
Type Acceptance Report

TAR 3/21B/35 – Revision 1

Gulfstream G.IV/GV Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. FOREIGN TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE CERTIFICATE	3
4. NZCAR §21.43 DATA REQUIREMENTS	4
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	10
ATTACHMENTS	12
APPENDIX 1	12

Executive Summary

New Zealand Type Acceptance has been granted to the Gulfstream Aerospace Corporation Models G-IV and GV-SP based on validation of FAA Type Certificate number A12EA. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.191, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.3/21B/35 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

2. Foreign Type Certificate Details

Manufacturer:	Gulfstream Aerospace Corporation
Type Certificate:	A12EA
Issued by:	Federal Aviation Administration
Model:	G-IV
MCTOW:	74,600 lb. (S/N 1000-1213 with ASC 190, S/N 1214 and subsequent, and S/N 1500 and on with ASC 440)
Max. No. of Seats:	21 (19 passengers)
Noise Standard:	FAR 36, including Amendments 36-1 through 36-12
Engine:	Rolls Royce Tay Mark 611-8
	Type Certificate: E.063
	Issued by: European Aviation Safety Agency

Model: GV-SP (G550)

MCTOW: 91,400 lb.

Max. No. of Seats: 21 (19 passengers)

Noise Standard: FAR 36, including Amendments 36-1 through 36-22

Engine: Rolls Royce Deutschland BR700-710C4-11

Type Certificate: E.018

Issued by: European Aviation Safety Agency

3. Type Acceptance Certificate

The application for New Zealand type acceptance of the Gulfstream Model G-IV was from the operator, Air National Corporate, dated 20 May 2003. The first-of-type example was serial number 1362, registered ZK-KFB. The G-IV is an up to 19-passenger twin turbofan pressurised intercontinental-range (6500 NM) large-cabin business jet.

Type Acceptance Certificate No. 3/21B/35 was granted on 16 July 2003 to the Gulfstream G-IV based on validation of FAA Type Certificate A12EA, and includes the Rolls Royce Tay Mark 611 engine based on LBA Type Certificate Number 6327. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to include type acceptance of the Model GV-SP (variant G550), after application from the manufacturer. The first-of-type example was serial no.5260, also registered ZK-KFB. Type Acceptance was granted on 28 May 2010. (The Rolls Royce BR700-710C4-11 engines were type accepted under CAA Work Request 10/21B/28.). As part of the type acceptance process two specialists from the CAA Aircraft Certification Unit visited Gulfstream Aerospace for a familiarisation/validation visit.

The G-IV (Model 1159C) is a major development of the Gulfstream III aircraft, with the most significant change being the use of Stage 3 Rolls-Royce Tay turbofan engines. Other changes include a structurally redesigned wing box, a two-foot fuselage stretch with a sixth cabin window, significant use of composites in secondary structure and a new flightdeck based on CRT displays and advanced navigation/communication equipment. G-IV aircraft with increased weights per ASC190 (s/n 1214 and subsequent) are known as the GIV-SP. Following Gulfstream's acquisition of the IAI business jet range, G-IV serial numbers 1500-1535 (incorporating ASC440) were marketed as the Model G400, while those with ASC436 (reduced fuel capacity) became the G300. These variants were succeeded in production by the GIV-X, which has numerous improvements including the Honeywell flightdeck. The GIV-X is also available in two versions as the G350 and the G450.

The GV was another major step change in the development of the Gulfstream family. It is a stretched version of the G-IV, with associated increases in weights, wingspan, tailplane size and operating altitude, plus a change to new-generation Rolls Royce BR700 engines.

