KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA

PRELIMINARY

KNKT.21.07.10.04

Aircraft Accident Investigation Report

PT. Travira Air

Sikorsky S 76++; PK-TVY

Soehanah Rig Helipad, Matak

Republic of Indonesia

20 July 2021

2021

This Preliminary Report was produced by the Komite Nasional Keselamatan Transportasi (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the initial investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation Organization, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report published. This report will not include analysis and conclusion.

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Jakarta, 27 September 2021
KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN

SOERJANTO TJAHJONO

TABLE OF CONTENTS

TABLE OF FIGURES

ABBREVIATIONS AND DEFINITIONS

AOC	:	Air Operator Certificate
ATPL/H	:	Airline Transport Pilot License/Helicopter
C	:	Celcius of temperature
CMM	:	Component Maintenance Manual
CPL/H	:	Commercial Pilot License/Helicopter
CVR	:	Cockpit Voice Recorder
FDR	:	Flight Data Recorder
FPSO	:	Floating Production Storage and Offloading
in Hg	:	Inch of Hydrargyrum or inch of mercury
KNKT	:	Komite Nasional Keselamatan Transportasi
lbs	:	Libra pondo (pound) of weight
LT	:	Local Time
mb	:	millibar
MPFR	:	Multi-Purpose Flight Recorder
PF	:	Pilot Flying
PIC	:	Pilot in Command
PM	:	Pilot Monitoring
QFE	:	The Q code indicating atmospheric pressure at the current ground level.
QNH	:	The Q code indicating the atmospheric pressure adjusted to mean sea level.
SIC	:	Second in Command
UTC	:	Universal Time Coordinated
VHF	:	Very High Frequency

SYNOPSIS

On 20 July 2021, a Sikorsky S 76++ helicopter, registered PK-TVY, was being operated by PT. Travira Air, on an unscheduled passenger charter flight to serve the rig operation from Matak Airport (WIOM), Indonesia with intended destination of the offshore rig helipad Soehanah, South China Sea, Indonesia on coordinate of 05° 13' 55" N; 105° 35' 39" E.

On board in this flight was two pilots and five passengers. According to the weight and balance sheet, the flight carried 704 kg. During the landing, the Pilot in Command (PIC) acted as Pilot Monitoring (PM) and the Second in Command (SIC) acted as Pilot Flying (PF).

At 0520 UTC (1220 LT), the helicopter departed Matak Airport. Since the departure until commence for approach landing, the flight was uneventful. There was no report of helicopter system abnormality until the approach commenced.

At 1316 LT, just prior to touchdown at Soehanah rig helipad, the helicopter tumbled to the right and stopped approximately of 12 meters from the center of D-Value of the Soehanah helipad on radial 210°, with the helicopter heading of 141°.

Since the Covid-19 pandemic and considering the protocol of visiting the accident site, the investigators did not come to the accident site. The documentation was taken by PT. Travira Air personnel based on KNKT investigation checklist.

The investigation is continuing and the operator issued several Safety Actions. The KNKT considered that the safety actions were relevant to the safety issues identified up to the publishing of this preliminary report, therefore KNKT did not issued Safety Recommendation in this report.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 20 July 2021, the Sikorsky S 76++ helicopter[1], registered PK-TVY, was being operated by PT. Travira Air[2] on an unscheduled passenger charter flight to serve the rig operation from Matak Airport (WIOM)[3], Indonesia with intended destination of Soehanah[4] offshore rig helipad, South China Sea, Indonesia at coordinate of 05° 13' 55" N; 105° 35' 39" E.

The helicopter was scheduled for seven flights on the day of the accident consisted of Matak – Gajah Baru helipad – Anoa helipad – Soehanah helipad – Matak – Soehanah helipad – Gajah Baru helipad – Matak. The Pilot in Command (PIC) started to active on the fifth flight and the Second in Command (SIC) active since the first flight with another PIC.

