FINAL REPORT
of civil aviation safety investigation

CLASSIFICATION Serious incident
Owner MEDIAPHARM ADVERTISING S.R.L.
Operator MEDIAPHARM ADVERTISING S.R.L.
Manufacturer Blackshape S.p.A. / Italy
Aircraft Prime BS100 /
Registration country Romania
Registration YR-7177
Location Bucharest Băneasa – Aurel Vlaicu International Airport
Date and time 05.12.2016 / 16.34 LT (14.34 UTC)

No. I 17 – 16
Date: 29.12.2017
LANDING WITH RETRACTED LANDING GEAR

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Prime BS100 / YR-7177</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Blackshape S.p.A. / Italy</td>
</tr>
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<td>05.12.2016 / 16.34 LT (14.34 UTC)</td>
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<tr>
<td>Operator</td>
<td>MEDIAPHARM ADVERTISING S.R.L.</td>
</tr>
<tr>
<td>Flight type</td>
<td>Private</td>
</tr>
<tr>
<td>Persons onboard</td>
<td>Pilot</td>
</tr>
<tr>
<td>Victims</td>
<td>N/A</td>
</tr>
<tr>
<td>Pilot</td>
<td>Valid light aircraft pilot license (LAPL)</td>
</tr>
<tr>
<td>Damage</td>
<td>The following parts have been damaged or have friction marks: - propeller blades; flaps lower surface (intrados); front landing gear door; fuel drain valves; Pitot tube; VHF antenna; main right landing gear safety system; friction marks on the lower fuselage</td>
</tr>
<tr>
<td>Location</td>
<td>Bucharest Băneasa – Aurel Vlaicu International Airport Approximately 200 m E of the RWY intersection with TWY D</td>
</tr>
<tr>
<td></td>
<td>Coordinates: Latitude: 44°30’14.46”N</td>
</tr>
<tr>
<td></td>
<td>Longitude: 26° 6’22.85”E</td>
</tr>
</tbody>
</table>

1. HISTORY OF OCCURRENCE

On 05.12.2016, pilot of the Prime BS100 aircraft, registered YR-7177, planned and performed a private flight, taking-off at 15.46 LT from Craiova International Airport (LRCV) and landing at Bucharest Băneasa – Aurel Vlaicu International Airport (LRBS) at 16.34 LT. The flight was performed normally, the landing took place on Runway 25, but immediately after touchdown the pilot realize that he landed with the landing gear retracted. After touchdown, the aircraft slipped on the lower part of the fuselage and stopped after about 95 m. The pilot immediately informed the traffic controller from TWR Băneasa, switched off the fuel valve and the power supply, by selecting the contacts to the appropriate position.

The slip on the underside of the fuselage led to damages to the fuel drain valves of the two tanks, which caused fuel leakage on the runway. Once the aircraft stopped, the pilot switched off the electric contacts and closed the fuel valve, evacuate the aircraft and waited for the arrival of the airport’s Rescue and Firefighting Service, alarmed by TWR Băneasa. They immediately isolated the fuel-contaminated runway area and took all the measures to prevent a possible fire. The runway was closed and the arrival of CIAS investigation team and judicial authorities were expected, according to the legal procedures.
After completing the investigation at the occurrence site, taking into consideration the light weight of the aircraft, it was lifted with the help of the airport’s Rescue and Firefighting Service team, the landing gear was released by using the regular procedure of actuating the control lever, the aircraft being moved from the runway, using its own wheels, and placed in the hangar located in the immediate vicinity of the runway, where the aircraft has been usually parked. As main damage, considering landing performed with retracted landing gear: propeller blades tip and the flaps, on intrados, were affected.

![Fig.1 The runway touchdown and the location where the aircraft stopped on the LRBS runway](image)

2. ADDITIONAL INFORMATION

The aircraft YR-7177 has been usually parked in the hangar of the airport, and Bucharest-Craiova roundtrip flights had become routine flights, especially landings on Băneasa airport, which can be considered as the base location.

It can be said that the pilot set a routine for the maneuvers when performing the landing, as follows: between the 3rd and the 4th turn, according to his statement, the pilot performed, in this order, the following maneuvers: slowing down the speed, electric fuel pump switch ON, at 150-160 km/h landing gear DOWN, flaps selection to the first position (10°) and, after entering on the landing direction, set the landing slope and flaps selection to the maximum position (30°). All this algorithm was followed without consulting the aircraft’s CHECKLIST – BEFORE LANDING part.
Before Landing
1) TAXI LAND Switch ....................................................... ON
2) Seat belts .......................CHECK Fastened and Tightened
3) ALT Switch .................................................... CHECK ON
4) BAT Switch ..................................................... CHECK ON
5) Starter Key .............................................................. BOTH
6) FUEL PUMP Switch ......................................................ON
7) Throttle ................................................................. As required

Below 140 km/h (75 kts)
8) Flaps ................................................................. T/O
9) Landing Gear ..................................................... Down/3 green

Below 120 km/h (65 kts)
10) Flaps ................................................................. LDG
11) Propeller Control ............................................. MAX FWD
12) Parking Brake .................................................. CHECK RELEASED
13) Carburetor Heat ................................................ PULL

On the day of the occurrence, there was a change from the routine: the 3rd and 4th turns (alignment turns) were performed further compared to the distance at which they were usually performed, relative to the usual sighting point. This automatically requested a longer landing slope and an exit from the routine established over time, thus creating the conditions for the pilot, concerned with the modified position for landing, not to actuate the landing gear switch and to perform the landing with the landing gear retracted.

