Republic of the Philippines
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

AIRCRAFT ACCIDENT INVESTIGATION AND INQUIRY BOARD

FINAL REPORT

RP-C1801
BN GROUP LTD
BN-2A-21

OPERATOR: FLITELINE AIRWAYS PHIL'S, INC.

TYPE OF OPERATION: SCHEDULED COMMERCIAL

DATE OF OCCURRENCE: DECEMBER 14, 2022

PLACE OF OCCURRENCE: JORGE ABAD AIRPORT (RPLT), ITBAYAT COMMUNITY AIRPORT, BATANES, PHILIPPINES

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(BN GROUP LTD/BN-2A-21, RP-C1801 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.

Readers are advised that the AAIIB investigates for the sole purpose of enhancing aviation safety. Consequently, AAIIB reports are confined to matters of safety significance and may be misleading if used for any other purpose. It should be noted that the information in AAIIB reports and recommendations is provided to promote aviation safety, and in no case is it intended to imply blame or liability.

Furthermore, no part of the AAIIB report or reports relating to any accident or investigation shall be admitted as evidence or used in any suit or action for damages arising out of any matter mentioned in such report or reports.

FINAL REPORT

TITLE: A serious incident involving a BN Group LTD, BN-2A-21 Islander type of aircraft with Registry Number RP-C1801 operated by Fliteline Airways Phil's Inc., that encountered left-hand main landing gear brake loss during landing roll resulting to runway excursion at Jorge Abad Airport (RPLT), Itbayat Community Airport, Batanes, Philippines on December 14, 2022 at about 0801H (LOCAL).

Notification of Occurrence to National Authority

The notification of serious incident to AAIIB CAAP was relayed by the Operator of the aircraft at 0900H (LOCAL) on December 14, 2022.

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 was appointed.

Authority Releasing the Report

The Final investigation report was released by Aircraft Accident Investigation and Inquiry Board (AAIIB) and published on the CAAP website on **August 8, 2025.**

Synopsis:

The aircraft RP-C1801 took of RPUO and landed RPLT and during landing roll experienced left hand Main Landing Gear (MLG) brake loss that resulted in a runway excursion. The aircraft sustained minor damaged. No injuries were noted to the pilots and passengers on board the aircraft. The cause of the occurrence was attributed to the Left-Hand Main Landing Gear brake assembly malfunction.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
AFML	:	Aircraft Flight Maintenance Logbook
AGL	:	Above Ground Level
AMO	:	Approved Maintenance Organization
AOC	:	Air Operator Certificate
ATC	:	Air Traffic Control
ATPL	:	Airline Transport Pilot License
BN	:	Britten Norman
CAAP	:	Civil Aviation Authority of the Philippines
CAPT	:	Captain
COA	:	Certificate of Airworthiness
COR	:	Certificate of Registration
FAPI	:	Fliteline Airways Philippines Incorporated
FASI	:	Fliteline Aviation Services Incorporated
FO	:	First Officer
LH	:	Left hand
LHMLG	:	Left Hand Main Landing Gear
MLG	:	Main Landing Gear
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulation
PF	:	Pilot Flying
PFT	:	Proficiency Flight Test
PHL	:	Philippines
RH	:	Right Hand
RPLT	:	Jorge Abad Airport/Itbayat Community Airport, Batanes
RPUO	:	Basco Principal Airport, Batanes
RWY	:	Runway
TSN	:	Time Since New
TSO	:	Time Since Overhaul
VFR	:	Visual Flight Rules
VHF	:	Very High Frequency

1. FACTUAL INFORMATION

Aircraft Registration No.	:	RP-C1801
Aircraft Manufacturer/Model	:	BN Group Ltd/BN-2A-21
Operator	:	Fliteline Airways Phil's Inc.
Address of Operator	:	1513 Metrica Street, Sampaloc, Manila, Philippines
Place of Occurrence	:	Jorge Abad Airport (RPLT), Itbayat Community Airport, Batanes, Philippines
Date/Time of Occurrence	:	December 14, 2022/0801H
Type of Operation	:	Scheduled Commercial
Phase of Flight	:	Landing
Type of Occurrence	:	Runway side excursion

1.1 History of Flight

On 14 December 2022 at approximately 0801H local time, a BN-2A-21 Islander aircraft with Registry Number RP-C1801, operated by Fliteline Airways Phil's Inc., departed the runway pavement during landing roll at Jorge Abad Airport (RPLT), Itbayat Community Airport, Batanes, Philippines.

