

118TH CONGRESS  
1ST SESSION

# S. 615

To improve the safety of the air supply on aircraft, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

MARCH 1, 2023

Mr. BLUMENTHAL (for himself, Mr. MARKEY, and Mrs. FEINSTEIN) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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## A BILL

To improve the safety of the air supply on aircraft, and  
for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Cabin Air Safety Act  
5 of 2023”.

6 **SEC. 2. IMPROVEMENTS TO THE SAFETY OF THE AIR SUP-**  
7 **PLY ON AIRCRAFT.**

8 (a) IN GENERAL.—Subpart III of part A of subtitle  
9 VII of title 49, United States Code, is amended by adding  
10 at the end the following new chapter:

1 **“CHAPTER 454—CABIN AIR QUALITY AND**  
2 **SAFETY**

3 **“§ 45401. Definition of Administrator**

4 “In this chapter the term ‘Administrator’ means the  
5 Administrator of the Federal Aviation Administration.

6 **“§ 45402. Training to respond to smoke or fume inci-**  
7 **dents on aircraft**

8 “(a) IN GENERAL.—Not later than 180 days after  
9 the date of the enactment of this section, the Adminis-  
10 trator shall promulgate regulations requiring flight attend-  
11 ants, pilots, aircraft maintenance technicians, and airport  
12 first responders and emergency response teams to receive  
13 training, not less frequently than annually, on how to re-  
14 spond to incidents on board aircraft involving smoke or  
15 fumes.

16 “(b) REQUIREMENTS.—The training required by sub-  
17 section (a) shall include the dissemination of educational  
18 materials with respect to the following:

19 “(1) Sources and types of smoke and fumes on  
20 board aircraft.

21 “(2) Odor and visual descriptors to allow an in-  
22 dividual to recognize the presence of engine oil and  
23 hydraulic fluid fumes and other potentially haz-  
24 ardous fumes, such as fumes relating to engine ex-

1       haust, ground service vehicle exhaust, fuel, de-icing  
2       fluid, electrical failures, and ozone.

3               “(3) The potential for acute or chronic impair-  
4       ment to an individual relating to such fumes.

5               “(4) Procedures for recognizing and responding  
6       to smoke and fumes on board aircraft.

7               “(5) An overview of the system for reporting inci-  
8       dents of smoke or fumes on board aircraft estab-  
9       lished under section 45403(a)(2).

10              “(6) Requirements relating to reporting inci-  
11       dents of smoke and fumes on board aircraft to the  
12       Administrator under sections 45403 and 45405(b).

13       **“§ 45403. Reporting of incidents of smoke or fumes on**  
14                               **board aircraft**

15              “(a) IN GENERAL.—Not later than 180 days after  
16       the date of the enactment of this section, the Adminis-  
17       trator shall—

18                      “(1) develop a standardized form for flight at-  
19       tendants, pilots, and aircraft maintenance techni-  
20       cians to report incidents of smoke or fumes on board  
21       an aircraft operated by an air carrier; and

22                      “(2) establish a system for reporting incidents  
23       of smoke or fumes on board aircraft that allows—

24                              “(A) pilots, flight attendants, and aircraft  
25       maintenance technicians to—

1                   “(i) submit the form developed under  
2                   paragraph (1) to the Administrator and  
3                   the relevant air carrier; and

4                   “(ii) receive a copy of such submission  
5                   for their records; and

6                   “(B) pilots, flight attendants, aircraft  
7                   maintenance technicians, the collective bar-  
8                   gaining representative of employees of the air  
9                   carrier, and air carriers to search the reported  
10                  incidents database compiled by the Adminis-  
11                  trator for the purposes of reviewing and moni-  
12                  toring incidents contained in the database and  
13                  assisting with investigations conducted under  
14                  section 45404.

15                  “(b) CONTENT OF FORMS.—The form developed  
16                  under subsection (a)(1) for reporting an incident of smoke  
17                  or fumes on board an aircraft shall include sections for  
18                  the following information, if available at the time of the  
19                  report:

20                         “(1) Identification of the flight number, the city  
21                         pair, the type of aircraft, the registration number of  
22                         the aircraft, and the individual reporting the inci-  
23                         dent.

1           “(2) Information about the presence of smoke,  
2 including a description of the nature, intensity, and  
3 visual consistency (if any).

4           “(3) Information about the presence of fumes,  
5 including a description of the nature and intensity of  
6 the odor.

7           “(4) Information about the location of the  
8 smoke or fumes in the aircraft.

9           “(5) Information about the source of the smoke  
10 or fumes, including in relation to the air supply  
11 vents and electrical system.

12           “(6) Information about the type of smoke or  
13 fumes.

14           “(7) Information about the engine manufac-  
15 turer, engine type, the engine serial number, and the  
16 age of the engine.

