



Section/division Accident and Incident Investigations Division

#### AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

					Ref	erence:		CA1	8/2/3/10312	
Aircraft Registration		Date of Acc	cident	28	May 20	23	Time	Time of Accident		
Type of Aircraft Dyn'Aéro			4S		Тур	e of Op	eration	Priva	ate (Part 94)	
Pilot-in-command Lic	ence Type		rline Transpo cence (ATPL)			Age	59	Lice	nce Valid	Yes
Pilot-in-command Flying Experience Total Flying Hou							18 075	Hou	rs on Type	250.7
Last Point of Departu	re	Peti	it Airfield (FA	RA), Ga	utenę	g Provin	се			
Next Point of Intende	d Landing	Tra	nquillity Spa I	Lodge, (	Gaute	eng Prov	vince			
Damage to Aircraft		Sub	ostantial							
Location of the accide possible)	ent site wi	th ref	erence to ea	asily def	fined	geogra	aphical p	oints	(GPS readings	if
Tranquillity Spa Lodge	(GPS co-c	ordinat	tes: 25° 28' 2	9.57" So	outh (	)28°27'	44.33" Ea	ast, ele	evation 3 890 fe	et)
Meteorological Inform	ation Su	urface	wind: 060°/ §	9 kt; tem	pera	ture: 21	°C; dew p	oint: 8	°C; CAVOK	
Number of People On-board	1 + ()		ber of le Injured	0		mber of ople Kil			Other (On Ground)	0
Synopsis			•			•			,,	
On Sunday morning, off on a private flight same province. Visua	from Pet al meteoro	tit Airl	field (FARA)	) in Ga s (VMC	uten ;) by	g provir day pre	nce to Tr evailed at	anqu t the t	ility Spa Lodg ime of the fligh	e in the nt which
On Sunday morning, off on a private flight	from Pet al meteoro er the pro at after la d from the n position. ce. ed during l to be 25	tit Airl blogic bvisio nding nose nose The taxi a 5°28'2	field (FARA) al condition ns of Part the aircraft e gear fork aircraft was at Tranquillit 29.57" South	) in Ga s (VMC 94 of t t at Tra and the s substa ty Spa I n 028°2	uten ) by he C nquil prop antial Lodg	g provir day pre Civil Av ity Spa beller s ly dama e at Gl .33" Ea	nce to Tr evailed at iation Re Lodge a truck the aged. No lobal Pos ast at a fi	and w grou o pers	ility Spa Lodg ime of the fligh tions (CAR) 2 hilst taxiing, th nd. The aircra on was injured ng System (G levation of 3 &	e in the nt which 2011 as ne nose ft came d during PS) co-
On Sunday morning, off on a private flight same province. Visua was conducted under amended. The pilot reported the wheel strut separate to a stop in a tail-high the accident sequence The accident occurre ordinates determined (ft).	from Per al meteoro er the pro at after la d from the n position. e. ed during l to be 25 ealed tha	tit Airl blogic bvisio nding nose The taxi a 5°28'2 t the	field (FARA) al condition ns of Part the aircraft e gear fork a aircraft was at Tranquillit 29.57" South nose wheel	) in Gai s (VMC 94 of t t at Tra and the s substa ty Spa I n 028°2 strut fra	uten ) by he C nquil prop antial Lodg	g provir day pre Civil Av ity Spa beller s ly dama e at Gl .33" Ea	nce to Tr evailed at iation Re Lodge a truck the aged. No lobal Pos ast at a fi	and w grou o pers	ility Spa Lodg ime of the fligh tions (CAR) 2 hilst taxiing, th nd. The aircra on was injured ng System (G levation of 3 &	e in the nt which 2011 as ne nose ft came d during PS) co-
On Sunday morning, off on a private flight same province. Visua was conducted under amended. The pilot reported the wheel strut separate to a stop in a tail-high the accident sequence The accident occurre ordinates determined (ft).	from Per al meteoro er the pro- at after la d from the n position. ce. ed during l to be 25 ealed tha <b>nd/or Co</b> ear fork so	taxi a bootisio nding no	field (FARA) al condition ns of Part the aircraft e gear fork a aircraft was at Tranquillit 29.57" South nose wheel <b>utory Facto</b> ated from th t which was	) in Gal s (VMC 94 of t t at Tra and the s substa ty Spa I n 028°2 strut fra ors e nose	utena ) by he C nquil prop antial Lodg 7'44 actur	g provir day pre Civil Av ity Spa beller s ly dama e at Gl .33" Ea ed at th	t during	and w grou o pers sitionin d joint	ility Spa Lodg ime of the fligh tions (CAR) 2 hilst taxiing, th nd. The aircra on was injured ng System (G levation of 3 & t.	e in the nt which 2011 as ne nose ft came d during PS) co- 390 feet

