



## **Failure to Follow Procedures: The Buck Stops with Me**

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# FFP: The Buck Stops with Me

## Course Introduction

One of the most famous events with Failure to Follow Procedures implications actually happened over a century ago. You've heard of the Titanic, but did you know that, if procedures were followed, the infamous event may never have happened?

During construction, there was an effort to build larger and faster ships to increase the ship maker's return on investment. Because the maiden voyage started behind schedule, the Captain, the ship designer, and the crew were in a "hurry-up" mode.

Stories and movies based on the tale of the "unsinkable" ship leave the impression that the iceberg came out of nowhere. The night of the event was calm, and the moon was new, causing visibility problems. However, the ship stayed near its maximum speed, a little over 21 knots.

Earlier that day, the captain was notified, per procedures, by the telegraph operators that other ships were seeing many icebergs. The Titanic's course was diverted about 16 miles south of the normal shipping route.

Later in the afternoon, the telegraph operators received additional messages but were "too busy" to give the messages to the Captain. At 10:00 pm, more warnings arrived and failed to make it to the Captain.

When the iceberg came into view, there was no time to avoid it. Five of the watertight compartments were breached. The ship couldn't survive more than four of the compartments being flooded.

Earlier that day, the Captain chose to forgo a required lifeboat safety drill to ensure the comfort of the first-class passengers. This led to a hectic scene when the lifeboats were needed. Some lifeboats went out with as little as 27 passengers, even though they had the capacity to hold 65 people.

In the end, there were 500 empty spaces on lifeboats, and 1,500 people were dead.

If the crew hadn't been in "hurry-up" mode, or if all of the iceberg warnings had made it to the Captain, or even if lifeboat procedures were followed, things may have turned out much differently and many lives could have been saved.

While the Titanic was an ocean liner, the safety risks of FFP remain the same when it comes to aircraft.

## Course Welcome

Welcome to the *FFP: The Buck Stops With Me* course!

You already know the factors that contribute to Failure to Follow Procedures (FFP), and you also know the various methods for mitigating the risk involved with FFP. (See Appendix A for more information.)

That said, if Aviation Maintenance Technicians (AMTs) and other industry personnel have the technical knowledge to safely perform their jobs, why is FFP still a leading cause in administrative actions from various civil aviation authorities? Isn't knowledge enough? The simple answer is "no."

Reducing FFP events – and improving an organization's safety culture – requires continuous effort and a shared commitment.

At the end of this course, you'll have a better understanding of how an organization's culture affects safety with respect to FFP.

### **Organizational Culture**

An organization's culture reflects its personality. It includes the shared attitudes, beliefs, and values that determine the ways in which the organization and its people behave and solve business problems.

Simply put, culture is how organizations do things, and it is driven by leadership. How leaders behave, what they say, what they do, and what they value drives culture.

Finally, cultural inclinations are often well-entrenched – for good or for bad.

## Passing the Buck

While industry personnel understand the importance of using and following written technical procedures, Failure to Follow Procedures continues to be among the largest safety issues in aviation maintenance.

And who gets the blame? Of course, it must be the mechanic, right?

Or does the blame lie elsewhere? Maybe with inspectors who also overlooked some of the procedures? Often, people blame the manager or supervisor who rushed a task to meet a production schedule or flight departure time. Some blame the manufacturers who produced documentation that is incomplete, difficult to use, or just too complicated.

Procedure writers may blame the corporate legal department for requiring too many cautions and warnings. The lawyers, in turn, blame regulators for burdensome and unreasonable requirements.

The truth of the matter is that everyone is to blame for FFP. But there's good news! If everyone is part of the problem, they can also be a part of the solution!

When you – whether you're a top airline executive or a newly hired mechanic – commit to a culture of continuous procedure following, you'll break the cycle of passing the buck on FFP.

## Case Study 1 Summary: Large Airline Event

Take some time to learn the role that FFP played in an event involving an Airbus 319-131.

### **Event Description**

On May 24, 2013, a British Airways flight took off from London Heathrow Airport. During takeoff, the fan cowl doors from both engines detached from the aircraft, damaging the airframe and a number of aircraft systems.

The plane returned to Heathrow, but not before catching fire due to leaking fuel from a damaged fuel pipe igniting. There were no injuries reported after this event.

## **Shift and Workload**

Two technicians were scheduled to work on six aircraft, all requiring a Daily Check and two requiring a Weekly Check, during a twelve-hour overnight shift. This aircraft was the second on the list.

