












## Phase 13: Instruments installation

**Group 8** provides all the necessary elements required to connect the electric system and the aeronautical instruments.

### Parts and other components

PARTS	DESCRIPTION	CODE	QTY.	PACK
	Strobe Resistor	012-7426	1	9
	Strobe Electrical Box	150-0015	1	9
	Strobe Light	4E151001C	1	9
	Pitot	4I0015135	1	9
	Static Port	4I0015160	1	9
	Hobbs Hour Meter	HOB 15000	1	9
	Instrument Mounting Nut	MS33737-13C	6	9
	Instrument Mounting Nut	MS33737-15C	8	9
	Fuel Level Gauge	WES 10-01246	1	9
	Engine Oil Pressure Gauge	VDO 10-01569	1	9
	Engine Oil Temperature Gauge	VDO 10-01579	1	9

## Phase 13: Instruments installation

	Engine Water Temperature Gauge	VDO 10-01646	1	9
	Engine Cylinder Head Temp Gauge	VDO 10-01646	1	9
	Compass	FAL 10-01704	1	9
	Altimeter	FAL 10-02260	1	9
	Manifold Pressure Gauge	FAL 10-02270	1	9
	Air Speed Indicator	FAL 10-02898	1	9
	Vertical Speed Indicator	FAL 10-05210	1	9
	Dual RPM Gauge-Engine/Main rotor	DRT 3027 B CH7B	1	9
	Instruments Indicator	CH6B_8.001.0.0	5	9
	RPM Governor Electrical Box	20101222-2V.1.0	1	5
	Rotor RPM Sensor	CH6B_16.007.0.0	1	5

TOTAL PHASE 13 PARTS: 38

### Necessary tools

- Clamp
- Pliers
- Crimping tool

## Phase 13: Instruments installation

### Other necessary elements

- Electrical tape (must not contain corrosive chlorides)

### Assembly order

#### Step 1- Installation of the instrument panel

Install the flight and engine instruments according to the following image (standard version):

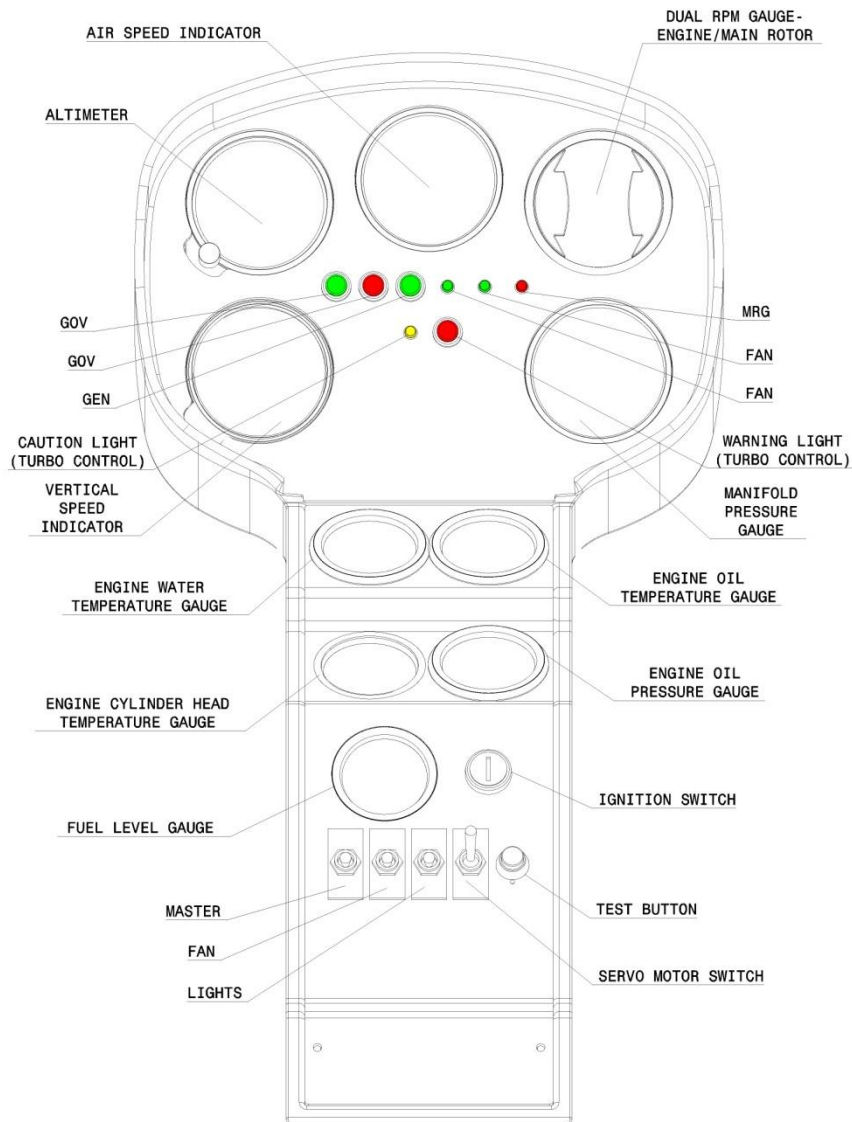


Fig. 1

## Phase 13: Instruments installation

Ready to fly version:

