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MotorGlide

OPERATING RISK REGISTER

ISSUE 1.1 01-Feb-19

Updated.... Issue 1.2

Authorised by:

L. INGRAM, HEAD OF TRAINING

Safety Officer reviewed and endorsed, 01/02/2019

Updated.... 06/07/2024

MotorGlide Risk Matrix System (ASMP Para 94)

When a Hazard has been identified the first action is to establish the probability of occurrence; the most likely frequency of the identified risk to occur.

Likelihood Definition

Frequent	Likely to occur at least several times a year
Occasional	Likely to occur one or more times per year
Remote	Likely to occur one or more times in ten years
Improbable	Unlikely to occur in 10 years

	1 – Catastrophic	2 – Critical	3 – Major	4 – Minor
Risk to Life	Three or more fatalities of employees. A single fatality of a member of the public.	Up to two fatalities of employees. Multiple major injuries.	A single major injury to any person. Multiple reportable injuries.	A single reportable injury to any person.
Impact on Operations	Total disruption and cancellations resulting in severe and month-long impact affecting all ops.	Serious disruption and cancellations resulting in one or more weeks of affect on a substantial number of people	Significant disruption and delays resulting in one or more days of affect on a selected group of people and/or ops.	Limited disruption and possible delays resulting in no more than one day-long affect on few people
Capability of Aircraft	Loss or major damage to aircraft (Cat 4 or 5). Repairs required at considerable cost. Loss of sorties for more than one month.	Damage to aircraft, repairable on site but beyond the resources of fwd maintenance (Cat 3). Loss of one week to one month of sorties.	Damage to aircraft, repairable at stn level (Cat 2). Loss of up to one week of sorties.	Limited damage to aircraft rendering it temporarily unserviceable (Cat 1). Loss of one sortie.
Impact on Airfield and Ground Operations	Month-long closure of airfield and/or runway. Emergency procedures instigated, full deployment of Fire & Rescue Services, use of fire retardant and rescue/recovery of casualties. Extreme damage to or destruction of ground facilities.	One or more week-long closure of airfield and/or runway. Selected emergency procedures instigated, lengthy Fire & Rescue Service attendance, use of fire retardant and rescue activities. Serious damage to ground facilities.	One or more days of significant reduction in capability of airfield operations. Limited Emergency procedures instigated, short Fire & Rescue Service attendance and scaled rescue activities. Significant damage to ground facilities.	Limited reduction, no more than one day, in capability of airfield operations. Possible emergency procedures instigated but limited in scope and time, brief attendance by Fire & Rescue Services. Limited damage to ground facilities.
Reputation and Societal Concern	Major adverse national publicity with long standing implications. Extreme external criticism. Possible prosecution.	Damaging national and local publicity. Serious external criticism.	Adverse local publicity. Possible external criticism.	No adverse publicity. Criticism limited to directly involved personnel.

		Severity			
		Minor	Major	Critical	Catastrophic
Likelihood	Frequent	M	H	VH	VH
	Occasional	L	M	H	VH
	Remote	L	L	M	H
	Improbable	L	L	L	M

