THE MAGAZINE

Newsletter of the
Melbourne Aviation Group

July 2024 Newsletter

This newsletter welcomes new member James Glenholme and farewells and thanks Gerald Smith and advises of interest in buying shares from two prospective members.
You are welcome to participate in a zoom discussion regarding Angel Flight bookings. Thanks the hardy wash and polishes and urges you to start learning about the new avionics that will be installed in OKY in the new future.
Safe flying – Bill Holmes

Comings and Goings

Comings and Goings

We warmly welcome James Glenholme to MAG. James purchased his MAG shares from Gerald Smith.

As you know Gerald has suffered some significant health issues and is on the road to recovery. But it will be some time before he is airworthy again, so he decided to sell his shares. We certainly thank Gerald for all his assistance to the group over the years and wish him all the best for the future.

James has recently transferred to Australia from the UK with his company and may be staying in Australia for a few years. He has a UK private pilots license and is in the process of obtaining an Australian license as well. James is new to Australia and our aviation procedures so please do introduce yourself to him and share your knowledge and perhaps learn how they do things in the UK.

The board has been considering the topic of promoting membership in MAG and Mark Semer and David Borgeest have been working on ideas. It seems their labours may be bearing fruit as there are currently two people who have indicated that they wish to buy shares. Please contact them directly if you are interested in selling. They are Urs Stucki 0418 539 447 and Max (Lin Maxx) 0456 666 645.

Angel Flight bookings

Angel Flight Bookings

Angel Flight is a charitable organization that arranges free air transportation for individuals in need of medical treatment, particularly those residing far from specialized healthcare facilities. These flights are coordinated by volunteers and pilots who donate their time and resources to help patients access necessary medical care.

Several MAG members participate in Angel Flights.

This can mean that different MAG members are bidding for the same flight and therefore can be in need of the same aircraft.

I understand this has not been a problem but as more people become involved it is possible that some agreed conventions on booking procedures may assist in avoiding misunderstandings.

A zoom meeting has been organised for Tuesday the 6th of August at 7:30pm for discussion on the topic. Anyone wishing to participate is welcome and can register by emailing Bill Holmes.

Wash and Polish

Wash and Polish

The weather was a little bleak on the 11 May when the last wash and polish was held which probably explains the relatively low numbers attending. Thanks to those who did attend and for their efforts in cleaning up the aircraft.

Mark Semer and Peter Cossins

Bomber Dale and Robert Lyon

OKY Upgrade Contractor engaged and equipment has arrived

OKY Upgrade

The May newsletter reported that there would be a push to repair the ailing autopilot during the 100 hourly service which was successful. There have been some problems reported with the Aspen however we are hopeful the aircraft will remain serviceable until the time when it goes in for the dashboard upgrade.

The project manager for the OKY upgrade, Rolf Blomstedt, led the specification and tender evaluation process for the upgrade. The contract to do the upgrade has been awarded to Avionics 2000 located at Essendon. Rolf will continue to be the key contact with the contractor throughout the upgrade.

All of the new electronics has now been received into store and has been paid for thanks to the share call. The current plan is for OKY to come off line on the 11th of November. The contractor has

previously advised that the upgrade will take around six weeks. The date and the length of the work may need to change as detailed planning may reveal other constraints.

Members will find the new avionics has many similarities to the units being replaced so it will be easy to learn. But, of course, it is important to be very familiar with the instruments as it would not be safe to be learning while flying. So now is the time to be researching operating manuals, watching YouTube videos and accessing training to see how it all works. The specification of instruments is attached at the end of this document. Please type the Garmin model numbers into Google and YouTube to find user manuals and watch videos to find out more so you will be confident when the aircraft comes back after the upgrade.

There is something for everyone in the new equipment. People wanting the simple life will find the simplest of all of Garmin's radios, the GTR 205 is installed as one of the two radios. Also to be installed is the GFC 500 which is an outstanding autopilot with a large number of features that will improve safe operations for VFR pilots hand operating the aircraft as well as for IFR pilots.

Read the following copied from the Garmin website to learn more about the radio and to see how the autopilot will operate in the background to provide stability protection for pilots hand flying the aircraft.

Garmin GTR 205 radio

It is an extremely simple radio as navigation functions often seen on this type of instrument are located elsewhere on the dashboard.
This link is to a video about the experimental version of the radio, which is very similar to our certified model, illustrates how easy the radio is to use. https://youtu.be/1x1-vRPend0
Use the following link https://www.aircraftspruce.com/catalog/pdf/gnc215_pilotsguide.pdf to read the pilots guide which provides detailed instructions on how to use the advanced features. An overview of these features is described in the following information from the Garmin website.