The flight originated from Basco Airport (RPUO) with the First Officer (FO) acting as Pilot Flying (PF). The flight proceeded uneventfully and the aircraft made a landing on Runway 36 at RPLT, touching down approximately 150 meters beyond the runway threshold at coordinates 20°43'10.7"N, 121°48'36.8"E. The landing roll continued along the runway centerline for approximately 160 meters.

As the aircraft approached the turnaround area to execute a 180-degree right-hand pivot to taxi back toward the parking ramp, the FO reported a malfunction of the left main landing gear brake system. The Captain assumed control of the aircraft and cautiously applied brake pressure on both pedals. The aircraft began to veer to the

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right. In an attempt to counteract the deviation, The Captain applied power to the right engine; however, the engine unexpectedly feathered instead of delivering thrust, resulting in further loss of directional control.

Consequently, the aircraft departed the concrete surface of the runway, veering onto the unpaved, grassy, and excavated embankment located along the right edge of Runway 36. The aircraft came to a complete stop approximately 160 meters short of the runway end (roughly 680 meters from the initial touchdown point), at coordinates 20°43'32.5"N, 121°48'36.6"E and on an approximate heading of 060 degrees. The embankment where the aircraft came to rest was estimated to be approximately 30.5 cm in depth.

The Captain immediately initiated engine shutdown procedures and ordered an evacuation. Both flight crew members assisted the five passengers in safely disembarking the aircraft. No injuries were reported among the crew or passengers.

Figure 1 - RP-C1801 at its Final position after the runway excursion.

Figure 2 - The unpaved embankment about 30.5 centimeters in depth were the aircraft made a full-stop on the right-side of Runway 36.

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1.2 Injuries to Person (s)

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor	0	0	0
None	2	5	0
Total	**2**	**5**	**0**

1.3 Damage to Aircraft

The aircraft sustained minor damage on the left main landing gear doors, left wing tip and with both propeller tips bent following a ground strike. During the inspection, additional damage was noted on the Left Hand (LH) outer wheel brake disc and hose.

1.4 Other Damages

There was no reported collateral objects or structure that was damaged within the incident site.

1.5 Personnel Information

1.5.1 Pilot-in-Command (PIC)

Gender	:	Male
Date of Birth	:	May 19, 1980
Nationality	:	Filipino
License	:	101869 - ATPL
Valid up to	:	September 30, 2026
Type rating	:	Multi-Engine Land-PA23-250. BN-2A-21
Medical Certificate Valid up to	:	March 12, 2023
Time on Aircraft	:	1,800+00 Hours
Grand Total time	:	6,900+00 Hours

1.5.2 First Officer (FO)

Gender	:	Male
Date of Birth	:	March 7, 1995
Nationality	:	Filipino
License	:	010761 - CPL

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Valid up to	:	April 30, 2023
Type rating	:	Single & Multi Engine Land-Instrument C152, C172; BN-2A-21
Medical Certificate Valid up to	:	December 16, 2022
Time on Aircraft	:	210+00 Hours
Grand Total time	:	1,400+00 Hours

1.6 Aircraft Information

The Britten-Norman BN-2A-21 Islander with registry number RP-C1801 is a twin-engine ten-seat light utility aircraft and commuter airliner produced by the British manufacturer *Britten-Norman,* powered by two (2) Lycoming Engines IO-540-K1B5.

The Aircraft is operated by Fliteline Airways Phil's, Inc. (FAPI) with AOC No. 2016069 valid until November 23, 2025 for Domestic Non-Scheduled Air Transportation (Air Taxi) Services.

Certificate of Airworthiness validity until September 22, 2023 and Certificate of Registration, validity until January 26, 2023.

1.6.1 Aircraft Data

Registration Mark	:	RP-C1801
Manufacturer	:	BN Group Ltd.
Country of Manufacturer	:	USA
Type/Model	:	BN-2A-21/ 739
Year Manufactured	:	1975
Owner/Operator	:	CAPT. Arturo Perlada, Jr.
Lessee/AMO/Operator	:	Fliteline Aviation Services Inc.
NTC Station License	:	License No. 10584 May 01, 2021 to April 30, 2024
Aircraft Time	:	13,527+37 Hours
Certificate of Airworthiness validity	:	22 September 2023
Certificate of Registration validity	:	26 January 2023
Seating capacity	:	Ten (10), 2 pilots (PIC/CP), 8 pax

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1.6.2 Engine Data

Manufacturer	:	AVCO Corporation
Type	:	Lycoming Engine
Model	:	IO-540-K1B5
Engine S/N	:	L-12263-48(RH)/ L-18880-48A(LH)

