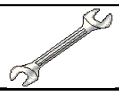
SAFETY INFORMATION NOTICE

SUBJECT: GENERAL

External load operations

For the attention of	
	

AIRCRAFT CONCERNED	Version(s)	
	Civil	Military
EC120	B	
AS350	B, BA, BB, B1, B2, B3, D	L1
AS550		A2, C2, C3, U2
AS355	E, F, F1, F2, N, NP	
AS555		AF, AN, SN, UF, UN, AP
EC130	B4, T2	
SA365 / AS365	C, C1, C2, C3, N, N1, N2, N3	F, Fs, Fi, K, K2
AS565		MA, MB, SA, SB, UB, MBe
SA366		GA
EC155	B, B1	
SA330	J	Ba, L, Jm, S1, Sm
SA341	G	B, C, D, E, F, H
SA342	J	L, L1, M, M1, Ma
ALOUETTE II	313B, 3130, 318B, 318C, 3180, 3180B, 3180C	
ALOUETTE III	316B, 316C, 3160, 319B	
LAMA	315B	
EC225	LP	
EC725		AP
AS332	C, C1, L, L1, L2	B, B1, F1, M, M1
AS532		A2, U2, AC, AL, SC, UE, UL
EC175	B	
EC339		KUH/Surion
BO105	C (C23, CB, CB-4, CB-5), D (DB, DBS, DB-4, DBS-4, DBS-5), S (CS, CBS, CBS-4, CBS-5), E-4, LS A-3	CBS-5 KLH
MBB-BK117	A-1, A-3, A-4, B-1, B-2, C-1, C-2, C-2e, D-2, D-2m	D-2m
EC135	T1, T2, T2+, T3, P1, P2, P2+, P3, 635 T1, 635 T2+, 635 T3, 635 P2+, 635 P3	
EC135H	T3H, P3H, 635 T3H, 635 P3H	

In line with our constant commitment to improving the safety of helicopter operations Airbus Helicopters would like to share information about some recent accidents which have occurred during sling load operations.
Sling load operation represents a large part of helicopter activity, and is recognized as a difficult mission that requires good pilot skills and stringent procedures, as the accident risk is higher for other missions due to its demanding nature. The average rate on the worldwide Airbus Helicopters fleet is close to one accident per month.

