

METHOD AND SYSTEM FOR AUTOMATIC LOGGING OF FLIGHT-HOUR
DATA OF COMPONENTS IN AIRCRAFTS

The present application relates to a method and a system
5 for automatic logging of flight-hour data of components
in aircrafts.

Present data acquisition systems for helicopter captures
flight-hours information of after each mission. Sensors
10 are provided in the landing skids of the helicopter for
recording lift-off time and ground touchdown time of heli-
copter onto a device on-board the helicopter.

US 2009/0234517 A1 discloses a tracking for a configura-
15 tion of a vehicle, in particular an aircraft such as a
helicopter. The vehicle has a multitude of components. It
is desired to consult and to record various data of the
components, such as identification or authentication pa-
rameters, history, and operating state of these compo-
20 nents. A plurality of transponders communicates this spe-
cific data via a meshed wireless network in order to en-
able the data to be transmitted by a secure wireless
transmission to an external installation. Each trans-
ponder is coupled to one component of the vehicle.

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It is an objective of this application to provide an im-
proved logging of flight-hours components of aircrafts.

The application provides a method and a system to auto-
30 matically log and to track flight-hours of parts of an
aircraft.

It is believed that accurately logging and tracing

flight-hours of parts of an aircraft are important for safety and cost of maintenance. The aircraft have different components or parts, such as fixed wings, that have different flying lifetimes. Getting an early warning regarding an expiry of the part is important from a safety point of view. A delay in maintenance or in replacement of the part could result in safety issues. Having the early warning is also useful from a cost point of view. Costs could be save by avoiding unscheduled maintenance or by avoiding replacement of the parts.

The application provides a component or part flight-hour updating module of an aircraft, such as a helicopter. The updating module comprises one or more Radio Frequency Identifier (RFID) tags and a component flight-hour updating device.

In particular, the RFID tags are attached, fixed, or mounted aircraft component. The RFID tags are operable to store component flight-hour information.

The component flight-hour updating device includes one or more RFID reader devices, a first port, a memory unit, a processor unit, and a second port.

The RFID reader devices are for communicating with the RFID tags to retrieve the component flight-hour information that are stored on the RFID tags.

The first port is used for communicating with an onboard flight-hour measurement device to retrieve aircraft flight-hour information. The onboard flight-hour measurement device already exists on all or most new aircraft.

The memory unit is intended for storing the component flight-hour information and the aircraft flight-hour information,

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The processor unit is used for determining updated component flight-hour information using the stored component flight-hour information and the stored aircraft flight-hour information. The RFID reader devices are further operable to send the updated component flight-hour information for storing in RFID tags.

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The second port is used for communicating with a device for outputting the at least one updated component flight-hour information.

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The above arrangement allows for automatic recording of component flight hours. It is able to capture component changes when urgent maintenance work is performed at other locations, which is unlike other systems.

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In a generic sense, the component flight-hour updating device can include an RFID reader that is located onboard the aircraft or is located outside the aircraft, such as hangar. The RFID tags can include or exclude internal power supplies, such as batteries.

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The application provides a component flight-hour Radio Frequency Identifier (RFID) tag for attaching to an aircraft component. The component flight-hour RFID tag includes a port unit and a memory unit.

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The port unit is intended for communicating with an air-

craft component flight-hour updating device for receiving aircraft component flight-hour information whilst the memory unit is intended for storing the aircraft component flight-hour information.

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The application provides an aircraft component flight-hour updating device. The flight updating device includes one or more Radio Frequency Identifier (RFID) reader devices, a first port, a processor unit, and a second port.

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The RFID reader devices are used for communicating with one more RFID tags to retrieve one or more component flight-hour information.

15 The first port is used for communicating with an onboard flight-hour measurement device of the aircraft to retrieve aircraft flight-hour information.

The memory unit is used for storing the retrieved component flight-hour information and the retrieved aircraft flight-hour information.

20 The processor unit is used for determining updated component flight-hour information using the stored component flight-hour information and the stored aircraft flight-hour information. The RFID reader devices are also operable to send the updated component flight-hour information to the RFID tags for storing.

