



Daily Inspection

**D.I. Check**

Exercise 3

Preparation for flight



## Cockpit

Check the instrument panel is secure, all switches OFF, master key out, instruments secure and glass intact.

Switches down means OFF – Make sure the MAGS (1) are down – this means they are earthed but there's no way of knowing so make sure the master key is removed.

## Check cockpit area, including under seats to ensure no items have been left in the aircraft

- Complete a box check of the control stick in BOTH directions to ensure the controls are moving freely. Check left and right movement of the control stick matches the left and right aileron movement. Likewise, check the back and forth movement matches elevator movement.

## Check aileron quick release connections, flap gate, all cables and pulley runs

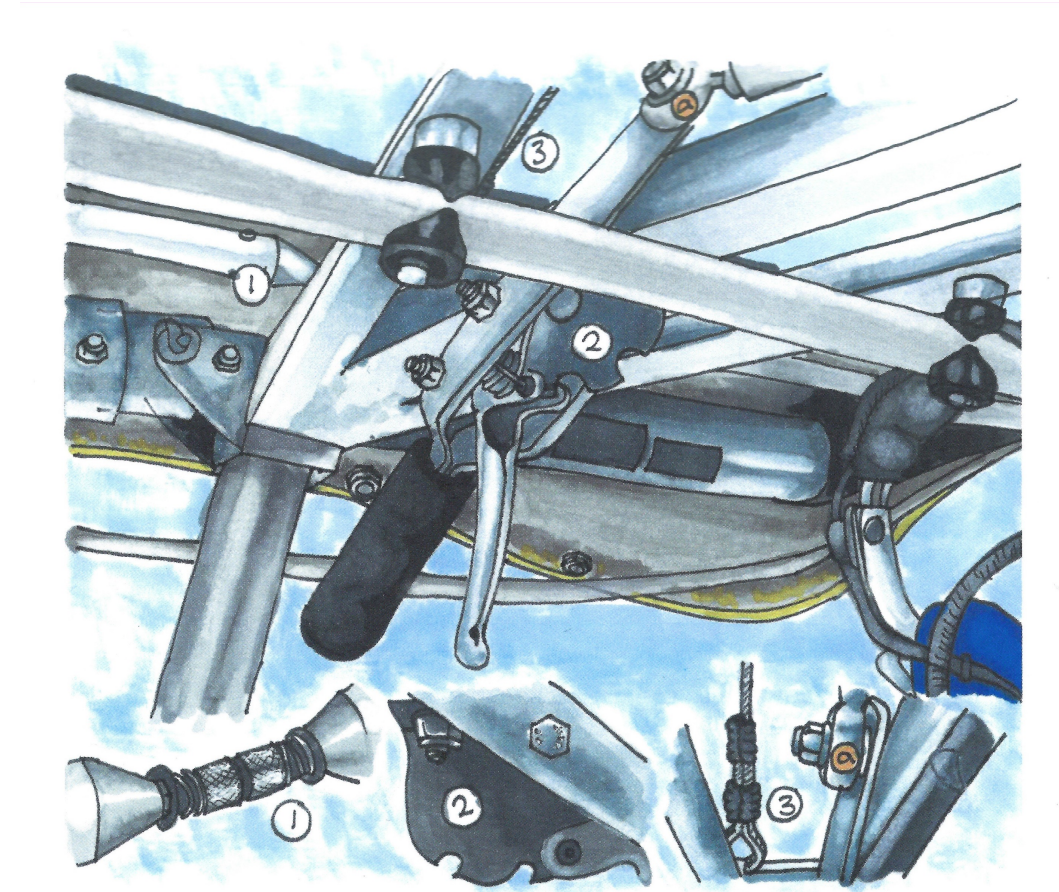
- Check the aileron control rods are secure and connected to the control plate (1). Ensure cable D-rings are secure and fitted to control plate (3). Check flap handle moves freely and locks into each of the flap settings on the flap gate (2). Check flap control rod is connected to flap lever and is secure (a).

