Islamic Republic Of Iran
Civil Aviation Organization
Deputy of Flight Standard
Aircraft Accident Investigation Department

Final Report
Basic Information

Type of occurrence:	Serious Incident
Date:	02.Jul.2008
Location of incident:	45 NM inbound to the ZAHEDAN INTL Airport/ I.R of Iran and emergency landing in this airport
Aircraft:	Airplane
Model:	Ilyushin IL-76TD
Registration:	EK-76400
Owner:	CLICK AIRWAYS INTL
Operator:	CLICK AIRWAYS INTL

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Foreword

According to Aircraft Accident Investigation Act of Civil Aviation Organization of the Islamic Republic of Iran,

❖ Accident investigations shall be conducted separately from any judicial, administrative disposition, administrative lawsuit proceedings associated with civil or criminal liability.

And in Annex 13 to the Convention on International Civil Aviation, Chapter 3, Paragraph 3.1 and Chapter 5, Paragraph 5.4.1, it is stipulated and recommended as follows;

The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

Any judicial or administrative proceedings to apportion blame or liability should be separated from any investigation conducted under the provisions of this Annex.

Abbreviations

AGL	above ground level
ARP	aerodrome reference point
A/C	Aircraft
AFM	airplane flight manual
AIRMET	airmen's meteorological information
ATC	air traffic control
ATIS	automatic terminal information service
ATPL	airline transport pilot license
C	Celsius
CVR	cockpit voice recorder
DME	distance measuring equipment
FDR	flight data recorder
FT	Feet
ILS	instrument landing system
IMC	instrument meteorological conditions
METAR	meteorological aerodrome report
mm	millimeter
MSL	mean sea level
NDB	Non directional radio beacons
NM	nautical mile
TAF	terminal aerodrome forecast
RW	runway
TWR	tower
UTC	universal coordinated time
VOR	Very high Frequency omni directional range
INTL	International

Synopsis:

On Wednesday, 02.07.2008, the Accident Investigation Department of Civil Aviation Organization of I.R of Iran was notified that an Ilyushin IL-76 TD reported engine failures enroot at FL.280 During Cargo Flight from Bagram (OAIX) to Fujaireh (OMFJ) and had serious incident at 45 NM inbound of Zahedan International Airport /Iran.

According to Annex 13, chapter 5 the Notification was sent to Civil Aviation of Armenian (state of registry) and Russian Federation (state of engine manufacture). The Accredited Representative and Advisers were introduced to I.R of Iran CAO.

Mr. Evgeny Lavretskiy : Armenian Accredited Representative
Mr. Anatoliy Moroz : Armenian Adviser, Engineer
Mr. Leonid Kashirsky : Russian Accredited Representative (MAK)

The Cockpit voice Recorder and the Flight Data Recorder have removed from aircraft. The download of the FDR and CVR had performed in Pars Aviation Service Co. in Tehran on 28th Jul 2007.

1. Factual Information

1.1 History of the flight:

The aircraft IL-76TD with registration EK-76400, owned by the CLICK AIRWAYS INTL had been planed to fly OMFJ-OKBK-OAIX, OAIX-OMSJ with cargo transport service on Wednesday 02.Jul.2008.

At time 11:50 UTC, aircraft departed Bagram Airport, Afghanistan to Fujaireh, U.A.E. On board the aircraft (operating as flight number CKW1002) were 9 persons crew. (Captain, first officer and Flight Mechanic and …).
The flight crew reported that the departure and climb-out from Bagram was normal, with the aircraft established at the assigned cruising altitude of 29,000 ft (FL290).

At 13:10 UTC, the Afghanistan area control center (ACC) delivered the flight to the Iran area control center (ACC) with the information of engine failure with the proposed of landing in Zahedan Airport.

At 13:12 UTC, the captain reported engine #3 failure and Engine #4 fire of aircraft with an associated airframe at FL280. At that time, the autopilot disconnected, and the captain, who was the pilot flying at the time, assumed manual control of the aircraft and has been descending due to cabin pressurization problem.
At that time, the aircraft was approximately 43 NM to the northeast of Zahedan, I.R of Iran. The crew reported that shortly after engine failure, the most crew started using the oxygen masks.