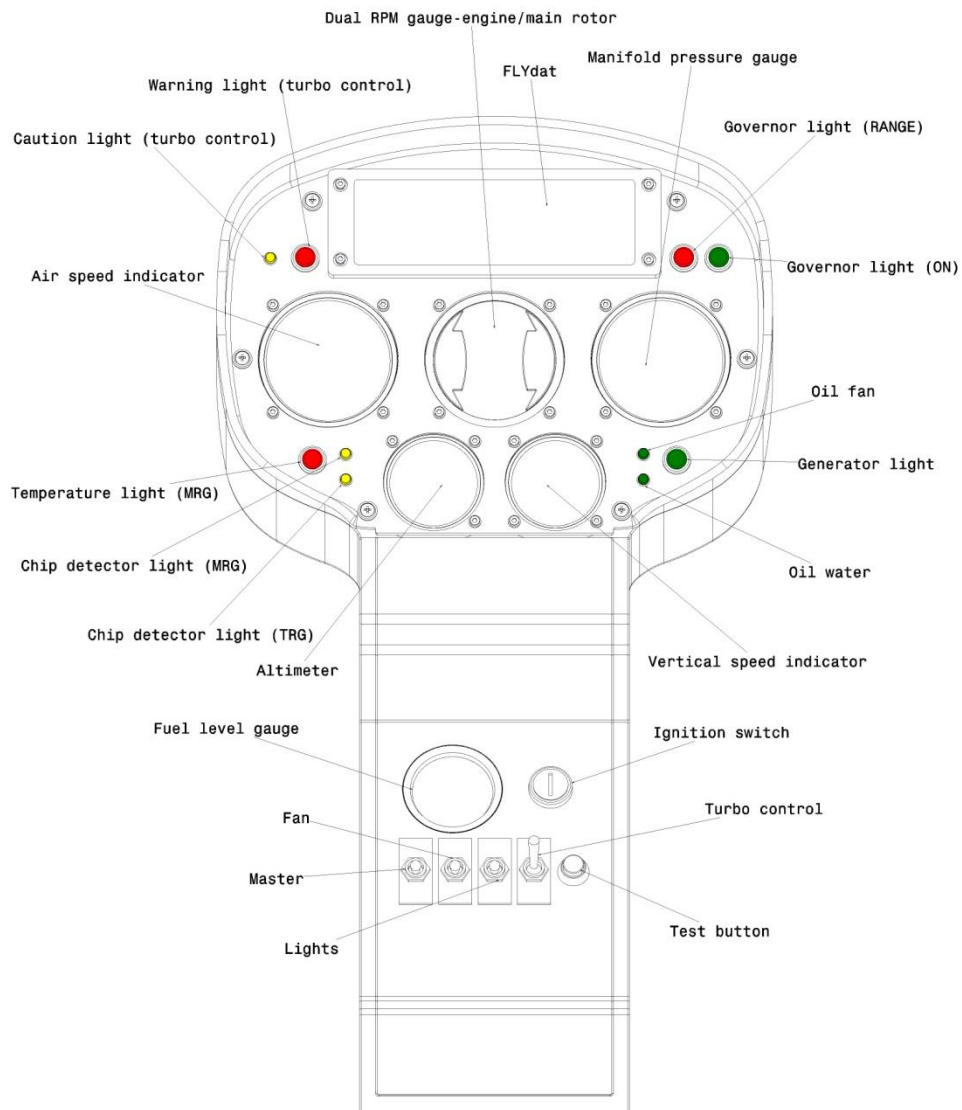


Fig. 2

## Phase 13: Instruments installation

---

### Step 2- Connecting the instruments

Connect the flight and engine instruments to their respective terminals according to the drawing in phase 12.

Read the electrical schematic carefully as it can be easy to assume that a wire goes in a particular place when it in fact does not.

It is important to get the polarity correct on the two special Governor LEDs which have been modified and can be identified by the soldering on their back.

Before the instrument consol is permanently attached to the airframe, fit the Pitot static vent to the left side as shown in the following image:



**Fig. 3**

Use a spare length of your fuel hose to connect from the ASI static port to the vent above. The fuel hose resists kinking and must be of sufficient length to allow the top Instrument panel to be pulled aft for easy access.

