

## ***Foreword***

*In accordance with Annex 13 to the Convention on International Civil Aviation Organization (ICAO) and Rule 3 of Aircraft (Investigation of Accidents and Incidents), Rules 2012, the sole objective of the investigation of an accident shall be the prevention of accidents and not apportion blame or liability.*

*This document has been prepared based upon the evidences collected during the investigation, opinion obtained from the experts and laboratory examination of various components. Consequently, the use of this report for any purpose other than for the prevention of future accidents could lead to erroneous interpretations.*

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**FINAL INVESTIGATION REPORT ON ACCIDENT TO  
GLIDER CENTRE PUNE L-23 SUPER BLANIK GLIDER  
VT-GLK AT GONDHALE NAGAR , PUNE ON  
09/03/2016**

- |                                      |  |
|--------------------------------------|--|
| 1. Aircraft Type                     | : L-23 Super Blanik Glider                             |
| Nationality                          | : INDIAN   |
| Registration                         | : VT – GLK   |
| 2. Owner/ Operator                   | : DGCA, Glider Centre Pune                             |
| 3. Pilot – in –Command               | : Indian Glider Pilot License (GPL) Holder             |
| Extent of injuries                   | : Minor  |
| 4. Place of accident                 | : Gondhale Nagar, Near Glider Centre<br>Pune, Hadapsar |
| 5. Date & Time of accident           | : 09 <sup>th</sup> March 2016<br>0900UTC (Approx.)     |
| 6. Last point of departure           | : Glider Centre Pune, Hadapsar                         |
| 7. Point of intended landing         | : Glider Centre Pune, Hadapsar                         |
| 8. Geographical location of accident | : Lat18°29'49 N Long 73°57'03E                         |
| 9. Type of operation                 | : Routine Glider Flying                                |
| 10. Passengers on Board              | : NIL  |
| 11. Phase of operation               | : Landing  |
| 12. Type of accident                 | : Crashed during forced landing                        |

(ALL TIMINGS IN THE REPORT ARE IN UTC)

## **SYNOPSIS:**

On 09<sup>th</sup> March 2016, L23 Super Blanik glider, VT-GLK operated and owned by DGCA was involved in an accident during routine glider flying at Gondhale Nagar near Glider Center Pune, Hadapsar around 0900UTC.

The glider was under the command of the pilot holding a valid Glider Pilot License (GPL) endorsed on type. The accident flight was the first flight of the day for the glider VT-GLK.

The glider took off approximately at 0821 UTC from runway 09 and the initial launch height attained was 300m. After this pilot started to soar and attained the ceiling height of 1000m in an easterly direction, for this a message was relayed by Pilot to ground and another inflight glider VT-GLL. On the way to Loni, 9.18 Km radially from the threshold of runway 09, the pilot felt heavy downdraft and the glider started to sink rapidly.

As per emergency procedure demonstrated to the pilot during class room training, VT-GLK pilot changed the glider directions to avoid the downdraft and started to move towards the runway at 55 knots. Pilot was able to see the runway clearly and decided to turn back and land on the airstrip. Soon the pilot realised that he will not be able to make it to runway and decided to land in an open field which was adjacent to its approach path. During outfield landing the tailwheel of the glider got entangled in electric wire and crash landed 800m short of the airfield. Pilot was unhurt except for a minor injury on his little finger on right hand and was taken to the hospital for a post occurrence medical examination. The glider received substantial damage and was beyond economical repair.

The Ministry of Civil Aviation had constituted a committee of Inquiry under Rule 11 of Aircraft (Investigation of Accidents & Incidents) Rules 2012 to investigate the accident. The Committee is headed by Sh. Raje Bhatnagar, Assistant Director, AAIB with Sh. Dinesh Kumar, Air Safety Officer, AAIB as member.

# 1. FACTUAL INFORMATION.

## 1.1 History of flight

On 09.03.2016, DGCA L23 Super Blanik glider VT-GLK, was engaged in a routine flying from Glider Centre Pune. The glider was released after Pre flight inspection and Certificate of Flight Release was issued for routine flying operation by an approved AME before the flight.



