

SECTION 2

CHAPTER 5

PC9/A AIRCRAFT A23

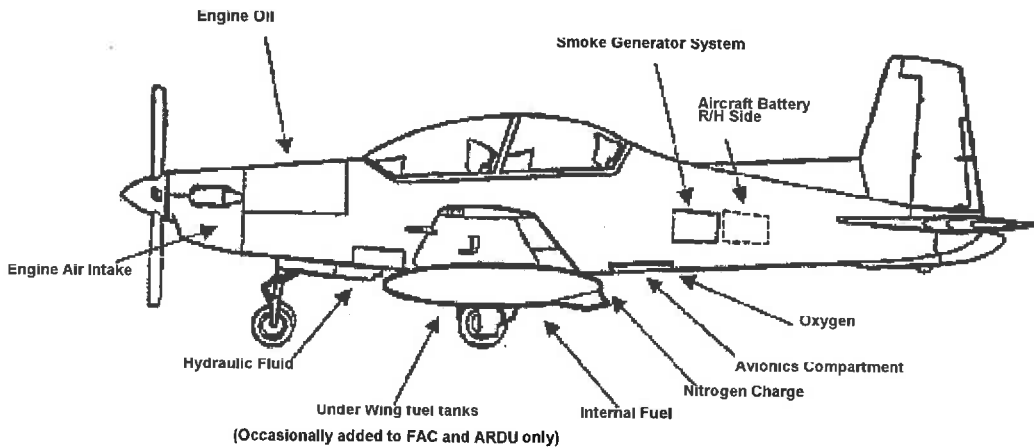


Figure 5-1 Aircraft general information

GENERAL INFORMATION

Crew	Maximum 2
Fuel	535 litres of Aviation Turbine Fuel (Jet 1A) in wings, refer to figure 2. FAC and ARDU aircraft fuel capacity is occasionally augmented by two 240 litre external fuel tanks
Armament	Smoke grenades maximum Qty of 12 located six each side on dispensers under the wing (FAC aircraft only).
Oxygen	<ol style="list-style-type: none"> a. Two cylinders (1415 litre at STP) in oxygen compartment. b. One emergency oxygen cylinder (50 litre at STP) attached to each ejection seat.
Pressure Systems	<ol style="list-style-type: none"> a. Emergency hydraulic system 3000PSI Nitrogen charge in emergency hydraulic accumulator. b. Hydraulic system residual pressure may be as high as 3000PSI.
Oil	<ol style="list-style-type: none"> a. 17 litres engine Synthetic lubricating Oil. b. 4 litres MIL-H5606 Hydraulic fluid. c. 36 litre diesel and 'Whitener' oil mixture in smoke generator system tank.
Aircraft Battery	Nickel Cadmium access door located in left side of aft fuselage.

