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WSH (I)
04/22

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This WSH (Wildlife Strike Handbook) is part of the publication "WILDLIFE STRIKE – A guide for the airline pilot", written by Andrea Bomben and edited by IBN, which should be referenced for further details on the subject. The purpose of this file is to collect all the material concerning the problem and present it in an agile format for immediate consultation during flight operations; for this purpose, the document has an electronic index, easily accessible by any pdf reader. In any case, we emphasized that all the information contained herein (as well as that available in the reference text), although based on well-documented practices consolidated over the years, is intended to supplement and not replace or contradict the procedures contained in the airline and aircraft manufacturer Operating Manuals.

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With the term bird strike or birdstrike, bird ingestion (regarding an engine) or bird hit, we generally mean the collision between a vehicle (most often a civil or military aircraft, with fixed or rotary-wing) and one or more birds or flying mammals (Chiroptera, more commonly known as bats). Most of the relative kinetic energy is transformed into the deformation of the aircraft's structure and/or the bird's body. The collision might happen in any phase of flight: takeoff, climb, cruise, descent, approach or landing.

The term is commonly considered synonymous with the more comprehensive term "wildlife strike" (w/s) – which includes other kinds of events such as strikes between aircraft and non-flying animals (mammals, reptiles etc.). Bear in mind that impacts between aeroplanes and birds represent the vast majority (more than 97 %) of all aircraft-wildlife strikes.

If, on the one hand, the collision might kill the animals, the struck aircraft might experience major or minor damage to its airframe and/or engines. The effects could be simple blood traces, small holes or dents on the fuselage or, worse still, severe damage to the airframe or engine components and, in the most catastrophic cases, total hull loss, often resulting in the loss of life on board and/or on the ground.

One can say there is a wildlife strike when :

- a pilot reports one or more strikes;
- airline maintenance personnel detects evidence on the aircraft, which can be animal remains or hull damage due to animal impact;
- ground personnel reports witnessing a wildlife strike;
- remains of wildlife are found in the manoeuvring area and/or within 200 feet from the runway centerline, with no other reason for death besides a strike.

The term "birdstrike" lies within a larger family named FOD (Foreign Object Debris); more than 90% of FOD cases can be attributed to flying creatures.

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- **Confirmed impact:**
when the crew sees the wildlife very close, and
 - a. observes the impact on the airframe/windshield and/or sees the remains of the wildlife on the airframe/windshield and/or observes damage to the airframe/windshield, or
 - b. hears the noise of the impact or damage caused by it (e.g. engine stall/surge, damaged radome, penetrated airframe, loss of pressurization) or
 - c. hears or observes a temporary or permanent variation in sound and/or engine parameters (EPR, N1, N2, EGT, FF, compressor stall/surge, N1 and/or N2 vibrations), or
 - d. perceives aerodynamic vibrations or abnormal manoeuvrability of the aircraft, or
 - e. observes a loss or a significant change in flight instrument parameters due to damage to speed or angle of attack sensors, or
 - f. observes or perceives smoke, smells burnt meat, or
 - g. finds damage to communication and/or navigation antennas, exposed cables, hydraulic pipes, landing lights or;
 - h. ground personnel reports witnessing a wildlife strike;
 - i. after takeoff or landing, remains of wildlife are found on the runway or in its vicinity (200 feet or less from its centerline).

- **Suspected impact**
When the crew sees the wildlife very close and believes that it may have struck the aircraft, but there is no confirmation of the impact (i.e. see above).

- **Near miss**
When the distance between the moving aircraft and wildlife is less than 50m, representing a danger for the aircraft.

- **Sighting**
When the crew sees wildlife affecting airport installations and/or flight paths, posing a danger to flight safety.

This checklist is designed to be used during normal operations, both in the planning and flight phases, to reduce the probability and severity of impacts with wildlife. The suggested practices are grouped by flight phases, starting from the planning phase, passing through taxi, takeoff roll, climb, cruise, descent, approach, and landing roll phases.

In case of wildlife observed during any phase of flight, report to ATC and other pilots (See "WILDLIFE SIGHT/IMPACT REPORT CK LIST").

If wildlife avoidance is needed, apply the "WILDLIFE IDENTIFICATION & AVOIDANCE CK LIST".

