DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A12EA
Revision 38

Gulfstream
G-1159
G-1159A
G-1159B
G-IV
GV
GV-SP
GIV-X

July 6, 2011

TYPE CERTIFICATE DATA SHEET NO. A12EA

This data sheet which is part of Type Certificate No. A12EA prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Civil Air Regulations and Federal Aviation Regulations.

Type Certificate Holder: Gulfstream Aerospace Corporation
P.O. Box 2206
Savannah, Georgia 31402-2206

I. - Model G-1159, Gulfstream II (Transport Category), Approved October 19, 1967.

Engines: 2 Rolls Royce Spey RB (163) 511-8 (Type Certificate E2EU)

Fuel

		Kerosene
	American	ASTM D 1655-78 Jet A
		ASTA D 1655-78 Jet A-1
		I.A.T.A. 1988: Kerosene type
		MIL-T-83133 Grade JP-8
	British	D Eng. R.D. 2453 Issue 5 (2)
		D Eng. R.D. 2494 Issue 10
	Canadian	CAN/CGCB 3.23-M86
	CIS	T-1, TS-1 & RT (GOST 10227-86)
		T-7, (GOST 12308-66)
	French	AIR 3405/C
	Romanian	(3754/73 CS-3))
		STAS 5639
		JP-4 Wide Cut Type (See NOTE 5)
	American	ASTM D 1655-89 Jet B
		MIL-T-5624N Grade JP-4
		I.A.T.A. 1987: JP.4 type
	British	D Eng. R.D. 2454 Issue 4 (2)
		D Eng. R.D. 2486 Issue 9
	Canadian	CAN/CGSB 3.22 M86
	CIS	T-2 (GOST 10027-86)
	French	AIR 3407/B
	German	TL 9130-006 Issue 6

Page No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Rev No.	31	30	16	16	13	30	15	16	13	30	19	19	16	30	19	16	16	30	30	29
Page No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Rev. No.	17	19	26	26	26	26	26	30	26	29	22	21	30	26	27	26	30	28	29	28
Page No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	52	53	54
Rev. No.	23	29	27	30	25	34	36	36	36	36	29	37	37	37	30	35	37	38	38	38
Page No.	57	58																		
Rev. No.	38	38																		

Fuel (con't)

	JP-5 High Flash-Point Type
American	MIL-T-5624N Grade JP-5
British	D Eng. R.D. 2452 Issue 2 (3)
	D Eng. R.D. 2498 Issue 7
Canadian	3-GP-24Ma
French	AIR 3404/C
German	TL 9130-007 Issue 4

Fuel shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Oil

Castrol 3C and 325
Aeroshell Turbo Oil 390 and 500
Esso/Exxon 2380
Mobil Jet Oil II
Chevron Jet Engine Oil 5
Caltex RPM Jet Engine Oil 5
Texaco S.A.T.O. 7730

NOTE: Mixing of oils is not recommended for APU.
Oil shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.

Takeoff (5 min.)	11,400 lb.
Maximum continuous	10,940 lb.

Maximum permissible engine rotor operating speeds:
N1 (low compressor) (106.6%) 8,950 rpm
N2 (high compressor) (100.1%) 12,500 rpm

Maximum permissible temperatures:
Turbine outlet gas (Trimmer Resistors, Inc.)

Takeoff (5 min.)	585°C
Maximum continuous	540°C
Momentary maximum during starts and relights	570°C
Maximum with reverse thrust (30 second limit)	490°C
Maximum over-temperature (20 second limit)	610°C
Engines with S.B. Sp 77-43	
(20 second limit)	615°C
(120 second limit)	595°C
Oil inlet	100°C
Oil inlet (15 min. limit)	120°C
Fuel inlet temperature to engine high pressure pump	90°C
Fuel inlet temperature (15 min. limit)	110°C

Maximum Air Bleed Extraction
(Percent of no bleed mass flow)

Maximum engine high pressure bleed	2.45%
Maximum engine low pressure bleed	3.65%

Auxiliary Power Unit (APU)

AirResearch GTCP-36-6: S/N 1 thru 248 and 775

Maximum permissible exhaust gas temperature	700°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	20Kva
APU rated output shaft power	10hp
(with 50 lb. per min. bleed air and ambient	

temperate of 113°F)

APU (con't)

AirResearch GTCP-36-100G: S/N 250 thru 299, except 252

Maximum permissible exhaust gas temperature -

- Up to 60% rpm during start	988°C
60% - 100% during start	821C° to 732°C (linear decrease)
- Running	732°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	20Kva
(with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	50hp

Airspeed Limits (CAS)

V_{mo}	(Maximum operating)		
	Sea level to 24,100 ft.	423 mph	367 knots
M_{mo} =	.85 @ 24,100 ft and above		
V_a	(Maneuvering)	245 mph	213 knots
V_{sb}	(Speed brake)		
	Sea level to 28,100 ft.	389 mph	338 knots
M_{sb} =	.85 @ 28,100 ft. and above		
V_{fe}	(Flaps down to 39°)	196 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mca}	(Minimum control air)	117 mph	102 knots
V_{ll}	(Landing light operation)	288 mph	250 knots

Maximum Operating Altitude

43,000 feet (airplanes modified by Aircraft Service Change 299 are approved to 45,000 feet.)

Maximum Weight (lb.)

Aircraft S/N	With ASC*	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
1 thru 82 & 775	- -	38,000	58,000	57,500	51,430
1 thru 82 & 775	10A & 41	39,000	60,000	59,500	55,000
83 thru 100	- -	39,000	60,000	59,500	55,000
1 thru 100 & 775	81	42,000	62,500	62,000	58,500
101 thru 216	- -	42,000	62,500	62,000	58,500
1 thru 216 and 775	256	42,000	65,300	64,800	58,500
217 thru 299, except 249, 252 & 775	233	42,000	65,300	64,800	58,500

*See NOTE 6

Datum

Station 0 is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.

M.A.C.

147.28 in. (L.E. of M.A.C. = Fuselage Station 404.13)

Fuel Capacity

S/N 1 thru 82 & 775:

Gravity or Pressure Fueling:	Total	22,620 lb.
	Usable	22,500 lb.
	Arm*	+433.0

S/N 1 thru 82 & 775 with ASC 41 & ASC 10A, and S/N 83 thru 216:

Gravity or Pressure Fueling:	Total	23,400 lb.
	Usable	23,300 lb.
	Arm*	435.9

Fuel weights based upon fuel density of 6.75 lb. per gal.

See NOTE 1 for system fuel and unusable fuel.

*Arm based on ground static attitude (-1.5° FRL)

Oil Capacity	Engine Oil	13.7 lb./14.6 U.S. pints-left engine (Arm = +564.0)
		14.6 lb./15.6 U.S. pints-right engine (Arm = +564.0)
	APU Oil	5.1 lb./5.4 U.S. pints (Arm = +620.0)

Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.
Capacities shown are for engine oil tankage only.
Total engine oil is an additional 14 lb. per engine.