AIRCRAFT PRINCIPAL DIMENSIONS

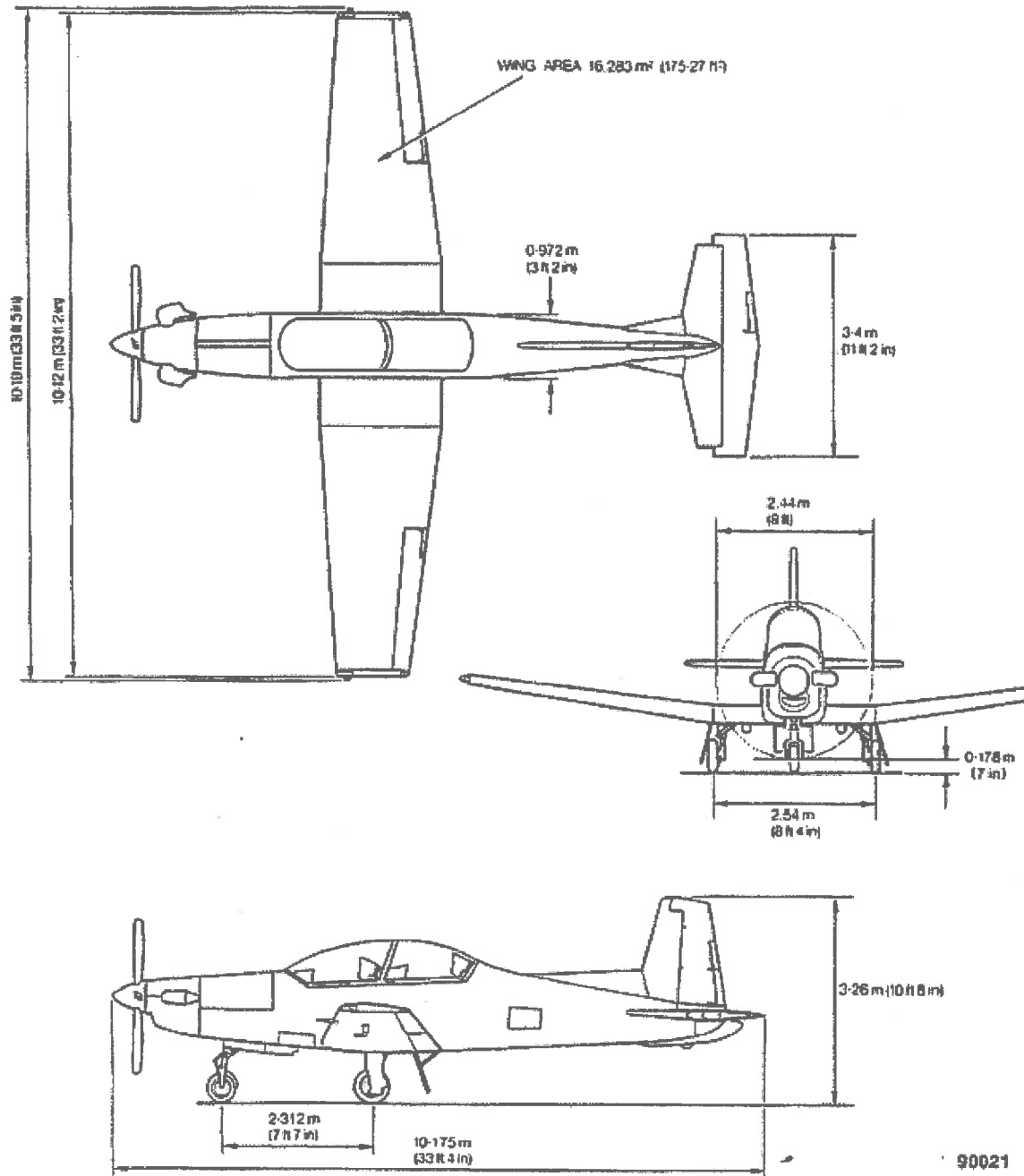


Figure 5-2 Principal dimensions

FUEL TANK LOCATIONS

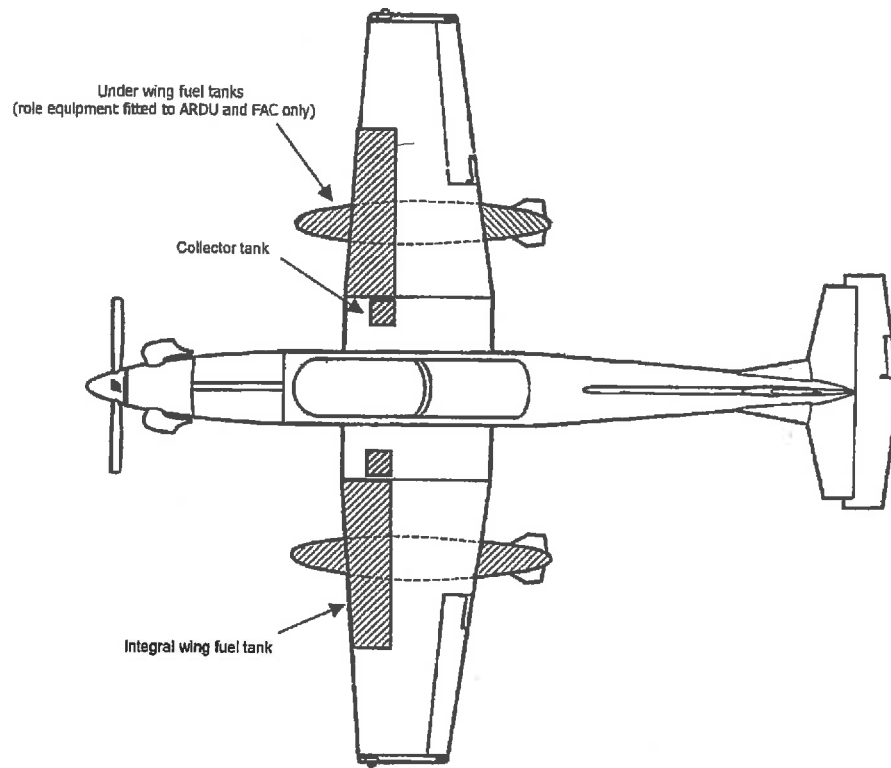