Neither technician stated that this workload was unusual, excessive, or unachievable.

## **Oil Levels**

Without placing warning notices in the cockpit, the technicians opened the fan cowl doors to check the Independent Drive Generator (IDG) oil levels, which were low in both engines.

## **Tools**

To replenish the oil, the technicians needed an IDG oil gun and the oil itself, which they didn't have on-site. Against procedures, they did not create an open entry for the oil uplift in the technical log.

They decided to work on other aircraft before retrieving those items, and the latches remained unlocked but with the latch handle hooks engaged so they did not protrude as far below the cowl.

## **Return to the Aircraft**

After retrieving the IDG gun and oil, they returned to what they believed was the aircraft in question. This aircraft – which was not the original aircraft – showed normal IDG oil levels. Therefore, the technicians determined that no service was necessary.

## **Verifying the Work**

The technicians then latched the fan cowl doors and checked each other's work, per the company's verification check procedure, and completed the original aircraft's Weekly Check worksheet.



## **Manpower**

The shift manager reported that he had requested additional manpower to work the night shift and that the planned level of manpower for this shift was insufficient to meet the likely workload.

This manpower problem was a long-standing situation that had not been rectified.

## **Dynamic Environment**

The investigation also found that due to the dynamic operational environment at this terminal, it was normal for arrival times and stands for the allocated aircraft to change as the shift progressed.

None of the six aircraft for the two technicians arrived at the expected stand.

## **Scope of Work**

It was difficult or impossible to tell the scope of work the aircraft would need during the shift, and both technicians cited this as a reason for opting to return to this aircraft later in the shift, after gathering supplies.

## **Fatigue**

The only measure of fatigue for the technicians was their working hours.

In the seven days prior to the event, one technician worked 70.2 hours (less than two hours shy of the maximum that the company allowed in a week), while the other worked 55.8 hours.

## **Pre-Flight Inspection**

The co-pilot stated that during the pre-flight walkthrough, he leaned over, but did not “get on his hands and knees” to check the position of the fan cowl door latches.

## Case Study 2 Summary: Small Airline Event

Take some time to learn the role that FFP played in an event involving a BAe 146 aircraft.

### **Event Description**

On January 30, 2018, the BAe 146 departed Midland Airport. Fifteen minutes after takeoff, at 5,000 feet, the oil quantity gauges for Engines 2, 3, and 4 showed empty, and Engine 1 showed near-empty. Shortly after turning back towards Midland, the low oil pressure warning light for Engine 3 illuminated.

The crew shut down the engine and declared an emergency as the low oil pressure lights for Engines 2 and 4 began to illuminate intermittently. With a successful emergency landing, there were no injuries reported for this event.

### **Magnetic Chip Detector Plugs (MCDPs)**

After landing, the captain watched as the crew chief checked the engines. The cowls were covered with oil and oil spilled to the ground when the cowls were opened. All four MCDPs were removed and found to have no seals.

### **Manpower**

The investigation revealed that the maintenance shift in question was supposed to have 12 people – the shift manager, 2 supervisors, 3 senior mechanics, and 6 maintenance technicians. However, one supervisor was home sick and two of the senior mechanics had quit.

### **Searching for MCDPs**

The shift manager directed one of the supervisors to change the MCDPs, though the supervisor had received no engine maintenance training.

MCDP change kits were normally assembled by the night shift, but because of the personnel shortage, the day shift assembled them on request.

## **Doing It Himself**

After finding no MCDP change kits in the maintenance hangar, the supervisor found MCDPs in the area of the engine bay. The MCDPs had been cleaned but not inspected or fitted with seals.

When none of the technicians were available upon his return, the supervisor decided to do the work himself.

## **Aircraft Maintenance Manual (AMM)**

The norm at this location was not to use the AMM for simple tasks. So among other steps missed, the supervisor did not check for a new seal for the MCDP or operate the engines to check for oil leaks and satisfactory engine operation.

## **Sign-Off**

The job card required that the work be signed off by the person who performed the work and by the person who supervised the work. The supervisor asked one of the technicians to sign off on the work, so he could then sign off as the supervisor.

The technician agreed, as this was not the first time he had been asked to do something like this. This was the last task for this aircraft, so it was released for service after sign-off.

## **Case Study 3 Summary: Rotorcraft Event**

Take some time to learn the role that FFP played in an event involving a Eurocopter AS350-B2 rotorcraft.