MotorGlide - Operating Risk Register

Aircraft Accident / Incident Risks

A	B	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Risk Ser	Risk Title (Hazard)	Detailed Description (Summary of Risk)	Effect	Likelihood	Severity	Risk Level	Risk Owner = Duty Holder	Risk Manager = Officer responsible for this issue	IN PLACE Management and Mitigation Strategies & Controls to Achieve ALARP State	IN PROGRESS Management and Mitigation Strategies & Controls	Likelihood Post Future Mitigation	Severity Post Future Mitigation	Risk Level Post Future Mitigation	Last Review Date	ALARP? Yes/No	Tolerable? Yes/No
Aircraft 01	Collision on take-off or or baulked landing run, possibly due to runway incursion	Collision with vehicle or another aircraft may occur during take-off or landing. During aborted take-off failure of undercarriage structure may reduce braking efficiency	Serious Injury	Improbable	Critical	L	Safety Manager	CFI	Vehicular not peritted on North Side Grass runway. Aircrew trained in lookout techniques.	No further action required.	Improbable	Critical	L	04-Jan-18	Yes	Yes
Aircraft 02	Unsuccessful Engine Failure After Take-off (EFATO) procedure.	Engine failure shortly after take-off results in an unsuccessful landing on an unprepared surface leading to a crash. Rescue, fire and medical services will take longer to respond than at an airfield. Risk increased when IMC encountered or at night.	Serious Injury	Improbable	Critical	L	Safety Manager	CFI	Pilots aware of the best options for landing off base for each runway. Pilots practise EFATO procedures regularly.	PFL requirement is confirmed as mandated in bi-ennial checks. Pilots guide production in porg - target end-Jan 15 for issue (Action: CFI)	Improbable	Critical	L	04-Jan-18	Yes	Yes
Aircraft 03	Airborne Collision precluding a safe landing.	The great majority of sorties are flown in Class G airspace. 'See and avoid', the primary means of avoiding collision in Class G airspace, cannot guarantee safety from collision. Risk is greatest where Air Traffic Services are unavailable.	Loss of Life	Improbable	Catastrophic	M	Safety Manager	CFI	Aircrew trained in lookout techniques. Aircrew encouraged to use ATC services when available. Aircraft are fitted with Mode S transponders.	FLARM in all club aircraft	Improbable	Catastrophic	M	04-Jan-18	Yes	Yes
Aircraft 04	Unsuccessful Forced Landing	Aircraft may be required to carry out forced landing away from an airfield. Landing on an unprepared surface may be unsuccessful and result in a crash. Rescue, fire and medical services will take longer to respond than at an airfield.	Serious Injury	Improbable	Critical	L	Safety Manager	CFI	Pilots practise PFL procedures regularly.	PFL requirement is confirmed as mandated in bi-ennial checks. Pilots guide production in porg - target end-Jan 15 for issue (Action: CFI)	Improbable	Catastrophic	M	04-Jan-18	Yes	Yes
Aircraft 05	Collision - Terminal Environment	Conspicuity of ac is limited by its small size and colour.	Loss of Life	Improbable	Catastrophic	M	Safety Manager	CFI	Aircrew trained in lookout techniques. Aircraft are fitted with transponders.	FLARM in all club aircaft. PilotAware being trialled this summer with view with fleet purchase.	Improbable	Catastrophic	M	04-Jan-18	Yes	Yes
Aircraft 06	CFIT	CFIT during IFR ops or marginal VFR.	Loss of Life	Improbable	Catastrophic	M	Safety Manager	CFI	Stricter weather limits (compared to EASA minimums) mandated in Ops Manual. GPS use encouraged. High proportion of club pilots have instrument qualifications.	No further action required.	Improbable	Catastrophic	M	04-Jan-18	Yes	Yes
Aircraft 08	Collision - Local Area	Conspicuity of ac is limited by its small size and colour. Can be exacerbated by high levels of GAT in class G airspace especially where constrained by controlled airspace.	Loss of Life	Improbable	Catastrophic	M	Safety Manager	CFI	Aircrew trained in lookout techniques. Aircrew encouraged to use ATC services when available. Aircraft are fitted with Mode transponders.	FLARM in all club aircaft. PilotAware being trialled this summer with view with fleet purchase.	Improbable	Catastrophic	M	04-Jan-18	Yes	Yes

Aircraft 09	Loss of power over inhospitable terrain	Likelihood of successful forced landing in inhospitable terrain reduced.	Serious Injury	Improbable	Critical	L	Safety Manager	CFI	Flight over inhospitable terrain limited. Training Nav routes do not go over inhospitable terrain. Winter Ops brief always carried out.	No further action required.	Improbable	Critical	L	04-Jan-18	Yes	Yes
Aircraft 10	Night departures and arrivals	Safe landing not assured following engine failure out of gliding range of a lit runway.	Serious Injury	Improbable	Critical	L	Safety Manager	CFI	Engine checked prior to take-off. Very small proportion of task undertaken at night. Pilots trained to fly as high as possible under Night conditions.	No further action required.	Improbable	Critical	L	04-Jan-18	Yes	Yes
Aircraft 11	Engine	Defective engine ignition and fuel system: Spark plug fouling, blocked air intake or inlet filter, injector nozzel fouling, incorrect fuel/air mixture.	Loss of power, rough running, vibration; Emergency Actions and possible precautionary/forced landing with increased risk of injury	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Checklist drills available and practiced.	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 12	Landing Gear	Defective nose wheel bearings or shimmy damper, incorrect tyre pressure or mis-shapen tyre	Excessive nose wheel shimmy and vibration, difficulty steering, distraction, temporary/partial loss of control during take off and landing.	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Checklist drills available and practiced.	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 13	Engine	Defective exhaust system	Excessive vibration, noise, hot gas leakage resulting in fumes in the cockpit or fire.	Remote	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Checklist drills available and practiced.	No further action required.	Remote	Negligible = Minor	L	05-Dec-14	Yes	Yes
Aircraft 14	Fuel Systems	Loose connections, fuel cap or loss of sealing in the airframe and engine fuel systems	Leakage and loss of fuel, fumes in cockpit, discomfort and disorientation resulting in crew discomfort, illness	Remote	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Checklist drills available and practiced.	No further action required.	Remote	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 15	Flight Compartment	Dirty, damaged, cracked or crazed windscreen and canopy windows.	Distraction, restricted Field of Vision, ineffective Look Out	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Cleaning materials provided in hangar.	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 16	Landing Gear	Loose connections and poor sealing within the aircraft braking system	Ineffective braking or loss of control during taxy, landing and take off and increased risk of near miss or ground collision	Remote	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Checklist drills available and practiced.	No further action required.	Remote	Negligible = Minor	L	04-Jan-18	Yes	Yes

