

## Fire on board

### Vocabulary: Engine Fire

Describe the photograph. Try to speak for at least 30 seconds.



Match the words to make a noun adjective or verb. eg fire extinguisher

1. <b>fire</b>	1. in
2. put	2. nacelle
3. built	3. out
4. warning	4. gas
5. inert	5. light
6. engine	6. <b>extinguisher</b>

How an engine fire extinguishing system works.

Complete the sentences using a word from above

- Aircraft engines have a \_\_\_\_\_ fire detection system.
- The fire detection system consists of a steel tube filled with an \_\_\_\_\_, which expands when heated.
- If a fire is detected in the engine, the gas expands and a \_\_\_\_\_ comes on in the cockpit.
- The engine bottle control is then selected by the pilot and this activates the \_\_\_\_\_.
- The contents of the engine bottle are emptied inside the \_\_\_\_\_.
- If the fire has not been \_\_\_\_\_ after 30 seconds, a second engine bottle is activated.

## Vocabulary



smoke    a smell    an oxygen mask  
 a warning light    the fire brigade    to choke  
 an escape chute    to evacuate    a burn  
 the source    out of control    under control

**Match the words in the vocabulary box with the meanings below:**

1. to remove people to a safe place due to danger – **to evacuate**
2. the fire has been contained
3. the origins of the fire
4. an emergency slide
5. the fire is spreading rapidly
6. grey fumes created by fire
7. an injury received from fire
8. breathing equipment
9. people who put out fires
10. an odour
11. a light that tells you about a serious problem
12. to have breathing difficulties

**Complete the sentences with a word from the vocabulary box.**

1. I can \_\_\_\_\_ burning but I can't see any \_\_\_\_\_.
2. Can you identify the \_\_\_\_\_ of the fire?
3. A \_\_\_\_\_ has just come on, indicating there is a fire in the washroom.
4. The passengers are \_\_\_\_\_ due to the thick smoke.
5. Tell the passengers to put on their \_\_\_\_\_.
6. The fire is \_\_\_\_\_ and the flames have gone out.
7. The fire is \_\_\_\_\_ and the flames are spreading.
8. We need to \_\_\_\_\_ the passengers as soon as possible.
9. We request the \_\_\_\_\_ on landing.
10. Release the \_\_\_\_\_ for immediate evacuation.
11. We have a passenger with severe \_\_\_\_\_ who requires immediate medical assistance.

**Questions**


The questions below are all grammatically correct. Choose the question which sounds the best.

1. You want to know if there is a smell of smoke in the cabin.
  - a. Can you smell smoke?
  - b. Do you smell smoke?
  
2. You want to know where the fire is coming from.
  - a. What is the source of the fire?
  - b. What does the source of the fire come from?
  
3. You want to know if the warning light is on.
  - a. Does the warning light come on?
  - b. Has the warning light come on?
  
4. You want to know if the passengers can breathe properly.
  - a. Are the passengers choking?
  - b. Do the passengers choke?
  
5. You want to know if the fire is spreading.
  - a. Does the fire out of control?
  - b. Is the fire out of control?
  
6. You want to know if the pilot intends to use the escape chutes.
  - a. Are you going to use the escape chutes?
  - b. Do you use the escape chutes?
  
7. You want to know if the pilot requires the fire brigade on arrival.
  - a. Do you require the fire brigade on arrival?
  - b. Are you requiring the fire brigade on arrival?
  
8. You want to know if any passengers are injured.
  - a. Do any passengers burn?
  - b. Have any passengers received burns?
  
9. You want to know if it is a good idea to use oxygen masks.
  - a. Are we using oxygen masks?
  - b. Should we use oxygen masks?
  
10. You want to know if it is necessary to evacuate the passengers.
  - a. Do we need to evacuate the passengers?
  - b. Are we needing to evacuate the passengers?