The Pitot pressure tube is best fitted to the nose pod before the pod is fixed in place.

Fit the Pitot pressure tube in the middle of the pod underneath, so that the inside vertical tube is well aft of the Tail rotor pedal system and the hose can be attached easily.

Use a spare length of your fuel hose to connect from the Pitot pressure tube to the Pitot pressure port on the ASI. Use clamps to hold both ends of the hose in place.

Drill a 0.032 hole close to the intake of the Pitot pressure tube and feed a small piece of 0.032 lock wire through to keep insects out of the tube.

Check for leaks in the Pitot pressure system by fitting a length of thin plastic tubing to the intake of the Pitot pressure tube and then rolling it up tightly until the ASI registers 20 kts. Pinch or hold the plastic tube during this process so that it is airtight and acting like a very low pressure air pump.

## Phase 13: Instruments installation

---

Hold the 20 kts for about 1 minute. If the ASI reduces, there may be an air leak in the Pitot pressure system.

Use a spare length of your fuel hose to connect to the Manifold Pressure Gauge from the engine. Attach the hose at the engine and feed it to the instrument consol along the bottom Airframe tube with the electrical loom.

Remove the blanks from the VSI and Altimeter ports and drill a 1/8 inch hole in the plug. Refit the plug. The VSI and Altimeter will work OK and the small hole keeps insects out of the instrument.

Before first flight, after the fuel tanks have been flushed for debris and both tanks have been drained empty, place the helicopter on level ground and calibrate the fuel gauge.

Fill one tank with 10 litres and allow a few minutes for the fuel to level across to the other tank.

Mark both tanks at the rear on the top side of the visible fuel with a permanent marker to indicate 10 litres. Note if the fuel gauge in the cockpit indicates off the empty range.

Repeat the process, 10 litres at a time, to have reliable tank and gauge readings. The Civil Aviation Authorities in some countries require the fuel gauge to be either marked indicating fuel capacity in litres or for a similar placard to be near the fuel gauge and visible to the pilot.

Fit the Compass on the top of the Instrument consol. Do not use any attaching hardware that may be magnetic. Check the compass for accuracy during the initial helicopter hover check flights.

After checking that the wiring loom is of sufficient length, bolt the diode box to the instrument consol RH access panel. Fit it on the inside and ensure that any outside bolt heads cannot restrict movement of the RH tail Rotor control pedal.

---

### NOTE

Observe that every connector is different and could be connected in a unique way to a unique place.

