PILOT IN COMMAND (1.1)

Means the person who:

(1) Has **final authority** and **responsibility** for the operation and safety of the flight;
(2) Has been **designated as pilot in command** before or during the flight; and
(3) **Holds** the appropriate **category**, **class**, and **type rating**, if appropriate, for the conduct of the flight.

PILOT IN COMMAND SEATING POSITION:

1. AIRPLANES — The PIC normally sits on the **LEFT** — Evolved from the maritime rule that states vessels approaching head-on must pass to the right of each other. Sitting on the left provided the best view when passing at close quarters such as in a harbor. It is curious that most all present-day pleasure boats seat the driver on the right.
2. HELICOPTERS — The PIC normally sits on the **RIGHT** — The first successful helicopters (developed by Igor Sikorsky) had a single **"collective"** / throttle control located between the two pilots. Both pilots were provided a control stick (**"cyclic"**). Since it was more desirable to operate the stick with the right hand and the collective with the left hand, the PIC would normally sit on the right. Most modern helicopters have a collective installed on the left side of both pilot seats, but the custom continues. Many manufacturers also place slightly more fuel on the left side of the helicopter to help balance the load when the pilot is the only one on board.

ACTIVE PILOTS in the UNITED STATES: (January 2007)

1. U.S. pilot numbers have dipped to **597,109** "certificated pilots." Approximate breakdown:
   - ➔ 84,866 Student Pilots.
   - ➔ 939 Sport Pilots.
   - ➔ 242 Recreational Pilots.
   - ➔ 236,147 Private Pilots.
   - ➔ 130,234 Commercial Pilots.
   - ➔ 90,000 Flight Instructors.
   - ➔ 144,681 Airline Transport Pilots.
   - ➔ 41,306 with rotor ratings; 37,837 with glider ratings; and 10,511 balloon pilots.

   According to the FAA the **average age** of pilots as a whole is **45.6 years**. The average age of **sport pilot** holders was **52.9 years**.
2. The number of active pilots peaked at 820,000 in 1980.
3. Approximately 3 million people hold some level of pilot certificate but of those only about 600,000 have current medicals.

ENGLISH — The UNIVERSAL LANGUAGE:

International **C**ivil **A**viation **O**rganization (**ICAO**), Annex 10 (Aeronautical Telecommunications) Chapter 5.2.1.1.2 — "… pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, the English language should be used as such and should be available at all stations on the ground serving designated airports and routes used by international air services."

WILCO: (P/C Glossary)

I have received your message, understand it, and will comply with it.

TANGO: (AIM 4-2-4)

Air Taxi or other **commercial operators not having** FAA authorized **call signs should prefix** their normal identification with the phonetic word **"Tango"**.

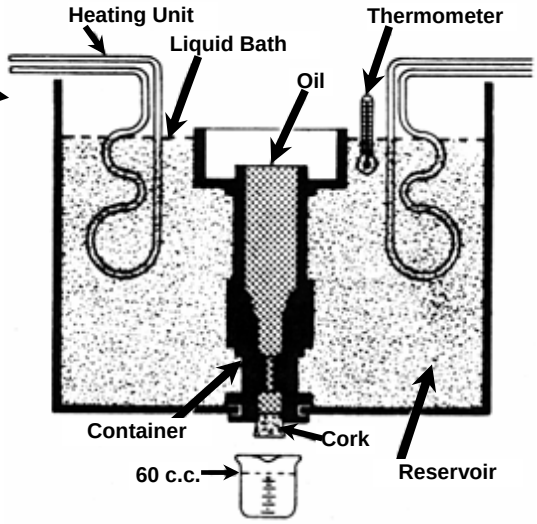
FLIGHT CHECK: (P/C Glossary)

A call-sign prefix used by FAA aircraft engaged in flight inspection/certification of navigational aids and flight procedures. The word "recorded" may be added as a suffix; e.g., "Flight Check 320 recorded" to indicate that an automated flight inspection is in progress in terminal areas.

OIL: (AC 65-12A, AC 65-15A)

1. MINERAL OIL — Also known as **non-detergent oil** because it contains **no additives**. Normally used in a new or over-hauled engine for **break-in**.
2. ASHLESS DISPERSANT — Mineral oil **with additives** that give it high **anti-wear properties** and is **available** in **multi-viscosity** formulas. Ashless dispersant oil **picks up contamination** and carbon (ash) particles and **keeps them suspended** so buildups of **sludge do not form**.
3. VISCOSITY:
   a. **Viscosity** is **internal resistance to flow**. A liquid such as **gasoline flows easily** (has a **low viscosity**) while a liquid such as **tar flows slowly** (has a **high viscosity**). **Viscosity increases** as **temperature decreases**.
   b. Generally, oils of **lower viscosity** are used in **colder weather** and oils of **higher viscosity** are used in **warmer weather**.
   c. Commercial aviation oils are classified numerically, such as 80, 100, 120, etc., which are an approximation of their viscosity as measured by a testing instrument called the **Saybolt Universal Viscosimeter**. In this instrument a tube holds a specific quantity of the oil to be tested. The oil is brought to an exact temperature by a liquid bath surrounding the tube. The **time** in **seconds** required for exactly **60 cubic centimeters** (about **2 ounces**) of **oil** to **flow through** the accurately calibrated **orifice** is recorded as a **measure** of the **oil's viscosity**.
   d. **120** (Commercial Aviation no.) = The approximate number of **seconds** it takes for exactly **60cc** of oil (heated to **210ºF**) to **flow** through the outlet **orifice** of the Saybolt Universal Viscosimeter.
   e. The letter **"W"** occasionally is included in the SAE number giving a designation such as SAE 20W. This letter **"W"** **indicates** that the oil, **in addition to meeting** the **viscosity requirements** at the **testing temperature** specifications, **is a satisfactory oil for winter use** in cold climates.
   f. Although each grade of oil is rated by an **SAE** number (**S**ociety of **A**utomotive **E**ngineers), depending on its specific use, it may be rated with a **commercial aviation grade** number or an **Army and Navy specification** number. The correlation between these grade numbering systems is shown below.

Saybolt Universal Viscosimeter



Grading System Correlation		
Commercial Aviation No.	Automotive Equivalent (SAE)	Army & Navy Specification (AN)
65	30	1065
80	40	1080
100	50	1100
120	60	1120
140	70	

Piston Engine SMOKE:

1. **BLUE Smoke** — Oil burn in the cylinders most likely due to worn or broken piston rings.
2. **BLACK Smoke** — Residual carbon granules exhausting due to an excessively rich mixture causing some of the fuel to not be burnt, turning it into carbon granules.
3. **WHITE Smoke** — High water content in the combustion chamber exhausted as “steam” smoke.

BACKFIRING of a reciprocating engine is caused when the **fuel-air mixture** in the **induction system** is **ignited by gases** that are **still burning** in a **cylinder when** its **intake valve opens**. This is usually an indication of a mixture that is **too lean**, which can be caused by any number of reasons.