Exercise 2: Functional Failure and Task Development

Objective

The objective of this exercise is to apply the MSG-3 logic to identify and evaluate functional failures, assess their effects, and select the appropriate maintenance tasks. This process ensures that safety, operational reliability, and economic considerations are systematically addressed.

Steps to Achieve

Functional Failure Assessment

For each Maintenance Significant Item (MSI), identify possible functional failures.

A functional failure occurs when the item cannot perform its intended function within specified limits. Categorize the failure effects as:

- Evident: The failure is immediately apparent to the operating crew during normal duties.
- Hidden: The failure is not immediately apparent but could have safety or operational impacts when combined with other failures.

Document the functional failures and their effects.

Logic Path Application

Use the MSG-3 logic diagram to analyze each functional failure. The logic path will guide the determination of:

- Safety Effects: Does the failure directly or indirectly affect safety?
- Operational Effects: Does the failure impact the operational capability of the aircraft?
- Economic Effects: Is the cost of addressing the failure less than the cost of its consequences?
- Follow the decision flow and record your analysis at each stage.

Task Selection

Based on the outcomes of the logic path analysis, select the most effective maintenance tasks for each functional failure.

Tasks may include:

- Inspection (General Visual, Detailed, Special Detailed)
- Operational Check
- Servicing (Lubrication, replenishment)
- Restoration (Returning an item to its original condition)
- Discard (Replacing an item with a new one)
- Ensure the selected tasks are feasible, effective, and aligned with MSG-3 criteria.

Deliverable

The deliverable for this exercise is a detailed decision flow chart documenting the logic path taken for each MSI. Additionally, the selected tasks should be clearly recorded in the worksheet provided.