

# AIRCRAFT FAMILIARIZATION

## DASH 8

### OBJECTIVES

This course is designed for Line Officers, Fire Fighters, and Emergency Response Personnel to review and familiarize themselves with emergency information pertaining to the Dash - 8 in accordance with De Havilland Canada technical manuals. After attending this class personnel should be able to:

- ✈ Identify, locate, and describe the operation of emergency doors and under-wing exits on board a Dash 8.
- ✈ Identify, locate, and describe the operation of emergency shutdown procedures for the systems located on the interior of a Dash 8.
- ✈ Identify, locate, and describe the operation of emergency shutdown procedures for systems located on the exterior of a Dash 8.

**I. GENERAL INFORMATION**

**A. RESCUE DIMENSIONS**

1. Aircraft sits fairly low to the ground.
2. Average distance from cabin floor level to ground:  
Wheels retracted: 2 feet.  
Wheels extended: 4 feet.
3. Due to the size of the cabin, determining interior fire flows is not practical.

**B. AIRCRAFT DIMENSIONS**

1. Aircraft capacity will vary depending on model and cabin configuration.

	<u>Models</u>	<u>Length</u>	<u>Occupancy</u>
Dash-8	Series 100	73 feet	40 persons
Dash-8	Series 300	84 feet	53 persons
Dash-8	Series 400	108 feet	74 persons

 **THESE NUMBERS REPRESENT MAXIMUM CAPACITIES BUT MAY VARY DEPENDING ON SEATING CONFIGURATIONS.**

2. Equipped with two high mount turbo-prop engines: Engine #1 - left side; Engine #2 - right side.
3. Wing Span: 100 Model = 85 feet; 300 Model = 90 feet; 400 Model = 93 feet.

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**INSTRUCTOR'S NOTES**

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# DASH 8

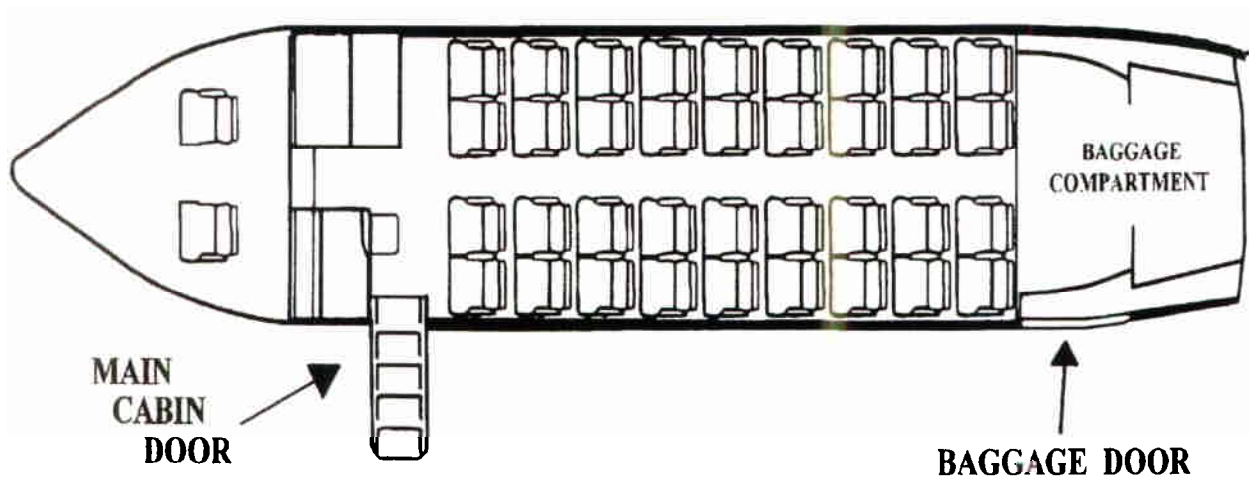
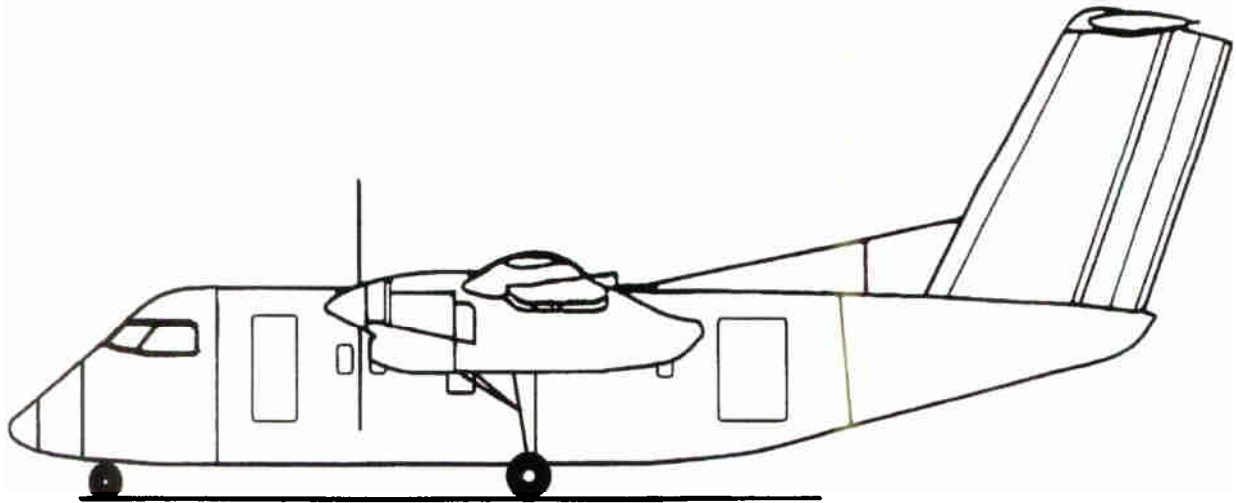
## General Information

Average Distance Floor Level to Ground

Wheels Extended: 4'

Wheels Retracted: 2'

Occupancy Ranges 40 to 74 Persons



**II. FUEL SYSTEM**

**A. SYSTEM CAPACITY**

- 1. Standard fuel tank capacity can range between 835 gallons to 1,761 gallons of Jet-A fuel @ 5,595 to 11,800 pounds.
- 2. Critical flow = 407 gallons per minute.  
Practical flow = 1,191 gallons per minute.

**✍ FLOW FOR THE DASH-8 400 MODEL IS PRESENTED SINCE IT HAS THE LONGEST FUSELAGE. ALL OTHER MODELS WILL BE SLIGHTLY LESS IN GALLON PER MINUTE QUANTITY.**

**B. SYSTEM CONFIGURATION**

- 1. Two high mount turbo-fan engines using Jet-A fuel.

	<u>Models</u>	<u>Fuel Capacity</u>	
Dash-8	Series 100/300	835 gallons	5,595 pounds
Dash-8	Series 400	1,761 gallons	11,800 pounds
- 2. Fuel line for the A.P.U. runs along the roof centerline between the main cabin and the outside fuselage.

