This document is an English translation of the Preliminary Report on the fatal accident involving the An-12B aircraft registered 4K-AZ25 that occurred on May 18, 2016 at Camp Dwyer, Afghanistan.

The translation was done as accurate as a translation may be to facilitate the understanding of the Preliminary Report for non-Russian speaking people. The use of this translation for any purpose other than for the prevention of future accidents could lead to erroneous interpretations.

In case of any inconsistence or misunderstanding the original text in Russian shall be used as the work of reference.

INTERSTATE AVIATION COMMITTEE

AIR ACCIDENT INVESTIGATION COMMISSION

PRELIMINARY REPORT

Type of occurrence	Fatal accident
Type of aircraft	Airplane, An-12B
Registration	4K-AZ25 (Azerbaijan)
Owner	Silk Way Airlines
Operator	Silk Way Airlines
Place of occurrence	Camp Dwyer, Islamic Republic of Afghanistan
Date and time	18.05.2016, 14:07 local time (10:07 UTC), daytime

This Preliminary Report is being released before the investigation is completed in accordance with Para 7.4 of ICAO Annex 13. The Report contains factual information available until now to the investigation team as well as results of examinations completed by now. In case additional information becomes available, the Report may be clarified and amended.

The investigation team is analyzing operational and maintenance documentation pertinent to the accident.

Upon request of the investigation team, a mathematic simulation of aircraft movement at takeoff is being conducted based on the FDR data. It is planned also to have engine #3 examined to check if it was operative in the accident flight.

Upon completion of the investigation activities, a Final Report will be drafted.

Abbreviations

AAISTSC	– Air Accident Investigation Scientific and Technical Support Commission
a/c	– aircraft
AFM	– Aircraft Flight Manual
AP	– Airport
ARP	– Aviation Repair Plant
ATO	– Aviation Training Organization
CCTV	– Closed Circuit Television
CG	– Center of Gravity
FO	– First Officer
FFS	– Full Flight Simulator
HQB	– Higher Qualification Board
IAC	– Interstate Aviation Committee
IAS	– Indicated Airspeed
ILS	– Instrument landing system
JSC	– Joint Stock Company
LLC	– Limited Liability Company
LTD	– Limited
MJC	– Maintenance Job Card
MSN	– Manufacturer Serial Number
NAA	– National Academy of Aviation
NOTAM	– Notice to airmen (temporary changes of air navigation information)
PF	– Pilot Flying
PIC	– Pilot-in-command
PM	– Pilot Monitoring
RWY	– Runway
SJSC	– State Joint Stock Company
SE	– State Enterprise
TOW	– Takeoff Weight
UTC	– Universal Time Coordinated

Synopsis

On May 18, 2016 at 10:07 UTC (14:07 local time)[1], daytime, in uncomplicated weather conditions, an An-12B airplane registered 4K-AZ25 operated by Silk Way Airlines crashed while during takeoff for flight from Dwyer (Afghanistan) to Mary (Turkmenistan).

In compliance with Para 5.1 of ICAO Annex 13 the accident investigation was delegated to the Interstate Aviation Committee as per Letter № 8/1161 of State Civil Aviation Administration of Azerbaijan as of 24.05.2016 as well as Letter of Afghan Civil Aviation Authority as of 07.06.2016. The investigation team was formed to include representatives from the State of Registry (Azerbaijan).

The following investigation team was appointed by Order № 22/778-p of the Air Accident Investigation Commission Chairman as of 07.06.2016:

The investigation was participated by an Accredited Representative from the State of Aircraft Manufacture (Ukraine).

Initial actions at the accident site were done by the staff of Camp Dwyer (Afghanistan) as well as experts from State Civil Aviation Administration of Azerbaijan and Silk Way Airlines personnel who arrived at the accident site on May 19, 2016.

While writing the Preliminary Report the investigation team took into consideration the provided data.

At present the a/c structure elements are being kept at Camp Dwyer under custody of the AP administration.