At 13:24 UTC, the aircraft was cleared for FL.90, and was leveled at an altitude of 9,000 ft, where the use of supplementary oxygen by crew was no longer required.

After reviewing the aircraft's position, the flight crew elected to land at the Zahedan International Airport, I.R of Iran and landing preparations subsequently commenced for RWY35.
At (13:35 UTC), the crew requested to land in RWY17.
At (13:43 UTC), the flight crew declared turning final for landing RWY35 and finally landed at (13:43:30 UTC).

1.2 Injuries to persons:

In this serious incident none of occupants were injured.

injuries	crew	passenger	others
fatal	0	0	0
serious	0	0	0
minor	0	0	0
none	9	0	0
TOTAL	9	0	0

1.3 Damage to aircraft:

The aircraft damages were as following items:

1. Engines Nr. 3 and 4 are damaged and are to be replaced.
2. There are numerous punctures in the fuselage starboard and port side panels, in landing gear and wing fairing.
3. Inside the fuselage the cargo compartment starboard and port side reinforcing panels are damaged.
4. The left outer wing is punctured and deformed.
5. Engine 4 pylon is deformed.
6. Nacelle of engine 4 has burns and punctures. There are punctures on the aft covers of Engine 3 nacelle.
7. Pipelines in the starboard hydraulic system and control circuit cables are damaged.
8. There are numerous damages to contactors, units, connectors, ruptured wires and wire bundles, deformation of connectors, damaged insulation of electrical system wiring.
9. There is damage to oxygen supply pipes.
10. Engine 3 mode control cable is ruptured.
11. There is damage to fire detectors, fire pipelines in Engine 3 and 4 nacelles, fire pipe in APU section. The stationary fire extinguishers are discharged

The total explanation of aircraft damages are described in wreckage information.

1.4 Other Damage:

None

1.5 Personnel Information:

1.5.1 Pilot in command :(PF)

_ Male, 51 years old

_ Commercial pilot, ATPL (A) No.000048 from Armenia

_Type rating: IL - 76

_ Medical certification valid

_ Total flight time about 12000H

_ Flight time on IL-76:1210

1.5.2 co- pilot: (PNF)

_ Male, 32 years old,

_ Commercial pilot (A)/ Instrument Rating No: 01415 from Uzbekistan

_Type rating: IL-76

_ Medical certification valid

_ Total flight time: 2287

_ Flight time on IL-76: 2235

* He had not equivalent license of state of Registry onboard.

1.5.3 Flight Mechanic:

_ Male, 55 years old

_ Aircraft mechanic license No: 003093 from Russian Federation

_ Type rating: IL -76

_Medical certification valid

-Total flight time: 12514

_ Flight time on IL-76:5000

* He had not equivalent license of state of Registry onboard.

1.6 Aircraft Information:

1-6-1 General Information:

_ Type:	IL-76TD
_ Manufacture:	Ilyushin Co.
_ Aircraft Owner:	"CLICK CONSULTANCY FZC"
_ Manufacture date:	30/09/1992
_ Serial number:	1023413438
_ Certificate of airworthiness Number:	1633 valid until 30 Sep 2008
_ Insurance certificate	T.I.T Insurance Co. valid until 10 Sep 2008
_Total airframe hours	11718
_ Total cycle	3301

The aircraft maintenance has been done according to Ilyushin Design Bureau maintenance program. The maintenance base for Click Airways is "VOLGA DNEPR GULF" that situated in Sharjeh, U.A.E. This base has been approved by UAE General Civil Aviation Authority based on Russian Federal Aviation Approval No; 2021080558.

The last heavy scheduled check that was done in this aircraft was F (1, 2) +season check on 26.04.2008. There are not any reports that show deficiencies founded in this check.

