Republic of the Philippines
DEPARTMENT OF TRANSPORTATION
**CIVIL AVIATION AUTHORITY OF THE PHILIPPINES**
MIA Road, Pasay City 1300

# AIRCRAFT ACCIDENT INVESTIGATION AND INQUIRY BOARD

## FINAL REPORT

**RP-R8306**
**G-164B**

***OPERATOR: DAVAO AGRITECH INCORPORATED***

***TYPE OF OPERATION: AGRICULTURAL SPRAYING***

***DATE OF OCCURRENCE AUGUST 10, 2022***

***PLACE OF OCCURRENCE: BARANGAY TAYTAY, CATEEL, DAVAO ORIENTAL, PHILIPPINES***

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(Allied Ag-Cat Productions Inc., G-164B, RP-R8306 Final Report)

# FOREWORD

This report was produced by the Aircraft Accident Investigation and Inquiry Board (AAIIB), Civil Aviation Authority of the Philippines, MIA Road, Pasay City, Philippines.

The report is based upon the investigation carried out by the AAIIB in accordance with Annex 13 to the Convention on International Civil Aviation, Republic Act 9497 Section 42 and Philippine Civil Aviation Regulation Part 13.

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# FINAL REPORT

**TITLE:** Incident involving an Allied Ag-Cat Productions Inc., G-164B type of aircraft with Registry Number RP-R8306 operated by Davao Agritech Incorporated that had a collision with electrical wires at Barangay Taytay, Cateel, Davao Oriental, Philippines, on August 10, 2022 at about 0730H/2330 UTC.

## Notification of Occurrence to National Authority

The notification of incident to AAIIB CAAP was relayed by the Operator of the aircraft at 1200H (local) on August 10, 2022 at about 1330H (local).

## Identification of the Investigation Authority

The Aircraft Accident Investigation and Inquiry Board (AAIIB), the mandated accident investigation organization within the Civil Aviation Authority of the Philippines (CAAP) as the state of Occurrence/Registry/ Operator conducted the investigation.

## Organization of the Investigation

In accordance with provisions of Philippine Civil Aviation Regulation (PCAR) Part 13, an Investigator-In-Charge and Deputy Investigator-In Charge were appointed.

## Authority Releasing the Report

The Final investigation report was released by Aircraft Accident Investigation and Inquiry Board (AAIIB) and published at the CAAP website on **31 May 2024**.

## Synopsis:

On August 10, 2022 at about 0730H (local), an Allied Ag-Cat Productions Inc., G-164B type of aircraft with Registry Number RP-R8306 operated by Davao Agritech Incorporated had a collision with electrical wires at Barangay Taytay, Cateel, Davao Oriental, Philippines. The pilot onboard did not sustain any injuries, however the aircraft sustained substantial damage as a result of the occurrence. Visual Meteorological Condition (VMC) prevailed at the time of the incident. The cause of the occurrence was attributed to the pilot's decision to proceed with the landing despite the poor visibility caused by the presence of low clouds (fogs) resulting to wire collision.

## LIST OF ACRONYMS AND ABBREVIATIONS

| | | |
|---|---|---|
| AAIIB | : | Aircraft Accident Investigation and Inquiry Board |
| AANSOO | : | Aerodrome and Air Navigation Services Oversight Office |
| AFFF | : | Aqueous film forming foam |
| AOC | : | Air Operator Certificate |
| AMO | : | Approved Maintenance Organization |
| AMSL | : | Above Mean Sea Level |
| BRGY | : | Barangay |
| CAAP | : | Civil Aviation Authority of the Philippines |
| COA | : | Certificate of Airworthiness |
| CPL | : | Commercial Pilot License |
| DAI | : | Davao Agritech Incorporated |
| M | : | Meter(s) |
| OFSAM | : | Office of the Flight Surgeon and Aviation Medicine |
| P | : | Pilot |
| PCAR | : | Philippine Civil Aviation Regulation |
| RWY | : | Runway |
| SA | : | Situational Awareness |
| SHP | : | Shaft Horse Power |
| UTC | : | Universal Time Coordinated |
| VFR | : | Visual Flight Rules |
| VMC | : | Visual Meteorological Condition |