### **Event Description**

On December 7, 2011, a Eurocopter AS350-B2 helicopter, operating as a “Twilight Tour” sightseeing trip, unexpectedly made several changes in direction and altitude before crashing into mountainous terrain. Four passengers and the pilot were killed.

The wreckage showed that a flight control input rod was not connected between one of the three hydraulic servos and the main rotor.

## **Self-Locking Nuts**

The investigation found, first of all, that the company's maintenance personnel were reusing nuts that did not meet the criteria specified by Eurocopter and FAA guidance. This negated the safety benefits of one of the two required locking devices.

## **Fatigue**

Both the mechanic and the quality control inspector, who inspected the maintenance work completed by the shift right before the accident, were likely fatigued during the December 6 shift due to an insufficient adjustment period to working an earlier shift than normal.

## **Work Cards**

The maintenance documentation did not clearly delineate specific inspection and completion steps, which can allow these tasks to be more vulnerable to error through human factors.

## The Importance of Detecting and Addressing FFP Risk

When people fail to follow procedures, things can go very wrong very quickly – steps are forgotten, incorrect parts are used, jobs must be reworked, the “blame game” begins, flights are delayed, and work is non-compliant. FFP is a hazard that increases risk!

But when everyone follows procedures:

- Work is likely correct and compliant with manufacturer's recommendations and regulatory requirements
- Personnel are less likely to miss a step or a task
- Rework and return-to-the-gate situations are minimized
- Maintenance work remains orderly
- Personnel have a shared plan and can support each other with procedure following
- Fewer voluntary disclosures are needed
- Everyone is safer and customers are happier

## Safety Champion Tools

Spend some time now to learn about the tools you can use to become an FFP Safety Champion.

### **Accountability**

Taking ownership is about taking initiative and doing the right thing for the business. It's about taking responsibility for results and not assuming it's someone else's responsibility.

Simply put, accountability is the opposite of passing the buck.

### **Communication**

As a safety champion tool, communication is not about using big words or giving exciting speeches. Able communicators can:

- Adjust their tone and style according to their audience
- Listen, understand, and act effectively on instructions
- Explain complex issues to co-workers and customers alike
- Read and understand documents
- Write in an understandable manner, especially in maintenance records

### **Self-Motivation**

Having the positive attitude and the initiative to work well without round-the-clock supervision is a vital safety champion tool for all employees. Not only does it demonstrate reliability and commitment, but it also shows that you can fit effectively into an organizational structure without the need for constant oversight.

Self-motivated employees:

- Have the qualifications, training, and are fit for duty
- Take a proactive approach to their work
- Focus on accuracy and quality by following procedure steps in the proper order and not using undocumented procedures

## **Leadership**

Leadership is a safety champion tool you can show even if you're not directly managing others. It can be thought of as a collection of various other skills, such as:

- A positive attitude and outlook
- The ability and willingness to communicate effectively
- An aptitude for both self-motivation and motivating others
- Mentoring others
- Setting the right example for others

## **Responsibility**

Self-awareness is a seldom talked about, but highly valued, safety champion tool. Knowing when to accept responsibility for any mistakes you have made demonstrates a healthy level of humility and a willingness to learn and progress.

A responsible person will:

- Always do the right thing, even when no one sees it
- Always follow the procedures
- Say something when procedures are unavailable or unclear
- Help co-workers to comply with the procedures

## **Teamwork**

Like leadership, good teamwork involves a combination of other safety champion tools. Working in a team toward a common goal requires intuition and the interpersonal wisdom to know when to be a leader and when to be a listener.

Good team players:

- Help and guide team members
- Share information openly and willingly
- Foster an environment of trust
- Are perceptive, as well as receptive, to the needs and responsibilities of others

## **Problem Solving**

Problem solving doesn't just require analytical, creative, and critical skills, but a particular mindset. Those who can approach a problem with a cool and level head will often reach a solution more effectively than those who cannot.

This is a safety champion tool that often relies on strong teamwork, too. Problems don't always need to be solved alone. The ability to know who can help you reach a solution – and how they can do it – can be a great advantage. Consider the adage “Two heads are better than one.”

Good problem solvers:

- Report missing or unclear procedures
- Can assess the impact of various solutions
- Continue to seek a solution if the first solution doesn't work

## **Decisiveness**

Decisiveness combines a number of different abilities – the ability to put things into perspective, to weigh the options, and to assess all relevant information.