1-6-2 Engine details:

4 engines model Saturn D-30KP2 are installed on this aircraft. The detailed information of these engines is:

№	SERIAL NUMBER ***Номер двигателя***	T.B.O. ***Межр. Ресурс (час.)***	T.S.N. ***СНЭ (час.)***	T.S.O. ***ППР (час.)***	QTY.OF O/H **кол.ремонтов**
	MANUF.DATE **Дата изготовления**	*C.B.O.* **Межр. Ресурс (цик**	C.S.N. ***СНЭ (Цикл)***	C.S.O. ***ППР (Цикл)***	DATE OF LAST OVERHAUL **Дата посл.ремонт**
1	0304403011721	3000/3000	6508/6500	2685/3000	3
	28/08/1980	1025	2577	766	28/02/1997
2	0305303302091	4100/3000	9694/9000	3840/3000	2
	30/09/1983	1540	3250	1283	20/05/2002
3	03053028702053	3666/3000	9423/9000	3365/3000	3
	24/06/1987	1540	3120	915	14/01/2002
4	0305304302079	3333/2000	6122/5000	3183/2000	2
	01/10/1992	1540	2781	1075	10/12/2000

According to the received information by state of engine manufacturer and NPO Saturn company official report dated on 27 Feb 2009 all engines of this aircraft service life time were exceeded from desired service time that published by engine manufacturer.

- The operational limits that issued by manufacturer are in Green words
- The actual operational values in incident time are in Red words

The available information shows that prolongation programs (Extensions) were issued illegally with cooperation of Operator and VARZ 400 Representative.

1.7 Meteorological information:

Weather report at Zahedan International Airport at the time of incident was as following:

METAR OIZH 021250Z 04014KT 4000 SA/DU FEW035 CB SCT 040TCU
36/10 Q1007 A2975 5 LC

METAR OIZH 021350Z 01014KT 3000 SA/DU FEW035 CB SCT040TCU
36/04 Q1007 A2975 5 LC

WARNING 2 VALID 020830/0211130 OIII-TEHRAN FIR
SFC WSPD MAX 16MPS OBS/ FCST OVER OIZB AREA

AIRMET 7 VALID 021130/0211430 OIII –TEHRAN FIR
ISOL EMBD CB TOPS ABV FL 150 OBS/FCST LOC OVER N OF IRNA OIHH AND OIZH AREA.
SFC VIS LESS THAN 0800 M DUE TO DU OBS/ FCST OVER SW,S OF IRAN
SFC VIS LESS THAN 2000 M DUE TO DU SA OBS/ FCST OVER W , SSE OF IRAN
SFC VIS LESS THAN 3000 M DUE TO DU SA OBS/ FCST OVER CENTERAL, SE AND E OF IRAN
SFC WSPD MAX 13 MPS OBS / FCST OVER OIZB AREA
TAF OIZH 020210Z 020624 26005 MPS 8000 FEW 030 TEMPO 0618 03007 MPS 3000 SA FEW 035CB SCT 040 SCT 100 PROB 40 TEMPO 0612 1500 SA

1.8 Aids to navigation:

The navigation aids in Zahedan International airport (OIZH) are:

VOR/DME frequency: 116.00 MHZ

NDB frequency : 224 KHZ

ILS frequency : 108.700 MHZ.

According to the information of the Air Traffic Central Office, all navigation aids available worked normally and there were not any deficiencies in serviceability prior to the incident.

1.9 Communication:

The communication systems in Zahedan international airport (OIZH) are:
TOWER frequency: 118.1 - 119.4 - 121.9 MHZ
ATIS : 128.45 MHZ
The radio communications took place in English language and were recorded by the air traffic control. On this basis the pilot was requested to have emergency landing in zahedan airport after the engine failure. All conversation between the airplane and air traffic control were available as:

13:24:20 UTC	A/C	Zahedan tower CKW 1002 43 DME maintaining 9000 feet Request QNH. make a emergency landing
13:24:30 UTC	tower	CKW 1002 cleared ZDN for VOR DME ILS RWY 35 approach. You are cleared for RWY 35 and no delay expected. Every thing is waiting for you. Confirm you receive my message?