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**INSTRUCTOR'S NOTES**

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# DASH 8

## FUEL SYSTEM

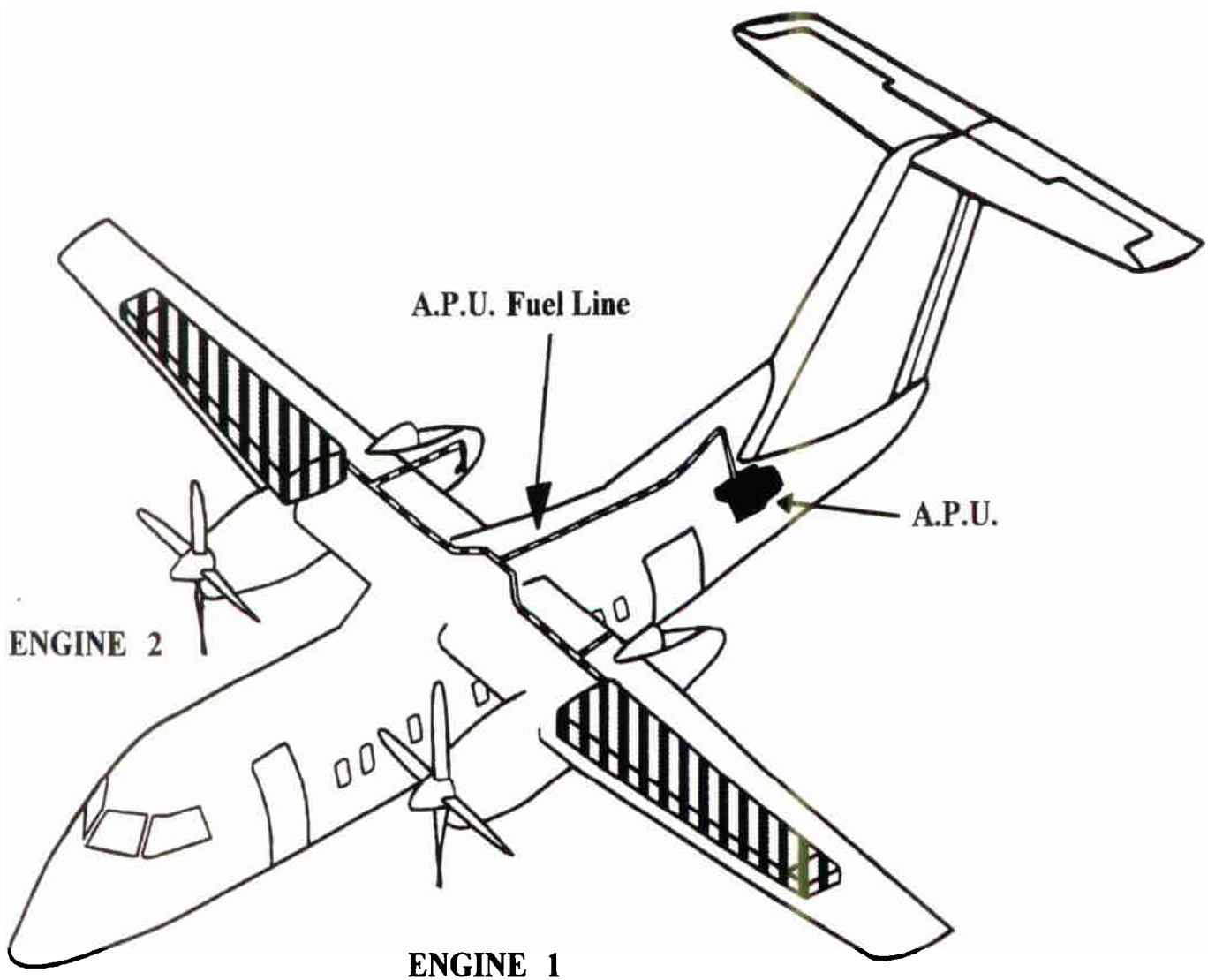
### SYSTEM CAPACITY

100/300 Model: 835 gallons of Jet-A fuel @ 5,595 pounds

400 Model: 1,761 gallons of Jet-A fuel @ 11,800 pounds

Critical flow = 407 Gallons per minute

Practical flow = 1,191 Gallons per minute



### III. AUXILIARY POWER UNIT (A.P.U.)

OVERHEAD 3

#### A. LOCATION OF CRITICAL COMPONENTS

1. Located in the tail section.
2. Air intake is located on the right side of the tail section.
3. Access door is located on the bottom of the tail section.
4. **Internal** shutdown is located in the cockpit on the center overhead console just to the left of the fire T-handles.
5. There is no **External** shutdown.

#### B. SHUTDOWN AND EXTINGUISHING PROCEDURES

1. **Internal** shutdown is located on the center overhead console below the fire T-handles. The extinguishing toggle switch is located just to the left of the fire T-handles.
2. To operate, locate and push the “APU/PWR” button on the center overhead console below the fire T-handles.
3. Pushing the “APU/PWR” button shuts off fuel to the unit.
4. Once pushed, flip the APU fire toggle switch to the “EXTG” position to discharge agent into the APU compartment. The switch is located on the center overhead console just to the left of the fire T-handles.
5. There is no **external** shutdown for the APU. The unit is equipped with an auto shutdown/auto extinguishing system which activates in the event of a fire or overheat.
6. Access to the APU can be gained by utilizing the access door located on the bottom of the tail section.
7. The access door is also equipped with a push panel which can be utilized as a quick access port for applying extinguishing agent.