The GV-SP was primarily an avionics upgrade of the GV, but included some aerodynamic improvements to increase range. The specific product enhancements included: Increase in MCTOW from 90,500 lbs to 91,000 lbs; Small (approximately 6.4%) increase in thrust due to a thrust bump and an optional "Bleeds Off" takeoff configuration; Drag reduction changes (including flap trailing edge wedges to alter the wing lift distribution); Advanced Flight Deck (Planeview™) with the Honeywell Primus EPIC avionics and display suite; Relocation forward of the cabin main entry door and the addition of a seventh set of cabin windows; Potable water system with conformal tank; and a vacuum lavatory with integral waste tank. The GV-SP is available in two versions, the G550 (ASC11), and the reduced range G500 (ASC10). Also available is an optional modification ASC08 (Reduction in operating weights to 75,000 lb) for noise abatement and runway weight bearing capacity.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) ICAO Type certificate:

FAA Type Certificate Number A12EA

FAA Type Certificate Data Sheet No. A12EA at Revision 35 dated April 15, 2010

– Model G-IV approved April 22, 1987

– Model GV-SP approved August 14, 2003

EASA Type Certificate Data Sheet No. E.063 at Issue 1 dated 24 November 2008

– Model Tay 611-8 approved (CAA-UK) 23 September 1987

(Supersedes LBA TC Nr. 6327 – Rolls Royce Deutschland issued 07.01.2002

Data Sheet No. 6327 Issue 3 dated 07.01.2002 – Type/Variant: Tay 620/Tay 611-8)

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the G-IV/GV Series is FAR Part 25, effective February 1, 1965, at the following revision status:

- Model G-IV – Including Amendments 25-1 through 25-56, except for five paragraphs for which compliance was shown at an earlier amendment date. (This was accepted by the FAA because as a derivative aircraft Gulfstream had elected to use a later amendment date for the G-IV.)
- Model GV-SP – Including Amendments 25-1 through 25-98, with exceptions for an earlier amendment state for paragraphs §25.562 and §25.571. (These exceptions are valid for FAR Parts 91 and 135 operations only).

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as FAR 25 is the basic standard for Transport Category Airplanes called up under Part 21 Appendix C. The special conditions, equivalent safety findings and exemptions made by the FAA were reviewed and accepted by the CAA. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

The certification basis of the Rolls Royce Tay 611-8 is JAR-E, plus one Special Condition. JAR-E is accepted as an equivalent design standard to FAR Part 33, which is the basic standard for aircraft engines called up under Part 21 Appendix C.

(ii) *Special Conditions:*

25-262-SC High Intensity Radiated Fields – The usual HIRF protection requirements were imposed on the GV-SP and GIV-X that new electrical and electronic systems that perform critical functions must be designed and installed to preclude component damage and interruption of operational capabilities when the airplane is exposed to external high intensity radiated fields.

25-180-SC Enhanced Vision Systems – The GV-SP uses hydrophobic coatings in lieu of windscreen wipers. GAC was required to demonstrate system effectiveness with only 5% service life remaining over a range of operating conditions and speeds on the ground and in flight. In addition GAC had to assure continued airworthiness of the coating under various environmental exposures.

(iii) Equivalent Level of Safety Findings:

Three ESF were carried across for the G-IV from earlier G1159 Models:

FAR 25.201 Stall Demonstration – FAA accepted the use of an artificial stall (stall barrier system consisting of stick shaker and stick pusher systems) in lieu of showing acceptable natural stall characteristics. The G-III/IV system was modified to correct for variations with altitude.

FAR 25.773(b)(2) DV Window – Eliminated the need for an openable Direct Vision window under certain flight conditions, similar to the design of the Boeing 747, by showing a satisfactory approach and landing could be accomplished by looking out the side window only.

FAR 25.807(a)(4) Emergency Exits – The major axis of the large oval window used as the emergency exit is in the horizontal direction, rather than the vertical as required by regulation, after an emergency evacuation trial showed there was negligible difference in the exiting times.

There was one new ESF: FAR 25.729(e)(2) Landing Gear Warning Horn – Gulfstream proposed a modification to automatically inhibit the undercarriage horn above 2500 ft AGL, rather than whenever one or more throttle is retarded and the u/c is not down and locked, based on the input from two radio altimeters. This was accepted by the FAA after a Failure Modes and Effects Analysis was prepared. Landing flap position without u/c down will override any inhibit.

