at the level of president/head of government. Administration of the customer/ADM VIP Room or the person in charge of operations at the request of state protocol and is carried out using a follow me car.
- 8) Handling incidents and accidents on the air side. Incident is a condition where the minimum standards required in flight operations are not or are not met which may affect the safety of flight operations. An accident is an event that is unexpected and

occurs unexpectedly to objects or injuries to people as well as other losses that are material and non-material in nature, and can disrupt flight operations.

- 9) Supervision and control of people on the air side, people on the air side are the duties and functions of the personal Apron Movement Control (AMC) carried out simultaneously every 1 hour to create order on the air side and prevent unwanted things from happening. Perpetrators of violations due to warnings or witnesses in accordance with applicable provisions.
- 10) Supervision and control of Ground Support Equipment (GSE) vehicles on the air side.
- 11) Supervision and control of Ground Support Equipment (GSE) vehicles is the duty and function of Apron Movement Control (AMC) personnel. Supervision and control are carried out simultaneously every 1 hour to create order on the air side and prevent unwanted things from happening.
- 12) Flight data input, is one of the tasks and functions of the Apron MovementControl (AMC) unit to input flight data into the application.
- 13) Computer includes block-on/block-off data, aircraft registration, aircraft type, parking stands and use of garbarata/GGS. Flight data input is carried out every time there is a movement where the data will be used by commercial units as PJP4U billing support data.
- 14) Recording of log book reports, carried out as a manual data record for each activity or event during task activities from the beginning of the shift change to the change of the next shift and log book recording is carried out by the supervisor.

To ensure conditions in the airside area or apron are free from incidents, namely by carrying out inspections to ensure the apron is ready for operation and clear from FOD (Foreign Object Debris), so that it can be used by airlines or Ground Handling to handle aircraft and also usually before the plane the landing has a joint inspection from the AMC unit and the airline or Ground Handling as well as the Indonesian Air Force.

The intended role of the AMC Unit is service and supervision of the movement of aircraft and vehicles on the air side, supervision of air side cleanliness, monitoring of oil and fuel spillage, supervision of air side facilities, aircraft piloting services in the air, raid activities on the air side in question are in the apron area, as well as input of flight data, recording, reporting of logbook data, and reporting of task implementation. As for the junior AMC's authority, such as supervising and regulating traffic movement on the apron, making arrangements for aircraft parking on the apron, guaranteeing the facilities on the apron are in good condition, guaranteeing the safety of the movement of people, equipment and aircraft on the apron. In addition, there are senior AMC authorities such as supervising and regulating traffic movement on the apron, making arrangements for aircraft parking on the apron, guaranteeing the facilities on the apron are in good condition, ensuring cleanliness on the apron, ensuring the safety of the movement of people, equipment and aircraft on the apron, monitoring all activities and facilities on the apron, planning aircraft parking arrangements in emergency conditions, evaluating and coordinating operational activities on the apron.

The AMC unit service is to regulate the movement of aircraft with the aim of avoiding collisions between aircraft. First, get an estimate from the ATC regarding the type of aircraft that will enter, whether it is the narrow body or wide body category, then allocate parking stands, the configuration of the narrow body and wide body aircraft types varies according to existing rules so that this does not causing incidents such as collisions between aircraft wings or planes crashing into garbarata and others. Then services for emergency aircraft such as when there is heavy rain and the pilot's visibility is not good, then the AMC unit guides or

supports the plane with a follow me car with a pilot request procedure to the ATC unit then the ATC unit informs the AMC unit.

Efforts to ensure safety on the air side, for example, aircraft that will enter, which will land, or before landing, before the plane enters the apron, the AMC officer checks the apron that the plane will pass through, to ascertain whether there is FOD, fuel/oil spills, and also The scattered GSE equipment must be empty where the aircraft will be parked, because it must be ensured that there cannot be any FOD. Supervision of the AMC unit at Abdulrachman Saleh Airport in Malang, namely, the first is routine inspection of the cleanliness of the airside area or apron, if FOD is found such as paper or gravel waste it is immediately taken and collected. But if fuel spills, the AMC unit informs the airline or Ground Handling concerned to clean it up. Because basically the cleanliness of the apron is the responsibility of the AMC unit. Second, for disciplinary control of activities on the apron, such as for officers carrying out activities in the apron area, they must wear a safety vest, for officers driving vehicles on the airside, they must have a TIM (driving license sign) and when extending the TIM, the AMC unit reminds again these rules apply such as vehicle speed, then when the weather is bad/rain it is mandatory to turn on the vehicle's lights (rotary hazard).