**Figure 1: Glider Centre and accident site overview**

The glider was launched using a stationary ground-based winch from runway 09 at approximately 0821 UTC under the command of the pilot holding a valid Glider Pilot License (GPL) endorsed on type. The winch cable hook disengaged normally after glider attained initial launch height of about 300m and the launch was uneventful. After this pilot started to soar and attained the ceiling height of 1000m in an easterly direction.

Another glider VT-GLL of Glider Centre Pune was in flight at 600m AGL to the west of the airfield and the variometer installed in that glider was indicating thermal between 0 and 1 UP .Both the gliders were maintaining radio communication at regular intervals and relaying their position and height on the ground. At the same time gliding instructor of Glider Centre Pune was monitoring both the gliders from the airfield. VT-GLK proceeded headwinds towards Loni. As per the pilot, on the way to Loni when the glider VT-GLK was at a radial distance of 9.18 Km from the threshold of runway 09, glider encountered heavy downdraft due to which glider started losing height. The variometer installed in the front cockpit was indicating max sink. Pilot tried to contact on ground but the gliding instructor heard a little clutter of transmission as the glider was in obstructed range. Glider pilot changed the glider direction to left and right 4 to 5 times as trained during class room training to overcome the downdraft. The variometer was still showing max sink 20 meters per second and during this exercise glider lost sufficient height. At this point of time pilot decided to return to the Glider Centre Pune and started towards the airfield at a speed of 55 Knots. The pilot realised that glider will not able to make it to runway. Immediately pilot looked around and spotted a small open space next to a canal which was adjacent to the flight approach path. Finally the pilot decided to make an emergency landing on this open space. However during the event of outlanding the glider tailwheel got entangled in overhead electric wire. Thereafter glider crash landed on the stack of pipes lying on the ground.

The pilot after opening the seat belt, escaped out of the glider and transmitted to the inflight glider VT-GLL that glider had crash landed in Gondhale Nagar .There after VT-GLL relayed the crash site information to the Gliding Instructor and ground team rushed to the crash site. The pilot was unhurt except for minor injury on the right hand little finger. The pilot was immediately rushed to the hospital for a post occurrence medical examination.

### 1.2 Injuries to persons.

<b>INJURIES</b>	<b>CREW</b>	<b>PASSENGERS</b>	<b>OTHERS</b>
<b>FATAL</b>	Nil	Nil	Nil
<b>SERIOUS</b>	Nil	Nil	Nil
<b>MINOR/NONE</b>	1	Nil	Nil

### **1.3 Damage to aircraft.**

The glider sustained substantial damage beyond economical repair.