For the GV-SP Four ESF were made:

FAR 25.807(g)(2) Overwing Emergency Exit Windows – The Gulfstream series utilises twin pairs of oval window exits, in lieu of a single Type III exit. These have their axis oriented horizontally instead of vertically per the Rules. For continued acceptance of this arrangement GAC had to show equivalent exit flow rate in a defined test of 25 persons. This was not met, so additional operational requirements were imposed and are specified in the AFM Limitations. This includes carrying a specifically trained third crew member whenever more than 10 passengers are on board.

FAR 25.811(d) and 25.812(b) Emergency Exit Provisions – Relatively small cabin exit signs that did not quite meet the exact rule specification were accepted after an evaluation of effectiveness by the FAA. Wedge-shaped combined exit marker/locator signs were also allowed.

FAR 25.841(b)(6) Cabin Altitude Warning (CAW) – GV-SP inhibits the CAW system above FL150 when operating into a high altitude airport. For Landing Field Elevation (LFE) greater than 9,500 ft the Cabin Pressure Low Warning (CPLW) is set to 14,500 ft during descent. During take-off and climb it can start as high as 15,000 ft and is reset towards 8,000 ft as a function of the cabin pressurization rate. This minimizes exposure to false warnings. GAC also included AFM procedures to advise pilots the CPLW is reset as a function of the LFE and that one pilot must wear an oxygen mask from the top of descent whenever the LFE is greater than 9,500 ft.

FAR 25.853 & 25.869 Flammability Substantiation of Electronic Equipment – For avionic equipment installed in racks in the cabin, in lieu of strict compliance with 25.853 for all components the FAA accepted compensating features including a robust EER design, positive ventilation for smoke evacuation, early indication of compartment overheat, ready access without tools, and the low potential flammability characteristics of the components used.

(iv) Exemptions:

No.7946: FAR 25.813(e) Mid-Cabin Doors – This rule prohibits the installation of any door between a passenger compartment. GAC contended that the rule should not apply to business aircraft with few passengers and a need for privacy. The FAA only granted a partial exemption for private operations. Limitations are that the door must be frangible, be a laterally sliding type, be able to be unlatched without tools, and have a flightcrew warning if it is closed for takeoff or landing.

No.8004: FAR 25.901(c) Uncontrolled High Thrust Failure Conditions – This granted a partial exemption from the “no single failure” criteria, because a control system that might eliminate all failure modes would significantly increase complexity and possibly introduce other failure modes, plus add cost and schedule effects. GAC was required to show all practicable steps had been taken to minimise any adverse effect on safety and the risks would be no greater than for comparable existing aircraft. Special failure reporting procedures were also established.

(v) *Airworthiness Limitations:*

See Section IV, Chapter 5 of the Maintenance Manual for the G-IV.

See Section 05-10-00 of the Maintenance Manual for the GV-SP.

See Time Limits Manual – Pub. Ref. T-TAY-1RR for the Tay 611-8

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The G-IV has been certificated under SFAR 27, including Amendments 27-1 through 27-5, and FAR Part 36, including Amendments 36-1 through 36-12.

The GV-SP has been certificated under FAR Part 34, including Amendments 34-1 through 34-3, and FAR Part 36, including Amendments 36-1 through 36-22.

(ii) *Compliance Listing:*

G-IV AFM Section 5 Performance (equivalent to ICAO Chapter 3):

Lateral: 87.6 EPNdB Approach: 93.3 EPNdB Flyover: 79.0 EPNdB

GV-SP Manufacturer Noise Certificate:

Lateral: 90.2 EPNdB Approach: 90.8 EPNdB Flyover: 79.3 EPNdB
(Stage 3 – see Noise Data GV-SP Operations Manual Appendix D)

Report GAC-CR-8322 – GV-SP RR BR700-710C4-11 Exhaust Emissions Report

(4) Certification Compliance Listing:

G-IV Compliance Checklist for FAR Part 25 – Report No.1159C-GER-107

G-IV Issue Papers:

<i>NUMBER</i>	<i>TITLE:</i>	<i>ISSUE STATUS:</i>
GAC-83-1	TC A12EA, Amendment to include Gulfstream Model GIV	CLOSED
GAC-83-2	Design Loads Methodology	CLOSED
n/a	Compliance with FAR 25.57(c), Fatigue (Safe-Life) Evaluation for Landing Gear and Engine mounting System	CLOSED
SE-1	GIV Flight Management System	CLOSED
SE-2	FMCS Contaminated Runway Takeoff	CLOSED
SE-3	FMCS Accelerate Go/No-Go	CLOSED
SE-4	FMCS VFR 90/270 Circle Under Approach	CANCELLED
SE-5	AFGCS Attitude Display vs Autopilot Coupling	CLOSED
SE-6	Single Side Command 'V' Bar Display with AFGCS	CLOSED
SE-7	Takeoff / Landing Emergency Warning Annunciation	CLOSED
SE-8	AFGCS Coupling to Single IRS with AHRS Monitor	CLOSED
SE-9	Automatic Checklist Presentation	CLOSED
SE-10	Substantiation of Critical Software Functions for Display of Hazardous and Misleading Attitude, Altitude and Airspeed Information	CLOSED
SE-11	Installation of a FGC Reset Button in Event of Power Interrupts	CLOSED
SE-12	Landing Gear Warning System - Throttles	CLOSED
P-1	Induction System Icing Protection	CLOSED
P-2	Natural Icing Flight Testing	CLOSED
P-3	Powerplant Instrument Markings	CLOSED
P-4	Dual Thrust Management Procedures	CLOSED
O-1	Type Rating Determination	CLOSED
O-2	Forward Observer's Seat	CLOSED
O-3	Training Simulator	CLOSED

Doc. GVSP-GER-6013 Gulfstream Model GV-SP with Advanced Flight Deck (Planeview™) COMPLIANCE CHECKLIST – FAR Part 25 Requirements – FAA Project No. AT5177AT-T – dated 27 March 2002 and now at Revision D

GV-SP Issue Papers:

A01 Emergency Exits – Later Regulations	S01 Field Loadable Software MoC
A02 Emergency Exit Evacuation – ESF Analyses	S02 Software Changes Impact
A03 Class B Baggage Compartments	S03 Transition to RTCA/DO178B
A04 1-g Stall Speed for Structural Criteria	S04 Programmed Logic Devices
A05 Flightcrew Emergency Exits	S05 Software Development Reviews
A06 Slow Crack Growth Rate Structure	S06 Software Tool Qualification
A07 Interaction of Systems and Structure	S07 Software Level
A08 Revised Baseline Loads Analysis	S08 User-Modifiable Software
A09 EE Flammability Substantiation – ESF	S09 Systems Using Standby Batteries
C1 Emergency Exit Signs – ESF	S10 Use of SAE ARP4754
E01 HIRF Proposed Special Condition	S11 Use of Commercial Software
F5 Pilot Compartment View Proposed SC	S12 Management of IMA Systems
F02 Icing Contaminated Tailplane Stall	S13 Head-Up-Display Issues
F03 Return Landing Capability	S15 Enhanced Vision System Issues
F04 1-g Stall Speed for SIS Compliance	S16 Use of C++ Computer Language
G01 Establishment of Certification Basis	S17 Assembly Coverage for Deos™
M01 MSG-3 Development Process	S18 Cursor Control Device
M02 Instructions for Cont'd Airworthiness	S19 Control Labelling
O01 Master Minimum Equipment List	S20 Hard Over Prevention System
O02 Forward Observer's Seat/Systems	S21 Autopilot/Stall Barrier
O03 Type Rating Determination	S22 Standby Instrument Location
O04 Operational Acceptability	S23 Electronic Charts Display
O05 Training and Checking Simulator	S25 Configuration Management IMA
O06 Flight Crew Sleeping Facilities	S26 High Altitude Operations
P01 Operations with AC Packs Off	S27 Environmental Qual. Standards
P02 Engine Air Data Fault Tolerance	S28 EGPWS
P03 Uncontrollable High Engine Thrust	S29 O ₂ Masks High Altitude Airfields
P04 Inflight Engine Restart	S30 Power Distribution System
S31 Use of D Level Software in AFSC	S34 Disabling Functions by Software
S32 RNP and RNAV	S35 Critical Flight Displays
S33 Aural Alerts	S36 Video Display Capability

