



# ***European Aviation Safety Agency***

---

**EASA**

**TYPE-CERTIFICATE  
DATA SHEET**

No. EASA.IM.A.169

**for**  
Gulfstream GVI

**Type Certificate Holder:**  
Gulfstream Aerospace Corporation

P.O Box 2206  
Savannah, GA. 31402-2206  
USA

Airworthiness Category: Large Aeroplanes

For Model: GVI (G650)

Intentionally left blank

## TABLE OF CONTENTS

<b>SECTION 1: GVI</b>	<b>5</b>
<b>I. General</b>	<b>5</b>
1. Type / Model / Variant	5
2. Performance Class	5
3. Certifying Authority	5
4. Manufacturer	5
5. FAA Certification Application Date	5
6. EASA Validation Application Date	5
7. FAA Type Certification Date	5
8. EASA Type Validation Date	5
<b>II. Certification Basis</b>	<b>6</b>
1. Reference Date for determining the applicable requirements	6
2. FAA Type Certification Data Sheet No.	6
3. FAA Certification Basis	6
4. EASA Airworthiness Requirements	6
5. Special Conditions	6
6. Exemptions	7
7. Deviations	7
8. Equivalent Safety Findings	7
9. Elect to Comply	8
10. Environmental Protection Standards	8
<b>III. Technical Characteristics and Operational Limitations</b>	<b>9</b>
1. Type Design Definition	9
2. Description	9
3. Equipment	9
4. Dimensions	9
5. Engines	9
6. Auxiliary Power Unit	9
7. Propellers	9
8. Fluids (Fuel, Oil, Additives, Hydraulics)	10
9. Fluid Capacities	10
10. Airspeed Limits	10
11. Flight Envelope	10
12. Operating Limitations	10
13. Maximum Certified Masses	11

14.	Centre of Gravity Range .....	11
15.	Datum.....	11
16.	Mean Aerodynamic Chord (MAC) .....	11
17.	Levelling Means.....	12
18.	Minimum Flight Crew .....	12
19.	Maximum Seating Capacity .....	12
20.	Baggage/ Cargo Compartment .....	12
21.	Wheels and Tyres.....	12
22.	ETOPS .....	12
<b>IV.</b>	<b>Operating and Service Instructions .....</b>	<b>13</b>
1.	Airplane Flight Manual (AFM) .....	13
2.	Instructions for Continued Airworthiness and Airworthiness Limitations .....	13
3.	Weight and Balance Manual (WBM) .....	13
<b>V.</b>	<b>Notes.....</b>	<b>13</b>
<b>SECTION:</b>	<b>ADMINISTRATIVE .....</b>	<b>14</b>
<b>I.</b>	<b>Acronyms and Abbreviations .....</b>	<b>14</b>
<b>II.</b>	<b>Type Certificate Holder Record .....</b>	<b>14</b>
<b>III.</b>	<b>Change Record.....</b>	<b>14</b>

## **SECTION 1: GVI**

### **I. General**

This Data Sheet, which is part of Type Certificate No. IM.A.169, prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the European Aviation Safety Agency.

**1. Type / Model / Variant**

GVI (G650)

**2. Performance Class**

A

**3. Certifying Authority**

Federal Aviation Administration (FAA)  
Atlanta Aircraft Certification Office  
1701 Columbia Avenue  
College Park  
Atlanta, GA 30337  
United States of America

**4. Manufacturer**

Gulfstream Aerospace Corporation  
P.O. Box 2206  
Savannah, GA 31402-2206  
United States of America

**5. FAA Certification Application Date**

September 18, 2007

**6. EASA Validation Application Date**

September 18, 2007

**7. FAA Type Certification Date**

September 07, 2012

**8. EASA Type Validation Date**

December 21, 2012

SECTION 1: GVI – continued

**II. Certification Basis**

**1. Reference Date for determining the applicable requirements**

September 18, 2007

**2. FAA Type Certification Data Sheet No.**

T00015AT

**3. FAA Certification Basis**

September 18, 2007

**4. EASA Airworthiness Requirements**

EASA Certification Specification (CS) 25, Amendment 2, effective as of October 02, 2006, except where identified below.