13:25:00 UTC	A/C	Affirm copy it CKW 1002 request QNH.
	tower	Latest QNH 1007 and information CHARLI on the air.
	A/C	QNH 1007 thank you
	tower	Affirm and report position PIRAN. You are cleared ZDN circling VOR RWY 35 via PIRAN 1f arrival.
	A/C	Roger VOR DME approach RWY 35 CKW 1002 now 39 DME.
	tower	Report position PIRAN.
	A/C	WILCO position PIRAN CKW 1002
13:26:30 UTC	tower	CKW 1002 … declare nature of your emergency.
	A/C	CKW 1002 emergency landing 2 engines shut down.
	tower	Roger 2 engine shut down understood and also report person on board and also fuel on board sir.
	A/C	Person on board 09 CKW 1002 now 34 DME.
13:27:00UTC	tower	Roger no objection don't worry every thing is ok and would you please report your fuel on board.
	A/C	CKW 1002 endurance 2 hours one eight … eighteen tons on board eighteen tons.
	tower	Fuel on board … would you please report endurance in kilogram or pound?
13:28:00 UTC	tower	CKW 1002 report position now?
	A/C	30 DME CKW 1002.
	tower	Roger no objection for descend flight level 120 and fire fighting service in the airport waiting for you. They are ….
	A/C	Roger ,descend 12 maintaining 9000 now.
	tower	Roger no objection continue via PIRAN 1f and it depends on you PIRAN 1e or PIRAN 1f which one is better for you.
	A/C	CKW 1002 28 DME now.

13:31:00 UTC	tower	CKW 1002 020 degrees 13 knots.
	A/C	Copy it thank you CKW 1002 19 DME now.
	tower	Roger report position PIRAN.
13:35:00 UTC	tower	CKW 1002 report position?
	A/C	CKW 1002 4 miles turning final RWY 17.
13:35:10UTC	tower	Roger wind now 030 degrees 10 knots when RWY 17 insights clear to land.
	A/C	Clear to land RWY 17 CKW 1002.
13:36:00 UTC	tower	050 degrees 08 knots.
	A/C	CKW 1002 … left base visual approach RWY 35
	tower	Roger you are insight you are insight and continue for RWY 35 clear to land RWY 35 wind 040 degrees correction 010 degrees 10 knots.
	A/C	Thank you.
13:36:50 UTC	tower	010 degrees 15 knots.
13:38:30 UTC	tower	Latest visibility 4000 meters.
	A/C	Copy it.
13:38:40 UTC	tower	CKW1002 report your position?
	A/C	Sir …. 295 …. 17 …. CKW1002 …. 5 miles
	tower	roger CKW1002 confirm you like to land RWY 17
	A/C	gears down and lock CKW 1002 ready to land RWY 17
13:42:00 UTC	tower	ok clear to land RWY 17 wind 030 degrees 15 knots
	A/C	copy it thank you clear to land
13:43:00 UTC	tower	CKW 1002 you are not insight clear to land RWY 17
13:43:10 UTC	A/C	turning final RWY 35 CKW 1002
	tower	Confirm final RWY 35? clear to land now you are insight 030 degrees 15 knots

	A/C	clear to land CKW 1002
13:43:30UTC	A/C	CKW 1002 on the ground
	tower	CKW 1002 fire fighting services following you
13:45:00UTC	A/C	CKW 1002 requesting backtrack
13:45:10 UTC	tower	CKW 1002 confirm everything ok and …. Vacate RWY? CKW1002 confirm everything ok and you can vacate RWY? It seems some heavy smoke following your engines.
	A/C	……..
13:45:30 UTC	tower	Stop …. Stop at this position and heavy smoke following your engines. Fire fighting services following you.
	A/C	CKW 1002 request ……..
	tower	say again your request
13:45:00 UTC	tower	w 1002 say again your request
	A/C	CKW 1002 request …. fire car
	tower	roger hold position hold position now roger hold position hold position now hold position
	A/C	holding position CKW 1002 shut down engine

1.10 Aerodrome information:

The ZAHEDAN International Airport is situated in 3NM from Zahedan, South- East of I.R. of IRAN territory.