## Check for cable wear and fraying

- Lift inspection flap between the seats on the rear wall and make a visual inspection of cable runs and pulleys. Move the control stick in a box pattern to visually check for free movement of control cables.

## Check rudder pedal operation

- Never apply foot pressure to the rudder pedals while the aircraft is parked. Make a visual check of the ball joint connection rods fitted to the inner pedal of both seating positions. Check cables for wear and fraying. If you notice that the pedals have a solid deflection to either the left or right, this would indicate that the centralising spring has failed and the aircraft must NOT be flown.

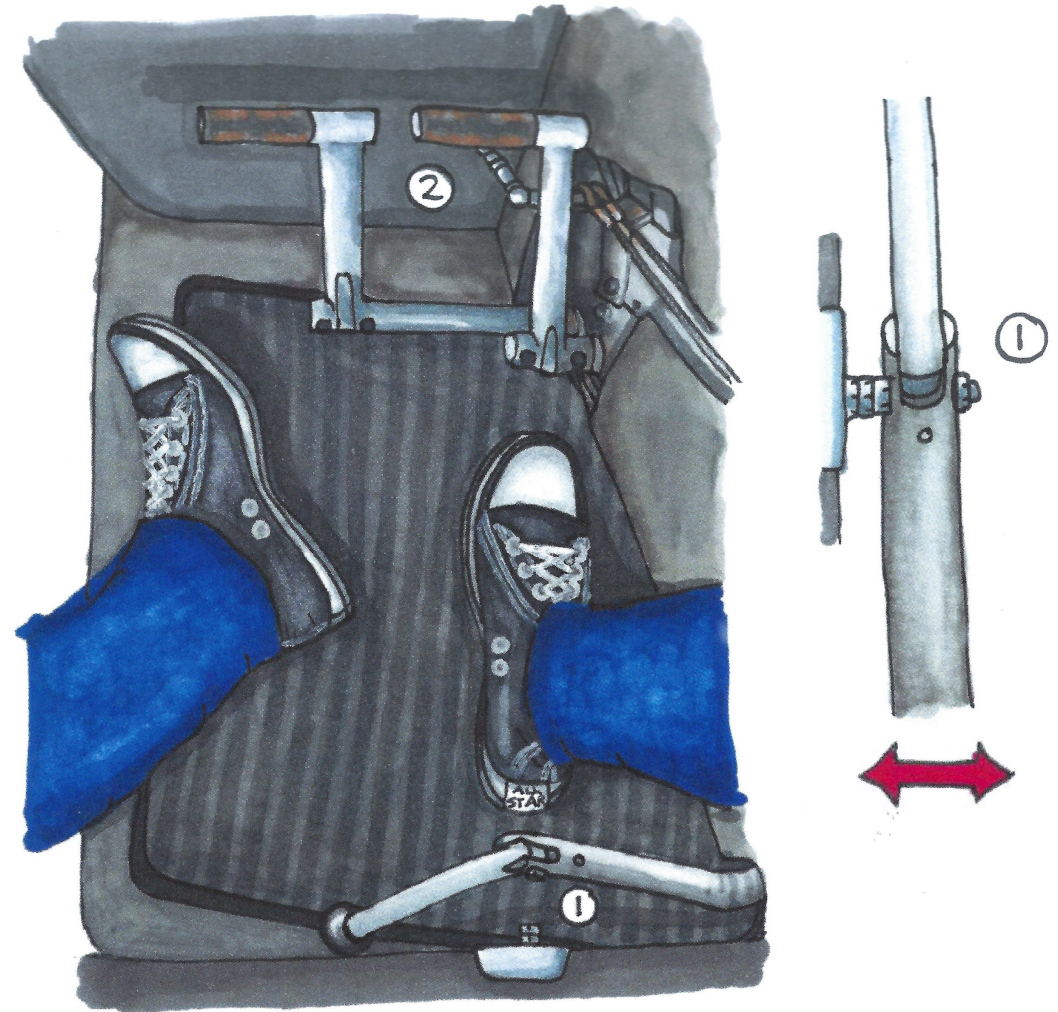


## Check throttle operation

- While seated in the aircraft, move the throttle control fully forward and then full back, ensuring that free movement in both directions is possible. Check that in the full back position, the throttle stays at the stop located between your legs (1). It mustn't move forward from this position unaided.