 **THE DASH-8 IS NOT EQUIPPED WITH AN EXTERNAL A.P.U. SHUTDOWN.**

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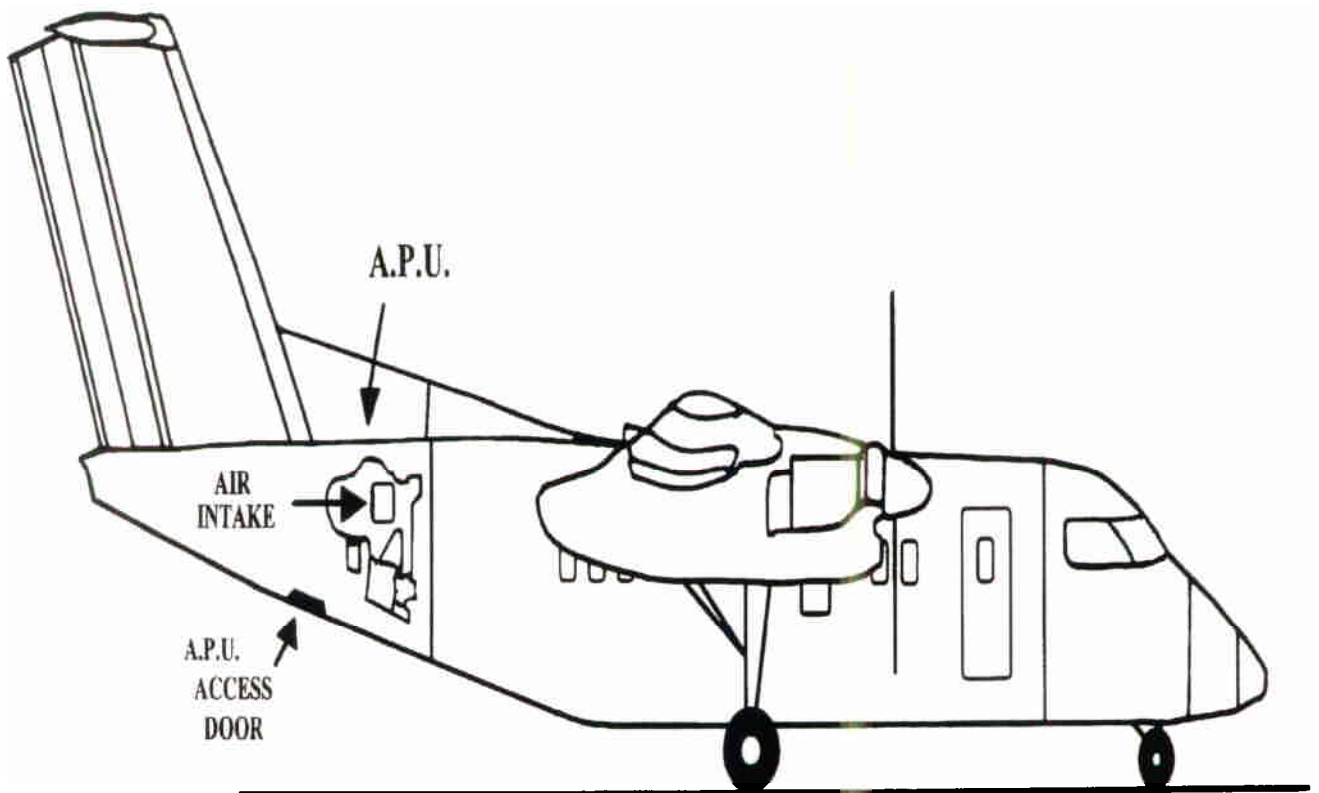
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INSTRUCTOR'S NOTES

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# DASH 8 AUXILIARY POWER UNIT



**☞ DASH 8 Is Not Equipped with an External Shutdown**

## IV. COCKPIT SHUTDOWN PROCEDURES

OVERHEAD 4

### A. ENGINE SHUTDOWN “PULL FUEL OFF” T-HANDLES

1. Located on the center overhead console.
2. To operate, pull “PULL FUEL OFF” T-handle for respective engine. Pulling the T-handle shuts off fuel, electric and hydraulic power to the engine.
3. Once handle is pulled, flip the extinguisher toggle switch to either “AFT BTL” or “FWD BTL” to discharge agent into the engine. System is designed to deliver two shots of extinguishing agents to the engine.



**ELECTRICAL POWER IS NEEDED TO OPERATE THIS SYSTEM.**

### B. INTERNAL A.P.U. COCKPIT SHUTDOWN

1. **Internal** shutdown is located on the center overhead console below the fire T-handles. The extinguishing toggle switch is located just to the left of the fire T-handles.
2. To operate, locate and push the “APU/PWR” button on the center overhead console below the fire T-handles.
3. Pushing the “APU/PWR” button shuts off fuel to the unit.
4. Once pushed, flip the APU fire toggle switch to the “EXTG” position to discharge agent into the APU compartment. The switch is located on the center overhead console just to the left of the fire T-handles.
5. There is no **external** shutdown for the APU. The unit is equipped with an auto shutdown/auto extinguishing system which activates in the event of a fire or overheat.



**ELECTRICAL POWER MUST BE PRESENT TO OPERATE THE FIRE EXTINGUISHING SYSTEMS ON BOARD THIS AIRCRAFT.**

### C. BATTERY SHUTDOWN PROCEDURES

1. The **BATTERY MASTER** switch is located on the center overhead console on the left hand side.
2. Locate the “DC CONTROL” panel and flip the “AUX BATT”, “MAIN BATT” and “BATTERY MASTER” to the “OFF” position.
3. The main and auxiliary battery can be found on the left hand side at the nose of the fuselage. Each battery is equipped with a quarter-turn quick disconnect.



**DISCONNECTING BATTERY POWER WILL RENDER FIRE EXTINGUISHING SYSTEMS INOPERATIVE.**

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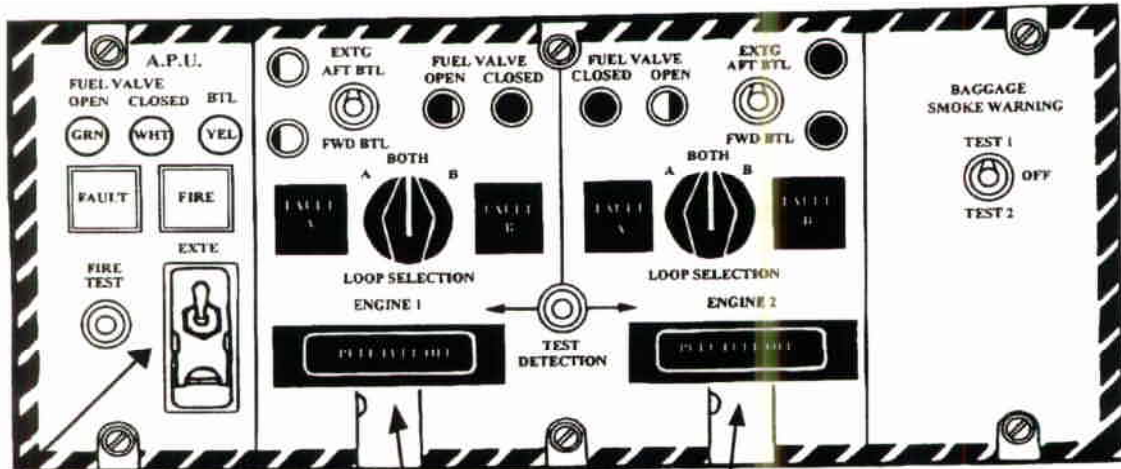
INSTRUCTOR'S NOTES