Following are the supervisory management procedures for the cleanliness of the apron area, namely FOD (foreign object debris) and cleaning up of fuel/oil spills:

1. Monitoring and Handling of FOD (Foreign Object Debris).

a. Procedures

- 1) Cleaning supervision procedures are divided into two, namely supervision of cleaning activities carried out by the party concerned and routine supervision/inspection of FOD in the apron area.
- 2) Apron Movement Control Officers convey that Airline Operators, Ground Handling and Pertamina have the responsibility to minimize the risk of aircraft damage due to FOD, every FOD must be removed and disposed of properly after it is found.
- 3) Apron Movement Control officers ensure that cleaning staff in carrying out activities always adhere to safety procedures on the airside.
- 4) FOD (foreign object debris) inspection method on the apron:
 - a) The cleaning inspection method carried out is by manual inspection, namely carrying out direct control by using a vehicle to the apron area, baggage make up and break down, service road, and the area around the apron.
 - b) The inspection method is by walking around the entire apron area and its surroundings.
- 5) Frequency of FOD (foreign object debris) inspection on the apron:
 - a) Check the apron with the vehicle at least 3 times in each shift.
 - b) Checking the apron on foot is carried out as often as possible.
- 6) Apron cleaning from FOD can be done manually or using a car sweeper and if deemed necessary can use chemicals.

b. Executor

- 1) Airline Service Supervisors
- 2) Apron Movement Control Officer
- 3) Air Traffic Control Officer
- 4) Airport Airside Facilities Units
- 5) Ground Handling/Airline Officers
- 6) Cleaning Apron Officer

c. Equipment

- 1) Telephone Plane
 - 2) Handy Talky
 - 3) Radios
 - 4) Computer/Laptop 1 Unit
2. Monitoring and Cleaning up of Fuel/Oil Spills
 - a. Procedure
 - 1) The Apron Movement Control Unit supervises and controls the compliance of Airlines Operators, Ground Handling Operators, Catering Partners, and other Agencies in handling fuel/lubricant spills in the airport apron area as stated in the airside safety manual.
 - 2) The Apron Movement Control Unit conducts periodic monitoring at least 3 times per shift, to find out facts on the apron for fuel/lubricant spills.
 - 3) Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies must ensure that the vehicles and equipment used are in good operating condition and have no leaks.
 - 4) Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies must ensure the cleanliness of the aircraft parking locations served are clean from disturbances, including fuel/lubricant spills.
 - 5) The inspection is carried out before performing the service and after performing the service.
 - 6) If Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies find fuel/lubricant spills in the airside area, they must immediately report this to the Apron Movement Control unit.
 - 7) Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies are required to clean up fuel spills/lubricant spills that result.
 - 8) After receiving the report, the Apron Movement Control officer immediately checks the location of the spill/spill.
 - 9) If the Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies are unable to clean or the cleaning results are not considered optimal by the Apron Movement Control unit, then the cleaning will be taken over by the Airport Management Unit (UPBU).
 - 10) The Apron Movement Control Unit coordinates with the Airport Fire Fighting and Rescue unit to carry out cleaning up of fuel/lubricant spills.
 - 11) The company concerned must fill out and sign the cleaning request form or the minutes that have been prepared.
 - 12) The Apron Movement Control officer makes a cleaning report which is signed by the company concerned, the Airport Fire Fighting and Rescue and the Apron Movement Control unit.
 - 13) Bills for cleaning fees are made by the relevant airport management in accordance with the minutes made by Apron Movement Control, will be billed to the company concerned and must pay off the bill.
 - b. Executor
 - 1) Airlines Service Supervisor
 - 2) Apron Movement Control Officer
 - 3) Airport Fire Fighting and Rescue Units
 - 4) Airlines Operators
 - 5) Airport Airside Facilities Units

- 6) Ground Handling Operators
 - 7) Catering Partners
 - 8) Other Agencies
- c. Equipment
- 1) Telephone Plane
 - 2) Handy Talky
 - 3) Radios
 - 4) Request Form for Cleaning up Spilled Fuel/Lubricants in the Airside).