- (5) Flight manual: FAA-Approved Airplane Flight Manual Gulfstream IV
CAA Accepted as AIR 2833
- FAA-Approved Airplane Flight Manual GV-SP (G550) – Document
GAC-AC-G550-OPS-001 – CAA Accepted as AIR 3136

(6) Operating Data for Aircraft and Engine:

(i) *Maintenance Manual:*

Two Maintenance Library (ML) CD-ROM have been supplied, as follows:

1. ML applicable to G-IV S/N 1000 through 1399 not having ASC 416
2. MSG-3 ML applicable to G-IV S/N 1400 and on and aircraft with ASC 416

These Contain: Aircraft Maintenance Manual – Rev.45 – Oct 31, 2002
Wiring Diagram Manual – Rev.28 – Oct 31, 2002
AlliedSignal IPC and MM [GTCP36-100(G) APU]
Aircraft Service Changes and Customer Bulletin Index
Corrosion Prevention and Control Manual
Customer Bulletins, Service News and Index
Technicians Pocket Guide – Rev.3 – Jan 30, 2003
Maintenance Operational Letters
Structural Repair Manual – Rev.4 – Sept 30, 2002
Non-Destructive Testing Procedures Manual – Rev.4, Oct 29, 2002

Note: The MRB Report is contained in its entirety, in Chapter 05-22 of the GIV MSG-3 AMM. Chapter 5 also serves as the baseline fleet Maintenance Planning Document. There is no separate report or MPD document.

G550 Maintenance Library includes:

Aircraft Maintenance Manual
Structural Repair Manual
Corrosion Prevention Control Manual
Wiring Diagram Manual
Fault isolation Manual
Supplemental Manuals
Service Information library

Rolls Royce Tay Maintenance Data CDROM-TAY/GIV-MAINT – Containing:
Engine Maintenance Manual – Pub. Ref. M-TAY-1RR
Tay Operating Instructions – Pub. Ref. F-TAY-1RR
Maintenance Tooling Manual – Pub. Ref. MT-TAY
Overhaul Materials (Consumable) Manual – Pub. Ref. OMAT
Notice to Operators – Pub. Ref. NTO-TAY

(ii) *Current Service Information:*

All Gulfstream data is available to the CAA on www.mygulfstream.com

Rolls Royce also provided access to the CAA to www.aeromanager.com

This contains the following additional publications:

Service Bulletins & Index	Overhaul Suite
CMM-Tubes, Hoses & Ducts	CMM-Miscellaneous Mechanical
CMM-Electrical Harness	CMM-Fuel Spray Nozzles
Standard Practices Manual	Overhaul Processes Manual

(iii) *Illustrated Parts Catalogue:*

G-IV IPC – Rev.46 – Oct 31, 2002 (on CD-ROM)

G550 IPC is on the Maintenance Library

RR Tay Engine Illustrated Parts Catalog – Pub. Ref. S-TAY(611)-1RR

(7) Agreement from manufacturer to supply updates of data in (4), (5) and (6):

CAA 2171 from Gulfstream Manager Technical Information dated 13-6-03 (G-IV)

(8) Other information:

Gulfstream IV Flight Crew Reference Library 2002-04 CD-ROM – Containing:
Airplane Flight Manual – Rev.30 – Oct. 11, 2002
Operating Manual – Document Number GAC-AC-GIV-OPS-0002
Quick Reference Handbook – Rev.8 – Oct. 11, 2002
Cockpit Card – December 22, 2000
Master Minimum Equipment List – Rev.5 – Oct. 11, 2001
Maintenance Operational Placarding Procedures – GAC Doc. No. GIV-1
Noise Information Manual – Rev.10 – May 22, 2002
Operational Information Supplements

