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"Fire, fire in the cabin!!"

An ASOS Special Report on the History and Horrors of In-Flight Fires.

It is every pilots worst nightmare. What follows in these pages is a chronology of the most significant in-flight fire reports, with Cockpit Voice Recording (CVR) transcripts when they were available.

1983, June 2nd. An Air Canada, DC-9-32, made a successful emergency landing at the Cincinnati airport after discovering smoke in the aft lavatory. The captain's shirt was on fire when he evacuated. Twenty-three, including all the crew, evacuated and survived. But, 23 passengers were overcome by smoke and died as the plane burst into flames shortly after the doors were opened. Among those killed was Canadian Folk Singer, Stan Rogers.

Compiled by Ed Wandall, ARG/US

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1947, October 24th. A United Airlines DC-6 crashed, while attempting to make an emergency landing at Bryce Canyon, Utah. They almost made it, but the fire burned through the controls just short of the airport, killing all 52 on board.

1947, November 11th. An American Airlines DC-6 successfully made an emergency landing at Gallup New Mexico, after fire broke out in that plane's air-conditioning system. None of the 25 on board was injured, although the plane sustained major fire damage. The investigation of that near tragedy was eventually combined with the United crash above. Both fires were found to have been caused by the same defect in aircraft design: The improper location of the overflow vent for the #3 alternate fuel tank. When fuel was transferred into the #3 tank, it was possible to have some overflow out of the vent for that tank. The airstream then carried the overflow fuel (very high-octane gasoline) directly into the air intake scoop for the cabin heater. The design and testing of the DC-6 fuel system was found to be deficient and in violation of the Civil Aeronautic Board's existing regulations.

1948, June 17th. A United Airlines DC-6 crashed near Mt. Carmel, Penn. after the crew discharged CO_2, in response to a fire warning, into the cargo compartment. When the nose was lowered, to make an emergency descent to the nearest airport, the CO_2 leaked out of the cargo compartment. Since it was heavier than air, it accumulated in the cockpit, asphyxiating the crew. All 43 on board died. The investigation and subsequent litigation revealed that Douglas Aircraft designed a dangerous fire-fighting system and had reason to know it could render the flight crew unconscious. The fix, to correct that danger, was to install a "dishpan" dump valve that would instantly depressurize the airplane as part of the fire-warning checklist. It was located along side of the First Officer's foot, to allow any CO_2 to flow out of the cockpit before it could accumulate to asphyxiation levels.

1964, July 9th. A United Airlines Vickers Viscount 745D, crashed near Pariottsville, Tennessee, killing all 38 onboard. It suffered an uncontrollable fire in flight, which apparently started below the passenger floor. The ignition source was never determined, but some thought the plane's battery or something in a passenger's luggage the most likely cause. Like the DC-6, the Viscount had a CO_2 fire extinguishing system that proved lethal to the pilots. The CO_2 bottles were located behind the F/O's seat. Testing, after the crash, revealed a lethal amount of CO_2 could be discharged into the cockpit even though it was supposed to go into the lower baggage compartment. The fire eventually burned through the controls, but it is likely that everyone was either unconscious or dead prior to ground contact. The plane was seen, flying erratically for a lengthy period of time, before the final plunge.

1971, August 8th. An Aloha Airlines Vickers Viscount 745D flew a routine flight from Hilo, Hawaii to Honolulu, Hawaii. After taxiing clear of the landing runway, the stewardess informed the captain of smoke in the cabin. The fire trucks were called and the passengers evacuated. As the captain was about to leave the cockpit, he noticed he could move the control wheel to the full aft position, even though the control ground lock had been engaged.

The subsequent investigation revealed the left nickel-cadmium battery had suffered an undetected short which lead to a thermal runaway. It melted the metal around it so rapidly that the flight control push rods were burned through in about two minutes time. Had that plane still been flying a few minutes more, none of those on board would have ever seen their loved ones again.

1973, July 11th. A Varig Boeing 707, enroute from Rio de Janeiro to Paris, was forced to land short of the runway at Orly airport, only 5 minutes after reporting a fire in the rear of the cabin. The smoke was so thick in the cockpit that the pilot had to look out the opened side windows to make the crash landing. He could not see his instrument panel or out the front windshield. Of the 134 on board, only the 3 pilots, 7 cabin crew and 1 passenger survived. All others were asphyxiated and burned. The accident report found the probable cause to be a fire that originated in the washbasin unit of the aft right toilet, either as a result of an electrical fault or by the carelessness of a passenger.

1973, November 3rd. A Pan American 707-321C Cargoliner, crashed, just short of the runway, at Boston Logan International Airport, killing the 3 pilots on board. Only 30 minutes after taking off from New York's JFK Airport, the pilot reported smoke in the cockpit. The smoke became so thick that it "…seriously impaired the flightcrew's vision and ability to function effectively during the emergency." The captain had not been notified that hazardous cargo was aboard. The NTSB said, further, that a ***contributing factor*** was:

…the general lack of compliance with existing regulations governing the transportation of hazardous material which resulted from the complexity of the regulations, the industrywide lack of familiarity with the regulations at the working level, the overlapping jurisdictions, and the inadequacy of government surveillance.

1976, August 6th. An Air Chicago Freight Airlines, Inc., TB-25N (B25 bomber converted to a cargo carrier), crashed while attempting an emergency landing at Chicago's Midway Airport. Both pilots and one person on the ground were killed. The left engine suffered a massive failure in its power section, starting a fire that could not be extinguished. The NTSB found the probable cause of the accident to be:

…the deterioration of the cockpit environment, due to smoke to the extent that the crew could not function effectively in controlling the aircraft under emergency conditions. The smoke and fire, …propagated into the bomb bay area and then into the cockpit.

1980, August 19th. A Saudi Arabian Airlines, L-1011, returned to Jeddah, Saudi Arabia and made a successful landing, after reporting a fire in its C-3 cargo compartment. However, after landing, no doors opened and no one evacuated. All 301 souls on board perished, including 15 infants, from the inhalation of toxic fumes and exposure to heat. There were no traumatic injuries. Just prior to landing, the captain ordered his crew ***not to evacuate*** and he failed to

shut off the engines after the aircraft was stopped. Other findings of the accident investigators:

- There was an extensive history of fires originating in aircraft cargo compartments where loose baggage and cargo are carried.
- The cause of the fire could not be determined.
- The pilots failed to don their oxygen masks.
- The captain failed to understand the seriousness of the situation.
- Both the F/O and the F/E had been dropped from their training programs and/or terminated and reinstated. Their actions, during the emergency, were not helpful to the captain. "Reinstatement in a flight position of terminated crew men is not desirable."

19 August 1980 Suadi 163

Flight SV163 landed at Riyadh at 16.06h GMT for a scheduled intermediate stop after a flight from Karachi. At 18.08hrs the aircraft took off for the final leg to Jeddah. Six minutes and 54secs. after take-off, while climbing to FL350, visual and aural warnings indicated smoke in the aft cargo compartment C-3. Climbing through FL220 (at 18.20h), a return to Riyadh was initiated. About two minutes later smoke was noted in the aft of the cabin, and passengers were panicking. At 18.25:26h the no.2 engine throttle was stuck. The fire had by then entered the cabin of the TriStar. Because passengers where fighting in the aisles, aft of doors L2 and R2, the captain asked everybody to remain seated (18.27:40). On final approach engine no.2 was shut down, and the captain told the cabin crew not to evacuate. Flight SV163 landed back at Riyadh runway 01 at 18.36:24hrs. The crew continued to a taxiway and told the tower that they were going to shut the engines down and evacuate. The engines were shut down at 18.42:18h. Because no evacuation had been initiated by then, crash, fire and rescue personnel tried to open the doors. At about 19.05 they succeeded in opening door 2R. About three minutes later, the interior was seen to be engulfed in flames.

Legenda
CAM-1 = Voice identified as Captain
CAM-2 = Voice identified as First Officer
CAM-3 = Voice identified as Flight Engineer
CAM-4 = Voice identified as Flight Attendant
RDO-2 = Radio transmission by First Officer
PA = Public address system
TMACC = Riyadh Terminal Area Control Center
TWR = Riyadh Tower
(T) = translated part

Time (mm:ss) to landing	GMT Time (hh.mm:ss)	Source	Content
28:41	18:07:49		Takeoff
	18.14:53	CAM	((Hostess call signal followed by an alternating tone at 14.54)

21:32	18.14:58	CAM-3	"B" aft cargo
		CAM-1	What?
	18.15:01	CAM-3	"B" aft cargo
	18.15:04	CAM-2	What's going on?
	18.15:10	CAM-3	Smoke detection "B" aft cargo
	18.15:14	CAM-1	Stop ventilation
	18.15:16	CAM-3	Smoke detection
		CAM-3	Smoke detection "B" aft cargo
21:10	18.15:20	CAM-1	In "B" aft cargo
		CAM-3	Yes
	18.15:32	CAM-1	Did you turn it to the other one?
	18.15:37	CAM-3	Just in "B".
		CAM-1	What?
	18.15:39	CAM-3	Not in "A".
		CAM-3	Just in "B".
		CAM-1	Just "B".
	18.15:42	CAM-3	Yeah, "A" is okay.
		CAM-1	Okay, so we can go on
		CAM-3	Yes
	18.15:51	CAM-1	The ventilation is not working at all in that one
		CAM-3	Yeah
		CAM	((Alternating tone))
	18.15:55	CAM-3	There is "A"
		CAM-1	What?
		CAM-3	Now it is "A", both of them
20:31	18.15:59	CAM-1	So we got to be returning back right?
		CAM-3	Both "A" and "B" aft cargo smoke detection
	18.16:06	CAM-1	So we have smoke there
	18.16:07	CAM-3	I would say so, yeah
	18.16:18	CAM-1	What's the procedure for it in the checklist?
20:10	18.16:20	CAM-1	Yeah I am looking for it now
	18.17:10	CAM-1	((Singing in Arabic))
	18.17:16	CAM-1 (T)	See that, what's it's name
	18.17:17	CAM-2	Abnormal
	18.17:19	CAM-1 (T)	No, no checklist abnormal