The Prosecutor Office of Azerbaijan has not held preliminary inquiry pertinent to the accident.

[1] Hereinafter UTC time is referred to.

1. Factual Information

1.1. History of Flight

On May 18, 2016 the crew of An-12B 4K-AZ25 aircraft operated by Silk Way Airlines including the Captain, First Officer, navigator, flight mechanic, flight radio operator and loadmaster was planned to fly via route Baku (Azerbaijan) - Bagram (Afghanistan) - Dwyer (Afghanistan) - Mary (Turkmenistan) - Baku. There were also two maintenance mechanics and an engineer on board the a/c.

The preliminary training of the crew was conducted on 29.12.2015 by the Chief Navigator of Silk Way Airlines.

The pre-flight briefing was conducted on 18.05.2016 by a captain-instructor and a navigator-instructor.

The following has been determined so far.

According to the information available at the moment the flight to Dwyer aerodrome was conducted in an acceptable way.

At 09:11:27 the crew started up the engines at Dwyer aerodrome, Engine #2 was the last to be started up at 09:47:37.

Before the takeoff the Captain distributed the duties within the crew, nominating the FO as the PF, and himself as PM.

After the engine startup the crew initiated taxiing to perform takeoff with heading 229°. The concrete RWY of Dwyer aerodrome is measured 2439 m by 37 m. The a/c TOW and CG were within the AFM limitations. In the course of the takeoff, at 09:57:56 the flight mechanic reported an increase in MGT of Engine #3 above the acceptable level: “Engine #3, look, engine temperature over six hundred, over seven hundred”, which was confirmed by the FO: “Yes, it’s getting temperature” while the Captain asked to be more attentive.

According to the crew reports the takeoff was performed with Flaps 15. As the checklist was being read, the Captain ordered to lock the propellers.

After the Captain’s order to lock the propellers a slight increase in torque-measuring device values was recorded on Engine #1 and #4, and in 17 seconds also Engine #2, which indirectly implies that propellers #1, #2 and #4 were at stops. There is no evidence that propeller of Engine #3 was locked.

At 09:59:42 the crew initiated the takeoff. Before the takeoff the ATC advised the crew on the wind direction and speed on the RWY: 280° 14 knots (7 m/sec) gusting 26 knots (13 m/sec). Thus it was quartering headwind and the headwind component might have been 5 to 9 m/sec.

While performing takeoff the crew first increased thrust on Engines #1 and #4 and then on Engine #2 after 10 seconds. The thrust of the three engines was about 50 kg/sq.cm as per torque indicator (lower than takeoff mode). The third engine was still operating in the ground idle mode, though the CVR did not record any crew callouts concerning Engine #3 operation parameters.

Based on the CCTV system of Dwyer aerodrome the takeoff roll was initiated almost from the RWY threshold and was conducted to the left of the RWY centerline. No significant deviations from the takeoff course during the takeoff roll were recorded. During the takeoff roll the rudder was deflected left close to extreme. Probably the pilots were also applying differential control on Engine #2 to decrease the right torque moment.

At 10:00:14 at approximately 120 km/h IAS the “Engine #3 negative thrust” signal was started to be recorded and was recorded on up to the end of the record. At that time the a/c was about 430 m away from the start of the takeoff roll.

At 10:00:42 Engines #1 and #4 thrust was increased up to 63 kg/sq.cm as per torque indicator (consistent with takeoff mode for the actual flight conditions). At that time the IAS was about 150 km/h. Engine #2 thrust was increased up to the same value only 23 seconds later at about 200 km/h IAS. At that time the a/c was about 840 m away from the RWY end. Engine #3 was still operating in ground idle mode.

Approximately 260 m before the RWY end at a speed of 220 km/h IAS (maximum speed reached) the FDR recorded the start of nose up input on the control column. The a/c did not lift off. After rolling all along the RWY the a/c overran the RWY onto the ground at a speed of 220 km/h.

