OCCURRENCE REPORT: 134196

Flight Safety incident reports are produced under the authority of the Minister of National Defence (MND) pursuant to Section 4.2 of the Aeronautics Act (AA), AND in accordance with A-GA-135-001/AA-001, Flight Safety FOR the Canadian Forces. They are prepared solely FOR the purpose of accident prevention AND shall not be used FOR legal, administrative OR disciplinary action.

FSIS 134196 26 APR 2008 GROUND ACCIDENT

Status: supplemental sent

WGFS 08-1226 IR 29/APR/2008 16:40
WGFS 08-1226 SR 09/MAY/2008 13:56

Unclassified

1. Injury Level: No Injury
2. Aircraft/Operated By: CC130343 / NDQAR ABBOTSFORD
3. Aircraft Ownership: NDQAR ABBOTSFORD
4. A. Location: Abbotsford BC
4. B. Date/Time: 261900Z APR 2008
4. C. Phase of Flight: MAINTENANCE - MAINT (2ND AND/OR 3RD LINE)
5. Damage Level: Serious - Major component / 3rd line maint
8. Description: DAMAGE - RUDDER/VSTAB: During rudder removal, the lower rudder hinge pin became stuck in the hinge bearing. The vertical stabilizer, rudder hinge support and skin were damaged when the rudder broke free.

13. Flight/Ground Conditions: CIVILIAN CONTRACTOR PLANT
22. A. Investigation: DAMAGE - RUDDER/VSTAB: The deputy crew lead assigned crew to: get references for the task, tooling required for the rudder removal and prepare the rudder for removal.

The deputy crew lead was in control of the crane, was standing a few feet away from the rudder on a scissor lift when he started to lift the rudder, and was told to stop as the lower hinge was stuck.

The deputy crew lead noticed the technician at the bottom of the rudder was having trouble with the lower hinge. The upper 3 hinges were free. The apprentice on the bottom hinge that was stuck requested the crane controls to see if he could slowly put pressure on the rudder and pry the hinge loose with the appropriate tool.

The deputy crew lead gave the crane controls to the apprentice who lowered the crane too low and the sling went slack in the hoist cable. The technician at the top of the rudder advised him to take up the slack.

The apprentice attempted to lift the crane to just take out the slack. He pushed once on the up button and nothing happened so he pushed harder and the crane jumped up approximately 4-5 inches which caused damage to the rudder and vertical stabilizer.

The apprentice had received training on the overhead crane, but had not used the crane before the incident. The overhead crane controller is a remote control transmitter, incorporating a 3-position switch. The first stop moves the crane up very slowly; pressing the button downward more speeds up the crane movement and fully pressing the button down, moves the crane up very quickly. The controller employs an infrared signal that requires a clear line of sight to activate the receiving unit, which is sensitive within an 8-degree arc. The fact that the apprentice was standing at the bottom of the rudder the signal could have been interrupted during the first push of the button. Had the apprentice possessed experience operating the overhead crane, he may have recognized that he had a poor signal on the first push of the button, and not tried to push the button harder to operate the crane at the same time moving the controller to a clear line of sight which provided a fast up signal to the crane motor. By the time the apprentice noticed the movement of the crane it was to late to release the button before damage occurred.
23. Cause Factors: MATERIEL FLIGHT CONTROLS UNDETECTED PROGRESSIVE BREAKDOWN In that the hinge pin became stuck in the bearing.
MAINTENANCE/NON-CDN FORCES
Errors: Skill-Based: Attention Failures: Failed to Recognize Condition In that the apprentice failed to recognize the possible obstruction of the crane controller.

Working Conditions: Technological Environment: Operator / Equipment Interaction: Inadequate Design / Layout In that the crane controller requires a clear line of site.
Conditions of personnel: Physical/Mental Capabilities: Inadequate Qualification and Training: Inappropriate Training In that the learner technician had not operated the crane since being trained.
24. Preventive Measures: (ADDITIONAL/ENHANCED TRAINING) Cascade has issued a Management Action (corrective action) INCDma-34-08 to emphasize during training that the overhead crane must have an unobstructed line of sight between the transmitter and the receiver, if not the unit will not operate. The operator must ensure this before making a rapid move control of

the crane.