Figure 5-3 Fuel tank locations

AIRFRAME MATERIALS

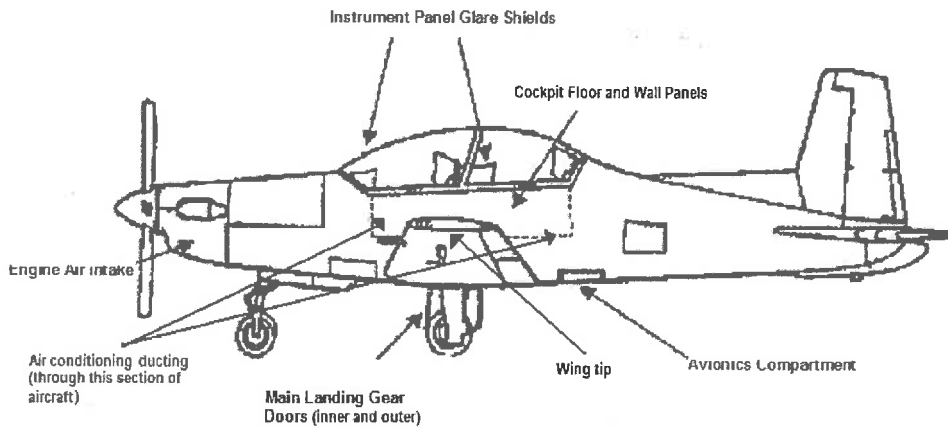


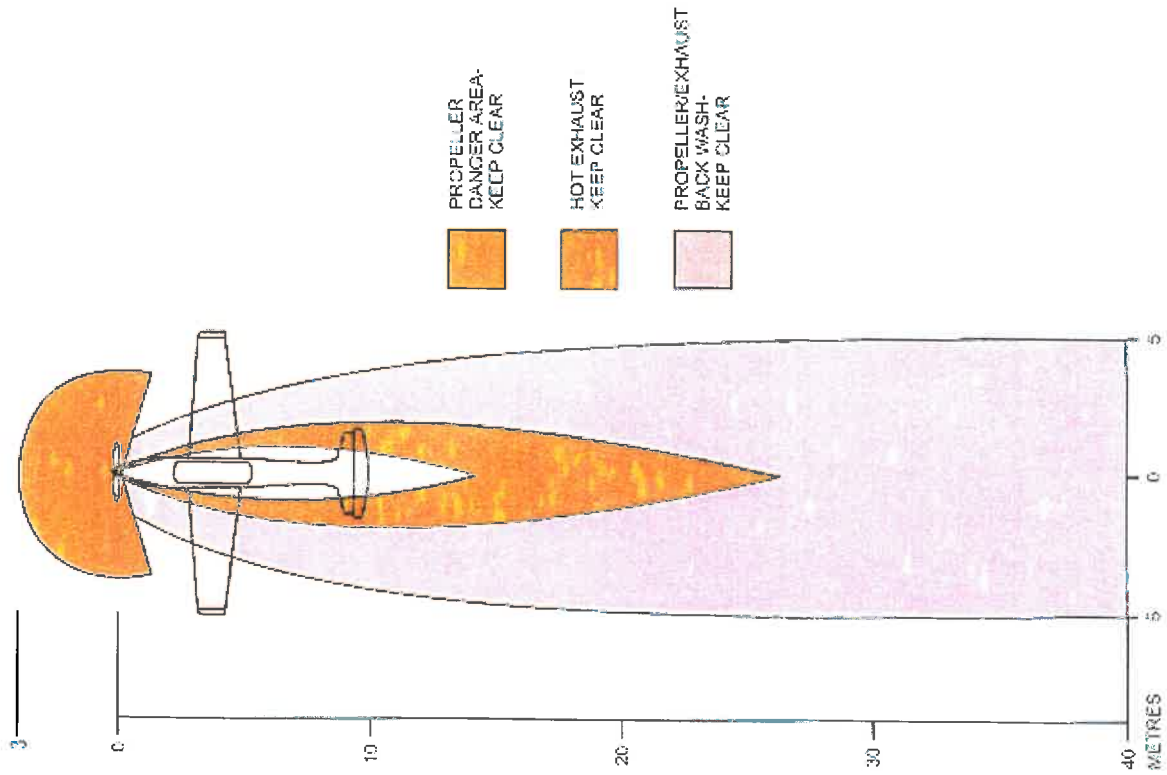
Figure 5-4 Location of composite materials