AMC officers check the apron that will be passed by the aircraft to ensure whether there is FOD and spills of fuel (fuel/oil) on a regular basis according to the SOP. At Abdulrachman Saleh Airport in Malang, it was found that there were cracks in the apron runway and heavy damage to the taxiway runway so that a lot of gravel resulted from the damage. The AMC officer followed up according to the SOP, namely measuring the damage to the runway then temporarily closing the damaged area and making a report on the findings and reporting it to the air side manager regarding notification of damage and spending on repair budgets. To carry out mitigation, AMC officers carry out routine inspections if FOD is found, they will collect it in the space provided, then carry out an evaluation every month. This is done so that AMC officers know how big the potential hazard is in their work area and mitigate it to reduce related FOD (foreign object debris) and fuel (fuel/oil) spills. Regarding fuel spills in the apron area of Abdulrachman Saleh Airport Malang, it is rare but if there is a finding, the AMC officer will inform the airline or Ground Handling concerned to clean it up and if AMC cleans up, a fee will be charged per centimeter (cm).

The supervision of the AMC unit when the aircraft performs engine running up already has procedures such as a safe radius around the aircraft, for full power when it is on the runway and it must be ensured that there is no traffic or is empty on the runway, this procedure is usually called clearance running up aircraft. If a fire occurs, the AMC unit swiftly coordinates with the fire department or the PKP-PK unit. To regulate the speed of traffic on the air side according to SKEP/100/1985 and SKEP/140/1999, there are four rules for each traffic in the airside area, namely for access roads a maximum of 40 km/hour, service roads or going to the apron. it is 25 km/hour, apron service is 10 km/hour, then for inside the apron area with the condition that there is an airplane it is a maximum of 5 km/hour.

The performance of the AMC unit at Abdulrachman Saleh Airport in Malang in ensuring flight safety, especially in the airside area (apron) is very important and is said to be good because in carrying out its duties and responsibilities it is in accordance with the Standard Operating Procedure (SOP) from the Ministry of Transportation and the UPT itself . First, in terms of allocating parking stands for aircraft because the aircraft are of different types and the AMC unit has the authority in this regard. Second, traffic control in the apron area is the job of the AMC unit to deal with unwanted incidents. Third, ensure cleanliness in the airside area or apron at all times.

2. Obstacles faced by the Apron Movement Control (AMC) unit at Abdulrachman Saleh Airport in Malang.

Every time you carry out your duties and responsibilities at the airport, of course there are problems or obstacles, whether big or small problems, this cannot be separated from every job carried out. At Abdulrachman Saleh Airport in Malang there was a problem but it was not severe, the problem was that one of the push back car (aircraft towing tractor/ATT) vehicles experienced trouble when pushing back the aircraft at the parking

stand (apron) and could not be operated because the engine was the push back vehicle could not be revived, so it had to be withdrawn using the AMC unit's follow me vehicle. Then another problem, namely the tire of the Sriwijaya Air plane broke (exploded) on the parking runway (apron), this was a minor incident, so AMC officers were swift to coordinate with the airline or technicians from the aircraft to immediately repair or replace the tire and the officer AMC immediately tackled the problem until it became clear.

The obstacle in the operational activities of the AMC unit at Abdulrachman Saleh Airport in Malang is the determination of parking stands because Abdulrachman Saleh Malang Airport is still under the auspices of the Indonesian Air Force, so parking stands still refer to the Indonesian Air Force and are also constrained by radio communication from ATC with us. is on the ground, which often experiences problems with supporting equipment such as radio disconnection and also accurate data on the monitor or apron movement record that has not been read by ATC because if the data has been input by the AMC unit, it will automatically go directly to the ATC unit and also GH/airline. However, if it has not been received or has an error, then the AMC unit is obliged to coordinate via radio or telephone communication. The Head of the AMC Unit as the work coordinator, always evaluates the problems faced and every responsibility assigned to members.