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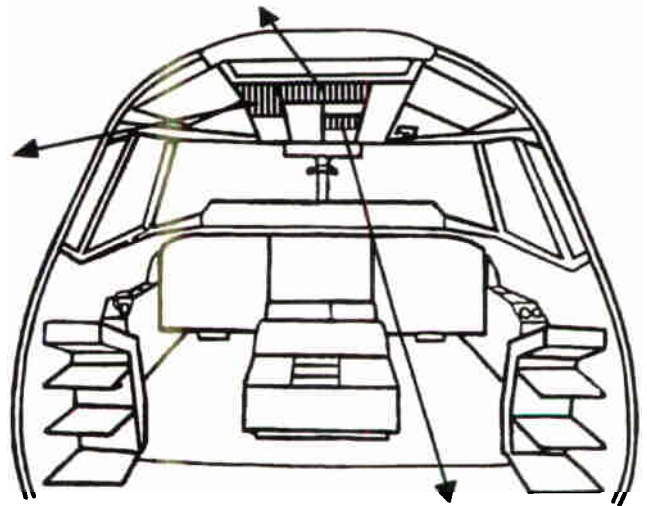
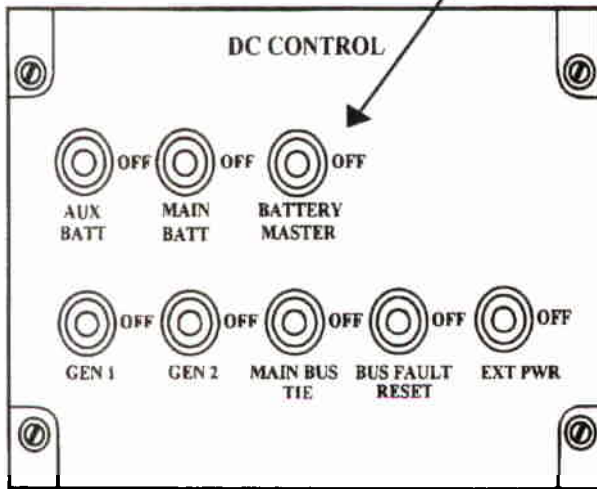
# DASH 8 COCKPIT SHUTDOWN



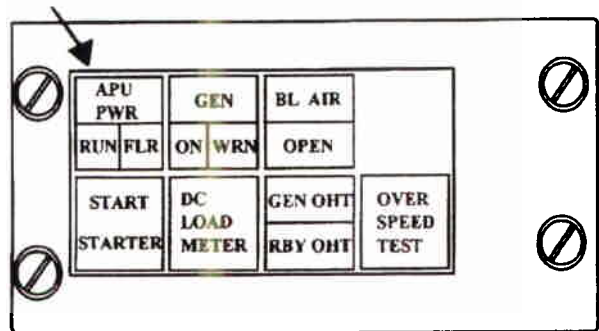
A.P.U. EXTINGUISHER  
TOGGLE SWITCH

FIRE T-HANDLES

## BATTERY SWITCHES



A.P.U. SHUTOFF SWITCH



## V. ELECTRICAL SYSTEM

### A. COMPONENTS AND LOCATION

1. Electrical system consists of a two 28-volt nickel-cadmium batteries.
2. Both batteries are located in the lower compartment on the left hand side just aft of the nose.

### B. DISCONNECT PROCEDURES

1. Access the batteries through the compartment door and disconnect by utilizing the quarter-turn quick disconnects provided.

 **IF BATTERY IS DISCONNECTED, FIRE EXTINGUISHING AND SHUTDOWN SYSTEMS WILL NOT OPERATE.**

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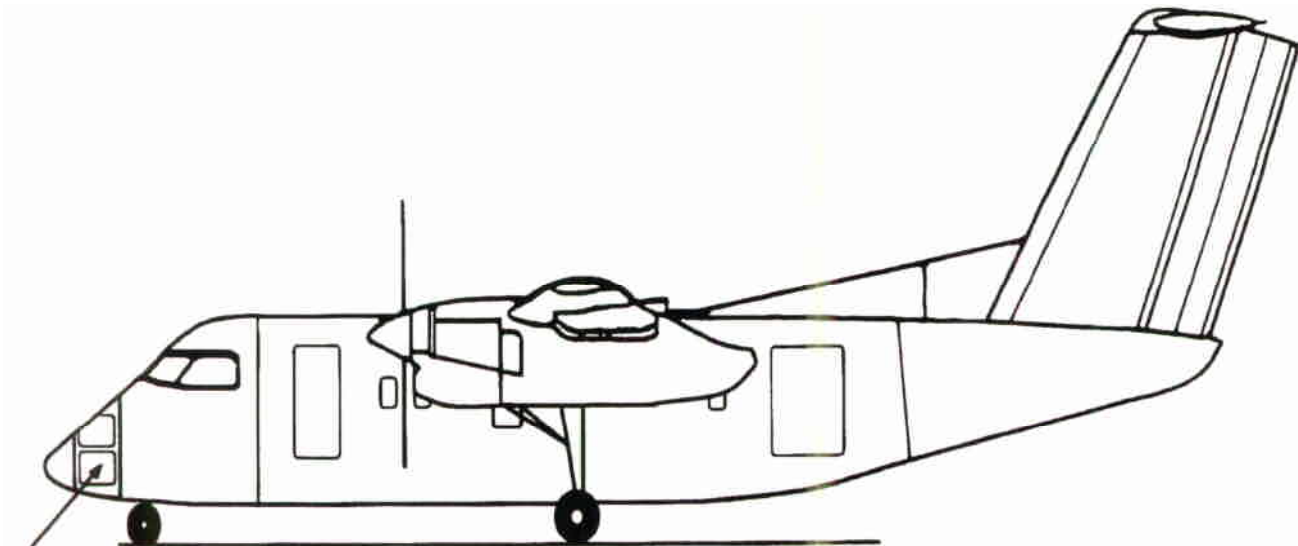
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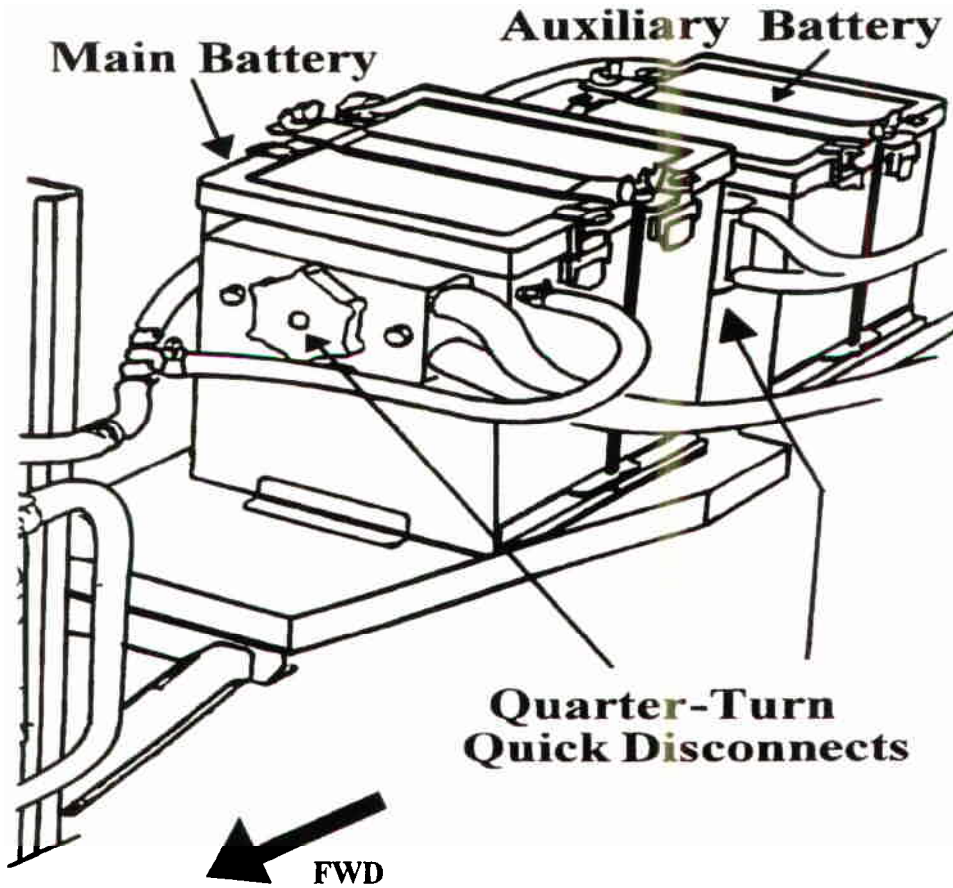
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# DASH 8

