

117TH CONGRESS
2D SESSION

S. 3944

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

IN THE SENATE OF THE UNITED STATES

MARCH 29, 2022

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

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 2022”.

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-

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

“(A) Date.

“(B) Tail number.

“(C) Aircraft type.

“(D) Air carrier.

“(E) Phase of flight.

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

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

“(H) Engine or auxiliary power unit type.

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

“(J) Deidentified narrative.

“(K) Relevant maintenance information.

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

“(3) REDACTION.—Before making either indi-
 vidual event information or aggregate data available
 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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