Airframe Materials

1. The PC9/A aircraft is manufactured mostly from aluminium alloy with some glass fibre reinforced plastic (GRP) and carbon fibre laminate non-structural components. Refer to Figure 5-4 for location of both GRP and carbon-fibre laminate composite materials.

- a. **GRP:** Wing tip, vertical stabiliser strake, horizontal stabiliser strakes, tail fairing bottom, tail fairing top, engine intake, cockpit coaming front/rear, air conditioning ducts, cockpit interior lining.
- b. **Carbon-fibre Laminate:** Cockpit floor panels, outboard and inboard main landing gear doors.

DANGER AREAS



Danger areas	
As the aircraft cockpit is very close to the propeller/exhaust wash hazard the cockpit is not normally accessed with the engine operating. In an emergency the aircraft should only ever be approached from behind the wing at low power.	
Propeller	Never walk through the propeller arc.
Engine exhaust	The engine exhausts located on both sides of the forward fuselage present a hot high-speed exhaust gas hazard when the engine is operating. Depending on ambient temperature conditions the exhaust stubs remain hot after engine shutdown.
Propeller/exhaust back-wash	At low engine power (idle) the engine/propeller exhaust backwash hazard is reduced the hazard increases with engine power increase.

Figure 5-5 Danger areas

AIRCRAFT ENTRY

Aircraft Entry

Entry to the cockpit is via the open cockpit canopy. An external operating lever (black and yellow) and lock release button are located on the right hand side of the fuselage near the forward end of the canopy.

To open the canopy press the lock release button and rotate the operating lever down. The canopy will open slightly and will need to be manually lifted to the fully open position. The canopy will automatically lock in the fully open position.

Emergency entry is the same as normal entry. However if the canopy locking mechanism is jammed it may be necessary to break the canopy to gain entry

