
24. Instrument panel module

The instrument panel module is designed to house flight and engine monitoring instruments, various switches, circuit breakers, navigation equipment, and to accommodate the choke control. To the starboard side is an open tray. There is a recess which is for the landing gear/flaps retraction lever to go when the gear and flaps on the monowheel Europa are retracted. This can be blanked off for the tri-gear aircraft to allow more panel space. A further recess to enable viewing the full height of the fuel sight gauge must be retained..

The module can be 'hard-wired' to the aircraft, meaning no connectors are used between the switch, instrument or whatever, and the device it is wired to. This would result in difficult installation and removal.

Ideally, wiring and pitot/static connections should be installed via connectors and manifolds which allow rapid installation or removal. The advantage of this type of installation is obvious in that the complete module can be assembled and all connections made to it on the bench.

Corresponding wiring and air lines can be installed in the fuselage, terminating at sockets or plugs to suit the connections in the module and the whole assembly fitted in a matter of minutes when all the preparation is complete.

The throttle and choke controls are both fitted to a spine on the centre tunnel of the cockpit module, so it is not necessary to make provision for them in the instrument panel.

Mounting the module

Step 1

The flange which runs around the back edge of the module is for fasteners to hold it to the firewall. Part of the flange, where the module sits on the front of the wheel well, must be removed. Trim only this area away until the flat of the module's underside can sit on the wheel well tunnel. Remove material locally as required to allow for the build-up of the firewall to wheel well layup.

Hold the module in place with the flange against the firewall. There will be a gap between the tunnel and the rear of the module to allow for upholstery. Secure it in the place it fits best, trimming parts of the flange if necessary.

Step 2

Mark eight hole centres, equally spaced approximately 130mm (6") apart, four each side of the centreline around the top curved edge of the firewall such that the holes will centre on the module's flange.



Mark hole centres to coincide with the lower horizontal flanges of the module, two each side is sufficient. These holes will be within the radius of the firewall so a cuddle plate may be required. If you prefer, you could fabricate small brackets to which the lower flange of the panel could be fastened, and permanently fix them to the inside of the firewall.

Drill through both firewall and instrument module with a 4.8mm drill at each hole centre mark then remove the panel.

Step 3

Attach MS21047-3 anchor nuts using TAPK33BS rivets on the instrument module for the five upper flange holes which are above the instrument section. The remaining three holes, which are easily visible over the tray, would be better to have the anchor nuts attached to the front of the firewall so only bolt heads are seen. Longer TLPD440BS rivets are required here. Fix anchor nuts also to the lower flanges of the module. Finally fasten the panel in place, to check it fits properly, with AN525-10R14 bolts.

Fitting instruments

The module has been designed with a standard layout in mind, however you may choose your own layout to suit your own preference.

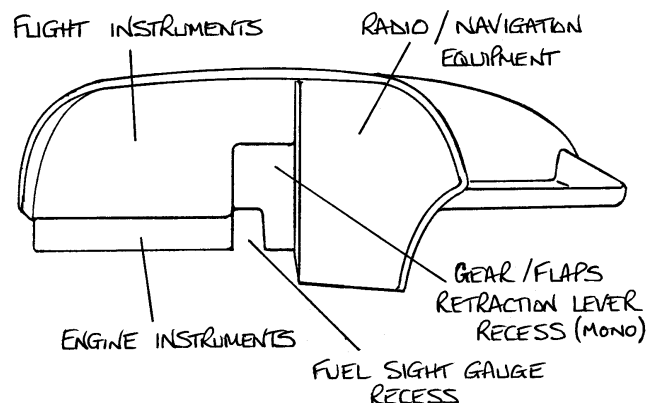


Fig 1. Instrument module.

In principle, the large area facing the pilot is intended for flight instruments and the engine RPM gauge, the inset lower panel for the engine monitoring instruments and the slightly angled section over the centre tunnel for radio, navigation equipment etc., the lower section of this panel being reserved for pitch trim switch and indicator and the choke control. Switches and circuit breakers, etc. may be fitted wherever preferred. See figure 1.

