Illustration 3c Control Y
Trim System

The Cessna 172 aircraft has a manually operated rudder and elevator trim system.

Illustration 3d Trim tab Travel

One trim tab is provided on the right side of the elevator, spanning most of the rear section of the right elevator. The trim tab moves opposite to the control surface, reducing the aerodynamic force on the control surface in order to hold the selected position. Trimming is accomplished through the elevator trim tab by turning the vertically mounted trim control wheel. Forward (up) rotation of the trim tab raises the elevator and downward rotation lowers the elevator. The travel of the trim tab is limited by stops to prevent damage.

Illustration 3e Trim Wheel
trim wheel will trim nose-down, conversely, aft (down) rotation will trim nose-up. The trim tab control wheel depending on the model may be mounted on the centre console or in the cockpit floor. A portion of the wheel extends through the control wheel cover and when rotated, operates the tab through roller chains, cables, an actuator, and a push-pull rod. A position indicator at the trim tab control wheel indicates nose attitude of the aircraft.

A rudder trim system is installed in later models to provide a means of directional trim. The system increases directional stability and is especially useful during climb-out operations when the engine is operating at nearly full power and the aircraft forward speed is relatively low. The trim compensates for engine torque by applying slight rudder control in the direction necessary for maintaining straight forward flight. During cruise, the rudder trim may be adjusted to maintain balance for any power setting and airspeed.

The rudder trim, if installed, is operated by either a rudder trim control tab or control wheel mounted on the centre control pedestal.

With a rudder trim control wheel, rotation of the control wheel to the right provides "NOSE RIGHT" trim, and left rotation provides "NOSE LEFT" trim. A rudder trim position indicator indicates the trim setting when the trim control wheel is adjusted.

With a trim lever, trimming is accomplished by lifting the trim lever up to clear a detent, then moving it either left or right to desired trim position (as shown in the picture below). Moving the trim to the right will trim nose-right, conversely, moving the lever to the left will trim nose-left. The rudder trim control is connected via a bell crank to a bungee, which is directly connected to the rudder pedal control bar and thus to the rudder itself.
Typical IFR Radio Installation (Conventional Aircraft)

The picture below illustrates a full IFR avionics stack on older models of aircraft. From top: Audio Selector, GPS, Com 1/Nav 1, Com 2/Nav 2, Transponder, ADF

Illustration 10e IFR Radio Stack
FLIGHT OPERATIONS

PRE-FLIGHT CHECK

The preflight inspection should be done in anticlockwise direction as indicated in the flight manual, beginning with the interior inspection.
**Cabin**

Ensure the required documents (certificate of airworthiness, maintenance release, radio license, weight and balance, flight folio, flight manual, and any other flight specific documents) are on board and valid.

Ensure the aircraft flight manual, and supporting documents are available and accessible in flight.

Check all required emergency equipment for condition, location, and serviceability.

Perform a visual inspection of the panel from right to left to ensure all instruments and equipment are in order, including the following items.

- Control lock – REMOVE
- Ignition switch – OFF
- Lights – OFF except beacon
- Master switch – ON
- Fuel quantity – CHECK
- Flap lever – full DOWN (electrical)
- Master switch – OFF
- Fuel selector valve – CORRECT TANK

**G1000 Models**

Additionally for G1000 equipped aircraft the following items need to be checked after selecting the master switch on:

Ensure PFD display visible, check the required annunciators are displayed.

Confirm both avionics fans are operational – turn on each of the avionics buses separately and confirm the fan can be heard.

Turn the master switch OFF

Test the standby battery – hold in the TEST position for approx 20 seconds and ensure green light remains on. (This test is described before start in the POH, however if the standby battery is required for flight it is preferable to complete the test now).

**C172RG**

Confirm gear is down before turning master switch on.

**Operational Check of Lights**

Before turning the master switch off, if lights are required, switch all lights on, confirm visually that all are operational, then turn all off again except beacon.

This is required for a night flight and a good idea for all flights.
Exterior Inspection
Visually check the airplane for general condition during the walk-around inspection, ensuring all surfaces are sound and no signs of structural damage, worked rivets, missing screws, lock wires or loose connections.

Tail Section

Check top, bottom, and side surfaces for any damage, ensure balance weights and fairings secure.

Ensure elevator and trim secure and undamaged, linkages free and unobstructed, check full and free movement of elevator.

Check rudder linkages and turn-buckles secure, unobstructed, and elevator has free movement (do not check full movement with nose wheel on the ground). Check lower tail and tie down for any sign of tail strike.

Check beacon, aerials and rear navigation light undamaged and secure.