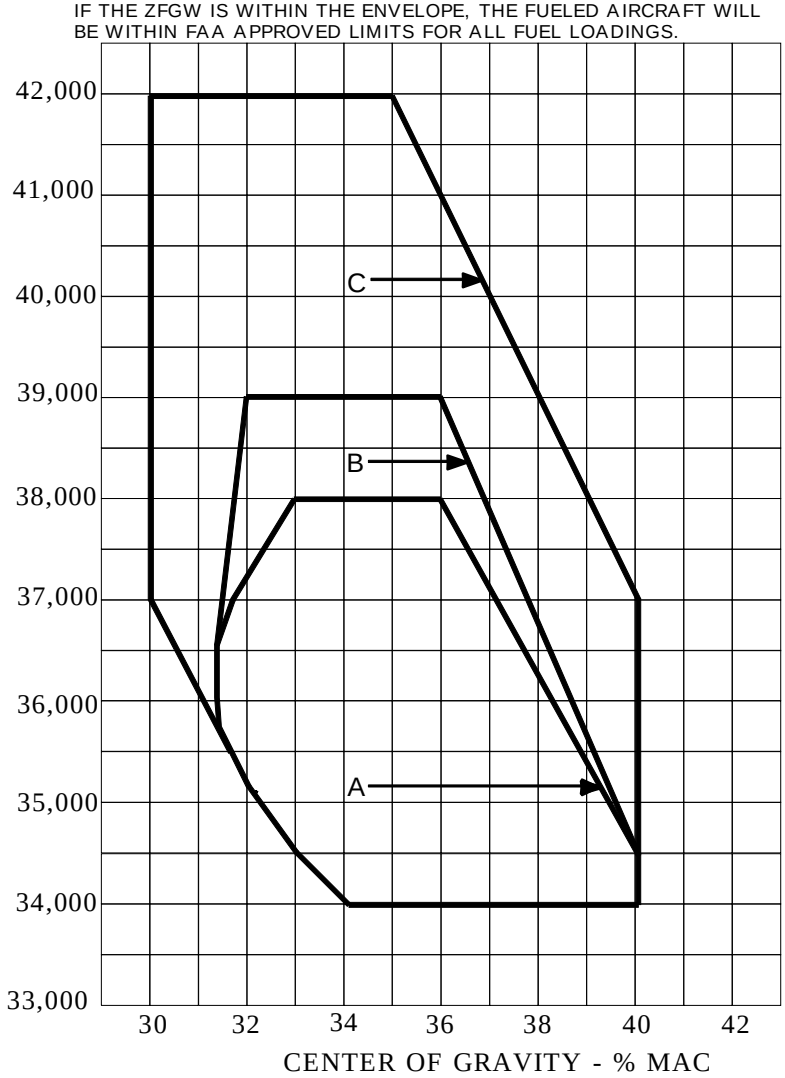
Serial No. Eligible — S/N 1 thru 216, including 775; & S/N 217 thru 299 with Aircraft Service Change 233, except S/N 249 and 252.

GULFSTREAM G-1159 WEIGHT AND CENTER OF GRAVITY
ENVELOPE AT GROUND STATIC ATTITUDE

GULFSTREAM AEROSPACE

G1159 (INCLUDING TIP TANK AIRPLANE) WEIGHT AND BALANCE DATA
ALLOWABLE ZERO FUEL GROSS WEIGHT
CG ENVELOPE

IF THE ZFGW IS WITHIN THE ENVELOPE, THE FUELED AIRCRAFT WILL BE WITHIN FAA APPROVED LIMITS FOR ALL FUEL LOADINGS.



AIRPLANE SERIAL NO.	WITH ASC	ENVELOPE
1 THRU 82 AND 775		A
1 THRU 82 AND 775	10A AND 41	B
83 THRU 100		B
1 THRU 100 AND 775	81 OR 200	C
100 AND SUB EXCLUDING 775		C

II. - Model G-1159, Gulfstream II (Transport Category), Increased Range Airplane (Tip Tanks), Approved May 13, 1977.

Engines: 2 Rolls Royce Spey RB (163-25) 511-8 (Type Certificate E2EU)

Fuel

	Kerosene
American	ASTM D 1655-78 Jet A
	ASTA D 1655-78 Jet A-1
	I.A.T.A. 1988: Kerosene type
	MIL-T-83133 Grade JP-8
British	D Eng. R.D. 2453 Issue 5 (2)
	D Eng. R.D. 2494 Issue 10
Canadian	CAN/CGCB 3.23-M86
CIS	T-1, TS-1 & RT (GOST 10227-86)
	T-7, (GOST 12308-66)
French	AIR 3405/C
Romanian	(3754/73 CS-3))
	STAS 5639

	JP-4 Wide Cut Type (See NOTE 5)
American	ASTM D 1655-89 Jet B
	MIL-T-5624N Grade JP-4
	I.A.T.A. 1987: JP.4 type
British	D Eng. R.D. 2454 Issue 4 (2)
	D Eng. R.D. 2486 Issue 9
Canadian	CAN/CGSB 3.22 M86
CIS	T-2 (GOST 10027-86)
French	AIR 3407/B
German	TL 9130-006 Issue 6

	JP-5 High Flash-Point Type
American	MIL-T-5624N Grade JP-5
British	D Eng. R.D. 2452 Issue 2 (3)
	D Eng. R.D. 2498 Issue 7
Canadian	3-GP-24Ma
French	AIR 3404/C
German	TL 9130-007 Issue 4

Fuel shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Oil

Castrol 3C and 325
Aeroshell Turbo Oil 390 and 500
Esso/Exxon 2380
Mobil Jet Oil II
Chevron Jet Engine Oil 5
Caltex RPM Jet Engine Oil 5
Texaco SATO 7730

NOTE: Mixing of oils is not recommended for APU.

Oil shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.	
Takeoff (5 min.)	11,400 lb.
Maximum continuous	10,940 lb.

Maximum permissible engine rotor operating speeds:
N1 (low compressor) (106.6%) 8,950 rpm
N2 (high compressor) (100.1%) 12,500 rpm

Engine Limits (con't)

Maximum permissible temperatures:

Turbine outlet gas (Trimmer Resistors, Inc.)		
Takeoff (5 min.)		585°C
Maximum continuous		540°C
Momentary maximum during starts and relights		570°C
Maximum with reverse thrust (30 second limit)		490°C
Maximum over-temperature (20 second limit)		610°C
Engines with S.B. Sp 77-43	(20 second limit)	615°C
	(120 second limit)	595°C
Oil inlet		100°C
Oil inlet (15 min. limit)		120°C
Fuel inlet temperature to engine high pressure pump		90°C
Fuel inlet temperature (15 min. limit)		110°C

Maximum Air Bleed Extraction
(Percent of no bleed mass flow)

Maximum engine high pressure bleed	2.45%
Maximum engine low pressure bleed	3.65%

Auxiliary Power Unit (APU)

AirResearch GTCP-36-6: S/N 1 thru 248 and 775

Maximum permissible exhaust gas temperature	700°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	20Kva
APU rated output shaft power (with 50 lb. per min. bleed air and ambient temperature of 113°F)	10hp

AirResearch GTCP-36-100G: S/N 250 thru 299, except 252

Maximum permissible exhaust gas temperature -	
- Up to 60% rpm during start	988°C
60% - 100% during start	821°C to 732°C (linear decrease)
-Running	732°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	20Kva
APU rated output shaft power (with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	50hp

Airspeed Limits (CAS)

V_{mo}	(Maximum operating)		
	345 mph (300 knots) at S.L. to 389 mph (338 knots) at 28,100 ft.		
M_{mo} =	.85 @ 28,100 ft and above		
V_a	(Maneuvering)	184 mph	160 knots
V_{sb}	(Speed brake)		
	Sea level to 33,500 ft.	345 mph	300 knots
M_{sb} =	.85 @ 33,500 ft. and above		
V_{fe}	(Flaps down to 39°)	196 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mca}	(Minimum control air)	117 mph	102 knots
V_{ll}	(Landing light operation)	288 mph	250 knots

Maximum Operating Altitude — 43,000 feet (airplanes modified by Aircraft Service Change 299 are approved to 45,000 feet.)

Maximum Weight (lb.)

Aircraft S/N	With ASC*	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
1 thru 216 & 775	200	42,000	66,000	65,500	58,500
217 thru 299, except 249 & 252	- -	42,000	66,000	65,500	58,500

*See NOTE 6 and "Serial No. Eligible."

Datum — Station 0 is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.

M.A.C. — 147.28 in. (L.E. of M.A.C. = Fuselage Station 404.13)

Fuel Capacity — Gravity or Pressure Fueling:

Total	26,936 lb.
Usable	26,800 lb.
Arm*	+445.2

Fuel weights based upon fuel density of 6.75 lb. per gal.
See NOTE 1 for system fuel and unusable fuel.

*Arm based on ground static attitude (-1.5°FRL)

Oil Capacity

Engine Oil	13.7lb./14.6 U.S. pints-left engine (Arm = +564.0)
	14.6 lb./15.6 U.S. pints-right engine (Arm = +564.0)
APU Oil	5.1 lb./5.4 U.S. pints (Arm = +620.0)

Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.
Capacities shown are for engine oil tankage only.
Total engine oil is an additional 14 lb. per engine.