25 The second port is used for communicating with a device for outputting the updated component flight-hour information.

In practice, the component flight-hour updating device can be located onboard the aircraft or outside the aircraft.

5 The application provides a device for monitoring aircraft component flight-hour information. The device can be part of a backend system. The device comprises a port unit, a memory unit, and an output unit. The port unit is intended for communicating with an aircraft component
10 flight-hour updating device to receive one or more aircraft component flight-hour information. The memory unit is intended for storing the aircraft component flight-hour information. The output unit is intended for outputting the least one aircraft component flight-hour information.
15 The information can be outputted to display screen or to printer.

The application provides a method of providing one or more aircraft component flight-hour information. The method comprises a step of retrieving aircraft flight-hour
20 information from an on-board aircraft flight-hour measurement device. One or more component flight-hour information is also retrieved from one or more RFID tags of one or more components of the aircraft. Updated
25 component flight-hour information is then calculated using the retrieved component flight-hour information and the retrieved aircraft flight-hour information. The updated component flight-hour information is afterward stored and later outputted or sent out.

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The method can include a step powering on a component flight-hour updating device after the aircraft has landed and powering off the component flight-hour updating de-

vice before the aircraft flies. This is advantages of avoiding transmission of interfering signals during flight.

- 5 The application provides a method of operating an aircraft component RFID tag. The method comprises a step of attaching the RFID tag to an aircraft component. Aircraft component flight-hour information is provided to an aircraft component flight-hour updating device for updating.
- 10 Updated aircraft component flight-hour information is later received from aircraft component flight-hour updating device. This updated aircraft component flight-hour information is afterward stored in the RFID tag.
- 15 The application provides a method of operating an aircraft component flight-hour updating device. The method comprises a step of retrieving aircraft flight-hour information from an on-board aircraft flight-hour measurement device. The method also includes a step of retrieving
- 20 one or more component flight-hour information from one or more RFID tags of one or more components of the aircraft.

- One or more updated component flight-hour information is
- 25 then calculated using the retrieved component flight-hour information and the retrieved aircraft flight-hour information. This updated component flight-hour information is later sent for storing onto the RFID tag. The updated component flight-hour information is also later sent for
- 30 display by a device for monitoring aircraft component flight-hour information.

The application provides a method of displaying aircraft component flight information. The method comprises a step of receiving one or more aircraft component flight-hour information from a component flight-hour updating device.

5 The aircraft component flight-hour information is then stored. After this, the aircraft component flight-hour information is outputted to a unit, such as printer or monitor.

10 The method can include a further step of generating an alarm if the updated component flight-hour information exceeds a corresponding predetermined threshold.

Put differently, the application provides a part flight-hour tracking module for an aircraft, such as helicopter.
15 The aircraft has an on-board flying measurement system for recording flight-hours of the aircraft. Parts or components of the aircraft that need logging and tracking of part flight-hours are fitted with Radio-Frequency Identification (RFID) tags.
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Two implementations of the part flight-hours tracking are possible. One implementation uses active RFID tags whilst the other implementation uses passive RFID tags.

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In a first implementation, one or more RFID readers are provided outside an aircraft for communicating with active RFID tags via reader antennas and for communicating with an on-board flying measurement system or device of
30 the aircraft via a wireless system, such as Wi-Fi.

The RFID readers are located outside the aircraft in a place, such a hanger. Two to three reader antennas are

often needed for covering or reading all active tags of the helicopter. The RFID readers are connected to a database and management backend system. Components of the helicopter are fitted with active RFID tags. An appropriate interface communicatively connects the RFID readers to the on-board flying measurement system via the wireless system. The on-board flying measurement has an appropriate wireless interface for communicating with the RFID readers.

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Using the first implementation, one possible way of part flight-hours tracking is to transmit flying hour information of the aircraft through the wireless system to the outside RFID readers.

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The RFID readers then update the tags and a database of the backend system using the aircraft flying hour information.