**On-board fire equipment**

smoke detector    portable fire extinguisher    fire axe  
 fire protection gloves    smoke hood    smoke goggles    fire blanket


**What are the following objects?**




**a.**




**b.**




**c.**




**d.**



**e.**



**f.**



**g.**

**Match the beginning of the sentence with the correct ending.**

<ol style="list-style-type: none"> <li>1. Use the smoke goggles to... <b>e.</b></li> <li>2. The smoke alarm is used to...</li> <li>3. Use the fire axe to...</li> <li>4. Use the fire extinguisher to...</li> <li>5. Use the smoke hood to...</li> <li>6. Use the fire blanket to...</li> <li>7. Use the gloves to...</li> </ol>	<ol style="list-style-type: none"> <li>a. put out fires.</li> <li>b. protect your hands.</li> <li>c. suffocate the fire.</li> <li>d. help you breathe.</li> <li>e. protect your eyes.</li> <li>f. detect fires.</li> <li>g. smash through panels.</li> </ol>
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## Important verbs

**break out   catch fire   put out   set on fire   set off**

**Match the words in the vocabulary box with the meanings below:**

1. The fire brigade **extinguished** the fire.
2. The cigarette smoke **made** the smoke alarm **ring**.
3. Engine number one **ignited** on take-off.
4. The fan in the washroom / toilet **ignited** due to the electrical fault.
5. A fire **started** during the flight.

**Reading**

**Mid-air cockpit fire causes Jetstar Airbus emergency landing**

An Airbus owned by a budget Australian airline with over 200 people on board has made an emergency landing on the remote island of Guam after a fire **broke out** in the cockpit as the plane flew over the western Pacific Ocean.

The A330-200 Jetstar aircraft – the same model as the fatal Air France plane which crashed off the coast of Brazil last week – was carrying 190 passengers, including two Britons, and 13 crew, when the fire **broke out** midair about four hours after it had taken off from Japan.

In the early hours of Thursday, the pilots on Flight JQ20 **smelt smoke** and **saw flames** licking the side of the right hand cockpit window and immediately began to **put out** the flames with a **fire extinguisher**.

They then placed a mayday call and prepared for an emergency landing in Guam, a small US territory which forms part of the Micronesia island chain in the Pacific region, about 1300 miles east of the Philippines. The aircraft landed without incident and there were no injuries among the passengers – the majority of whom were Japanese and Australian - or crew. The cause of the fire is unknown at present.

**The information in the sentences is incorrect. Write the correct sentence below.**

1. The fire **broke out** in the cabin.  
The fire **didn't break out** in the cabin. It **broke out** in the cockpit.
2. The fire **broke out** over the Atlantic Ocean.  
\_\_\_\_\_
3. The fire **broke out** just after the Airbus had taken off from Japan.  
\_\_\_\_\_

4. The steward **smelt smoke** and **saw flames** coming from the washroom.

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5. A passenger **put out** the flames with a **fire blanket**.

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6. The pilot didn't declare an emergency and continued on its journey to Australia.

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7. The plane crashed on landing.

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8. Several passengers were injured and were taken to hospital.

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Read the following fire incident reports and answer the questions.

1. An ATR 42 was en-route to the Isle of Man when an AFT SMK warning was triggered on the flight deck, indicating there was smoke in the toilet compartment at the rear of the aircraft. The cabin crew member carried out the fire fighting procedure and the smoke cleared. The cover on the illuminated **RETURN TO SEAT** sign in the toilet had overheated and the bulb filaments had failed, producing smoke.

a. What was the source of the smoke?

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b. How did the crew handle the situation?

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2. During taxi to Runway 27R, a wheel fire on a Boeing 747 was seen by the crew of another aircraft who reported it to ATC. The commander of Boeing 747 brought it to a stop and requested the assistance of the fire service. When the fire service arrived, they saw smoke coming from the No 7 wheel but no fire. The wheel was removed and the aircraft towed to a stand where the passengers disembarked. The cause of the fire was attributed to a failure of the outer bearing in the wheel; this resulted in a loss of support and caused the rotating wheel hub to rub against the axle.

a. Where did the fire break out?

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b. Who put out the fire?