While moving on the ground the aircraft sustained significant damage, which led to post-crash fire that destroyed most of the aircraft structures. Out of the nine persons on board seven were killed and two were seriously injured and taken to hospital.

1.2. Injuries to Persons

Injuries to Persons	Crew	Passengers	Others
Fatal	7	0	0
Serious	2	0	0
Minor/None	0/0	0/0	0/0

1.3. Damage to Aircraft

After overrunning the runway the a/c sustained significant damage and was almost completely burnt out.

1.4. Other Damage

There was no other damage.

1.5. Personnel Information

Captain - instructor

Sex	Male
Date of birth	31.08.1953
Pilot's license	AZ № 00235 ATPL, issued by the State Civil Aviation Administration of Azerbaijan on 02.03.2012, valid till 02.09.2016
Education	Graduated from Krasnokut Flight School of Civil Aviation in 1973, and from Civil Aviation Academy (St. Petersburg) in 1984.
Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 002198 as of 02.03.2016. Valid till 02.09.2016.
Weather minima	Landing 60x800 m, takeoff 400 m.
Total flight hours (IL-76, An-12)	22628 h 10 min
Flight hours on An-12	3953 h 32 min
Flight hours as Captain on An-12	2630 h 20 min
Mandatory checks: - rating check - flight navigation check	 09.03.2016, assessed as "ready for operations" 30.11.2015, assessed as "ready for operations"

Simulator training	24.11.2015, An-12 FFS (in Kiev), valid for 6 months
Previous accidents or incidents	None
Flight hours over last month	89 h 15 min
Total duty time on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Authorization for international flights	Authorized by Order № 36/87 of General Director, Silk Way Airlines as of 30.10.1995
Flight instructor training	Certificate № 131103 as of 28.08.2013 issued by the Training Center of Tashkent Aviation Industry Association. Valid for 3 years.
Recurrent training	Certificate № 101416 as of 12.02.2016 issued by the Training Center of Tashkent Aviation Industry Association., valid for 1 year
Authorization for radio exchange in English, ICAO ELP level	ICAO Level 4, certificate AZ № 00235 valid till 20.03.2018
Preflight rest	5 days
Breaks in operations	None

From 1994 to 1995 the Captain worked as a FO of IL-76 in Tashkent Aviation Industry Association Airline (Tashkent). From 1995 to 2002 he worked in the same company as a Captain of IL-76 and An-12. From 2012 to 2016 he worked as a Captain-instructor of IL-76 and An-12 at Silk Way Airlines.

First Officer

Sex	Male
Date of birth	29.01.1971
Pilot's license	AZ №00171 CPL, issued by the State Civil Aviation Administration of Azerbaijan on 27.06.2014, valid till 19.05.2016
Education	Graduated from National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku) in 1996

Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 001680 as of 19.05.2015, valid till 19.05.2016.
Authorization to fly as a FO of An-12	Authorized by Order № 67/A of General Director, Silk Way Airlines as of 17.09.2014
Total flight hours (MI-8, AS-332, An-12)	4625 h 15 min
Flight hours on An-12	836 h 15 min
Mandatory checks: - rating check - flight navigation check	 22.12.2015, assessed as “ready for operations” 05.10.2015, assessed as “ready for operations”
Simulator training	01.12.2015, An-12 FFS (in Kiev), valid for 6 months
Previous accidents or incidents	None
Flight hours over last month	68 h 40 min
Flight hours on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Recurrent training	National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku), 06.07.2015, valid for 1 year
Authorization for radio exchange in English, ICAO ELP level	ICAO Level 4, (Protocol valid of National Aviation Academy as of 28.11.2013), valid till 14.11.2017
Preflight rest	24 h
Breaks in operations	None

The FO graduated from the National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku) in 1996. From 1997 to 2009 he worked as a FO of MI-8 and AS-332 helicopters at a helicopter company AZAL helicopter (Baku). From 2009 to 2014 he worked at LLC SWHS (Baku) as a Captain of AS-332.