In case of a strike during any phase of flight, apply the "WILDLIFE STRIKE CK LIST".

It should be noted that the information present in this checklist and the reference book, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airline and aircraft manufacturer Operating Manuals.

WILDLIFE BEHAVIOUR: SOME FACTS

- Although many bird species are active mainly during the daytime, many birds such as owls and migratory waterfowl regularly fly at night.
- Despite widespread belief, birds also fly in low visibility conditions (clouds, fog, rain or snow).
- Many birds tend to be more active during sunrise and evening twilight, such as species that move to food sources at sunrise and return to the nest at dusk.
- In the Northern Hemisphere, there are three bird strike risk peaks during the year:
 - a) Spring migration in March and April;
 - b) July and August when there are many species of young and inexperienced birds, and there are many adults with decreased flight skills due to moulting;
 - c) Autumn migration in September and October.
- During hot summer days, many species such as birds of prey and gulls exploit thermals to climb to high altitudes.
- Bird size is inversely proportional to the wing flapping frequency: the lower the frequency, the larger the size and the greater the damage in an impact.
Remember: large birds and flocks of birds represent a considerable risk for aircraft, flocks of large birds are extremely dangerous.
- The most effective way to avoid birds could be to climb above them at a safe speed, as biologists have observed that some birds, if frightened, turn or dive, as they do not have enough energy to attempt a sudden climb. Other recent studies indicate that some birds (especially when young and inexperienced), if they perceive aircraft at a safe distance, could interpret them as immobile objects (trees, buildings, etc.) and move away from them with a slow turn.
- It is essential to know that animals may not perceive an incoming aircraft in time to avoid it because its speed could exceed the cognitive abilities of wildlife, even more so in the case of the reduced noise of modern jet engines.
- Many birds remain on the asphalt or concrete to warm up and have a good view of predators; among them, seagulls, which have a grey or black back, blend easily with runways and taxiways.
- Taking off or landing against the sun at sunrise or sunset makes it almost impossible to identify even large flocks of birds on the runway or along the takeoff or go around path.
- Be aware that preceding aircraft on takeoff could frighten wildlife and induce it to move towards the runway and/or our expected takeoff and initial climb path. More likely, birds may be returning to the movement area after being disturbed by preceding aircraft.
- Birds, like aircraft, take off and land into the wind and therefore will not see an aeroplane coming from behind.
- There is no scientific evidence that birds are frightened by the spirals drawn on engine fans/propellers or by the noise and colours of aircraft.

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PLANNING	
<p>Briefing.....</p> <p><i>Review the emergency procedures and consider the actions to be taken following an impact, with particular attention to the take-off interruption and engine failure procedures.</i></p> <p>Noise Abatement Takeoff technique (ICAO NADP 1, former NADP A).....</p> <p><i>It allows us to:</i></p> <ul style="list-style-type: none"> • <i>cross as quickly as possible the zero-three thousand feet height zone (where 90-95% of impacts with wildlife occur);</i> • <i>reduce damage in case of impact;</i> • <i>climb near the airport border, where wildlife activity is monitored and managed.</i> <p>Speed below 10.000 ft AGL.....</p> <p><i>To reduce damage in case of impact.</i></p> <p>Take off Thrust.....</p> <p><i>A Lower N1/N2 setting (Derated or Flex) reduces damage in case of ingestion).</i></p> <p>Runway length.....</p> <p><i>Using the maximum available runway length (no intermediate Take-off points) results in a lower thrust setting that reduces damage in case of ingestion.</i></p>	<p>Perform</p> <p>Apply</p> <p>≤ 250 Kts</p> <p>Minimum allowed by performance</p> <p>Max available</p>