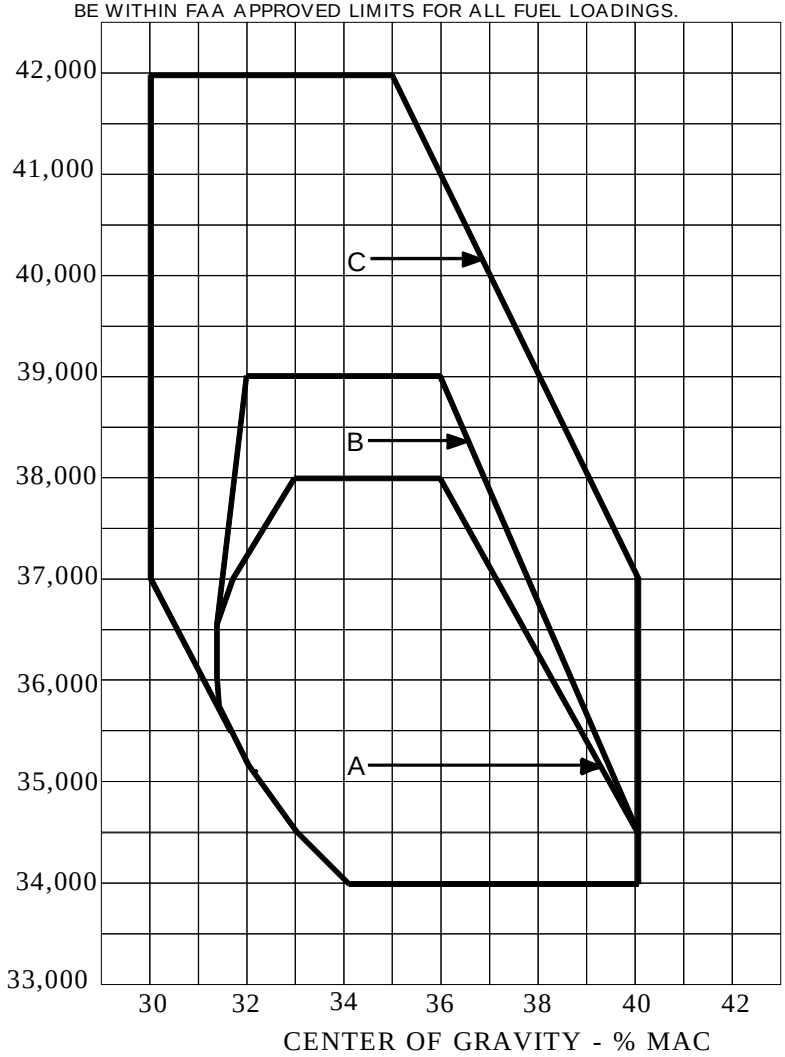
Serial No. Eligible — S/N 1 thru 216 and 775 with Aircraft Service Change 200; and S/N 217 thru 299, except 249 and 252.

GULFSTREAM G-1159 WEIGHT AND CENTER OF GRAVITY
ENVELOPE AT GROUND STATIC ATTITUDE
(WITH TIP TANKS)

GULFSTREAM AEROSPACE

G1159 (INCLUDING TIP TANK AIRPLANE) WEIGHT AND BALANCE DATA
ALLOWABLE ZERO FUEL GROSS WEIGHT
CG ENVELOPE

IF THE ZFGW IS WITHIN THE ENVELOPE, THE FUELED AIRCRAFT WILL BE WITHIN FAA APPROVED LIMITS FOR ALL FUEL LOADINGS.



AIRPLANE SERIAL NO.	WITH ASC	ENVELOPE
1 THRU 82 AND 775		A
1 THRU 82 AND 775	10A AND 41	B
83 THRU 100		B
1 THRU 100 AND 775	81 OR 200	C
100 AND SUB EXCLUDING 775		C

III. - Model G-1159A, Gulfstream III (Transport Category), Approved September 22, 1980.

The G-1159A is the same as the G-1159 except for the following differences:

(a) Wing: Span is increased 6 feet, chord increased forward of original front beam, contour changed forward of mid-chord, and 5-foot winglets added.

(b) Fuselage: Addition of a 2-foot section aft of main door, radome extended and contour modified, and new curved windshield and support structure.

(c) Maximum takeoff weight increased to 68,200 lb./69,700 lb.

(d) Various changes to autopilot, flight instruments, and engine instruments.

Engines 2 Rolls Royce Spey RB (163-25) 511-8 (Type Certificate E2EU)

Fuel

	Kerosene
American	ASTM D 1655-78 Jet A
	ASTA D 1655-78 Jet A-1
	I.A.T.A. 1988: Kerosene type
	MIL-T-83133 Grade JP-8
British	D Eng. R.D. 2453 Issue 5 (2)
	D Eng. R.D. 2494 Issue 10
Canadian	CAN/CGCB 3.23-M86
CIS	T-1, TS-1 & RT (GOST 10227-86)
	T-7, (GOST 12308-66)
French	AIR 3405/C
Romanian	(3754/73 CS-3))
	STAS 5639
	JP-4 Wide Cut Type (See NOTE 5)
American	ASTM D 1655-89 Jet B
	MIL-T-5624N Grade JP-4
	I.A.T.A. 1987: JP.4 type
British	D Eng. R.D. 2454 Issue 4 (2)
	D Eng. R.D. 2486 Issue 9
Canadian	CAN/CGSB 3.22 M86
CIS	T-2 (GOST 10027-86)
French	AIR 3407/B
German	TL 9130-006 Issue 6
	JP-5 High Flash-Point Type
American	MIL-T-5624N Grade JP-5
British	D Eng. R.D. 2452 Issue 2 (3)
	D Eng. R.D. 2498 Issue 7
Canadian	3-GP-24Ma
French	AIR 3404/C
German	TL 9130-007 Issue 4

Fuel shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Oil	Castrol 3C and 325 Aeroshell Turbo Oil 390 and 500 Esso/Exxon 2380 Mobil Jet Oil II Chevron Jet Engine Oil 5 Caltex RPM Jet Engine Oil 5 Texaco SATO 7730	
	NOTE: Mixing of oils is not recommended for APU.	
	Oil shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.	
Engine Limits	Static Thrust (std. day) S.L.	
	Takeoff (5 min.)	11,400 lb.
	Maximum continuous	10,940 lb.
	Maximum permissible engine rotor operating speeds:	
	N1 (low compressor) (106.6%) 8,950 rpm	
	N2 (high compressor) (100.1%) 12,500 rpm	
	Maximum permissible temperatures:	
	Turbine outlet gas (Trimmer Resistors, Inc.)	
	Takeoff (5 min.)	585°C
	Maximum continuous	540°C
	Momentary maximum during starts and relights	570°C
	Maximum with reverse thrust (30 second limit)	490°C
	Maximum over-temperature (20 second limit)	610°C
	Engines with S.B. Sp 77-43 (20 second limit)	615°C
	(120 second limit)	595°C
	Oil inlet	100°C
	Oil inlet (15 min. limit)	120°C
	Fuel inlet temperature to engine high pressure pump	90°C
	Fuel inlet temperature (15 min. limit)	110°C
	Maximum Air Bleed Extraction	
	(Percent of no bleed mass flow)	
	Maximum engine high pressure bleed	2.45%
	Maximum engine low pressure bleed	3.65%
Auxiliary Power Unit (APU)	AirResearch GTCP-36-100G	
	Maximum permissible exhaust gas temperature -	
	- Up to 60% rpm during start	988°C
	60% - 100% during start	821°C to 732°C (linear decrease)
	-Running	732°C
	Maximum rotor speed - all conditions	110%
	APU alternator load rating	20Kva
	APU rated output shaft power (with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	50hp

Airspeed Limits (CAS)

V_{mo}	(Maximum operating)		
	Sea level to 28,000 ft.	392 mph	340 knots
M_{mo} =	.85 @ 28,000 ft and above		
V_a	(Maneuvering)	237 mph	206 knots
V_{sb}	(Speed brake)		
	Sea level to 28,000 ft.	392 mph	340 knots
M_{sb} =	.85 @ 28,000 ft. and above		
V_{fe}	(Flaps down to 39°)	195 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mca}	(Minimum control air)	117 mph	102 knots
V_{mcg}	(Minimum control ground)	103 mph	89 knots

Maximum Operating Altitude 45,000 feet

Maximum Weight (lb.)

Aircraft S/N	With ASC *	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
249, 252, 300 thru 426, and 875	- -	42,000	68,700	68,200	58,500
249, 252, 300 thru 426, and 875	70	44,000	70,200	69,700	58,500
427 & Sub	- -	44,000	70,200	69,700	58,500

* See NOTE 6.

Datum

The zero datum is 21 inches forward of the jig point at the centerline of the airplane in the nose wheel well or 193 inches forward of Fuselage Station 193B.