From 2014 after transition training for An-12 airplane he worked as a FO of An-12 at Silk Way Airlines.

Navigator - instructor

Sex	Male
Date of birth	07.11.1968
Flight navigator's license	AZ № 00025 FNL, issued by the State Civil Aviation Administration of Azerbaijan on 16.07.2010, valid till 25.05.2016
Education	Graduated from Chelyabinsk Higher Military Aviation School of Navigators in 1990.
Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 000471 as of 15.05.2015, valid till 25.05.2016.
Total flight hours (Tu-134 (UBSh), Tu-95, An-12, IL-76)	10092 h 18 min
Flight hours on An-12	929 h 28 min
Mandatory checks: - qualification line check on An-12 as per the Flight Operations Manual, Part D, Para 4.123	03.05.2016, assessed as "ready for operations"
Simulator training	17.11.2015, An-12 FFS (in Kiev), valid for 6 months
Previous accidents or incidents	None
Flight hours over last month	59 h 25 min
Total duty time on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Authorization for international flights	Authorized by Order № 116 of General Director, Silk Way Airlines as of 30.06.2008
Recurrent training	07.04.2015, National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku), valid for 1 year
Authorization for radio exchange in English, ICAO ELP level	ICAO Level 4. Certificate AZ № 00073 valid till 05.03.2018
Preflight rest	24 h
Breaks in operations	None

Flight mechanic

Sex	Male
Date of birth	20.02.1964
Flight engineer's license	AZ № 00040 FEL, issued by the State Civil Aviation Administration of Azerbaijan on 02.04.2015, valid till 02.04.2017
Education	Graduated from Kirsanov Aviation Technical School in 1984
Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 000591 as of 01.04.2016, valid till 02.04.2017.
Authorization to fly as a flight mechanic of An-12	Authorized by Order № 22 of General Director, Silk Way Airlines as of 26.09.2005
Total flight hours (Tu-134, An-12)	5424 h 28 min
Flight hours on An-12	3897 h 07 min
Mandatory checks: - qualification check as per Flight Operations Manual, Part D, Para 4.1784	12.03.2016, assessed as "ready for operations"
Simulator training	24.11.2015, An-12 FFS (in Kiev), valid for 6 months
Previous accidents or incidents	None
Flight hours over last month	33 h 55 min
Total duty time on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Recurrent training	06.06.2016, National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku), valid for 1 year
Preflight rest	11 days
Breaks in operations	None

Flight radio operator

Sex	Male
Date of birth	03.06.1964
Flight radio operator's license	AZ № 00044 FROL, issued by the State Civil Aviation Administration of Azerbaijan on 17.06.2014, valid till 29.04.2017
Education	Graduated from Kirovabad Technical School (Azerbaijan) of Radio-Electronic Industry in 1988. In 2004 underwent transition training for An-12 at the Training Center of Tashkent Aviation Industry Association (Tashkent).
Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 000598 as of 14.04.2016, valid till 29.04.2017.
Authorization to fly as a flight radio operator of An-12	Authorized by Order № 40 of General Director, Silk Way Airlines as of 17.06.2014
Total flight hours (IL-76, An-12)	8745 h 15 min
Flight hours on An-12	3060 h 20 min
Mandatory checks: - qualification check as per Flight Operations Manual, Part D, Para 4.7.3.	05.03.2016, assessed as "ready for operations"
Simulator training	24.11.2015, An-12 FFS (in Kiev), valid for 6 months
Previous accidents or incidents	None
Flight hours over last month	50 h 45 min
Total duty time on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Recurrent training	06.06.2016, National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku), valid for 1 year

Authorization for radio exchange in English, ICAO ELP level	Underwent testing at Silk Way West Airlines on 02.02.2016, granted ICAO Level 5, certificate AZ № 00044 valid for 5 years
Preflight rest	24 h
Breaks in operations	None