## Check seat belts

- Make a full visual check of all seatbelt webbing inspecting for rips and defects. Firmly pull all straps to ensure they are securely fixed to their anchor points. Fit the coupling ends together to check they lock into the mechanism and firmly pull each section to check they lock together then release the belt by pressing the red button checking that the belt separates cleanly without jamming.
- **Any defects must be reported and inspected by a member of the Airbourne team, or your instructor before a flight is commenced.**



## External

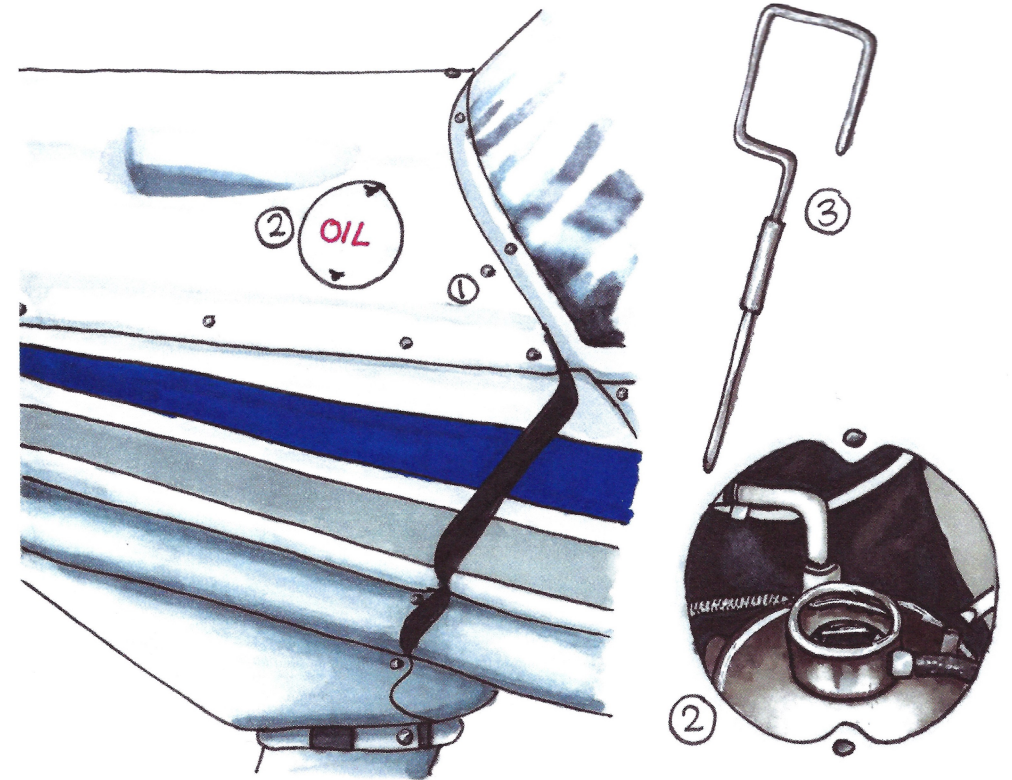
### Check cowl fittings

- Ensure all butterfly fixings holding the engine inspection covers are in place and correctly fastened. The engine cowling is secured by spring loaded cam-locks (1). Again, visually check these fittings are in place and locked into position. Should you find either a cam-lock missing or incorrectly fastened, you must report it to a member of the Airbourne team.