TAXI	
<p>Wildlife activity.....</p> <p>Wildlife reports by ATC/ATIS/pilots/NOTAM.....</p> <p>On small or less busy airports (if more than 15' from last movement):</p> <ul style="list-style-type: none"> • RWY inspection..... • Back track of the RWY (If BCU not available)..... <p>In case of wildlife seen or reported on/near the RWY or along the takeoff path:</p> <ul style="list-style-type: none"> • Take off..... • BCU (Bird Control Unit) operation..... • RWY change (if necessary and available)..... <p>In case of reported or forecast wildlife activity and/or on airports with impact index greater than 10 impacts every 10,000 movements:</p> <ul style="list-style-type: none"> • ENG IGN..... • APU START..... • FLAP SETTING..... <p><i>High flap settings result in lower Vr and V2, which means:</i></p> <ul style="list-style-type: none"> ▪ <i>Less damage in the event of an impact;</i> ▪ <i>Shorter RWY distances;</i> ▪ <i>Lower attitude angles, which lead to better external visibility, useful to detect birds more easily and promptly;</i> 	<p>Scan for</p> <p>Obtain</p> <p>Verify/Request</p> <p>Perform</p> <p>Delay</p> <p>Request</p> <p>Request</p> <p>ON</p> <p>Consider</p> <p>MAX AVAILABLE</p>

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TAKE OFF

Landing lights (at night, also the wing leading edge lights).....ON
Keeping the lights on up to 10000 feet AGL, could make the aircraft more visible to wildlife

Weather radar.....as RQD
There is no scientific evidence that weather radar is effective against wildlife

CLIMB

Wildlife activity.....Scan for Wildlife.....Be ready to avoid
Speed below 10.000ft AGL.....≤250 Kts
Although some operators and some States do not prohibit high speed below 10.000 ft, remember that this technique increases the impact probability (in addition to increasing its severity). During the acceleration phase, the climb rate decreases, consequently increasing the time at altitudes where the presence of birds is more significant. Impacts above 3000ft AGL occur less frequently. Still, most of them involve large birds (they tend to fly at higher altitudes to take advantage of thermal upwind) that, due to their mass (higher than certification weight), often cause significant damage.

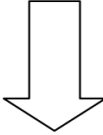
CRUISE/DESCENT

Wildlife reports by ATC and/or pilots.....Obtain
In order to be constantly updated on bird activity at destination and alternate airports

APPROACH/LANDING

Wildlife reports by ATC/ATIS/pilots/NOTAM.....Obtain
Wildlife activity.....Scan for Wildlife.....Be ready to avoid
On small and less busy airports (If more than 15' from last movement):
RWY inspection.....Verify/Request
In case of wildlife seen or reported on/near the RWY or along the landing path:

- **Approach.....Delay**
- **BCU (Bird Control Unit) operation.....Request**
- **RWY change (if necessary and available).....Request**



Overflight of areas of known/reported/forecast wildlife activity.....Avoid
(e.g. rivers, nature reserves, swamps, lakes, marshes, coastlines and estuaries)

In case of reported or forecast wildlife activity and/or on airports with impact index greater than 10 impacts every 10,000 movements:

- **Speed.....Reduce**
- **Visual circuit or Circling (if possible).....Avoid**
To Minimize level flight below 3000 ft AGL.
- **Reverse.....Plan not to use**
In case of ingestion, reverse use may increase engine damage
- **ENG IGN.....ON**
- **APU START.....Consider**
For electrical back up in case of ingestion
- **FLAP SETTING.....MAX AVAILABLE**
High flap settings result in lower landing speed, which means shorter RWY distances and less damage in the event of an impact.

Below 10.000ft AGL:

- **Speed.....≤250 Kts**
Although some operators and some States do not prohibit high speed below 10.000 ft AGL, remember that this technique increases the severity of the impact. Strikes above 3000ft AGL occur less frequently. Still, most of them involve large birds (they tend to fly at higher altitudes to take advantage of thermal upwind) that, due to their mass (higher than certification weight), often cause significant damage.
- **Landing lights (at night, also the wing leading edge lights).....ON**
Keeping the lights on below 10000 feet AGL could make the aircraft more visible to wildlife.
- **Weather radar.....as RQD**
There is no scientific evidence that weather radar is effective against wildlife.
- **Continuous descent technique.....Apply**
Minimize level flight, especially below 3000 ft AGL (suggested glide path 3°).

In case of unavoidable strike with birds during approach/final/landing:

- **Low altitude evasive manouvres (<1500 ft AGL).....Minimize/Avoid**
- **Go Around.....Avoid**
- **Flock of birds.....Fly through**
- **Engine Ignition.....ON**
- **Thrust setting.....As low as possible**
- **Reverse.....Do not use**
In case of ingestion, reverse use may increase engine damage.
- **Landing roll deceleration.....Consider max**

END

To promptly and effectively avoid impacts with wildlife during the different flight phases, the pilots shall:

- actively seek the presence of wildlife, mainly below 10,000 ft AGL;
- once the wildlife has been identified, use standard phraseology to share information with each other and ATC.