_ Name : Zahedan International Airport

_ ICAO Identifier : OIZH

_ ARP Coordination: 292824N 0605412 E

_ Landing direction : 17 /35

_ Runway length : 5087/300 M

_ Runway elevation : 4522 ft

1.11 Flight Recorders:

This aircraft has been equipped with a Russian made Flight Data Recorder (FDR) and a cockpit voice Recorder (CVR).

Both recorders were picked up from relatively undamaged tail compartment of aircraft in very good condition. They remained under I.R of Iran CAO control and were presented to PARS Aviation Company to download and witnessed by Armenian representatives and Investigation Team on 28 JULY 2008.

1.11.1 Cockpit Voice Recorder:

Condition of the Recorder: no damaged, serviceable

CVR: Model; MARS-BM, S/N: 11792

All channels were copied with special equipment into computer .all conversations were in Russian language and normal speeches heard before incident. After engine failure all conversations have been focused on this occurrence and emergency landing in Zahedan Airport.

Emergency Situation was good handled by crew.

1.11.2 Flight Data Recorder:

Condition of the Recorder: no damaged, serviceable.
FDR1: Model; MLP-14-5, S/N: 90480
FDR2: Model; KC-13, Tape data recording

The download of the FDR Model; MLP-14-5 was successful .the initial evaluation of the flight data revealed known aircraft configuration.
The FDR Model; KC-13 was down leaded and due to bad condition of its tape, the related information can not be loaded.

1.11.3 Flight Data Recorder findings:

11:45:00 UTC	The airplane started to take off from Bagram airport
11:54:50 UTC	The radio altimeter of airplane is 784 m The indicated airspeed is 395 km/h High pressure compressor of Eng # 3 is % 88.6 High pressure compressor of Eng # 4 is % 85.8 The throttle angle of Eng # 3 is 17.1 deg The throttle angle of Eng # 4 is 23.2 deg The vibration rate rear mounting Eng # 3 is 6.55 mil The vibration rate rear mounting Eng # 4 is 9 mil The EGT of the Eng # 3 is 514 deg c The EGT of the Eng # 4 is 514 deg c
11:54:52 UTC	The high pressure compressor of Eng # 3 drop to -0.5 suddenly. The high pressure compressor of Eng # 4 drops to -1.9 suddenly.
11:54:54 UTC	- The airplane level is 6250 m. The radio altimeter of airplane is 787 m The indicated airspeed is 440 km/h. The high pressure compressor of Eng # 1 is % 84.3. The high pressure compressor of Eng # 2 is % 88.1. The throttle angle of Eng # 1 is 21.9 deg The throttle angle of Eng # 2 is 23.7 deg but during flight after this time the throttle angle of Eng #2 will variable and decrease to 1.3 deg , then increase to 35.3 deg and increase to 50.4 deg again . The vibration rate rear mounting Eng # 1 reaches to 12 miles. but during flight after this time it will variable Between 8-11 miles. The vibration rate rear mounting Eng # 2 reaches 3.25 mil after this time it will increase to max 8 miles. The EGT of Eng # 1 is 486 deg. c. after this time it will gradually increase to max 638 deg c

	The EGT of Eng # 2 is 486 deg. c. after this time it will gradually increase to max 671 deg c.
11:54:55 UTC	-The radio altimeter of airplane is 787 m. -The indicated airspeed is 431 km/h. The throttle angle of Eng # 3 is 0.3 deg The throttle angle of Eng # 4 is 25.4 deg The vibration rate rear mounting Eng # 3 is -1 miles. The vibration rate rear mounting Eng # 4 is -1 miles. The EGT of the Eng # 3 is zero Deg. The EGT of the Eng # 4 is 300 Deg.
12:20:40UTC	The radio altimeter of is 793 m The indicated airspeed is 386 km/h High pressure compressor of Eng # 3 is zero High pressure compressor of Eng # 4 is -1.9. The throttle angle of Eng # 3 is 1.7 deg The throttle angle of Eng # 4 is -0.5 deg The vibration rate rear mounting Eng # 3 is -1 miles. The vibration rate rear mounting Eng # 4 is 0.6 miles. The EGT of the Eng # 3 is -5 Deg c. The EGT of the Eng # 4 is 185 Deg c.
13:43:30 UTC	The airplane land in zahedan airport

1.12 Wreckage Information:

Engine conditions are as follows;

Engines # 1 and 2 are in a good condition.