17           “(8) Information about—

18               “(A) the phase of flight during which  
19 smoke or fumes were present;

20               “(B) the estimated duration of the smoke  
21 or fumes; and

22               “(C) if the incident happened while the  
23 aircraft was on the ground, information about  
24 the air supply source at the time of the inci-  
25 dent.

1           “(9) Other observations about the smoke or  
2 fumes.

3           “(10) A description of symptoms reported by  
4 crew members and passengers and any required on-  
5 board medical attention.

6           “(11) Information with respect to whether crew  
7 members or passengers used, needed, or were admin-  
8 istered supplemental or emergency oxygen.

9           “(12) Information regarding any disruption to  
10 the operation of the flight or subsequent flights.

11           “(13) Information about relevant maintenance  
12 work conducted on the aircraft prior to and fol-  
13 lowing the incident.

14           “(14) Relevant air monitoring data collected  
15 during the flight.

16           “(c) PUBLIC AVAILABILITY OF SMOKE AND FUME  
17 EVENT INFORMATION.—

18           “(1) IN GENERAL.—Not less frequently than  
19 quarterly and subject to paragraph (2), the Adminis-  
20 trator shall compile, and make available to the pub-  
21 lic, statistics regarding the information obtained  
22 from the forms developed under subsection (a)(1)  
23 and submitted to the Administrator.

24           “(2) WEBSITE.—The Administrator shall de-  
25 velop a publicly available internet website that in-

1 includes the aggregate data required under paragraph  
2 (1) and a searchable database for the events re-  
3 ported to the Administrator under subsection (a)(2)  
4 that includes the following variables for each event:

5 “(A) Date.

6 “(B) Tail number.

7 “(C) Aircraft type.

8 “(D) Air carrier.

9 “(E) Phase of flight.

10 “(F) Location of smoke or fumes in the  
11 aircraft.

12 “(G) Description of smoke or fumes, in-  
13 cluding relation to air supply vents and the na-  
14 ture and intensity of the odor.

15 “(H) Engine or auxiliary power unit type.

16 “(I) Engine oil or hydraulic fluid type, in-  
17 cluding product name.

18 “(J) Deidentified narrative.

19 “(K) Relevant maintenance information.

20 “(L) Such other criteria as the Adminis-  
21 trator considers appropriate.

22 “(3) REDACTION.—Before making either indi-  
23 vidual event information or aggregate data available  
24 to the public under paragraph (1) or (2), the Admin-

1        istrator shall redact any personally identifiable infor-  
2        mation.

3        **“§ 45404. Investigations**

4        “(a) IN GENERAL.—Not later than 180 days after  
5        the date of the enactment of this section, the Adminis-  
6        trator shall promulgate regulations—

7                “(1) authorizing the Federal Aviation Adminis-  
8        tration to, at their discretion, conduct an investiga-  
9        tion described in subsection (b) not less than 7 days  
10       after a report is submitted to the Administrator  
11       through the system for reporting incidents of smoke  
12       or fumes on board aircraft established under section  
13       45403(a)(2); and

14               “(2) requiring the Federal Aviation Administra-  
15       tion to conduct an investigation described in sub-  
16       section (b) when the report indicates that 1 or more  
17       crew members or passengers had symptoms that re-  
18       quired medical attention.

19       “(b) REQUIREMENTS FOR INVESTIGATIONS.—An in-  
20       vestigation described in this subsection shall include the  
21       following:

22               “(1) Gathering factual and standardized infor-  
23       mation from all flight attendants, pilots, aircraft  
24       maintenance technicians, airport first responders,



1 emergency response teams, and medical doctors in-  
2 volved in the incident.

3 “(2) Gathering any reports submitted under  
4 section 45403 with respect to the incident.

5 “(3) Gathering technical findings on any re-  
6 placed, worn, missing, failed, or improperly serviced  
7 components that may have resulted in the incident.

8 “(4) Identifying the cause of the incident, if  
9 possible.

10 “(c) PARTICIPATION OF AIR CARRIERS AND COLLEC-  
11 TIVE BARGAINING REPRESENTATIVES.—In conducting an  
12 investigation under this section, the Federal Aviation Ad-  
13 ministration shall—

14 “(1) consult with the air carrier involved;

15 “(2) work in conjunction with the technical rep-  
16 resentatives of the air carrier; and

17 “(3) invite the participation of the collective  
18 bargaining representative of employees of the air  
19 carrier.