M.A.C.

165.4 in. (L.E. of M.A.C. = Fuselage Station 387.8)

Fuel Capacity

S/N 249, 252, 300 thru 371, and 875:

Gravity or Pressure Fueling:	Total	28,014 lb.
	Usable	27,900 lb.
	Arm*	430.4

S/N 372 and subsequent and S/N 875, 249, 252, and 300 thru 371 with ASC 30:

Gravity or Pressure Fueling:	Total	28,444 lb.
	Usable	28,300 lb.
	Arm*	+423.3

Fuel weights based upon fuel density of 6.75 lb. per gal.

*Arm based on ground static attitude (-1.5° FRL)

Oil Capacity

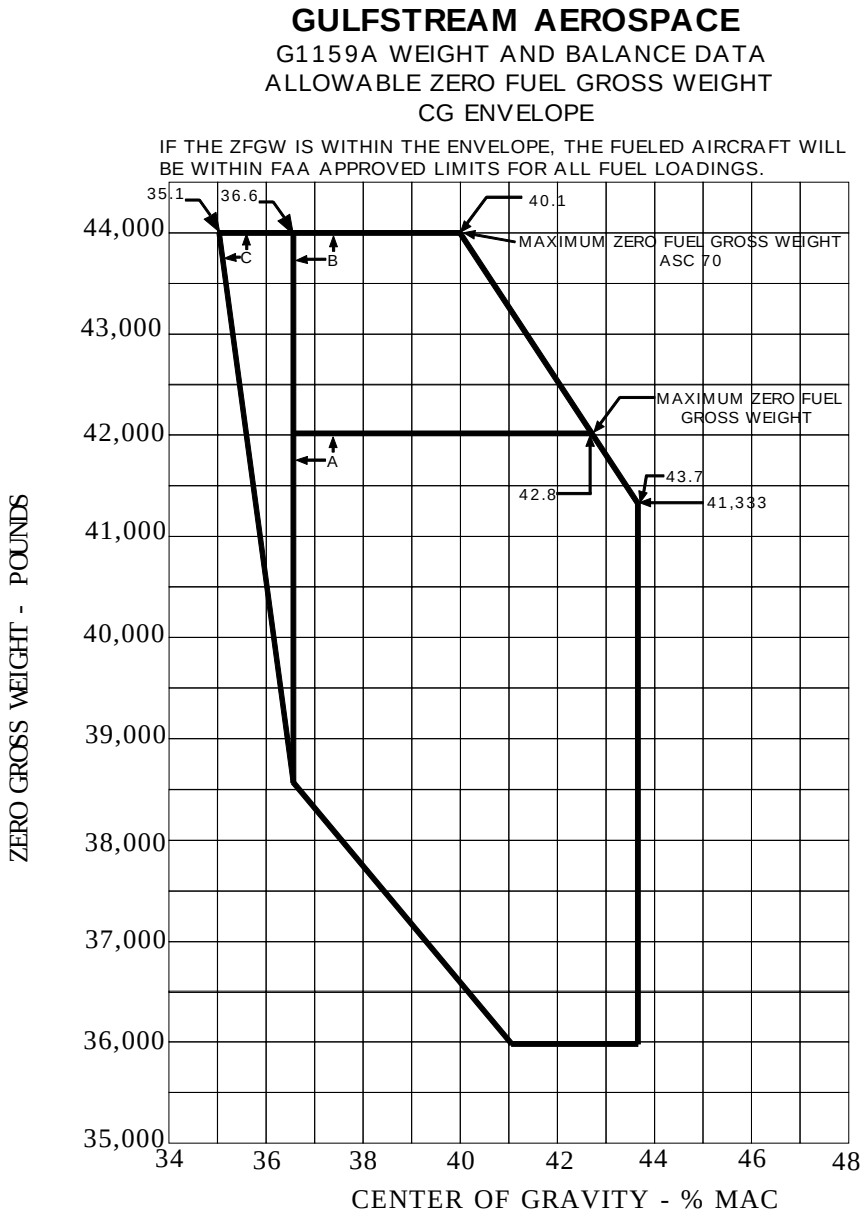
Engine Oil	13.7 lb./14.6 U.S. pints-left engine (Arm = +564.0)
	14.6 lb./15.6 U.S. pints-right engine (Arm = +564.0)
APU Oil	4.75 lb./5.4 U.S. pints (Arm = +620.0)

Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.
Capacities shown are for engine oil tankage only.
Total engine oil is an additional 14 lb. per engine.

Serial No. Eligible

S/N 249, 252, 300 and subsequent, including S/N 875.

GULFSTREAM G-1159A WEIGHT AND CENTER OF GRAVITY
ENVELOPE AT GROUND STATIC ATTITUDE



AIRPLANE SERIAL NO.	WITH ASC	ENVELOPE
249, 252, 300 THRU 428 INCLUDING 875	-	A
249, 252, 300 THRU 426 INCLUDING 875	70 PT I	B
249, 252, 300 THRU 426 INCLUDING 875	70 PT II	C
427 AND SUBS		C

IV. - Model G-1159B, Gulfstream G-IIB (Transport Category), Approved September 17, 1981.

The G-1159B is the same as the G-1159 except for the following differences:

(a) Wing: Span is increased 6 feet, chord increased forward of original front beam, contour changed forward of mid-chord, and 5-foot winglets added.
(b) Fuselage: Addition of optional extended modified contour radome.
(c) Maximum takeoff weight increased to 68,200 lb./69,700 lb.
(d) Various changes to autopilot, flight instruments, and fuel quantity instruments.

NOTE: Model G-1159, all serial numbers, are eligible for identification as Model G-1159B when modified in accordance with GAC Aircraft Service Change (ASC) 300.

Engines: 2 Rolls Royce Spey RB (163-25) 511-8 (Type Certificate E2EU)

Fuel

	Kerosene
American	ASTM D 1655-78 Jet A
	ASTA D 1655-78 Jet A-1
	I.A.T.A. 1988: Kerosene type
	MIL-T-83133 Grade JP-8
British	D Eng. R.D. 2453 Issue 5 (2)
	D Eng. R.D. 2494 Issue 10
Canadian	3-GP-23-M86
CIS	T-1, TS-1 & RT (GOST 10227-86)
	T-7 (GOST 12308-66)
French	AIR 3405/C
Romanian	(3754/73 (CS-3))
	STAS 5639
	JP-4 Wide Cut Type (See NOTE 5)
American	ASTM D 1655-89 Jet B
	MIL-T-5624N Grade JP-4
	I.A.T.A. 1987 JP.4 type
British	D Eng. R.D. 2486 Issue 9
	D Eng. R.D. 2454 Issue 4 (2)
Canadian	CAN/CGSB 3.22 M86 grade
CIS	T-2 (GOST 10027-86)
French	AIR 3407/B
German	TL 9130-006 Issue 6
	JP-5 High Flash-Point Type
American	MIL-T-5624N Grade JP-5
British	D Eng. R.D. 2452 Issue 2 (3)
	D Eng. R.D. 2498 Issue 7
Canadian	3-GP-24Ma
French	AIR 3404/C
German	TL 9130-007 Issue 4

Fuel shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Oil

Castrol 3C and 325
Aeroshell Turbo Oil 390 and 500
Esso/Exxon 2380
Mobil Jet Oil II
Chevron Jet Engine Oil 5
Caltex RPM Jet Engine Oil 5
NOTE: Mixing of oils is not recommended for APU.

Oil shall conform to the specifications as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.

Takeoff (5 min.)	11,400 lb.
Maximum continuous	10,940 lb.

Maximum permissible engine rotor operating speeds:

N1 (low compressor) (106.6%) 8,950 rpm
N2 (high compressor) (100.1%) 12,500 rpm

Maximum permissible temperatures:

Turbine outlet gas (Trimmer Resistors, Inc.)