#### **Occurrence Details**

Reference Number Occurrence Category Type of Operation Name of Operator Aircraft Registration Aircraft Make and Model Nationality	: CA18/2/3/10312 : Accident (Category 1) : Private (Part 94) : A M Lange : ZU-IMB : Dyn'Aéro / MCR 4 S : South African
Place	: Tranquillity Spa Lodge, Gauteng Province
Date and Time	: 28 May 2023 at 0910Z
Injuries	: None
Damage	: Substantial

#### Purpose of the Investigation

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

#### **Investigation Process**

The Accident and Incident Investigations Division (AIID) of the South African Civil Aviation Authority (SACAA) was notified of the occurrence on 28 May 2023 at 0930Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and International Civil Aviation Organisation (ICAO) STD Annex 13 definitions. Notification was sent to the State of Registry, Operator, Design and Manufacturer in accordance with the CAR 2011 Part 12 and ICAO Annex 13 Chapter 4. The states did not appoint an accredited representative and/or advisor. The investigator did not dispatch to the accident site for this occurrence.

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following: Accident — this investigated accident Aircraft — the Dyn'Aéro / MCR 4 involved in this accident Investigation — the investigation into the circumstances of this accident Pilot — the pilot involved in this accident Report — this accident report
- 2. Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows or lines.

#### Disclaimer

This report is produced without prejudice to the rights of the SACAA, which are reserved.

## **Table of Contents**

Executive Summary	1
Occurrence Details	2
Investigation Process	2
Disclaimer	2
Contents Page	3
Abbreviations	
1. FACTUAL INFORMATION	5
1.1. History of Flight	
1.2. Injuries to Persons	5
1.3. Damage to Aircraft	6
1.4. Other Damage	
1.5. Personnel Information	-
1.6. Aircraft Information	
1.7. Meteorological Information	
1.8. Aids to Navigation	10
1.9. Communication	
1.10. Aerodrome Information	
1.11. Flight Recorders	
1.12. Wreckage and Impact Information	10
1.13. Medical and Pathological Information	
1.14. Fire	
1.15. Survival Aspects	
1.16. Tests and Research	
1.17. Organisational and Management Information	
1.18. Additional Information	
1.19. Useful or Effective Investigation Techniques	
2. ANALYSIS	
3. CONCLUSION	
3.2. Findings	13
3.3. Probable Cause/s	
3.4. Contributory Factor/s	
4. SAFETY RECOMMENDATIONS	14
5. APPENDICES	14

Abbreviation	Description
0	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
AP	Approved Person
ATF	Authority to Fly
ATPL	Airline Transport Pilot Licence
CAR C of A	Civil Aviation Regulations Certificate of Airworthiness
C of R	Certificate of Registration
CRS CVR	Certificate of Release to Service Cockpit Voice Recorder
EFIS	Electronic Flight Information System
FARA	Petit Airfield
FDR	Flight Data Recorder
ft	Feet
hPa	Hectopascal
kt	Knots
m	Metres
METAR	Meteorological Routine Aerodrome Report
NTCA	Non-type Certified Aircraft
PIC POH	Pilot-in-Command
QNH	Pilot's Operating Handbook Barometric Pressure Adjusted to Sea Level
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
UTC	Co-ordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

