Conclusion

This action affects only a certain novel or unusual design feature on one model of airplane. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Dassault Aviation Model Falcon 6X airplanes.

General Limiting Requirements

a. Onset characteristics of each flight-envelope protection feature must be smooth, appropriate to the phase of flight and type of maneuver, and not in conflict with the ability of the pilot to satisfactorily change airplane flight path, speed, or attitude as needed.

b. Limit values of protected flight parameters (and, if applicable, associated warning thresholds) must be compatible with the following:

1. Airplane structural limits,

2. Required safe and controllable maneuvering of the airplane, and

3. Margins to critical conditions.

Unsafe flight characteristics/conditions must not result if dynamic maneuvering, airframe, and system tolerances (both manufacturing and inservice), and non-steady atmospheric conditions, in any appropriate combination and phase of flight, can produce a limited flight parameter beyond the nominal design limit value.

c. The airplane must be responsive to intentional dynamic maneuvering to within a suitable range of the parameter limit. Dynamic characteristics such as damping and overshoot must also be appropriate for the flight-maneuver and limit parameter in question.

d. When simultaneous envelope limiting is engaged, adverse coupling or adverse priority must not result.

Failure States

a. Electronic flight-control system (EFCS) failures, including sensors, must not result in a condition where a parameter is limited to such a reduced value that safe and controllable maneuvering is no longer available.

b. The crew must be alerted by suitable means if any change in envelope limiting or maneuverability is produced by single or multiple failures of the EFCS not shown to be extremely improbable.

Issued in Kansas City, Missouri, on February 8, 2022.

Patrick R. Mullen,

Manager, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2022–03025 Filed 2–11–22; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2020–1039; Special Conditions No. 25–807–SC]

Special Conditions: Dassault Aviation Model Falcon 6X Airplane; Electronic Flight-Control System: Lateral-Directional and Longitudinal Stability and Low-Energy Awareness

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Dassault Aviation (Dassault) Model Falcon 6X airplane. This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. This design feature is an electronic flight-control system (EFCS) associated with lateral-directional and longitudinal stability, and low-energy awareness. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: This action is effective on Dassault on February 14, 2022. Send comments on or before March 31, 2022.

ADDRESSES: Send comments identified by Docket No. FAA–2020–1039 using any of the following methods:

- *Federal eRegulations Portal:* Go to *https://www.regulations.gov/* and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE, Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202–493–2251.

Privacy: Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in title 14, Code of Federal Regulations (14 CFR) 11.35, the FAA will post all comments received without change to *https://www.regulations.gov/,* including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

Confidential Business Information: Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as ''PROPIN.'' The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these special conditions. Send submissions containing CBI to the Information Contact below. Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for this rulemaking.

Docket: Background documents or comments received may be read at *https://www.regulations.gov/* at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Troy Brown, Performance and Environment Section, AIR–625, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service,

Federal Aviation Administration, 1801 S Airport Rd., Wichita, KS 67209–2190; telephone and fax 405–666–1050; email *troy.a.brown@faa.gov.*

SUPPLEMENTARY INFORMATION: The substance of these special conditions has been published in the **Federal Register** for public comment in several prior instances with no substantive comments received. Therefore, the FAA finds, pursuant to § 11.38(b), that new comments are unlikely, and notice and comment prior to this publication are unnecessary.

Comments Invited

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

The FAA will consider all comments received by the closing date for comments. The FAA may change these special conditions based on the comments received.

Background

On July 1, 2012, Dassault applied for a type certificate for its new Model Falcon 5X airplane. However, Dassault has decided not to release an airplane under the model designation Falcon 5X, instead choosing to change that model designation to Falcon 6X.

In February of 2018, due to engine supplier issues, Dassault extended the type certificate application date for its Model Falcon 5X airplane under new Model Falcon 6X. This airplane is a twin-engine business jet with seating for 19 passengers, and has a maximum takeoff weight of 77,460 pounds.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Dassault must show that the Model Falcon 6X airplane meets the applicable provisions of part 25, as amended by amendments 25–1 through 25–146.

If the Administrator finds that the applicable airworthiness regulations (*e.g.,* 14 CFR part 25) do not contain adequate or appropriate safety standards for the Dassault Model Falcon 6X airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Dassault Model Falcon 6X airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Dassault Model Falcon 6X airplane will incorporate the following novel or unusual design features:

Lateral-directional and longitudinal stability, and low-energy awareness, functions of the EFCS.

Discussion

Lateral-directional Static Stability: The Dassault Model 6X airplane includes a flight-control design feature within the normal operational envelope in which side-stick deflection in the roll axis commands roll rate; and stick force in the roll axis will be zero (neutral stability) during the straight, steady sideslip flight maneuver required by § 25.177(c), which will not be ''substantially proportional to the angle of sideslip'' as required by the rule.

Longitudinal Static Stability: The longitudinal flight control laws for the Model Falcon 6X airplane provide neutral static stability within the normal operational envelope; therefore, the airplane design does not comply with the static longitudinal stability requirements of §§ 25.171, 25.173, and 25.175.

Low Energy Awareness: Static longitudinal stability provides awareness to the flight crew when they have deviated from a trimmed state. This could also be an important factor in their awareness of a low energy state (low speed and thrust at low altitude) if they are flying at low speeds. Entry into a low energy state may be less noticeable due to this lack of static stability and recovery may become more hazardous when associated with a low altitude and performance limiting conditions. These low energy situations must therefore be avoided, and pilots must be given adequate cues when approaching such situations.