Fig. 2 The aircraft stopped on the takeoff-landing runway
Considering the place where the landing gear control panel is located in the cockpit, the occurrence of such an error was facilitated by the fact that the aircraft is not equipped with a warning system so that, when the landing gear is locked up and the speed is reduced below a certain threshold, to visual or acoustic warn the pilot on the landing gear’s position. Due to this landing, the propeller blades and the flaps, in particular, have been damaged, and the friction of the fuel tank dump/drain valves with the runway caused the fuel leakage on the runway.

![Fig. 3 The propeller blades tip hit the runway surface](image1)

![Fig. 4 The flaps on intrados touched the runway](image2)

![Fig. 5 Fuel tank purge/drain valve](image3)
The aircraft is equipped with a tricycle retractable landing gear with a nose wheel. The main landing gear is equipped with a braking system and the nose wheel with a steering system controlled by the rudder pedals.

The landing gear extension / retraction command system, if normally operated, is performed via the landing gear control switch (positions: UP / DOWN) installed on the landing gear control panel located in the cockpit, on the left. This panel also has three green lights, three orange warning lights, a red warning light and a test button. The three green lights indicate that the landing gear is in the down and locked position. The three orange warning lights indicate the transit position of the landing gear. The red warning light indicates that the power supply is missing at one of the three electric motors corresponding to the three actuators by which each leg is actuated. When the landing gear is retracted and locked up, all the lights are off.

The TEST button allows to check the functionality of all lights.

The landing gear command and control panel is situated on the left side of the cockpit, at an intermediate level.
The investigation commission considers that when the aircraft is on the landing slope, the positioning of the landing gear command and control panel may increase the possibility of a pilot error in observing the correct indication of the landing gear’s position.

The Italian State, as the state of manufacture of the aircraft, appointed an accredited representative from ANSV (Agenzia Nazionale per la Sicurezza del Volo) to take part in this investigation. The manufacturer, through the ANSV, communicated that the EFIS (Electronic Flight Instrument System)- SkyView Touch model, produced by Dynon Avionics, situated on the control panel, can be configured to give an acoustic warning when the aircraft is flying with landing gear retracted at a higher speed than the allowed speed, according to the flight manual.

From the investigation commission’s discussions with the accredited representative resulted that the EFIS system also allows, if the system is properly configured, to issue a “Check Gear” acoustic warning when the aircraft fly with the landing gear retracted and the speed decreases below a minimum, configurable speed.

Investigation commission opinion is that for newly built aircraft this acoustic warning should be already enabled.

3. CONCLUSIONS

3.1 Findings

The investigation commission makes the following findings:

1. The pilot held a valid light aircraft pilot license.
2. The landing gear extension/retraction actuation system was operational.
3. The pilot didn’t use the landing checklist.
4. The landing gear command and control panel is situated on the left side of the cockpit at an intermediate level, its visibility when the aircraft is performing the landing procedure being difficult.
5. EFIS system, if properly configured, allows acoustic warning to alert the pilot when flying with the landing gear retracted below a minimum, configurable speed.

3.2 Cause of the occurrence

The cause of the serious incident consists in pilot omission to select the “DOWN” position for the landing gear, due to not using of the landing checklist.
4. SAFETY RECOMMENDATIONS

It is recommended to Blackshape S.p.A. / Italy, as the manufacturer of the aircraft, to issue a safety bulletin to inform all operators of this type of aircraft equipped with EFIS system, on the possibility of issuing a “Check Gear” acoustic warning at a minimum set speed with landing gear retracted, as well as on the procedure for setting the system to issue this warning, and for newly built aircraft this acoustic warning to be already enabled.

NOTE: On 05.12.2016, around 16:43 LT, the Civil Aviation Safety Investigation and Analysis Center (CIAS) has been notified about the occurrence of this serious incident. CIAS has notified EASA, the European Commission, and the investigation authority of Italy (ANSV), using the usual notification channels. ANSV has appointed an accredited representative.

Observation: The documents and analysis objects used for the issuance of the flight safety investigation Report are confidential and archived at the Civil Aviation Safety Investigation and Analysis Center, according to the legal provisions.