Perhaps most importantly, decisiveness requires the ability to anticipate the consequences, good and bad. To be an effective decision maker, you must:

- Have an awareness of the situation
- Be fully dedicated to a procedure-driven culture
- Consider as many facts and conditions as possible
- Understand that making no decision is, in fact, a decision that may have consequences

## **Ability to Work under Pressure and Time Management**

Aviation maintenance jobs often come with demanding deadlines and occasionally high stakes. Organizations prize employees who show a decisive attitude, a persistent ability to think clearly, and a capacity to compartmentalize and set stress aside.

Time management is closely related to the ability to work under pressure, as well as within tight deadlines. Employees who manage their time well are able to effectively prioritize tasks and organize their work, while adopting an attitude that allows them to take on new tasks and deadlines. These qualities are shown by:

- Acknowledging that it takes time to follow procedures
- Making effective decisions in time-pressed situations
- Taking fast action to fix unsuitable procedures
- Knowing that fixing it right the first time takes less time than rework
- Valuing quality and safety over a hasty repair/inspection

### **Flexibility**

Naturally, people can be wary of leaving the comfort zone formed by their collection of on-the-job skills.

Flexibility is an important safety champion tool, in that it demonstrates an ability and willingness to acquire new skills, as well as the open-mindedness to take on new tasks and new challenges. Workers show flexibility by:

- Adapting successfully to changing situations
- Planning ahead but having alternative options in case things go wrong
- Persisting in the face of unexpected difficulties
- Increasing commitment to following procedures, especially on unfamiliar tasks

### **Negotiation and Conflict Resolution**

A good negotiator knows how to be persuasive and exert influence, while sensitively seeking a solution that will benefit all parties.

Similarly, conflict resolution depends on strong interpersonal skills and the ability to establish a rapport with co-workers and customers alike.

Employees demonstrate their negotiation and conflict resolution skills by:

- Remaining calm and level-headed, even when faced with a difficult or unexpected situation
- Using leadership and teamwork skills to earn the trust and respect of co-workers
- Asking questions and actively listening to the answers
- Ensuring that physical and psychological stress is minimized for themselves and others
- Using written procedural information to support a position or action



## Call to Action

Are you ready to demonstrate your commitment to reduce FFP events?

Show off your reinvigorated attitude to be an FFP Safety Champion by signing the FFP Safety Pledge that's featured on the next page.

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# FFP SAFETY CHAMP

I, \_\_\_\_\_, pledge to champion an improved culture of procedure following at my workplace. I will not “pass the buck” on FFP to co-workers or other entities. I will keep FFP safety champion skills – such as accountability, communication, leadership, and problem-solving – at the forefront of my daily attitude. Through my words and actions, I will demonstrate my dedication to detecting and addressing FFP risk. By honoring this pledge, I will be doing my part to eliminate FFP risk for good.



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## Safety Champion Resources

In addition to the Safety Champion Tools, you're also encouraged to download and use the FFP Safety Champion Checklists (refer to Appendices B - D.) These checklists contain helpful "before the task" and "after the task" items that will help you to maintain your commitment to reducing FFP risk in your organization.

These checklists are specifically designed for:

- AMTs
- Supervisors and managers
- Procedure writers

## Course Summary

Congratulations! You've completed the *FFP: The Buck Stops With Me* course. You're now equipped with the safety tools you'll need to champion the commitment to reduce FFP events!

As you finish this training and prepare to go back to work, remember that you can use the Safety Champion tools on the job to improve your organization's safety culture. As Mark Twain once said, "It's better to be prepared a thousand times than dead once."

For more information on how you can play a part in reducing FFP events, visit [www.humanfactorsinfo.com](http://www.humanfactorsinfo.com).

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# Failure to Follow Procedures Contributing Factors

Numerous factors contribute to FFP. The everyday pressure of the working environment is a major challenge. For example, schedule and production pressure or physical environmental conditions can contribute to an FFP event.

Other contributing factors relate to the written procedures themselves. Perhaps the procedure is difficult to comprehend and apply (which may be due to the procedure writers not being fully familiar with the operational maintenance working environment), or maybe there was inadequate validation of the procedure. There also may be an expectation that aviation maintainers will report problematic or missing procedures back to the procedure origin.

The primary cause of FFP is the will and the usual behavior of the organization and individual workers who are not committed fully to following written procedures all of the time.

This document contains some of the most common behaviors and attitudes that contribute to FFP risk. List 1, shown on the next page, provides example of FFP behaviors. Then, List 2 details the organizational or personal attitudes/(in)actions that likely cause the List 1 behaviors.