**1.4 Other damage:** Due to the entangling of Glider the electric wire got broken.

### **1.5 Personnel information:**

#### **1.5.1 Pilot – in – Command:**

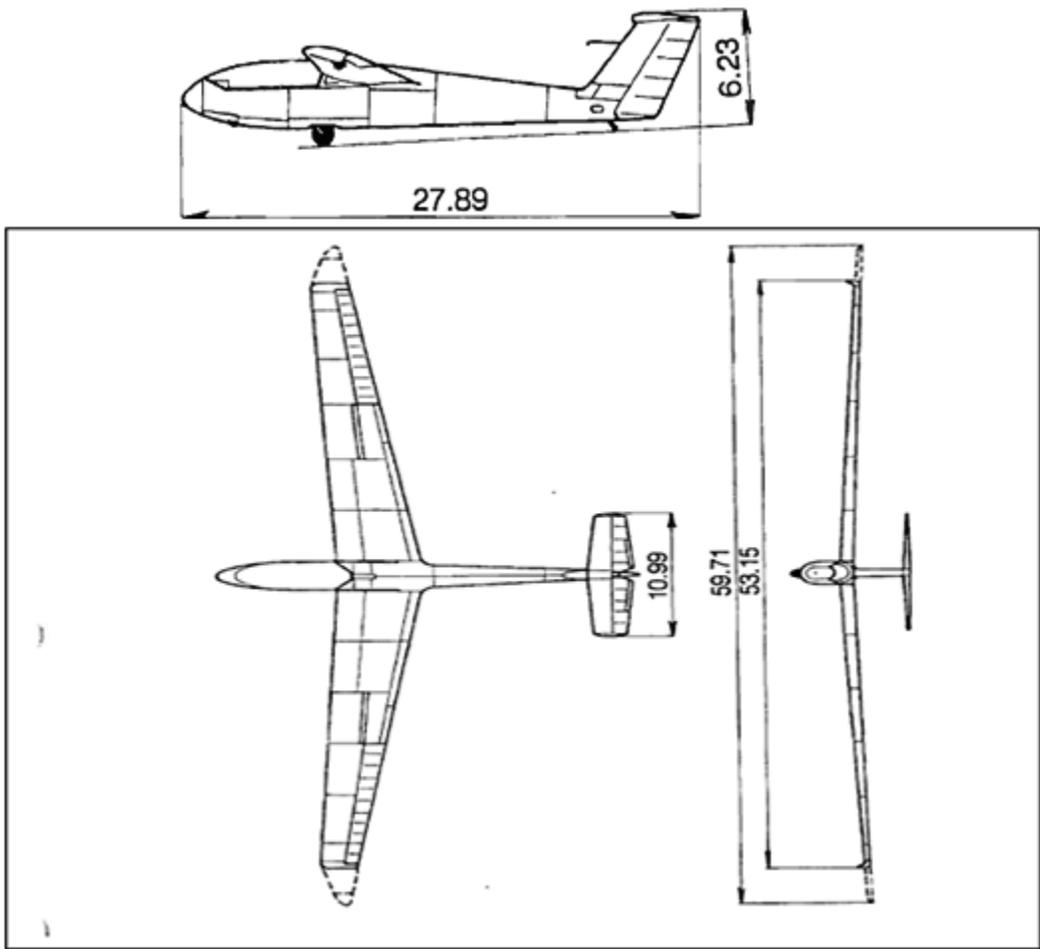
Age/ Date of Birth	: 65 Years (01.06.1951)
License	: GPL Holder
Date of Issue	: 23/10/2012
Valid up to	: 22/10/2022
Category	: Glider
Endorsements as PIC	: Super Blanik L-23 Glider
Date of Last Medical Exam	: Dec 2015
Med. Exam Valid upto	: 05.12.2017
Total flying experience	: 208:38Hrs
Experience on type	: 208:38 Hrs
Experience on type as PIC	: 166:51 Hrs
Total flying experience during last 180 days	: 21:33 Hrs
Total flying experience during last 90 days	: 13:01 Hrs
Total flying experience during last 30 days	: 02:37 Hrs
Total flying experience during last 07 Days	: 01:55Hrs
Total flying experience during last 24 Hours	: 00:50 Hrs

### **1.6 Aircraft information:**

Super Blanik L-23 Glider is an all-metal, two-seat, self-supporting, high-winged glider and is manufactured by M/s. LET AERONAUTICAL WORKS, Kunovice, Czech Republic. The Glider is certified under Normal Category for VFR day operation. The maximum

operating altitude is 10,000 feet and maximum takeoff weight is 510 Kgs. The Super Blanik L-23 Glider has been approved for all stages of flight training from basic to advance cross-country, aerobatic, stunt and instrument flying.

Glider length is 27.89 ft, Wing span 53.15 ft, with optional wing tip extensions 59.7 ft, height of this glider is 6.23 ft and wing area is 206.13 sq ft. The glider is approved in the "Utility" category under Training Flight Normal.



**Fig: Three View Drawing (Dimensions in Feet)**

## **CONSTRUCTION:**

### **Fuselage:**

The fuselage is of semi-monocoque construction with longerons and bulkheads, oval in cross-section. The cockpit is covered with a two-part plexiglass canopy and its lowered sides allow very easy access. The rear fuselage is made of two stiffened semi-monocoque structures and reinforcing bulkheads riveted together.

### **Wings:**

The trapezoid-shaped wing with a negative sweep is of all-metal, single-spar construction. Each wing half is connected to the fuselage by means of a vertical main spar pin and a horizontal front spar pin. The fiberglass wing tips have a handy skid. Removable wing tip extensions of one meter each may be installed. Ailerons are of metal structure, fabric-covered. The spoilers extend both above and below the wing and hook up automatically.

### **Tail:**

The one-piece stabilizer of all-metal construction attaches to the fin at three points. The elevator is a metal frame covered with fabric and has two trim tabs. Both the elevator and tabs hook up automatically upon assembly. The rudder's metal frame is fabric-covered and attaches to the all-metal fin on two mounts.