**DO NOT ATTEMPT TO REFIT LOOSE CAM-LOCKS YOURSELF.**

### Oil and coolant levels correct

- As part of the checks carried out by Airbourne staff each morning, the oil and coolant levels will have been checked and topped up as required. Further testing of these levels during typical day-to-day operation is not needed. However, you should be aware of the correct procedure for checking the quantity of fluids (2 and 3).
- This must be supervised by your instructor to prevent the risk of introducing contaminants into the engine system. It is therefore forbidden for students or pilots to either add oil or coolant to the aircraft and this task must only be carried out by authorised Airbourne staff.



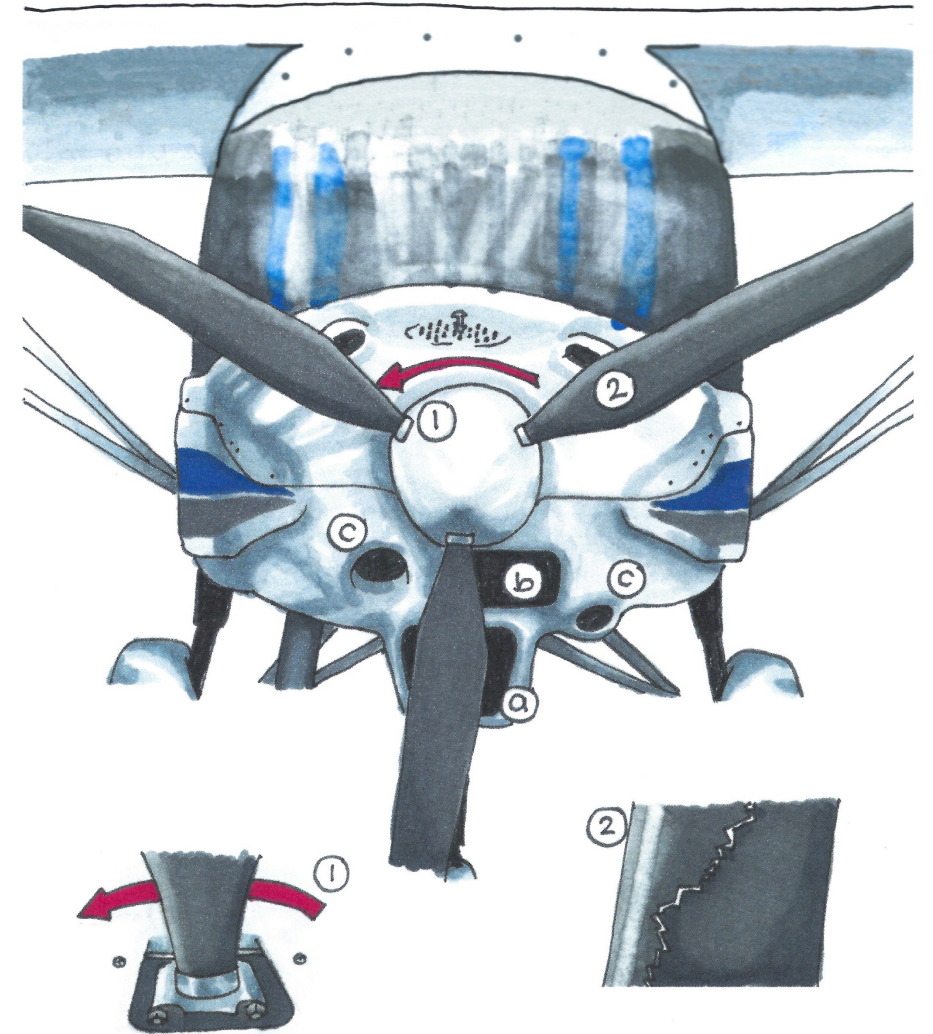
## Propellor & spinner

- The propellor must be clean before each flight. During the summer months, the edges can become extremely contaminated with dead bugs that have been struck by the blades in flight. A bucket and cleaning cloth are supplied for cleaning. Likewise, an inspection of the blades can only be successfully completed if they are clean, as we are inspecting for small chips and possible cracks (2).