18:04	18.18:26	CAM-3	Both "A" and "B"
		CAM-3	Yeah. Both "A" and "B"
		CAM-3	Shall I test it again and see if it will test?
		CAM-1	Yeah
	18.18:34	CAM-3	It doesn't test
		CAM-1	Doesn't test?
		CAM-3	Both off
		CAM-1	So that's actual isn't it?
	18.18:54	CAM-3	That would ah --- I would say actual, yeah
		CAM-1	Uh
		CAM-3	I would say so, yeah both of them went
17:30	18.19:00	CAM-1	We have cleared the situation
	18.19:17	CAM-1	There isn't anything about it in the abnormal procedures, huh.
	18.19:20	CAM-3	Nothing about it, should I just go back there and see if I can find anything or smell anything?
	18.19:25	CAM-1	What?
	18.19:26	CAM-3	Shall I go back there and see if I can smell anything?
		CAM-1	Okay, sure.
		CAM-3	Yeah
		CAM	((Sound of cockpit door opening))
17:00	18.19:30	CAM-1	Have they seen it
		CAM-3	If I can see, smell something I'm think we better go back
	18.19:35	CAM-1	Surely check it
		CAM-3	We'll see
	18.19:40	CAM	((Sound similar to cockpit door slamming))
	18.19:41	CAM-2 (T)	Strange no procedure for it
		CAM-1	No procedure for it?
	18.19:44	CAM-1	Tell them we're returning back
		CAM-2	To Riyadh
	18.19:48	CAM-1	We are 60 miles out ah ---
	18.19:58	CAM-1	We better go, go back to Riyadh
		CAM-1 (T)	Look in the abnormal
		CAM-1 (T)	By the way he's a jackass, in the abnormal it is in the checklist
	18.20:16	CAM-3	We've got a fire back there

		CAM	((Sound similar to door slamming))
	18.20:18	CAM-1	We do?
		CAM-3	Yes we do
		CAM-1	It's okay call please
	18.20:25	CAM-1	Tell him we're coming back
	18.20:25	TMACC	Go ahead
	18.20:27	RDO-2	18.1-6-3, we're coming back to Riyadh
16:00	18.20:30	CAM-3	I would declare an emergency
		CAM-1	Yeah
	18.20:33	TMACC	Cleared to reverse course to Riyadh and request reason
		CAM-2	Declare emergency?
	18.20:36	CAM	((Door slams))
	18.20:37	CAM-?	Fire, fire in the cabin
	18.20:37	RDO-2	Saudia one six three, we've got fire in the cabin and please alert the fire trucks
		CAM	((Noise similar to door slamming))
	18.20:45	TMACC	Okay and cleared back and if you'd like to descend, you can descend to any altitude you like
	18.20:50	CAM-1	Okay
		CAM-2	I already asked, I already asked

	18.23:07	CAM-3	We definitely want
	18.23:10	CAM-3	We definitely, we definitely want preference to land
		CAM-1	Huh?
	18.23:13	CAM-3	We definitely want preference to land, that's for sure
		CAM-1	Yeah
	18.23:22	CAM-1	Pressurization set? ---
		CAM	((cabin announcement - unintelligible))
13:03	18.23:27	CAM-1	Okay
	18.23:32	CAM-2	No smoking sign on
		CAM-1	Okay, no smoking sign
	18.23:36	CAM-1	Landing preliminary
	18.23:40	CAM-3	Okay landing preliminary
	18.23:41	CAM-3	18.1-42 on the bug
		CAM-1	one fortytwo

	18.23:42	CAM-2	one fortytwo
		CAM-3	Anti-ice
		CAM-1	Off
	18.23:50	CAM-3	HSI heading
		CAM-1	Set
	18.23:51	CAM-3	Seatbelt sign
		CAM-1	On
		CAM-3	Ah
		CAM-3	Logo light
		CAM-1	It's okay
	18.23:55	CAM-3	Logo light
		CAM-1	Checked
12:32	18.23:58	CAM-3	Altimeters
		CAM-1	Altimeters is gonna be what it is
		CAM-1	It was 1-0-0-2 setting
	18.24:03	CAM-3	Okay, and airspeed, groundspeed, airspeed and EPR bugs
	18.24:16	CAM-3	Gross weight estimates
	18.24:16	CAM	((Sound of alternating tone)) ((Smoke detector aural warning))
	18.24:21	CAM-3	What can I say
	18.24:22	CAM-1	Okay
		CAM-3	I think it's all right now
		CAM-1	Okay
12:05	18.24:25	CAM-2	one one zero
		CAM-3	Gross weight airspeed and EPR bugs
		CAM-1	Set and cross checked, one forty two set here two and one five five check
		CAM-2	One five five
		CAM-3	Check
	18.24:40	CAM-1	Keep the oxygen to be prepared
	18.24:41	CAM-3	((Sound of alternating tone three times simultaneously with above))
		CAM-3	There goes "A"
		PA (T)	# # # #
	18.24:49	CAM-1	((Singing in Arabic))
11:31	18.24:59	PA	Would passengers please remain seated
	18.25:04	CAM-2	Six point eight
		CAM-1	Huh?

		CAM-2	Six point eight on the QNH
		CAM-2	One zero zero six decimal eight
		CAM-?	((Continuous talk by female voice in background))
	18.25:12	CAM-1	Okay zero six decima eight
11:04	18.25:26	CAM-1	Okay the throttle in engine number two, it's not returning back --- stuck
		CAM-3	Stuck?
	18.25:32	CAM-1	Stuck
	18.25:36	CAM-3	I would leave it the way it is, Sir
		CAM	((Sound of knocking))
		CAM-1	Huh?
		CAM-3	Just leave it the way it is.
	18.25:40	CAM-1	I'm going to shut it down
	18.25:41	CAM-4	We tried to, we tried to put it off, at L4 there is a fire
		CAM-3	Theres a fire?
		CAM-4	Yeah
		CAM-3	Well go put it out
	18.25:45	TMACC	One six three, did you get the message to get us the passengers on board and fuel endurance
		CAM-4	How
	18.25:47	CAM-3	In the ah, --- the fire extinghuisher
		CAM-4	I know I said we will do it
	18.25:50	CAM-3	There is a fire back there
		CAM-1	Okay
	18.25:54	CAM	((Sound similar to door slamming))
	18.25:55	CAM-1	Tell them we have actual fire in the cabin
10:31	18.25:59	RDO-2	Riyadh Saudi Arabia one six three, we have an actual fire in the cabin now
	18.26:07	CAM-3	Shall I let Jeddah know on HF?
		CAM-1	No
	18.26:10	TMACC	Saudi one six three roger, the fire are in the standby position and they are ready
		CAM-3	No?
		CAM-1	Not with our situation
	18.26:17	RDO-2	One six three
	18.26:18	PA	L4 and R4 get the fire extinguishers from the galley --- ((repeated))

10:01	18.26:29	CAM-3	Jee's lets go on as fast as we can til we can get to approach
	18.26:31	CAM-1	That's it, this is the maximum
		CAM-3	Yeah
	18.26:34	CAM-1	Now engine number two is stuck there so something is wrong in it, I'm gonna be shut it down
	18.26:39	CAM	((Sound similar to cockpit call chime))
	18.26:40	CAM-3	Well not yet, not yet, not yet
	18.26:42	CAM-4	There is no way I can go to the back * * after L2 R2 because the people are fighting in the aisles
		CAM-3	Okay find a way if you can
	18.26:53	CAM-4	L4 R4 L3 R3 * * open the cabinet and use all your fire extinguishers and the CO2
9:28	18.27:02	CAM-3	I'll keep your speed up as long as possible
		CAM-1	Okay
		CAM-1	As soon as possible we're gonna be down
	18.27:16	PA (T)	(All passengers remain in your seats, etc.)
	18.27:21	CAM-3	And your target speed is one forty one
		CAM-1	Huh one forty one is set
9:00	18.27:30	CAM-3	Here's the bug card
	18.27:32	CAM-1	Thank you
	18.27:39	CAM-2	Set on mine
	18.27:40	PA	Please, everybody set down, move out of the way, everybody sit down, move out of the aisle, there is no danger from the airplane, everybody should stay in their seats
		PA (T)	Sit on your seat, sit on your seat, ladies and gentlemen take your seat --- nothing will happen to aircratf, ladies and gentlemen fasten your seatbelt, don't stand like this set on your seats -- sit down, sit down [in Urdu]
8:27	18.28:03	CAM-3	Piece of cake, piece of cake
	18.28:10	CAM-3	As soon as we land, sir, I suggest that we turn off all fuel valves
	18.28:14	CAM-1	Okay
		CAM-3	As soon as we land
		CAM-1	Okay
	18.28:17	CAM-3	As soon as we touch down
		CAM-1	Okay
	18.28:22	CAM-1	Where is the runway?
		CAM-1	Can you see the runway?
	18.28:27	CAM-2	No not yet, not yet