1.6.3 Propeller Data

Manufacturer	:	Hartzell Propeller, Inc.
Type	:	HC-C2YK-2CUF
Propeller SN#	:	AU4888E(RH)/AU3359E(LH)
Propeller Hub SNs	:	AU16049B (RH)/ AU16004B(LH)
Latest 100H Inspection	:	3,706+10 Hours as of last C of A

1.7 Meteorological Information

The prevailing meteorological conditions at the time of the incident were referenced from the nearest aerodrome with official weather reporting capabilities—Basco Airport (RPUO). Reported weather included surface winds from 050° at 9 knots, gusting to 16 knots; a ceiling of 9,000 feet; and an overcast cloud layer at 2,500 feet AGL.

1.8 Aids to Navigation

Not Applicable.

1.9 Communications

VHF Communication existed between aircraft and ATCs of RPLT and RPUO.

1.10 Aerodrome Information (AIP) as of 26 December 2024

The Jorge Abad Airport/Itbayat Community Airport (RPLT) is operated by the Civil Aviation Authority of the Philippines, and is listed in the CAAP approved aerodrome facility data as well the Philippine Aeronautical Information Publication (AIP as of December 2020).

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Aerodrome	:	Itbayat Community Airport (RPLT)
ARP Coordinates and site at AD	:	204314.2869N 1214935.3089E
Elevation	:	98.33 AMSL
Aerodrome Operator	:	Civil Aviation Authority of the Philippines
Address, Telephone. Telefax	:	Itbayat, Batanes 3905
Type of Traffic permitted (IFR/VFR)	:	VFR
Runway Direction	:	18/36
Runway Length	:	801 M
Runway Width	:	18 M
Surface	:	0.5 MPA Macadam PCN

1.11 Flight Recorders

The aircraft is not equipped with any flight recorders and existing Philippine Civil Aviation Regulation does not require such for type of aircraft.

1.12 Wreckage and Impact Information

Due to a malfunction of the left-hand (LH) main landing gear brake system and an uncommented feathering of the right-hand (RH) propeller, the aircraft experienced a loss of directional control during the landing roll and subsequently veered off to the right, resulting in a runway excursion from Runway 36. The aircraft came to a complete stop on the unpaved, excavated embankment with grassy terrain located along the right edge of Runway 36, approximately 160 meters short of the runway end. The aircraft's final position was approximately 680 meters from the touchdown point, at geographic coordinates 20°43'32.5"N, 121°48'36.6"E, with an approximate magnetic heading of 060 degrees. The embankment at the excursion site was approximately 30.5 centimeters in depth.

The aircraft sustained minor damage, including deformation to the left main landing gear doors, abrasion on the left wingtip, and bending of both propeller blade tips consistent with a ground contact event. Further inspection revealed additional damage to the left-hand (LH) outboard wheel brake disc and associated hydraulic hose.

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1.13 Medical and Pathological Information

Not Applicable.

1.14 Fire

There was no reported post-crash fire during on-site investigation.

1.15 Search and Survival Aspects

The aircraft stopped safely without any injury to aircrew and passengers or any collateral injury. The aircrew assisted the passengers to evacuate the aircraft and properly coordinate for the emergency response with the local airport authorities.

1.16 Test and Research

Not Applicable.

1.17 Organizational and Management Information

1.17.1 The Fliteline Airways Phil's Inc., (FAPI) is the holder of the Air Operator Certificate (AOC) number 2016069 Base at Building 2 Office 3 Berthaphil IV Compound, Civil Aviation Complex, Clark Freeport, Pampanga with Sub Base at Fliteline Hangar, Plaridel Airport, Lumang Bayan, Plaridel, Bulacan valid to operate up to 23 November 2025. PAFI is operating the aircraft for non-scheduled commercial air transport (air taxi) purpose for both passenger/cargo flight.

1.17.2 The maintenance function of FAPI is being undertaken by the Fliteline Aviation Services Inc. (FASI) Base at Plaridel Airport, Lumang Bayan, Plaridel, Bulacan with Approved Maintenance Organization Certificate Number 66-07 with validity to operate until July 31, 2026 and empowered to perform with limited specific operating capability on airframe, powerplant, propeller, avionics and instrument.

2. ANALYSIS

2.1 General

Aircraft RP-C1801 departed Basco Airport (RPUO) on a scheduled flight to Itbayat Airport (RPLT). Following an uneventful landing, the flight crew initiated a 180-degree

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turn to back-taxi toward the parking ramp. During this maneuver, the FO, acting as Pilot Flying (PF), reported a failure in the left-hand main landing gear hydraulic brake system. Control of the aircraft was immediately transferred to the Pilot-in-Command (PIC), who assumed the role of PF.