# 1. FACTUAL INFORMATION

| | | |
|---|---|---|
| Aircraft Registration No. | : | RP-R8306 |
| Aircraft Type/Model | : | Allied Ag-Cat Productions Inc., G-164B |
| Operator | : | Davao Agritech Incorporated |
| Address of Operator | : | Barrio A.O. Floirendo, Panabo City, Davao del Norte, Philippines |
| Place of Occurrence | : | Barangay Taytay, Cateel, Davao Oriental, Philippines |
| Date/Time of Occurrence | : | August 10, 2022 at about 0730H/2330 UTC. |
| Type of Operation | : | Agricultural Spraying |
| Phase of Flight | : | Landing |
| Type of Occurrence | : | Aircraft collision - power line |

## 1.1 History of Flight

On or about 0730H, August 10, 2022, an Ag-Cat G-164B type of aircraft with Registry Number RP-R8306 sustained minor damage after colliding with power lines during the final approach for landing at Cateel Airstrip, Barangay Taytay, Cateel, Davao Oriental, Philippines. The aircraft is being operated by Davao Agritech Incorporated under PCAR Part 11. The Pilot (P) on board was not injured. Visual meteorological conditions prevailed at the time of the occurrence, and no flight plan was filed. The flight originated from the same airfield at 0700H and was to be terminated after the operation.

The pilot had already exhausted five (5) loads (1,300 gallons) of chemicals in his area of operation. During the return flight after finishing his fifth (5th) load, he observed the drastic appearance of low clouds (fogs) north of the airstrip, resulting in decreased visibility. The pilot decided to make his approach by entering the Surigao-Davao coastal area near Cateel Town Plaza, following the Cateel River, and then intercepting Taytayan Bridge, which is directly one (1) nautical mile from the airstrip. At the time he was at the river, the visibility had become so low that he was struggling with the low cloud base to maintain his visual flight just above the tree lines. Upon reaching Taytayan Bridge and turning finals, the aircraft hit a commercial power line that traversed along the riverside. The pilot saw a series of flashes in front of him and a jolt in the aircraft. He immediately pulled up, added power, and maintained flight while monitoring the engine parameters. The aircraft was oscillating, but he continued his approach and landed at Cateel Airstrip without further events.



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The pilot safely alighted from the aircraft. He inspected the propeller and saw the damage. Inspection of the aircraft shows it sustained impact damage on its lower nose engine cowling, propellers, and engine due to a propeller wire strike. No post-impact fire was noted during the inspection.

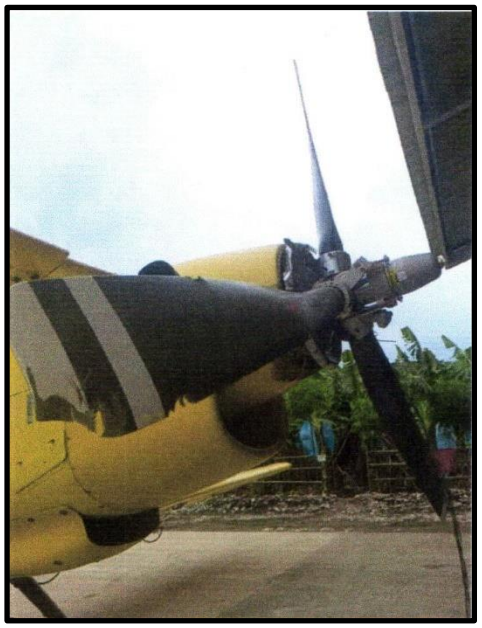

Figure 1. The aircraft with damaged propellers.

### 1.2 Injuries to Person (s)

| Injuries | Crew | Passengers | Others | TOTAL |
|---|---|---|---|---|
| Missing/Fatal | 0 | 0 | 0 | 0 |
| Serious | 0 | 0 | 0 | 0 |
| Minor | 0 | 0 | 0 | 0 |
| None | 1 | 0 | 0 | 1 |

### 1.3 Damage to Aircraft

The aircraft sustained minor damage.

### 1.4 Other Damages

There is reported damage to commercial power lines one (1) nautical mile from the threshold of runway 17, Cateel airstrip.