#### 1. FACTUAL INFORMATION

## 1.1. History of Flight

- 1.1.1. On Sunday morning, 28 May 2023, a pilot on-board a Dyn'Aéro aircraft with registration ZU-IMB took off from Petit Airfield (FARA) in Gauteng province to Tranquility Spa Lodge in the same province. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.
- 1.1.2. The pilot reported that during taxi on the grass runway at Tranquility Spa Lodge the nose wheel separated from the nose wheel strut at the welded joint. Subsequently, the propeller tips struck the ground. The aircraft came to a stop in a tail-high attitude. The aircraft sustained substantial damage. No person was injured during the accident sequence.
- 1.1.3. The accident occurred during daylight at Tranquillity Spa Lodge at Global Positioning System (GPS) co-ordinates determined to be 25°28'29.57" South 028°27'44.33" East, at an elevation of 3 890 feet (ft).



Figure 1: Overview of the Tranquillity Spa Lodge runway and the accident site. (Source: Google Earth)

#### 1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	1	-	-	-	-
Total	1	-	-	-	-

Note: Other means people on the ground.

CA 12-12a	07 March 2022	Page 5 of 16

## 1.3. Damage to Aircraft

1.3.1. The aircraft sustained substantial damage to the propeller tips, and the nose wheel separated from the nose wheel strut.



Figure 2: The aircraft as it came to rest.

#### 1.4. Other Damage

1.4.1. None.

## 1.5. Personnel Information

#### 1.5.1 Pilot-in-command

Nationality	South African	Gender	Male		Age	59
Licence Type	Airline Transport Pi	lot Licence				
Licence Valid	Yes	Type Endor	sed	Yes		
Ratings	Instrument Rating					
Medical Expiry Date	31 October2023					
Restrictions	Corrective lenses					
Previous Accidents	Yes					

Note: Previous accidents refer to past accidents the pilot was involved in, when relevant to this accident.

#### Flying Experience:

Total Hours	18 075
Total Past 24 Hours	4.0
Total Past 7 Days	27.2
Total Past 90 Days	174.0
Total on Type Past 90 Days	67.8
Total on Type	250.7

## 1.6 Aircraft Information

## 1.6.1 Description (Source: Pilot's Operating Handbook)

The Dyn'Aéro MCR4S is a four-seat development of the French two-seat, single engine. The aircraft was first flown in early 2000 and is sold in a kit form.



Figure 3: The aircraft prior to the flight. (Source: <u>Tranquillity Spa Lodge | LekkeSlaap</u>)

#### Airframe:

Manufacturer/Model	Dyn'Aéro / MCR4S			
Serial Number	P0045			
Year of Manufacture	2000			
Total Airframe Hours (At Time of Accident)	210.2			
Last Inspection (Date & Hours)	2 April 2023	198.5		
Airframe Hours Since Last Inspection	11.7			
CRS Issue Date	2 April 2023			
ATF (Issue Date & Expiry Date)	17 April 2019 30 April 2024			
C of R (Issue Date) (Present Owner)	23 October 2017			
Operating Category	Amateur Built			
Type of Fuel Used	Avgas 100LL			
Previous Accidents	Yes			

Note: Previous accidents refer to past accidents the aircraft was involved in, when relevant to this accident.

## Engine:

Manufacturer/Model	Rotax 914 UL
Serial Number	4419925
Part Number	N/A
Hours Since New	275
Hours Since Overhaul	TBO not yet reached

## **Propeller:**

Manufacturer/Model	MTV Propeller / MTV-21-A/170-125
Serial Number	190092
Part Number	N/A
Hours Since New	198.5
Hours Since Overhaul	TBO not yet reached