Loadmaster - instructor

Sex	Male
Date of birth	13.07.1973
Loadmaster's license	AZ № 00202 FA/LML, issued by the State Civil Aviation Administration of Azerbaijan on 03.05.2016, valid till 27.02.2017
Education	In 2002 underwent loadmaster transition training for An-12 at St. Petersburg Training Center.
Medical certificate	Underwent regular medical examination at AZAL LTD, certificate AZ № 000575 as of 24.02.2016, valid till 27.02.2018.
Authorization to fly as a loadmaster of An-12	Authorized by Order № 44 of General Director, Silk Way Airlines as of 03.05.2016
Total flight hours	6120 h 07 min
Flight hours on An-12	779 h 20 min
Mandatory checks: - qualification check as per Flight Operations Manual, Part D, Chapter 2, Task 2.	25.04.2016, assessed as "ready for operations"
Flight hours over last month	57 h 20 min
Total duty time on accident day	09 h 29 min
Flight hours on accident day	05 h 10 min
Recurrent training	02.16.2016, National Aviation Academy of Civil Aviation of Azerbaijan Republic (Baku). Valid for 1 year.
Preflight rest	24 h

The analysis of available flight operation documentation revealed that the crew members were holding valid licenses. They had passed required type rating, flight navigation, line and simulator checks in due time. All the crew members had passes the annual medical examination and were authorized for flight operations as being medically fit.

1.6. Aircraft Information

Aircraft type	Airplane, An-12B
Registration	4K-AZ25
Manufacturer, date of release	Tashkent Chkalov Aviation Industrial Enterprise 19.07.1963
MSN	3341209
Certificate of Registration	№ 410 issued by the State Civil Aviation Administration of Azerbaijan
Certificate of Airworthiness	№ AR-294, issued by the State Civil Aviation Administration of Azerbaijan on 13.10.2015, valid till 11.10.2016
Assigned service life	20930 h, 9600 landings, 53 years 3 months
Time since new	19828 h, 9107 landings
Assigned service life left	1102 h, 493 landings, 4 months
Service life between maintenance checks	14830 h, 5600 landings, 25 years 3 months
Number of maintenance checks	4
Date and place of maintenance check	Unit 13824, 11.06.1991
Time since last maintenance check	13728 h, 4969 landings
Service life between maintenance checks left	1102 h, 631 landings, 4 months
Last base maintenance	15.01.2016, F-27, MJC № 05
Last line maintenance	09.05.2016, B-08, MJC № 1187

Powerplant (Engine #1)

Type	AI-20M series 6
MSN	H27816029
Date of release:	18.04.1978

Service life	Assigned service life - 20000 hours Service life between overhauls - 4000 h/20 years (until 18.09.2016) Service life extended in accordance with Act № 252/ОССД-15 by Ivchenko Progress as of 15.09.2015.
Time since new	6157 h, 3320 cycles
Assigned service life left	13843 h
Number of overhauls	1
Date and place of overhaul	07.12.1996, ARP № 123
Time since last overhaul	3721 h, 1722 cycles
Service life between overhauls left	279 h, 7 months

Powerplant (Engine #2)

Type	AI-20M series 6
MSN	H28436053
Date of release:	21.09.1984
Service life	Assigned service life - 20000 h Service life between overhauls - 6608 h/12 years (until 09.08.2016) Service life extended in accordance with Act № 253/ОССД-15 by Ivchenko Progress as of 15.09.2015.
Time since new	7880 h, 33929 cycles
Assigned service life left	12140 h
Number of overhauls	1
Date and place of last overhaul	28.07.2004, ARP № 123
Time since last overhaul	6389 h, 2811 cycles
Service life between overhauls left	219 h, 2 months

Powerplant (Engine 3)

Type	AI-20M series 6
MSN	H2136138

Date of release:	11.10.1971
Service life	Assigned service life - 21068 h Service life between overhauls - 5569 h/12 years (until 18.09.2016) Service life extended in accordance with Act № 253-4/ОССД-15 by Ivchenko Progress as of 15.09.2015.
Time since new	20849 h, 9243 cycles
Assigned service life left	219 h
Number of overhauls	4
Date and place of last overhaul	28.07.2004, ARP № 123
Time since last overhaul	5350 h, 2489 cycles
Service life between overhauls left	219 h, 4 months