### **Flight Controls:**

The control sticks actuate the elevator and ailerons via a system of levers and rods. The adjustable rudder pedals are connected to the rudder by cables. The elevator is aerodynamically trimmed. A system of levers and torsion rods extends and retracts the spoilers. The L23 is equipped with a front aero tow hook and side winch/auto tow hooks.

A custom, bottom center of gravity tow hook may be built in. Both tow releases are controlled by handles on the instrument panels.

### **Landing Gear:**

The landing gear consists of a semi-retractable single wheel, equipped with a drum brake, and sprung by a well-proven oleo-pneumatic shock absorber. The front bottom of the fuselage has a protective steel shoe. The reinforced, fully-swiveling, solid rubber tail wheel has a rubber shock absorber. Optionally, a fixed pneumatic tailwheel may be installed. The wing tips with skids may be replaced by wing tips with built-in faired robust solid rubber tip wheels.

### **Cockpit:**

The aircraft has a two-piece canopy, where the front part opens to the right, and the rear part opens upwards and to the rear. The cockpit can accommodate pilots 5'1" to 6'8" tall. The four-point seat belts protect the pilots along with upholstered seats and laminated supports. Two full sets of instruments are installed. The variometers are attached to the total energy probe mounted in the fin. Fresh air can be let in the cockpit either through the front fuselage vent or through sliding window scoops.

### **Aircraft General Information:**

Glider VT-GLK (MSN. 948202) had been manufactured in the year 1994. The glider was registered with DGCA under the ownership of Govt. of India, DGCA Technical Centre, New Delhi on 21<sup>st</sup> November 1994. The Glider is registered under category 'A' and the Certificate of Registration No. G-295.

The certificate of Airworthiness Number 110/G under "Normal" category was issued by DGCA on 8th December 1994. The specified minimum operating crew is 01 and the maximum all up weight is 510 kgs. At the time of accident, the Certificate of Airworthiness was current and was valid upto 21<sup>st</sup> June, 2016. As on 09<sup>th</sup> March, 2016 the aircraft had logged 2604 Airframe Hours.

The glider was maintained as per the maintenance program consisting of calendar period / flying Hours or Cycles based maintenance as per maintenance program approved by Regional Airworthiness Office.

All the concerned Airworthiness Directive, Service Bulletins and DGCA Mandatory Modifications on this glider has been complied with as on date of event.

Scrutiny of the snag register revealed that there was no written snag reported on the glider prior to the accident flight.

### **1.7 Meteorological information:**

The airstrip at Glider Centre Pune, Hadapsar is an uncontrolled airstrip, hence no Meteorological facility is available. The nearest MET facility available is at Pune Airport which is at 5.37 Nm from Glider Centre Pune. The local weather and trends were not obtained telephonically from Pune before commencing the flying operations. However the flying instructor had observed the local weather and trends visually and based on his own experience flying permission was granted.

As per the Glider Centre Pune Operations Manual Para 6.2, it is the responsibility of the gliding instructor in charge to access the weather conditions for day to day gliding operations as per the Met Minima laid down in general rules of AIP - ENR 1.1-7.

However, as per the information from the Met department the weather was:

Winds: Easterly at 4 to 5 Knots

Visibility: more than 5 Km

### **1.8 Aids to navigation:**

Nil.

## **1.9 Communications:**

At the time of accident pilot was in possession of handheld radio for communication with the ground control and other inflight glider

## **1.10 Aerodrome Information.**

The Glider Centre Pune is an uncontrolled airfield with one runway orientation 09/27.

Co-ordinates:

ARP : 18° 29' N 73° 56' E

Elevation : 574.5 m

Runway Orientation and Dimension : 09/27 and 3566 feet long.

Runway& Taxi Tracks Markings : Non-Standard (not as per Annex. 14).

Night landing facility : Not available.

MET Services : Met service not available

Navigation Aids : Not available (only wind sock is in use)

## **Airspace Information:**

Glider Centre Pune, Hadapsar airstrip is located approximately 5.37Nm from Pune airport. The uncontrolled airspace allocated for flying glider is 1000 Meter AGL. Any flying required to carry out above this level needs to be co-ordinated with ATC, Pune.