Aircraft 17	Indicating Systems	Defective wing tank fuel gauging probe	Incorrect indication of fuel quantity	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Well known issue on light aircraft, pilots are trained not to trust gauging. Visual checks carried out on every pre flight. Conservative reserves mandated.	Action Closed: Fuel Dipsticks made and in use for all aircraft.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 18	Lighting External	Wing strobe, nav light or beacon failure or degration in output	Reduced conspicuity and increased risk of near miss/airprox or ground/mid-air collision with increased risk of injury	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Correct operation checked on pre-flight Spare bulbs held at club.	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 19	Lighting External	Landing light failure or degration in output	Reduced conspicuity and increased risk of near miss/airprox or ground/mid-air collision with increased risk of injury	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Correct operation checked on pre-flight Spare bulbs held at club.	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 20	Navigation	A defective pitot heater, relay or cables	Pitot heater fails to get warm resulting in no pitot heating and potential icing	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Correct operation checked on pre-flight Pitot heater failure 'no go' item for IMC flights	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 21	Navigation	Loss of fluid from the compass housing	Magnetic compass sluggish and fails to move freely	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Correct operation checked on pre-flight	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes
Aircraft 22	Engine	A damaged or defective oil dipstick	Dipstick shaft detaching and dropping into the engine	Occasional	Negligible = Minor	L	Safety Manager	Engineer / Aircraft Owner	Controlled maintenance environment to EASA regulations. Correct operation checked on pre-flight	No further action required.	Occasional	Negligible = Minor	L	04-Jan-18	Yes	Yes

MotorGlide - Operating Risk Register

Crew - Pax Injury Risks

A	B	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Risk Ser	Risk Title (Hazard)	Detailed Description (Summary of Risk)	Effect	Likelihood	Severity	Risk Level	Risk Owner = Duty Holder	Risk Manager = Officer responsible for this issue	IN PLACE Management and Mitigation Strategies & Controls to Achieve ALARP State	IN PROGRESS Management and Mitigation Strategies & Controls	Likelihood Post Future Mitigation	Severity Post Future Mitigation	Risk Level Post Future Mitigation	Last Review Date	ALARP? Yes/No	Tolerable? Yes/No
Crew 01	Crossing the flightline.	Passengers may by struck by aircraft, propellers or vehicles when walking to and from the aircraft.	Serious Injury	Improbable	Critical	L	Safety Officer	Safety Officer	All personnel have to wear Hi-Viz vests outside. Passengers are always directly supervised when proceeding across the Flight line. Flightline H&S briefing given to all members, posters dictating walking routes to hangar are displayed. Propellar is stopped during crew changes.	No further action required.	Improbable	Critical	L	15-Jan-18	Yes	Yes
Crew 02	Entry and exit to the aircraft on the ground.	Passengers or crew may injure themselves when entering and exiting the aircraft.	Major Injury	Remote	Major	L	Safety Officer	Safety Officer	Passengers are fully briefed and directly supervised at all times. Propeller stopped during crew changes. Aircraft non-slip walkways well maintained and steps available in hangar.	No further action required.	Remote	Major	L	15-Jan-18	Yes	Yes
Crew 03	Cabin Fire.	Following an engine or cockpit fire the crew may suffer burns during forced landing.	Serious Injury	Improbable	Critical	L	Safety Officer	CFI	Aircraft fully maintained to EASA regulations with frequent maint checks. Aircraft fitted with fire extinguishers. Club pilots well practiced in emergency action drills.	No further action required.	Improbable	Critical	L	15-Jan-18	Yes	Yes
Crew 04	Illness in the air.	Owing to some undiagnosed medical condition, aircrew or passengers may become unwell in the air, and recovery from the medical emergency may be delayed beyond that likely to be the case if the illness had occurred on the ground.	Major Injury	Improbable	Major	L	Safety Officer	CFI	Passengers are briefed on dealing with airsickness and are provided with a sick bag. All pilots have recurrent EASA medicals. Passengers confirm that they are fit to fly on day of flight. Passengers are briefed on the procedure for clearing ears. Sortie curtailed at first sign of illness.	No further action required.	Improbable	Major	L	15-Jan-18	Yes	Yes
Crew 05	Pilot Incapacitation	Crew may become incapacitated in circumstances that preclude successful landing of aircraft. Risk of incapacitation increases with age.	Major Injury	Improbable	Critical	L	Safety Officer	CFI	Aircrew are subject to recurrent EASA medicals. Other checks (eg ECG) are made at increased frequency as aircrew age. Sortie curtailed at first sign of illness. Aircrew reaching age 80 require specific insurance consideration and waiver.	No further action required.	Improbable	Critical	L	15-Jan-18	Yes	Yes
Crew 06	Drowning	Crew / pax may drown following ditching into water.	Loss of Life	Improbable	Catastrophic	M	Safety Officer	CFI	Very few flights take place over water. Students prohibited from operating outside of gliding range of land. All over water flights require specific auth by club supervisor. Club safety kit available for loan and mandated for carriage in Ops Manual / EASA regulations.	No further action required.	Improbable	Catastrophic	M	15-Jan-18	Yes	Yes
Crew 07	Exposure	Following forced landing crew or passengers may suffer from exposure and hypothermia.	Hospitalisation	Remote	Negligible = Minor	L	Safety Officer	CFI	All ac transponder equipped to show position during emergency. D&D emergency coverage available in UK / SAR available.	No further action required.	Remote	Negligible = Minor	L	15-Jan-18	Yes	Yes