Powerplant (Engine #4)

Type	AI-20M series 6
MSN	H2416024
Date of release:	02.02.1974
Service life	Assigned service life - 20000 h Service life between overhauls - 4031 h/21 years (until 19.08.2016) Service life extended in accordance with Act № 253-4/ОССД-15 Ivchenko Progress as of 15.09.2015.
Time since new	9136 h, 5564 cycles
Assigned service life left	10864 h
Number of overhauls	3
Date and place of last overhauls	15.08.1995, ARP № 123
Time since last overhaul	3811 h, 1953 cycles
Service life between overhauls left	220 h, 3 months

1.7. Meteorological Information

Meteorological information for the destination AP of Mary, and alternate AP of Turkmenabad was obtained by the An-12B 4K-AZ25 crew from the Flight Operations Service of Dwyer AP (Afghanistan) before the departure.

The actual weather as advised by the Flight Operations Assistant before the takeoff was as follows: wind 280°-14 kt (7 m/sec) gusts 26 kt (13 m/sec); visibility over 10 km; clouds - clear; temperature $+42^0$ C; QNH 1008 mB. The wind was quartering headwind with the headwind component probably being 5 to 9 m/sec.

1.8. Aids to Navigation, Landing and ATC

Subject data are not provided herein, as the operation of the aids to navigation, landing and ATC did not affect the accident outcome.

1.9. Communication

Subject data are not provided herein, as the operation of the communication aids did not affect the accident outcome.

1.10. Airdrome Information

Dwyer military airdrome is a former American military airbase located in Helmand Province, Afghanistan. The airbase territory constitutes 1400 acres (567 ha). The airdrome has one runway measuring 2439 m by 36 m.

The airdrome elevation is +2418 ft (+737 m), landing magnetic headings 49° and 229°.

The condition of the runway in use before the accident was suitable for a safe departure of the An-12B 4K-AZ25.

1.11. Flight Recorders

1.11.1. Flight Data Recorder (MSRP-12-96)

The An-12B 4K-AZ25 a/c was equipped with an MSRP-12-96 flight data recording system.

The MSRP-12-96 records onto the magnetic tape parameters that characterize the flight mode, operation of powerplant and a/c systems and stores the recorded information for the last 90 minutes of flight. The flight data are recorded onto a ferromagnetic tape placed in designated cassettes. The cassettes are placed in reinforced casing of the tape drive mechanism that protects the record in case of an accident. The record constantly overwrites the previously recorded data. The MSRP-12-96 system is supplied by the a/c direct current electrical system (27 V).

The operation of the MSRP-12-96 system that the method of frequency modulation to record flight data onto magnetic tape does not comply with the minimum requirements of ICAO Annex 6 Standards (Para 6.3.1.3.3.).

The tape drive mechanism casing of the MSRP-12-96 system was recovered from the accident site, it was cut open and examined by the investigation team in Baku (Azerbaijan).

The visual examination revealed the following:

- the casing had no external damage;
- the hatch was closed and locked, sealed, “03” impressed on the seal;
- casing number 10137.

After the container was cut open the following was revealed:

- the magnetic tape was not torn, and loaded into the track in accordance with the load circuit;
- the amount of tape was 53 mm thick on the upper spool, and 67 mm thick on the lower spool;
- tape drive mechanism number 10137;
- the mode switch was in AUTO position;
- the prod was fixed.

Two spools with magnetic tapes were forwarded to the AAISTSC, IAC for readout and analysis.

The readout and processing of data from the tape of the MSRP-12-96 system was conducted as per the standard procedure using the ground readout equipment MLP16-ARM. It was revealed that the tape contained 01 h 17 min of top-down and bottom-up record suitable for processing with data on an An-12 type a/c flight, namely cruse, descent and landing as well as on-ground a/c operation. The flight identification data are not recorded by the MSRP-12-96 system.