- 1.6.2 The aircraft had a valid Authority to Fly (ATF) Certificate that was issued by the Regulator (SACAA) on 17 April 2019 with an expiry date of 30 April 2024.
- 1.6.3 The aircraft maintenance organisation (AMO) had an AMO approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.
- 1.6.4 The latest annual inspection on the aircraft was conducted on 2 April 2023. The approved person (AP) who conducted maintenance on the aircraft issued the Certificate of Release to Service (CRS) on 2 April 2023 at 198.5 airframe hours with an expiry date of 30 April 2024 or at 300 airframe hours, whichever comes first.
- 1.6.5 The landing gear is inspected every 100 hours (Table 1 no. 3207). According to the airframe logbook, the nose gear assembly was replaced on 27 March 2019.
- 1.6.6 The AP did not detect a crack on the welded joint between the front leg tube and the bracket that holds the front wheel fork. The manufacturer had issued a Service Bulletin No.BS 05 J 0027 which advised operators to *measure the landing gear outside diameter, either just the fuselage, or inside the cockpit between the rudder pedals. If the diameter is 32mm, then carry out the following procedure:* 
  - Remove the upper leg fairing.
  - Remove the wheel spat to access the fork holding bracket.
  - Clean the area to visually inspect the welding.
  - If you find a crack, contact Dyn'Aéro for advice and corrective action.
- Note: There were no records in the airframe logbook to confirm that SB No.BS 05 J 0027 was complied with. This was not in line with the provisions of Part 44.01.8 which states: *all special inspection and modifications prescribed by the Director, or the organisation designated for the purpose in terms of Part 149 as the case may be to detect and correct an unsafe condition of a non-type of certificated aircraft shall be considered mandatory.*

			M	CR								n
Sportster	Club	NLC	Σ	4S	Pick-up	MniCRuiser		OPERATIONS	50h	100h or Annual	1000h	5 years
•	٠	٠	٠	٠	٠	٠	2805	Fuel line check	•	•	٠	
	ΑΤΑ	31	– IN	STR	ŻUМ	ËNT	PAN	EL	-	-		
•	•	٠	٠	٠	٠	•	3101	Instrument Panel rubber pads		•	٠	
٠	٠	•	٠	٠	٠	٠	3102	Instrumentation and warning light installation check		٠	٠	
	ΑΤΑ	32	- L/	AND	İNG	GE	AR	•	•		•	. 1
•	٠	٠	٠	٠	٠	٠	3201	201 Wheels removal/refitting		•	٠	
•	•	•	•	٠	•	٠	3202	Wheel fairings inspection	٠	•	•	
•	٠	٠	٠	٠	٠	٠	3203	Undercarriage mounting bolts torque check (check torque)		•	•	
•	•	•	•	•	•	•	3204	Brake lining or brake pad check and replacement if necessary	•	•	•	
٠	•	٠				٠	3205	Removal/refitting of the landing leg			٠	
	٠	٠	٠	٠	٠	٠	3206	Oleo-pneumatic gear removal/refitting			٠	•
٠	•	٠	٠	٠	•	٠	3207	Nose/Tail wheel support and fork check		٠	٠	
٠	٠	٠	•	٠	•	٠	3208	Brake circuit check	٠	٠	٠	

#### ATA 32 – LANDING GEAR

<b>3201</b> Wheels removal/refitting	<ul> <li>→ Procedure : 2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> </ul>	Remove the main and nose wheels by referring to section 22 and 24 of the IPC and to the mounting instruction MTRNO01 or QTRNO02 (for the MCR 4S and Pick-up). Check the general state of the wheels and in particular the bearings, disks, drums and tyres.
<b>3202</b> Wheel fairings inspection	→ Procedure : <sup>1.</sup>	Inspect the condition of the wheel fairings and fixings by referring to the IPC, section PA and PB (for the MCR Sportster, M, Club and ULC) or 52 and 53 (for the MCR 4S and Pick-up) and also the mounting instructions MTRNO01 or QTRNO02 (for the MCR 4S and Pick-up).
3203 Undercarriage mounting bolts torque check	→ <u>Procedure</u> : 1.	Check the torque of the mounting bolts for the main undercarriage and nose leg referring to the IPC, section 9, 21 et 47 and to the mounting instruction MTRNO01 or MTRNO02 (for the MCR 4S and Pick-up).