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3.	<p>A Bombardier CL600 was on a scheduled flight from London Heathrow to Dusseldorf. Shortly after take-off, the Engine Indicating and Crew Alerting System (EICAS) gave a “SMOKE CARGO” warning. The crew carried out the appropriate emergency procedure, declared an emergency and returned to London Heathrow airport. Following a search of the cargo hold, no sign of fire or smoke was found and the aircraft was towed to a parking stand where the passengers were disembarked normally. The investigation concluded that the warning was spurious; probably caused by the smoke detector reacting to dust, condensation or electromagnetic interference. This aircraft had been fitted with a new design of smoke detector, which was intended to reduce its susceptibility to these factors.</p>
	<p>a. How and where was the smoke detected? _____</p> <p>b. How did the crew handle the situation? _____</p>
4.	<p>During cruising flight at Flight Level (FL) 330, the crew of a Beech King Air 350 reported an electrical burning smell and smoke in the cockpit, and diverted to Cardiff Airport. The cause was subsequently found to have been caused by electrical shorting due to moisture ingress into the right circuit breaker panel, located directly below the direct vision (DV) panel in co-pilot’s side window. Before the flight, the aircraft had been parked outside for two days at Galway, during which time it had rained.</p>
	<p>a. What was the source of the smoke and smell? _____</p> <p>b. How did the crew handle the situation? _____</p>

**The following phrases contain the word ‘pressure’. What do the phrases mean?**

- to pile on the pressure
- to be pressurised into doing something
- to be under pressure from
- to give in to pressure
- a pressure cooker
- the pressure of the job

**Complete the sentences using a phrase or word from above.**

1. It is important for controllers to give pilots time to do the check-list during a non-routine situation rather than \_\_\_\_\_ by asking too many questions.
2. It is important for controllers and pilots to take regular breaks due to the \_\_\_\_\_.

3. The first officer was \_\_\_\_\_ the captain to land the plane in fog.
4. Sometimes the cockpit atmosphere is very tense, rather like a \_\_\_\_\_.
5. Controllers did not \_\_\_\_\_ to accept new employment contracts.
6. During busy times controllers may be \_\_\_\_\_ more shifts than usual.

### Speaking

Describe the diagram in as much detail as possible. Try to speak for 2 minutes.



### Follow up questions

(Try to speak for about 30 seconds for each question, giving a full answer)

1. What fire/smoke warning systems do aircraft have?
2. What do you think are the main causes of aircraft fire?
3. What equipment is on-board to tackle fire?
4. How are passengers and crew affected by fire and smoke?



**Answers:****Match the words to make a noun adjective or verb. eg fire extinguisher**

- |            |                 |
|------------|-----------------|
| 1. fire    | f. extinguisher |
| 2. put     | c. out          |
| 3. built   | a. in           |
| 4. warning | e. light        |
| 5. inert   | d. gas          |
| 6. engine  | b. nacelle      |

**How an engine fire extinguishing system works.**

1. Aircraft engines have a **built in** fire detection system.
2. The fire detection system consists of a steel tube filled with an **inert gas**, which expands when heated.
3. If a fire is detected in the engine, the gas expands and a **warning light** comes on in the cockpit.
4. The engine bottle control is then selected by the pilot and this activates the **fire extinguisher**.
5. The contents of the engine bottle are emptied inside the **engine nacelle**.
6. If the fire has not been **put out** after 30 seconds, a second engine bottle is activated.

**Vocabulary****Match the words in the vocabulary box with the meanings below:**

1. to remove people to a safe place due to danger – **to evacuate**
2. the fire has been contained – **under control**
3. the origins of the fire – **the source**
4. an emergency slide – **an escape chute**
5. the fire is spreading rapidly – **out of control**
6. grey fumes created by fire - **smoke**
7. an injury received from fire – **a burn**
8. breathing equipment – **an oxygen mask**
9. people who put out fires – **the fire brigade**
10. an odour – **a smell**
11. a light that tells you about a serious problem – **a warning light**
12. to have breathing difficulties – **to choke**

**Complete the sentences with a word from the vocabulary box.**

1. I can **smell** burning but I can't see any **smoke**.
2. Can you identify the **source** of the fire?
3. A **warning light** has just come on, indicating there is a fire in the washroom.
4. The passengers are **choking** due to the thick smoke.
5. Tell the passengers to put on their **oxygen masks**.
6. The fire is **under control** and the flames have gone out.
7. The fire is **out of control** and the flames are spreading.
8. We need to **evacuate** the passengers as soon as possible.
9. We request the **fire brigade** on landing.
10. Release the **escape chutes / emergency slides** for immediate evacuation.
11. We have a passenger with severe **burns** who requires immediate medical assistance.