The EFCS affects the following stability and energy-awareness features of the airplane:

1. Lateral-Directional Static Stability

The EFCS on the Dassault Model Falcon 6X contains fly-by-wire control laws that can result in neutral lateral-directional static stability. Therefore, the airplane does not meet the conventional requirements in the regulations.

Positive static directional stability is defined as the tendency to recover from a skid with the rudder free. Positive static lateral stability is defined as the tendency to raise the low wing in a sideslip with the aileron controls free. These control criteria are intended to accomplish the following:

a. Provide additional cues of inadvertent sideslips and skids through control-force changes.

b. Ensure that short periods of unattended operation do not result in any significant changes in yaw or bank angle.

c. Provide predictable roll and yaw response.

d. Provide an acceptable level of pilot attention (workload) to attain and maintain a coordinated turn.

2. Static Longitudinal Stability

Static longitudinal stability on airplanes with mechanical links to the pitch-control surface means that a pull force on the controller results in a reduction in speed relative to the trim speed, and a push force results in higher than trim speed. Longitudinal stability is required by the regulations for the following reasons:

a. Speed-change cues are provided to the pilot through increased and decreased forces on the controller.

b. Short periods of unattended control of the airplane do not result in significant changes in attitude, airspeed, or load factor.

c. A predictable pitch response is provided to the pilot.

d. An acceptable level of pilot attention (workload) to attain and maintain trim speed and altitude is provided to the pilot.

e. Longitudinal stability provides gust stability.

The pitch-control movement of the side stick on the Model Falcon 6X airplane is designed to be a normal load factor, or ''g'' command, that results in an initial movement of the elevator surface to attain the commanded load factor that is then followed by integrated movement of the stabilizer and elevator to automatically trim the airplane to a neutral, 1g, stick-free stability. The flight path commanded by the initial side-stick input will remain, stick-free, until the pilot provides another command. This control function is

applied during ''normal'' control law within the speed range, from initiation of the angle-of-attack protection limit, V_{prot}, to V_{MO}/M_{MO}. Once outside this speed range, the control laws introduce the conventional longitudinal static stability as described above.

As a result of neutral static stability, the Model Falcon 6X airplane does not meet the regulatory requirements for static longitudinal stability.

3. Low Energy Awareness

Past experience on airplanes fitted with a flight-control system providing neutral longitudinal stability reveals insufficient feedback cues to the pilot of excursion below normal operational speeds. The maximum angle-of-attack protection system limits the airplane angle of attack and prevents stall during normal operating speeds, but this system is not sufficient to prevent stall at low-speed excursions below normal operational speeds. Until intervention, there are no stability cues because the aircraft remains trimmed. Additionally, feedback from the pitching moment due to thrust variation is reduced by the flight-control laws. Low-speed excursions may become more hazardous without the typical longitudinal stability, and recovery is more difficult when the low-speed situation is associated with a low altitude, and with the engines at low thrust or with performance-limiting conditions.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Applicability

As discussed above, these special conditions are applicable to the Dassault Model Falcon 6X airplane. Should Dassault apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only a certain novel or unusual design feature on one model of airplane. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Dassault Aviation Model Falcon 6X airplane.

In lieu of the requirements of §§ 25.171, 25.173, 25.175, and 25.177(c), the following special conditions apply:

1. The airplane must be shown to have suitable static lateral, directional, and longitudinal stability in any condition normally encountered in service, including the effects of atmospheric disturbance. The showing of suitable static lateral, directional, and longitudinal stability must be based on the airplane handling qualities, including pilot workload and pilot compensation, for specific test procedures during the flight-test evaluations.

2. The airplane must provide adequate awareness to the pilot of a low energy (low speed, low thrust, low height) state when fitted with flight-control laws presenting neutral longitudinal stability significantly below the normal operating speeds. ''Adequate awareness'' means warning information must be provided to alert the crew of unsafe operating conditions, and to enable them to take appropriate corrective action.

3. The following requirement must be met for the configurations and speed specified in paragraph (a) of § 25.177. In straight, steady sideslips over the range of sideslip angles appropriate to the operation of the airplane, the rudder-control movements and forces must be substantially proportional to the angle of sideslip in a stable sense. This factor of proportionality must lie between limits found necessary for safe operation. The range of sideslip angles evaluated must include those sideslip angles resulting from the lesser of:

a. One-half of the available rudder control input; and

b. A rudder control force of 180 pounds.

Issued in Kansas City, Missouri, on February 8, 2022.

Patrick R. Mullen,

Manager, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2022–03026 Filed 2–11–22; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2021–1023; Special Conditions No. 25–811–SC]

Special Conditions: The Boeing Company, Model 737–10 Airplane; Dynamic Test Requirements for Single-Occupant, Oblique (Side-Facing) Seats Installed at 49 Degrees With Airbag Devices and 3-Point Restraints

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for The Boeing Company (Boeing) Model 737–10 airplane. This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is single-occupant oblique seats with airbag devices and 3-point restraints, installed at 49 degrees relative to the airplane cabin bow-to-stern centerline. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Effective February 14, 2022.

FOR FURTHER INFORMATION CONTACT: John Shelden, Human Machine Interface Section, AIR–626, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206–231–3214; email *john.shelden@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On January 30, 2019, Boeing applied for a change to Type Certificate No. A16WE for the installation of single-occupant oblique seats, with airbag devices and 3-point restraints, installed at 49 degrees relative to the airplane cabin bow-to-stern centerline in the Boeing Model 737–10 airplane. The Boeing Model 737–10 airplane is a twin-engine, transport-category airplane with seating for 230 passengers and a maximum takeoff weight of 197,900 pounds.