Normal entry

Emergency entry

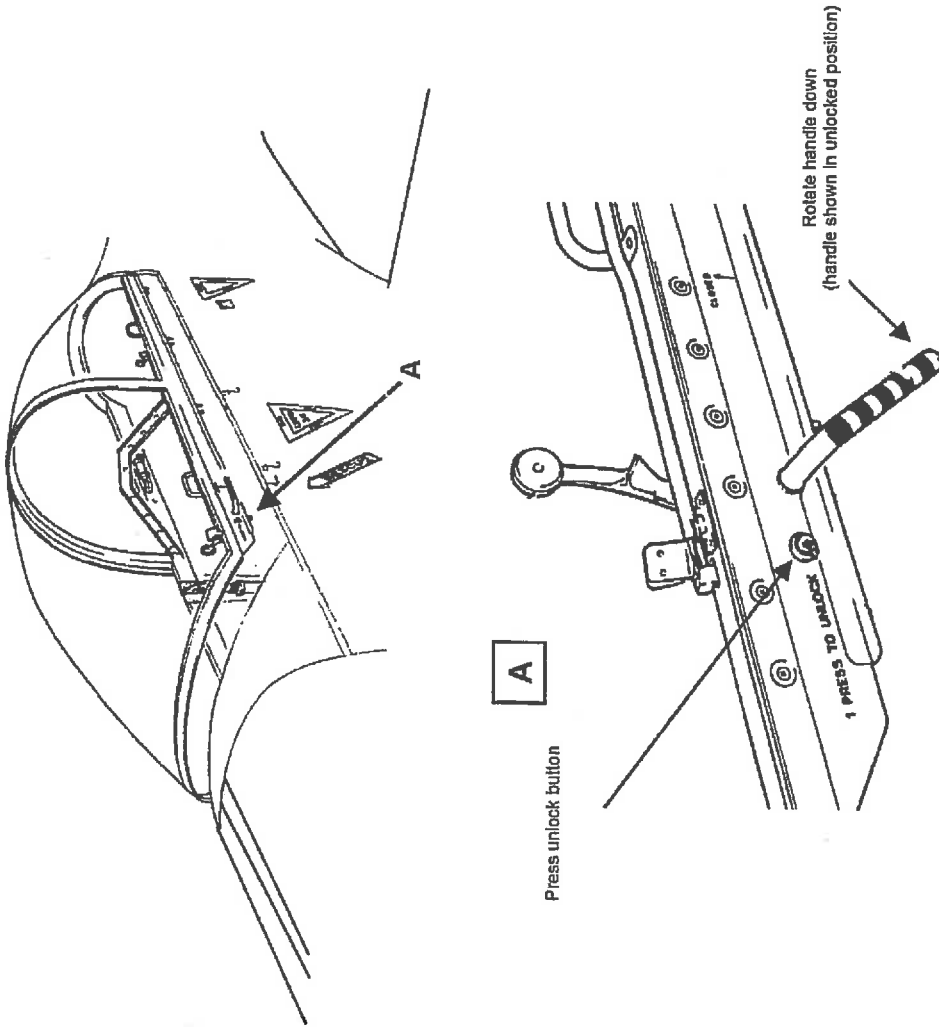
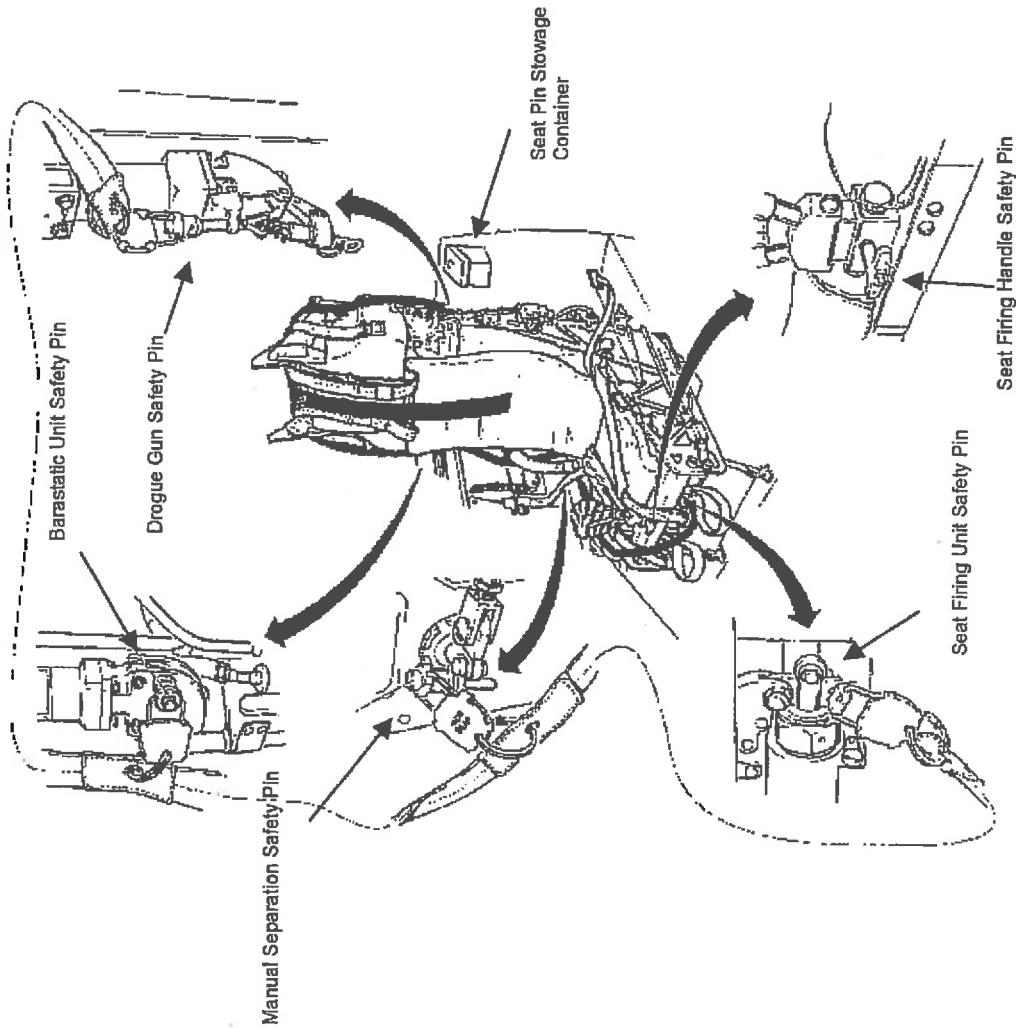