The spinner (1) is the cone shaped hub cover that is secured using a series of hex-bolts and retaining nuts. You must check that all fixings are in place and secure. Do not push or use any force on the spinner while checking it. You will note that the propeller blades emerge from the spinner and at this point, they are fixed to the hub by 2 bolts and nylock nuts (1), make a visual check for these bolts.

## Air intakes & heat exchangers

- Inspect the engine air intakes on either side of the propeller to ensure they are clear from any debris that could obstruct airflow (c).
- The C42 is fitted with 2 heat exchange units on the front of the aircraft. One for oil cooling (b) and the other is for cooling the engine coolant (a). Make a visual inspection of the heat exchangers looking for damage or cracks. The presence of any liquid on the exchangers could indicate a leak in the system.



## Front gear, tyre pressure & condition

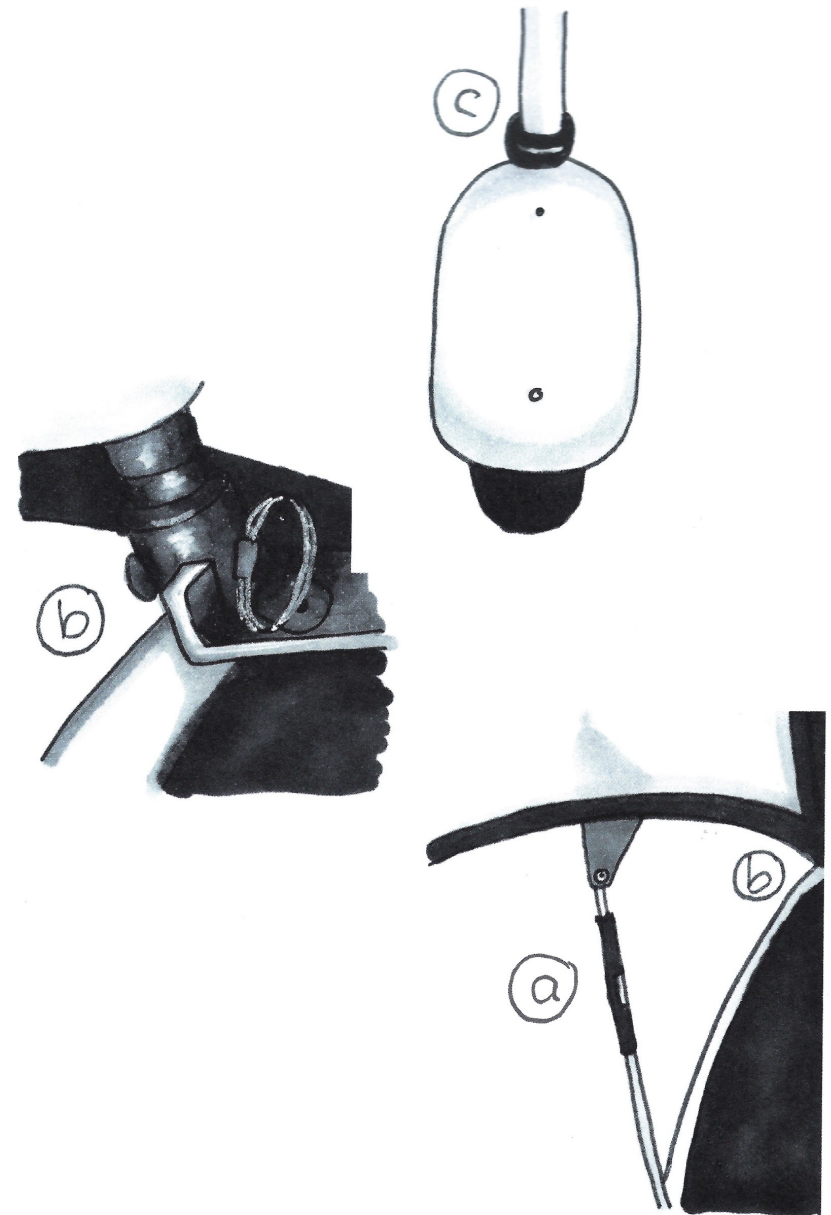
- Check that the white plastic washer and rubber rings are in place and under compression (c). Any movement would indicate damage to the front leg. Check the nose wheel spat is secure, and any debris must be removed from the wheel arch. If there is an indication of oil on the spat, this must be reported to a member of Airbourne staff. Check the tyre tread and the general condition of the tyre. Any cracking, or deformation must be reported immediately. Does the tyre appear to be under-inflated? Ask if unsure! Repeat this check on the main landing gear.