The accident flight occurred on the fifth flight. On board in this flight were two pilots and seven passengers. According to the weight and balance sheet, the flight carried 704 kg of personnel and baggage. The PIC acted as Pilot Flying (PF) and the SIC acted as Pilot Monitoring (PM). During the flight, the PIC handed over the control to the SIC and the SIC acted as PF until the end of the flight.

At 0520 UTC[5] (1220 LT), the helicopter departed Matak. Since the departure until commenced approached to Soehanah the flight was uneventful. There was no report of helicopter system abnormality prior to the helicopter departure.

At 1303 LT, the helicopter start descended.

At 1316 LT, just prior to touchdown at Soehanah rig helipad, the helicopter tumbled to the right and stopped at approximately of 12 meters from the center of D-Value[6] of the Soehanah helipad on radial 210°, with the helicopter heading of 141°.

1 The Sikorsky S 76++ helicopter, registered PK-TVY will be named as helicopter for the purpose of this report.

2 PT. Travira Air will be named Travira will be named as Travira for the purpose of this report.

3 Matak Airport (WIOM) will be named as Matak for the purpose of this report.

4 The offshore rig helipad Soehanah at South China Sea, Indonesia will be named as Soehanah for the purpose of this report.

5 The 24-hours clock in Universal Time Coordinated (UTC) is used in this report to describe the local time as specific events occured. Local time is UTC+7 hours.

6 The D-Value is the overall length of the diameter of the helipad.

Figure 1: The Soehanah helipad and the last position of helicopter

1.2 Injuries to Persons

No one injured in this occurrence.

1.3 Damage to Aircraft

The helicopter experienced severe damage.

1.4 Other Damage

The Soehanah helipad exhibited surface safety net damage which required minor repair.

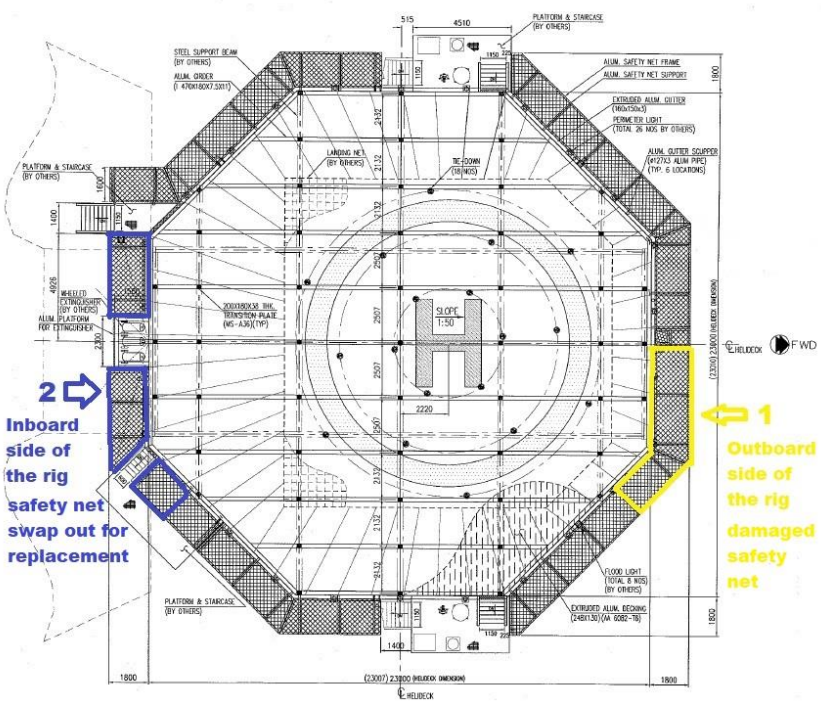

Figure 2: The damage to the helipad

1.5 Personnel Information

1.5.1 Pilot in Command

May use tabular form as follows:

Gender	:	Male
Age	:	43 years
Nationality	:	Indonesia
Marital status	:	Married
Date of joining company	:	3 October 2011
License	:	ATPL/H
Date of issue	:	25 June 2018
Aircraft type rating	:	S76
Instrument rating validity	:	31 January 2022
Medical certificate	:	
Last of medical	:	25 June 2021
Validity	:	6 January 2022
Medical limitation	:	Holder shall wear corrective lenses for near and distance vision
Last line check	:	6 October 2020
Last proficiency check	:	26 January 2021

Flying experience

Total hours	:	3,212 hours 3 minutes
Total on type	:	1,382 hours 38 minutes
Last 90 days	:	49 hours 37 minutes
Last 30 days	:	32 hours 47 minutes
Last 24 hours	:	4 hours 38 minutes
This flight	:	53 minutes

1.5.2 Second in Command

Gender	:	Male
Age	:	35 years
Nationality	:	Indonesia
Marital status	:	Single
Date of joining company	:	10 December 2012
License	:	CPL/H
Date of issue	:	03 November 2014

Aircraft type rating	:	
Instrument rating validity	:	31 January 2022
Medical certificate	:	
Last of medical	:	22 April 2021
Validity	:	19 November 2021
Medical limitation	:	NONE
Last line check	:	23 March 2021
Last proficiency check	:	27 January 2021

Flying experience

Total hours	:	704 hours 5 minutes
Total on type	:	624 hours 35 minutes
Last 90 days	:	63 hours 24 minutes
Last 30 days	:	35 hours 33 minutes
Last 24 hours	:	2 hours 11 minutes
This flight	:	53 minutes

1.5.3 Air Traffic Controller

Gender	:	Male
Age	:	36 years
Nationality	:	Indonesian
Marital status	:	Married
Date of joining company	:	2021
License	:	Aeronautical Radio Operator
Date of issue	:	21 August 2019
Medical certificate	:	Premier Oil MCU Matrix
Last of medical	:	22 May 21
Validity	:	22 May 22
Medical limitation	:	NIL

1.6 Aircraft Information

1.6.1 General

Registration Mark	:	PK-TVY
Manufacturer	:	Keystone Helicopter Corporation
Country of Manufacturer	:	USA
Type/Model	:	S76C++
Serial Number	:	760751
Year of Manufacture	:	12 December 2008
Certificate of Airworthiness		
Issued	:	15 May 2021
Validity	:	14 May 2022
Category	:	Transport
Limitations	:	None
Certificate of Registration		
Number	:	PK-TVY
Issued	:	10 April 2021
Validity	:	9 April 2024
Time Since New	:	6,682 .41 hours
Cycles Since New	:	12,857.0 cycles
Last Major Check	:	AF-300H- 4 March 2021, Swash plate Inspection – 22 February 2021.
Last Minor Check	:	AF-025H – 01 July 2021, Arriel-2S2-015/7Dy – 13 July 2021.

1.6.2 Engines

Manufacturer	:	Safran
Type/Model	:	Arriel-2S2
Serial Number-1 engine	:	21025
▪ Time Since New	:	4,086.06 hours
▪ Cycles Since New	:	4,609.35 cycles
Serial Number-2 engine	:	42400TEC
▪ Time Since New	:	3,558.88 hours
▪ Cycles Since New	:	3,139.35 cycles

1.6.3 Main Rotors

Manufacturer	:	Sikorsky

Type/Model : 76150-09100-053 (four foldable blade)

Serial Number-1 : A086-03370

- Time Since New : 6,682.41 hours
- Cycles Since New : 12,857.0 cycles

Serial Number-2 : A086-03375

- Time Since New : 6,682.41 hours
- Cycles Since New : 12,857.0 cycles

Serial Number-3 : A086-03376

- Time Since New : 6,682.41 hours
- Cycles Since New : 12,857.0 cycles

Serial Number-4 : A086-04129

- Time Since New : 800.2 hours
- Cycles Since New : 1,734.0 cycles

1.6.4 Tail Rotors

Manufacturer : Sikorsky

Type/Model : 76101-05501-042 (two blades)

