Title: Rotax 915iS & 916iS Double Generator Failure In Flight		
AG-PIL-2024-01-EN		**Released:** **December 2024**
Applicability		
Aircraft type & model: **All AutoGyro Gyrocopter Models Fitted With A Rotax 915iS or 916iS Engine**	**Affected Serial number(s):** **All Models**	
The maintenance manual to be referenced is this stated or subsequent issue.		As per AutoGyro website

This form is the response from AutoGyro GmbH either against an issue experienced in the market in service requiring a containment or rectification action, or as operator/pilot information for safe aircraft operation
For help, contact AutoGyro, email: airworthiness@auto-gyro.com.

Documentation (Pilot Information Letter Completion action)

The purpose of this document is to provide aircraft operators and pilots with information over and above that currently available in the relevant POH and training syllabi. Its compliance must be properly documented, if such procedure is required by the relevant authority

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Reason and overview of the Pilot Information Letter

This information Letter is released to clarify and expand upon current information contained in both the Rotax OMs and AutoGyro POHs regarding the indication, and actions required, in the unlikely event of experiencing a single or double generator failure of the Rotax 915iS and 916iS engines in flight. This applies to models fitted with either the Earth-X or lead-acid batteries.

Manpower estimates

There are no manpower estimates associated with this PIL.

Compliance

There is no compliance time associated with this PIL

Customer Support

If it is unclear what is explained within this PIL then it is highly recommended that the pilot contact airworthiness@auto-gyro.com

Manuals affected

POHs for all AutoGyro models fitted with a Rotax 915iS or 916iS will be updated at next release to reference this PIL.

Explanation

As stated in the Rotax Operators Manuals for 915iS & 916iS, a failure of both generators (generator 1 (engine supply)/generator 2 (cabin supply) will result in an engine stoppage, unless external power is connected (via the panel mounted Battery Backup switch).

In Section 3.1 (EMS) of the same manuals there is a table showing meanings of Lane LED indications. A double generator failure is not clearly covered within this.
In Section 3.1.1 (Failure of Internal Generators), there is an explanation regarding a double generator failure. This does not however, clarify explicitly the indications that a pilot may receive in this scenario.

In the relevant aircraft POHs, sections 3.1 (engine failure) and 3.13 (warning and caution lights), some indications and actions are covered, but not specifically referenced to a double generator failure, or covering all indications and actions for various options fitted.

The following table is a comprehensive explanation of indications and actions regarding generator failure in flight.

Note; a generator failure may not be an on-off failure, but may also be where one or both generator outputs have degraded below that required by the supported systems. Normally, in the event that the generator providing electrical energy to the engine fails, the control system will automatically transfer the output from the cabin supply generator to the engine. In this instance the cabin is then supplied from the aircraft battery.

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Indication	Description	Action
Low volt LED illuminates (if installed) or where a Garmin G3x is fitted, the battery amps are shown negative No Lane A and Lane B LEDs flashing.	Aircraft demand is exceeding supply. This may indicate a cabin supply generator failure or part failure. There are no warning LEDs for the individual generators.	Assuming the engine is running normally - switch off all non-essential electrical consumers. If the LED extinguishes, or G3x display shows no battery discharge, flight is possible to your destination at your own discretion. If the LED does not extinguish or the battery shows continuous discharge via the G3x display, then the cabin supply can be assumed to be on battery only. A fully charged battery is expected to last for 30minutes. Be prepared for cockpit equipment to shutdown without warning, where no individual device backup batteries are fitted. Because the engine alternator relies on the cockpit alternator as a backup, be also prepared for an engine stoppage. Carry out an off-field landing or a flight to the nearest airfield at your own discretion.
Lane A and Lane B LEDs flashing Low volt LED illuminates (if installed) or where a Garmin G3x is fitted, the battery amps are shown negative	This indicates part-failure or full failure of both generators. There are no warning LEDs for the individual generators. If the G3x amps information indicates a negative value, this means aircraft demand is exceeding supply. This is normal on engine start up, and then the indication will change to positive, dropping to zero when the generators turn on, and the supply meets demand.	This will result in an engine stoppage once the electrical supply drops below the engine minimum supply requirements. Be prepared for cockpit electrically supplied equipment to shutdown without warning (except where individual device backup batteries are fitted). Activate the Battery Backup Switch (lift red cover and switch up). This connects the battery to the engine, powering the engine systems. Carry out the re-start procedure if required. The pilot can expect the battery to provide 30 minutes of reserve power to supply the engine as well as on board equipment provided non-essential and auxiliary equipment is turned off (see also note below). Be prepared for a further engine stoppage. Carry out an off-field landing or a flight to the nearest airfield at your own discretion.

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Note: The aircraft are optionally equipped with either a Genesis lead acid battery or an Earth X LifePo4 battery. These discharge with different profiles; a lead acid battery voltage drops as it is depleted, lighting the low volt lamp at 11.8v. An Earth X battery voltage remains reasonably constant until depleted at around 11.5v, at which point it will simply switch off. A battery warning lamp, where fitted, indicates the status of the Earth-X battery as per the table below.

See also the Earth X battery installation manual

LED Light	**Aircraft Voltage/Current**	**Battery Possible Cause**	**Recommended Action**
Slow Flashing (5s on/5s off)	12.8-14.6V or current indicating normal charge or discharge	Cell to cell charge level imbalance. May come on briefly (less than 60 minutes) during or following periods of high current charging	No pilot action is required in flight. The pilot should report a battery problem to maintenance personnel when back on the ground. Do not dispatch aircraft.
Slow Flashing (5s on/5s off)	Less than 12.8V/ amp meter shows discharge / or alternator warning light on	Charging system is not functioning (battery is being discharged or at a low state of charge)	Pilot to follow POH procedure for faulty alternator. Do not dispatch aircraft.
Solid Light	Any voltage or current	BMS electronics problem	No pilot action is required in flight. Continue to monitor aircraft bus voltage and or current. The pilot should report battery problem to maintenance personnel when back on the ground. Do not dispatch aircraft.
Short Flashing (2s on/2s off)	Any voltage or current	High battery temperature (> 75°C / 167°F)	No pilot action is required in flight. The pilot should report battery problem to maintenance personnel when back on the ground. Do not dispatch aircraft until battery has cooled and fault cleared.

Summary:

It is important for the pilot to understand the various indications that may be given and the actions that should be carried out in the event of a Rotax 915iS or 916iS generator failure in flight. The above table is designed to condense and expand upon that information currently available in the manufacturer's OMs and POHs.

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