8:01	18.28:29	CAM-2	Twenty eight miles
		CAM-?	# # #
	18.28:40	CAM-3	Did you tell the fire trucks to go to the back of the airplane as soon as possible
		CAM-2	Yeah
		CAM-1	Huh
		PA (T)	Will all passengers remain seated, will all passengers remain seated, ((Urdu)) --- ladies and gentlemen sit down, sit down (repeated)
		CAM-1	Advise them
		CAM-1	Huh
		CAM-2	Advise them?
	18.28:50	CAM-1 (T)	How?
	18.28:50	RDO-2	Riyadh one six three
		CAM-2	Advise them
	18.28:52	TWR	Go ahead
		CAM	((Sound of two knocks))
		CAM-1	Yeah, yeah
	18.28:54	RDO-2	Please advise fire trucks to be at tail of the airplane after touch, please.
7:31	18.28:59	TWR	Yes, will do
	18.29:01	CAM-1 (T)	Where is the airport, I don't see it?
		CAM-4	Captain there is too much smoke in the back
		CAM-2 (T)	There is the airport road, the yellow lamps are the airport road.
		CAM-1	Huh
		CAM-2 (T)	The yellow lamps are the airport road
		CAM-1	That
		CAM-2	Yeah
		CAM-4	# # #
		CAM-1	Are there too much smoke there?
6:56	18.29:34	CAM-3	Okay, I am going to test the system again
	18.29:36	CAM	((Sound of alternating tone)) ((Smoke detector))
	18.29:38	CAM-3	Okay, there's both "A" and "B" loops working again
	18.29:44	CAM-3	And no indication of smoke

	18.29:46	CAM-1	Huh
	18.29:47	CAM-3	No ah indication of smoke, however, the cabin is filled with smoke in the back
		CAM-1	Okay
	18.29:53	CAM-1	Now the number two is stuck there the engine
		CAM-1	Okay
	18.29:56	CAM-3	I suggest we shut it down on short final
	18.29:59	CAM	((Sound of alternating tone))
6:31	18.29:59	CAM-1	Yeah, on short final
	18.30:01	CAM-3	Okay, there is "A" again
	18.30:03	CAM-3	And "A" is going out
	18.30:20	CAM	((Sound similar to door movement))
6:03	18.30:27	PA (T)	((Passenger exhorting passengers to sit down))
	18.30:35	CAM-3	What is he saying?
		CAM-2	Trying to keep them calm, keep the down
	18.30:41	CAM-1	Okay flaps four please
	18.30:45	CAM-1	Okay, final to the box
	18.30:47	CAM-2	Final to the box please
	18.30:52	CAM	((Sound similar to seat movement))
	18.30:56	PA	Everybody sit down please, all passengers
5:30	18.31:00	CAM-1	Okay flaps ten please, correction, it's okay
		CAM	((Sound of cough))
		CAM-?	*
		CAM-2 (T)	They are the first people
		CAM-1 (T)	What?
		CAM-2 (T)	They are the first people
		CAM-1 (T)	Who are they?
	18.31:13	CAM-2 (T)	They are the people we were talking about
		CAM-1	Huh
		CAM-2	They are the people we were talking about
	18.31:18	CAM-1 (T)	Where is the airport I don't see it

		CAM-2 (T)	You see those lights over there, that's the stadium
	18.31:22	CAM-2	I got the field in sight
	18.31:25	CAM-1	I am just trying to interept this (radial)
		CAM-2	Okay
5:00	18.31:30	CAM-4	Shall we evacuate?
		CAM-1	What?
	18.31:31	CAM-4	Did you say we should evacuate ---
		CAM-1	Okay
		CAM-4	The passengers
		CAM-3	Say again
		CAM-4	Can we evacuate all the passengers?
	18.31:34	CAM-1	Flaps ten please
		CAM-3	When we're on the ground yes
		CAM-4	Okay after we are on the ground yes
		CAM-2	Flaps ten
		CAM-1	Yeah
	18.31:38	CAM-1	Final to the box !
	18.31:40	CAM-2	Final to the box please
	18.31:41	CAM-3	Final to the box
	18.31:42	CAM-3	Okay ignition
		CAM-2	On
		CAM-3	No smoking sign
		CAM-2	Say again
	18.31:48	CAM-3	No smoking sign
		CAM-2	On
	18.31:49	CAM-3	Altimeters
		CAM-2	Set, cross checked
		CAM-3	Brake pressure
		CAM-2	Checked
	18.31:51	CAM-3	Radio and R NAV selector
		CAM-2	Check
	18.31:54	CAM-3	Okay complete to the box
	18.31:58	CAM-3	Okay, right after landing sir do you want me to turn off all fuel valves?
4:28	18.32:02	CAM-1	No after we have stopped the aircraft
		CAM-3	Okay

	18.32:05	CAM-1	Okay, I'll tell you
	18.32:10	CAM-4	Do you want us to evacuate passengers Captain?
		CAM-1	What?
		CAM-4	Do you want us to evacuate the passengers as soon as we stop
	18.32:16	CAM-1	Take your position
		CAM-4	Okay
	18.32:19	CAM-3	The area duct overheat
		CAM	((Sound similar to door shutting))
		CAM-1	Okay
		CAM-1	Flaps eighteen please
	18.32:23	CAM-2	One eight
	18.32:25	PA	Flight attendants please take your position
		CAM-4	Flight attendants please take your positions
3:59	18.32:31	CAM-2	Got runway in sight?
	18.32:33	RDO-2	Riyadh, one six three, we got the runway in sight, are we cleared to land?
		CAM-1	Oh yeah, I see it
		PA	Please take your positions
	18.32:36	TMACC	Affirmative, you are number one cleared for approach and you can continue tower one eighteen one
	18.32:42	RDO-2	Eighteen one, one six three
	18.32:44	RDO-2	Riyadh, Saudia one six three ten miles final runway in sight, cleared to land?
		CAM-4	All of you sit down
	18.32:48	TWR	One six three cleared to land, wind three two zero at five
	18.32:48	CAM-1	Okay I'm shutting
		PA (T)	Fasten seatbelts all of you sit down [in Urdu]
	18.32:52	CAM-1	Okay, I'm shutting down engine number two
		CAM-1	It's stuck, present EPR
	18.32:53	RDO-2	One six three, cleared to land, confirm you have alterted the fire trucks
		CAM-3	Okay
		CAM-1	Okay
		CAM-3	Okay
	18.32:58	TWR	Affirmative, they are ready
	18.32:59	CAM-1	Okay, it is coming down
3:29	18.33:01	RDO-2	Thank you

		(T)	
		CAM-3	All right
		CAM-1	Okay
	18.33:06	CAM-2	Flaps in eighteen
	18.33:08	CAM-3	I'll keep our speed up as much as possible
		CAM-1	Okay, flaps twenty two
		CAM-2	Flaps twenty two
		CAM-4	Give me your attention please, be seated ladies and gentlemen, we are about to land there's no reason to panic
	18.33:22	CAM-3	I'll give you a hundred and fifty down, okay
		CAM-1	What?
	18.22:23	CAM-3	A hundred and fifty on down
		CAM-1	Yeah sure
3:01	18.33:29	PA	We're about to land ladies and gentlemen place your hands behind your head for impact, girls demonstrate impact position, girls demonstrate impact position
	18.33:31	CAM-1	Gear down please
		CAM-2	Gear is coming down
	18.33:35	CAM-3	Okay, you can go one ninety
		CAM-1	Good
	18.33:40	CAM-1	There is no, any procedure for the two engine, it's the same as three
		CAM-2	Okay
		CAM-3	Yeah
	18.33:45	CAM-1	I just want to confirm it, I know it God damn it
	18.33:52	CAM-1	Tell him that engine number two is should be shut down --- it's stuck
	18.33:57	CAM-2	Okay
	18.33:58	CAM-1	Tell the tower
		CAM-2	Yeah
2:30	18.34:00	CAM-1	Yeah, we just have engine number one
	18.34:02	RDO-2	Tower Saudia one six three
	18.34:04	PA	The girls have demonstrated impact position, please go down half a minute before touhdown, it's half a minute before touchdown, hands behind your head
	18.34:06	TWR	Go ahead one six three, wind three two zero at five
		CAM-1	Number one and number three