Certification Specification All Weather Operations (CS AWO), Book 1 and 2 published October 17, 2003.

**5. Special Conditions**

<u>CRI</u>	<u>Subject</u>
B-101	High Incidence Protection Function
C-102	Limit engine torque loads sudden engine stoppage
C-103	Design Roll Manoeuvre
C-104	Automatic speed protection, design dive speed
D-07	Aircraft Towing
D-15	Side facing seats and Divans
D-23	Crew Rest Facilities
D-24	High altitude operation high heat loads
D-26	Isolated Compartments
D-29	Control surface position awareness/Electronic flight control systems
E-04	Fuel tank safety
E-05	Operation in freezing fog
E-12	Water/Ice in Fuel System
E-13	Fuel Quantity Indicating System
E-101	In Flight Verification of Fire Detector Circuitry
E-102	Inflight engine restart
E-103	Fuel vent system Fire Protection
F-05	High Intensity Radiated Fields (HIRF) Protection
F-06	Lightning Protection - Direct Effects (IEL)

SECTION 1: GVI – continued

<u>CRI</u>	<u>Subject</u>
F-07	Lightning Protection - Indirect Effects (IEL)
F-44	CPDLC
F-101	Control Surface Position Awareness
F-102	Yaw Oscillations
F-104	Pilot Compartment View Requirements with an Enhanced Flight Vision System
F-105	Electronic Flight Control System Mode Annunciation
F-106	Operation without normal electrical power
F-38	Fuel System Low Level Indication/fuel Exhaustion
F-108	Security of Network Server Systems

**6. Exemptions**

N/A

**7. Deviations**

D-22	Doors between passenger compartments
E-18	Uncontrollable High Thrust

**8. Equivalent Safety Findings**

The following table lists the Equivalent Safety Finding requests made by Gulfstream which are specific to the GVI model.

<u>CRI</u>	<u>Subject</u>
C-105	Widespread Fatigue damage limits of validity
D-06	Pilot compartment view Hydrophobic coatings
D-16	Emergency Exit Signs
D-20	Gulfstream Type III exit and seat encroachment CS 25.807 & .813
D-27	Exit Encroachment
E-03	APU fireproof mounts
E-104	Fuel Filter Indicator System
E-105	Turbine Engine tailpipe Fire Detection
E-106	Overheat Detector
E-107	Digital only Display of Turbine Engine HP Rotor speed
E-108	Flammable Fluid Carrying Components in Nacelle Areas Behind the Firewall
F-39	Standby Magnetic Compass Removal
F-41	Pitot Static Drains

SECTION 1: GVI – continued

**9. Elect to Comply**

<u>NPA</u>	<u>Subject</u>
NPA 15/2004	CS 25.1302 Am 3 “Human Factors”
NPA 02/2006	CS 25.783 Am 4 “Doors”
NPA 18/2004	CS 25.1329 Am 4 “Flight Guidance Systems”
NPA 2008-13	CS 25.856 Am 6 “Thermal/Acoustic Insulation Materials”

**10. Environmental Protection Standards**

ICAO Annex 16, Volume I, Amendment 8 (Fifth Edition), Chapter 4 for Noise; and ICAO Annex 16, Volume II (Third Edition), Amendment 6, for Emissions.

For details of the certified noise levels see TCDSN EASA.IM.A.169



SECTION 1: GVI – continued

**III. Technical Characteristics and Operational Limitations**

**1. Type Design Definition**

Gulfstream drawing 60P0000000-001, GVI Aircraft Level Configuration Control Document, revision M, or later approved revision, (EASA Project No.IM.A.169), as amended by Gulfstream ASC 10 for EASA aircraft, and post TC modifications and STC's as defined in Report GVI-GER-0331 "EASA POST-TYPE CERTIFICATION MODIFICATIONS (EASA TYPE DESIGN)", latest approved revision.

**2. Description**

Twin turbo-fan, long range, large aeroplane.