While attempting to execute the turn near the right edge of Runway 36, the aircraft veered off the concrete pavement and descended onto an adjacent unpaved embankment approximately 30.5 centimeters (1 foot) below runway elevation. The aircraft came to a complete stop on unpaved terrain, oriented approximately 060° magnetic, with all three landing gears deployed and supporting the airframe.

There were no reported injuries among the passengers or crew. However, the aircraft sustained minor damage. Ground handling personnel subsequently extricated the aircraft from the excursion site and towed it back to the ramp for detailed inspection and damage assessment.

2.2 Brake Assembly Inspection

During the post-incident inspection, the primary technical discrepancy identified was the failure of the left-hand main landing gear (LHMLG) brake assembly. Specifically, the hydraulic brake hose fitting that is responsible for supplying hydraulic pressure to the brake caliper that was found to be damaged.

Detailed examination of the assembly revealed that the hose had ruptured in close proximity to the fitting at the caliper interface. The rupture exhibited signs consistent with progressive material degradation. Visual inspection indicated evidence of mechanical fatigue, surface wear, and material stress where conditions likely exacerbated by prolonged operational vibration and age-related deterioration.

The damaged hose fitting showed indications of material fatigue, including deformation and surface pitting, which suggest a probable cause of failure due to compromised structural integrity over time. These findings are consistent with a failure mode associated with aged or worn-out hydraulic components, highlighting the need for time-based replacement or condition-monitoring protocols in similar high-vibration systems.

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Figure 3 - The LHMG Brake Assembly with damage hose fitting.

Figure 4 - The damaged hose fitting and the replacement parts.

2.3 Unsafe Conditions in Maintenance and Operations

The investigation identified systemic safety deficiencies in both maintenance practices and operational procedures associated with the subject aircraft operating on the RPUO–RPLT route. These unsafe conditions were not detected or mitigated through the safety oversight mechanisms of Fliteline Airways Phil's Inc., (FAPI) and its Approved Maintenance Organization (AMO), thereby contributing to the serious incident.

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2.3.1 Inadequate Pre-Flight Inspection Protocols

It was established that pre-flight inspections, which are intended to be conducted redundantly by flight crew and maintenance personnel, were inconsistently performed. The intended practice of dual inspection, wherein both pilots and mechanics independently verify airworthiness-critical systems, was not reliably observed. This lapse was neither documented nor corrected by supervisory personnel within the operational and safety management structure.

As a result, incipient technical issues, particularly involving the aircraft's brake system, went undetected prior to flight. The failure to identify and address this developing condition directly contributed to the loss of braking effectiveness during the landing roll.

2.3.2 Incomplete Closure of Aircraft Flight Maintenance Logbook (AFML) Remarks

The Aircraft Flight Maintenance Logbook (AFML) revealed multiple entries with open discrepancies that were not properly resolved or closed in accordance with standard maintenance procedures. A review of the AFML entries showed the following:

Open Remarks/Findings (PIC)	Corrective Action (Mechanic)	Actions Taken
1.Right prop feathering upon landing	1. Serviced Nitrogen in Dome of Impeller in right hand (40psi)	1. No checks performed
2. Flaps Inoperative	1. Removed flaps motor and cleaned. 2. Flaps OK 3. A/C OK	1. No checks performed

The entries above were closed administratively by the assigned mechanic without evidence of ground testing, flight testing, or verification by the Pilot-in-Command. No engine or airframe time entries were recorded to support the corrective actions. Furthermore, no corresponding closing remarks were entered by the flight crew, contrary to standard practice and regulatory requirements.

This oversight continued across successive flight cycles on 12, 13, and 14 December 2022, during which the aircraft was released for operations despite unresolved or unverified discrepancies. The failure to correct and test the flaps anomaly contributed to the flapless landing at RPLT, increasing landing roll distance and braking demand. Compounding this was the recurrence of right-hand propeller feathering during ground operations, which degraded directional control following a reported brake failure, culminating in a runway excursion.

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2.3.3 AMO Responsibility

The AMO responsible for the continued airworthiness of the aircraft was not co-located at the point of operation (Batanes group of islands) and lacked a robust oversight presence. There was insufficient quality control to ensure proper closure of AFML discrepancies and effective release-to-service procedures following rectification of reported faults.