Engine #3 has its turbine unit fully destroyed with destruction of the outer Engine cover, as well as of the pods hoods and the units of Engine stud, located near the destruction area. At the destruction area the axle of the Engine, destroyed set of the nozzle diaphragm of the 4^{th} turbine stage, remains of the straightened blade and the blade wheel of the turbine 6^{th} stage are visible. Fragments of the 5^{th} turbine stage along with the blade wheel disc are absent. Both rotors are jammed and can not be rotated.

Survey of the fuel and oil filters has been carried out, as well as of the magnetic insertions of the indicators. The fuel filters are clean. No metal chips are detected on the oil system filters and on the magnetic insertions.

The Engine #4 damage was caused by the fire, which arose under the Engine cowling as a result of damage (crippling) of the fuel-oil radiator.

Aircraft condition as follows;

1. *APU* TA-6A is serviceable, free of damages.

2. *The Hulls;*
The right side has numerous through breaches of the sheeting in the area of frames 27-33 (stringers 10-36).
The left side has two through breaches of the sheeting in the area of frame 31 (stringers 25-26) and frames 32-33 (stringers 13-14).
Inside the hull in the cargo compartment there are damages of the rigidity boxes along the left side (near frame 31) and along the right side (near frame 32).
The cowl of the landing gear: along the left side a through breach in the upper sheeting near frames 31-32.
Along the right side there are numerous breaches of the sheeting from frame No 2 to frame No 7.

3. *The wing fairi*ng;
Numerous breaches along the right side near frame 27-34.
The left side has no damages.

4. *The tail fairing* (the keel and stabilizer) has no damages.

5. *The flight controls* (flaps, slats, brake flaps, spoilers and ailerons) have no damages.

6. *The wing*;
The left inner wing has damages in the lower level near rib No 6 at the front wing spar in the shape of breaches and deformations (tank No 3Г). The right inner wing, the left and the right intercept wings have no damages.

7. *The Engine Pylons*.
Pylon No 4 has damages as deformations and breaches near frames No 1-9. The rest of the pylons (No 1, 2, 3) have no damages.

8. *The Engine pods.*
The pod of Engine#4 has damages on the folds and covers, traces of burns and breaches.
The pod of Engine#3 has breaches on the rear covers.
The pods of Engine#1 and Engine#2 have no damages.

9. *The Aircraft hydraulics system;*
The right system has damages of the piping near frames 24-31: 2Г3-709 draining, 2Г4-697 feeding.
The left system has no damages.

10. *The Aircraft control system;*
Two rods of the Aircraft control system 1.7601.5170.800.020 damaged (in the channels of the rudder and the right half-system of the elevator).

11. *The Aircraft Electric Systems;*

- *Central Distributing Unit 31.*
  The Contactor Pos. 139/1 is damaged (the contactor for connecting RAP, APU generator to the left side, type ТКС 233 ДОД).

- *CDU-32*
  The Contactor Pos. 38/1 is damaged (the contactor for connecting SU4 generator, type ТКС 233ДОД).
- Breakage of wires from АЗФМК (bus-bar supply from 22Г).
- Breakage of the plat from АЗС, located on the face panel of CDU-32 to contactors Pos. 214/16 (ТКД203ДОДГ). 30/2 (ТКД233ДОД), plaits Г1, Г2, Г3, located on CDU-32.
- Breakage of the AC power cables from RAP.
- Damage of the SU4 generator frequency control unit БРЧ-62М pos. 18/1, the cutoff point Ш1 damaged.
- Cable 1Э157 70,0С from cutoff pos. 123/1 is cut.
- Near frame 31 (left side) two plats are broken under the rigidity boxes (under the seats).
- Near frames 31-32 (right side) two plats are broken under the rigidity boxes (under the seats).
- In the area of the pressure cutoffs under the wing cowl (frames 29-34) two plats are broken, the cutoff point 3Ш112 is damaged.