Figure 5-6 Aircraft entry

EJECTION SEAT SAFETY



Ejection Seat Safety	
Safing the Ejection Seats for Crew rescue.	Only the Seat Firing Handle Safety pin is required to be fitted for crew rescue. When not installed in the seat all safety pins are stowed in the Seat Pin Stowage Containers located on the right hand side of the fuselage frames behind each seat. All safety pins are labelled to indicate their location.
Ejection Seat Safety Pin locations	Only when all five (5) safety pins are installed as per figure 6 the seat can be assumed to be safe for maintenance.

Figure 5-7 Ejection seat safety

EMERGENCY ENGINE SHUTDOWN

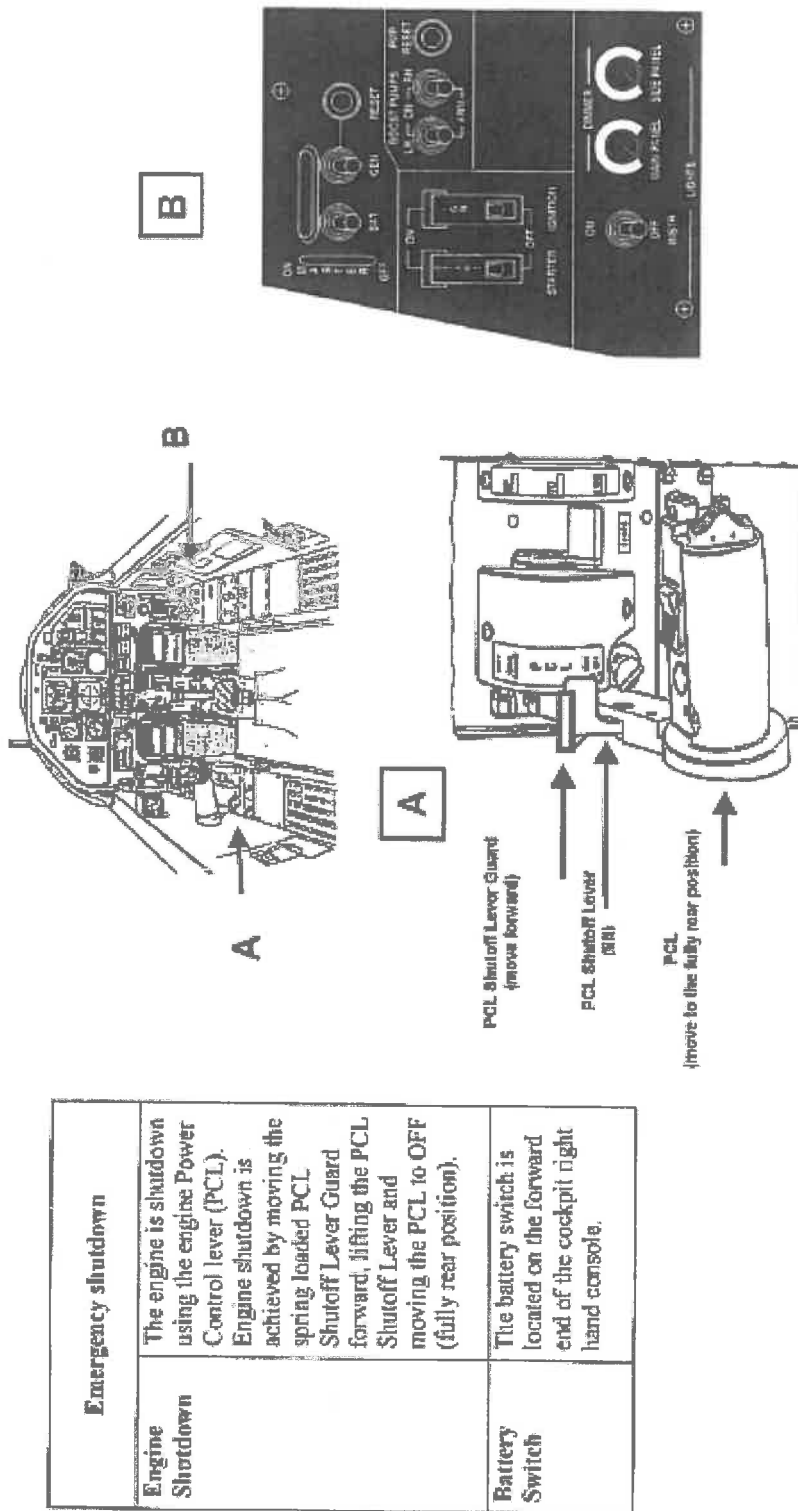


Figure 5-8 Emergency engine shutdown

CREW RESCUE**Table 5-1 Crew rescue procedure**

Crew Rescue		
1	Cockpit Canopy	Open Cockpit Canopy. Refer to figure 5-6.
2	Ejection Seat	Insert Seat Pan Firing Handle Safety Pin into the Seat Pan Firing Handle.
3	Leg Restraints	Release the leg restraints by unclipping the two (2) quick release buckles.
4	Oxygen and Intercom Personal	Disconnect the oxygen supply hose and intercom connector at fitting attached to the seat belt harness.
5	Survival Pack (PSP)	Disconnect the PSP quick release buckle.
6	Seat Harness	Release the seat harness quick release 'T' handles.

LIST OF AIRCRAFT HAZARDOUS SUBSTANCES



Table 5-2 LIST OF HAZARDOUS SUBSTANCES PC9/A AIRCRAFT A23

TYPE	SUBSTANCE	DESCRIPTION/QUANTITY	LOCATION
Gaseous	Oxygen	a. 1415 litre (at STP) Aviators Breathing Oxygen. Normal system operating pressure is 1800 PSI. 50 litre (at STP) b. Emergency oxygen bottles.	a. Two cylinders in oxygen compartment located in lower aft fuselage. (refer figure 5-1). b. Emergency oxygen bottles attached to ejection seats