Procedures for verifying and documenting corrective actions after defect rectification were found to be either inadequate or inconsistently applied. The investigation also revealed the absence of a scheduled inspection protocol for critical landing gear and braking system components particularly on aircraft operating frequently at airports with short or sloped runways (e.g., RPLT and RPUO). As such, there was no program in place to detect wear or fatigue damage on high-stress components such as brake hoses, discs, or fittings, which may develop due to repeated exposure to elevated loads and vibration.

The lack of a proactive inspection strategy and insufficient technical oversight were contributing factors to the progressive degradation of the left-hand brake hose, ultimately leading to hydraulic brake failure during landing.

3. CONCLUSIONS

3.1 Findings

3.1.1 The Pilots has a valid license with appropriate rating in BN-2A-21 Islander aircraft and medical certificate issued by CAAP, FSIS.

3.1.2 The aircraft has a Certificates of Registration and Airworthiness valid up to 26 January 2023 and 22 September 2023 respectively.

3.1.3 The left-hand brake hose fitting was found ruptured near the caliper assembly.

3.1.4 There was no evidence of pre-flight identification of the deteriorating brake system condition.

3.1.5 The aircraft was released for multiple flights with unresolved or unverified AFML discrepancies.

3.1.6 The use of “flapless” landings due to unrectified flap system discrepancies increased landing roll distance and brake loading.

3.1.7 The aircraft veered off the right edge of Runway 36 onto an unpaved, excavated embankment.

3.1.8 The AMO responsible for maintenance oversight lacked adequate on-site presence and did not enforce effective release-to-service procedures.

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3.2 Probable Cause

3.2.1 Primary Cause Factor

a. Hydraulic failure of the left-hand main landing gear brake system due to a ruptured brake hose fitting.

3.2.2 Contributory Factor

a. Inadequate Maintenance Practices.
b. Insufficient Pre-Flight Inspections.

4. SAFETY RECOMMENDATION

4.1 The safety deficiencies detailed in this report have been fully addressed as a result of the safety measures implemented by Fliteline Airways Phil's Inc., Consequently, no further safety recommendations are being proposed.

5. SAFETY ACTIONS

5.1 As a result of the occurrence, FAPI initiated the following safety corrective actions to mitigate the possibility of the same event recurring in the future:

5.1.1 Enhance maintenance protocols by scheduling a brake system inspection for aircraft operating in remote or challenging areas of operations. The protocols include detailed inspections of brake hoses for signs of wear and tear, corrosion and fatigue.

5.1.2 Perform component life tracking through maintenance of logbook for brake system components service life to ensure timely replacement of parts before potential failure occur.

5.1.3 Conduct pilot and ground crew training sessions on emergency procedures related to brake systems failure.

5.1.4 Issue a memorandum to all pilots and ground crews on the entries to AFML that needs daily attention prior to flight schedules.

5.1.5 Report runway evaluation and assessment to the Authority such as uneven terrain and water runway accumulation that could contribute to landing gear stress.

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

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FLITELINE AIRWAYS PHILS., INC.
SAFETY REPORT – RUNWAY SURFACE INCIDENT INVOLVING RP-C1801

Date of Report: January 09, 2023
Aircraft Involved: RP-C1801
Aircraft Type: BN-2A-21 (BN-ISLANDER)
Location: Jeorge Abad Airport (RPLT), Ithayat, Batanes
Date/Time of Incident: December 15, 2022
Reporting Officer: Mr. Bernabe P. Pastrana
Report Type: Safety Report – Runway Surface-Related Landing Gear Stress

1. INCIDENT OVERVIEW

During landing operations at Jeorge Abad Airport (RPLT), Ithayat, Batanes, RP-C1801 experienced **abnormal gear response** as the aircraft encountered **uneven runway terrain and visible water accumulation** along the touchdown zone and taxiway exit. The crew reported **noticeable vibration** and a brief lateral instability upon ground contact. Post-flight inspection identified **increased wear on the main landing gear struts** and **moisture intrusion in the wheel bay**.

2. BACKGROUND AND CONTEXT

This incident correlates directly with the **Runway Evaluation and Assessment Report** submitted on January 06, 2023, which highlighted the following hazards:

- **Surface undulations and dips** along active runway segments.
- **Standing water accumulation** due to insufficient drainage.
- **Potential for increased landing gear stress** and component wear.

The **assessment concluded** that these environmental factors **contribute significantly to airframe stress** during ground operations and pose ongoing risks if not mitigated.