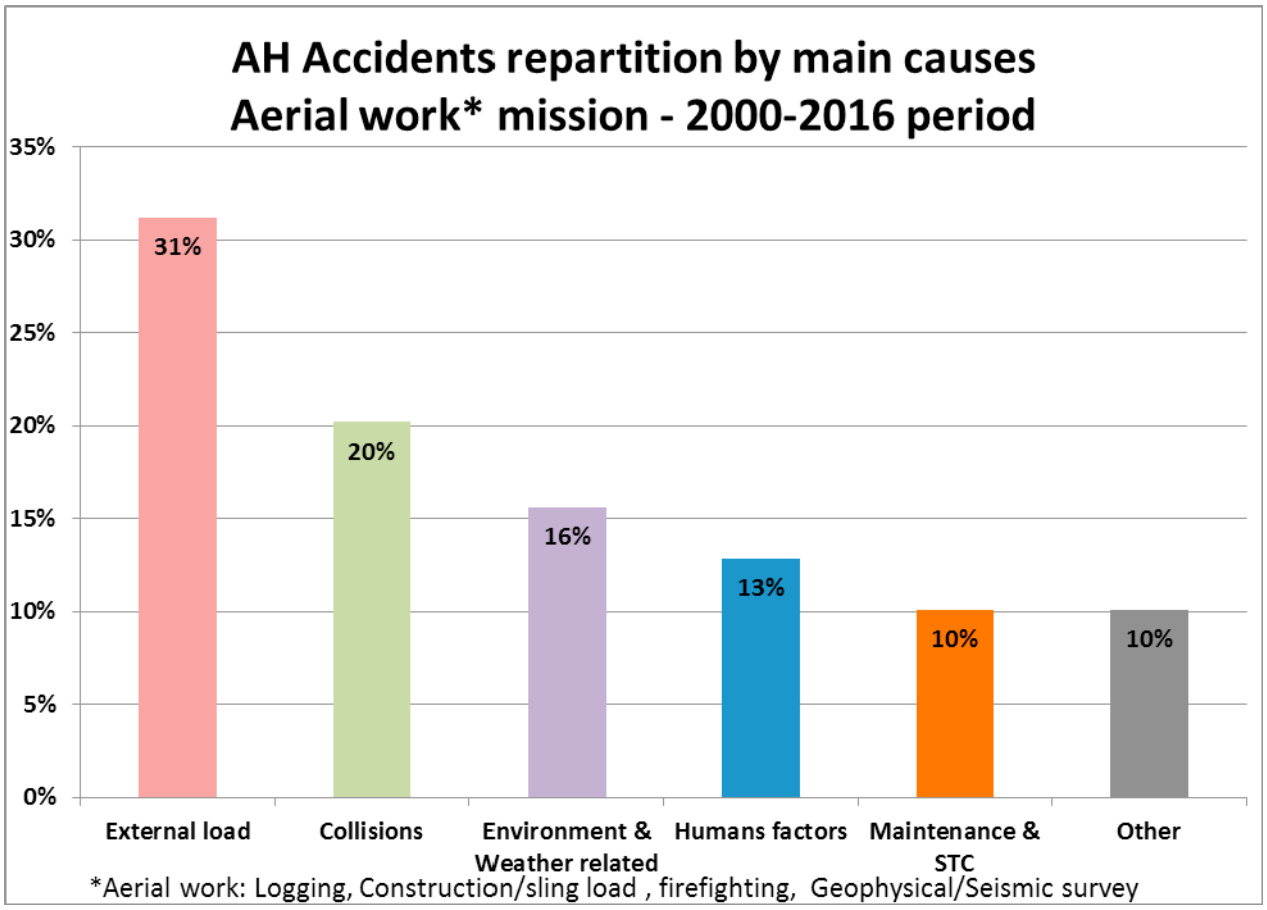
The purpose of this Safety Information Notice is not to instruct pilots and ground teams on sling load operations, but to share with them some lessons learned from analysis of accidents.
This Safety Information Notice replaces the Service Letter N°1727-25-05 published on 2006 March 26th.

Airbus Helicopters is not admitting the existence of any duty and/or any liability concerning these accidents but wishes that observance of the recommendations listed below leads to a decrease in the risks.

RECOMMENDATIONS

- **Respect limitations published in the Flight Manual including those related to STC in SUP approved Part.**
- **Apply the procedure and respect the limitation provided by sling load items manufacturers and providers.**
- **Strictly adhere to established Standard Operational Procedures (SOP), respect speed limitations with and without the load.**
- **Be aware that a metallic cable has not the same behavior in flight than a synthetic/textile long line.**
- **Each unloaded sling is a potential hazard for the operation. Experience has shown that unloaded slings should be ballasted with a minimum weigh of 15 kg at the bottom of the line.**
- **With unloaded slings, avoid descending at airspeeds above Vy, and avoid load factors less than 0.5g. Maintain visual control on your line (mirror or equivalent).**
- **Use only bags or nets in a good condition, and reinforce them with strong straps, if necessary. Do not take off with an empty bag or net.**
- **Brief systematically with ground team and helpers before conducting the operation.**
- **When using long slings, assistance of a person on the ground equipped with a radio, is highly recommended.**
- **Do not operate with only marginal fuel content.**
- **Always depart vertically with your sling / load to avoid entanglements.**
- **On SA315 LAMA helicopters, comply with the pitch limits. Check for correct calibration. If components other than Airbus Helicopters components (blades,etc.) are installed, check the control rigging and use only the permitted corresponding pitch settings.**

1. Accidents reported over the last 16 years



2. Recommendations

a. External load

Ballast slings. An unloaded sling is a potential hazard (rear rotor strike) and all slings should be adapted with ballast. The effect is obvious in stabilized flight. During descents at airspeeds above Vy, it is possible for the sling to move upward, even with ballast, at load factors less than 0.5g. This phenomenon can be avoided by conducting descents at airspeeds below Vy. Be aware of the sling you use (steel or textile). Textile sling can fly very high towards tail rotor with high speed. On the ground take care particularly to the textile line as it can be more easily catched in the tail rotor due to its characteristics.
Whenever possible land the sling in front of the helicopter so the line will be visible and under the control of the pilot.