OPERATIONS	PROCEDURES		
3204 Brake lining or brake pad check and replacement if necessary		and 22 and to the mounting instructions MTRNO01 and MTRNO03 (for the MCR Sportster, M, Club and ULC) or QTRNO02 (only for MCR 4S and Pick-up).	
<b>3205</b> Removal/refitting of the landing leg	→ <u>Procedure</u> : 1. 2. 3. 4.	absence of cracks and play in the mounting of the stub axle.	
<b>3206</b> Oleo-pneumatic gear removal/refitting	→ Procedure : 1. 2. 3. 4.	Lift the MCR : Put it on trestles. Remove the oleo-pneumatic gear by referring to section 21 of the IPC and to the mounting instructions QTRNO02. Check the condition. Refit the gear.	
3207 Nose/Tail wheel support and fork check	→ <u>Procedure</u> : <sup>1</sup> .	Check the condition of the support and of the fork of the nose wheel (or tail wheel if tail-dragger) by referring to the IPC, sections 9 and 24 and to the mounting instructions MTRNO01. Re-torque or replace fixation screws if required	

**Table 1**: Approved maintenance schedule for 100 hours and procedure for landing gear inspection.

I

## **1.7 Meteorological Information**

1.7.1 The weather information below was obtained from the meteorological aerodrome report (METAR) that was issued by the South African Weather Service (SAWS), recorded at O.R. Tambo International Airport (FAOR) on 28 May 2023 at 0910Z. FAOR is located 89 kilometres (km) from the accident site.

Wind Direction	060°	Wind Speed	9 kt	Visibility	CAVOK
Temperature	21°C	Cloud Cover	None	Cloud Base	None
Dew Point	8°C	QNH	Unknown		

## 1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational equipment was unserviceable prior to the flight.

## 1.9 Communication

1.9.1 The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to the flight.

## 1.10 Aerodrome Information

1.10.1 The accident occurred at Tranquillity Spa Lodge on Runway 03 at GPS co-ordinates determined to be 25°28'29.57" South 028° 27'44.33" East, at a field elevation of 3 890ft.

Aerodrome Location	Tranquillity Spa Lodge	
Aerodrome Status	Licensed	
Aerodrome Co-ordinates	25°28'29.57" South 028°27'44.33" East	
Aerodrome Altitude	3 890 ft	
Runway Headings	03 / 21 and 11 / 29	
Runway Dimensions	700 m / 520 m	
Runway Used	03	
Runway Surface	Grass	
Approach Facilities	Nil	
Radio Frequency	Unknown	

#### 1.11 Flight Recorders

1.11.1 The aircraft was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

#### 1.12 Wreckage and Impact Information

1.12.1 After landing whilst the aircraft was taxiing, the nose wheel separated from the nose wheel strut and the propeller tips struck the ground before the aircraft came to a stop.

## 1.13 Medical and Pathological Information

1.13.1 None.

## 1.14 Fire

1.14.1 There was no pre- or post-impact fire.

## 1.15 Survival Aspects

1.15.1 The accident was considered survivable as the cockpit was still intact. The pilot had made use of the aircraft's safety harnesses.

## 1.16 Tests and Research

1.16.1 None.

## 1.17 Organisational and Management Information

- 1.17.1This was a private flight that was conducted under the provisions of Part 94 of the CAR 2011.
- 1.17.2 The AMO had an approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.

## 1.18 Additional Information

1.18.1 Post-accident inspection conducted by the AMO found that there was a crack caused by stress on the welded section that connect the nose strut and the nose fork. The AP stated that the aircraft was operated on an uneven surface of the airfield.

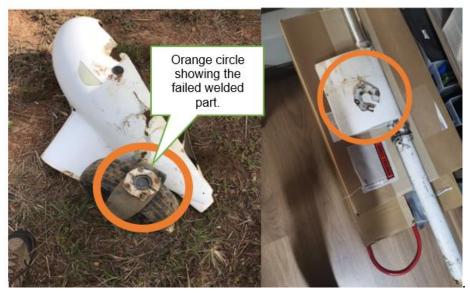


Figure 4: The welded section that failed.