Takeoff (5 min.)	585°C
Maximum continuous	540°C
Momentary maximum during starts and relights	570°C
Maximum with reverse thrust (30 second limit)	490°C
Maximum over-temperature (20 second limit)	610°C
Engines with S.B. Sp 77-43 (20 second limit)	615°C
(120 second limit)	595°C
Oil inlet	100°C
Oil inlet (15 min. limit)	120°C
Fuel inlet temperature to engine high pressure pump	90°C
Fuel inlet temperature (15 min. limit)	110°C

Maximum Air Bleed Extraction
(Percent of no bleed mass flow)

Maximum engine high pressure bleed	2.45%
Maximum engine low pressure bleed	3.65%

Auxiliary Power Unit (APU)

AirResearch GTCP-36-100G

Maximum permissible exhaust gas temperature -	
- Up to 60% rpm during start	988°C
60% - 100% during start	821°C to 732°C (linear decrease)
-Running	732°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	20Kva
APU rated output shaft power (with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	50hp

AiResearch GTCP-36-6

Maximum permissible exhaust gas temperature	700°C
Maximum rotor speed - all conditions	110%
APU Alternator load rating	20Kva
APU rated output shaft power (with 50 lb. per min. bleed air and ambient temperature of 113°F)	10hp

Airspeed Limits (CAS)	V_{mo}	(Maximum operating)		
		Sea level to 28,000 ft.	392 mph	340 knots
	M_{mo} =	.85 @ 28,000 ft and above		
	V_a	(Maneuvering)	237 mph	206 knots
	V_{sb}	(Speed brake)		
		Sea level to 28,000 ft.	392 mph	340 knots
	M_{sb} =	.85 @ 28,000 ft. and above		
	V_{fe}	(Flaps down to 39°)	195 mph	170 knots
		(Flaps down to 20°)	253 mph	220 knots
		(Flaps down to 10°)	288 mph	250 knots
	V_{lo}	(Landing gear operation)	259 mph	225 knots
	V_{le}	(Landing gear extended)	288 mph	250 knots
	V_{mca}	(Minimum control air)	115 mph	100 knots
	V_{mcg}	(Minimum control ground)	103 mph	89 knots

Maximum Operating Altitude 45,000 feet

Maximum Weight (lb.)

Aircraft Mod. No.	With ASC *	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
1 & Sub.	- -	42,000	68,700	68,200	58,500
1 & Sub.	275	44,000	70,200	69,700	58,500

* See NOTE 6.

Datum Station 0 is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.

M.A.C. 165.39 in. (L.E. of M.A.C. = Fuselage Station 387.81)

Fuel Capacity

Modification Nos. 1 thru 8
Gravity or Pressure Fueling:

Total	28,014 lb.
Usable	27,900 lb.
Arm*	+430.4

Modification Nos. 9 and Subsequent.
Gravity or Pressure Fueling:

Total	28,444 lb.
Usable	28,300 lb.
Arm*	+423.3

Fuel weights based upon fuel density of 6.75 lb. per gal.

*Arm based on ground static attitude (-1.5° FRL)

Oil Capacity

Engine Oil	13.7 lb./14.6 U.S. pints-left engine (Arm = +564.0)
	14.6 lb./15.6 U.S. pints-right engine (Arm = +564.0)
APU Oil	4.75 lb./5.4 U.S. pints (Arm = +620.0)

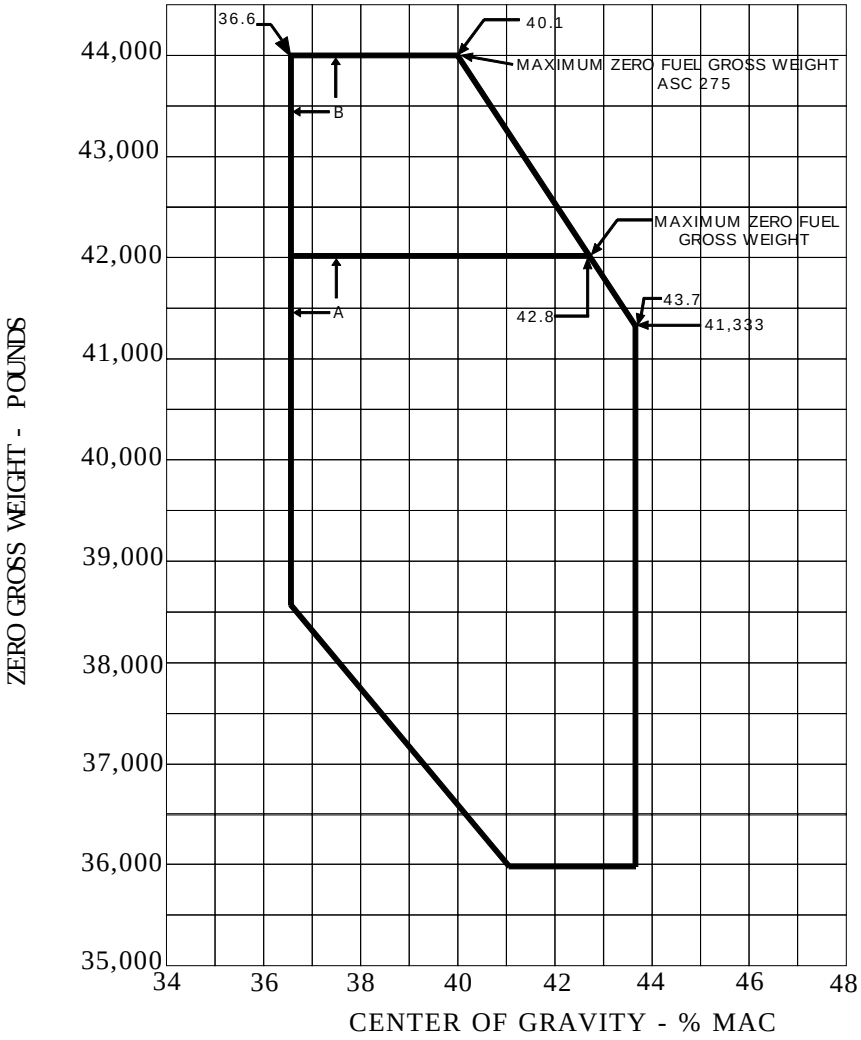
Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.
Capacities shown are for engine oil tankage only.
Total engine oil is an additional 14 lb. per engine.

Serial No. Eligible G-1159; S/N 1 thru 299, including 775, excluding 249 & 252, when modified by Aircraft Service Change 300.

GULFSTREAM AEROSPACE

G1159B WEIGHT AND BALANCE DATA
ALLOWABLE ZERO FUEL GROSS WEIGHT
CG ENVELOPE

IF THE ZFGW IS WITHIN THE ENVELOPE, THE FUELED AIRCRAFT WILL BE WITHIN FAA APPROVED LIMITS FOR ALL FUEL LOADINGS.



MODIFICATION NO.	WITH ASC	ENVELOPE
1 AND SUBS	-	A
1 AND SUBS	275	B

V. - Model G-IV (Transport Category), Approved April 22, 1987.

Engines	2 Rolls Royce Tay Mark 611-8	(FAA Type Certificate No. E25NE) (LBA/EASA Type Certificate No. 6327)	
Fuel		Kerosene	
	American	ASTM D 1655, Jet A	
		ASTM D 1655, Jet A-1	
		MIL-T-83133, Grade JP8	
		MIL-DTL-83133	
	British	Def. Stan. 91-87	
		Def. Stan. 91-91	
	Canadian	CAN/CGSB-3.23	
	Chinese	GB 6537-94 No. 3	
	CIS	GOST 10227-86, T-1, TS-1 & RT	
	French	DCSEA 134	
		JP-4 Wide Cut Type (See NOTE 5)	
	American	ASTM D 1655, Jet B	
		ASTM D6615	
		MIL-DTL-5624, Grade JP4	
		MIL-PRF-5624 Grade JP4	
	British	DEF. STAN. 91-88	
	Canadian	CAN/CGSB-3.22	
		JP-5 High Flash - Point Type	
	American	MIL-DTL-5624, Grade JP5	
		MIL-PRF-5624 Grade JP5	
	British	Def. Stan. 91-86	
	Canadian	3-GP-3.24	
	French	DCSEA 144	

Fuel shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

Oil

The following oils are approved for use in the engine and APU:

3 Centistoke
Aeroshell Turbo Oil 390
Castrol 3C Turbine Oil
Castrol 325 Engine Oil
ESSO/Exxon Turbo 2389

5 Centistoke
Esso/Exxon Turbo Oil 2380
Mobil Jet Oil II
Mobil Jet Oil 254
Castrol 5000 Gas Turbine Oil
Aeroshell Turbine Oil ATO 500

NOTE: Mixing of oils is not recommended for APU.