Then for other obstacles in operational activities, namely the existence of severe damage to the apron and taxiway runways so that operational activities did not run well and did not run optimally because the area had to be closed temporarily, related to this incident, the AMC unit made a report on the runway damage finding, then coordinated with the building and runway unit (bangland) and report to the assistant air side manager as the follow up party. The responsibility of the AMC unit regarding this matter, when carrying out an inspection then there are findings, what is done is documentation, making minutes of findings, reporting to the assistant air side manager and closing the area that was damaged.



Figure 1. Apron Base Damage

Source: Research Documentation

Based on Figure 1 is the damage to the apron runway with a heavy damage category. This damage is caused by loads that are on the runway such as aircraft, Ground Support Equipment and other 4-wheeled vehicles. For incidents like this, it is also necessary to issue a NOTAM (Notice to Airman) so that all airports or all flights can find notifications or news at Abdulrachman Saleh Malang airport. This damage has the potential to cause FOD (Foreign Object Debris) which is like gravel or other hazardous materials in the runway and apron and taxiway areas which have the potential to pose a hazard to aircraft. Damage to the runway occurs for many reasons, usually due to the weight of the aircraft itself, thus the AMC Standard Operational Procedure states that when pushing back an aircraft with a wide body type, AMC officers are required to inspect the runway, if there is damage, AMC

officers immediately make the minutes of the findings then coordinate with the Bangland unit (buildings and runways).



Figure 2. Taxiway Runway Damage

Source: Research Documentation

Based on Figure 2, the damage to the taxiway runway is categorized as light damage. For incidents like this, there is no need to issue a NOTAM (Notice to Airman) but the area must be closed temporarily to carry out quick repairs by the building and runway (bangland). Things like this can also affect flight operations at Abdulrachman Saleh Malang airport. What is of concern is that the damage has the potential to cause FOD (Foreign Object Debris) which is like gravel or other hazardous materials in the runway and apron and taxiway areas which have the potential to pose a hazard to aircraft safety and operations. Damage to the runway usually occurs due to the weight of the aircraft itself, thus in the AMC Standard Operational Procedure that when pushing back an aircraft with a wide body type, the AMC officer is required to carry out an inspection of the runway, if there is damage, the AMC officer immediately makes a report on findings. then coordinate with bangland units (buildings and runways).



Figure 3. Fuel Spill

Source: Research Documentation

Based on Figure 3 above, there are findings of fuel spills in the apron area, so that area must be closed temporarily until handling is declared complete. This can cause a fire in the apron area due to the very hot temperature, so when a fuel spill occurs, it must be handled quickly, at least in a short time it has been resolved. If a fuel spill is found, the AMC unit will immediately contact the party concerned by making a meeting report. Then the party concerned is obliged to clean up, but if the party concerned asks the AMC or in this case the airport to clean up, a fee (bill) will be charged according to the procedure, which is calculated based on the area of the spill and is measured in centimeters (cm). so the bill is multiplied per centimeter. Regarding the cleaning up of fuel spills, the SOP has been regulated, as follows:

- a. Airlines Operators, Ground Handling Operators, Catering Partners and other Agencies are required to clean up fuel spills/lubricant spills that result.
- b. After receiving the report, the Apron Movement Control officer immediately checked the location of the spill/spill.
- c. If the Airlines Operators, Ground Handling Operators, Catering Partners and other agencies are unable to clean up or the cleaning results are not considered optimal by the Apron Movement Control unit, then the cleaning will be taken over by the Airport Management Unit (UPBU).
- d. The Apron Movement Control Unit coordinates with the Airport Fire Fighting and Rescue unit to carry out cleaning up of fuel/lubricant spills.
- e. The company concerned must fill out and sign the cleaning request form or the minutes that have been prepared.
- f. The Apron Movement Control officer makes a cleaning report which is signed by the company concerned, the Airport Fire Fighting and Rescue and the Apron Movement Control unit.
- g. Bills for cleaning fees are made by the relevant airport management in accordance with the minutes made by Apron Movement Control, will be billed to the company concerned and must pay off the bill.