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In a second implementation, an aircraft has an RFID reader with one or multiple antennas that is fitted at appropriate locations in an aircraft and an on-board flying hour measuring system. Parts of the aircraft are fitted with passive RFID tags.

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An appropriate interface communicatively connects the on-board flying hour measuring system to the RFID reader and to a backend system via a wireless means, such as Wi-Fi. The backend system is located outside the aircraft. The antennas can have own RF frontends that each placed near one component or a group of components.

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Using the second implementation, one possible way of

tracking parts flight-hours is to obtain aircraft flight-hour information from the on-board flying hour measuring system and then update the tags and the backend system using the obtained aircraft flight-hour information.

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The application has the advantage of minimum or little human involvement in noting and in updating a database of flying-hour information. In other words, during aircraft maintenance, data entry errors in the database due to human are expected to reduce. This in turn improves efficiency of safety and of costs of maintenance.

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This is unlike other systems of component flight-hour recording that can be incorrect or be not current. The other system use manually recording of flight-hours of the components and then fed the recording into a database of a back-end system. As this is a manual process, it is prone to errors. In addition, the back-end system may not have capture information of components that are changed at different other sites due to emergency maintenance.

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In the following description, details are provided to describe the embodiments of the application. It shall be apparent to one skilled in the art, however, that the embodiments may be practiced without such details.

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Given below are two embodiments of the application, which could be used under different scenarios. The embodiments use a helicopter for illustration.

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Fig. 1 illustrates an embodiment of a part flight-hours logging system for a helicopter that uses Active Radio Frequency Identifier (RFID) tags,

Fig. 2 illustrates details of a block of the part
flight-hours logging system of Fig. 1,
Fig. 3 illustrates an embodiment of a part flight-
hours logging system for an helicopter that
5 uses Passive RFID tags, and
Fig. 4 illustrates details of a block of the part
flight-hours logging system of Fig. 3.

10 Figs. 1 to 4 have similar parts. The similar parts have
same names or same part numbers. The description of the
similar parts is hereby incorporated by reference, where
appropriate, thereby reducing repetition of text without
limiting the disclosure.

15 Figs 1 and 2 show a first embodiment of flight hour
tracking for parts of a helicopter.

Fig. 1 shows an embodiment of a part flight-hours logging
system 10 for a helicopter that uses Active RFID tags.
20 The part flight-hours logging system 10 includes a heli-
copter 12 that is communicatively connected to a ground
system 13 using a wireless means, such as Wi-Fi.

The helicopter 12 has external or internal parts or com-
25 ponents 15 that are fitted with or are attached to active
RFID tags 16. The helicopter 12 also has an on-board
flight-hour measurement device 19 as well as an interface
and wireless system 21 that is communicatively connected
to the on-board flight-hour measurement device 19 via an
30 ARINC 429 communication link 22. The term "ARINC 429" re-
fers to a data bus that is used in commercial and trans-
port aircraft. The interface and wireless system 21 has
an antenna 22 for wireless communication.

As shown in Fig. 2, the interface and wireless system 21 comprises a microprocessor-based system that includes an interface module or board 35 that is connected to a processor board 37 via a Universal Serial Bus (USB) data bus 36. The processor board 37 is electrically connected to a Radio Frequency (RF) circuit board 40 that connects to the antenna 20. The processor board 37 includes a microprocessor, such as a Digital Signal Processor (DSP) and Field-Programmable Gate Array (FPGA) chips.

The ground system 13 has a wireless system 23 that is communicatively connected to a RFID reader system 24 and to a database and management backend system 26 by Ethernet wired means 28. The wireless system 23 also has an antenna 25 for establishing a wireless communication link 29 with the interface and wireless system 21 of the helicopter 12.

The RFID reader system 24 is located outside the helicopter 12 and is often located inside a hanger. The RFID reader system 24 has a reader antenna 32 that is communicatively connected to the RFID tags 16 in a wirelessly manner.

In a generic sense, more than one RFID reader system 24 can be communicatively connected to the RFID tags 16. Two to three RFID readers can cover all RFID tags 16. More than one reader antenna 32 can be attached to one RFID reader system 24.