VHF COMM TRANSCEIVER

The 2,280-channel capable VHF COMM radio offers standard 10 watts (or optional 16 watts with enablement) of transmit power plus pilot-selectable 25 kHz or 8.33 kHz channel spacing and automatic or manual squelch. Swap your active and standby frequencies with a single touch of a button.

STANDBY COMM MONITORING

Listen to a standby frequency, such as ATIS, without leaving your active channel.

FIND A FREQUENCY

Enter an airport identifier, and let the GTR 205 radio look up frequencies for that location (tower, ground, ATIS, clearance delivery, etc.) from its worldwide database. Then send the selected frequency to the standby position.

INSTANT RECALL

With frequency memory and recall, you can quickly tune your most frequently or recently used frequencies. Plus, holding down the volume knob will dial up the 121.5 emergency frequency.

FREQUENCY ID

Pair with your compatible GPS source to enable frequency ID and show your tuned frequency's identifier and type, including tower, ATIS, centre and more. So you always know who you're talking to.

BUILT-IN TIMER

Use the built-in timer to assist with approaches, holds and other assigned maneuvers — with the option to count up or count down.

The upgrade will include the **GFC 500 autopilot.** The following information is from the Garmin web site. The GFC 500 autopilot brings unprecedented levels of capability, reliability. GFC 500 leverages Garmin's advanced attitude-based flight control technology to help prevent incidents caused by loss of control, the FAA and other regulators encourage the use of key technologies, such as angle-of-attack indicators and autopilots, to help increase situational awareness, reduce pilot workload and enhance safety of flight. The GFC 500 incorporates a number of safety-enhancing technologies, including Garmin ESP, under-speed and over-speed protection, automatic LVL mode, vertical navigation (VNAV) mode, flight director (FD) command cues and more.

GFC 500 provides crisp, precise response and optimum performance over the entire airspeed envelope of your aircraft. Rather than depending on failure-prone mechanical gyros, the GFC 500 system is digitally controlled, using solid-state attitude and air data sensor reference — giving you ultra-smooth roundouts, intercepts and more while also enhancing the reliability of the system. Incorporating the highly adaptable GI 275 electronic flight instrument, a mode controller and "smart" servos, the autopilot's architecture supports full pitch-and-roll axis control capabilities with optional pitch trim for automatic and manual electric trim. Additionally, yaw damper capability is optionally available for select aircraft models.

GFC 500 supports a wide range of precision, non-precision and GPS-guided approaches as well as holds, procedure turns, missed approaches and more. GFC 500 also includes built-in GPS roll steering capability, which allows smoother navigation tracking and eliminates the need for external roll steering converters. Flight director cues are displayed as command bars on the GI 275 electronic flight instrument. The command bars are always in view when the autopilot is doing the flying — and may also be used for visual guidance when you're hand-flying the aircraft. With support for a remotely installed Takeoff/Go-around (TOGA) button, the flight director can be cued to automatically indicate and capture the correct pitch attitude required to fly a missed approach and then follow the missed approach procedure loaded in your compatible GPS navigator.

Mode Control at Your Fingertips

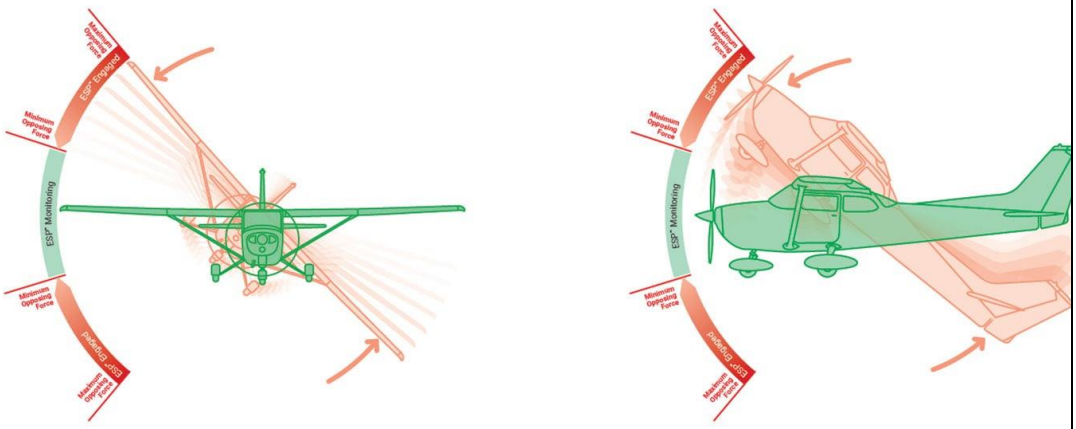
A mode controller is included with your GFC 500 package, and its compact size and mark-width design require only minimal space in your avionics stack while providing easy access to all autopilot modes and functions. You can select advanced lateral and vertical modes such as pitch hold, altitude preselect, altitude hold, vertical speed and indicated airspeed hold as well as roll, track and selected heading. An intuitive control wheel integrated into the GFC 500 mode controller allows for easy and precise pitch, vertical speed and airspeed adjustments, while separate knobs allow quick twist control of heading and altitude. For added safety, a dedicated LVL button on the controller lets you command the autopilot to automatically return your aircraft to straight-and-level flight — and thus help avert a potential loss-of-control situation.