## ELECTRICAL SYSTEM



**BATTERY  
COMPARTMENT**



## **VI. OXYGEN SYSTEM**

### **A. COMPONENTS AND LOCATION**

1. The cockpit oxygen bottle(s) is located in the lower compartment on the right hand side just aft of the nose.
2. Small portable cylinders are located in various places within the main cabin. These are normally used for First Aid.

### **B. SAFETY PROCEDURES**

1. The cockpit oxygen bottle has a shutoff valve assembly. It can be safetied by using the quick disconnect fittings provided.

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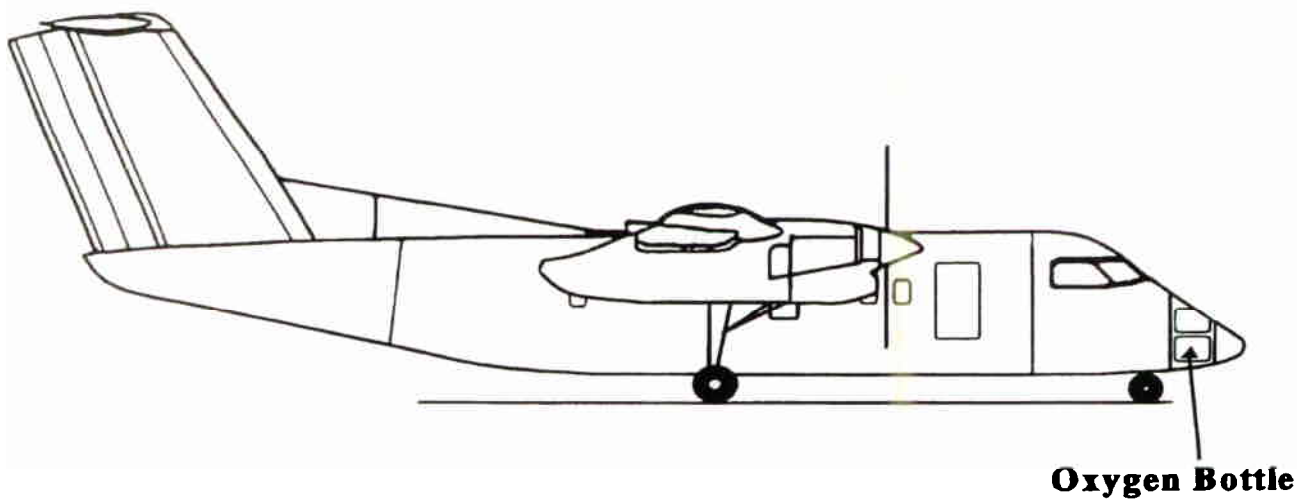
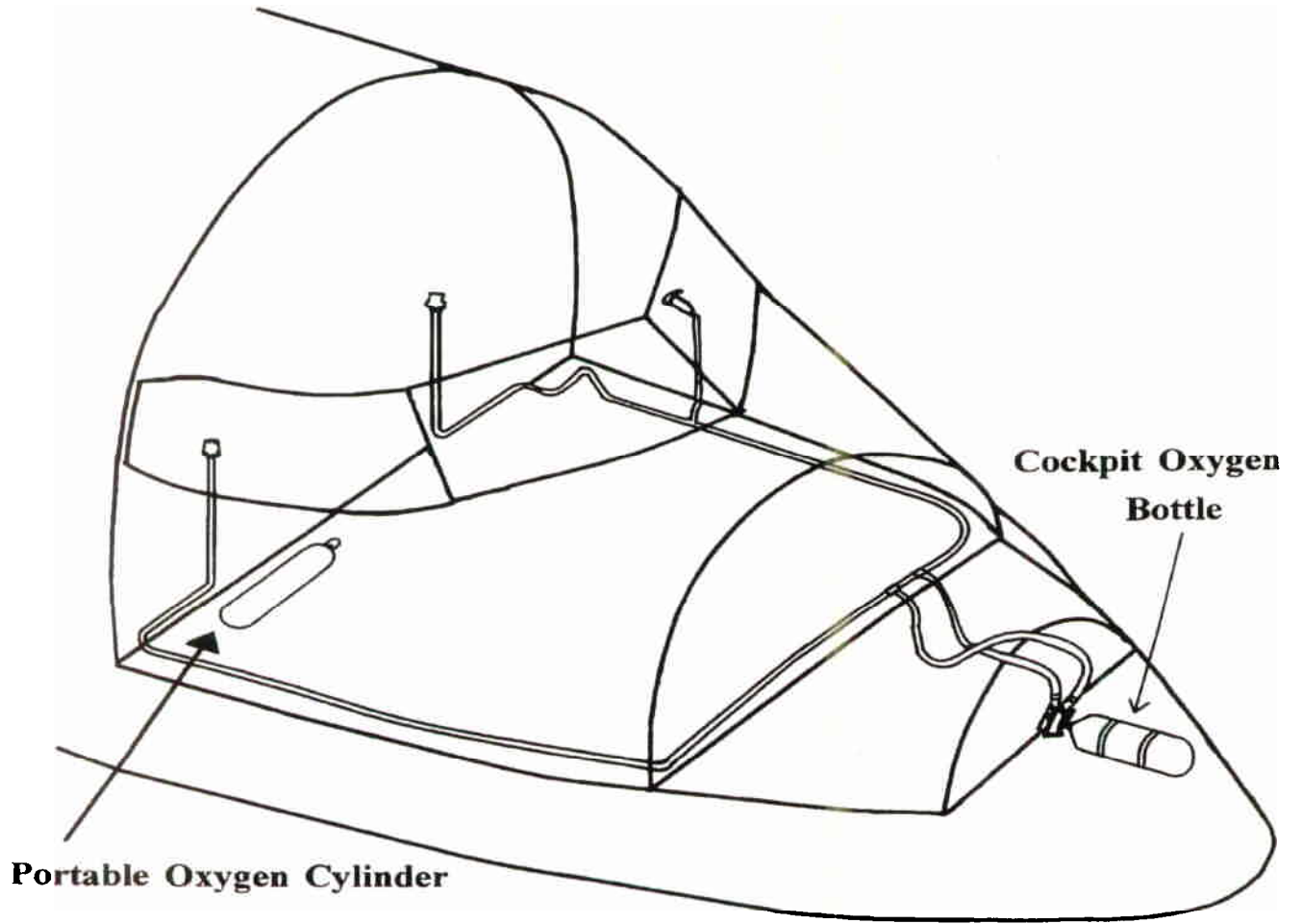
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**INSTRUCTOR'S NOTES**