The wireless system 23 can be connected to both the backend system 26 and the RFID reader system 24 through a

local area network that uses Ethernet or other technologies.

Functionally, the part flight-hours logging system 10 can
5 be grouped into two main functionalities.

In the first main functionality, the active RFID tags 16
store part flight-hours and associated information of the
parts that are attached to the RFID tags 16. Put differ-
10 ently, the active RFID tags 16 has information on flying
hours of the parts that are attached to the RFID tags 16.

In practice, the RFID tags 16 can consume low power and
can have less weight of about 50 to 60 grams. Batteries
15 that are used in such RFID tags 16 can have a lifetime of
about 4 to 6 years, if the RFID tags 16 are used only
once a day for reading or writing of data. The RFID tags
16 can have a working range of up to 100 meters.

20 The reader antenna 32 provides a means to receive infor-
mation from the tags 16 and to transmit information to
the tags 16.

The RFID reader system 24 receives helicopter flight-hour
25 information from the onboard flight-hour measurement de-
vice 19. The RFID reader system 24 also receives the part
flight-hour information from the RFID tags 16.

The RFID reader system 24 computes or calculates updated
30 part flight-hour information using the received part
flight-hour information and the received helicopter
flight-hour information. The RFID reader system 24 also
writes or updates the RFID tags 16 with the updated part

flight-hour information.

Further, the RFID reader system 24 sends the updated part
flight-hour information to the backend system 26 via the
5 wireless system 23.

The wireless system 23 acts as an access point of the
ground system 13 for the helicopter 12. It provides a
data communication channel or hub between the backend
10 system 26 and the RFID reader system 24. The wireless
system 23 can be based on a microprocessor-based system.

In the second main functionality, the onboard flight-hour
measurement device 19 records or notes flight-hours of
15 the various missions of the helicopter 12. The onboard
flight-hour measurement device 19 records taking off time
and landing time of the helicopter 12. The recording uses
sensors that monitor pressure on landing skids of the
helicopter 12, which do not bear pressure or weight of
20 the helicopter 12 when the helicopter 12 is in flight.

The interface and wireless system 21 act as a communica-
tion channel between the onboard flight-hour measurement
device 12 and the wireless system 23.

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In particular, the interface board 35 is used for con-
verting electrical signals between the ARINC 429 data bus
22 and the USB data bus 36.

30 The processor board 37 acts to receive helicopter flight-
hour information from the on-board flight-hour measure-
ment device 19 via the interface board 35 and it sends
the received helicopter flight-hour information to the

RFID reader system 24 of the ground system 13 via the RF circuit board 40 and via the wireless system 25..

5 The RF circuit board 40 performs wireless communication task, such as application, protocol stacks, and baseband, for the processor board 37.

10 The backend system 26 receives the updated part flight-hour information from the RFID reader system 24 and the helicopter flight-hour information from the onboard flight-hour measurement device 19. The received part flight-hour information is compared with corresponding threshold values of the components or parts. The backend system 26 then generates an alert or alarm for any part
15 that exceeds its part threshold value. The alert can be a sound, light, report, or other appropriate means.

One possible way of using the part flight-hours logging system 10 is described below.

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On completion of a flight mission, when the helicopter 12 is back at its base, the interface and wireless system 21 and the ground system wireless system 25 are automatically powered on. This feature prevents the interface and
25 wireless system 21 from generating any interfering signal when the helicopter 12 is flying.

The processor board 37 of the powered interface and wireless system 21 then initiates a transfer of the helicopter flight-hour information from the on-board flight-hour measurement device 19 through the interface board 35.
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The processor board 37 then reads the transferred infor-

mation and it transmits the transferred information using a wireless technology, such as Wi-Fi, to the wireless system 23 of the ground system 13.

5 The RFID reader system 24 later gets or receives the helicopter flight-hour information through the Ethernet wired means 28. The RFID reader system 24 then reads part flight-hour information that is present in the RFID tag 16.