Gulfstream IV-SP Product Specification – Initial Release September 6, 1992
(Applicable to serial numbers 1183, 1185, 1191-1195 and 1202 and subsequent)

Gulfstream IV AC & DC Electrical Load Analysis – Effectivity A/C S/N 1310 &
Subsq Production Configuration – Document No. AV-GIV-R-426.15)
Electrical Load Analysis Supplement for HK Aviation GIV S/N 1362 – 3/10/00

Report GIV-GER-317 – Systems Requirements Definition for the G-IV DFDRS

G550 Completion Specification No. 2009623E (FGC-Custom) dated July 16, 2009

Gulfstream G550 Production Specification S/N 5270-5289 Rev.17 dated Feb 2010

Report GVSP-GER-500.00 – Electrical Load Analysis GV-SP (s/n 5001 and up)
Report GC51 469 460 – Electrical Load Analysis Supplement for Serial No. 5260

5. Additional New Zealand Requirements

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

Civil Aviation Rules Part 26

Subpart B - Additional Airworthiness Requirements

Appendix B - All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	FAR Part 25 §25.811(a) Amdt 25-46 Eff Oct. 30, 1978 NOTE: The G550 required the word Exit to be added.
B.2	Crew Protection Requirements - CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix C - Air Transport Aircraft - More than 9 Pax

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
C.1	Doors and Exits	FAR Part 25 §25.809(b) Amdt 25-47 Eff Oct. 25, 1979
C.2.1	Additional Emergency Exits - per FAR 23.807(b) @ 10.5.93	Meets FAR Part 25 Certification requirements
C.2.2	Emergency Exit Evacuation Equipment – Descent means	FAR Part 25 §25.809(f) Amdt 25-47 Eff Oct. 25, 1979
C.2.3	Emergency Exit Interior Marking - Size/self-illuminating	FAR Part 25 §25.811(e), Amdt 25-46 Eff Oct. 30, 1978 FAR Part 25 §25.812(b) Amdt 25-46 Eff Oct. 30, 1978
C.3.1	Landing Gear Aural Warning - Automatic Flap Linking	FAR Part 25 §25.729(e) Amdt 25-42 Eff Jan. 16, 1978 NOTE: Compliance with this section was the subject of an Equivalent Safety Finding (for the G-IV)

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	FAR Part 25 §25.785(g) Amdt 25-51 Eff Feb. 4, 1980
91.507	Pax Information Signs - Smoking, safety belts fastened	FAR Part 25 §25.791 Amdt 25-32 Eff Feb. 24, 1972
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	FAR 25.1303(b)(1)/EFIS * FAR 25.1303(c)(2)/EFIS * FAR 25.1303(b)(2)/EFIS * FAR 25.1303(a)(3)/PS §12.4 FAR 25.1305(a)(2)/PS §6.16 FAR 25.1305(c)(3)/PS §6.17 FAR 25.1305(a)(4)/PS §6.17
91.511 Night	(1) Turn and Slip (2) Position Lights	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter (5) OAT	FAR 25.1305(a)(6)/PS §6.17 Not Applicable – Turbojet FAR 25.1305(a)(6)/PS §6.17 Not Applicable – Turbojet FAR 25.699/PS §9.3.2. FAR 25.729(e)/PS §7.10.3 FAR 25.1351 (b)(6)/PS §7.4.2
91.519	IFR Communication and Navigation Equipment	(3) Anti-collision Lights (4) Instrument Lighting (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent
	G-IV: Sperry SPZ8000 system has dual HF, VHF, VOR/ILS/Marker Beacon, ADF/DME fitted as standard – PS §12.5 S/n 1362 has 2x Collins DME-442, HF-9034A, VIR-432, 3x VHF-422D. FMS also has dual Inertial Reference Systems. G550: Honeywell Primus system includes as standard Dual HF, Triple VHF, Triple VOR/ILS/MB, Dual ADF and DME. S/n 5260 fitted with 2x NV875A, 2x TR866B, NC860A, 2x DF855, 2x DM855, 2x HF9034 plus dual MAU with GPS/IRS	FAR 25.1401/PS §7.8.3 FAR 25.1381/PS §7.9.1 FAR 25.1303(a)(2)/See G-IV Operating Manual §2A31-20 FAR 25.1323(e)/ See G-IV Operating Manual §2A30-50 FAR 25.1303(b)(3)/EFIS *
91.523 Emrgcy Eqpmt.	(a) More Than 10 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8 (b) More than 20 pax - Axe readily acceptable to crew (c) More than 61 pax - Portable Megaphones per Table 9	FAR 25.1401/PS §7.8.3 FAR 25.1381/PS §7.9.1 FAR 25.1303(a)(2)/See G-IV Operating Manual §2A31-20 FAR 25.1323(e)/ See G-IV Operating Manual §2A30-50 FAR 25.1303(b)(3)/EFIS *
91.529	ELT - TSO C91a after 1/4/97 (or replacement)	Operating Rule – Compliance to be determined by Operator Operating Rule – Compliance to be determined by Operator Not Applicable – Less than 20 passengers Not Applicable – Less than 61 passengers
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Artex 406 MHz ELT-200 fitted – meets TSO C126 FAR Part 25 §25.1441 thru 25.1450