## Door hinge & D-rings

- The aircraft doors are held in place by a silver pin at the top-rear of the door and acts as a hinge (b). Ensure this hinge has free movement and that the pin is present and locked into place by its D-ring retaining clip.

## Gas strut & door operation

- Check that the gas strut attached to the door is straight and not bent (a), check for free movement and that the door does not close back down when in the fully open position. When verified, re-close the door and secure it. A strong gust of wind or an aircraft prop-wash could cause the door to slam closed and damage the door, its hinge (b) and the door operating mechanism.





## Main Check

- Check the main landing gear tyres are in good condition and correctly inflated. Ensure wheel spats are fixed securely with all bolts in place. Check brakes and brake discs looking for signs of any leaking brake fluid. Check main landing gear legs giving them a firm shake to check for correct and secure fixing. Visually inspect the oleo-pneumatic rubber strut cover for splits and damage.
- Run your hand along the wing skins feeling for anything unusual or out of place. Check for slackness in the skin surface while visually checking all stitching and that wing battens are in place.
- Check for any damage to the fuselage and ensure all fixing bolts are in place and that the fuselage alignment looks correct and flat.

## Controls & fixings

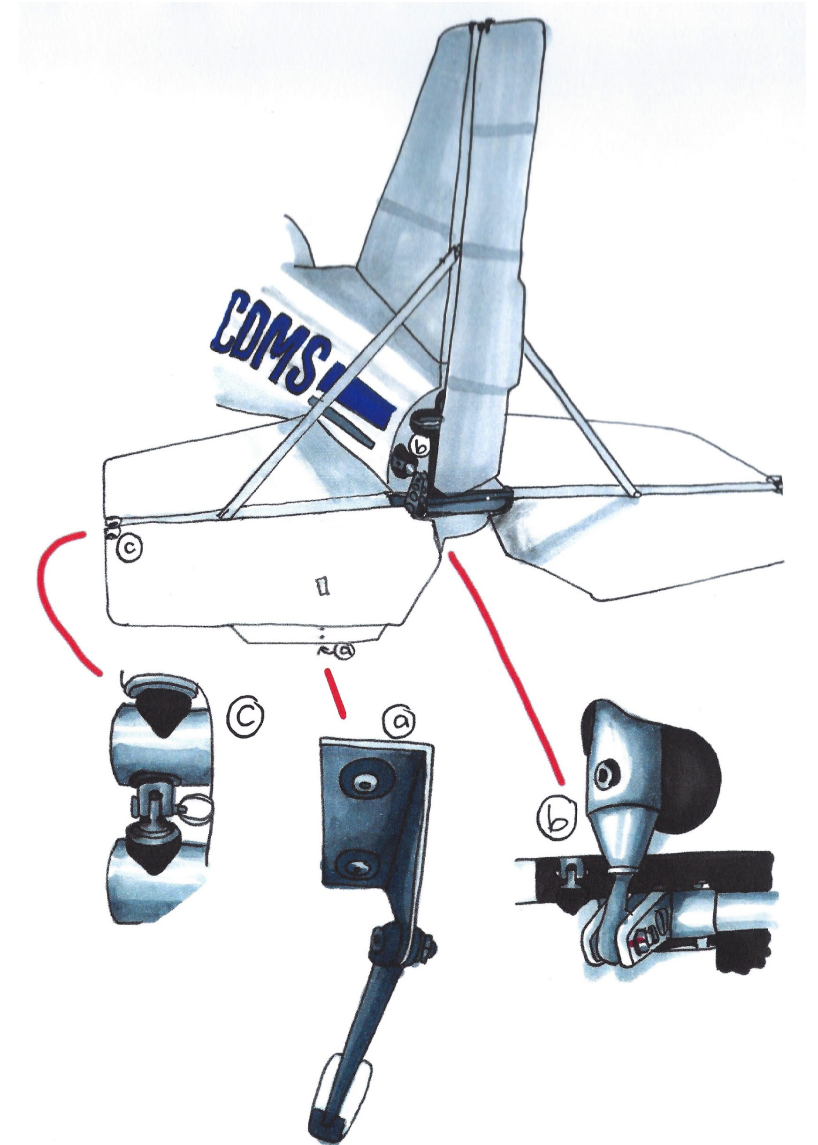
- At the end of each wing look through the gap in the wing skin (Check Here) and manipulate the ailerons by hand looking for the correct movement of the control arms. Inspect the control horn (a) for any slack action. The ailerons and flaps are attached to the wing using hinged clamps and pins secured (b) by circular clips. Check all fasteners and clips are in place and secure.