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# DASH 8 OXYGEN SYSTEM



## VII. EMERGENCY EGRESS SYSTEMS

### A. MAIN CABIN DOORS

1. The main cabin door is located on the left side of the fuselage just aft of the cockpit.
2. To operate, push the handle release button to release the operating handle just forward of the door.
3. Pull release handle down and out to its full extension.
4. Insert hand into the recessed hand hold which is located in the middle of the door and pull outwards one to two feet.
5. The door, with built in steps, will free fall into position. Stay clear and stand forward of the door while operating.

✍ **STAND TO THE LEFT SIDE WHILE OPENING THE DOOR IN THE EVENT THE CYLINDERS FAIL TO OPERATE.**

### B. AFT EMERGENCY EXIT DOOR

1. Push handle release button and pull the handle out.
2. Turn handle downward and pull exit door outward.
3. Exit door is plug type in design and must be pushed inward to open.

✍ **ALL EMERGENCY EXITS ARE PLUG TYPE AND MUST BE PUSHED INWARD IN ORDER TO OPEN.**

### C. UNDERWING EMERGENCY ESCAPE HATCHES

1. Located one per side about midway down the fuselage.
2. To operate, push the handle release button to release the operating handle.
3. Pull handle out and rotate down to unlock the hatch.
4. Hatch is plug type in design and must be pushed inward to open.

### D. COCKPIT WINDOWS

1. Cockpit windows cannot be opened from the inside or outside.

### E. OPTIONAL EXIT

1. Aircraft may be equipped with an optional flight compartment emergency exit hatch which is located in the roof directly over the cockpit.
2. This exit is designed for interior operation only.
3. To operate, grasp operating handle and rotate to the "VENT" position. From the "VENT" position, pull handle down and remove hatch.

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**INSTRUCTOR'S NOTES**

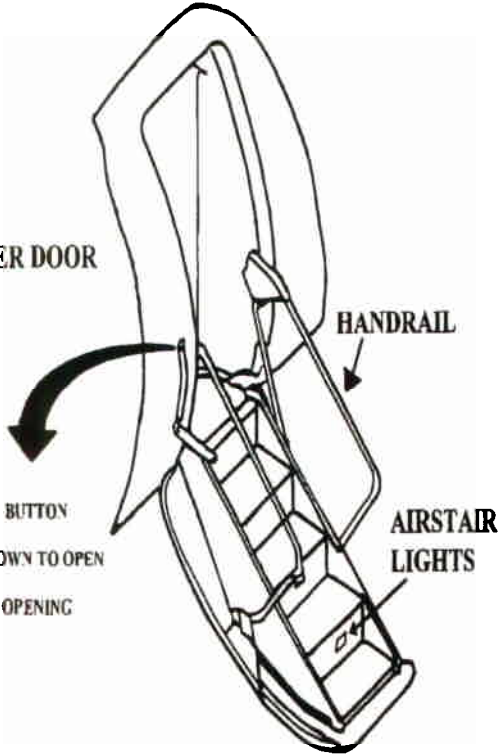
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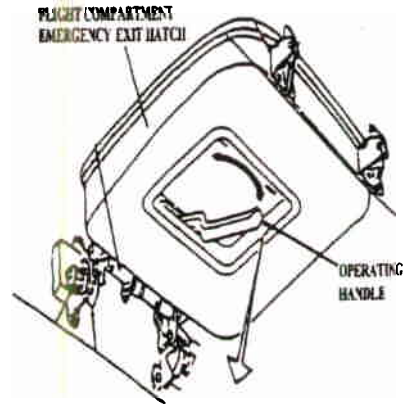
# DASH 8

## EMERGENCY EGRESS

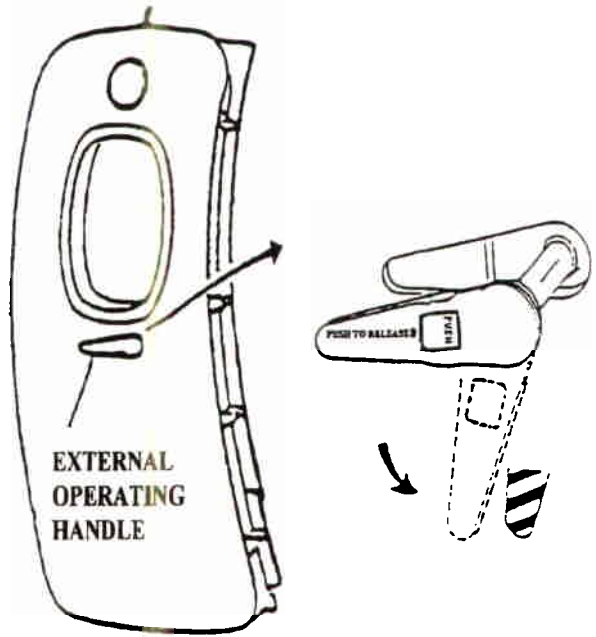
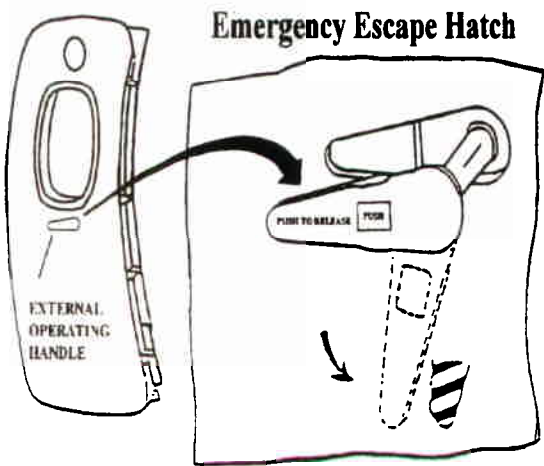
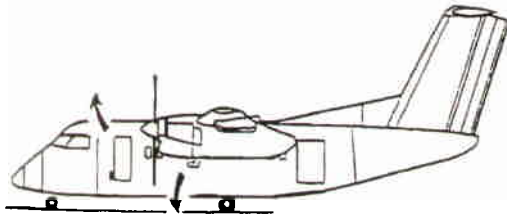
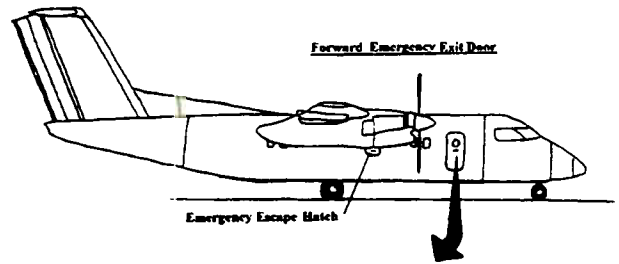
### MAIN PASSENGER DOOR



1. PUSH HANDLE RELEASE BUTTON
2. PULL HANDLE OUT & DOWN TO OPEN
3. SUPPORT DOOR WHILE OPENING



### Overhead Hatch



## VIII. DANGER AREAS

### A. ENGINE and PROPELLER DANGER AREAS

1. Maintain 25-foot radius from the front and sides of engines while the engines are running.
2. Maintain 500-foot distance to avoid jet blast and prop wash while the engines are running.