Abdulrachman Saleh Malang Airport is a Civil Enclave Airport (Civil Airport in the Military Area), so military exercises are often carried out which can hinder flight operations, such as AMC officers being asked to change the apron position for Citilink aircraft where from apron 4 it is replaced with an apron. 6 for Detachment 88 training (Special Dates 88) with joint training with the Indonesian Air Force regarding securing terrorists during plane hijacking. With this in mind, AMC officers had to prepare for the transfer of the apron in coordination with ground handling and also coordination with passage officers for information on aircraft passengers at that time with tight security guarded by weapons and confidential so that no photos of evidence were allowed in the field.

The most common obstacle to the AMC unit at Abdulrachman Saleh Airport, Malang, is human error, the allocation of aircraft on a first come first basis from the ground or from LANUD related to VIP passengers and miss communication, such as when there is an incident, usually Ground Handling does not inform the AMC unit and also parking stand plotting issues, for example the AMC unit has informed the ATC unit parking stand number 4, it turns out that the Ground Handling officer is still at parking stand number 5, even though the AMC unit has also informed his colleagues about the parking stand number. Things like this often happen in the field during operational activities.



Figure 4. Manual Ladder (Non-Motorized)

Source: Research Documentation

Based on Figure 4 above, it can be seen that the problem with the AMC unit at Abdulrachman Saleh Airport, Malang is that they do not yet have an aviobridge service facility, so the service is not maximized because every airline always wants to serve its service users with excellent service to maintain its product and company image. Then for VIP/VVIP aircraft it's the same way, but the AMC unit has not prepared an aviobridge facility for aircraft and passenger services. Aviobridge or commonly called Garbarata is a walled and roofed bridge that connects the passenger lounge to the aircraft door to make it easier for passengers to get on and off the plane. Aviobridge also functions to protect passengers and flight crew from the sun or rain. Currently, at Abdulrachman Saleh Airport, Malang, serving aircraft, they still use manual ladders pulled by ground handling during operational activities.



Figure 5. BCL (Baggage Conveyor Loader)

Source: Research Documentation

Based on Figure 5, at Abdulrachman Saleh Airport, Malang, there is no special parking facility for GSE (Ground Support Equipment) equipment, so it can be seen in the figure that the GSE equipment is parked on the service road. Based on the rules that GSE equipment must have a special parking space, it cannot be handed over so that it can disrupt operational activities.



Figure 6. GSE Equipment (Ground Support Equipment)

Source: Research Documentation

Based on figure 6 above, that currently the GSE equipment at Abdulrachman Saleh Airport in Malang is still parked or stored in front of the AMC office, because there is no special parking space for GSE equipment yet. This can disrupt AMC's operational activities because the equipment is stored in front of the AMC office and also the mobility of the equipment every day in front of the AMC office, so that the work focus and also the work comfort of AMC officers are disturbed every day by the GSE equipment.

Then the obstacle that occurred was poor coordination between the AMC unit and the airline, the obstacle that occurred was the delay in providing the flight schedule for each airline to the AMC unit. This rarely happens, but it is very vulnerable and can cause problems, if it happens then the handling of the aircraft will be inefficient because the AMC unit tasked with preparing/providing a parking space for the arrival of the aircraft that will land will be late. Aircraft flight schedules from each company must be notified in a timely manner so that AMC is not confused in determining plotting parking stands. Usually, each airline delivers the flight schedule to the AMC and ATC units before starting flight activities. One example is for the allocation of parking stands, previously there was a schedule for each such as the incoming aircraft, the flight number, the registration code and the time or time as stated in the given flight schedule. If there is a sudden request such as a VIP aircraft, the AMC unit re-plots or repairs the allocation parking stand and this can sometimes make AMC officers overwhelmed in the field, the flight schedule from the airline must not be late to be given to the AMC unit before flight activities start.

The following is an example of a flight schedule that is usually given by each airline to the AMC and ATC units before flight operations begin. The purpose of the flight schedule notification is so that when plotting the parking stands according to the type of each aircraft.