Serial Number-1 : A245-01024

- Time Since New : 4,335.9 hours
- Cycles Since New : 8,179.0 cycles

Serial Number-2 : A245-01093

- Time Since New : 4,119.0 hours
- Cycles Since New : 7,704.0 cycles

1.6.5 Main Transmission

Manufacturer : Sikorsky

Type/Model : 76351-09600-045

Serial Number : A231-00565

- Time Since New : 2,572.6 hours
- Cycles Since New : -

1.7 Meteorological Information

The weather report of Soehanah issued on 20 July 2021 was as follows:

Time	05:18 LT
Wind (°/knots)	210/12
Visibility (km)	7
Weather	Cloudy
Temperature (°C)	30
QNH[7] (mb/in Hg)	1006
QFE[8] (mb/in Hg)	1009

1.8 Aids to Navigation

The aids to navigation will be included in the Final Report.

1.9 Communications

The Soehanah provided with the radio communication by mean of Very High Frequency (VHF) ground radio communication systems. The ground radio communication system was not recorded.

The helicopter was equipped with two VHF radio communication systems. The pilot used two of the VHF radios for routine communications with air traffic control. All VHF radios were serviceable.

The communication between pilot and Soehanah radio controller was recorded in the Cockpit Voice Record (CVR).

1.10 Aerodrome Information

Helipad Name	:	Soehanah
Helipad Identification	:	
Helipad Operator	:	PT. Vantage Drilling Company Indonesia
Helipad Certificate	:	042.03.EM/RHLD-BBU/III/2020
Validity	:	27 March 2023
Coordinate	:	05º 13’ 54.32” N; 105º 35’ 38.66” E
Elevation	:	120 feet (46 meters above main sea level)
Surface	:	Steel Plate

At the time occurrence, the helipad certificate described that the helipad surface specification was steel plate but in the actual it was aluminum plate profile.

1.11 Flight Recorders

7 QNH is the Q code indicating the atmospheric pressure adjusted to mean sea level.

8 QFE is the Q code indicating atmospheric pressure at the current ground level.

1.11.1 Flight Data Recorder

The helicopter was equipped with Penny & Giles solid state Multi-Purpose Flight Recorder (MPFR). The MPFR was recovered from the accident site and received at the KNKT recorder laboratory on 25 July 2021. The details information of the MPFR was:

Manufacturer	:	Penny & Giles Aerospace Ltd.
Type/Model	:	Multi-Purpose Flight Recorder
Part Number	:	D51615-142-090 ISS 01
Serial Number	:	A02102-003

The MPFR downloaded process was conducted on 28 July 2021 at the KNKT recorder facility in Jakarta, Indonesia.

The download process successfully retrieved 152 parameters of 114.32 hours of flight data comprising 72 flights including the occurrence flight.

The detail of the flight recorder information will be included in the Final Report.

1.11.2 Cockpit Voice Recorder

Manufacturer	:	Universal Avionics
Type/Model	:	CVR-120
Part Number	:	1603-02-12
Serial Number	:	2458

The Cockpit Voice Recorder (CVR) was recovered and received by the KNKT on 25 July 2021. The CVR data successfully downloaded which containing 2 hours recorded voice in 4 channels of audio.

The detail of CVR data will be included in the final report.

1.12 Wreckage and Impact Information

The helicopter stopped about 12 meters from the center of D-Value, on radial about 210° and tumbled to the right.

Figure 3: The helicopter on the Soehanah helipad

The main rotor and tail rotor blades were broken and scattered from the helicopter. Most of the main rotor blades were thrown overboard into the water and unable to be recovered.

All of the floating devices were inflated. All the landing gears were intact. The positioning rod of the right main landing experienced bend about 120° inward.