**3. Equipment**

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

**4. Dimensions**

Wingspan	30.36 meters [99.62 feet]
Fuselage Length	30.41 meters [99.78 feet,]
Fuselage Width at Constant Section	2.74 meters [9.00 feet,]

**5. Engines**

Two (2) Rolls Royce Deutschland Ltd & Co. KG Turbofan Engine Models: BR700-725A1-12 (EASA Engine Type Certificate No. E.018)

Engine Limits:

Engine Limits Data Sheet EASA E.018	GVI BR700-725A1-12
Static thrust at sea level (Standard Day)	75.2 kN (16,900 lbs)

Other engine limitations: See the Engine Type Certificate Data Sheet EASA.E.018.

**6. Auxiliary Power Unit**

One (1) Honeywell RE220(GVI) EASA approval JT50 6615.

Limitations and Operating Procedures - See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.

**7. Propellers**

N/A

SECTION 1: GVI – continued

**8. Fluids (Fuel, Oil, Additives, Hydraulics)**

Fuels: Rolls Royce PLC Turbofan Engines\*

See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.(Section 1)

Oils

Oils: Refer to applicable approved Manuals.

Hydraulics

Hydraulic Fluids: Refer to the applicable approved Manuals.

**9. Fluid Capacities**

Tanks	U.S. Gallons	Pounds*	Liters	Kilograms*
Right	3,279	22,100	12,411	10,025
Left	3,279	22,100	12,411	10,025
Total	6,558	44,200	24,822	20,050

\* Fuel Density is 6.7 Pounds / U.S. Gallon and 0.8 Kilograms / Litre

See appropriate Weights and Balance Manual

**10. Airspeed Limits**

$V_{MO}/M_{MO} = 340\text{KCAS} / 0.925\text{M}$ .

For other airspeed limits, See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.(Section 1)

**11. Flight Envelope**

Maximum Operating Altitude: 15,545 Meters (51,000 feet)

See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.

**12. Operating Limitations**

See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.

Approved Operations

The airplane is approved for the following kinds of flight and operation, both day and night, provided the required equipment is installed and approved in accordance with the applicable regulations/specifications:

SECTION 1: GVI – continued

- Visual (VFR)
- Instrument (IFR)
- Icing Conditions
- Low weather minima (CAT I operations)
- RVSM
- Wet and contaminated runway operations (Appendix D data to FAA approved AFM)
- Extended Over-Water ETOPS

12.1 Other Limitations

Operational Limits

Runway slope  $\pm 2\%$

Maximum Takeoff and Landing Tailwind Component – 10 knots

Maximum Operating Altitude – 15,545 m (51,000 feet) pressure altitude

Maximum demonstrated crosswind component for takeoff and landing is 28 knots.

When operating in a flight control law mode other than Normal (i.e. Alternate, Direct, or Backup), maximum crosswind component for Landing is 10 knots.

**13. Maximum Certified Masses**

Maximum Taxi Weight	Maximum Takeoff Weight	Maximum Landing Weight	Maximum Zero Fuel Weight
45,359 kg	45,177 kg	37,874 kg	27,442 kg
100,000 lb	99,600 lb	83,500 lb	60,500 lb

Notes: The maximum weight limits may be less as limited by centre of gravity, fuel density and fuel loading limits, as given in the EASA approved Airplane Flight Manual (See Section 1)

See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions. (Section I)

**14. Centre of Gravity Range**

See the FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions. (Section 1)

**15. Datum**

For weight and balance purposes, the zero datum is 100 inches forward of the radome

**16. Mean Aerodynamic Chord (MAC)**

4.756 meters [187.24 inches]

SECTION 1: GVI – continued

**17. Levelling Means**

Longitudinal: Lugs at left nose well door longeron STA 163.0 & 174.0  
Lateral: Lugs on rear face of bulkhead STA 148.5 in nose wheel well

**18. Minimum Flight Crew**

Two (2): Pilot and co-pilot

**19. Maximum Seating Capacity**

Total number of occupants shall not exceed 22. The number of passengers shall not exceed 19 as determined by emergency exit requirements, nor shall the number of passengers exceed the number of seating accommodations approved for takeoff and landing.