## 1.18 Useful or Effective Investigation Techniques

1.18.1 None.

## 2. ANALYSIS

## 2.1. General

From the available evidence, the following analysis was made with respect to this accident. This shall not be read as apportioning blame or liability to any organisation or individual.

## 2.2. Analysis

- 2.2.1 The pilot was initially issued an Airline Transport Pilot Licence (ATPL) by the Regulator (SACAA) on 13 May 1993. His renewed licence was issued on 11 October 2023 with an expiry date of 31 October 2024. His Class 1 medical certificate was issued on 7 October 2022 with an expiry date of 31 October 2023 with a restriction to wear corrective lenses for defective near vision. The aircraft type was endorsed on the pilot's licence. The pilot had flown 67.8 hours on the aircraft type before the accident flight.
- 2.2.2 The aircraft maintenance logbooks (airframe, engine and propeller), flight folio and the annual maintenance records were reviewed. There were no records in the airframe logbook to confirm that SB No.BS 05 J 0027 was complied with. This was not in line with the provisions of Part 44.01.8 which state: *all special inspection and modifications prescribed by the Director, or the organisation designated for the purpose in terms of Part 149 as the case may be to detect and correct an unsafe condition of a non-type of certificated aircraft shall be considered mandatory.*
- 2.2.3 It is likely that a small crack formed at the welded section where the nose landing gear fork and the nose wheel strut connect due to stress load which occurred over time. The aircraft was operated on an uneven surface of the airfield, which contributed to the ultimate failure of the nose landing gear.
- 2.2.4 Fine weather conditions prevailed at the time of the flight; the weather had no bearing to this accident.

## 3. CONCLUSION

#### 3.1. General

From the available evidence, the following findings, causes and contributing factors were made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusion heading:

- **Findings** are statements of all significant conditions, events, or circumstances in this accident. The findings are significant steps in this accident sequence, but they are not always causal or indicate deficiencies.
- **Causes** are actions, omissions, events, conditions, or a combination thereof, which led to this accident.
- **Contributing factors** are actions, omissions, events, conditions or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident occurring, or would have mitigated the severity of the consequences of the accident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil, or criminal liability.

## 3.2. Findings

- 3.2.1 The pilot was initially issued an Airline Transport Pilot Licence (ATPL) by the Regulator on 13 May 1993. His renewed licence was issued by the Regulator on 11 October 2023 with an expiry date of 31 October 2024.
- 3.2.2 The pilot had a Class 1 medical certificate that was issued on 7 October 2022 with an expiry date of 31 October 2023 with the restriction to wear corrective lenses for defective near vision. The aircraft type was endorsed on the pilot's licence.
- 3.2.3 The aircraft had a valid Authority to Fly (ATF) Certificate that was issued by the Regulator on 17 April 2019 with an expiry date of 30 April 2023.
- 3.2.4 The latest annual inspection on the aircraft was conducted on 2 April 2023. The AP who conducted the inspection issued the Certificate of Release to Service (CRS) on 2 April 2023 at 198.5 airframe hours with an expiry date of 30 April 2024 or at 300 airframe hours, whichever comes first.
- 3.2.5 There are no records in the airframe logbook to support that the SB No.BS 05 J 0027 was complied with. This was not in line with the provisions of Part 44.01.8. The crack was due to the aircraft being operated on an uneven runway.
- 3.2.6 The AP who serviced the aircraft had an AMO approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.
- 3.2.7 The flight was conducted in accordance with the provisions of Part 94 of the CAR 2011 as amended.
- 3.2.8 It is likely that a small crack formed at the welded section where the nose landing gear fork and the nose wheel strut connect due to stress load which occurred over time. The aircraft was operated on an uneven surface of the airfield which contributed to the ultimate failure of the nose landing gear.
- 3.2.9 The weather was not a contributory factor to this accident.

## 3.3. Probable Cause

3.3.1 The nose landing gear fork separated from the nose wheel strut during taxi due to a crack on the welded area of the nose wheel strut which was not identified during maintenance that was conducted 11.7 hours before the accident flight.