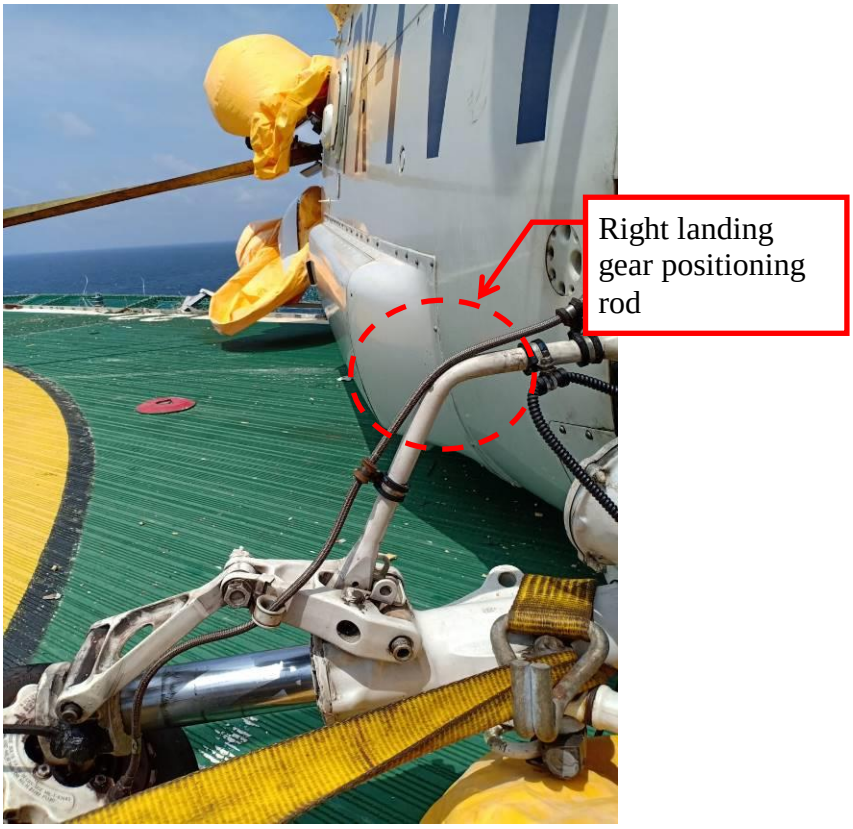

Figure 4: The bend of right landing gear positioning rod

Several scratch marks were found on the helipad surface. The dimension and location of the scratch were not documented.

1.13 Medical and Pathological Information

Should any medical or pathological conducted in this investigation, the detail will be included in the final report.

1.14 Fire

There was no evidence of in-flight or post-impact fire.

1.15 Survival Aspects

Immediately after the occurrence, all of the occupants were evacuated by the Soehanah crews to the medical facility in the Soehanah.

The medical examination was performed to the all passengers and the crew and no health issues or injuries were found. Afterward all passengers were active on duty in the rig. The pilots were evacuated to the Floating Production Storage and Offloading

(FPSO) which located on a ship nearby. The following day, the pilots evacuated to operator headquarter.

1.16 Tests and Research

Should any test or research to be conducted in the course of the investigation, the result will be included in the Final Report.

1.17 Organizational and Management Information

AOC Number	:	135-009
Validity	:	15 December 2022
Aircraft Owner	:	Travira Air
Address	:	Graha Paramita, Jalan Denpasar Raya blok D-2 Kav 8. Kuningan, Jakarta 12940
Aircraft Operator	:	Travira Air
Address	:	Graha Paramita, Jalan Denpasar Raya blok D-2 Kav 8. Kuningan, Jakarta 12940
Certificate Number	:	135 – 009

The aircraft operator served non-schedule flight. At the time of the occurrence, the operator operates 21 aircraft consisted of three Raytheon Beech 1900D Airliner, one ATR 42-500, three Cessna 208 Caravan, four Bell 412 EP, one Sikorsky S-76A, two Sikorsky S-76A++, two Sikorsky S-76C++, one Sikorsky S-76C, one Sikorsky S-76C+, one Eurocopter AS350, one EC 145 and one Hawker 800XP.