	Nitrogen	3000 PSI Nitrogen charge in emergency hydraulic accumulator	Centre wing – air brake well.
Fuels Lubricants and Liquids	Fuel	535 litres of Aviation Turbine Fuel (Jet 1A). FAC and ARDU aircraft fuel capacity is occasionally augmented by two 240 litre external fuel tanks.	Internal fuel – Located in wing centre section. External (under wing) fuel tanks, if installed fitted to the centre hard points under each wing.
	Hydraulic fluid	a. Hydraulic system and wheel brakes Fluid (MIL-H5606 or MIL-H83282C). b. Residual pressure remaining in hydraulic system may be as high as 3000 PSI	a. Hydraulic reservoir – 4.5 litre reservoir located in lower forward fuselage. (refer figure 5-1) b. Brake master cylinder located on cockpit centre frame directly behind front pilots left shoulder.
	Engine lubricating Oil	Synthetic lubricating Oil	Oil tank is an integral part of the engine casing. All engine lubrication system plumbing and components are located in the engine compartment
	Smoke Generator System Oil	Role equipment for display flights contains 36 litres of Diesel and 'Whitener' Oil mixture.	Baggage compartment of Central Flying School (Roulette) aircraft.
	Potassium Hydroxide	Nickel Cadmium Battery electrolyte	Qty 2 batteries in battery compartment. (refer figure 5-1).
Material	Grease	Greases and anti-seize compounds of numerous types.	Small quantities used for general lubrication of propeller, cables and bearings at numerous locations.