### B. ENGINE EXHAUST HAZARDS

1. Maintain a 25-foot distance from the A.P.U. exhaust port located on the right rear portion of the fuselage while the A.P.U. is running.

### C. OVERHEATED LANDING GEAR DANGER AREAS

1. Always approach landing gear from forward or aft when fighting a wheel fire as wheels and tires may explode sending debris out to the sides.
2. Wheels are equipped with fusible plugs designed to melt and deflate the tire when temperature is excessive.
3. Use of dry chemical is preferred if tires are pressurized, but fog or foam are acceptable alternatives. If all tires are deflated any extinguishing agent may be used.

### D. INTERIOR FIRE FLOWS

1. Due to size of the cabin determining interior fire is not practical.

### E. ELECTRICAL SYSTEM HAZARDS

1. 28-volt electrical systems.

### F. HYDRAULIC SYSTEM HAZARDS

1. Operating pressure for the system equals 3,000 p.s.i.

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INSTRUCTOR'S NOTES

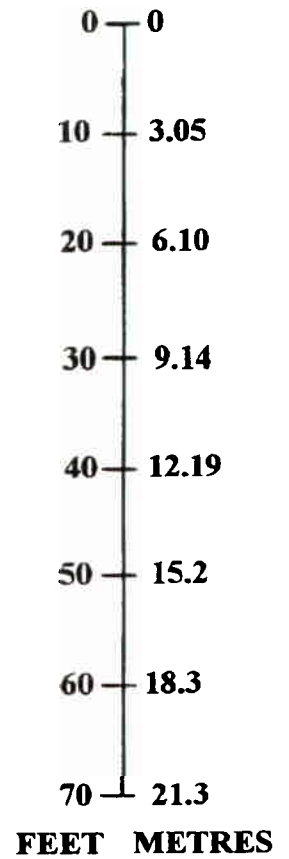
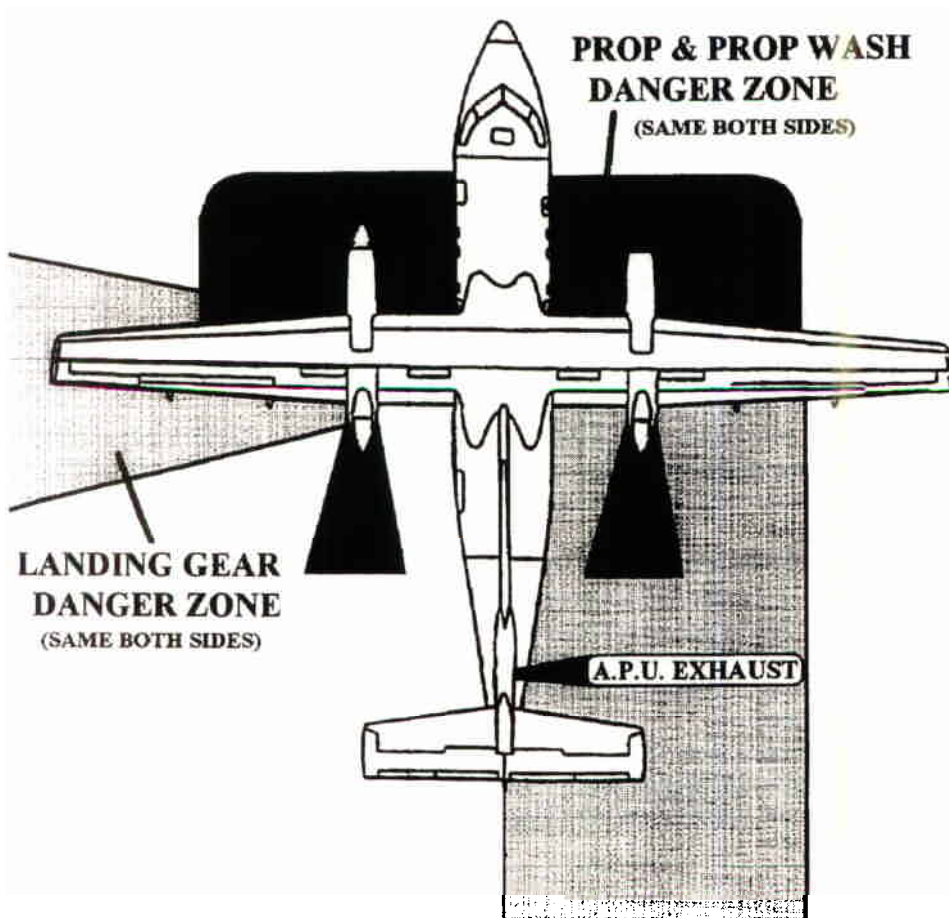
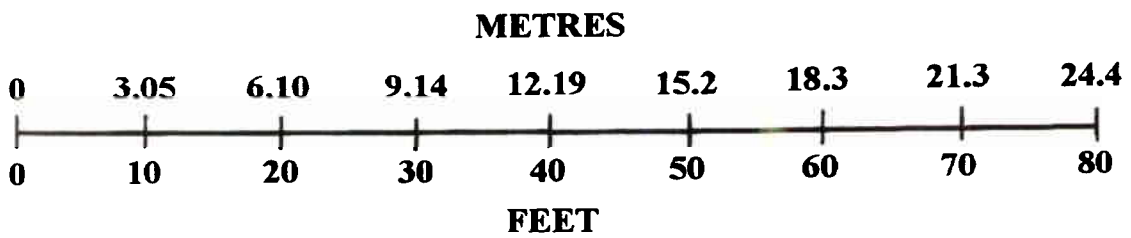
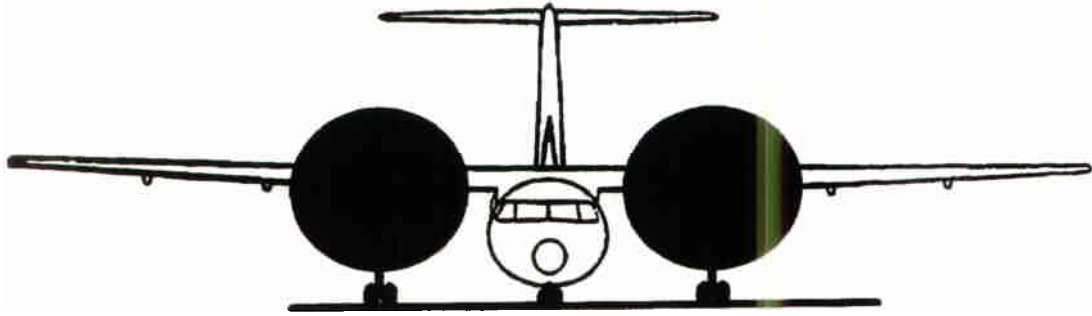
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# DASH 8