Effective communication will allow:

- the PM to alert the PF, allowing him to take the avoidance actions compatible with the flight phase;
 - the PF to alert the PM in view of subsequent avoidance actions;
 - the PM to inform ATC during the avoidance actions.
- use standard avoidance procedures.

This checklist provides pilots with useful guidelines to accomplish these tasks.

It should be noted that the information present in this checklist, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airline and aircraft manufacturer Operating Manuals.

IDENTIFICATION CK LIST

The first pilot who identifies potentially dangerous wildlife shall report it with the following callouts:

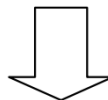
- **“Bird(s)”**
- **”XX o’clock”**
Position relative to the aircraft’s heading
- **“Left to right” or “right to left”**
Direction of movement relative to the aircraft’s heading
- **”Level”, “climbing” or “descending”**
Altitude variation of birds relative to aircraft altitude

e.g. ”Birds, eleven o’clock, left to right, descending”

AVOIDANCE CK LIST

CAUTION

In case of an expected strike with birds during the approach, carry out a go-around ONLY if sure to avoid them. Vice versa, if not sure to prevent impact, it is preferable to pass through the flock and continue for landing, avoiding or minimizing evasive manoeuvres at low altitude and keeping the lowest possible thrust setting. At typical approach and landing thrust/rotation settings, birds are more likely to pass through the fan without affecting the hot part of the engine, causing less damage. In this regard, do not forget that many serious incidents and fatal accidents were caused by the decision to start a go-around in conditions of low kinetic energy. This choice exposes the engines to severe damage resulting from the impact of birds with fan blades and compressor vanes rotating at the very high rpm typical of the go-around phase.



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When a strike is expected, if the flight phase permits and only if reasonably sure to avoid wildlife, apply the following procedure:

- During Takeoff roll, if speed \leq 100 Kts.....Stop T.O
- During Takeoff roll, before V1, with wildlife on the runway or along the climb path :
 - Stop T.O.....Consider
 - CAUTION 1: aborting takeoff at high speed may be the safest solution when suggested by the prevailing circumstances (e.g. number and size of wildlife), remembering that, according to statistics, many accidents occur during a takeoff interruption.*
 - CAUTION 2: in case of Stop T.O., if possible, limit reverse thrust because, in case of ingestion, its use may increase engine damage.*
- During Takeoff roll, before Vr, with birds along the climb path:
 - "Bird(s), I have control"PF
 - Rotation.....Delay (PF)
 - Rotation can be delayed until Vr + 20 kts but not beyond the Vr of the PTOW of the RWY. In any case, do not exceed the AOM Maximum tire speed.*
- After Takeoff (> 400 ft AGL) or during Approach (> 1500 ft AGL):
 - "Bird(s), I have control"PF
 - "AUTO PILOT OFF"PF
 - And other callouts if requested by the AOM*
 - AOM procedure to disengage Auto pilot.....Follow (PF/PM)
 - Flight path.....Change (PF)
 - Change the lateral and/or vertical profile to avoid birds according to the performance and the maximum pitch and bank angle values specified in the AOM. The most effective way to avoid birds could be to climb above them at a safe speed, as biologists have observed that some birds, if frightened, turn or dive as they do not have enough energy to attempt a sudden climb.*
 - ATC.....Report (PM)
 - When clear of wildlife:
 - Resume normal operation.....PF/PM
 - ATC.....Report (PM)
- During Approach, at or below 1500 ft AGL:
 - Go around.....Perform (PF)
 - ATC.....Report (PM)

END

This checklist is designed to be used in case of a wildlife strike. The actions to be taken in the event of an impact are divided according to the various phases of the flight: takeoff roll, climb, cruise, descent, approach and landing roll. To assist in making the most appropriate decision after a wildlife strike, the following distinction between confirmed and suspected strike has been introduced:

- ☐ A confirmed strike should be considered if the flight crew sees wildlife very close by, and:
 - a. observes the impact on the airframe/windshield and/or sees the remains of the wildlife on the airframe/windshield and/or observes damage to the airframe/windshield, or
 - b. hears the noise of the impact or damage caused by it (e.g. engine stall/surge, damaged radome, penetrated airframe, loss of pressurization), or
 - c. hears or observes a temporary or permanent variation in sound and/or engine parameters (EPR, N1, N2, EGT, FF, compressor stall/surge, N1 and/or N2 vibrations), or
 - d. perceives aerodynamic vibrations or abnormal manoeuvrability of the aircraft, or
 - e. observes a loss or a significant change of flight instrument parameters due to damage to speed or angle of attack sensors, or
 - f. observes or perceives smoke, smells burnt meat, or
 - g. finds damage to communication and/or navigation antennas, exposed cables, hydraulic pipes, landing lights, or
 - h. ground personnel reports witnessing a wildlife strike;
 - i. after take-off or landing remains of wildlife are found on the runway or in its vicinity (200 feet or less from its centerline).

- ☐ A suspected strike should be considered when the crew sees the wildlife very close and believes that it may have struck them, but there is no confirmation of the impact (i.e. see above).

The checklist is organized with the flowchart concept, with a reference line interrupted by a decision symbol ♦ that directs the flow of actions towards two or more alternatives. Once the required steps have been completed, the word END will be encountered, or if other actions are needed, the indications of the arrow → must be followed. The actions enclosed in a boxed area are intended as Memory Items.

It should be noted that the information present in this checklist, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airline and aircraft manufacturer Operating Manuals.