	18.34:10	RDO-2	One six three is cleared to land, we have engine number two shut down, we have only one and three
	18.34:17	TWR	Copied today
		PA	Everybody, please sit down, everything's under control, we are landing back at Riyadh, please it down and fasten your seatbelts, sit down and fasten your seatbelts, please
		CAM-1	Okay
	18.34:20	RDO-2	Okay
	18.34:25	CAM-1	Complete the final checklist
		CAM-2	Complete, flaps
2:04	18.34:26	CAM-3	Okay, your altimeters are one zero zero seven, set and cross checked three ways, gear and anti-skid is down and checked and your flaps are at thir- twenty two
	18.34:39	CAM-1	Yeah, I know it
	18.34:44	CAM-3	Both loops "A" and "B" are out
		CAM-1	Thank you
1:37	18.34:53	PA (T)	Ladies and gentlemen, no need to panic, place your hands behind your head for impact position [Urdu]
	18.35:06	CAM-3	Aft cargo door is opened sir
	18.35:11	CAM-1	Check
		CAM-3	No problem
		PA	Now ladies and gentlement, may I ask you to please put your hands behind your heads for the impact position
	18.35:56	CAM-3	Looking good
	18.35:57	CAM-1	Tell them, tell them to not evacuate
0:30	18.36:01	PA	Put your hand behind your head and head between your knees, hands behind your head
		CAM	((Sound similar to door opening))
	18.36:07	CAM-3	No need for that, we are okay, no problem, no problem
	18.36:12	GPWS	Minimum --- minimum
	18.36:12	CAM-1	One hundred
		CAM-3	One hundred
	18.36:15	CAM	((Loud squeal begins and continues until end of CVR tape))
	18.36:18	CAM-3	Fifty
	18.36:19	CAM-3	Forty
	18.36:21	CAM-3	Thirty
	18.36:22	CAM	((Loud squeal))
			((End of CVR tape))

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0:00 18.36:30 approximate time of landing

1982, February 21st. A Pilgrim Airlines deHavilland DHC-6-100, (commuter flight) made an emergency landing on a frozen reservoir lake after fire erupted in the cockpit. The fire destroyed the aircraft after impact. One passenger was killed, while the captain, F/O and 8 passengers sustained serious injuries. One passenger escaped with only minor injuries. The fire was caused by the "***deficient design*** of the isopropyl alcohol windshield washer/deicer system and the ***inadequate maintenance*** of the system…The ignition source of the fire was not determined."

NTSB Identification: **DCA82AA016**
Scheduled 14 CFR Part 135: Air Taxi & Commuter
Accident occurred Sunday, February 21, 1982 in PROVIDENCE, RI
Probable Cause Approval Date: 2/21/83
Aircraft: de Havilland DHC-6, registration: N127PM
Injuries: 1 Fatal, 10 Serious, 1 Minor.

APRX 15 MIN AFT TKOF, LGT ICG WAS NOTED ON THE WINDSHIELD. THE AIRCREW ACTIVATED THE WINDSHIELD WASHER/DEICE SYS WHICH USED ISOPROPYL ALCOHOL. HOWEVER, ONLY A LITTLE DEICING FLUID WAS NOTED ON EITHER SIDE. THE SYS WAS ACTIVATED AGAIN. AFT HLDG THE SW SVRL SECONDS, THE ODOR OF ALCOHOL WAS NOTED.DEICING PROC WAS STOPPED, BUT SHORTLY THEREAFTER, GRAY-WHITESMOKE BGN COMING FM BLO THE FLOOR. THE AIRCREW BGN DIVERTING. THICK SMOKE FILLED THE CABIN & FIRE BROKE OUT ON THE FLOORBTN THE PLTS AS THE ACFT DSCNDD BLO THE CLDS. THE CO-PLT TRIED TO USE 1 FIRE EXTINGUISHER, BUT IT WAS TOO HOT. NO ONE ATMTD TO USE THE CABIN EXTINGUISHER. CRSH LNDG WAS MADE ON A FRZN LAKE. ALL BUT 1 OCCUPANT

WERE EVCUATED BFR THE PLANE WAS DESTROYED BY FIRE. AN INVESTIGATION REVEALED TYGON TUBING WAS USED IN THE DEICE SYS. AFT CONTACT WITH ALCOHOL, THE TUBING HARDENS, BCMS MISHAPED AT CONNECTION POINTS & OFTEN RESULTED IN LEAKS. LEAKS WERE REPAIRED BY RMVG ENDS & REATTACHING. A REPAIR WAS MADE ON 2/18/82 IAW DEHAVILLAND PROC. FIRE EXT LCTNS NOT SUF MARKED OR NOTED ON SEATBACK SAFETY CRDS.

The National Transportation Safety Board determines the probable cause(s) of this accident as follows:

MAINTENANCE..INADEQUATE..COMPANY MAINTENANCE PERSONNEL
SUPERVISION..INADEQUATE..COMPANY/OPERATOR MANAGEMENT
ACFT/EQUIP,INADEQUATE AIRCRAFT COMPONENT..MANUFACTURER
ANTI-ICE/DEICE SYSTEM,WINDSHIELD..BRITTLE FRACTURE
ANTI-ICE/DEICE SYSTEM,WINDSHIELD..LEAK
FUSELAGE,CREW COMPARTMENT..FIRE

1983, June 2nd. An Air Canada, DC-9-32, made a successful emergency landing at the Cincinnati airport after discovering smoke in the aft lavatory. The NTSB concluded the fire had burned for 15 minutes before the smoke was first detected. Source of the fire could not be determined. Miscommunication, between the captain and the cabin crew, caused a delay in the declaration of an emergency. The NTSB determined the plane could have landed 3 to 5 minutes earlier, at Louisville, if the descent had started as soon as the captain was made aware of the fire. It took only 11 minutes to make the landing, after the emergency descent was first initiated. The smoke was so thick in the cockpit, they had to depressurize and repeatedly open and close the cockpit windows, to see the instrument panel. The captain's shirt was on fire when he evacuated. Twenty-three, including all the crew, evacuated and survived. But, 23 passengers were overcome by smoke and died as the plane burst into flames shortly after the doors were opened.

Legenda CAM = Cockpit Area Mike voice or sound source
RDO = Radio Communications
-1 = Voice identified as Captain
-2 = Voice identified as First Officer
-3 = Voice identified as male flight attendant
-4 = Voice identified as female flight attendant
-5 = Voice identified as male passenger
CTR = Indianapolis Center
* = Unintelligible word
# = non pertinent word
( ) = Questionable text
--- = pause

Times are in Central Standard Time

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18.48:12	CAM	[Sound similar to arcing]
18.48:15	CAM	[Sound similar to arcing]
18.51:03	CAM	[Two sounds similar to arcing]
18.51:04	CAM-1	How is your sea food, nice?
	CAM	[Sounds similar to arcing and snapping]
	CAM-2	It's good
	CAM-1	* steak nice?
18.51:09	CAM-2	Different, a little bit dry but okay
18.51:14	CAM	[Sounds similar to arcing and snapping]
	CAM-2	(What was that?)
	CAM-1	#
18.51:19	CAM-2	It's right here, I see it
	CAM-1	Yeah
	CAM-1	DC bus
	CAM-2	Which one is that?
	CAM-1	DC bus the, ah, left toilet, left toilet flushing
18.51:27	CAM-1	(I) better try it again, eh, push 'em in
	CAM-2	Push it in one more time, I guess
18.51:41	CAM	[Sound of arcing]
	CAM-2	What!
18.51:42	CAM	[Sound of arcing and snap]
	CAM-1	That's it
18.51:43	CAM	[Sound of arcing and snap]
	CAM-1	Won't take it
	CAM-2	No
	CAM-1	See anything else?

	CAM-1	(There's nothing) on the panel
	CAM-1	Ha
18.52:08	CAM-1	Like a machine gun
	CAM-2	Yeah, zap, zap, zap
	CAM-1	* put it in the book, there
	CAM-2	Log it
18.52:26	CAM-1	Now I want to log it, eh
18.53:16	CAM-1	Somebody must have pushed a rag down the old toilet or something eh?
18.53: 21	CAM-1	Jammed it, and it overheated
18.53:25	CAM-2	Is it flushing you pushed?
	CAM-1	It's flushing yeah
	CAM-2	(Motor) *
18.53:30	CAM-1	Toilet flushing, three breakers banged
18.53:35	CTR	Air Canada seven ninety seven, contact Indianapolis on one three three point zero five
18.53:40	RDO-2	Air Canada seven nine seven, so long
18.53:41	CTR	So long
18.53:53	RDO-1	Indianapolis Center, this is Air Canada seven nine seven maintaining three three zero direct Louisville on course
18.53:59	CTR	Air Canada seven ninety seven Indianapolis Center roger
18.54:18	CAM-1	Don't see the ground too often, today eh?
	CAM-1	No, a lot of, a lotta cloud eh, the whole * * * the whole area
	RDO-?	* * *
18.56:56	CAM-2	Yeah, that feels good
18.57:09	CAM-1	What the # does this mean
18.57:12	CAM-1	(Reg a bail)
	CAM-2	I don't know