**1.11 Flight recorders:** Neither fitted nor required.

## **1.12 Wreckage and impact information.**

The tailwheel of the glider got entangled with overhead electrical wire which is approximately 25 feet above the ground level and this resulted into lateral spun of glider around 180 degree.



Fig: Final resting position of glider after Outfield landing



Fig: Location of Electric Wires

Due to single point impact on tailwheel assembly, tailwheel of the glider disintegrated and was found at a distance of 50 feet from the point of impact with over

head electric wire and subsequently the Left horizontal stabilizer also had hit the electric wire.

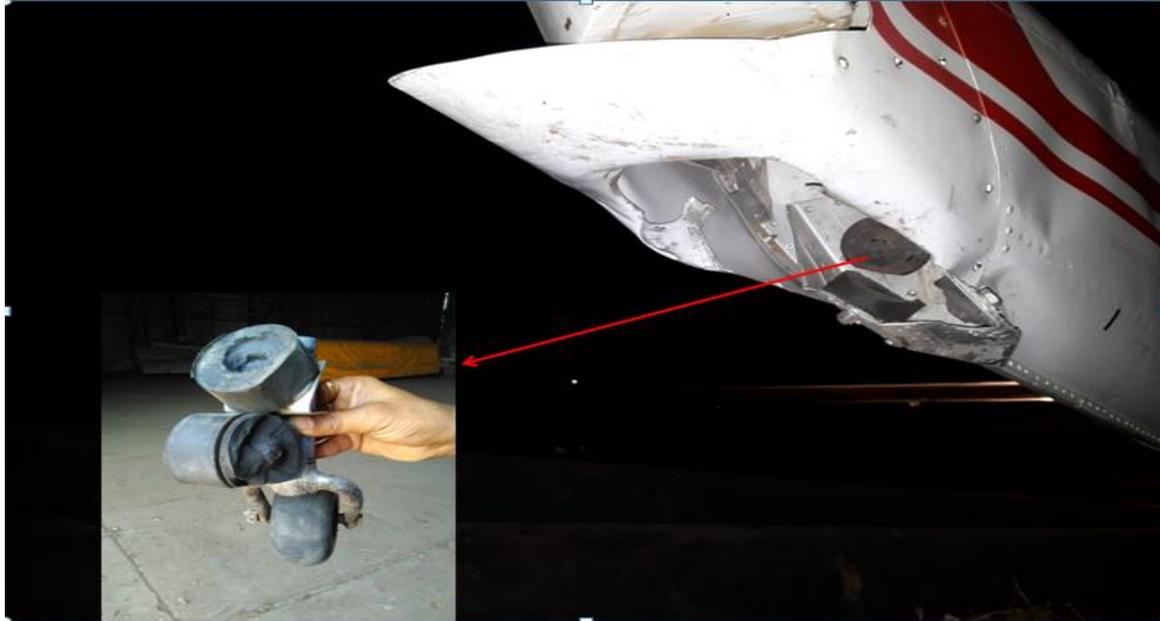


Fig: Disintegration of Tailwheel

The wire got broken due to extreme tension developed and glider crash landed on the stack of pipes lying on the ground with left bank condition completely resting on the pipes and the starboard wing up. Electric wires acted as an arrestor barrier which prevented the glider to crash land in the canal as no more sufficient ground was available for landing roll.

Examination of the wreckage revealed that left side fuselage section 3 to 6 was completely damaged due to the heavy impact on stacked pipes. Belly portion of nose at section 2 – 3 of the fuselage got heavy dent and front canopy cover found broken but operational.



Side View of the Fuselage

Deformation and metal sheet undulation found at the left wing root section. The left wing lower surface at section 12,13 and 14 also got damaged and the fuselage skin got deformed at section 9,10 and 11. The fuselage tail at section 13 and 14 also damaged and deformed. Due to heavy impact the right wing root got completely deformed and the wing surface got buckled. The right wing – fuselage attachment got deformed and sustained damage.



The instrument panel and instruments of both front and rear cockpit were found attached in place without any damage. The safety harness was intact and the main undercarriage was also intact and no damage was observed. All the attachment pins locks and all the control surfaces (Ailerons, Elevators, Rudder, trim tabs and Airbrake) were in place and found intact. However, Starboard side rudder pedal was found damaged. The rear canopy cover found satisfactory and there was no disintegration of any part in air. Altimeter of the rear cockpit was found stuck at max due to the tailwheel impact with the overhead electric wire and other than this all the instruments showing actual reading positions.