The conducted examinations revealed that the tape of MSRP-12-96 did not contain flight data for the flight of An-12B 4K-AZ25 on 18.05.2016.

The MSRP-12-96 system was equipped with solid-state EBN-12 Quick Access Recorder that records the same list of parameters as the MSRP-12-96. The QAR was recovered from the accident site.

The EBN-12 examination, data readout and processing was done by the investigation team in Baku (Azerbaijan). The examination revealed that the EBN-12’s number was 146. The condition of the QAR was satisfactory, showing no damage or traces of thermal impact.

The calibration curves of the MSRP-12-96 system sensors were provided by Silk Way Airlines. The provided calibration curves were outdated (the calibration was done in 1991 to 2000).

The readout was conducted as per the standard procedure using the ground readout equipment Monster-2012. Further the obtained information was converted to format compatible with the WinArm32 software. The analysis revealed that the solid-state EBN-12 QAR № 146 contained flight data including data of the accident flight of An-12B 4K-AZ25 on 18.05.2016. The said data are being used by the investigation team in the course of the investigation.

1.11.2. Cockpit Voice Recorder MS-61B

The An-12 4K-AZ25 airplane was equipped with one main and one standby MS-61B cockpit voice recorders.

The MS-61B recorder is used to record cockpit communications and Captain intercom radio exchange via onto wire medium.

The operation of the MS-61B cockpit voice recorder using wire as medium does not comply with the minimum requirements of ICAO Annex 6 Standards (Para 6.3.2.2.1.).Two sets of reels wit wire medium from the MS-61B recorders recovered from the accident site were forwarded to IAC for information readout and processing.

The visual examination revealed the following:

MS-61B wire reels (set 1):

- the wire was torn;

- on the takeup reel MSN 8976318 inscribed with “An-12” in blue the thickness of the reeling was ~0.1 using 0 to 1 scale;

- the playoff reel was inscribed with “01” and “400” in white and engraved with “99”, the thickness of the reeling was ~4.5 using 0 to 5 scale.

MS-61B wire reels (set 2):

- the wire was tangled but not torn;

- on the takeup reel MSN 7631893 the thickness of the reeling was ~0.05 using 0 to 5 scale;

- on the takeup reel MSN 8221493 the thickness of the reeling was ~4.5 using 0 to 5 scale.

The readout was conducted as per the standard procedure using the ground readout equipment SAPHIRE_MAK_M.

The conducted examinations revealed that the takeup reels of the MS-61B did not contain flight data for the accident flight of An-12B 4K-AZ25 on 18.05.2016.

Additionally, the a/c was equipped with solid-state EBN-MS QAR. The QAR was recovered from the accident site.

The EBN-MS examination, data readout and processing was done by the investigation team in Baku (Azerbaijan). The examination revealed that the EBN-MS's number was № 440. The condition of the memory unit was satisfactory, showing no damage or traces of thermal impact.

The readout was conducted as per the standard procedure using dedicated ground readout equipment.

The readout revealed that the solid-state EBN-MS QAR № 440 contained voice data including data of the accident flight of An-12B 4K-AZ25 on 18.05.2016. The said data are being used by the investigation team in the course of the investigation.

1.12. Wreckage Information

After the a/c overran the RWY it collided with a metal net fence with barbed wire at a distance of 320 m from the RWY end, veering off about 80 m to the right of the RWY extended centerline. At that moment the right wing was destroyed, which resulted in fuel spill and post-crash fire.

While the a/c was moving further beyond the RWY it was further destroyed: right main landing gear and right wing were separated, Engines # 3, #4 and #1 were ripped off their mounts.

The a/c came to rest at a distance of about 600 m from the RWY end and lateral deviation of 250 m to the right of the RWY extended centerline. Most of the a/c structure was destroyed by the post-crash fire.