### Example FFP Behaviors



- ◇ FFP policy enforcement is ineffective
- ◇ Tasks are performed from memory
- ◇ Interruptions and distractions are tolerated
- ◇ Management disregards non-compliance
- ◇ Resources for task performance are insufficient
- ◇ Management does not emphasize following procedures
- ◇ Procedure documentation is not carried to worksite
- ◇ Undocumented procedures (“norms”) are used
- ◇ Tasks are completed out of sequential order
- ◇ Final completion checklists are not used
- ◇ Procedure currency is not checked
- ◇ Problematic procedures are not reported
- ◇ There is insufficient feedback when problem procedures are reported
- ◇ Task steps are missed, skipped, or forgotten
- ◇ Violations are ignored when they interfere with production
- ◇ Personnel fatigue is not considered with respect to FFP
- ◇ Communication at hand-off or shift change is ineffective

### Example Attitudes and (In)Actions that Affect FFP Behavior

- ◇ Lack of motivation/commitment to follow procedures
- ◇ End users do not understand the reason for a procedure
- ◇ Schedule adherence outweighs procedural compliance
- ◇ Negative organizational culture with respect to safety and reducing FFP risk
- ◇ Workers face little consequence for not following procedures unless something goes wrong
- ◇ Insufficient FFP guidance, coaching, or training
- ◇ Cutting corners is an acceptable practice
- ◇ “It has been done that way for years” mentality
- ◇ Personnel are inadequately supervised
- ◇ Organizations are not committed to alter problematic procedures in a timely manner
- ◇ Organizations believe that people will follow procedures without continuing encouragement
- ◇ Insufficient policy on disciplinary actions for FFP
- ◇ Limited policy on FFP discussion at task or shift turnover
- ◇ Minimal peer pressure regarding FFP





## Appendix B: AMT Safety Champion Checklists

**BEFORE** the task  
PROCEDURE FOLLOWING

***AMT's Commitment Checklist:***

- I am current, qualified, and fit for duty.
- I am committed to follow all current procedures.
- I have current procedures available at the task site.
- I will follow procedures in the proper order.
- I will report missing or unclear procedures.
- I will check part effectivity and serviceability.
- I will set a good example on procedural adherence.
- I will manage my time and work pressures.

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**AFTER** the task  
PROCEDURE FOLLOWING


***AMT's Commitment Checklist:***


- I set a good example on procedural adherence.
- I followed all maintenance procedures, in order.
- I reported missing or unclear procedures.
- I signed off each task as required.
- I recovered from interruptions.
- I did not use "norms" – undocumented procedures.
- I mitigated personal and environmental risks.
- I managed job pressure.

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## Appendix C: Manager/Supervisor Safety Champion Checklists


**BEFORE** the task  
PROCEDURE FOLLOWING




**Manager/Supervisor's Commitment Checklist:**

- I will support organizational adherence to following procedures.
- I will ensure that current procedures are readily available.
- I acknowledge that it takes time to use procedures.
- We will take fast action to fix unsuitable procedures.
- I will minimize worker distractions.
- I will ensure required double inspection.
- I will minimize worker stress – both physical and psychological.
- I will nurture a culture of procedure following.

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**AFTER** the task  
PROCEDURE FOLLOWING




**Manager/Supervisor's Commitment Checklist:**

- I supported organizational adherence to following procedures.
- I ensured that current procedures were available.
- I acknowledged that it takes time to use procedures.
- We took fast action to fix unsuitable procedures.
- I minimized worker distractions.
- I ensured required double inspection.
- I minimized worker stress – both physical and psychological.
- I nurtured a culture of procedure following.


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## Appendix D: Procedure Writer Safety Champion Checklists




**BEFORE** the task  
PROCEDURE FOLLOWING




*Procedure Writer's Commitment Checklist:*

- I understand that failure to follow procedures is the #1 industry challenge.
- I know that good procedures are more likely to be followed.
- I will write to the reading and technical level of the user.
- I will comply with all approved writing guidelines.
- I will strive to write self-contained procedures.
- I will strive to validate each procedure.
- I will act quickly on suggestions for changes in procedures.

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**AFTER** the task  
PROCEDURE FOLLOWING



*Procedure Writer's Commitment Checklist:*

- I made the change process easy for the user.
- I responded rapidly to change orders.
- I communicated action/progress on suggested changes.
- I validated each procedure.
- I eliminated redundant information.
- I acknowledged the importance of quality in every procedure.

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