Front Cockpit-Instrument Panel



Rear Cockpit-Instrument Panel

### 1.13 Medical and pathological Information:

After the accident, the ground control team reached at the accident site and pilot was admitted to the local hospital for blood alcohol quantitative test and dressing on right hand little finger which was bleeding. Alcohol level by Enzymatic method showed negative which depicted that glider pilot was not under the influence of alcohol while flying.

### 1.14 Fire:

There was no pre and post fire.

### 1.15 Survival aspects:

The accident was survivable. The Glider pilot reported minor injury in his right hand little finger.

### **1.16 Tests and research: Nil**

### **1.17 Organizational and management information:**

Gliding Centre, Pune is a subordinate office of the DGCA, New Delhi, Government of India and functioning as a Gliding Training Institute of India under the direct supervision of the Office of the Dy. Director General of Civil Aviation (Western Region) Mumbai.

Gliding Centre, Pune is one of the oldest and pioneer institute of Gliding Institute in India which imparts Gliding Flying training to students, NCC Cadets and hobby flyers.

M/s. Gliding Centre is having three L-23 Super Blanik gliders owned by DGCA and maintaining one Private L-23 Super Blanik Glider and one L-33 Solo Sailplane.

### **1.18 Additional information:**

#### **1.18.1 Guidance Material:**

One part of every training other than practical hand on the machine is mainly through imparting class room training by providing guidance material covering every aspect.

During investigation, it was found that only few books are usually suggested to the trainee pilots and Circulars issued by DGCA pertaining to glider flying are referred as guidance material. These circulars are also not available on the DGCA website for ready reference by Glider Training institutes and neither these circulars are superseded by DGCA nor are any other clear guidelines issued for glider training institutes.

Glider Centre Pune does not have any SOP or training manual on handling emergency situations neither it is a part of their Operations manual. In case of emergency situations or non communication with the ground, pilot becomes blank due to less responsive time available to act as there are no well defined procedures available for pilot to follow.

### **1.18.2 Non utilization of infrastructure:**

During investigation it was also found that sometimes classes are also conducted near the airstrip in an open space. It reflects that Glider Centre Pune is not adhering to the standard practices and not fully utilizing its infrastructure to impart training to the extent as per the standards.

### **1.18.3Glide Slope:**

Glide slope is the distance traveled by the Glider for each unit of height lost. In a steady wings-level glide with no wind, glide slope is the same as the lift/drag ratio (L/D) of the glider, called "L-over-D". Reducing lift from the wings and/or increasing drag will reduce the L/D allowing the glider to descend at a steeper angle with no increase in airspeed. Simply pointing the nose downwards only converts altitude into a higher airspeed with a minimal initial reduction in total energy.

Two speeds are worth remembering when flying at a low level. The minimum sink speed is the best speed to stay in the air the longest thus giving the maximum time to survey suitable paddocks for landing. It is also near to or is the best speed to climb in a thermal. However, it is close to the stalling speed and extra speed may be needed if the thermals are broken or rough.

Minimum sink should not be confused with best L/D which gives the maximum distance per unit of height. To travel the maximum distance, pilot needs to fly at the speed for best lift to drag ratio [V best L/D]. Fly slightly faster than this in a head wind and slower in a tailwind. The minimum sink speed will give the maximum endurance and time to think or better still to climb.

The best lift to drag ratio speed will give the maximum distance to search for lift and suitable locations for out-landing.

Energy in a sailplane can be unintentionally lost through wind- shear, and/or downdraught, and both will be amplified by maneuver. However, when turning, the rate height loss is greater than when flying level and the steeper the turn the greater the height loss. Low level, steeply banked turn, combined with wind shear and down-draft becomes a lethal combination.

## **Effects of the control surfaces on the Glide Slope:**

### **Cross deployment of two control surfaces:**

A slip is performed by crossing the controls (for example rudder to right with ailerons to left) so that the glider is no longer flying aligned with the air flow. This will present one side of the fuselage to the air-flow significantly increasing drag which increases the rate of descend. In this condition aileron holds the bank and rudder keeps the nose pointed in other direction. Early gliders primarily used slipping for glide slope control.