	CAM-2	Regional examiner, regional * regional
18.57:36	CAM-1	We may be, I don't know, A.J. would be a three letter code if it was an airport, eh
	CAM-2	I don't know, it might be in the, ah, charts
	CAM-1	Regional --- here's another regional A.J.
	CAM-1	(Well it's)
18.58:16	CAM-2	That (one) is lettered D.G. *
	CAM-1	Oh I see, oh yeah, yeah *
18.58:27	CAM-1	Alternate, ah, must be out alternate here
	CAM-1	Ah who gives a #
18.58:43	CAM-1	Nothing to do with us
	CAM	[Sound similar to cockpit door]
	CAM-3	Yeah thank you sir
18.59:02	CAM-?	UWX
18.59:30	CAM-1	Twenty nine U, W, and X twenty nine, those are grid references
18.59:37	CAM-2	Twenty nine, yeah
18.59:42	CAM-1	Twenty nine UWX three --- the left toilet flushing
	CAM-2	Left
18.59:47	CAM-1	Yeah aft left toilet flush, and they wouldn't accept a reset
18.59:58	CAM	[Sound of first attempt to reset and sound similar to arcing]
18.59:59	CAM	[Sound of second attempt to reset and sound similar to arcing]
19.00:00	CAM	[Sound of third attempt to reset and sound similar to arcing]
	CAM-1	Pops as I push it
	CAM-2	Yeah, right
	CAM-1	Yeah
19.00;51	CAM	[Sound of cough]
19.01:12	CAM-	Zero two seven set for ya Don

	2	
19.01:33	CAM-1	Better --- have dinner here
19.01:42	CAM	[Sound of a chime]
	CAM-3	Yes
19.01:49	CAM-1	Sergio could I try for mine now please
	CAM-3	Sure
	CAM-1	Thank you very much
19.01:59	CAM-1	Do you want any of that fruit or should we give it to the girls -- as far as I'm concerned
	CAM-2	No
	CAM-1	I don't want it
19.02:13	CAM-1	There you go
	CAM-2	Thanks
19.02:15	CAM-1	You're in a left turn here to pick up oh two seven
	CAM-2	So okay twenty seven
	CAM-1	Louisville to Rosewood
19.02:28	CAM-1	The next chart yeah that's it
	CAM-2	Yeah
19.02:34	CAM-1	We're just over Louisville here
	CAM-2	[Sound of whistling]
	CAM-2	Louisville --- Rosewood, okay
19.02:40	CAM-4	Excuse me, there's a fire in the washroom at the back, they're just oh # went back to go to put it out
	CAM-1	Oh yeah
	CAM-4	They're still, well they're just gonna go back now
	CAM-2	Want me to go there
19.02:50	CAM-	Yeah go

	1	
	CAM-2	* the brakers # up
	CAM-1	Leave my, leave my, leave my dinner in the thing there for a minute
	CAM-4	Okay
	CAM-5	(Can I buy you a drink cause there's something going on, drink or a shot)
	CAM-?	Ah, wouldn't say that
19.03:06	CAM-5	Yeah okay
	CAM-?	Still there huh?
	CAM-5	Yeah
19.03:10	CAM-2	Got the, ah, breakers pulled
	CAM-1	It's the motor
19.03:15	CAM-4	Pardon me
	CAM-2	You got all the breakers pulled out?
	CAM-1	The breakers are all pulled yeah
19.03:21	CAM-4	(* * make 'em all seat?)
	CTR	Republic two eighty eight Indianapolis, Memphis one three three point eight five three three eight five, goodbye
19.03:31	CAM-4	Captain is it okay to move everybody up as far forward as possible
	77L	* * seven seven lima (Knoxville) * * two none zero --
	CTR	Seven seven lima (Knoxville) roger
19.03:54	CTR	Delta sixteen twenty six continue descent to flight level two four zero, Indianapolis
19.04:00	CTR	Center one two eight five five on two four zero at twenty eight fifty five so long
19.04:07	CAM-2	Okay I eh, you don't have to do it now, I can't go back now, it's too heavy, I think we'd better go down
	RDO-?	(Cleared) ah okay
19.04:16	CAM-3	I got all the passengers seated up front, you don't have to worry I think it's gonna be easing up
19.04:23	CAM-2	Okay, its starting to clear now
	CAM-	Okay

	1	
19.04:25	CAM-1	Well I want --- hold on then
	CAM-3	(Mike) I just can't go back it too
	CAM-2	I will go back if that's appears better, okay
	CAM-1	Yeah that's okay
	CAM-?	That's okay, yeah
	CAM-2	So ---
	CAM-1	Take the, take the smoke mask
	CAM-2	You have control
	CAM-1	Take the goggles
19.04:36	CAM-1	I'll leave the mask on
	CAM-2	Okay
19.04:46	CAM-1	Okay go back whenever you can but don't get yourself incapacitated
	CAM-2	No problem, no problem
	CAM-1	Okay
19.05:15	268G	Indianapolis good evening Citation two eight six golf, three one oh
19.05:18	CTR	Citation two eight six gold Indianapolis
19.05:35	CAM	[Electric pulse appears on tape radio channels]
19.05:36	CAM-4	Captain, your first officer wanted me to tell you that Sergio has put a big discharge of CO2 in the washroom, it seems to be subsiding, all right
	268G	Okay we're proceeding direct Pocket City
	CTR	Affirmative sir, direct Pocket City direct Evensville
	268G	Six gold
19.05:48	B747	Center Poca seven four seven level four three zero
	CTR	Poca seven four seven Indianapolis roger
	RDO-1	Memphis Center this is Air Canada seven nine seven
19.06:09	CTR	Canada seven ninety seven Indianapolis Center, go ahead
19.06:12	RDO-1	Yeah, we've got an electrical problem here, we may be off communication shortly ah stand by
	CAM-	(Coming along okay)

	1	
	CAM-3	Getting mush better, okay
19.06:42	CAM-3	I was able to discharge half of the CO2 inside the washroom even though I could not see the source but its definitely inside the lavatory
19.06:50	CAM-1	Yeah, it's from the toilet, it's from the toilet
19.06:52	CAM-3	CO2 it was almost half a bottle and it now almost cleared
19.06:54	CAM-1	Okay, thank you
19.06:55	CAM-3	Okay, good luck
	CAM	[Sound similar to cockpit door]
	CAM-2	Okay, you got it *
	CAM-1	Yeah
	CAM-1	Okay
19.07:11	CAM-2	I don't like what's happening, I think we better go down, okay?
	CAM-1	Okay
19.07:14	CAM-2	Okay, I'll be back there in a minute
19.07:28	P362	Hello Center, Piedmont three sixty two we're level at flight level three three zero
19.07:32	CTR	Three sixty two Indianapolis Center roger
19.07:35	P362	We'll take direct Holston Mountain if you can do that
19.07:41		Recorder goes off

1985, December 31st. An in-flight cabin fire forced rock star Rick Nelson's chartered DC-3 to make a forced landing near De Kalb, Texas. Only the pilots survived, with critical burns. Rick Nelson (son of Ozzie and Harriet Nelson), his fiancée, four members of his band and his soundman perished in the fire.

1986, March 31st. A Mexicana Airlines B-727, with 166 onboard, crashed after an overheated tire finally exploded in the wheelwell, tearing through fuel lines and electrical wires. The resulting fire eventually rendered the aircraft uncontrollable. There were no survivors.

1987, November 28th. A South African Airways 747-244B Combi (both a freighter and passenger liner at the same time), while enroute from Taipei to Johannesburg, crashed into the ocean approximately 150 miles northeast of the island of Mauritius, after the pilot

reported smoke and the loss of much of the electrical system. All 159 on board were killed. The breakup of the plane was so extensive; only five bodies could be identified. Only the cockpit voice recorder (CVR) was recovered. That, along with the video tape of the wreckage on the ocean floor, and the recovery of a few parts, enabled investigators to conclude the fire had started in the front pallet area of the upper deck cargo hold. They could not determine what started the fire.

Legend
CA = Captain
FE = Flight Engineer
MA = Mauritius ATC

23:49h UTC
CA: Er, good morning, we have, er, a smoke problem and we are doing an emergency descent to level one five, er, one four zero.
MA: Confirm you wish to descend to flight level one four zero?
CA: Ja, we have already commenced, er, due to a smoke problem in the aeroplane.
MA: Eh, roger, you are clear to descend immediately to flight level one four zero.
23:50h UTC
CA: Roger, we will appreciate it if you can alert, er, fire, er, er, er.
MA: Do you request a full emergency please? A full emergency?
CA: Affirmative, that's Charlie Charlie
MA: Roger, I declare a full emergency.
CA: Thank you.
23:51h UTC
MA: (asks for a position report)
CA: Now we have lost a lot of electrics. We haven't got anything on the aircraft now.
MA: (asks for an ETA and positions updates)
CA: (gives both)
MA: (advises that both runways are available)
CA: Er, we'd like to track in er, on, er, one three.
MA: Confirm runway one four?
CA: Charlie Charlie.
00:03h UTC
MA: (gives clearance and asks to report passing FL050)
00:04h UTC
CA: Kay. [Last radio contact with ATC]
...
[fire alarm bell sounds, followed by interphone chime]
FE: What's going on now - cargo?
FE: It came on now afterwards.
[loud click sounds]
??: Say again?
FE: Main deck cargo...then the other one came on as well. I've got two.
CA: (calls for checklist to be read)
[sound of movements with clicks and clunks]
CA: ****. It is the fact that both came on, it disturbs one.
[intercom chime while CA is speaking]
??: Aag!, ****
CA: What's going on now?
[sudden loud sound & rapid changes tape test-tone]

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1988, February 3rd. An American Airlines, DC-9-83 captain received a report from a flight attendant that smoke was present in the cabin. The cabin floor, above the midcargo compartment was hot and soft, requiring the flight attendants to move passengers away from the affected area. The captain, aware of a previous flight's problem with the auxiliary power unit, which caused in-flight fumes, was skeptical about her smoke report. Thus, he did not declare an emergency and completed the flight in a normal manner. However, after landing at Nashville, he called for fire equipment to meet the plane. The flight attendants then evacuated all 126 on board while fire crews extinguished the cargo compartment fire. That compartment was found to contain a 104-pound fiber drum of textile treatment chemicals. The undeclared and improperly packaged hazardous materials included 5 gallons of hydrogen peroxide solution and 25 pounds of sodium orthosilicate-based mixture. The NTSB determined the fire was caused by the hydrogen peroxide, in a concentration prohibited for air transportation.