TYPE	SUBSTANCE	DESCRIPTION/QUANTITY	LOCATION
Material	Glass fibre reinforced plastics.	Glass fibre	Wing tip, vertical stabiliser strake, horizontal stabiliser strakes, tail fairing bottom, tail fairing top, engine intake, cockpit coaming front/rear, air conditioning ducts, cockpit interior lining.
	Carbon fibre laminate material	Carbon fibre	Cockpit floor panels, outboard and inboard main landing gear doors.
	Beryllium dust	Possible Beryllium dust hazard from damaged semiconductor electronic components.	Instrument panels and avionics compartment.
	Chromium	Applied as hard plated surface.	Some engine components, hydraulic actuators, landing gear struts and axles, ejection seats, fuel pump, propeller shaft
	Lead	Balance weights	Flight controls.
	Magnesium Alloy	Engine	Engine inlet case.
	Paint	Polyurethane	Aircraft coating.
		Strontium Chromate	Aircraft coating.
	Titanium and Titanium Alloys	Engine	Various minor parts.
	PVC	Wiring and conduit	Aircraft wiring looms.
	Nickel Alloy	Engine	Engine combustion cases.
	Antimony and Arsenic compounds	GPS 500W Receiver, Primary and Secondary Flight Display (MIS910 modified PC9/A only)	Cockpit
	Cadmium	Aircraft coated hardware ie: bolts and nuts.	Aircraft various.
	4,4' – Methylenebis and Bisphenol A Diglycidyl Ether	Epoxy Resin present in lighting power supply units	Aircraft various
Nickel Cadmium	Aircraft Battery	Located in Battery compartment in aft fuselage. (refer to figure 5-1)	
Batteries	Lithium Batteries	Qty 2 Batteries per life jacket. Total Qty dependent on number aircrew.	Secumar life jacket personnel locator beacon in worn by aircrew.
	Alkaline Batteries	Qty 2 (AA size) Batteries per life jacket. Total Qty dependent on number aircrew.	Secumar life jacket strobe light worn by aircrew.
	Nitrogen	Emergency hydraulic accumulator	Wing centre section air brake well.
Pressurised Cylinders	CO2	a. 30-gram inflation cylinder 1 per life jacket.	a. Secumar life jacket worn by aircrew.
		b. Life raft supply 50 litre (at STP).	b. Life rafts packed in ejection seats.

TYPE	SUBSTANCE	DESCRIPTION/QUANTITY	LOCATION
	Oxygen Dry Breathing	<ul style="list-style-type: none"> a. Aircraft oxygen system cylinders b. Emergency oxygen cylinders. 	<ul style="list-style-type: none"> a. Qty 2 located in lower aft fuselage. b. Attached to ejection seats.
Explosives	Gunpowder, or Magnesium powder initiator and gun powder, Nitro-cellulose or 'PU' propellant charge	<ul style="list-style-type: none"> a. Ejection seat cartridges. b. Pyrotechnic pistol. c. Smoke Grenades 	<ul style="list-style-type: none"> a. Qty 11 ejection seat cartridges fitted to each ejection seat. b. Max Qty 12 Pyrotechnic pistol fitted to survival packs in ejection seats. c. Qty 6 per dispenser rack located under the wing on FAC aircraft only.