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## 1.5 Personnel Information

### 1.5.1 Student Pilot (SP)

| | | |
|---|---|---|
| Gender | : | Male |
| Date of Birth | : | November 11, 1976 |
| Nationality | : | Filipino |
| License Type | : | 100875-CPL |
| Valid up to | : | January 31, 2025 |
| Type rating | : | Single Engine Land: G-164B, 34T |
| Medical Certificate Valid up to | : | Expiry March 25, 2023 |
| Time on Aircraft | : | 3,000 Hours as per Pilot logbook |
| Grand Total Time | : | 8,000 Hours as per Pilot logbook |

## 1.6 Aircraft Information

In 1955, Grumman preliminary design for a "purpose-built" crop-dusting airplane as a means of fulfilling a pressing need in the agricultural community, as well as the perceived need for Grumman to diversify its product lines. The "B" model is an improved on the "A" model by increasing the wingspan, the fin and rudder were enlarged and the fuselage was also lengthened.

### 1.6.1. Aircraft Data

| | | |
|---|---|---|
| Registration Mark | : | RP-R8306 |
| Manufacturer | : | Allied Ag-Cat Productions Inc. |
| Country of Manufacturer | : | USA |
| Type/Model | : | Single-Engine/ G-164B |
| Operator | : | Davao Agritech Incorporated |
| Serial No./Type Certificate | : | 26B/1A16 |
| Date of Manufacture | : | March 24, 1976 |
| Certificate of Airworthiness valid up to | : | February 4, 2023 |
| Certificate of Registration valid up to | : | January 16, 2023 |
| Category | : | Restricted |
| Number of Crew | : | 1 |
| Time Since New | : | 11,554 Hours as of last CofA |

### 1.6.2 Engine Data

The PT6A-6 series engine is used in the Allied Ag-Cat G-164B aircraft. This turboprop power-plant delivers 1113 shp and 1050 shp for takeoff. The PT6A-6 series engines are medium size variant in the PT6A family from Pratt and Whitney Canada.



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| | | |
|---|---|---|
| Manufacturer | : | Pratt & Whitney |
| Type | : | Turbine |
| Type/Model | : | PT6A-34AG |
| Serial No. | | PCE-PH1244 |
| Time Since New | : | 1,767 Hours as of last CoA |
| Time Since Overhaul | : | New |

### 1.6.3 Propeller Data

The aircraft is equipped with a three (3) bladed Hartzell HC-B3TN-3D constant speed propeller. The 3-bladed aluminum propeller does not have a de-ice feature. Designed for turbine-powered restricted category aircraft, it brings an entirely new level of safety, maneuverability, and control during flight.

| | | |
|---|---|---|
| Manufacturer | : | Hartzell |
| Type | : | Constant Speed (Aluminum Alloy) |
| Type/Model | : | HC-B3TN-3D |
| Propeller SN# | : | BUA34735 |
| Date last Installed | : | New |
| Propeller total time | : | 3 Hours |

## 1.7 Meteorological Information

Visual Meteorological Conditions (VMC) prevailed at the time of the occurrence.

## 1.8 Aids to Navigation

The flight was carried out under Visual Flight Rules (VFR). Using VFR, the pilot must be able to operate the aircraft with visual references to the ground and visually avoiding obstructions and other aircraft.

## 1.9 Communication

The aircraft was equipped with a standard radio transceiver. Communications were carried out between the pilot and their base operation within the area.

## 1.10 Aerodrome Information

Cateel Airstrip, Barangay Taytay, Cateel, Davao Oriental, Philippines is listed as a code A1 in the Civil Aviation Authority of the Philippines - Aerodrome and Air Navigation Services Oversight Office (CAAP-AANSOO) approved aerodrome facility data.



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### 1.10.1 General Information

| | | |
|---|---|---|
| Aerodrome Name | : | ABC Cateel Airstrip |
| Name of Aerodrome Operator | : | Anflo Banana Corporation |
| Aerodrome Operator Address | : | Barangay Taytay, Cateel, Davao Oriental |
| Aerodrome Certificate Number | : | AGA-P-039A-2021 |
| Coordinates (WGS-84) | : | 07 43 30.69585N 126 26 23.262E |
| Aerodrome Type | : | Agricultural Airstrip |
| Operating Frequency | : | 122.90 Mhz |
| Azemuth | : | 16/34 |
| Dimensions | : | 1000 meters x 15 meters |
| Runway Surface | : | Macadam (Graded) 4646 psi |
| Rwy obstacles | : | Trees app Rwy 18 |
| Elevation | : | 4.759m AMSL |
| Traffic permitted | : | VFR |
| Apron | : | Macadam |
| Threshold | : | White |
| Windcone | : | Available/Operational |
| Rwy & Taxiway marking | : | Side markers, Angular markers, distance-to-go markers, Runway Strip End Markers (Available) |
| Runway Slope | : | Sloping downhill from RWY 34 to RWY 16 |
| Holding point Marker | : | White |
| AD category fire-fighting service | : | Portable fire extinguisher |
| Rescue equipment | : | One (1) unit Ziegler fire truck, 5000 liters water with 60 liters 3% AFFF<br>Wheel type Fire Extinguisher dry chemical |
| Security office | : | 24H |

