CESSNA 172 CONVERSION

Introduction

One of the first steps in converting to a new type or class of aircraft is to read the Flight Manual for that particular machine. However, since that publication cannot be removed from the School premises the aim of these notes is to provide an aide memoir for pilots converting to the C172. For a pilot trained on Cessna 152 aircraft, conversion should be fairly straightforward provided the pilot remembers that there is a vast difference in handling between a fully loaded and an empty aircraft. For a pilot converting from PA28 or other similar low wing aircraft there should be no real difficulty so long as the pilot remembers that the lookout problem is quite different i.e. lookout must be made before a turn is made due to the high wing. Ground handling in strongish winds is also different from a low wing aircraft. In addition, taxy speed must be kept down and care exercised when turning on the ground in high winds.

Checklist

A checklist for the C172 is normally stowed in the aircraft. If one is not available, a request should be made at the Ops-desk. If required one can be purchased from the School shop.

Pre-Flight Inspection

This is very similar to that for the Cessna 152. Pilots converting from PA28 or similar will appreciate that the C172 fuel system does not require a fuel pump – other than in fuel-injected engines – and the fuel drains are different. Similarly, checking the fuel contents requires the use of the stepping points on the forward fuselage and wing strut(s) or better still a small stepladder. The aircraft checklist will detail the procedures involved and these notes will, it is hoped, provide clarification if required.

Engine

The school operates three C172 aircraft with a Lycoming 0-320-. Rated horsepower is 160 at 2700rpm.

Fuel

100LL Aviation Fuel (Blue) or 100 Grade (Green)
Total Contents for School aircraft are 40 Imp. Galls. Useable.

Oil

Max. 8 U.S. qts. And not less than 6 U>S. qts.
The oil filler/oil dipstick is accessible through an access door in the engine cowling.

Control Lock

A typical Cessna style lock is fitted to lock the aileron and elevator controls. It comprises a steel rod with metal flag attached.

Mixture Control
This is of the vernier adjustment type. For large or rapid adjustments the mixture control can be moved fore and aft by depressing the lock button in the end of the control.

Flaps
These are of the single slot type. They are electrically operated and selections of 10°, 20°, 30° and 40° can be made.

Fuel Strainer/Drains
The control for the strainer valve is located under an access panel on the Right-hand side of the engine cowling. Drain valves are located in-board, near the wing root.

Electrics
The system for G-DUNK and G-BDZD is a 14 volt D.C, the battery is 12 volt, however, for G-BOIX the system is 28 volts D.C, the battery is 24 volts.

Avionics Power Switch
Electrical power from the primary bus bar to the avionics bus is controlled by a toggle switch circuit breaker placarded AVIONICS POWER. With the switch down (off) no power can be supplied to the avionics regardless of the position of the master switch or individual component switches.

Seat Adjustment
The front seats are fully adjustable. However, when entering or leaving the aircraft it is good practice to move the seats to the rear of their travel to obviate damage to the aircraft furnishings – without hurting the knees of the passenger in the rear seat!

Brakes
Toe brakes are fitted. When the aircraft is parked both wheel brakes can be set using the parking brake. This last is of the ratchet type. To apply, set the brakes with the toes, and then pull the handle aft and rotate 90° down.

Taxying
When steering on the ground using the rudder pedals only, the nose wheel travel is limited to 10° in either direction. If differential brake is applied (without locking the wheel completely!) the nose wheel travel can be increased to 30° in either direction.

Fuel Handling
The fuel system is gravity fed. A 4-position fuel selector is provided and venting is achieved by an interconnecting line from the R.H fuel tank to the L.H tank. The L.H tank is vented overboard through a vent line, equipped with a check valve, which protrudes from the bottom surface of the left hand wing near the wing strut. The R.H fuel tank filler cap is also vented. As the two filler caps are not identical they should not be interchanged!

To ensure integrity of the entire fuel system it is advisable for pilots to make a habit of engine starting on one wing tank, changing to the other wing tank for taxy, then switching to 'Both' for the power check, take off and climb. This last is mandatory! Similarly, 'Both' should be selected for approach and landing plus any manoeuvres involving prolonged slips or skids or unusual attitudes. 'Left' or 'Right' may be selected for cruise if required especially if it is wished to level off the contents to improve lateral trim.

Mixture Leaning

For details pilots are to refer to the Flight Manual. In any event no leaning should be carried out below 3000 ft. during full throttle climb.

Cruise

Full information on recommended power and mixture settings are provided in the Cessna 172 Flight manual. However, as a general rule 2300 rpm is recommended for normal cruise reducing to 2100 rpm or thereabouts depending on aircraft load in the circuit.

Weight and Balance

For details, pilots should refer to the Flight Manual, Section 6. The maximum quoted weight is 2300 lb. Pilots should be aware that it is highly unlikely that the aircraft is permitted to carry full fuel load, four heavy occupants, and baggage. Hence the need to check.

Speeds for Normal Operation

Unless otherwise noted, the following speeds are based on a maximum weight of 2300 pounds and may be used for any lesser weight. However, to achieve the performance specified in Section 5 for take-off distance, the speed appropriate to the particular weight must be used.

Take-off, Flaps up:

Normal Climb Out … … … … ... … 70 – 80 kts

Short Field Take off, Flaps 10°, Speed at 50ft … … 53 kts

En-route Climb, Flaps Up:

Normal, Sea Level … … … … … … 75 – 80 kts

Normal, 10,000ft … … … … … … 70 – 80 kts

Best Rate of Climb, Sea Level … … … … 73 kts

Best Rate of Climb, 10,000ft … … … … … 68 kts

Best Angle of Climb, Sea Level … … … … 59 kts

Best Angle of Climb, 10,000ft … … … … 61 kts

Landing Approach:

Normal Approach, Flaps Up … … … … … 60 – 70kts

Normal Approach, Flaps 40° … … … … … 55 – 65 kts

Short Field Approach, Flaps 40° … … … … 59 kts

Balked Landing:
Maximum power, Flaps 20° … … … … … 55 kts
Maximum Recommended Turbulent Air Penetration Speed:
2300 lbs … … … … … … 97 kts
1950 lbs … … … … … … 89 kts
1600 lbs … … … … … … 80 kts
Maximum Demonstrated Crosswind Velocity:
Take off Landing … … … … … … 15 kts