Failure of a bag can prove to be dangerous given the significant aerodynamic drag to which the empty bag is exposed. Even with no load factor, the sling and bag can move upward toward the tail rotor. You must use very solid bags which are in a good condition, reinforced with solid straps, if necessary.

Note:
Some bags are of single usage only and it is difficult for the crew to get this information.
Consideration should be given to utilizing nets rather than bags when the load will allow this alternative.

b. Collisions

Most of the accidents are caused by the collision with cables or antennas in the vicinity of the sling area or by the collision of the main or tail rotor with obstacles.
A proper recognition of the area before performing the approach is highly recommended.
Some of the collisions with obstacles during the lifting are also caused by a loss of situation awareness, left side of the aircraft being “forgotten” by the pilot seated in the right seat.

c. Environment/Weather related

Weather conditions can change very rapidly particularly in mountainous areas. A particular focus should be done during the flight preparation and GO/NO GO decision should be decided with the ground team before the flight. Do not hesitate to abort an operation when reaching marginal weather conditions such as stormy weather.

Real time performance can be very different from the expected calculated ones during the flight preparation. A variation in the atmospheric pressure, the outside temperature or the wind can have a high impact on the performance of the aircraft.

Sling Work is often carried out in a relatively low fuel state (with a remaining fuel quantity of less than 10%). LAMA helicopters are fitted with a very-low-fuel-level option.
This option is not available on AS350 helicopters. For helicopter versions up to version B2 inclusive, when the fuel probe indicator has reached “0”, there are only 2 minutes of flying left, and when the fuel pressure drops to zero, there are only 10 seconds left, until engine flame-out occurs.
On helicopter version H125 and H130 helicopters, these 10 seconds are reduced to zero. Due to the shape of the tanks and the technology of the fuel probes installed on H125 helicopters, the equipment proves to be accurate since capacitance probes were introduced to service in 1992. However, be more careful with resistance probes. Get used to checking that the indications are consistent with the partial top-ups, and do not wait until there are only a few liters of fuel left.
This technical information is provided to help identifying imminent fuel starvation condition. A safe fuel management should always avoid reaching this state of fuel.

d. Human Factors

It is maybe the most difficult cause to address. A lot of accidents are caused by a lack of coordination and communication between the aircrew and the ground team: helpers injured by the debris projected by the rotor downwash, by the movement of the load when lifting or caught on the net on the load,…
It is mandatory to brief the operation with all the team, to review the sequence of operations, to check the radio-communication (use and frequency) and to brief how to react in case of emergency.

Attempts to take off with the sling caught on the ground can be avoided if a person, in radio-contact with the pilot, monitors the operation from the ground. This is vital when the cargo hook is not clearly visible either directly or in the mirror. In addition, it is recommended to avoid aggressive take-offs, and to start with a vertical climb before transition to level flight. Thus, the pilot should become aware of a snag because of the restricted climbing capability.

e. Maintenance

A lot of accidents are caused by error during the aircraft preparation or its maintenance mainly by task interruption or by operations conducted without following the OEM Technical instructions. A properly maintained and airworthy aircraft is mandatory to perform a safe and reliable flight.

f. Knowledge of material used

It is essential to know its material and its use. Respect the limitations and employment manuals. In Europe, The Directive on machines 2006/42/EC is the standard for the manufacture and use of leverage material (slings, nets, straps...). A good knowledge of its aircraft and of the material used is key to reduce the risk of incompatibility (e.g. “rollout effect” caused by wrongly sized straps).

Different forces apply during helicopter compared to the normal industry where the slings are coming from (forces like bank angle, G-force, drag, shock loads, angle of inclination, downwash but also wear due to UV’s, heavy workload) are factors that have to be considered. A 7 safety factor for textile or 4 for steel as used in the normal industry are not sufficient for the helicopter world having to take into consideration slinging techniques, material strength and flying techniques.

Airbus Helicopters thanks Patrick Fauchère, Air Glaciers Flight Ops Manager for his wise support to produce this document.