### **Spoilers:**

Spoilers are movable control surfaces in the top of the wing, usually located mid-chord or near the spar which are raised into the air-flow to eliminate (spoil) the lift from the wing area behind the spoiler, disrupting the span wise distribution of lift and increasing lift-induced drag. Spoilers significantly increase drag and subtly can modify the glide slope.

### **Air brakes:**

Air brakes, also known as dive brakes, are devices whose primary purpose is to increase drag. On gliders, the spoilers act as air brakes. They are positioned on top of the wing and below the wing also. When slightly opened the upper brakes will spoil the lift, but when fully opened will present a large surface and so can provide significant drag. Some gliders have terminal velocity dive brakes, which provide enough drag to keep its speed below maximum permitted speed, even if the glider were pointing straight down. This capability is considered a safer way to descend without instruments through cloud than the only alternative which is an intentional spin.

## **1.19 Useful or effective investigation techniques: NIL**

## **2. ANALYSIS**

### **2.1 Serviceability of the aircraft:**

The Glider is registered under category 'A' and the Certificate of Registration No. is G-295 which was valid on the day of accident.

The Certificate of Airworthiness was valid upto 21<sup>st</sup> June 2016. As on 09<sup>th</sup> March 2016 the aircraft had logged 2604 Airframe Hours and no snag was reported on the glider prior to the accident flight.

The glider was maintained as per the maintenance program consisting of calendar period / flying Hours or Cycles based maintenance as per maintenance program approved by Regional Airworthiness Office.

All the concerned Airworthiness Directive, Service Bulletins and DGCA Mandatory Modifications on this glider have been complied with as on date of accident.

### **2.2 Pilot handling of the aircraft:**

After the perfect launch pilot attained initial height of 300m and started soaring and gained a height of 1000m in an easterly direction. When the glider VT-GLK was on the way to Loni, 9.18 Km radially from threshold point of runway 09, Glider pilot encountered heavy downdraft which resulted in heavy sinking of glider. As per the procedure explained during the course of training, glider pilot changed the glider direction left to right 4-5 times in search of updraft and was continuously losing the safe height, which was crucial for decision taking. Finally, pilot decided to return to airfield and planned to land on runway 09.

### **Non Planning:**

As the Glider attained sufficient height of 1000m and at a near distance of 9.18 Km radially from the airstrip, continuous change in direction for search of updraft indicated improper planning to continue the flight without contemplate the options to

return to an airport or planning failure to denial for an off field landing when the response time is less in case of continuous sinking.

Pilot merely concentrated on continuing the flight and tried to find a way to climb up and fly away without keeping in mind the worse situation that if the attempt to climb does not succeed it will result in less or no time to plan an off field landing. Also, Pilot had inadvertently selected the insufficient and unsafe place for outfield landing.

**Excess Control:**

Apart from the damage to the different areas of fuselage, inside the front cockpit, RH side rudder pedal was found damaged as shown in the Fig.



Rudder deflection



Right side Rudder Pedal damaged

Position of damaged rudder pedal and rudder depicts that the rudder was deflected towards the right with a forceful action during the flying and which is in line to final rudder position.

It is evident that excess use of rudder resulted in side slipping and very high drag as the fuselage moved sideways through the air. This acted as an airbrake and inevitably caused a loss of airspeed with a high rate of sink even though the nose had not been raised. There is a tendency for glider to overbank at very low speeds so that a large stick deflection to hold off the bank can also be a warning of a dangerously low speed. In either case, a glider with high glide ratio would have not reached the point of intended landing.

### **2.3 Weather:**

The airstrip at Glider Centre Pune is an uncontrolled airstrip and no Meteorological facility is available. The nearest MET facility available is at Pune Airport which is at 5.37 Nm from Glider Centre Pune, Hadapsar.

As per the Glider Centre Pune Operations Manual Para 6.2, it is the responsibility of the gliding instructor in charge to access the weather conditions for day to day gliding operations as per the Met Minima laid down in general rules of AIP - ENR 1.1-7.

On the day of accident, local weather and trends were observed by the flying instructor visually and based on his own experience final call for flying was taken.