20 **“§ 45405. Air quality monitoring equipment**

21 “(a) REQUIREMENT TO INCLUDE ON AIRCRAFT.—  
22 Not later than 180 days after the date of the enactment  
23 of this section, the Administrator shall promulgate regula-  
24 tions requiring an air carrier, after 90 days for public

1 comment and not later than 1 year after the regulations  
2 are finalized in the Federal Register—

3 “(1) to install and operate onboard detectors  
4 and other air quality monitoring equipment that—

5 “(A) are situated in the air supply system  
6 to enable pilots and maintenance technicians to  
7 identify the location of the source or sources of  
8 air supply contamination in real time, including  
9 any concentration of carbon monoxide that is  
10 dangerous to human health;

11 “(B) continuously monitor any relevant  
12 marker compound consistent with engine oil  
13 and hydraulic fluid fume concentration in the  
14 aircraft cabin and air supply system; and

15 “(C) alert the pilot and flight attendants  
16 to poor air quality that is dangerous to human  
17 health; and

18 “(2) to have in place procedures to train the pi-  
19 lots to initiate standardized communication and  
20 source isolation protocols, as soon as appropriate,  
21 with the flight attendants and air traffic controllers  
22 (as needed), and to apply their professional judge-  
23 ment based on onboard conditions, all in response to  
24 poor air quality that is dangerous to human health.

1           “(b) AUTHORITY OF THE ADMINISTRATOR.—The Ad-  
2 ministrator may establish standards for aircraft cabin air  
3 quality, as the Administrator determines is necessary to  
4 protect the health and safety of air carrier crew members  
5 and passengers, in consultation with—

6           “(1) the Director of the National Institute for  
7 Occupational Safety and Health of the Centers for  
8 Disease Control and Prevention;

9           “(2) the Assistant Secretary of Labor for Occu-  
10 pational Safety and Health; and

11           “(3) the Administrator of the Environmental  
12 Protection Agency.

13           “(c) INCLUSION OF INFORMATION RELATING TO AIR  
14 QUALITY MONITORING EQUIPMENT IN AIRCRAFT MANU-  
15 ALS.—Not later than 1 year after the date of the enact-  
16 ment of this section, the Administrator shall promulgate  
17 regulations requiring an aircraft manufacturer that manu-  
18 factures aircraft for air carriers to include procedures for  
19 responding to alarms from air quality monitoring equip-  
20 ment required under subsection (a) during normal and  
21 nonstandard operations in the flight operator’s manual for  
22 each such aircraft produced by the manufacturer.

23           “(d) CONTINUING RESEARCH TO DEVELOP SENSORS  
24 AND TECHNIQUES TO MONITOR CABIN AIR QUALITY.—  
25 The Administrator shall continue to research, study, and

1 identify emerging technologies suitable to provide reliable  
2 warning of cabin air contamination from an aircraft bleed  
3 air system, including through investigation and research  
4 into specific sensors, methods, and operational techniques  
5 to prevent poor air quality that is dangerous to human  
6 health.

7 “(e) RULE OF CONSTRUCTION.—Nothing in this sec-  
8 tion may be construed to imply that an investigation under  
9 section 45404 is not necessary or that crew members and  
10 passengers have not been exposed to smoke or fumes if  
11 the alarm from any air quality monitoring equipment in-  
12 stalled on an aircraft is not activated.

13 **“§ 45406. Minimum equipment list for bleed air sys-**  
14 **tem**

15 “Not later than 180 days after the date of the enact-  
16 ment of this section, the Administrator shall promulgate  
17 regulations requiring any manufacturer of aircraft that  
18 transports passengers or cargo to include the air quality  
19 monitoring equipment required under section 45405 in the  
20 master minimum equipment list for aircraft with a bleed  
21 air system certified under section 44704 or for which cer-  
22 tification was delegated under section 44702(d).

1 **“§ 45407. Authorization of appropriations**

2 “There are authorized to be appropriated to the Ad-  
3 ministrator such sums as may be necessary to carry out  
4 this chapter.

5 **“§ 45408. Exclusion of helicopters**

6 “The provisions of this chapter do not apply to heli-  
7 copters.”.

8 (b) CONFORMING AMENDMENTS.—

9 (1) TABLE OF CONTENTS.—The table of con-  
10 tents of subpart III of part A of subtitle VII of title  
11 49, United States Code, is amended by inserting  
12 after the item relating to chapter 453 the following:

“CHAPTER 454—CABIN AIR QUALITY AND SAFETY

“45401. Definition of Administrator.

“45402. Training to respond to smoke or fume incidents on aircraft.

“45403. Reporting of incidents of smoke or fumes on board aircraft.

“45404. Investigations.

“45405. Air quality monitoring equipment.

“45406. Minimum equipment list for bleed air system.

“45407. Authorization of appropriations.

“45408. Exclusion of helicopters.”.

13 (2) CONFORMING REPEAL.—Section 326 of the  
14 FAA Reauthorization Act of 2018 (49 U.S.C. 40101  
15 note) and the item relating to that section in the  
16 table of contents under section 1(b) of that Act are  
17 repealed.

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