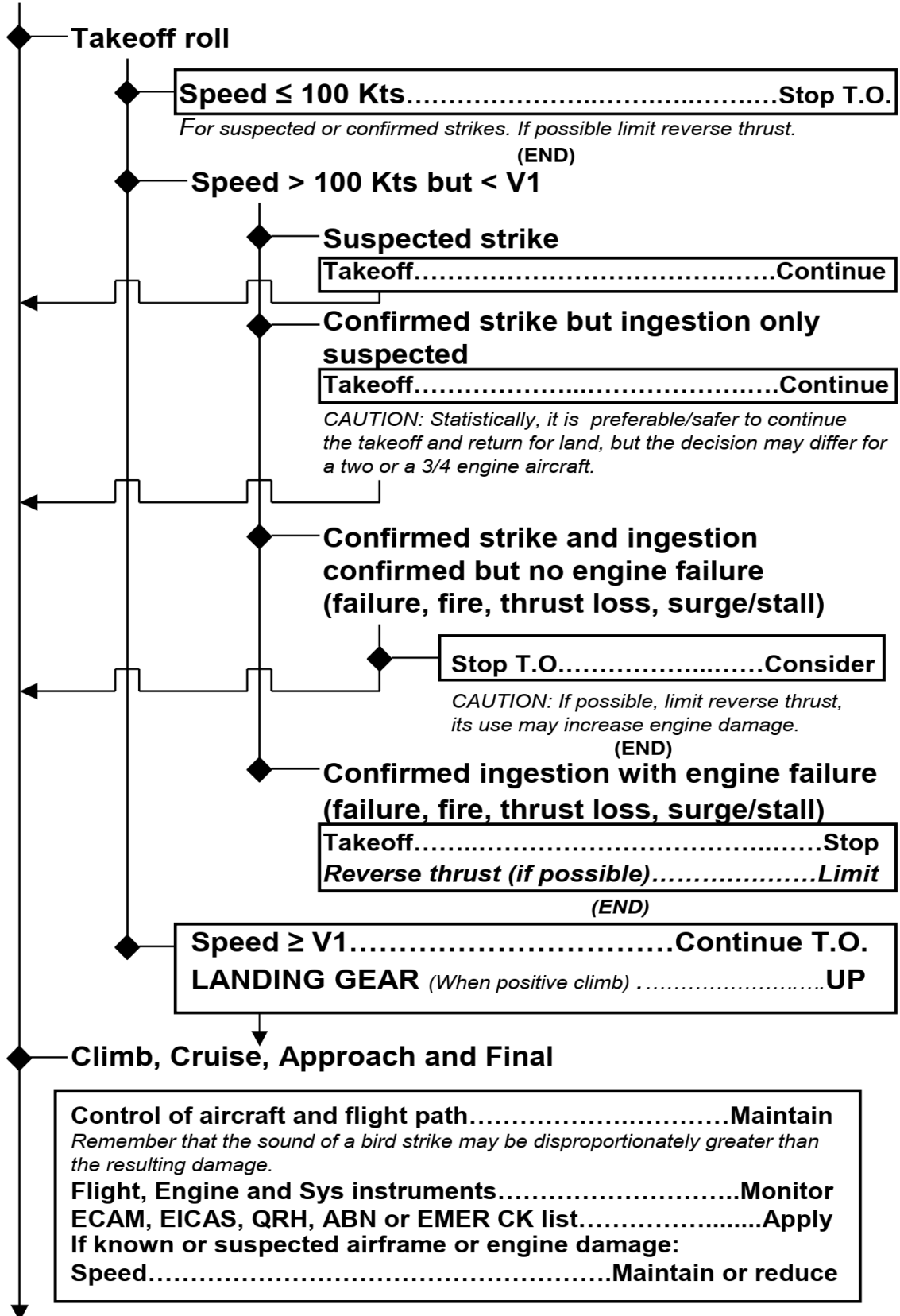
CAUTION

Report any strike in the ATL and have the aircraft inspected by maintenance.

In case of any near miss, suspected or confirmed strike:

- **report to ATS (See “WILDLIFE SIGHT/IMPACT REPORT CK LIST”)**
- **file a Wildlife Strike Report**

STRIKE during:



Airframe and engine conditions.....Check
Climb/Cruise/Approach and Land performance.....Determine
In case of:

◆ Suspected or confirmed engine ingestion with indications normal
Air turnback or diversion.....Consider
Especially in the case of ETOPS, Long haul and overwater flights, because damage or performance degradation may manifest later during the flight.

◆ Single or multiple eng ingestion and indication abnormal (EPR, N1/N2, EGT, FF)
Thrust reduction.....Consider
In case of strong engine vibration, thrust reduction will often reduce vibration.
Engine Ignition.....ON
APU.....ON
Air turnback or diversion.....Perform

◆ Suspected or confirmed strike with large flocking birds (ex. Canada geese)
Air turnback or diversion.....Consider
CAUTION: damage may affect aerodynamic lift and drag, subsequent fuel burn and ability to complete the flight safely.
(END)

◆ Suspected or confirmed strike with Flap, Slat or Flight Controls
Configuration changes.....Minimize
If strike confirmed:
Air turnback or diversion.....Perform
App/Land Speed corrections.....Consider
Landing performance.....Assess
Aircraft controllability ck before landing.....Consider
CAUTION: On fly-by-wire aircraft, where there is no direct connection between surfaces and flight controls and the feedback to the pilots is consequently lacking, any damage and vibration may not be evident.
(END)

◆ Suspected or confirmed strike with Landing Gear
Damage to L/G and associated systems (Electrical, Hydraulic and pneumatic).....Assess
Brake and steer capability.....Assess
Landing performance.....Assess
Air turnback or diversion.....Consider
(END)

◆ Suspected or confirmed strike with
Air data and/or Angle-of-attack sensors
Flight instrument reliability.....Check
Consequences on other systems.....Check
Air turnback or diversion.....Consider
CAUTION: be aware of the consequences on other systems and possible cascading effects. Be mindful of the potential for loss or erroneous air data and degraded flight control modes, including loss of envelope protection or limiting, unreliable airspeed, propulsion systems in alternate mode.
(END)

◆ Broken or cracked Windshield
QRH and/or AOM ABN procedure.....Apply
Air turnback or diversion.....Consider
(END)

◆ Penetrated Windshield and/or depressurization
At or below 10.000 ft.....Stop climb
Above 10.000 ft.....Descend to 10.000 ft or
MSA/GRID if higher
Speed.....Reduce
Glasses or Goggles.....Wear
To protect eyes from wind, precipitation and flying debris.
Air turnback or diversion.....Perform
(END)

◆ Any confirmed strike
(Also in case of wildlife found on or near the RWY)
Air turnback or diversion.....Consider
CAUTION: a turnback or diversion may be appropriate, considering that it is difficult to quantify the actual extent of damage to the airframe and engines, that could lead to significant increases in fuel consumption caused by the increase in aerodynamic drag.