**JADWAL PENERBANGAN TAHUN 2022
BANDARA ABDULRACHMAN SALEH MALANG**

NO	AIRLINE	NOMOR PENERBANGAN	RUTE PENERBANGAN	JADWAL KEBERANGKATAN		JADWAL KEDATANGAN		KETERANGAN
1	BATIK AIR	ID 7581	JAKARTA (HLP) - MALANG	HLP	06.55 WIB	MLG	08.25 WIB	
		ID 7580	MALANG - JAKARTA (HLP)	MLG	09.05 WIB	HLP	10.30 WIB	
2	GARUDA INDONESIA	GA 290	JAKARTA (CGK) - MALANG	CGK	08.15 WIB	MLG	09.55 WIB	
		GA 291	MALANG - JAKARTA (CGK)	MLG	10.40 WIB	CGK	12.15 WIB	
3	CITILINK INDONESIA	QG 750	JAKARTA (CGK) - MALANG	CGK	09.15 WIB	MLG	10.50 WIB	
		QG 751	MALANG - JAKARTA (CGK)	MLG	11.20 WIB	CGK	12.45 WIB	
4	CITILINK INDONESIA	QG 164	JAKARTA (HLP) - MALANG	HLP	12.20 WIB	MLG	13.50 WIB	
		QG 165	MALANG - JAKARTA (HLP)	MLG	14.30 WIB	HLP	16.00 WIB	
5	BATIK AIR	ID 7583	JAKARTA (HLP) - MALANG	HLP	11.30 WIB	MLG	13.00 WIB	
		ID 7582	MALANG - JAKARTA (HLP)	MLG	13.35 WIB	HLP	15.00 WIB	

KETERANGAN :

MLG : MALANG / ABDULRACHMAN SALEH MALANG
CGK : CENGKARENG / SOEKARNO HATTA
HLP : JAKARTA / HALIM PERDANA KUSUMA

UPDATE 24 Oktober 2022

Figure 7. Flight Schedule
Source: AMC Abdulrachman Saleh Malang Unit

Another obstacle is that if there is a visit by the President of the Republic of Indonesia, with that the poor AMC officers with the combined TNI must prepare a protocol in which the plane's position for the President of the Republic of Indonesia uses apron number 2, namely in front of the arrivals building with tight security. So, with this, the AMC officers as a whole must leave their duties and all focus on the RI President's protocol. Then on October 6 there was a charter plane which was outside the flight schedule (schedule). The plane was carrying one of the Indonesian artists with the entourage, so the AMC officers had to prepare a plotting parking stand with all considerations because there was a plane that was scheduled to land and AMC officers coordinated with the ground handling to prepare the marshaller. This can cause safety problems because the aircraft does not have a schedule, whereas every day on regular flights there is a schedule and plotting of each parking stand. Actually, if there is something like this, the airport must carry out a detailed inspection of the unscheduled aircraft, because it can cause flight safety problems.

The solution to this problem is that the AMC unit holds internal and external meetings with ATC, GH and the Indonesian Air Force, so that they can both provide advice and input regarding flight activities at Abdulrachman Saleh Airport in Malang, then the three parties can determine the best solution so that operational activities in the field carried out well without problems and obstacles.

CONCLUSION

Based on the results of the research and discussion, the researcher can draw the following conclusions: Standard Operational Procedure for the Apron Movement Control (AMC) unit in handling aircraft on the apron, namely service and supervision. The services in question are arranging aircraft movements, plotting parking stands, services for emergency aircraft using follow me vehicles. Then the supervision referred to is supervision of vehicle traffic, movement of people/passengers, loading and unloading of goods, routine inspections of FOD, fuel spills, supervision during refueling, and when the engine is running up. The performance of AMC officers at Abdulrachman Saleh Malang Airport is said to be good because in carrying out their duties and responsibilities they are in accordance with the Standard Operating Procedure (SOP) from the Ministry of Transportation and the UPT itself.