12. *Oxygen equipment*;
    Damages of the oxygen system piping: К17-3633, К52-1-3153, К56-1-3233, К05-3602, К66-1-3422, К54-3192, К58-3272, К53-3173, К53-1-3172.

13. *The Engine control system;*
Cable 8075c52-2, 5-6760-18 of engine#3 control near Frame 27 is cut.

14. *The Aircraft fire equipment*;
    Damages of sensors ДПС-1АГ of ССП-2А system, piping assembles in the pods of Engine#3,#4 of the fire tube in the fire extinguishing system in APU compartment (Frame 31-32), the stationary fire extinguishers discharged.
15. *APU Compartment;*
    Breakage of the cables insulation in the starter-generator circuit of the APU, breakage of 3 cables in the alarm circuit and APU control;
    The front part of the landing gear cowl. The AC power cable from RAP is torn off from the tip.

1.13 Medical and pathological information:

Investigation of the crew member's medical history confirmed by that they met ICAO annex 1 medical standards for license held. Both pilot had not any limitation whilst

exercising the license privileges .there were no indications of any disorder that could have had a bearing on this incident.

1.14 Fire:

There are some indications of fire creation in engine #3 and #4 and its surround.

After destruction of engine #3, some turbine pieces hit lines of engine and some other pieces scattered in air and hit engine #4 and wing fuel tanks. The fire on Nr.3 engine was extinguished by three charges of the aircraft fire protection system SSP-2A and activation of the fuel fire shutoff valve.

Turbine pieces from Nr. 3 engine when scattering punctured the bottom of the Nr.4 engine heat exchanger, which caused the fire, and cut off the Nr 4 engine instrument indicators wires situated in the upper part of its pylon. The crew noticed the fire visually. The engine was shut down by engagement off the shutoff valve. The fire in the Nr.4 engine was not extinguished as all the three charges of the fire protection system were spent for Nr.3 engine.

During the emergency descent as the fuel flow to the Nr.4 engine was shut off, the open flame of the fire was put off but due to remain flammable contamination in engines zone, there were some indication of smoke and light fire in engines in the time of landing.

Immediately after requesting emergency landing of aircraft, the "Airport fire service" arrived to runway area and reached to aircraft and fire fighting was accomplished and it has prevented more damages to aircraft.

1.15 Survival aspects:

The crew was healthy and the crew had not any medical and pathological problems. All persons were transferred to the airport terminal.

1.16 Test and Research:

None

1.17 Organizational and management information:

After occurrence of Incident, in order to obtain permanent residence for crew in Iran for few days ,necessary coordination with immigration office was done by Airport authority to issue immediate Iranian visa, then crew were sent to hotel for rest . Meanwhile necessary coordination also was made to send them to U.A.E

1.18 Other Information:

When the investigation of this serious incident finished, the wreckage of aircraft was released by investigation team and the airliner decided to repair the aircraft and recover it. But due to different manufacturer states of aircraft and engines and distance between Zahedan airport and these two states, the aircraft recovery took long time.

2. Analysis:

- ✓ The aircraft IL-76TD has flied from Kuwait (OKBK) to Bagram (OAIX), Afghanistan as cargo flight normally on 02 Jul 2008.
- ✓ The aircraft was unloaded in Bagram and aircraft took off from OAIX to OMSJ in limit of Maximum Take off weight.
- ✓ In Afghanistan FIR about GADER position (43 NM to the northeast of Zahedan) at FL280, the engine #3 has failed and engine shaft near Turbine section seized and turbine blades separated from shaft and throw outward and came out from engine shell. Due to high speed rotation, the separated parts have hit the engine #4 and airframe and right wing fuel tank fuselage causing fire creation in engine #4.
- ✓ After engine failure, the cabin was depressurized and the crew used oxygen drops.
- ✓ The action of cabin crew was appropriate and in the given situation, was as much as they could do. They could handle this emergency situation in a good manner and succeeded to land aircraft with losing 2 engines and flight control problems.

