



## **SAFETY MANAGEMENT SYSTEM MANUAL**

**FOR**

**GALAXY AEROSPACE (M) SDN BHD  
AMO/2016/02**

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# SAFETY MANAGEMENT SYSTEM MANUAL

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## PART 10 SAFETY PERFORMANCE MONITORING AND MEASUREMENT

### 10.1 INTRODUCTION TO SAFETY PERFORMANCE INDICATORS AND TARGETS

Safety performance management is central to the SMS activity to identify the top hazards on the company. Safety Performance Indicators (SPIs) is to determine whether Galaxy Aerospace (M) business activities and processes are working effectively to achieve its safety objectives.

Safety performance shall be verified in reference to the safety performance indicators (SPI) and safety performance targets of the SMS in support of the organization's safety objectives.

Safety performance indicators are generally data-based expressions of the frequency of occurrence of some events, incidents, or reports. The Safety Performance of an SMS is expressed by two measures or metrics as below:

- Safety Performance Indicator (SPI).
- Safety Performance Target (SPT).

GAM Safety Performance Indicator (SPI) and Target (SPT) are **reviewed yearly** based on safety performance of the company and audit findings.

### 10.2 SAFETY PERFORMANCE INDICATORS

Safety performance indicators are means to verify the safety performance of maintenance operations and to validate the effectiveness of risk controls. The indicator(s) chosen should correspond to the relevant safety goals. GAM's safety indicators would be as follows:

- High-consequence indicators to the monitoring and measurement of high consequence occurrences, such as accidents or serious incidents. High consequence indicators are sometimes referred to as reactive indicators. Any significant abnormal trend or breach of the target for any of Acceptable Level of Safety Performance (ALoSP) indicators would warrant appropriate investigation into potential hazards or risks associated with such deviation.
- Lower-consequence indicators to the monitoring and measurement of lower consequence occurrences, events, or activities such as voluntary reporting, non-conformance findings or deviations. Lower-consequence indicators are sometimes referred to as proactive indicators.



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### 10.3 SAFETY TARGET

The Accountable Executive in consultation with the Safety Manager defines the safety performance indicators and targets. These targets must then be agreed and concurred by the CAA Malaysia. GAM’s safety targets would be as follows:

- 5% reduction of MOR monthly incident rate per 10,000 hours maintenance from previous year average rate.
- 5% reduction of CAMO ARR & audit finding rate per 10,000 hours maintenance from previous year average rate.
- 5% reduction of AMO audit finding rate per 10,000 hours maintenance from previous year average rate.
- 4% improvement of training attendance rate per 10,000 hours maintenance from previous year average rate.
- 2% improvement of voluntary safety reporting rate per 10,000 hours maintenance from previous year average rate.

### 10.4 SAFETY PERFORMANCE MONITORING

Safety performance monitoring is the process whereby the SPIs are reviewed in relation to safety management policies and objectives. Such monitoring shall be done at the committee level with respect to its pre-established safety target (desired level). This performance monitoring process includes:

- Safety reporting.
- Safety assessment.
- Safety reviews including trending of data and
- Safety audits.
- Surveys.

### 10.5 ACCEPTABLE LEVEL OF SAFETY PERFORMANCE (ALoSP)

Acceptable Level of Safety Performance (ALoSP) is the expression of an organization’s minimum acceptable safety performance level(s) associated with a set of pre-established safety indicators. They are the minimum safety performance that GAM should achieve while conducting their maintenance functions.

The relationship between acceptable level of safety, safety performance indicators, safety performance targets and safety requirements are as follows:

- An acceptable level of safety is the overarching concept.
- Safety performance indicators are the measures or metrics to determine if the



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acceptable level of safety has been achieved.

- Safety performance targets are the quantified objectives pertinent to the acceptable level of safety.
- Safety requirements are the tools or means required to achieve the safety performance targets.
- Corrective action shall be taken when target is not achieved and /or alert levels are breached. This includes new target and completion dates.

## 10.6 DEVELOPING OF SPI

In GAM, SPIs are being developed by the Safety Manager based on the GAM entire operations. This includes, but not limited to AMO, Quality, CAMO, Safety and MTO Department. The safety performance indicators and safety performance target of the SMS will be reviewed in the Safety Action Group & Safety Committee Meeting. Safety performance shall be acknowledged in reference to the safety performance indicators (SPI) and safety performance targets (SPT) of the SMS to be fully supported by all relevant heads of department in GAM.