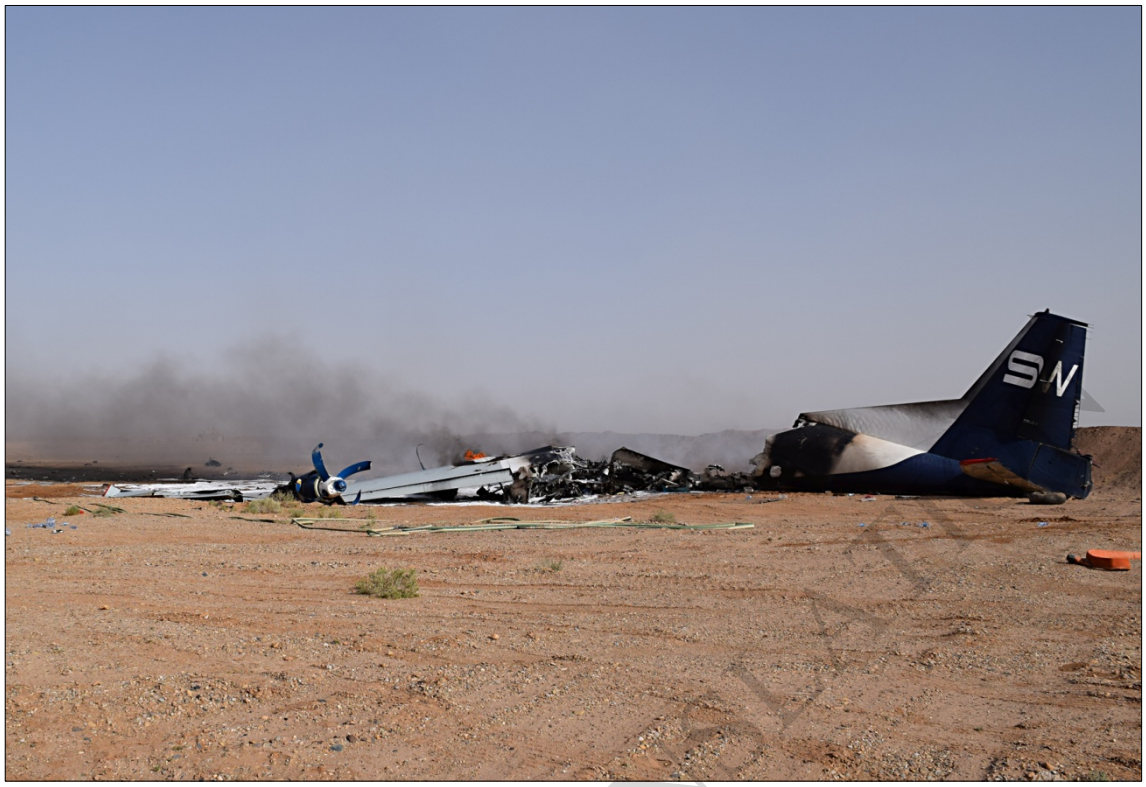

Figure 1. A/c at the accident site destroyed by the post-crash fire

1.13. Medical and Pathological Information

The investigation team is awaiting the results of the forensic examination of the persons killed in the accident.

1.14. Survival Aspects

Out of the nine persons on board seven were killed and two were seriously injured and taken to hospital.

1.15. Search and Rescue Operations

At present the investigation team does not have any information on the search and rescue operations.

1.16. Tests and Research

The investigation team is going to send the engine and propeller of Engine #3 for examination in order to determine whether it was operable at the time of the accident.

1.17. Organizational and Management Information

Information not available at present.

2. Safety Recommendations

2.1. Forward information concerning the accident to flight operations and maintenance staff operating An-12 a/c.

2.2. That Silk Ways Airlines should make a single check of all FDRs to check if they comply with minimum requirements of ICAO Annex 6 (para 6.3.1.3.3. and 6.3.2.2.1.).