NOTE: Mixing of oils is not recommended but brands may be mixed if operationally essential. Oils of the above brands, when reclaimed to the approved Rolls-Royce standard for viscosity and grade, are approved for use.

Oil shall conform to the specification as listed or to subsequent revisions in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.	
Rated Takeoff (See Note 14)	13,850 lb.
Rated Maximum continuous	12,420 lb.

Engine Limits (con't)

Maximum permissible continuous rotor operating speeds:

N1 (low compressor)	(95.5%)	8,015 rpm
N2 (high compressor)	(97.5%)	12,172 rpm

Maximum permissible temperatures (°C):
Turbine gas temp measured at nozzle guide vanes ahead of first low stage pressure turbine:

Takeoff (See Note 14)	800°
Maximum continuous	715°
Momentary maximum during ground starts	700°
Momentary maximum during airstarts (relights)	780°
Maximum over-temperature (20 second limit)	820°
Oil temp (minimum for starting)	-40°
Oil temp (maximum)	105°
Oil temp (15 minute limit)	120°
Fuel inlet temp to engine high pressure pump	90°
Fuel inlet temperature (15 min. limit)	120°

Maximum Permissible Air Bleed Extraction

7th Stage HPC Bleed	7.0 lb./sec
12th Stage HPC Bleed (max continuous and below)	10.0 lb./sec
Fan Bleed	10.5 lb./sec

Auxiliary Power Unit (APU)

AirResearch GTCP-36-100G
Maximum permissible exhaust gas temperature -

Up to 60% rpm during start	988°C
60% - 100% during start	821°C to 732°C (linear decrease)
Running	732°C
Maximum rotor speed - all conditions	110%
APU alternator load rating	30Kva
APU rated output shaft power	50hp

(with 46.6 lb. per min. bleed air and ambient temp of 103°F)

Honeywell 36-150(G) (S/N 1000 -1535 by ASC 465)
Maximum permissible exhaust gas temperature-

Up to 50% rpm during start	1785ºF
51% - 87% during start	1785ºF to 1350ºF (linear decrease)
87% - 100% during start	1350ºF
Running	1230ºF
Maximum rotor speed - all conditions:	110.70%
APU alternator load rating	30Kva
APU rated output shaft power	47.3hp

(with 66.8 lb. per min. bleed air)

Airspeed Limits (CAS)

V_{mo}/M_{mo}	(Maximum operating) See Altitude/Mach Flight Operating Envelope		
V_a	(Maneuvering)	195 mph	170 knots
		235 mph (1)	206 knots (1)
V_{fe}	(Flaps down to 39°)	196 mph	170 knots
		206 mph (1)	180 knots (1)
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mcg}	(Minimum control ground)	128 mph	111 knots
V_{mca}	(Minimum control air)	120 mph	104 knots

(1) Aircraft S/N 1000 thru 1213 with 1159SB41190, S/N 1214 and subsequent

Maximum Operating Altitude 45,000 feet

Maximum Weight (lb.)

Aircraft S/N	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
1000 thru 1213	46,500	73,600	73,200	58,500
1000 thru 1213 with ASC 61	49,000	73,600	73,200	58,500
1000 thru 1213 with ASC 261	49,000	73,600	73,200	58.500
1000 thru 1213 with ASC 190	49,000	75,000	74,600	66,000
1214 & Sub	49,000	75,000	74,600	66,000
1500 & Subs with ASC 440 (G400)	49,000	75,000	74,600	66,000
1500 & Subs with ASC 436 (G300)	49,000	72,400	72,000	66,000

Datum For weight and balance purposes, the zero datum is 15 inches aft of the jig point at the centerline of the airplane in the nose wheel well or 206 inches forward of Fuselage Station 206.

M.A.C. 166.22 in. (L.E. of M.A.C. = Fuselage Station 387.7)

Fuel Capacity

Gravity or Pressure Fueling:		GIV/GIV(G400)	GIV(G300)
	Total	29,605 lb	27,005 lb
	Usable	29,500 lb.	26,900 lb
	Arm*	+430.4	+426.5

Fuel weights based upon fuel density of 6.75 lb. per gal.
*Arm based on ground static altitude (-1.5° FRL)

Oil Capacity Total engine oil capacity 14.0 lb./14.4 U.S. pints (each engine)

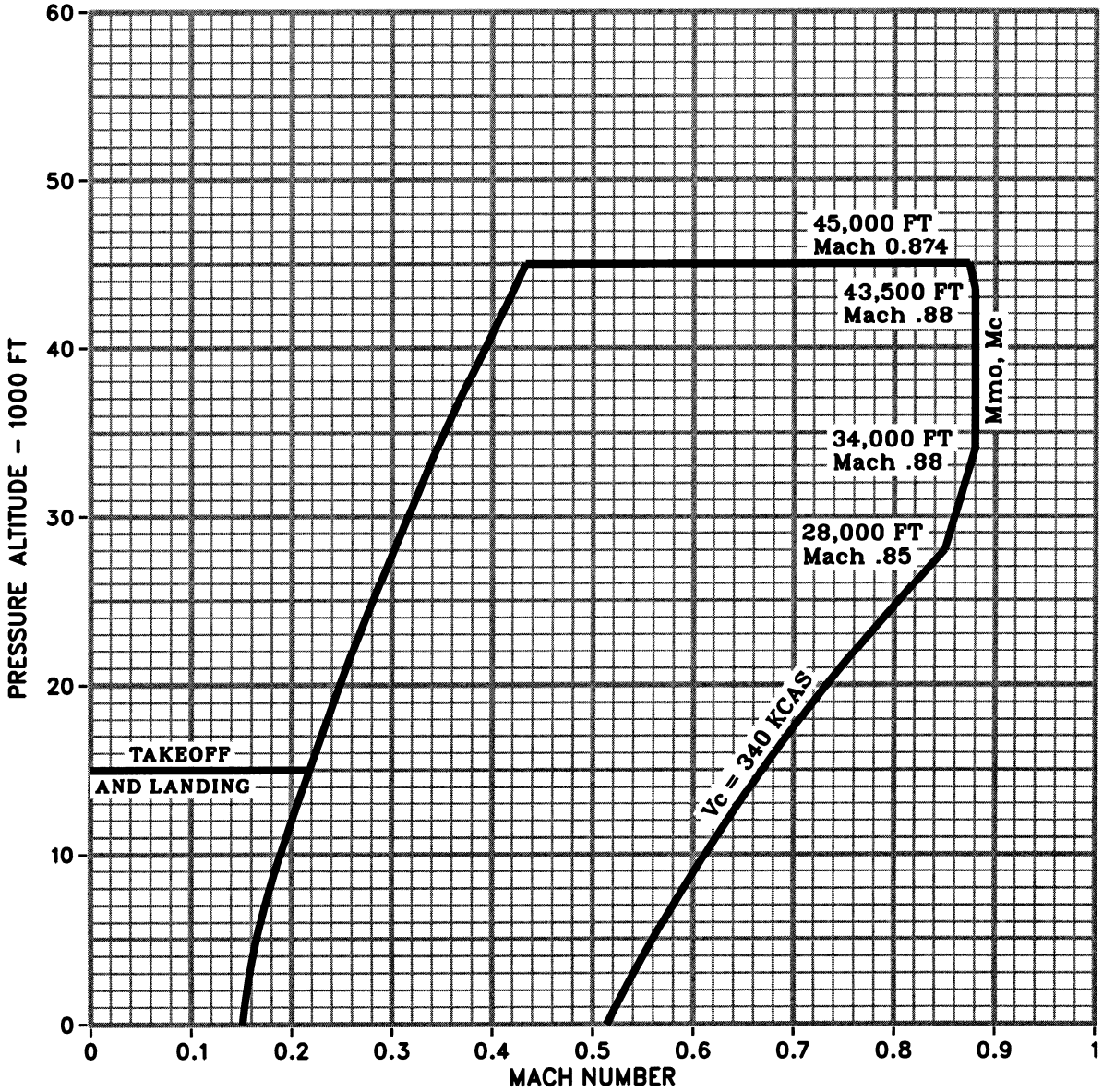
Usable engine oil capacity 10.1 lb./10.8 U.S. pints (each engine)
(Arm = +582.00)
Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.
Capacities shown are for engine oil tankage only.
Total engine oil is an additional 16.8 lb. per engine.