3. FACTUAL DETAILS

- **Weather:** Light rain prior to landing; surface wet with pooling observed.
- **Landing Gear Configuration:** Normal; weight within operational limits.
- **Flight Crew:** Experienced no control system failure.
- **Aircraft Condition Post-Flight:**
  - No structural damage.
  - Minor wear noted on tires and shock absorber compression recorded beyond nominal range.
  - Moisture observed around landing gear support area.

4. CONTRIBUTING FACTORS

- **Runway Deformation:** Uneven surface amplified ground impact forces.
- **Water Pooling:** Reduced tire friction and increased dynamic loads.
- **Delayed Surface Maintenance:** No recent repair or resurfacing of reported sections.

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5. MITIGATION ACTIONS (REFERENCE TO PREVIOUS PLAN)

Based on our **previously submitted mitigation framework**, the following actions were initiated:

1. **Aircraft Maintenance Actions**
   - RP-C1801 flagged for enhanced **shock strut inspection** every 10 flight hours for the next 30 days.
   - Immediate application of **anti-corrosion compounds** around affected gear areas.
   - Landing data logged for structural monitoring.
2. **Operational Adjustments**
   - Dispatch alerted flight crews to **avoid known runway impact zones** during arrival and taxi.
   - Pilots instructed to use **soft-field landing techniques** on wet surfaces.
3. **Coordination with Airport Authority**
   - Formal notification and safety report submitted regarding **non-compliant runway surface and drainage**.
   - Participation in joint **airfield condition review** scheduled with local airport management.

6. SAFETY RECOMMENDATIONS

- **Runway Repairs:** Advocate for immediate surface leveling and drainage improvement at affected airfield.
- **Internal Briefings:** Reiterate ground risk procedures and gear system vigilance across pilot and maintenance teams.
- **Safety Reporting Culture:** Encourage immediate documentation of runway abnormalities and landing gear concerns in the AFML and through SMS channels.
- **Trend Monitoring:** Maintain a trend analysis of similar incidents to assess aircraft wear impact and adjust maintenance schedules accordingly.

7. CONCLUSION

This incident involving RP-C1801 reinforces the critical connection between **airfield surface quality and aircraft safety**. The presence of **uneven terrain and water accumulation** not only affects landing performance but also **introduces repeated stress** to vital undercarriage components. Consistent with our earlier **runway assessment and mitigation strategy**, corrective actions have been deployed to protect airworthiness and reduce operational risk.

Respectfully submitted,

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FlitelineAirways

RUNWAY EVALUATION AND ASSESSMENT REPORT

TO: Airport Authority / Airfield Operations Command at Itbayat Airport
FROM: Fliteline Airways Phils., Inc.
DATE: January 06, 2023
SUBJECT: Runway Surface Condition Evaluation and Risk Assessment

1. PURPOSE

This report provides an evaluation of the current runway surface conditions at Jeorge Abad Airport (RPLT), Itbayat, Batanes with emphasis on **uneven terrain** and **water accumulation**, and their potential impact on aircraft structural integrity—particularly **landing gear stress during takeoff, landing, and taxi operations**.

2. OBSERVATIONS

a. Runway Surface Water Accumulation Due to Ongoing Maintenance

At the time of the incident, maintenance and repair work was being conducted along the shoulders of the runway. These ongoing repairs altered the normal drainage patterns and temporarily obstructed the flow of water away from the runway surface. As a result, water accumulated and remained stagnant in certain sections of the runway. This unexpected pooling of water contributed to the degraded surface conditions encountered during the operation.

b. Water Accumulation

- **Standing water** has been observed post-precipitation, particularly near the [insert specific locations—e.g., Runway 09/27 intersection, or taxiway exit A3].
- Ineffective drainage has led to **localized pooling**, posing risks of **hydroplaning** and water ingestion in engine nacelles.
- Repeated exposure to these wet conditions also **increases corrosion risk** to landing gear assemblies and associated components.

3. IMPACT ON AIRCRAFT OPERATIONS

- **Increased Landing Gear Stress:** Repeated exposure to rough terrain and water impact zones is likely to accelerate wear on struts, tires, and shock absorption components.
- **Hydroplaning Risk:** Surface water reduces braking efficiency, particularly for aircraft with limited anti-skid capabilities.
- **Operational Delays:** Pilots may require increased rollout distance or avoid certain taxi routes, affecting turnaround time and schedule reliability.