The problem or obstacle that occurred at Abdulrachman Saleh Airport in Malang was that one of the push back car (aircraft towing tractor/ATT) vehicles experienced trouble when pushing back the aircraft at the parking stand (apron), so it had to be pulled using a follow me car owned by AMC units. Then another problem, namely the tire of the Sriwijaya Air plane burst (exploded) on the parking runway (apron). Obstacles in operational activities, namely the determination of parking stands still refer to the Indonesian Air Force and also problems with radio communications that often break up between ATC and AMC, accurate data on monitors or apron movement records are late to enter the ATC unit and also GH/airline. There was damage to the apron and taxiway runways so that operational activities were not optimal because those areas had to be temporarily closed. Then the aviobridge service facilities were not yet available, the airline was late in delivering the flight schedule, the protocol for the visit of the President of the Republic of Indonesia and Densus 88 and TNI training related to handling terror.

Suggestions for UPT Abdulrachman Saleh Airport Malang: as a company that manages airport services in particular, it must always carry out evaluations so that operational activities run safely and smoothly. Specifically for the Apron Movement Control unit, as the unit that has the task and function of determining the placement of aircraft parking stands at airports, it is expected that they will always coordinate with the Indonesian Air Force

regarding handling aircraft on the apron, then conduct briefings before operational activities run and work according to the SOPs. apply and maintain cohesiveness between teams and coordinate more often with the LANUD between training schedules and operational schedules for commercial aircraft and the Indonesian Air Force not to collide with each other. For future researchers as reference material for conducting similar research, and for future researchers to be able to add variables and indicators to the title so that research is more interesting and better than the current one.

BIBLIOGRAPHY

- Aritama Aprilianto, Salfiando. 2020. Evaluasi Pelanggaran Yang Terjadi Di Wilayah Apron Bandar Udara Internasional Juwata Tarakan. Skripsi Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Amri, Besse Novariani. (2022). Peran Unit Apron Movement Control (AMC) Dalam Menjamin Keselamatan Penerbangan Di Bandar Udara Internasional Sultan Hasanuddin Makassar. Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Annex 14 Aerodrome, ICAO Document 9774, ICAO Document 9895, Undang-Undang Nomor 1 Tahun 2009 tentang Penerbangan.
- Bisnis[tempo].co, Tentang Kasus Senggolan Pesawat
- Direktorat Jenderal Perhubungan Udara tentang Bandar Udara Abdulrachman Saleh Malang.
- Fajrin, Muhammad. 2020. Analisis Kinerja Apron Movement Control Terhadap Safety Di Bandar Udara Internasional Husein Sastranegara. Skripsi Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Hani, Naufal Raid. 2020. Optimalisasi Tugas Dan Tanggung Jawab Unit Apron Movement Control (AMC) Dalam Rangka Pelaksanaan Uji Laik Kendaraan Dan Ground Support Equipment (GSE) Yang Beroperasi Di Wilayah Apron Bandar Udara Depati Amir Pangkalpinang. Skripsi Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Hubud.dephubud.go.id, tentang Bandar Udara
- Inda, Rosalinda. 2014. Peran Apron Movement Control pada PT. Angkasa Pura II Bandar Udara Internasional Minangkabau Padang. Skripsi Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Letsoin, Petrus Dennish. 2020. Optimalisasi Koordinasi Antara Unit Apron Movement Control Dan Unit Ground Handling Dalam Penempatan Parking Stand Pesawat Di Bandar Udara Frans Kaisiepo Biak. Tugas Akhir Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- Moleong, Lexy J. (2010). Metodologi Penelitian Kualitatif (Edisi Revisi).(2011). Metodologi Penelitian Kualitatif (Edisi Revisi). Bandung: PT. Remaja Rosdakarya.
- Nazir, Moh. (2014). Metode Penelitian. Bogor: Ghalia Indonesia.
- Putri, Vernanda Sasqiah (2022). Analisis Kinerja Petugas Apron Movement Control (AMC) Dalam Meningkatkan Keselamatan Penerbangan Di Bandara Udara Internasional Adi Soemarmo Solo. Skripsi STTKD Yogyakarta.
- Sugiyono. (2011:9). Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: PT Alfabet.
- Sumut.inews.id, Tentang Lion Air Ditabrak Mobil di Kualanamu
- Wikipedia, Tentang Daftar Kecelakaan dan Insiden Pesawat Penumpang