Step 4

Engine instruments

It is common practice to fit the RPM gauge high up on the main panel so it is not a large angle away from the normal line of sight. Above the rebate for the flap/gear retraction handle is a convenient location.

Step 5

Flap switch - (trigear)

The flap switch is best mounted on the centre section of the instrument panel, below the avionics, so that it can be operated from either seat. To avoid confusing the flap control with the trim control a toggle switch is provided (part number 93A 302A), the trim control switch being a rocker switch.

Step 6

Pitch trim switch and indicator

The area to the left of the flap control is intended for the pitch trim switch and indicator. Place the indicator to the left of the switch so it is not obscured by your hand when operating the switch. See figure 2 for suggested positions of flap and trim switches.

Install the indicator and switch according to the instructions supplied with them. It is necessary for reasons of flight safety that all Europas should have the trim control operating in the same sense.

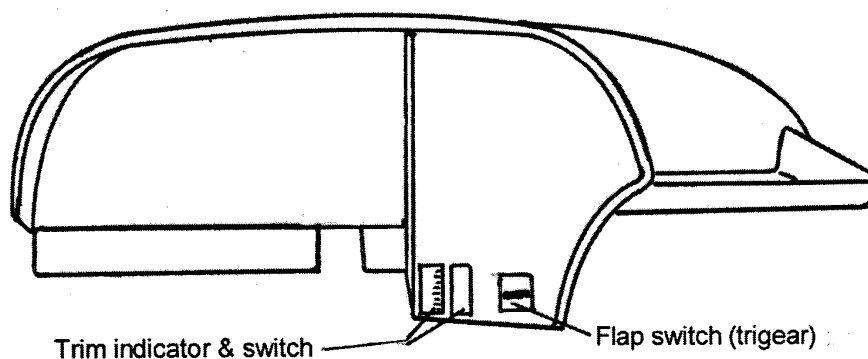


Fig 2. Trim and flap switch positions.

Set up the switch and indicator such that when pressing the *bottom* of the rocker switch the indicator needle moves *up* and the tab itself moves *down*, thus causing a nose *up* pitch trim change.

Step7

Flight instruments

The standard arrangement for the principal flight instruments is as shown in figure 3.

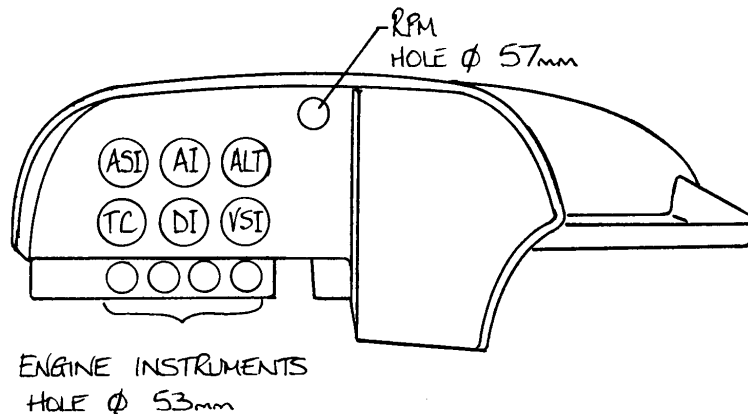


Fig 3. Typical instrument basic layout.

- ✘ ASI - Airspeed Indicator
- ✘ AI - Attitude Indicator
- ✘ ALT - Altimeter
- ✘ TC - Turn Co-ordinator / Turn and Slip
- ✘ DI - Direction Indicator
- ✘ VSI - Vertical speed indicator

The panel is designed to be vertical in respect to the aircraft when in the cruise so fitting an attitude indicator (AI) would be straightforward. Only two of these instruments are required by law with which to fly visually in uncontrolled airspace; the altimeter and airspeed indicator.

One other instrument, the compass, is also required but this is normally mounted some distance away from other instruments, wiring, metal parts etc. to minimise false readings caused by magnetic interference. The top centre of the windscreen is a common choice for its location.

Mount your choice of instruments as required.

Connections for the instruments used should be made according to the manufacturers instructions.