## 3.4. Contributory Factors

- 3.4.1. The aircraft was operated on uneven surfaces.
- 3.4.2. Poor maintenance (the SB was not complied with).

## 4. SAFETY RECOMMENDATIONS

## 4.1. General

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

## 4.2. Safety Recommendation/s

4.2.1. None.

## 5. APPENDICES

5.1. Appendix A: Service Bulletin.

This report is issued by: Accident and Incident Investigations Division South African Civil Aviation Authority Republic of South Africa Dyn Aéro SA 19, rue de l'aviation 21121 Darois France ( 33 ) 03 80 35 60 62 Fax ( 33 ) 03 80 35 60 63 12/10/05 Seul le texte français fait foi / Only French text is reliable

# BULLETIN SERVICE N° BS 05 J 0027

Date	10/10/05		
VISA DIRECTION ETUDES	C. BELIN		
Sujet	Contrôle jambe de train avant Front landing gear leg check		
Classement	🗖 Optionnel/optional 🗖 Recommandé/advised 🗹 Obligatoire/Mandatory		
Destinataires	Tous clients MCR biplaces .		
Addressee	Any MCR 2-seater owner.		
Applicabilité	Tout aéronef de type MCR Biplace monté avec une jambe de train avant		
A/C Affected	coulissante de diamètre 28 mm.		
	Any 2-seater MCR aircraft equipped with a 28 mm diameter inner sliding landing gear nose leg.		
Délais d'application	Avant prochain vol.		
Compliance	Before next flight		
Description / Reason			

Suite un incident faisant suite à la non détection d'une crique sur la platine de fixation de la roue avant il est obligatoire d'effectuer le contrôle suivant.

Failing to detect a crack growth on the weld between the front leg tube and the bracket holding the front wheel fork caused an incident. Therefore, it is necessary to make the following inspection.

Procédure d'application Accomplishment procedure

#### Identification des trains concernés.

Mesurer le diamètre extérieur de la jambe de train , soit juste sous le fuselage , soit dans le fuselage entre les palonniers. Si le diamètre est de 32mm alors effectuer les opérations suivantes. Sinon , l'avion n'est pas concerné par le BS

#### Is your landing gear affected ?

Measure the landing gear outside diameter, either just under the fuselage, or inside the cockpit between the rudder pedals. If the diameter is 32mm then carry out the following procedure. Otherwise, the A/C is not affected by this SB.

BS 05 J 0027

Contrôle jambe de train avant

Page 1/2

Dyn Aéro SA 19, rue de l'aviation 21121 Darois France ( 33 ) 03 80 35 60 62 Fax ( 33 ) 03 80 35 60 63 12/10/05 Seul le texte français fait foi / Only French text is reliable

Pour les avions concernés

- Déposer la carene de roue avant afin d'accéder au support de fourche (platine soudée sur le tube).
- Effectuer un nettoyage afin de pouvoir inspecter visuellement la soudure.
- En cas de crique, contacter Dyn Aero pour l'action corrective à effectuer.

For A/C affected

- Remove the upper leg fairing.
- Remove the wheel spat in order to access the fork holding bracket (welded on the tube).
- Clean the area in order to visually inspect the welding.
- If you find a crack, contact Dyn'Aero for advice and corrective action.

Rappel :

Pour tous les avions, il est impératif de respecter la consigne du manuel d'entretien concernant l'inspection de la jambe de train ( voir Manuel Maintenance « Vérification du support auxiliaire et fourche » <u>à effectuer toutes les 100heures ).</u>

Reminder :

For all MCR types, it is imperative to respect the maintenance manual check point referring to the inspection of the landing gear (see maintenance manual « fork and nosewheel structure check », to be done every 100h check !)

Fournitures nécessaires New parts required

Néant *None* 

VISA DIRECTEUR QUALITE	Christophe ROBIN	Date :

BS 05 J 0027

Contrôle jambe de train avant

Page 2/2