91.535 Press. A/c	(1) Flight Crew Member On-Demand Mask; 15 min PBE (2) 1 Set of Portable 15 min PBE (3) Crew Member - Pax Oxygen Mask; Portable PBE 1201 (4) Spare Oxygen Masks/PBE (5) Min Quantity Supplement Oxygen (6) Required Supplemental/Therapeutic Oxygen Above FL250 - Quick-Donning Crew On-Demand Mask - Supplemental O ₂ Masks for all Pax/Crew, Mask in Toilet Above FL300 - Total Outlets Exceed Pax by 10% - Extra Units Uniformly Distributed, Automatically Presented Above FL140, Manual Means of Deployment	G-IV: 3x EROS MXP 100 or MXP 300 masks fitted as standard for flight deck crew. This is supplied by an 1800 psi system with a capacity of 50 cubic feet. <i>Prior to S/N 1289 pax O₂ system was part of the customised interior configuration. Compliance will be on an individual basis. After S/N 1289 a basic pax O₂ system is installed but the "type, quantity and location of masks is selected by the aircraft owner and installed during aircraft outfitting".</i> Maximum operating altitude is 45,000 feet Passenger masks deploy automatically when sensed cabin altitude reaches 13,000 ±500 ft. Can be manually selected.
	G550: Basic system fitted to green aircraft is a long-range 123 cubic foot cylinder. When fully charged to 1800 PSI this provides an oxygen duration of 2.6 hours for 19 pax. (See FM Supplement GC1453M003 for flowrate details etc.) Passenger oxygen mask drop is set for 14,500±500 feet due to high-altitude landing certification. Exemption 10/EXE/61 was issued to exempt compliance with §91.531(1)(ii) and §91.535(d)(3) - (S/n 5260 oxygen system fitted under FAA STC No. ST02696AT-D.) One therapeutic outlet is provided in the cabin along with a single Scott portable oxygen bottle and mask.	
91.541	SSR Transponder and Altitude Reporting Equipment	Dual ATC transponders fitted as standard – PS §12.5.5 G-IV: S/n 1362 has dual Collins TDR094D G550: S/n 5260 has dual Honeywell XS857
91.543	Altitude Alerting Device - Turbojet or Turbofan	Altitude Alerting System is a production installation.
91.545	Assigned Altitude Indicator	Not Applicable – Altitude Alerting Device fitted
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 125