APU oil 4.75 lb./5.0 U.S. Pints
(Arm = +620.0)

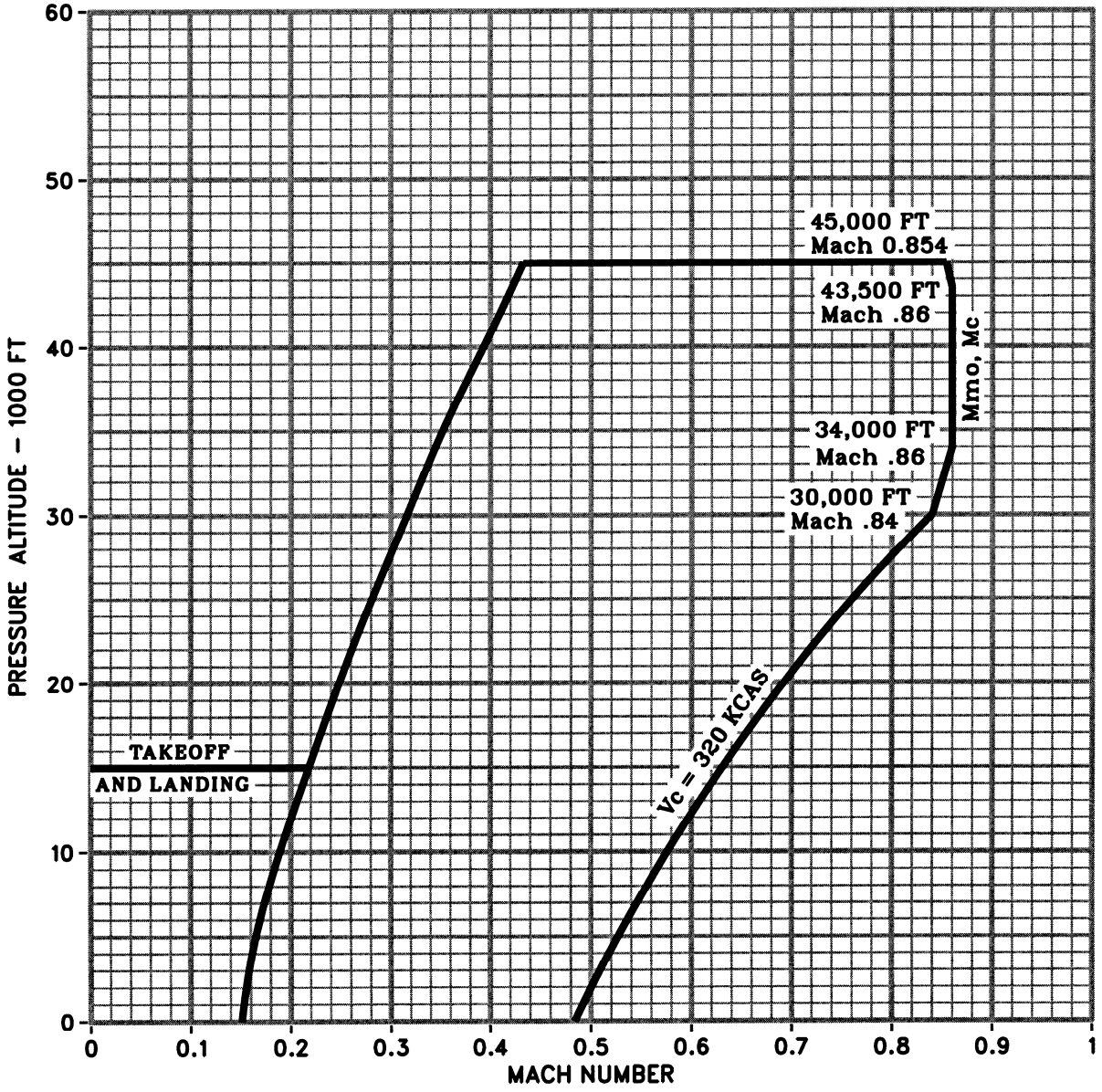
Serial No. Eligible S/N 1000 through 1535 (1500-1535 are G300/G400).

AIRSPEED LIMITS (MAXIMUM OPERATING)

ALTITUDE / MACH FLIGHT ENVELOPE
(S/N 1000 AND SUBSEQUENT)



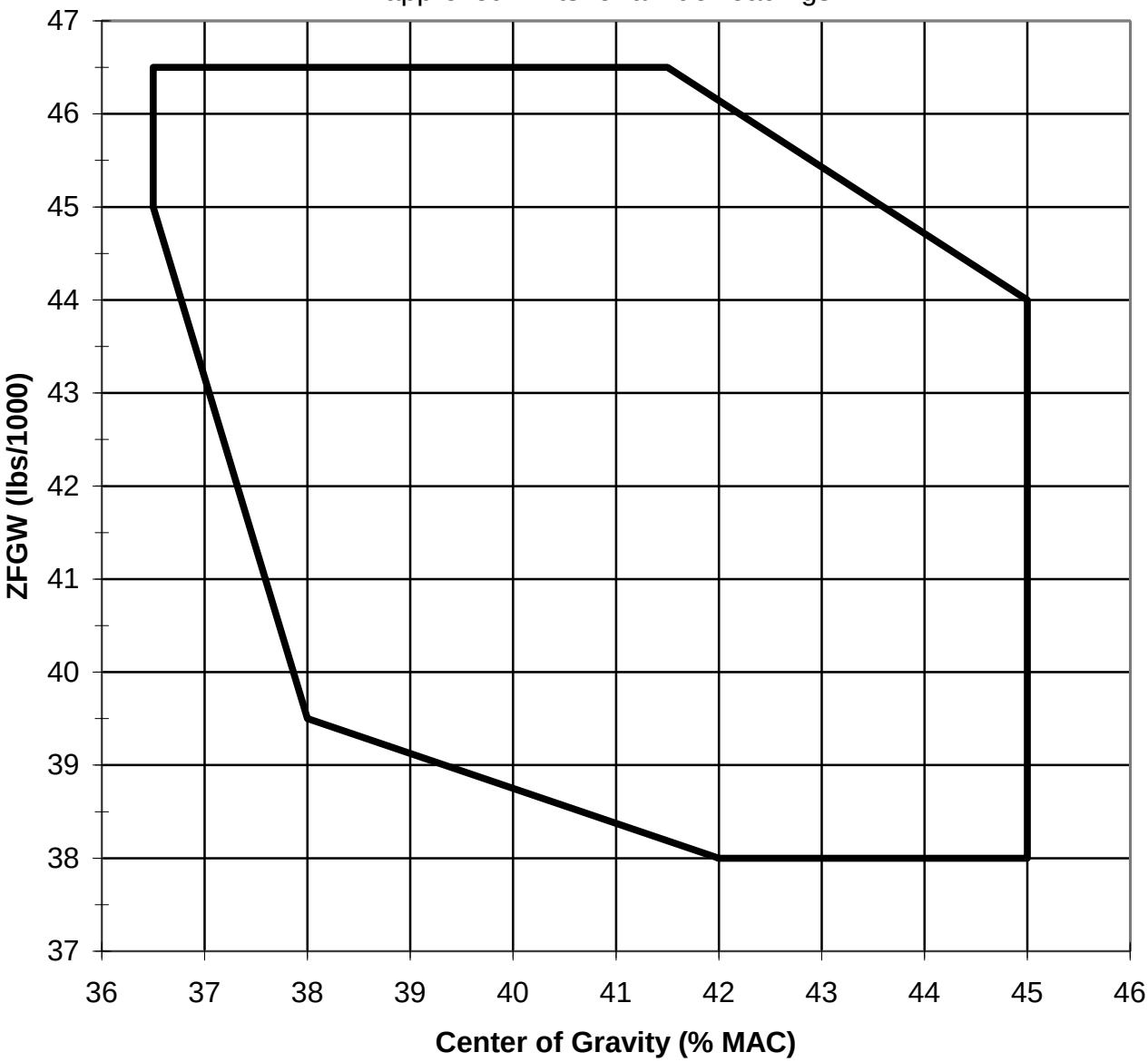
ALTITUDE / MACH FLIGHT ENVELOPE
(S/N 1000 – 1213 WITH ASC 61)



Aircraft Zero Fuel Gross Weight Envelope

For SN 1000-1213			
Maximum Weight (lbs)			
Zero Fuel	Landing	Ramp	Takeoff
46,500	58,500	73,600	73,200