## 1.11 Flight Recorders

The aircraft is not equipped with any flight recorders and existing CAAP regulation does not require it.

## 1.12 Wreckage and Impact Information

While turning finals about one (1) nautical mile from the airstrip, the aircraft propeller struck a commercial power line that traversed along the riverside. The pilot saw a series of flashes in front of him and a jolt on the aircraft. The pilot continued the approach and landed at Cateel Airstrip without further events. The propeller wire strike caused the two (2) wires to break. Inspection of the aircraft shows obvious propeller damage, impact damage on its lower nose engine cowling, propeller spinner, and engine due to a propeller strike.



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Figure 2: The power lines that the aircraft collided.

## 1.13 Medical and Pathological Information

The Pilot has undergone the post-accident medical examination at CAAP-OFSAM, and there was no medical impediment that could hinder his fitness to fly. The pilot's medical results confirmed that he met the CAAP Medical Standards for exercising the privileges of the license he held.

## 1.14 Fire

There was no evidence of post impact fire.

## 1.15 Search and Survival Aspects

The incident was survivable because the damage was limited to the aircraft wings and propeller. No search operation was deployed since the aircraft landed safely at Cateel Airstrip.

## 1.16 Organization and Management Information

### 1.16.1 Operator

Davao Agritech Incorporated (DAI) is located at Barangay A.O. Floirendo Panabo, Davao Del Norte, 8105 Philippines. It is a company authorized to operate and maintain domestic air spraying services, with Davao as its major hub. The aircraft RP-R8306 is listed on the company's AOC Operations specification, AAOC#11-2015016.

### 1.16.2 Maintenance

The maintenance function of RP-R8306 is being undertaken by Davao Agritech Incorporated, an Approved Maintenance Organization (AMO) with a current Certificate



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number of 140-15 and a facility located at DAI Hangar, Gen. Aviation Area, Old Airport, Sasa, Davao City.

## 2.0 ANALYSIS

### 2.1 General

During the return flight, after completing the fifth (5th) load of aerial application, the pilot noticed a sudden emergence of a low cloud (fog) north of the airfield, causing limited visibility. The pilot opted to wait for the fog to clear, but his fuel supply got noticeably low. He chose to continue to land at Cateel Airstrip by following the Cateel River and intercepting the Taytayan Bridge, which is exactly one nautical mile from the runway. The pilot was flying low, and by the time he arrived at the river, visibility had deteriorated to the point that he was battling to maintain his visual flight just over the tree lines. When he reached Taytayan Bridge, he unintentionally collided with a commercial power line running beside the river. The pilot noticed a sequence of flashes in front of him and a shock in the aircraft. The aircraft was noticed swaying, but the pilot remained persistent and landed at Cateel Airstrip without further incident. The aircraft's propellers, lower nose engine cowling, and engine were damaged as a result of a propeller strike.

### 2.2 Lack of Situational Awareness

Even with the presence of low clouds that resulted in low visibility, the pilot stated that he could make a safe landing at Cateel Airstrip. The pilot did not consider the alternate aerodrome for landing, which is about thirty (30) nautical miles away (Bislig Airport). Instead, he opted to fly low to get better visibility and a clearer horizon on his approach. When the pilot was flying the aircraft close to the ground in poor visibility, it was a very stressful situation. When flying close to the ground, if the aircraft's high speed and inertia are combined with conditions of poor visibility, there is little time to react to obstacles or plan a course of action. Therefore, to better manage the flight, the use of the poor visibility configuration is suggested. It should be noted that most low-flight flights will be in the normal cruise configuration. The need for training in the operational application of the poor visibility configuration is relevant to pilots. The use of the term poor visibility rather than bad weather configuration is recommended because bad weather is not necessarily perceived by pilots as having poor visibility. If the weather is otherwise fine but the aircraft is experiencing severe turbulence (where the aircraft's structural load limits may be exceeded), the pilot may consider this to be bad weather.