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
125.355	Seating and Restraints	FAR §25.785(g)/PS §13.1.2
125.357	Additional Instruments (Powerplant and Propeller)	FAR Part 25 is a Part 21 Appendix C standard
125.359	Night Flight	Landing light, Pax compartment FAR §25.1383/PS §7.8.2
125.361	IFR Operations	Speed, Altitude, spare bulbs/fuses Operating Rule – Compliance to be determined by Operator
125.361	SE IFR Requirements – If Applicable	Not Applicable – Single-engined aircraft only
125.363	Emergency Equipment (Part 91.523 (a) and (b))	Operating Rule – Compliance to be determined by Operator
125.365	Public Address and Crew Member Intercom System	AD DCA/GEN/24 [FAA 25 §25.1411(a)(2) and §25.1423 at Amdt 25-70 Eff Oct. 27, 1989] – Gulfstream advises PA system meets FAR requirements (See email dated 15/7/03)
125.367	Cockpit Voice Recorder	G-IV: Fairchild P/N 2100-1020-00 fitted – meets TSO C123a G550: Honeywell AR-120 (P/N 980-6023-002) fitted – meets TSO C123a
125.369	Flight Data Recorder	Rpt. GIV-GER-317 specifies TSO C124/EUROCAE ED-55 with 65 recorded parameters, meets FAR 25 @ Jan 1, 1990 – P/N S800-2000-00 fitted (TSO C124a) G550: Honeywell AR-126 (P/N 980-4710-003) DFDR fitted as standard – Aircraft Service Change ASC002C upgrades to recording of 88 parameters
125.371	Additional Attitude Indicator	FAR §25.1303(b)(4) – G-IV: Sextant F9111 standby gyro fitted
125.373	Weather Radar	Colour weather radar system fitted as standard – PS §12.5.7 G-IV/G550: Honeywell WU-880 fitted as standard – meets TSO C63c
125.375	Ground Proximity Warning System	CAA AD DCA/GEN/13A – Honeywell FMS fitted meets TSO C151a Class A and TSO C92c as applicable
125.377	HUMS	Not Applicable – SEIFR aeroplanes only
121.381	Terrain Awareness and Warning System (TAWS) Appendix B.10 requires TSO C151a or b	G550: Dual MAU installed in Honeywell Primus system are certified for EGPWM to TSO C151a Class A
121.383	Airborne Collision Avoidance System (ACAS II) Appendix B.11 requires TSO C119b	G550: TCAS 2000 (RT951) installed in Honeywell Primus system is certified to TSO C119b

PS § refers to the applicable section of the Product Specification Report

EFIS * For details of the EFIS displays refer to the applicable Sperry SPZ Series Pilot's Manual (G-IV) or the Honeywell Primus Pilot's Guide (GV-SP)

NOTE: The G-IV comes under Part 125 as it is type certificated for a maximum of nineteen passengers. In addition, based on a completed aircraft weight advised by Gulfstream in the range 41785 - 42676 lb. (s/n 1362 is 43,994 lb.) and a MZFW of 49000 lb. then payload is a maximum of 7215 lb. (3272 kg.)

GV-SP Product Specification lists a typical completed empty weight of 46,812 lb. (s/n 5260 is 47,198 lb.) With a MZFW of 54,500 lb maximum payload is 7,688 lb. However the FAA has accepted with respect to FAR 26 applicability that Gulfstream aircraft will always have a max. payload less than 7500 lb.

Attachments

The following documents form attachments to this report:

- Photographs first-of-type example G-IV serial no.1362 ZK-KFB
- Photographs first-of-type example GV-SP serial no. 5260 ZK-KFB
- Three-view drawing Gulfstream Aerospace Model G-IV
- Three-view drawing Gulfstream Aerospace Model GV-SP
- Copy of FAA Type Certificate Data Sheet Number A12EA

Sign off

.....
David Gill
Team Leader Airworthiness

.....
Checked – Ron Doggett
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
G-IV	Air National Corporate Limited	3/21B/35	16 July 2003
GV-SP (G550)	Gulfstream Aerospace Corporation	10/21B/24	28 May 2010