

A CASE STUDY

“Human Performance in Maintenance”

C-130 Hercules

The Canadian Department of National Defence developed this case study to illustrate how the “Dirty Dozen” are a major part in the links in the chain of events that result in an accident.

While this case study is not based on an actual event, the story line is all too possible.

Watch for the links and try to determine what safety nets might have prevented it.

Human Performance in Maintenance

SYNOPSIS

The military C-130 Hercules aircraft was taking off on a routine test flight after major maintenance when a fire broke out in the wing area of the number two engine.

The take off was aborted but one crew member was severely burned in attempting to control the fire.

The aircraft sustained major fire damage in the number two engine wing root area.

Maintenance Performed

The aircraft had arrived unexpectedly Friday morning, requiring some major work to be completed by Sunday. One of the rectifications called for the number two engine bleed air regulator valve, located behind the firewall in the wing root area, to be replaced. A failure of one of the clamps securing this regulator valve is what was responsible for the the fire.

Circumstances leading to the Accident

The work crew had been working a lot of overtime lately as there was a lot of pressure to get the aircraft out on schedule.

They had been planning a family day for the last six weeks for the week end. The arrival of the unexpected aircraft resulted in that being cancelled.

A test bed that was required had not been repaired. This resulted in an increased workload to complete the task.

The Work Crew

Corporal Joe Murphy - Joe was considered one of the best. However on the Thursday, his son Jimmy had been hurt during a hockey game and was in the hospital. He was at the hospital until after midnight and his wife had stayed at the hospital overnight. He was very worried about the unknown condition of his son and was waiting for a call from his wife as soon as the results of some medical tests were known.

Master Corporal Brian Matte - Brian was older and only had a couple more years to go to retirement. He had just transferred in from a fighter squadron and knew nothing about large transport aircraft. He was having a difficult time learning about the Hercules, and partly because of his age, didn't like to ask for help.



Human Performance in Maintenance (Continued)

Circumstances Leading to the Error

Joe was changing the valve with the assistance of Brian. It was in the late afternoon and Joe had still not heard from the hospital.

Joe had just shown Brian a short cut to save time in installing the valve when he received the phone call he was expecting. He hurriedly asked Brian if he would finish installing the valve and took Brian's silence to mean that he could. He rushed down to answer the phone leaving the incomplete installation in Brian's hands.

Brian was unsure what to do but not wanting to appear ignorant, did what he thought should be done.

Joe, on return, gave the installation a visual inspection and signed the work off as complete. The system was not function tested but depended on the test flight to determine if it was serviceable.

It wasn't.