**Questions**

1. a. Can you smell smoke? ✓  
b. Do you smell smoke?
2. a. What is the source of the fire? ✓  
b. What does the source of the fire come from?
3. a. Does the warning light come on?  
b. Has the warning light come on? ✓
4. a. Are the passengers choking? ✓  
b. Do the passengers choke?
5. a. Does the fire out of control?  
b. Is the fire out of control? ✓
6. a. Are you going to use the escape chutes? ✓  
b. Do you use the escape chutes?
7. a. Do you require the fire brigade on arrival? ✓  
b. Are you requiring the fire brigade on arrival?
8. a. Do any passengers burn?  
b. Have any passengers received burns? ✓
9. a. Are we using oxygen masks?  
b. Should we use oxygen masks? ✓
10. a. Do we need to evacuate the passengers? ✓  
b. Are we needing to evacuate the passengers?

**On-board fire equipment**

- a. **smoke goggles**
- b. **smoke detector**
- c. **fire axe**
- d. **portable fire extinguisher**
- e. **smoke hood**
- f. **fire blanket**
- g. **fire protection gloves**

**Match the beginning of the sentence with the correct ending.**

1. Use the smoke goggles to... **e.** protect your eyes.
2. The smoke alarm is used to... **f.** detect fires.
3. Use the fire axe to... **g.** smash through panels.
4. Use the fire extinguisher to... **a.** put out fires.
5. Use the smoke hood to... **d.** help you breathe.
6. Use the fire blanket to... **c.** suffocate the fire.
7. Use the gloves to... **b.** protect your hands.

**Important verbs****Match the words in the vocabulary box with the meanings below:**

1. The fire brigade **extinguished** the fire. **put out**
2. The cigarette smoke **made** the smoke alarm **ring**. **set off**
3. Engine number one **ignited** on take-off. **catch fire / set on fire**
4. The fan in the washroom / toilet **ignited** due to the electrical fault. **catch fire / set on fire**
5. A fire **started** during the flight. **break out**

The information in the sentences is incorrect. Write the correct sentence below.

1. The fire **didn't break out** in the cabin. It **broke out** in the cockpit.
2. The fire **didn't break out** over the Atlantic Ocean. It **broke out** over the Pacific Ocean.
3. The fire **didn't break out** just after the Airbus had taken off from Japan. It **broke out** about 4 hours into the flight.
4. The Steward **didn't smell smoke** and **see flames**. The pilots **saw smoke** and **smelt smoke**.
5. A passenger **didn't put out** the fire with a fire blanket. The pilots **put out** the fire with a fire extinguisher.
6. The pilots **declared** an emergency and landed in Guam.
7. The plane **didn't crash** on landing. It **landed** without incident.
8. No passengers **were injured** and no one **was taken** to hospital.

Read the following fire incident reports and answer the questions.

1.
  - a. The source of the smoke was a faulty bulb in the toilet compartment.
  - b. The crew managed to put out the fire.
2.
  - a. The fire broke out in the wheel.
  - b. The fire brigade put out the fire.
3.
  - a. The warning light came on in the cockpit, which indicated that there was a fire in the cargo hold.
  - b. The crew declared an emergency and returned to Heathrow where the cargo hold was closely inspected.
4.
  - a. The smoke and smell were detected in the cockpit and were caused by a short circuit in the circuit breaker panel.
  - b. The crew diverted to Cardiff Airport.

The following phrases contain the word 'pressure'. What do the phrases mean?

- to pile on the pressure – **to increase workload / expectation**
- to be pressurised into doing something – **to be forced to do something against your will**
- to be under pressure from – **to feel the pressure from an external force**
- to give in to pressure – **to succumb to pressure**
- a pressure cooker – **a cooking pot which uses high pressure**
- the pressure of the job – **the demands of the role**

Complete the sentences using a phrase or word from above.

1. It is important for controllers to give pilots time to do the check-list during a non-routine situation rather than **pile on the pressure** by asking too many questions.
2. It is important for controllers and pilots to take regular breaks due to the **pressure of the job**.
3. The first officer was **under pressure from** the captain to land the plane in fog.
4. Sometimes the cockpit atmosphere is very tense, rather like a **pressure cooker**.
5. Controllers did not **give in to pressure** to accept new employment contracts.
6. During busy times controllers may be **pressurised into doing** more shifts than usual.