Weather reported by Gliding instructor is as under:

Winds: Easterly at 4 to 5 Knots

Visibility: more than 5 Km

Also as per the pilot statement, the weather on the day of accident near Glider Centre Pune, Hadapsar was reported fine with no traces of cloud. However the pilot encountered sudden downdraft near Loni.

From the foregoing it is evident that local weather was a contributory factor to the accident.

## **2.4 Circumstances leading to accident:**

After smooth winch launch from runway 09 glider VT-GLK attained initial launch height of 300m and soon the glider started soaring and attained the ceiling height of 1000m in an easterly direction. When the glider was at 9.18 Km radially from the threshold of runway 09, the pilot felt heavy downdraft and the glider started to sink rapidly. In search of updraft or lift, the pilot changed the glider direction 4 to 5 times as skilled during their training classes. However, Glider encountered continuous downdraft and was losing height also. After this pilot decided to head towards the airfield as the runway was clearly visible. On the way to Glider Centre Pune the pilot realised that glider will not be able to make it to runway. Immediately pilot looked around and spotted a small open space next to a canal which was adjacent to the flight approach path. Finally the pilot decided to make an emergency landing. During the event of outlanding the tailwheel of the glider got entangled in electric wire. Thereafter glider crash landed on the stack of pipes lying on the ground.

## **3. CONCLUSIONS:**

### **3.1 Findings:**

1. The glider held valid certificate of Airworthiness.
2. Pilot held valid Glider Pilot License with ample experience on type to undertake the flight as PIC.
3. The Daily Inspection schedule of the glider was carried out by the approved AME and Certificate of Flight Release was issued for routine flying operation before the flight.
4. All the instruments fitted on the glider panel were serviceable and no abnormality was reported before the flight.

5. Local weather forecast was not obtained from MET before commencing the flight and glider was launched on visual analysis of weather.
6. Pilot inadvertently selected the unsafe and insufficient place for outfield landing.
7. Lack of response from gliding instructor who was present on the airfield when emergency call was made by the pilot.
8. In search of updraft or lift, glider lost sufficient height and in the attempt of outfield landing the tailwheel of the glider entangled in the electrical wire which resulted into crash landing of glider on stack of pipes lying on the ground.
9. Electric wire acted as an arrestor and glider came to halt suddenly. It prevented the glider to crash landed in the canal as no more sufficient ground was available for landing roll.
10. When downdraft was encountered Pilot had lost the safe height of decision making, and thus glider was not in easy gliding range of the airfield.
11. The Pilot received minor injury and was taken to the hospital for first aid and post occurrence medical examination. Pilot was not found under the influence of alcohol.
12. No SOP is formulated by the Pune Glider Centre, Hadapsar to handle emergency situations.
13. Weather was fine with no traces of cloud however pilot encountered downdraft during flying.
14. Glider circulars issued by DGCA are not available on DGCA website for ready reference by Glider Training Institutes neither till date these circulars are also not superseded by DGCA.

### **3.2 Probable cause of the accident:**

During the course of overcoming downdraft the glider lost height, thereafter during landing tail wheel got entangled with the electric wire and crash landed in an open field.

#### 4. SAFETY RECOMMENDATIONS:

##### For DGCA:-

1. DGCA may issue instructions to Glider Clubs/Gliding Training Institutes to prepare training manuals and more emphasis to be given on handling emergency situations.
2. DGCA shall make all the glider circulars public on its website.
3. DGCA may issue instructions to all the Glider Clubs/Gliding Training Institutes to follow the SOP on collection of metrological information prior commencing the first flight of the day and same shall be properly documented.

##### FOR GLIDING CLUBS:-

1. Glider Clubs/Gliding Training Institutes to prepare proper SOP to deal with emergency situations encountered during flight.
2. All pilots, should be thoroughly briefed by Gliding Instructors, on field-selection and out-field landing procedures. The field-selection exercises should be part of training flights for soaring. The Glider Instructors should provide opportunity/training to all pilots, in field selection from air, during all training flights, which involve soaring.
3. The Gliding Clubs should have charts prepared and displayed prominently in the hangar, or member briefing area to explain field-selection and out-field landing procedures to re-inforce the memory.



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Date: 09.03.2018

Place: New Delhi