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The RFID reader system 24 later calculates the new updated part flight-hour information and writes the new part updated flight-hour information onto the RFID tags 16. This is done for all RFID tags 16.

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The updated part flight-hour information and other relevant component information are also sent in the back-end system 26 via a local area network.

20 In the backend system, the received updated information are afterward compared with threshold values associated with corresponding parts or components. If any of the received values exceeds the stored threshold, an alarm or alert is raised.

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Overall, the above system 10 has the advantage of improving the efficiency and accuracy of logging of the flight lifetime data of components. This system 10 does not have manual steps, which is different from many present process of manually updating the database. This has an impact
30 on the maintenance, in terms of the cost and safety.

Figs 3 and 4 show a second embodiment of flight hour

tracking for parts of a helicopter.

Fig. 3 shows an embodiment of a part flight-hours logging system 45 for a helicopter that uses passive RFID tags.

5 The part flight-hours logging system 45 includes a helicopter 47 and a ground system 49 that is communicatively connected to the helicopter 47 via a wireless communication link 48.

10 Referring to Fig. 3, the helicopter 47 includes the on-board flight-hour measurement device 19 of Fig. 1. The measurement device 19 is connected to an interface and wireless system 50 via the ARINC 429 communication link 22. The interface and wireless system 50 is also connected to a RFID reader system 52 that is positioned inside the helicopter 47 via a USB link 60.

The RFID reader system 52 is further connected to a plurality of passive reader antennas 53 via cables 56. Each reader antenna 53 is positioned close to one passive RFID tag 54 or to a group of passive RFID tags 54. Put differently, the reader antennas 53, possibly combined with its RF frontends, are mounted close to the passive RFID tags 54 for better communication.

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The passive RFID tags 54, unlike active RFID tags, do not have batteries. The RFID tags 54 are mounted onto parts 15 of the helicopter 47. The parts 15 can be located inside or outside the helicopter 47.

30

In particular, the interface and wireless system 50 includes parts of the interface and wireless system 21 of Fig. 2. This is illustrated in Fig. 4. The processor

board 37 of the interface and wireless system 50 is connected to the RF reader system 52 via the USB link 60.

Referring to Fig. 3, the ground system includes the wireless system 23 that is connected to the backend system 26 via the Ethernet wired means 28. The ground system wireless system 23 is also connected to the interface & wireless system 50 of the helicopter 47 via the communication link 48.

One possible method of using the part flight-hours logging system 45 is described below.

Once a helicopter mission is completed, the interface and wireless system 50 and the RFID reader system 52 are switched-on automatically. This prevents the interface and wireless system 50 and the RFID reader system 52 from producing any interfering signals during the mission.

A microprocessor of the processor board 37 then initiates transfer of the helicopter flight-hour information from the on-board flight-hour measurement device 19 through the interface board 35 to the processor board 37.

The said helicopter flight-hour information is later sent to the RFID reader system 52 through the RF circuit board 40 and through the USB link 60.

The RFID reader system 52 afterward reads the present part flight-hour information that is in the RFID tags 54. It then calculates new updated part flight-hour information using the present part flight-hour information and the helicopter flight-hour information. Later, it writes

the updated part flight-hour information onto the appropriate RFID tags 54. This is done for all RFID tags 54.

5 The processor board 37 also sends the said updated part flight-hour information to the backend system 26 through the wireless system 23. The updated part flight-hour information is then handled by the backend system 26 in a manner as described in the earlier embodiment.

10 Though the above two embodiments are described with specific interfaces and wireless technology, the embodiment could be adapted to other interfaces that are specific to the helicopter and to other wireless technology, such as WiMAX. In addition, in certain cases a combination of the
15 two embodiments could be used in specific scenarios.

To recap, most new aircrafts or helicopters have an on-board device that provides information of its flying hours after each flying mission. The flying time of each
20 mission extends from the time the aircraft lifts off the ground to the time landing skids of the aircraft touches the ground. The embodiments make use of the said information to update balance or remaining flying lifetime hours of parts of the aircraft by means of RFID technology.