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FLITELINE AIRWAYS PHILS., INC.
TRAINING SESSION REPORT
(Post-Incident: Runway Surface Impact – RP-C1801)

Date Conducted: April 24, 2023
Location: Fliteline Training Room
Duration: 2 hours
Facilitator: Safety Manager / Director of Maintenance
Attendees: 14 personnel

- 5 Flight Crew (including RP-C1801 pilot team)
- 6 Maintenance Staff
- Documentation Officers

Purpose of the Training

This session was conducted in direct response to the **runway condition-related incident involving RP-C1801**, where **uneven terrain and water accumulation** led to increased stress on the landing gear during landing and taxiing operations. The objective was to **raise awareness**, reinforce **preventive measures**, and ensure **cross-department understanding** of the operational and technical risks involved.

Topics Covered

1. **Incident Overview – RP-C1801**
   - Timeline and summary of the incident
   - Findings from post-flight inspection and safety report
   - Review of contributing runway conditions (surface dips, water pooling)
2. **Understanding Landing Gear Stress Factors**
   - Overview of landing gear components (shock struts, tires, actuators)
   - Effects of uneven terrain and hydroplaning on gear systems
   - Early signs of stress-related wear or failure
3. **Runway Hazard Identification and Crew Response**
   - Recognizing hazardous surface conditions
   - Soft-field landing techniques and braking adjustments
   - When to request alternate taxi routes or airfields
4. **Enhanced Inspection Protocols for Flight & Ground Crew**
   - Purpose and importance of enhanced inspections, Overview of safety and compliance drivers
   - Flight Crew: Pre-flight,post-flight checks
   - Ground Crew: Exterior, fuel, cargo, maintenance inspections
   - Real-time data logging
   - Incidents due to inspection lapses & Rollout strategies and staff engagement
5. **Reporting & Operational Coordination Procedures**
   - Trained Personnel in clear communication, proper documentation, and their specific roles in both routine and emergency scenarios. Immediate reporting protocols using the Safety Reporting System
   - Role of each department in hazard mitigation

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6. **Review of Mitigation Plan and Future Monitoring**
   - Implementation of enhanced inspection intervals for RP-C1801
   - Ongoing runway monitoring efforts and reports to airport authorities
   - Coordination with CAAP and documentation requirements

Materials Provided

- Incident summary handout
- Landing gear inspection reference sheet
- Runway condition risk sample
- Safety Reporting Form

Participant Feedback (Summary)

Feedback from attendees indicated:

- Improved understanding of the direct mechanical risks posed by poor runway conditions.
- Stronger alignment between flight and maintenance teams regarding inspection protocols.
- Requests for ongoing briefings and simulator drills on rough-field operations.

Training Outcome

All attendees were deemed **"Satisfactory"** in participation and understanding. This session serves as **documented corrective and preventive action (CAPA)** following the RP-C1801 incident and has been filed in Fliteline's **Safety Management System (SMS)** records.

Respectfully submitted,

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PHOTOS DURING THE TRAINING SESSION

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FLITELINE AIRWAYS PHILS., INC.

TRAINING SYLLABUS & PROGRAM
Title: Landing Gear Stress Awareness & Runway Hazard Mitigation
Prepared by: Safety Manager/Maintenance Director
Duration: 2 Hours

I. TRAINING OBJECTIVES

By the end of this training, participants will be able to:

1. Identify common runway surface hazards that contribute to landing gear stress.
2. Understand the mechanical effects of uneven terrain and water accumulation on aircraft landing gear systems.
3. Apply enhanced pre- and post-flight inspection procedures specific to the RP-C1801 aircraft.
4. Demonstrate appropriate flight crew responses and operational adjustments to surface-related hazards.
5. Report surface hazards effectively and participate in the organization's safety reporting and mitigation processes.

II. TARGET PARTICIPANTS

- Flight Crew (Captains, FOs)
- Aircraft Maintenance and Ground Crew
- Operations Department
- Safety and Quality Assurance Personnel

III. COURSE OUTLINE / CONTENT MODULES

Module No.	Topic	Duration	Instructional Method	Learning Materials
1	**Incident Background – RP-C1801 Case**	15 mins	Presentation & Q&A	Incident Brief Sheet
2	**Landing Gear System Overview & Stress Effects**	20 mins	Visual Aids / Briefing	Component Diagrams
3	**Runway Hazards and Aircraft Response Techniques**	20 mins	Discussion / Scenario Simulation	Risk Matrix Charts
4	**Enhanced Inspection Protocols for Flight & Ground Crew**	20 mins	Demo & Guided Walkthrough	Inspection Checklist
5	**Reporting & Operational Coordination Procedures**	20 mins	Role-Play & Flowchart Review	SMS Forms / SOP
6	**Review of Mitigation Plan and Future Monitoring**	15 mins	Facilitated Discussion	Feedback Sheet