Silky-smooth Servo Control

For maximum reliability and safety, the GFC 500 servos incorporate brushless DC motors and a gear train that eliminates the need for a mechanical slip clutch and shear pins. This design results in enhanced system efficiency — while also reducing maintenance/inspection requirements. The servos also provide virtually no control system friction with the autopilot turned off, decoupling the motor drives so you can easily hand-fly or override the system without fighting the controls. The servos weigh only 1.4 lbs each, making them more than 40% lighter than most other autopilot servos of their class. Each servo is operated by its own built-in microprocessor, which provides the "smart" logic to significantly improve sensor performance, response and self-monitoring capabilities — while simplifying overall system configuration and installation.

Hand-fly with Stability Protection

Any pilot who's ever been startled to attention by a stall warning horn in a busy cockpit will appreciate the proactive stability augmentation of our ESP technology, which is standard on the GFC 500 system. When the aircraft is being hand-flown, this ESP feature functions independently of the autopilot — although it uses the same control servos — to nudge the controls toward stable flight whenever pitch or roll deviations exceed the recommended limits or underspeed/overspeed conditions occur. After the system detects that it has been activated for a specified period of time, the autopilot will engage with the flight director in level mode, bringing the aircraft back to level flight and helping to avoid the onset of inadvertent stall/spins, steep spirals or other loss-of-control scenarios. Additionally, ESP can be manually disabled to allow for intentional flight maneuvers.



Plus, pairing GFC 500 with a GTN Xi series navigator enhances our Smart Glide™ technology for emergency engine power loss situations. Once Smart Glide is activated, GFC 500 automatically activates IAS mode at best glide speed and flies the generated route near the airport so the pilot can land.

An Autopilot Knows Its Limits

With the autopilot engaged, GFC 500 also provides overspeed and underspeed protection. In a high airspeed situation — for example, if you're descending and your aircraft is approaching VNE or VMO — the system will increase the aircraft's pitch attitude, preventing a further increase in airspeed and potential structural damage. Likewise, at the other end of the speed spectrum, GFC 500 provides underspeed (stall) protection. For example, in the event the pilot does not immediately advance the throttle to full power, with the autopilot engaged while flying a missed approach sequence, the

autopilot will help prevent an aircraft stall by reducing pitch attitude and provide the pilot with an “airspeed, airspeed” audible alert.
It’s a Total Peace-of-mind Investment
There is no substitute for a safe and vigilant pilot. But there are times when a “helping hand” at the controls can have a significant impact on the safety, comfort and enjoyment of your flight.

The navigators in the Garmin GTN 650 XI and GNX375 share many similar features which can be seen in a very large number of YouTube videos, like the one at this link
https://youtu.be/84Xrmga8Cko

OKY Upgrade - Specification

OKY Upgrade - Specification

The following is the amended specification for the upgrade of OKY. Search on the web using the model numbers to learn more about them.

New (Garmin) Equipment:

GI275 ADAHRS w/GMU11

GFC 500 Autopilot 3 servos Pitch/Roll/Pitch Trim inclusive of GMC 507, Yoke trim switch and Smart Glide button on the panel

GTN650XI Black GPS/NAV/COM incl of data card/databases

GNX375 Transponder/GPS

GTR 205 COM

GSB 15 USB charger

TCW Standby Power 24V 3Ah, for COM and GPS back up

Keep & reuse from existing panel:

GMA340 Audio Panel

GI275

Clock with USB

Airspeed Indicator

Altimeter

Air time switch/counter (Hobbs)

All engine related instruments

Remove and trade in from existing panel;

Aspen Evolution EFD1000 PFD

2 x Garmin 430W

S-TEC 50 Autopilot

T&B Gyro/indicator

CD Player

Comments;

Use existing panel an add cover plates where instruments are removed

Install the two GI275 in Aspen location (will require a cover plate)

ADSB IN to be displayed on GTN650XI, GNX375 & GI275 and audio warning for traffic.