National Transportation Safety Board
Aviation Accident Data Summary

Location:	Fort Lauderdale, FL	**Accident Number:**	ERA13LA188
Date & Time:	04/01/2013, 1635 EDT	**Registration:**	VQ-TIN
Aircraft:	CESSNA 402C	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

Before the accident flight, maintenance had been conducted on the foreign-registered airplane at a Federal Aviation Administration-authorized repair station. After takeoff, the pilot selected the landing gear to the "up" position. The pilot noticed that the main landing gear retracted but that the nose landing gear did not. He then "completed the emergency check," selected the gear "down" position, and subsequently observed three "gear down and locked" lights illuminate. After discussing the situation with an air traffic controller, the pilot decided to return to the airport to land. The touchdown was normal; however, during the landing roll, as the airplane decelerated, the nose landing gear collapsed, and the airplane's nose and propellers contacted the runway, which resulted in substantial damage to the airplane.

Examination of the nose landing gear assembly revealed that the nose landing gear actuator was intact, extended, and undamaged but that the rod end, which had its castellated nut still threaded onto it, was not connected to the nose landing gear drag brace. Review of maintenance records and discrepancy sheets revealed no evidence that maintenance had been performed on the nose landing gear assembly. However, review of worksheets that the operator had given to the repair station indicated that the operator had requested that nondestructive testing (NDT) be performed on the nose landing gear drag brace. Although the worksheets were supposed to be used to document the inspections, repair station personnel did not fill them out. However, a work order sent to the operator by the NDT technician, who was a contractor, did indicate that NDT had been performed on the nose landing gear drag brace.

The repair station's chief inspector stated that, for previous NDT of the nose landing gear brace, repair station personnel had always removed the part from the airplane. However, after the chief inspector met with the operator's mechanic and the pilot to discuss the maintenance to be performed, they decided that the repair station did not have to be involved in the NDT that day because the nose landing gear brace actually did not need to be removed for the NDT. Thus, the chief inspector did not enter the NDT on the discrepancy sheets.

The chief inspector reported that, initially, no one involved in the airplane's maintenance could remember if anyone had worked on or near the nose landing gear; however, a mechanic subsequently reported that he had disconnected and removed the bolt from the nose landing gear actuator at the request of the NDT technician to facilitate the NDT of the nose landing gear. The chief inspector further reported that neither the mechanic nor the NDT technician communicated to anyone that the bolt had been removed or took any actions that might have alerted anyone that the bolt was not in place; evidence indicates that the bolt was not reinstalled, which could have been detected during a postmaintenance inspection. However, the chief inspector reported that, because the nose landing gear drag brace inspection was not on the discrepancy sheet and it had not been removed for maintenance, it did not occur to him to inspect it before releasing the airplane to service. The inspector's failure to inspect the drag brace led to its being returned to service without the bolt

attached and its subsequent failure.

The evidence indicates that confusion existed regarding what each person's and organization's responsibilities were and that a breakdown in communication occurred between the repair station personnel, the NDT technician, and the operator. These factors, coupled with the lack of oversight by the chief inspector, led to a breakdown in the controls put in place to detect and correct errors before an accident occurs.

Flight Events

Prior to flight - Aircraft maintenance event
Prior to flight - Aircraft inspection event
Takeoff - Miscellaneous/other
Initial climb - Landing gear not configured
Maneuvering - Attempted remediation/recovery
Landing - Off-field or emergency landing
Landing - Landing gear not configured
Landing - Landing gear collapse

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The disconnection of the nose landing gear actuator, which resulted in the subsequent collapse of the nose landing gear. Contributing to the accident was the repair station's inadequate maintenance, postmaintenance inspection process, and oversight of the maintenance performed and the lack of communication between the repair station personnel, the operator, and the testing technician.

Findings

Aircraft-Aircraft systems-Landing gear system-Nose/tail landing gear-Incorrect service/maintenance - F
Aircraft-Aircraft systems-Landing gear system-Nose/tail landing gear-Not inspected - F
Aircraft-Aircraft systems-Landing gear system-Nose/tail landing gear-Failure - C
Personnel issues-Action/decision-Action-Forgotten action/omission-Maintenance personnel - F
Personnel issues-Task performance-Maintenance-Installation-Maintenance personnel - F
Personnel issues-Task performance-Inspection-Post maintenance inspection-Maintenance personnel - F
Personnel issues-Task performance-Communication (personnel)-Lack of communication-Maintenance personnel - F
Organizational issues-Support/oversight/monitoring-Documentation/record keeping-Maintenance records-Maintenance provider - F
Organizational issues-Support/oversight/monitoring-Oversight-Oversight of maintenance-Maintenance provider - F
Organizational issues-Management-Communication (organizational)-Between groups/organizations-Maintenance provider - F
Organizational issues-Management-Communication (organizational)-Between groups/organizations-Operator - F

Organizational issues-Management-Communication (organizational)-Within group(s)/organization-Maintenance provider - F

Pilot Information

Certificate:	Airline Transport	**Age:**	38
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Instrument Rating(s):**	Airplane
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	None
Flight Time:	10566 hours (Total, all aircraft), 3507 hours (Total, this make and model), 10566 hours (Pilot In Command, all aircraft), 57 hours (Last 90 days, all aircraft), 32 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	**Registration:**	VQ-TIN
Model/Series:	402C	**Engines:**	2 Reciprocating
Operator:	Caicos Express Airways	**Engine Manufacturer:**	Continental
Air Carrier Operating Certificate:	Foreign Air Carrier (129)	**Engine Model/Series:**	TSIO-520-VB1F
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	FXE, 13 ft msl	**Weather Information Source:**	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	**Lowest Ceiling:**	None
Condition of Light:	Day	**Wind Speed/Gusts, Direction:**	5 knots, 180°
Temperature:	26°C / 17°C	**Visibility**	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fort Lauderdale, FL (FXE)	**Destination:**	Providenciales, FN (MBPV)

Airport Information

Airport:	Fort Lauderdale Executive (FXE)	**Runway Surface Type:**	Asphalt
Runway Used:	13	**Runway Surface Condition:**	Dry
Runway Length/Width:	4000 ft / 100 ft		

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None

Administrative Information

Investigator In Charge (IIC):	Todd G Gunther	**Adopted Date:**	03/26/2015
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=86588		