It was also observed that this particularly short distance operations were being carried out at unusually low altitudes relative to the terrain in the area and that the whole sector was known for “intense meteorological phenomena” capable of significantly affecting aircraft flight paths. Pilots should be resilient upon operating on the area. It was also observed that “the absence of a study of low flying when carrying out the route prior to starting flight operations meant that the threat represented by this terrain was not identified” which led to no risk management being implemented.



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The weight and center of gravity of the aircraft at the time of the occurrence was within the allowable loading limits of the aircraft and is in the tolerable landing weight as per manufacturer loading graph where it was not a factor on the event.


Figure 3. The = area of operation which is Northwest from Cateel airstrip.
= aircraft flight path.

## 2.3 Continuation Bias

The event happened during the return flight for the approach and landing phases. The original plan was just to finish the five-load spray operation and go back to land. But the pilot lost track of the environmental conditions that affected his area of operation, and when the low clouds appeared, he had already lost most of the vital visual landmarks for his return. The pilot opted to land the aircraft at Cateel Airstrip without considering an alternate plan.

The aircraft was flying low while following the river and was fast on its approach to penetrate the low visibility condition for landing. The Pilot was, in a way, not aware of the potential risk that is critical for the flight to have a safe landing. The pilot's inappropriate actions and inactions are probably attributable to his becoming progressively overwhelmed by successive indications caused by his poor management of the aircraft's flight route and the weather. The investigation depicts the pilot's decision to proceed with the landing despite the poor visibility caused by the presence of low clouds; he should have proceeded to the alternate airstrip and waited until the fogs disappeared. When continuation bias interferes with the pilot's ability to detect important cues, or if the pilot fails to recognize the implications of those cues, breakdowns in situational awareness (SA) occurs.



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Continuation bias is the unconscious cognitive bias to continue with the original plan in spite of changing conditions. These breakdowns in SA can result in non-optimal decisions being made, which could compromise safety.

### 2.4 Flying in Foggy Conditions

Flying in foggy conditions during the landing phase of aerial spraying poses specific challenges and risks for pilots. Landing in fog requires careful consideration of reduced visibility, potential navigation difficulties, and safety concerns. Fog significantly reduces visibility, making it challenging for pilots to identify the runway and execute a safe landing. Limited visibility increases the risk of misjudging altitude, distance, and alignment with the runway. Foggy conditions can increase the risk of controlled flight into terrain (CFIT) during the landing phase. Pilots must be vigilant in monitoring altitude and terrain clearance to avoid inadvertent collisions with obstacles or terrain.

To mitigate these risks, pilots and operators of aerial spraying aircraft should conduct thorough pre-flight planning, considering weather conditions, visibility reports, and runway conditions. Evaluate alternate airports with better weather conditions if needed. Stay in constant communication with assigned ground personnel for real-time updates on weather conditions and runway availability. Exercise caution and consider the option to divert or postpone the landing if weather conditions deteriorate beyond safe operating limits.

## 3.0 CONCLUSIONS

### 3.1 Findings

**a.** The pilot was trained and qualified on the Allied Ag-Cat Productions Inc. aircraft.
**b.** The pilot possesses valid airmen license and medical certificate issued by the CAAP.
**c.** The pilot alighted the aircraft safely.
**d.** Visual meteorological condition prevailed at the time of the occurrence.
**e.** The aircraft was properly released for flight without any discrepancies noted on the day of the occurrence.
**f.** The aircraft has a current Certificates of Airworthiness and Registration.

### 3.2 Probable Cause

#### 3.2.1 Primary Cause Factor

a. The pilot's decision to proceed with the landing despite the poor visibility caused by the presence of low clouds (fogs).

#### 3.2.2 Contributory Cause Factor

a. The lack of situational awareness.



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## 4.0 SAFETY RECOMMENDATIONS

**4.1** For **CAAP-FSIS** to ensure that the Operator (Davao Agritech Incorporated):

**a.** To include in the company's operation manual the detailed procedures for flying in low visibility, including the mandatory use of alternate airstrips when necessary.

**b.** To assign trained personnel to provide Pilots operating in the area with accurate and timely information regarding weather conditions, including low clouds, wind strength, direction and variation, and runway surface conditions.

**-----END-----**



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