IV. METHODOLOGY

- **Instructor-led presentation** with case-based discussions
- **Hands-on demonstration** of inspection points
- **Interactive scenario simulation** (pilot & ground coordination during rough-field landing)
- **Q&A and participant feedback session**

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V. TRAINING MATERIALS REQUIRED

- Projector and visual aids (component diagrams, photos of damaged gear, runway images)
- Printed handouts:
  - RP-C1801 incident summary
  - Landing gear inspection checklist
  - Safety reporting forms
- Runway hazard matrix and sample NOTAMs
- Training attendance sheet and evaluation form

VI. COMPLIANCE REFERENCE

- **Civil Aviation Authority of the Philippines (CAAP) – Part 9 SMS Requirements**
- **Fliteline Airways Phils., Inc. – SMS Manual, Section 6.2.1 (Training & Competency)**

VII. RECORD KEEPING

All training documentation, including the syllabus, attendance log, training reports, and evaluation results will be filed under:

Training File Reference: FLT/TRNG/RP-C1801/2023/01
Maintained By: Safety and Training Department
Retention Period: 5 years (in compliance with SMS audit readiness)

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March 15, 2023

FLITELINE AIRWAYS PHILS., INC.
INCIDENT MITIGATION PLAN
Aircraft: RP-C1801
Subject: Mitigation of Runway-Induced Landing Gear Stress and Operational Hazards

1. BACKGROUND

Following recent evaluations and operational feedback, it has been noted that certain runway conditions—such as **surface unevenness and water accumulation**—pose **recurrent stress hazards** to RP-C1801's **landing gear, braking system, and structural components**. In response, the following mitigation strategy has been designed to reduce incident risk, improve operational safety, and preserve aircraft integrity.

2. MITIGATION STRATEGIES

A. Operational Adjustments

- **Runway Condition Briefings**
  - Prior to each flight, dispatch and flight operations will include a **Runway Condition Advisory** (RCA) in the crew briefing if the destination or departure airfield has reported uneven surfaces or standing water.
- **Alternate Runway or Airfield Selection**
  - Evaluate alternate airfields or runway directions when the primary runway exhibits poor surface conditions, especially during or after rain.
- **Modified Landing Techniques**
  - Pilots will use **soft-field or reduced braking techniques**, when safe, to minimize landing gear impact during landings on suspect surfaces.
- **Taxi Route Restrictions**
  - Avoid known rough taxi paths by issuing ground movement instructions through coordination with airport operations.

B. Aircraft Maintenance and Inspections

- **Enhanced Pre- and Post-Flight Inspections**
  - Ground crews will perform **focused checks** on landing gear struts, tires, brakes, and belly panels after operations on rough or waterlogged surfaces.
- **Corrosion Prevention and Control**
  - Apply additional anti-corrosion compounds and water-repellent treatments on landing gear and undercarriage areas every 50 flight hours or after exposure to standing water.
- **Shock Absorber Monitoring**
  - Increase frequency of oleo strut servicing and nitrogen checks to maintain proper damping, especially if repetitive hard landings or jarring taxi movements are reported.

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- **Landing Data Logging**
  - Install or enable flight data monitoring (FDM) system to **track vertical loads** during landings and taxi, identifying stress trends early for maintenance action.

C. Training and Awareness

- **Pilot Training Enhancement**
  - Refresher sessions on soft-field operations, hydroplaning awareness, and alternate landing techniques.
- **Ground Crew Briefings**
  - Regular training updates on identifying early signs of undercarriage fatigue, tire damage, and water exposure wear.

D. Coordination with Airport Authorities

- **Runway Safety Reports**
  - Submit regular reports to airport management highlighting critical areas requiring resurfacing or drainage improvements.
- **Joint Airfield Walk-Throughs**
  - Conduct quarterly site evaluations with airport maintenance teams to assess risk areas impacting RP-C1801 operations.

3. MONITORING & COMPLIANCE

- **Safety Officer Oversight**
  - Fliteline's Safety and Quality Assurance Team will **track all runway-related discrepancies and landing gear issues** for trend analysis.
- **Monthly Review**
  - A monthly review of runway conditions, aircraft incident logs, and corrective actions will be conducted and reported to senior management.

4. CONCLUSION

The successful operation of RP-C1801 depends heavily on proactive measures addressing both external airfield conditions and internal operational discipline. By implementing the above strategies, **Fliteline Airways Phils., Inc.** will significantly **reduce the risk of incidents, improve flight safety**, and ensure the **long-term reliability** of RP-C1801.

Regards,

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