25

Some preparation work can be done to support embodiments of the application. The preparation work includes identifying of appropriate RFID Tag and RFID reader technology, such as Mount-on-Metal technology, that works on-board
30 the aircraft. Appropriate parts that have flying lifetime constraints are then selected for data logging. These parts can comprise gearbox, rotor blades, tail rotor, tail gearbox, or landing gear.

After this, the identified RFID tags are installed or are fixed onto the aircraft parts and the corresponding RFID reader is installed inside or outside the aircraft. In
5 the case of passive RFID tags, multiple antennas would be installed onboard the aircraft. An alarm of expiry of the parts can be incorporated in a back-end system.

A method of automatically logging parts of an aircraft
10 can included the following functionalities:

(a) retrieving flying hour information of the aircraft after each mission from the on-board flight-hour measurement device by a means of an appropriate interface;

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(b) getting the aircraft flying hour information to the RFID reader or RFID reader system by means of the appropriate interface, the RFID reader could be located directly in the aircraft or be located external to aircraft
20 in maintenance facilities, like hanger;

(c) reading existing part flight-hour information by the RFID reader from the RFID tags that are mounted on or are fitted into components or parts of the aircraft,

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(d) calculating new updated part flight-hour information,

(e) writing the updated part flight-hour information onto the RFID tags;

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(f) transmitting the updated information from the RFID reader to a back-end database and management system; and

(g) raising an alarm in the back-end system, if any of the parts flying lifetime is crossing a predetermined threshold associated with that part or component.

5 Although the above description contains much specificity, these should not be construed as limiting the scope of the embodiments but merely providing illustration of the foreseeable embodiments. Especially the above stated advantages of the embodiments should not be construed as
10 limiting the scope of the embodiments but merely to explain possible achievements if the described embodiments are put into practice. Thus, the scope of the embodiments should be determined by the claims and their equivalents, rather than by the examples given.

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Reference

	10	part flight-hours logging system
	12	helicopter
5	13	ground system
	15	part
	16	RFID tag
	19	on-board flight-hour measurement device
	20	antenna
10	21	interface and wireless system
	22	ARINC 429 communication link
	23	wireless system
	24	RFID reader system
	25	antenna
15	26	backend system
	28	Ethernet wired means
	29	wireless communication link
	32	reader antenna
	35	interface board
20	36	USB data bus
	37	processor board
	40	RF circuit board
	45	part flight-hours logging system
	47	helicopter
25	48	wireless communication link
	49	ground system
	50	interface and wireless system
	52	RFID reader system
	53	reader antenna
30	56	cable
	60	USB link

Claims

1. An aircraft component flight-hour updating device
(21, 23, 24; 50, 52) comprising
 - 5 at least one Radio Frequency Identifier (RFID)
reader device (24, 32; 52, 53) for communicating
with at least one RFID tag (16; 54) to retrieve at
least one component flight-hour information,
a first port (35) for communicating with an on-
10 board flight-hour measurement device to retrieve
aircraft flight-hour information,
a memory unit for storing the least one compo-
nent flight-hour information and the aircraft
flight-hour information,
15 a processor unit (37) for determining at least
one updated component flight-hour information using
the least one stored component flight-hour informa-
tion and the stored aircraft flight-hour information,
wherein the at least one RFID reader device (24,
20 32; 52, 53) is further operable to send the at least
one updated component flight-hour information to the
at least one RFID tag (16; 54) for storing and
a second port (20) for communicating with a de-
vice (26) for outputting the at least one updated
25 component flight-hour information.
2. An aircraft component flight-hour updating device
(50, 52) of claim 1, wherein
the RFID reader device (52) that is located onboard
30 the aircraft.
3. An aircraft component flight-hour updating device
(21, 23, 24) of claim 2, wherein

the RFID reader device (24) is located outside the aircraft.

