Aeroplane Servicing and Ground Handling Training

Topics to be Covered

- *(a)* fuelling procedures:
  - (i) types of fuel, oil and fluids used in the aeroplane;
  - (ii) correct fuelling procedures; and
  - (iii) procedures for checking fuel, oil and fluids and proper securing of caps.
- *(b)* use of tow bars and maximum nose wheel deflection when towing;
- *(c)* seasonal use of the parking brake;

- *(d)* installation of protective covers on the aeroplane; and
- *(e)* procedures for operating in cold weather such as:
  - (i) moving the aeroplane out of a warm hangar when precipitation is present;
  - (ii) procedures for applying de-icing and anti-icing fluids for the aeroplane type including critical flight controls post application inspections; and
  - (iii) engine and cabin pre-heating procedures, including proper use of related equipment

Fuelling Procedures

- Fuel
  - 80/87 (red) is the Minimum Grade Aviation Fuel approved for Cessna Model 172M
  - Approved alternate fuels are
    - 100 Low Lead AVGAS (Blue)
    - 100/130 Aviation Grade Fuel (Green)

  POH recommends that if using fuels other than 80/87, low lead AVGAS 100 should be used since it will result in less lead contamination.

- Engine Oil

  Recommended Engine Oil depends on outside air temperature

  – Above 16 °C SAE 50
  – Between -18°C and 21°C SAE 30
  – Below -12°C SAE 20

  Actual Engine Oil used at OSFS

  – Summer W100 Plus, Winter W80
  – W100 plus is equivalent to SAE 50
  – W80 is equivalent to SAE 40

Fuelling Procedures

Main Safety Considerations

-Ensure master switch and magnetos are in the off position

-Attach bonding cable to aircraft being fueled

-Before pumping fuel, touch nozzle of fuel hose to lip of fuel tank to discharge any additional static electricity

-Fuel pump nozzle should be placed in fuel as soon as possible before pumping

Video on fuel handling procedures or fuelling demonstration by Owen Sound Airport staff

Checking Fuel, Oil and Securing Caps

- Fuel and Oil level should be checked before every flight
- Checking Fuel
  - Fuel dipstick & strainer located in each aircraft
  - If possible, a step ladder should be used when checking fuel levels. In the absence of a step ladder, wing struts may be used to reach fuel tanks.
  - Ensure fuel vents are unobstructed

- Checking fuel for contamination
  - After fuel level is confirmed, fuel should be inspected for contamination.
  - GEFZ and GCTJ have 4 fuel straining ports, while GOSM has 3 fuel straining ports.
  - 1 fuel straining port is located on the inboard section of each wing, close to the fuselage.
  - 1 fuel straining port is located on the belly of the aircraft (GEFZ & GCTJ only) abeam the right wing strut
  - 1 fuel straining port is located on the belly of the aircraft beside the nose gear assembly on the right side
  - Fuel that has been drained for inspection should not be put back in the fuel tanks

Checking Oil

- Oil dipstick is located under front cowling on right side.
  - Do not operate on less than 6 quarts
  - Capacity of engine sump is 8 quarts
  - To minimize loss of oil through breather, do not fill past 7 quarts.

Securing fuel and oil caps

- Demonstration

Use of Tow Bar

- The airplane is most safely and easily maneuvered by hand with the tow bar attached to the nose wheel.
- When towing, do not exceed the nose gear turning angle of 30° either side of center, or damage to the gear will result
- While hangering, watch wing tips and vertical stabilizer. Any movement of nose wheel oleo, or a flat front tire will increase tail height.

Use of Parking Brake

- Parking brake should not be set during cold weather when accumulated moisture may freeze the brakes, or when brakes are overheated.
- In these conditions, the wheels should be chocked to prevent aircraft movement

Installation of Protective Covers

- When aircraft is being left outside the following protective covers should be installed:
  - Pitot tube cover (found in pouch behind front seats)
  - Engine inlet covers or blanket (found in cargo area behind rear seat)
  - Demonstration on how to install pitot cover and engine inlet covers.

Cold Weather Operations

- If aircraft has been hangared in a heated hangar and precipitation is present
  - Critical surfaces shall be completely dry before aircraft is moved out of hangar
  - This can be done by using a combination of squeegees, towels, paper towels, heater etc…
  - Before aircraft is moved out into freezing conditions where precipitation is present, the skin of the critical surfaces should be at a temperature so that precipitation will not melt and then re-freeze

Engine & Cabin Preheating Procedures

- Hangar is equipped with space heaters specific for engine and cabin pre-heating
- Timers are also in place so that heaters will come on and turn off at the optimal times
- Demonstration on use of heaters and timers.

De-icing and Anti-icing Fluids

- Review procedures from Aircraft Surface Contamination Training