◆ Unavoidable strike with birds during final
Low altitude evasive maneuvers (≤ 1500 ft).....Minimize/Avoid
Go Around.....Avoid
Flock of birds.....Fly through
Engine Ignition.....ON
Thrust setting.....As low as possible

◆ Landing Roll
Reverse thrust (*ingestion suspected or confirmed*).....Limit
(END)

- 1) FLIGHT NUMBER
- 2) PUT "PIREP" BEFORE MESSAGE
- 3) "Wildlife hazard"
- 4) ESTIMATE NUMBER OF ANIMALS
- 5) ESTIMATE OF THE SPECIES OR SIZE
- 6) POSITION OF WILDLIFE
- 7) DIRECTION OF WILDLIFE
- 8) HEIGHT OF WILDLIFE
- 9) ESTIMATE OF IMPACT PROBABILITY

Legend

- 2) To be sure that the flight controllers know they have to forward the report to other aircraft, the prefix "PIREP" should be used;
- 4) Estimate of number of animals:
 - Single**
 - Number of animals**
 - Small flock:** difficult to locate even when the location is known.
 - Medium flock:** easy to locate when the location is known.
 - Large flock:** easy to locate even when the location is unknown.
- 5) Estimate of the species or size:
 - Species (e.g. pigeon, sparrow).**
 - Small bird/s or animal/s:** mass < 700 gr (see Wildlife identification poster).
Unlikely damage to aircraft.
 - Medium bird/s or animal/s:** mass between 700 and 1800 gr ((see Wildlife identification poster).
Probable damage to aircraft.
 - Large bird/s or animal/s:** mass > 1800 gr (see Wildlife identification poster).
Aircraft damage very likely.
- 6) Position of wildlife:
 - Upwind**
 - Crosswind**
 - Downwind**
 - Base**
 - Final**
 - On the RWY**
 - Taxiway (and intersections with taxiways and runways)**

- Takeoff**
- Relative to the airport (cardinal points and distance)**

7) Direction of wildlife:

- E.g. **from left to right, from right to left** (relative to the aircraft heading).
- From one cardinal point to another (e.g. **from east to west**).
- Stationary on the ground/flight, climbing or descending, circling.**

8) Height of wildlife:

- On the ground.**
- Height in feet.**

In compliance with ICAO provisions, the airport operator's area of competence is between ground and 200 ft AGL during landing and between ground and 500 ft AGL during takeoff.

9) Estimate of impact probability:

- Possible strike threat:** the threat is nearby and the risk is low.
- Probable strike threat:** the threat is nearby and the risk is high.
- Almost certain strike threat:** the threat is in the proximity and the risk is extreme.

Following are some examples of wildlife sighting

- a) *Airline 234, PIREP, wildlife hazard, a large flock of small birds, 2 miles to the south of the field travelling in a northerly direction at 1,500 ft, possible strike threat on approach to runway 01.*
- b) *Airline 234, PIREP, wildlife hazard, medium flock of large birds, along the Take off path of RWY 32, circling at 200ft, probable strike threat.*
- c) *Airline 234, PIREP, wildlife hazard, a large flock of white Ibis, 3 miles on final to runway 19 at one thousand feet, level and circling, almost certain strike threat.*
- d) *Airline 234, PIREP, wildlife hazard, small number of large dogs, at the intersection of runway 19 and taxiway A4 and stationary, almost certain strike threat.*

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CAUTION

During high workload phases, in the event of an impact or near miss (distance <50m), report only the phrase "Bird strike", "Wildlife strike", or "Bird/wildlife near-miss", communicating a full report when the workload permits.

- 1) FLIGHT NUMBER**
- 2) PUT "PIREP" BEFORE MESSAGE**
- 3) REPORT TYPE**
 - Wildlife strike**
 - Wildlife near-miss**
- 4) ESTIMATED NUMBER OF ANIMALS**
- 5) ESTIMATE OF THE SPECIES OR SIZE**
- 6) PLACE OF IMPACT**
- 7) HEIGHT OF IMPACT**
- 8) DIRECTION OF WILDLIFE**