## DANGER AREAS



**IX. AIRCRAFT SYSTEMS REVIEW**

**A. GENERAL INFORMATION**

1. Wing Span = 85 to 93 feet; Length - 85 feet (100 Model); 90 feet (300 Model); 93 feet (400 Model).
2. Door sill height 4 feet with wheels extended; 2 feet wheels retracted.
3. Occupancy ranges between 40 and 74 persons depending on model.

**B. FUEL SYSTEM**

1. Four turbo-prop jet engines using Jet-A fuel with a maximum capacity of 1,761 gallons @ 11,800 pounds.
2. Critical flow = 407 gallons per minute; Practical flow = 1,191 gallons per minute.
3. Fuel line for the auxiliary power unit runs along the roof down the centerline of the fuselage.

**C. A.P.U. SHUTDOWN AND EXTINGUISHERS**

1. **Internal** shutdown is located on the center overhead.
2. The extinguishing toggle switch is located just to the **left** of the fire T-handles.
3. To operate, push APU/PWR button. Once pushed, **flip** APU fire toggle switch to EXTG position.
4. There is no **external** shutdown on the Dash-8.
5. Access the APU using the access door in the tail of the fuselage.
6. The air intake can be found on the right hand side of the tail section.

**D. ENGINE SHUTDOWN & EXTINGUISHERS**

1. Engine T-handles are found on the center overhead console.
2. Pull and fully extend to shut down engines.
3. Flip EXTG toggle switch to either AFT BTL or FWD BTL to discharge agent.

**E. MASTER SWITCH AND BATTERY LOCATION(S)**

1. Battery switches are located on the left side of the overhead console next to the fire T-handles.
2. Flip the three battery switches to the OFF position.
3. Batteries are located on the left side of the aircraft just **aft** of the nose.
4. Access can be gained by opening the access door.

**F. OXYGEN SYSTEMS**

1. Oxygen bottle is located on the right side of the aircraft just aft of the nose.
2. Access the bottle and utilize the quick disconnect to **safely** the bottle.
3. Small First Aid type cylinders can be found throughout the cabin.

**G. EMERGENCY EGRESS OPERATIONS**

1. **MAIN PASSENGER DOOR** - Door is located on the left side just aft of the cockpit. To operate, release the operating handle and pull down to **its** fully extended position. Door with stairs will free fall into position. Stay clear of falling door.
2. **EMERGENCY ESCAPE HATCHES** - are located on **each** side of the fuselage under the wing. To operate, push the handle release button to release the operating handle, pull handle out, and rotate handle down while pushing exit inward. Exits are **plug** type in design and must be pushed inward to open.
3. **FORWARD EMERGENCY EXIT DOOR** - Located on the right side of the aircraft just aft of the cockpit. To operate, push button to release handle, turn handle down while pushing in on the exit. Exit is plug type in design and must be pushed inward to open.
4. **OPTIONAL EXIT** - The cockpit is equipped with a roof hatch that can only be operated from inside the aircraft. To operate, rotate to the **VENT** position and pull hatch inward.

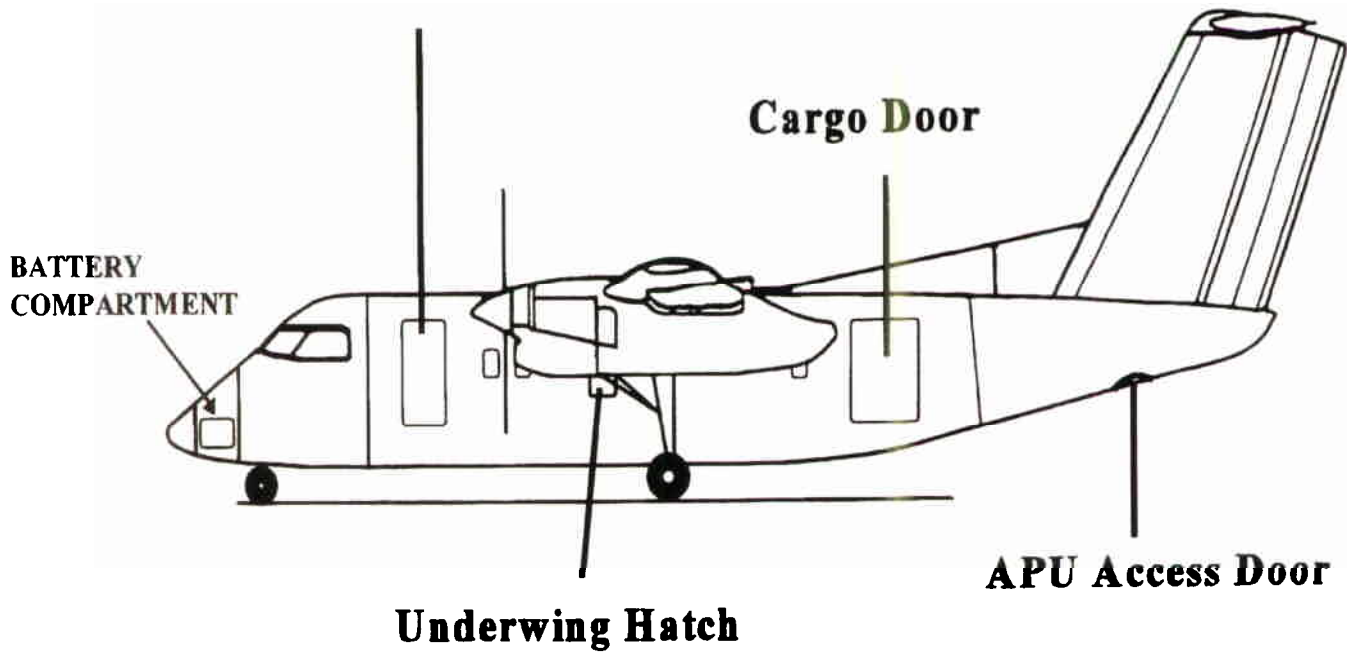
**H. AIR CRAFT HAZARDS**

1. Hydraulic pressure equals 3,000 p.s.i.
2. **ALWAYS** approach landing gear from forward or aft.
3. Prop, prop wash, and turbo-jet blast danger areas.

# DASH 8

## SYSTEM REVIEW

### Main Cabin Door



### Emergency Escape Door