SPIs are monitored via performance chart. The acquired data such as incident / accident report and other high/low consequences outcomes, monthly man hours utilization, numbers of hazard reporting and numbers of NCR raised are collected from the relevant department.

The collected data analyzed and presented in chart form. Monthly submission of the collective data to CAAM purposely for continued engagement between the heads of department (Post Holders) and the CAAM representative.

SPIs are used to measure GAM operational safety performance and company SMS performance. SPIs rely on the monitoring of data and information from various sources including but not limited to from top management, department i.e., AMO, QA, CAMO, MTO, and safety department. Several factors have been considered during developing the SPIs i.e., data availability, common industry SPI, reliability of the data and determining the correct indicators.

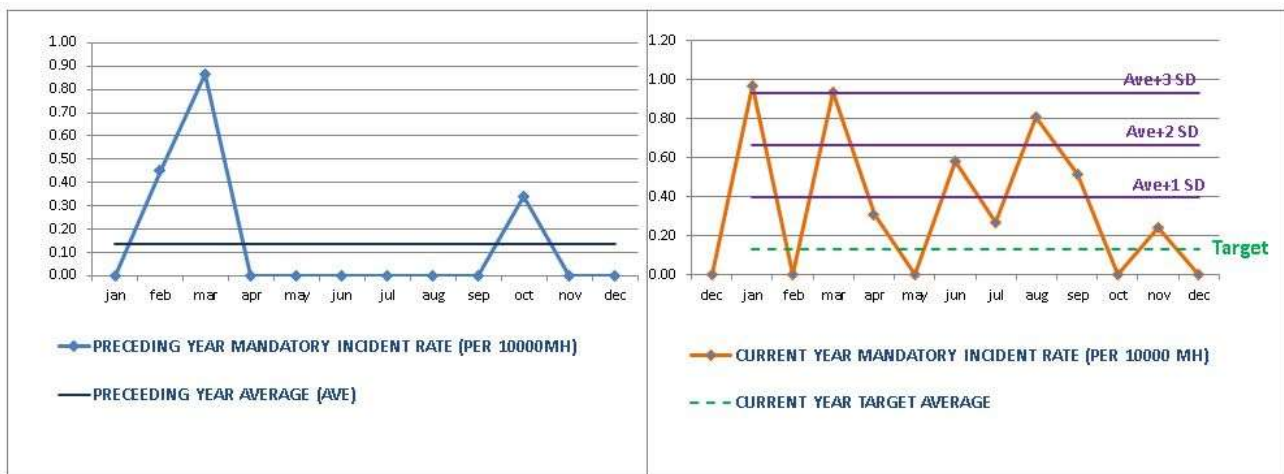
The development of SPIs should be linked to the safety objectives and be based on the analysis of data that is available or obtainable. The establishment of SPI shall get the approval from all relevant HOD during the Safety Committee Meeting (SCM). After SPIs have been established, GAM will ensure it is appropriate to the SPTs and alert levels. The monitoring and measurement process of selected safety performance indicators, corresponding SPTs and safety triggers will be updated during the SCM by the Safety Department.

### 10.7 SPI ALERT TRIGGER

Besides setting SPI, GAM has also established alerts in the SPI chart to define the abnormal or unacceptable event occurrence rate. The alert level setting will effectively serve as the demarcation line between an acceptable trend and an unacceptable trend for a safety indicator. If the event occurrence rate has not breached the alert level criteria, the performance is deemed to be acceptable and has achieved its target.

#### Alert Level Trigger

An alert (abnormal/unacceptable trend) is indicated if ANY of the condition below are met for the current monitoring period (current year)



- Any single point is above the 3 SD line/value.
- 2 consecutive points are above the 2 SD line/value.
- 3 consecutive points are above the 1 SD line/value.

When an alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, which may require further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend. The alert level setting is based on the SD basic calculation. To calculating the SD, the formula is:

$$\sigma = \sqrt{\frac{\sum (x - \mu)^2}{N}}$$

**x** is the value of each data point  
**μ** is the average value of all the data points.  
**N** is the number of data points and

Breached target or alerts shall be presented in the management meeting to be analyzed prior to submission to the authority. The issue will be disseminated to Safety Committee Meeting (SCM) and Safety Action Group (SAG) in purpose of continuous of safety information flow throughout the organization.



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