Note:- This TCDS refers to a “green aircraft” up to 19 passengers may be carried subject to the completion of STCs being EASA approved

**20. Baggage/ Cargo Compartment**

Gulfstream G650 Weight and Balance Manual Issue 3, dated April 2012 or later approved revisions.

**21. Wheels and Tyres**

Nose wheels TSO C135a, Tyres Twin 21 x 7.25-10 bias ply (TSO C62e) nominal pressure 216 psi.

Main wheels TSO C135a, Tyres Twin H37.5 x 12.0 R 19 (TSO C62e) nominal pressure 216 psi.

See Aircraft Maintenance Manual for proper servicing of tires

**22. ETOPS**

The GVI Type Design is ETOPS acceptable in that it has been demonstrated to comply with the design and reliability requirements for 180 minute ETOPS flights required by EU regulation 965/2012, CAT.OP.MPA.140 and SPA.ETOPS.100, however this implies no operational approval, this must be sought from the Aviation Authority of the country of registry of individual aircraft.

**23 EVS and HUD Operations**

The GVI Type Design has been shown to be operable IAW Commission Regulation (EU) No 965/2012, para SPA.LVO.100 and CAT.OP.MPA.110 it has been demonstrated to comply with the appropriate design and reliability requirements defined in CRI F-51. This however implies no operational approval, this must be sought from the Authority or Agency that is legally responsible for Operational Approvals in the country of registry of individual aircraft.

SECTION 1: GVI – continued

**IV. Operating and Service Instructions**

**1. Airplane Flight Manual (AFM)**

Gulfstream GVI (G650) AFM, FAA approved Flight Manual ref GAC-AC-G650-OPS-0001 and EASA approved Airplane Flight Manual Supplement ref EASA-G650-2012-01, latest approved revisions.

**2. Instructions for Continued Airworthiness and Airworthiness Limitations**

Component life limitations are provided in Section 05-10-10, Chapter 5 of the GVI (G650) Aircraft Maintenance Manual.

Maintenance criteria to comply with the certification maintenance requirements are provided in Chapter 5 of the GVI (G650) Aircraft Maintenance Manual.

**3. Weight and Balance Manual (WBM)**

Gulfstream G650 Weight and Balance Manual Issue 3 dated April 2012 or later approved revisions (Note 1).

Note 1 A current Weight and Balance Report, must be in each aircraft at the time of original airworthiness certification.

Note 2 Airplane operation must be in accordance with the EASA approved Airplane Flight Manual. All placards required by either the EASA approved Flight Manual, the applicable operating rules, or the Certification Basis must be installed in the airplane.

**V. Notes**

- 1) The aircraft type designation is GVI however it is marketed under the Model G650 designation.

SECTION 1: GVI – continued

**SECTION: ADMINISTRATIVE**

**I. Acronyms and Abbreviations**

A/C	Aircraft
AFM	Airplane Flight Manual
AMC	Acceptable Means of Compliance
APU	Auxiliary Power Unit
CG	Center of Gravity
CRI	Certification Review Item
EASA	European Aviation Safety Agency
EU	European Union
FAA	Federal Aviation Administration
ICA	Instructions for Continued Airworthiness
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
JAA	Joint Aviation Authorities
NPA	Notice of Proposed Amendment
RR	Rolls Royce
RVSM	Reduced Vertical Separation Minima
TCDS	Type Certificate Data Sheet
TCDSN	Type Certificate Data Sheet for Noise
VFR	Visual Flight Rules

**II. Type Certificate Holder Record**

Gulfstream Aerospace Corporation  
P.O. Box 2206  
Savannah, GA 31402-2206  
United States of America

**III. Change Record**

<b>Issue</b>	<b>Date</b>	<b>Changes</b>	<b>TC issue</b>
Issue 01	21 December 2012	Initial Issue for Model GVI	Initial Issue, 21 December 2012