## Elevator control

- Standing to the rear centre of the aircraft, visually check the alignment of the vertical stabiliser and rudder fin ensuring both are square to the vertical stabilisers. As with the ailerons, the rudder fin is secured to the vertical stabiliser using pins and locking clips. Confirm all fixings are present and secure.
- Check the top and underside of the horizontal stabilisers to ensure the skins are tight and undamaged. Unlike the ailerons, the elevator movement is equal on both sides of the rudder and hinged using pins and retaining circular clips (c). Check for free movement of the elevator in both the up and down movement. The actuation of the elevator is controlled by the arm extending from the centre rear of the lower tail section (b). Make a full visual inspection of the ball-joint and securing bolt, noting the red paint markings on the fixings are in alignment.

## Electric trim and tab

- The trim operation is electronically controlled by a control arm protruding from the rear underside of the port elevator and is connected to the trim tab. You must not attempt to move this mechanism as permanent damage will result to the trim control. Lifting the elevator, check that the fixing bracket (a) is secured to the trim tab and that all fixings are in place and secure. The control arm is fixed in place by a bolt and split-pin marked in red paint to show its locked position. Visually check that no movement has taken place and that the arm is securely fixed to the trim bracket taking great care not to apply any force to the control arm or trim tab itself. Gently lower the elevator back to its down position after completing the inspection. **DO NOT** let it go or drop the elevator unsupported.





## Baggage area

- Remove the baggage area cover (c) by unlocking the 4 butterfly cam-locks. Check that the fuel tank is securely fixed to its mounts. Make a visual inspection of the fuel filter located below the keel tube. Check all control cables for fraying and ensure compartment is free from debris and any loose items. When reattaching the panel, ensure all cam-locks are securely located and fixed in place.

## Pitot tube

- The pitot tube is located on the leading edge of the port wing (b). It is critical to check and adjust the tube, making sure it's fully protruding. Gently pull the tube forward until you encounter a stopping force. DO NOT YANK the tube and do not force it to move. Check that the tube is straight and not bent. Make a visual check looking down the tube to ensure it's not blocked. You should be able to see light clearly down the tube.

## Fuel testing

After refuelling the aircraft, and before any flight, you must check the fuel for water and other contamination. You will need to use a fuel-tester (d) to make this check. Located on the bottom of the aircraft fuselage just behind the main gear (a) is a small, winged tap. Using the fuel tester, draw off half a tube of fuel. Check for any water content in the container and repeat the process if any water is detected. Dispose of the drawn fuel ONLY on the paved area outside of the office. DO NOT dispose of the fuel near to the aircraft or in any grassed area.