CO-PILOT [speaks in interphone to back of the aircraft]: hello.

Flight ATTENDANT [calling the cockpit on interphone from back of the aircraft]: Hi. We've got smoke in the cabin.

CO-PILOT: Okay.

FLIGHT ATTENDANT: We don't know where it's coming from. It's past the, ah, exit. [We] got an H2O extinguisher

APPROACH CONTROL: American one thirty-two, descend and maintain two thousand five hundred [feet].

CAPTAIN: Two thousand five hundred, American one thirty-two.

CO-PILOT TO CAPTAIN: We got smoke in the…..AH……..

FLIGHT ATTENDANT: It's a real bad smell.

the passenger cabin] said the floor is getting really soft, and he said we need to land.

CO-PILOT: Okay. Who says the floor is getting soft?

FLIGHT ATTENDANT: Here he is [handing the interphone to the deadheading Co-pilot].

DEADHEAD CO-PILOT: Hey, boss.

CO-PILOT: Yes?

DEADHEAD: You got the floor back here in the middle…. dropping out slightly.

CO-PILOT: Okay.

DEADI-IEAD: You[re] gonna have to land this thing in a hurry.

CO-PILOT: Okay, we're gettin' it down now.

DEADHEAD: Okay, be quick.

Co-PILOT: Okay.

DEADHEAD: Hey, have the [fire] trucks meet us [once we land].

CO-PILOT TO CAPTAIN: [We] have a flight officer back there, says that the floor is getting soft. [We] probably ought to drop the [landing] gear. There's somethin' going on in the, ah, floor board.

CAPTAIN: Put the gear down.

COCKPIT: [Sound of landing gear being lowered]

CO-PILOT TO FLIGHT ATTENDANT: Okay, now how far back is the floor getting soft?

FLIGHT ATTENDANT: Well, ah, the Captain [deadheading Co-pilot] is in the aisle right now. He's about midway through to...

CO-PILOT: About where the [landing] gear might be?

FLIGHT ATTENDANT: Yes.

co-Pilot: Okay. Why don't you go back and buckle in.

FLIGHT ATTENDANT: We're all seated.

CO-PILOT: Okay, fine. [Then to Captain]
Okay, what do you want me to do here? Okay, seatbelt [sign] . .

CAPTAIN: Yes.

CO-PILOT: No smoking sign ….

CAPTAIN: No smoke. Just fumes, right?

CO-PILOT: So far it's just smoke…. Fumes.

CO-PILOT: [to Flight Attendant on interphone] You don't see any smoke. It's just fumes?

FLIGHT ATTENDANT: Bad fumes. Startin' to hurt my eyes.

CO-PILOT: Okay. I'm gonna get off the phone. Call me if anything important changes.

FLIGHT ATTENDANT: Okay.

CAPTAIN TO Co-PILOT: Did you call the Tower?

NASI-IVILLE TOWER: American one thirty-two, Nashville Tower. Wind calm
[on] Runway Two left. Cleared to land.

CAPTAIN: No problems.

CO-PILOT: There's just fumes back there.

CAPTAIN: We've had fumes before, from the APU [Auxiliary Power Unit] is where [it came from] at least initially. Okay, we got [landing] gear.

CO-PILOT: Gear.

CAPTAIN: Spoiler lever, auto brakes. No. Flaps are good. Lights. Are we cleared to land?

CO-PILOT TO TOWER: American one thirty-two, are we cleared to land?

TOWER: Affirmative.

CO-PILOT: Roger. [To Captain] Do you want to call any …. [Emergency] equipment on the ground]?

CAPTAIN: We don't have any problems yet. Just a few fumes.

CO-PILOT: You don't smell it?

CAPTA1N: Yeah, I smell it.

CO-PiLOT: You arc cleared to land. Landing checklist is complete. Five hundred feet, sinkin' a thousand plus five. Four hundred [feet]. Three hundred [feet]. There's two hundred. one hundred. On the tape, fifty, forty, thirty, ten, five .

COCKPIT: Sound of touchdown

CO-PILOT: Reverse [thrust]. Hundred knots. Eighty knots.

TOWER: American one thirty-two, turn right. When able contact ground control.

CO-PILOT: Sixty knots.

GROUND CONTROL: American one thirty-two, Nashville ground. Roger. Your option [is] to enter tango Two [runway exit] or come down to Tango Four. Advise.

CO-PILOT: Tango Two or Tango Four. CAPTAIN: Ah, let's see .

CO-PILOT: This is my first time in here let me look this up.

COCKPIT: [Sound of cabin attendant calling cockpit]

CO-PILOT: I'm here.

DEADHEAD CO-PILOT ON INTERPHONE: You've got a big problem back here, and time in here, so I'm not sure if you…. The problem is, I don't know where the heat is comin' from. It's comin' up through the floor.

CO-I'ILOT: Do you see any smoke?

DEADHEAD: Yeah, there's smoke. Just a little hit.

CO-PILOT: Okay, okay.

DEADHEAD: We better get outta here.

CO-PILOT: Okay.

FLIGHT ATTENDANT TO CAPTAIN: Ah. Captain?

CO-PILOT TO CAPTAIN: There's a crew [man] back there that says we better get outta here. He says there's smoke comin through the floor.

FLIGHT ATTENDANT: I don't see it [the smoke]. We had a first officer here with us. He's the one. He's been checkin' the floor. He's in uniform. That's who you've been talkin' to

CO-PILOT TO CAPTAIN: She don't see [the smoke].

FLIGHT ATTENDANT: He [the deadhead Co-pilot] thinks it's real soft, the floor's real soft.

CO-PILOT TO Captain: The floor is getting very very soft.

CAPTAIN: Okay, let's get out of here. Call ground

CO-PILOT TO FLIGHT ATTENDANT: [evacuation].

CO-PILOT: Ah, stand by.

FLIGHT ATTENDANT: Okay.

CAPTAIN: Give me the checklist.

CO-PILOT TO GROUND CONTROL: Ah, roger, sir, would you call out the fire equipment? We've got the possibility of some fire, some real hot stuff, in the cargo compartment. The floor is real hot. We're gonna get 'em [the passengers] out.

GROUND CONTROL: Okay, we got 'em on the phone, American one thirty-two.

CO-PILOT TO CAPTAIN: Okay, ground evac. Ah, Tower. Called the Tower. Flaps.

CAPTAIN: [Flaps] Forty [fully extended].

CAPTAIN: Spoiler lever .

CAPTAIN: You get out of here. You go help [the Flight Attendants]. Retract brakes. Park fuel levers.

CO-PILOT: Cut-off

END OF TAPE

The Captain ordered the evacuation two minutes and six seconds after Flight 132 touched down, and the inflatable slides were deployed at the two forward cabin doors, the aft galley door and in the tailcone. The over-wing exits were not used. No instructions were given to the passengers over the public address system. Neither were they prepared for the evacuation before landing. During the evacuation, the flight attendants shouted commands at the passengers to 'Unfasten seat belts' and 'Come this way' and 'Remove shoes' and 'Don't take anything with you.'
After the passengers had safely evacuated the airplane, an American Airlines maintenance employee on the ground asked the Captain about the problem. The Captain said there was a fire in the cargo area. They opened the aft cargo compartment and saw little smoke inside. Then they opened the middle cargo compartment. Thick, white/grey smoke poured out.
The Tower's call dispatched 14 firefighters with six vehicles, four crash-fire rescue units and two quick response Units to the aircraft, which had pulled to a stop on the apron beside the runway. The emergency units sprayed about 120 gallons of water into the middle cargo

compartment to douse the smoldering fires. Neither aqueous film-forming foam nor dry chemicals to fight fires was used.
None of the 126 crew and passengers was injured seriously; nine passengers and four crew suffered minor injuries.

1988, July 27th. A Peninsula Airways Metro Liner III (commuter flight), took off from the Anchorage, Alaska airport and soon detected a wheelwell fire. The pilot wasted no time in making an emergency landing back at the same airport. All 8 on board escaped injury. It was a very close call. The fire burned through the left aileron control tube and engine nacelle. The left wing flap was damaged and the left fuel tank was severely scorched from excessive heat. "***The flight did not end in a catastrophic explosion because the tank was nearly full of fuel and the fuel-air mixture in the tank was too rich to support combustion at the early stage of the flight***."

1991, July 11th. A Nationair DC-8-61, an international charter flight from Jeddah, Saudi Arabia, to Sokoto, Nigeria, crashed as it attempted to return to Jeddah. All 261 on board died as the in-flight fire burned through the control cables while the plane was on its final landing approach. Some bodies fell out of the plane while it was descending through 2,200 ft. The plane took off with some tires under-inflated. It was not known if the captain was made aware of that situation. A long taxi, combined with a hot day, caused the tires to fail on the takeoff roll. The resulting tire-fire spread into the aircraft after the gear was raised. The captain's delay in turning back to the airport, once he was aware of smoke in the cabin, may have sealed the fate of everyone on board.