Legend

- 2) To be sure that the flight controllers know they have to forward the report to other aircraft, the prefix "PIREP" should be used.
- 4) Estimate of number of animals:
 - Single.**
 - Number of animals.**
 - Small flock:** difficult to locate even when the location is known.
 - Medium flock:** easy to locate when the location is known.
 - Large flock:** easy to locate even when the location is unknown.
- 5) Estimate of the species or size:
 - Species (e.g. pigeon, sparrow)**
 - Small bird/s or animal/s:** mass < 700 gr (see Wildlife identification poster).
Unlikely damage to aircraft.
 - Medium bird/s or animal/s:** mass between 700 and 1800 gr ((see Wildlife identification poster).
Probable damage to aircraft.
 - Large bird/s or animal/s:** mass > 1800 gr (see Wildlife identification poster).
Aircraft damage very likely.

- 6) Place of impact:
- Upwind**
 - Crosswind**
 - Downwind**
 - Base**
 - Final**
 - On the RWY**
 - Taxiway (and intersections with taxiways and runways)**
 - Takeoff**
 - Relative to the airport (cardinal points and distance)**

- 7) Height of impact:

- On the ground**
- Height in feet**

In compliance with ICAO provisions, the airport operator's area of competence is between ground and 200 ft AGL during landing and between ground and 500 ft AGL during takeoff.

- 8) Direction of wildlife:

- E.g. from left to right, from right to left** (relative to the aircraft heading)
- From one cardinal point to another (e.g. **from east to west**)
- Stationary on the ground/flight, climbing, descending or circling**

Following are some examples of wildlife strike report

- a) *Airline 234, PIREP, wildlife strike with a large flock of small birds, 2 miles to the south of the field at 1,500 ft.*
- b) *Airline 234, PIREP, wildlife near-miss with a medium flock of large birds, along the Take off path of RWY 32, at 200ft, birds direction from left to right, climbing.*
- c) *Airline 234, PIREP, wildlife strike with a large flock of white Ibis, 3 miles on final to runway 19 at one thousand feet, birds level and circling.*
- d) *Airline 234, PIREP, wildlife near miss with a small number of large dogs, at the intersection of runway 19 and taxiway A4 and stationary.*

Wildlife index in alphabetical order

- Bald eagle G2
- Barn Swallow..... A3
- Black kite D2
- Black stork F2
- Black-headed gull C1
- Canada goose..... G1
- Cattle egret C4
- Common buzzard D4
- Common kestrel B4
- Common pheasant E6
- Common swift..... A2
- Curlew E1
- Curlew sandpiper..... A5
- Eurasian jackdaw..... B2
- Eurasian magpie..... B3
- European herring gull E3
- Flamingo..... F3
- Fox G6
- Great cormorant F6
- Great egret E5
- Grey heron F1
- Greylag goose..... F4
- Hare..... G5
- Hooded crow B6
- House martin..... A1
- Little egret..... C6
- Long-eared owl..... C3
- Mallard E2
- Northern lapwing B5
- Peregrine falcon..... D5
- Purple heron..... D3
- Red kite D6
- Ringed plover A4
- Rock dove..... C2
- Rook C5
- Spotless starling..... B1
- Starling..... A6
- Swan..... G4
- Tawny owl D1
- White stork F5
- White tail eagle G3
- Yellow-legged gull..... E4

WILDLIFE IDENTIFICATION

		1	2	3	4	5	6	
S M A L L	A	House martin A1	Common swift A2	Barn swallow A3	Ringed plover A4	Curlew sandpiper A5	Starling A6	
		Spotted starling B1	Eurasian jackdaw B2	Eurasian magpie B3	Common kestrel B4	Northern lapwing B5	Hooded crow B6	
		Black-headed gull C1	Rock dove C2	Long-eared owl C3	Cattle egret C4	Rook C5	Little egret C6	
	C	Tawny owl D1	Black kite D2	Purple heron D3	Common buzzard D4	Peregrine falcon D5	Red kite D6	
		Curlew E1	Mallard E2	European herring gull E3	Yellow-legged gull E4	Great egret E5	Common pheasant E6	
		Grey heron F1	Black stork F2	Flamingo F3	Greylag goose F4	White stork F5	Great cormorant F6	
	L A R G E	G	Canada goose G1	Bald eagle G2	White-tailed eagle G3	Swan G4	Hare G5	Fox G6

	1		2		3		4		5		6	
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