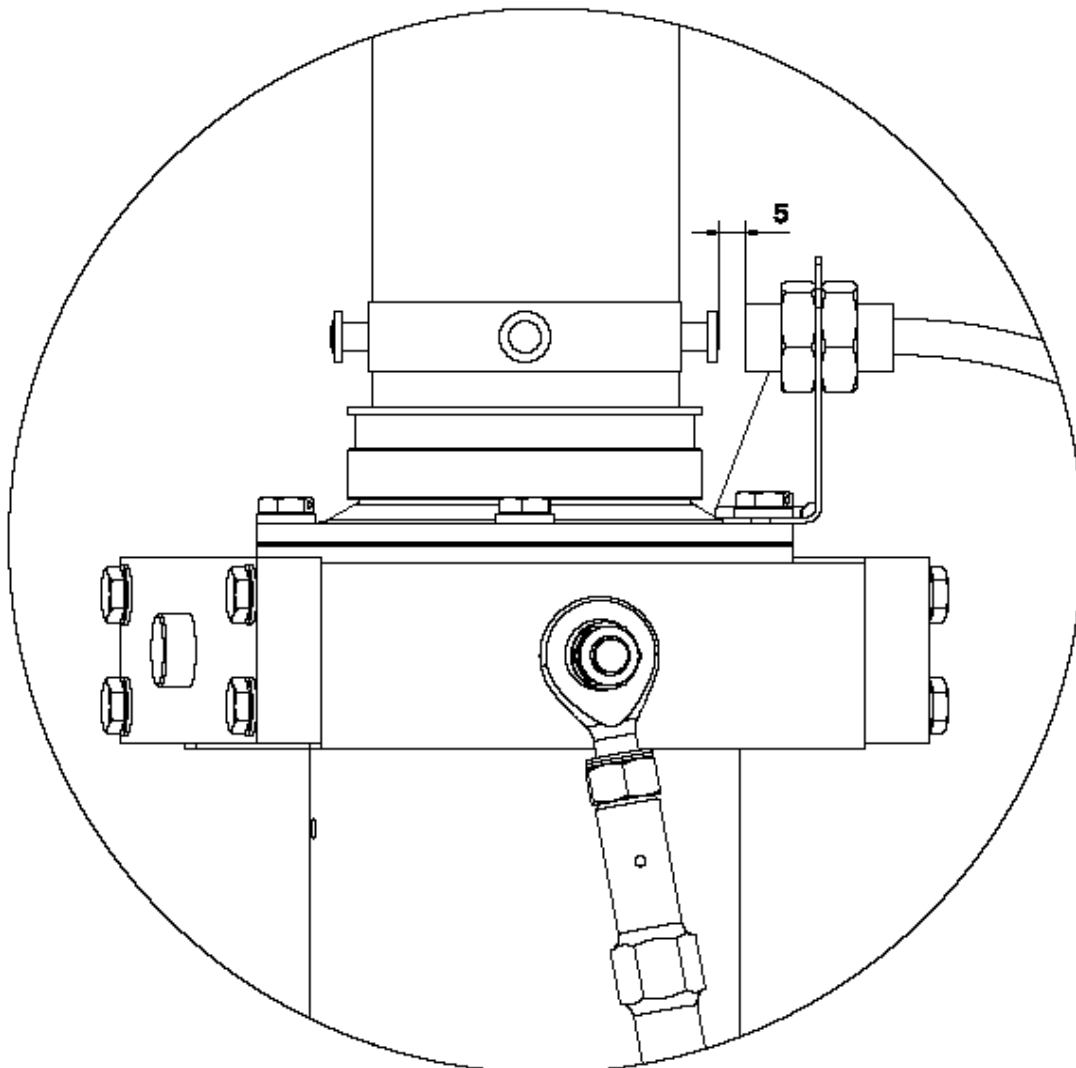
---

## Phase 13: Instruments installation

---

### Step 3- RPM sensor installation

The following image shows the rotor RPM sensor installation to the mast:



**Fig. 4**

---

#### **NOTE**

Dimensions are in millimetres.

---

## Phase 13: Instruments installation

---

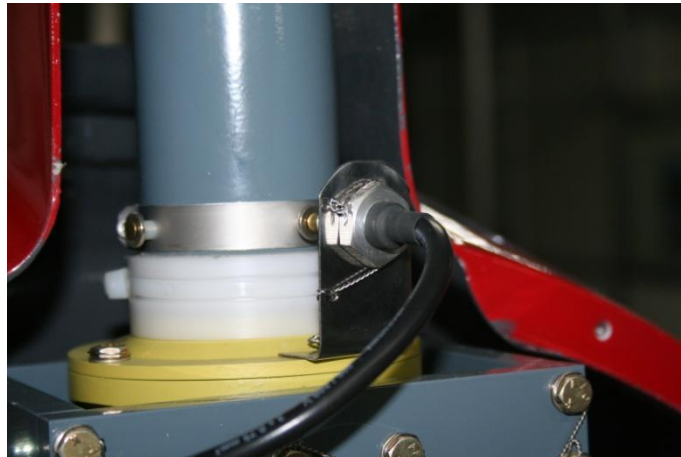
### Step 4- Safety lock wire

---

**NOTE**

Refer to the introduction of this manual, page 15, for more information

---



**Fig. 5**



## Phase 13: Instruments installation

### CH-7T Instrument Panel LED Lamps

Item	<p>Master Switch <u>ON</u></p> <p>Governor Switch <u>OFF</u></p> <p style="text-align: center;">↓</p>	<p>Master Switch <u>ON</u></p> <p>Governor Switch <u>ON</u></p> <p style="text-align: center;">↓</p>	<p>Master Switch <u>ON</u></p> <p>Governor Switch <u>ON</u></p> <p>Required for flight</p> <p style="text-align: center;">↓</p>
<p><b>Governor Large GREEN LED Panel Light</b></p>	<p>Slow flashing green LED light</p>	<p>Fast flash green LED light when on but out of normal flight operating range eg: below 80% ERPM</p>	<p>No flash but a visible green LED light when governor is working in its design range – above 80% ERPM</p>
<p><b>Governor Large RED LED Panel Light</b></p> <p>(not the small red low Rotor RPM light in the tach)</p>	<p>No flash - Visible red LED light</p>	<p><b>A:</b> Under 80% ERPM – Intermittent flash red LED light = normal</p> <p><b>B:</b> Above 80% EPRPM (in governor range) – flashing red LED light = slippage in system as governor cannot reach 100%. (Tighten Governor nut)</p>	<p>No flash or visible red LED light.</p> <p><b>Note:</b> the red LED light may flash during fast manoeuvres such as rapid collective movement or rapid application of left pedal as the Governor tries to regain or maintain 100% ERPM</p>