1996, May 11th. A Valujet DC-9, crashed only minutes after takeoff from the Miami Airport. It is probable that the fire was burning in the cargo hold, fed by an illegal shipment of oxygen generators, before the plane took off. There was no warning, until the flight attendants yelled to the cockpit that the cabin was on fire, because the plane was not equipped with fire/smoke detectors or a fire suppression system for its cargo compartments. The FAA had refused to act on many previous recommendations, by the NTSB, which would have required smoke detectors and fire suppression systems in all passenger liner cargo compartments. The NTSB said that oxygen generators had been tied to at least 3 previous airline fires. In 1986, an American Trans Air DC-10 in Chicago, was destroyed by the fire that erupted from just one oxygen generator which was still in the back of a seat being shipped in its cargo compartment. Fortunately, the fire occurred while the plane was being serviced, so there were no injuries. The FAA did not disseminate the information, learned from that fire, to the airlines with enough emphasis on how dangerous oxygen generators can be. Nor did the FAA ban them from shipment on passenger liners until after the Valujet crash, which killed all 106 onboard.

14:09:36 PA-2 flight attendants, departure check please.

14:09:44 CAM-1 we're *** turbulence

14:09:02 CAM [sound of click]

14:10:03 CAM [sound of chirp heard on cockpit area microphone channel with simultaneous beep on public address/interphone channel]

14:10:07 CAM-1 what was that?

14:10:08 CAM-2 I don't know.

14:10:12 CAM-1 *** ('bout to lose a bus?)

14:10:15 CAM-1 we got some electrical problem.

14:10:17 CAM-2 yeah.

14:10:18 CAM-2 that battery charger's kickin' in. ooh, we gotta.

14:10:20 CAM-1 we're losing everything.

14:10:21 Tower Critter five-nine-two, contact Miami center on one-thirty-two-forty-five, so long.

14:10:22 CAM-1 we need, we need to go back to Miami.

14:10:23 CAM [sounds of shouting from passenger cabin]

14:10:25 CAM-? fire, fire, fire, fire [from female voices in cabin]

14:10:27 CAM-? we're on fire, we're on fire. [from male voice]

14:10:28 CAM [sound of tone similar to landing gear warning horn for three seconds]

14:10:29 Tower Critter five-ninety-two contact Miami center, one-thirty-two-forty-five.

14:10:30 CAM-1 ** to Miami.

14:10:32 RDO-2 Uh, five-ninety-two needs immediate return to Miami.

14:10:35 Tower Critter five-ninety-two, uh, roger, turn left heading two-seven-zero. Descend and maintain seven-thousand.

14:10:36 CAM [sounds of shouting from passenger cabin subsides]

14:10:39 RDO-2 Two-seven-zero, seven-thousand, five-ninety-two.

14:10:41 Tower What kind of problem are you havin'?

14:10:42 CAM [sound of horn]

14:10:44 CAM-1 fire

14:10:46 RDO-2 Uh, smoke in the cockp ... smoke in the cabin.

14:10:47 Tower Roger.

14:10:49 CAM-1 what altitude?

14:10:49 CAM-2 seven thousand.

14:10:52 CAM [sound similar to cockpit door moving]

14:10:57 CAM [sound of six chimes similar to cabin service interphone]

14:10:58 CAM-3 OK, we need oxygen, we can't get oxygen back here.

14:11:00 INT [sound similar to microphone being keyed only on Interphone channel]

14:11:02 CAM-3 *ba*, is there a way we could test them? [sound of clearing her voice]

14:11:07 Tower Critter five-ninety-two, when able to turn left heading two-five-zero. Descend and maintain five-thousand.

14:11:08 CAM [sound of chimes similar to cabin service interphone]

14:11:10 CAM [sounds of shouting from passenger cabin]

14:11:11 RDO-2 Two-five-zero seven-thousand.

14:11:12 CAM-3 completely on fire.

14:11:14 CAM [sounds of shouting from passenger cabin subsides]

14:11:19 CAM-2 outta nine.

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14:11:19 CAM [sound of intermittent horn]

14:11:21 CAM [sound similar to loud rushing air]

14:11:38 CAM-2 Critter five-ninety-two, we need the, uh, closest airport available...

14:11:42 Tower Critter five-ninety-two, they're going to be standing by for you. You can plan runway one two to dolphin now.

14:11:45 one minute and twelve second interruption in CVR recording]

14:11:46 RDO-? Need radar vectors.

14:11:49 Tower critter five ninety two turn left heading one four zero 14:11:52 RDO-? one four zero

14:12:57 CAM [sound of tone similar to power interruption to CVR]

14:12:57 CAM [sound similar to loud rushing air]

14:12:57 ALL [sound of repeating tones similar to CVR self test signal start and continue]

14:12:58 Tower critter five ninety two contact Miami approach on corrections no you you just keep my frequency

14:13:11 CAM [interruption of unknown duration in CVR recording] 14:13:15 CAM [sounds of repeating tones similar to recorder self-test signal starts and continues, rushing air.]

14:13:18 Tower critter five ninety two you can uh turn left heading one zero zero and join the runway one two localizer at Miami

14:13:25: End of CVR recording.

14:13:27 Tower critter five ninety two descend and maintain three thousand

14:13:43 Tower critter five ninety two Opa Locka airports out at twelve o'clock at fifteen miles

[End of Recording]

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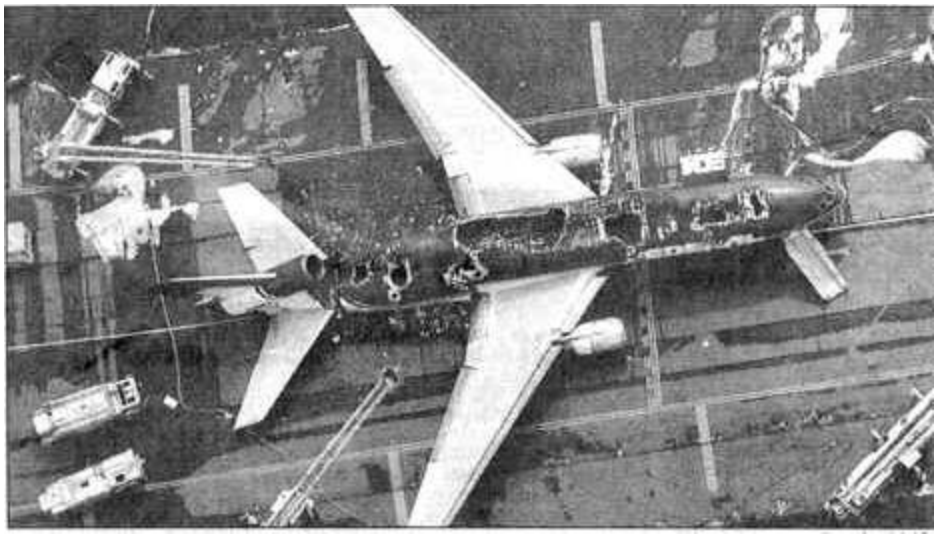
1996, September 5th. Federal Express DC-10 Cargoliner. The crew declared an emergency and landed as fast as possible after becoming aware of smoke coming from the cargo hold. They escaped with their lives, but the plane was destroyed by the fire that spread rapidly after they evacuated. The fire came from hazardous material aboard, but the NTSB is still not certain of the ignition source.



The full report, including the CVR transcript can be found at

http://www.ntsb.gov/publictn/1998/AAR9803.pdf
If the above link does not work, cut and paste the entire string into your address bar on your browser.

1998, September 5th. Swissair Flight 111 (a codesharing flight with Delta Airlines) departed New York-JFK for Geneva at 20.18h local time. At 20.58h the flight crew contacted the Moncton High Level Controller for the first time, reporting at FL330. Sixteen minutes later the crew issued a 'Pan'-call reporting smoke in the cockpit and requesting emergency vectoring to the nearest airport, which they thought was Boston. The Moncton controller cleared the flight to descend to FL310 and offered Halifax as the closest airport available, which was accepted by the crew.
At 21.18h the flight was handed over to Moncton Centre and was vectored for a back course approach to Halifax runway 06. At 21.19h HB-IWF was just 30 miles from the threshold, so Moncton Centre vectored the plane for a 360-degree turn to lose some altitude and to dump fuel off the coast. At 21.24h the situation in the cockpit apparently became worse, because the crew declared an emergency and reported that they were starting the fuel dump and that they had to land immediately.
There were no more radio communications and the aircraft disappeared from radar approximately 35nm from the airport off the Nova Scotia coast.

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Legend:
SWR 111 = Radio transmission from Swissair 111.
QM = Moncton High Level Controller
HZ =Halifax Terminal Controller
BAW214 = British Airways Flight Speedbird 214
BAW1506 = British Airways Flight Speedbird 1506
(*) = Word or words unintelligible
( ) = Questionable text
... = Pause
[ ] = Editorial comment
? = Unidentified speaker

Note:
Universal Coordinated Time (UTC) is the time code written on the ATC logging tape.