4. A component flight-hour updating module (10; 45) of
5 an aircraft comprising

at least one Radio Frequency Identifier (RFID)
tag (16; 54) being attached to at least one compo-
nent (15), the at least one RFID tag (16; 54) being
operable to store at least one component flight-hour
10 information and

a component flight-hour updating device (21, 23,
24; 50, 52) comprising

- at least one RFID reader device (24, 32;
52, 53) being communicating with the at least
15 one RFID tag (16; 54) to retrieve the at least
one component flight-hour information,

- a first port (35) for communicating with
an onboard flight-hour measurement device to
retrieve aircraft flight-hour information,

20 - a memory unit for storing the least one
component flight-hour information and the air-
craft flight-hour information,

- a processor unit (60) for determining at
least one updated component flight-hour infor-
25 mation using the least one stored component
flight-hour information and the stored aircraft
flight-hour information, wherein the at least
one RFID reader device (24, 32; 52, 53) is fur-
ther operable to store the at least one updated
30 component flight-hour information in the at
least one RFID tag (16; 54), and

- a second port (20) for communicating with a device (26) for outputting the at least one updated component flight-hour information.

5 5. A component flight-hour updating module (10) of claim 4, wherein the component flight-hour updating device comprises an RFID reader (52) that is located onboard the aircraft.

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6. A component flight-hour updating module (45) of claim 4, wherein the component flight-hour updating device comprises an RFID reader (24) is located outside the aircraft.

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7. A component flight-hour updating module (10) of one of claims 4 to 6, wherein the at least one RFID tag (16) comprises at least one battery.

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8. A component flight-hour Radio Frequency Identifier (RFID) tag (16; 54) for attaching to an aircraft component (15),

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the component flight-hour RFID tag (16; 54) comprising

a port unit for communicating with an aircraft component flight-hour updating device (21; 50) to receive aircraft component flight-hour information and

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a memory unit for storing the aircraft component flight-hour information.

9. A device (26) for monitoring aircraft component

flight-hour information, the device (26) comprising
a port unit for communicating with an aircraft
component flight-hour updating device (21) to re-
ceive at least one aircraft component flight-hour
information,

a memory unit for storing the at least one air-
craft component flight-hour information, and

an output unit for outputting the at least one
aircraft component flight-hour information.

10. A method of providing at least one aircraft compo-
nent flight-hour information, the method comprising
retrieving aircraft flight-hour information
from an on-board aircraft flight-hour measurement
device (19),

retrieving at least one component flight-hour
information from at least one RFID tag (16; 54) of
at least one component (15) of the aircraft,

calculating at least one updated component
flight-hour information using the at least one re-
trieved component flight-hour information and the
retrieved aircraft flight-hour information,

storing the at least one updated component
flight-hour information, and

outputting the at least one updated component
flight-hour information.

11. A method of claim 10 further comprising
powering on a component flight-hour updating
device (21) after the aircraft has landed and
powering off the component flight-hour updating
device (21) before the aircraft flies.

12. A method of operating an aircraft component RFID tag (16; 54), the method comprising
attaching the RFID tag (16; 54) to an aircraft component (15),
5 providing an aircraft component flight-hour information for updating ,
receiving an updated aircraft component flight-hour information and
storing the updated aircraft component flight-hour information.
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13. A method of operating an aircraft component flight-hour updating device (21), the method comprising
retrieving aircraft flight-hour information
15 from an on-board aircraft flight-hour measurement device (19),
retrieving at least one component flight-hour information from at least one RFID tag (16; 54) of
at least one component (15) of the aircraft,
20 calculating at least one updated component flight-hour information using the at least one retrieved component flight-hour information and the
retrieved aircraft flight-hour information,
sending the at least one updated component
25 flight-hour information for storing onto the at least one RFID tag (16; 54), and
sending the at least one updated component flight-hour information for display.
- 30 14. Method of displaying aircraft component flight information, the method comprising
receiving at least one aircraft component flight-hour information,

storing the at least one aircraft component
flight-hour information, and
outputting the at least one aircraft component
flight-hour information.

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15. A method of claim 11 further comprising
generating an alarm if the at least one updated
component flight-hour information exceeds at least
one corresponding predetermined threshold.

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