3. Conclusions:

3.1. Findings:

- The flight crews have been properly validated by the GDCA of Armenia and have the appropriate equivalent licenses but at the time of incident they did not have the licenses on board. They were medically fit for the flight.
- The aircraft was maintained in accordance with regulations issued by aircraft manufacturer. The engine that failed was not being operated within operation time limits issued by Engine manufacturer.
- Prolong programs (Extension) were done illegally by aircraft operator.
- No outside causes, such as FOD or other damages, were involved.
- The initial fault was tracked to HP Turbine.
- The aircraft weight was in its design limits.
- The crew did not decide to return to the Bagram airport due to mountain area and decided to land emergency in Zahedan airport.
- Task sharing during the emergency was in accordance with aircraft manuals.
- The engine fire warning was come out during the flight.
- The in-flight engine failure emergency procedure was completed.
- The landing and taxiing were completed with the left two operative engines.

3.2 cause:

It is believed that the incident was caused by fatigue failure of turbine main gear due to exceed time operation of engine #3, which led to the subsequent failures in engine turbine shaft to seize and it was broken.

4. Safety Recommendations:

1. The Civil Aviation Authority of Armenia should determine the procedure for regulating the operation and maintenance of Armenian registered aircraft in any foreign base to engage in work on perfecting the aircraft manufacturer standards.
2. The Interstate Aviation Committee as engine manufacturer state to consider the implications of the findings of this investigation on the other certificated Ilyushin fleets.
3. The "NPO Saturn" as engine manufacturer to investigate the possibility of having and developing a unified procedure for certifying maintenance base to extend engine service life in a safe condition
4. The operator should review the co-ordination between crew licenses and the aircraft registration to follow article 32 of ICAO convention.

5-Appendices:

1- Engine Manufacturer Report
2- Photos

SATURN
SCIENTIFIC PRODUCTION ASSOCIATION

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I.R. of Iran Civil Aviation Organization

To: Mr. H. Rezaeifar
Member of Aircraft Accident
Investigation Dpt.

Date 27.02.09 Reg. № 265/007-276

Ref. №

Dear Mr. Rezaeifar,

In reply to your request dated February 08, 2009 concerning the flight accident with Il-76TD, EK-76400 aircraft you are kindly informed as follows.

NPO "Saturn" as a designer and manufacturer of D-30KP/KP-2 engines for Il-76 aircrafts pays much attention to the safety flights of the aircrafts.

NPO "Saturn" is authorized to extend of engines service life after receipt of the technical report of their technical conditions and results of ground tests.

Other engines' repair companies in Russia cannot extend the engines service life without permits of NPO "Saturn" as a designer of D-30KP engines.

According to the technical documentation the following service life and TBO of the engines mentioned in your letter was assigned after their manufacture:
For engine No.0304403011721 – 6500 hours, TBO – 3000 hours;
For engine No.0305303302091 – 9000 hours, TBO – 3000 hours;
For engine No.03053028702053 – 9000 hours, TBO – 3000 hours;
For engine No.0305304302075 – 5000 hours, TBO – 2000 hours.

That's why the extensions more than 9000 hours assigned service life and more than 3000 hours TBO issued by VARZ400 for engines No.0305303302091 and 03053028702053 was done illegally.

All of engines from Il-76TD, EK-76400 aircraft should be removed from operation and delivered for overhaul.

Best regards,

Igor V. Grigoriev
Commercial Director

Completed Aircraft Fire Frightening

7447

Engine #3

Engine #4 Damaged

Damaged Fuselage by thrown Engine parts

Damaged Flight control column by Thrown Engine parts