RADIO COMMUNICATIONS

Source:	UTC	
SWR111	0:58:15.8	Moncton Centre, Swissair one eleven heavy good uh evening level three three zero.
QM	0:58:20.4	Swissair one eleven heavy Moncton Centre. Good evening reports of uh occasional light turbulence at all levels.
SWR111	0:58:26.1	Moncton Swissair.
Comment	0:58:26.2	[Extensive communications between Moncton Centre and other aircraft]
SWR111?	1:14:07.9	[Unintelligible squelch covered by United 920]
QM	1:14:12.0	United nine two zero heavy Moncton Centre good evening occasional light turbulence reported at all levels. Other aircraft calling say again.
SWR111	1:14:18.0	Swissair one eleven heavy is declaring Pan Pan Pan. We have uh smoke in the cockpit, uh request (deviate), immediate return uh to a convenient place, I guess uh Boston ***.
QM	1:14:33.2	Swissair one eleven roger ... turn right proceed ...uh ... you say to Boston you want to go?
SWR111	1:14:33.2	I guess Boston ... we need first the weather so uh we start a right turn here. Swissair one one one Heavy.
QM	1:14:45.2	Swissair one eleven roger and a descent to flight level three one zero. Is that okay?
SWR111	1:14:50.3	Three one zero [Unintelligible words obscured by a noise. Possibly the noise associated with donning oxygen masks] Three one zero *** one one heavy.
QM	1:15:03.1	Swissair one eleven Centre.
SWR111	1:15:06.6	Swissair one eleven heavy go ahead.
QM	1:15:08.6	Uh Would you prefer to go into Halifax?
SWR111	1:15:11.6	Uh Standby
Virgin 12	1:15:15.0	Moncton Virgin twelve will be standing by.
QM	1:15:17.3	Virgin twelve roger standby.
SWR111	1:15:38.4	Affirmative for Swissair one eleven heavy. We prefer Halifax from our position.
QM	1:15:43.8	Swissair one eleven roger, proceed direct to Halifax, descend now to flight level two niner zero.

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SWR111	1:15:48.7	Level two niner zero to Halifax, Swissair one eleven heavy.
BAW214	1:15:58.3	And uh Swissair one eleven heavy from Speedbird two one four I can give you the Halifax weather if you like?
SWR111	1:16:04.1	Swissair one eleven heavy we have the uh the oxygen mask on go ahead with the weather.
BAW214	1:16:10.4	Okay it's the three hundred zulu weather was one zero zero at niner knots, one five miles, scattered at one two zero, broken at two five zero, plus seventeen, plus twelve, two niner eight zero, over.
SWR111	1:16:29.6	Roger Swissair one eleven heavy we copy the ah altimeter is two niner eight zero.
QM	1:16:36.5	Swissair one eleven, you're cleared to ten thousand feet and the Hal...altimeter is two nine eight zero.
SWR111	1:16:41.7	Two niner eight zero, ten thousand feet, Swissair one eleven heavy
QM	1:16:52.5	And Swissair one eleven uh can you tell me what your fuel on board is and the number of passengers?
SWR111	1:16:58.3	Uh roger standby for this.
BAW1506	1:17:15.5	Speedbird one five zero six is at Tusky listening out.
QM	1:17:19.3	Speedbird one five zero six, roger
QM	1:18:19.3	Swissair one eleven you can contact Moncton Centre now one one niner decimal two.
SWR111	1:18:24.4	One one niner point two for the Swissair one one one heavy.
QM	1:18:31.0	Roger
SWR111	1:18:34.3	Moncton Centre good evening. Swissair one eleven heavy flight level two five four descending flight level two five zero on course Halifax. We are flying at the time on track zero five zero.
HZ	1:18:46.8	Swissair one eleven good evening descend to three thousand, the altimeter is two nine seven nine.
SWR111	1:18:51.8	Ah we would prefer at the time around uh eight thousand feet, two nine eight zero, until the cabin is ready for the landing.
HZ	1:19:00.9	Swissair one eleven uh you can descend to three, level off at an intermediate altitude if you wish. Just advise.
SWR111	1:19:07.2	Roger. At the time we descend to eight thousand feet. We are anytime clear to three thousand. I keep you advised.
HZ	1:19:14.5	Okay. Can I vector you uh to set up for runway zero six at Halifax?
SWR111	1:19:19.4	Ah say again latest wind, please.
HZ	1:19:22.1	Okay, active runway Halifax zero six. Should I start you on a vector for six?
SWR111	1:19:26.3	Yes, uh vectors for six will be fine Swissair one eleven heavy.
HZ	1:19:31.0	Swissair one eleven roger, turn left heading of ah zero three zero.
SWR111	1:19:35.1	Left ah heading zero three zero for the Swissair one eleven.
HZ	1:19:39.5	Okay, it's a back course approach for runway zero six. The localizer frequency one zero niner decimal niner. You've got thirty miles to fly to the threshold.

SWR111	1:19:53.3	Uh we need more than thirty miles, please ah say me again the frequency of the back beam.
HZ	1:19:59.5	Swissair one eleven roger, you can turn left heading three six zero to lose some altitude, the frequency is one zero niner decimal niner for the localizer, it's a back course approach.
SWR111	1:20:09.5	One zero niner point niner roger, and we are turning left to heading ah north. Swissair one eleven heavy.
HZ	1:21:23.1	Swissair one eleven when you have time could I have the number of souls on board and your fuel onboard please for emergency services.
SWR111	1:21:30.1	Roger, at the time uh fuel onboard is uh two three zero tons. We must uh dump some fuel. May we do that in this area during descent? [Note: Two three zero tons represents the current gross weight of the aircraft not the amount of fuel on board]
HZ	1:21:40.9	Uh okay, I am going to take you... Are you able to take a turn back to the south or do you want to stay closer to the airport?
SWR111	1:21:47.0	Uh, standby short, standby short.
SWR111	1:21:59.1	Okay we are able for a left or right turn towards the south to dump.
HZ	1:22:04.2	Swissair one-eleven uh roger, uh turn to the ah left heading of ah two zero zero degrees and ah advise me when you are ready to dump. It will be about ten miles before you are off the coast. You are still within about twenty five miles of the airport.
SWR111	1:22:20.3	Roger, we are turning left and ah in that case we're descending at the time only to ten thousand feet to dump the fuel.
HZ	1:22:29.6	Okay, maintain one zero thousand. I'll advise you when you are over the water. It will be very shortly.
SWR111	1:22:34.4	Roger
SWR111	1:22:36.2	(Du bisch i dr) emergency checklist (fr) air conditioning smoke? [Translation: (You are in the) emergency checklist for air conditioning smoke?]
HZ	1:22:42.9	Uh Swissair one eleven say again please.
SWR111	1:22:45.3	Ah, sorry it was not for you Swissair one eleven was asking internally. It was my fault, sorry about.
HZ	1:22:50.8	Okay
HZ	1:23:33.1	Swissair one-eleven continue left heading one-eight zero you'll be ah off the coast in about ah fifteen miles.
SWR111	1:23:39.2	Roger, left heading one eight zero. Swissair one eleven ah and maintaining at ten thousand feet.
HZ	1:23:46.3	Roger.
HZ	1:23:55.7	You will ah be staying within about ah thirty five, forty miles of the airport if you have to get to the airport in a hurry.
SWR111	1:24:03.9	Okay, that's fine for us. Please tell me when we can start ah to dump the fuel.
HZ	1:24:08.8	Okay.
SWR111	1:24:28.1	[Background tone] Ah Swissair one eleven. At the time we must fly ah manually. Are we cleared to fly between ah ten thou..eleven thousand and niner thousand feet? [Sound of

		Autopilot disconnect warbler]
HZ	1:24:38.7	Swissair one eleven you can block between ah five thousand and twelve thousand if you wish.
SWR111	1:24:45.1	Swissair one eleven heavy is declaring emergency
	1:24:46.4	[Second voice overlap] (Roger) we are between uh twelve and five thousand feet we are declaring emergency now at ah time ah zero one two four. [Possible intercom sound toward the end of the transmission.]
HZ	1:24:56.0	Roger.
SWR111	1:24:56.5	Eleven heavy we starting dump now we have to land immediate.
HZ	1:25:00.7	Swissair one eleven just a couple of miles I'll be right with you.
SWR111	1:25:04.1	Roger. [Sound - Probable Autopilot disconnect warbler]
SWR111	1:25:05.4	And we are declaring emergency now Swissair one eleven.
HZ	1:25:08.6	Copy that.
HZ	1:25:19.2	Swissair one eleven you are cleared to ah commence your fuel dump on that track and advise me ah when the dump is complete.
HZ	1:25:43.0	Swissair one eleven check you're cleared to start the fuel dump.
SWR111	1:25:49.3	(***) End of recording.

End of recording.

Although each of these accidents and incidents is tragic, we can learn from the experiences of others. ***The fatality count on many of these accidents could have been reduced or even eliminated by a quick decision on the part of the aircrew to get the aircraft down.***

In most situations where an in-flight fire occurs, ***the blaze has developed to the point where the resources available to extinguish the fire are insufficient.***
Your hope and salvation rely on your flying ability and the fire equipment on the ground.

Get the aircraft on the ground and get the passengers out.

Don't end up in the next ARG/US *Special Report.*