1.18 Additional Information

The investigation is continuing and KNKT plans to complete the investigation within 12 months since the day of the occurrence. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS[9]

According to factual information during the investigation, the KNKT identified initial findings as follows:

1. The helicopter had valid Certificate of Airworthiness (C of A) and there was no report of any aircraft system abnormality.
2. The pilots held the valid licenses and the medical certificates.
3. Since the departure flight until commenced for approach to Soehanah, the flight was uneventful.
4. The helicopter touched down to the Soehanah and tumbled to the right.
5. The helicopter experienced severe damage.
6. The Soehanah helipad experienced surface and safety net damage which required minor repair.
7. All occupants were evacuated by the Soehanah crews and conducted medical examination. No one injured in this occurrence.

9 Findings are statements of all significant conditions, events or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal, or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

3 SAFETY ACTION

At the time of issuing this Preliminary Report, the KNKT had been informed of several safety actions by the operator resulting from this occurrence.

3.1 The Travira Air

1. On 21 July 2021, the operator issued a Non-Routine Task to check the rotor flight control system. The KNKT received one of the inspection results of PK-TVL where the inspection indicated no abnormality was found.
2. On 22 July 2021, the operator issued a Safety Communique for increase awareness to all personnel within the operator. The messages were:
    a. The information of the helicopter occurrence.
    b. Improve the self-awareness in the daily operations.
    c. Maintain the proficient and evaluation of the emergency situation.
    d. Maintain the safety in all situations.
3. On 2 August 2021, the Safety Department issued an Internal Memo with the subject of Issue Maintain a high level of awareness during maintenance process to the maintenance department with the following instruction:
    a. Please ensure all paperwork well reviewed, documented and have been done as per procedures.
    b. For Daily and Preflight check, make sure the checklist always used as reference during the process.
    c. Schedule Maintenance and unscheduled maintenance need to be ensured carry out based on current Maintenance Manual and other valid references.
    d. All fuel samples taken from each aircraft have been reviewed and signed properly by Engineer I Maintenance Personnel and Pilot, then keep in the cupboard for the next 24 Hrs.
    e. Please put special attention for any sign of leaking, filter pop out, anomalies, missing screws etc. during transit process.
    f. Make sure that we are doing proper procedure for towing the Aircraft and refueling process.
    g. Make sure for all activities, wearing proper Personal Protective Equipment.
    h. Ensure all fatigue management based on CMM well implemented for all maintenance personnel.
4. On 03 Aug 2021, the Safety Department issued the Safety Notice to several department inside of the operator as follow:
    a. Operations Department:
        i. To instruct all Pilot to follow sterile cockpit as Per OM-A.
        ii. To remind all Pilot to increase awareness during critical phase of flight (Take off, Landing, etc.).

iii. To instruct all Pilot to follow "Standard Call Out" as per OM-A.

iv. To remind all pilots regarding the duty of Pilot Monitoring shall not hesitate to take over the control if unsafe or dangerous situations are encountered.

v. Review and update SOP Sikorsky S-76.

b. Training Department:

i. Conduct Class Room Off Shore Refresher Training for all Rotary Wing Pilot

ii. To include Threat and Error Management Training for all pilot during simulator or recurrent training.

c. Maintenance Department:

i. Continue to maintain a high level of awareness during maintenance operations follow manufactures procedures and company requirements. Don't hesitate to take an aircraft out of service if there is any uncertainty about its airworthiness.

d. QSS Department:

i. To release flyer regarding Dynamic Rollover.

5. On 20 August 2021, the Operation Manager issued a message to all instructors for conducting a special line check to all rotary wing pilots with the highlight of the threat and error management.

3.2 The Rig Operator

On 28 July 2021, the rig operator issued a Notice to Airmen regarding the helipad condition after the occurrence.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledged the safety actions taken by the helicopter operator and the rig operator, and considered that the safety actions were relevant to improve safety. Therefore, the KNKT did not issue safety recommendations in this preliminary report.

5 APPENDICES

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