CHAPTER I
INTRODUCTION

1.1 Background

Air transportation, especially airplanes, has become one of the main modes of transportation for the community. The speed, ease, and flexibility of aircraft make this mode of transportation able to connect remote and difficult to reach places. High security factors also cause aircraft to be chosen as the main mode of transportation.

This makes the aircraft manufacturers required to be able to guarantee the safety and reliability of aircraft. Before being allowed to fly by the authorized party, the aircraft and all the systems installed inside must be inspected and confirmed to be safe, reliable, and not harmful to the aircraft, passengers and crew. This is governed by the regulations that apply in the licensing country. The Republic of Indonesia, through the Ministry of Transportation, regulates the flight feasibility of aircraft based on CASR (Civil Aviation Safety Regulation).

Indonesian Aerospace as Aviation industry must consider to aspects of safety conditions in designing systems, equipment and aircraft. The functions is specifically engineered to determine the conditions according to comply with CASR Part 23.1309 "The occurrence of any failure condition that would prevent the continued safe flight and landing of the airplane must be extremely improbable; and The occurrence of any other failure condition that would significantly reduce the capability of the airplane or the ability of the crew to cope with adverse operating conditions must be improbable" with System Safety Assessment (SSA).

AHRS is a system that provides information about the pitch and roll as well as the heading (motion of the aircraft motion on the vertical axis) to the geographical coordinates around. This information is needed on the system as navigation and control of aircraft to show aircraft behavior and direction. So the attitude heading reference

system (AHRS) in the N219 aircraft that have been in aircraft product would qualify to airworthiness certification from autorithy.

The safety assessment process provides analytic evidence showing compliance with airworthiness requirements. System Safety Assessment (SSA) is a safety assessment process of collects, analyzes, and documents verification that the system, as implemented, meets the system safety requirements established by the Functional Hazard Assessment (FHA). The Functional Hazard Assessment of attitude heading reference system as the start of SSA and become the beginning of the next step of SSA has been analyzed from the past research Preliminary System Safety Assessment (PSSA). The next step of SSA is Fault Tree Analysis (FTA).

A Fault Tree Analysis (FTA) is a deductive failure analysis which focuses on one particular undesired event and provides a method for determining causes of the event.

1.2 Problems Description

1. How to establish Fault Tree Analysis (FTA) for the failure condition of AHRS System the N219 aircraft?
2. How the Fault Tree Analysis (FTA) shows AHRS System the N219 aircraft comply with CASR Part 23?

1.3 Purposes

The purpose of this final report is:

1. To know how to establish Fault Tree Analysis (FTA) for the failure condition of AHRS System the N219 aircraft.
2. To know how the Fault Tree Analysis (FTA) shows AHRS System the N219 aircraft comply with CASR Part 23.

1.4 Scope of Problems

This final report explains system safety Assessment of Attitude Heading Reference System (AHRS) of the N219 aircraft. Functional Hazard Assessment for qualitative analysis and Fault Tree Analysis for quantitative analysis.

1.5 Advantages

Advantage of final report is:

1. For the author, it can show intermediate event and basic event of AHRS using Fault Tree Analysis method on the N219 aircraft each Failure Condition.
2. For company, it can show inspection of a system that it meets safety requirements and summarizes AHRS failure conditions and their effect on the N219 aircraft.

1.6 Systematic Process of Writing

This technical report consists of five chapters, which are Introduction, Literature Review, Reasearch methodology, Analysis and Discussion, and Conclusions.

CHAPTER I INTRODUCTION

This chapter contains an introduction that provides an explanation of the Background, Problems Description, Scope of Problems limited by the author obtained from the problems description , Advantages of research obtained by the author in conducting research, and Systematic Process of Writing used to help the author's research to make a final report.

CHAPTER II LITERATURE REVIEW

This chapter contains a description of the literature review, the theoretical basis for the fault tree analysis method, and the theoretical basis for the AHRS (Attitude Heading Reference System) component..

CHAPTER III REASEARCH METHODOLOGY

This chapter contains the research methodology which contains the steps taken by the authors that have been researched and carried out. In this section, flow chart is also made to facilitate the implementation of research from the beginning of the

implementation of the research to drawing conclusions obtained from the implementation of the research.

CHAPTER IV ANALYSIS AND DISCUSSION

This chapter contains data collection and processing, which contains relevant and needed data with the aim of studying and data obtained from the company that is the object of the author to collect data during research which is then used in the data processing process and discussion. problems analyzed in problem solving from the results of data that have been obtained by the author and from the results of data processing that has been done.

CHAPTER V CONCLUSIONS

This chapter contains conclusions from the discussion obtained, and provides suggestions after the conclusions made.