MotorGlide Operating Risk Register - Action Log

A	B	C	D	F	F
Risk Ser	**Risk Title (Hazard)**	**Detailed Description (Summary of Risk)**	**IN PROGRESS Management and Mitigation Strategies & Controls**	**Progress**	**Last Review Date**
Aircraft 02	Unsuccessful Engine Failure After Take-off (EFATO) procedure.	Engine failure shortly after take-off results in an unsuccessful landing on an unprepared surface leading to a crash. Rescue, fire and medical services will take longer to respond than at an airfield. Risk increased when IMC encountered or at night.	Check requirements for PFL in Ops Manual (Action:CFI) Produce pilots guide to forced landings (Action:CFI)	PFL requirement is confirmed as mandated in bi-ennial checks. Pilots guide production in production. FI standardisation focussing on PFIs. (Action: CFI)	04-Jan-18
Aircraft 03	Airborne Collision precluding a safe landing.	The great majority of sorties are flown in Class G airspace. 'See and avoid', the primary means of avoiding collision in Class G airspace, cannot guarantee safety from collision. Risk is greatest where Air Traffic Services are unavailable.	FLARM fitted to all club aircraft.	1 x FLARM now allocated for club use. Being trialled this summer with view with fleet purchase.	04-Jan-18
Aircraft 04	Unsuccessful Forced Landing	Aircraft may be required to carry out forced landing away from an airfield. Landing on an unprepared surface may be unsuccessful and result in a crash. Rescue, fire and medical services will take longer to respond than at an airfield.	Check requirements for PFL in Ops Manual (Action:CFI) Produce pilots guide to forced landings (Action:CFI)	PFL requirement is confirmed as mandated in bi-ennial checks. Pilots guide production in production. FI standardisation focussing on PFIs. (Action: CFI)	04-Jan-18
Aircraft 08	Collision - Local Area	Conspicuity of ac is limited by its small size and colour. Can be exacerbated by high levels of GAT in class G airspace especially where constrained by controlled airspace.	FLARM fitted in all club aircraft	FLARM fitted to all club aircraft	04-Jan-18
Aircraft 17	Indicating Systems	Defective tank fuel gauging probe	Action Closed: Fuel Dipsticks made and in use for all aircraft.	Action Closed: Fuel Dipsticks made and in use for all aircraft.	04-Jan-18
Crew 03	Cabin Fire.	Following an engine or cockpit fire the crew may suffer burns during forced landing.	Complete - Ops Manual amended and issued Jan 15.	Complete - Ops Manual amended and issued Jan 15.	04-Jan-18
Crew 07	Exposure	Following forced landing crew or passengers may suffer from exposure and hypothermia.	Complete - Ops Manual amended and issued Jan 15.	Complete - Ops Manual amended and issued Jan 15.	04-Jan-18