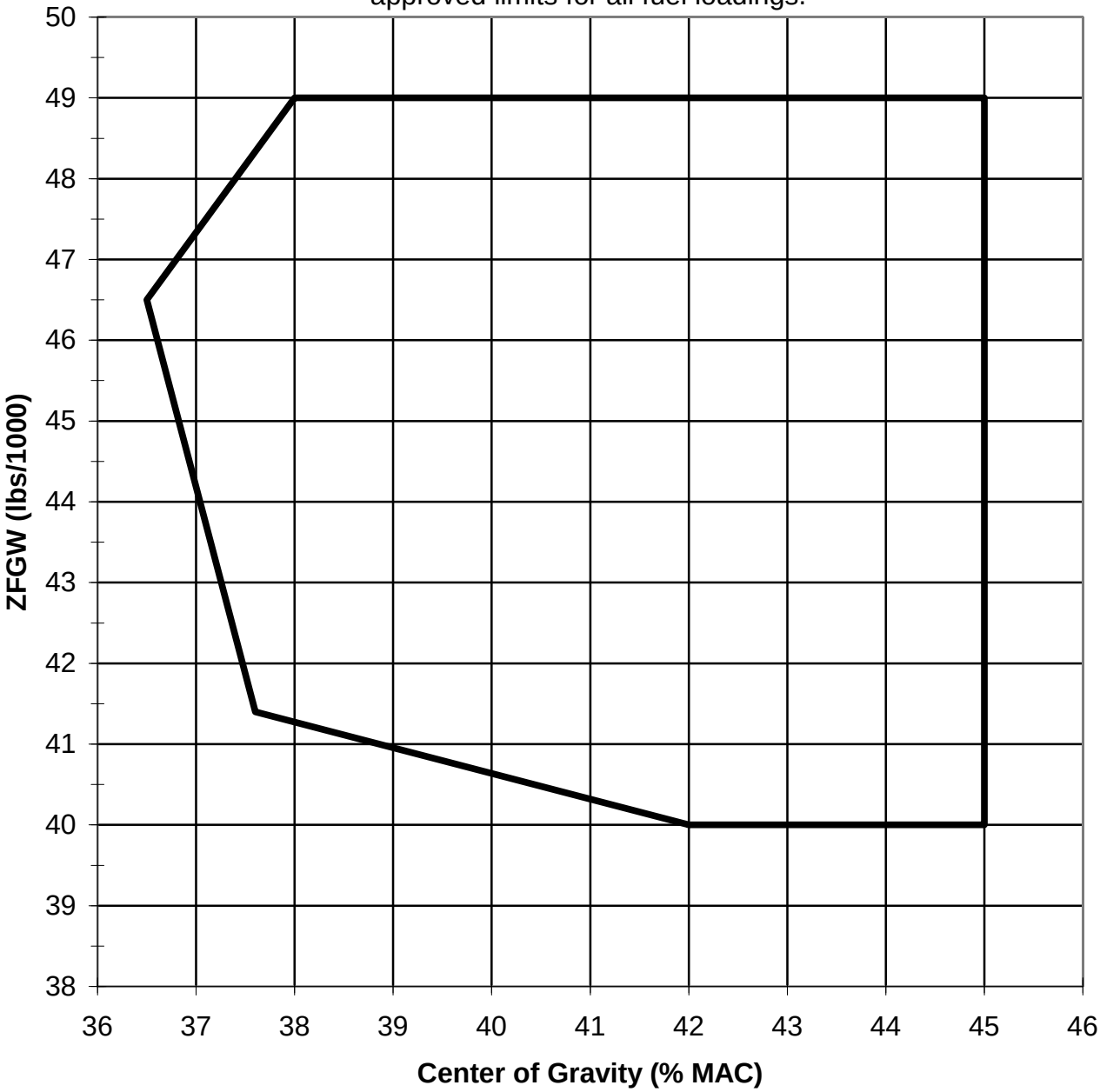
If the ZFGW is within the envelope, the fueled aircraft will be within FAA approved limits for all fuel loadings.



Aircraft Zero Fuel Gross Weight Envelope

For SN 1000-1213 with ASC 61			
Maximum Weight (lbs)			
Zero Fuel	Landing	Ramp	Takeoff
49,000	58,500	73,600	73,200

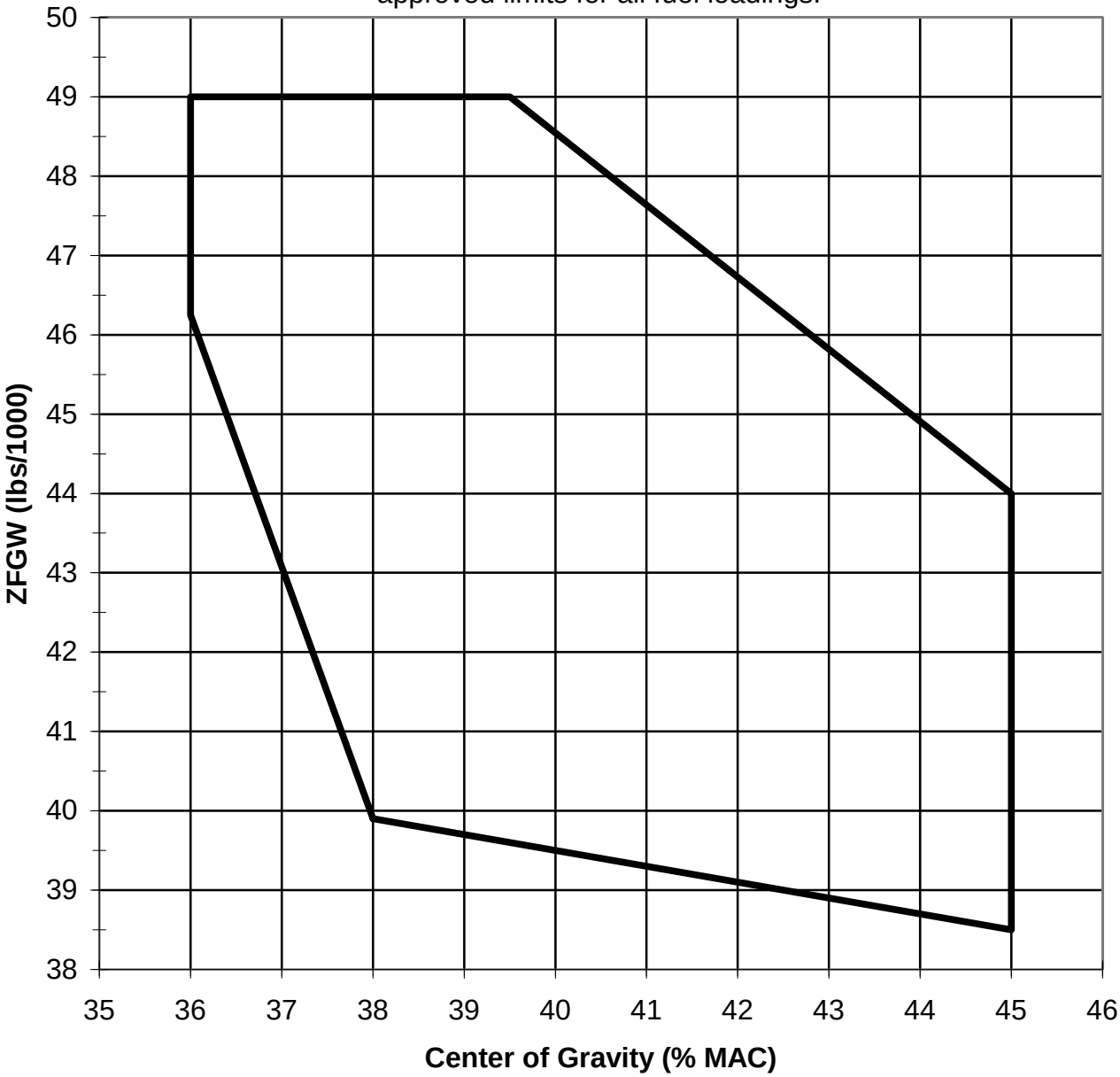
If the ZFGW is within the envelope, the fueled aircraft will be within FAA approved limits for all fuel loadings.



Aircraft Zero Fuel Gross Weight Envelope

For SN 1000-1213 with ASC 261			
Maximum Weight (lbs)			
Zero Fuel	Landing	Ramp	Takeoff
49,000	58,500	73,600	73,200

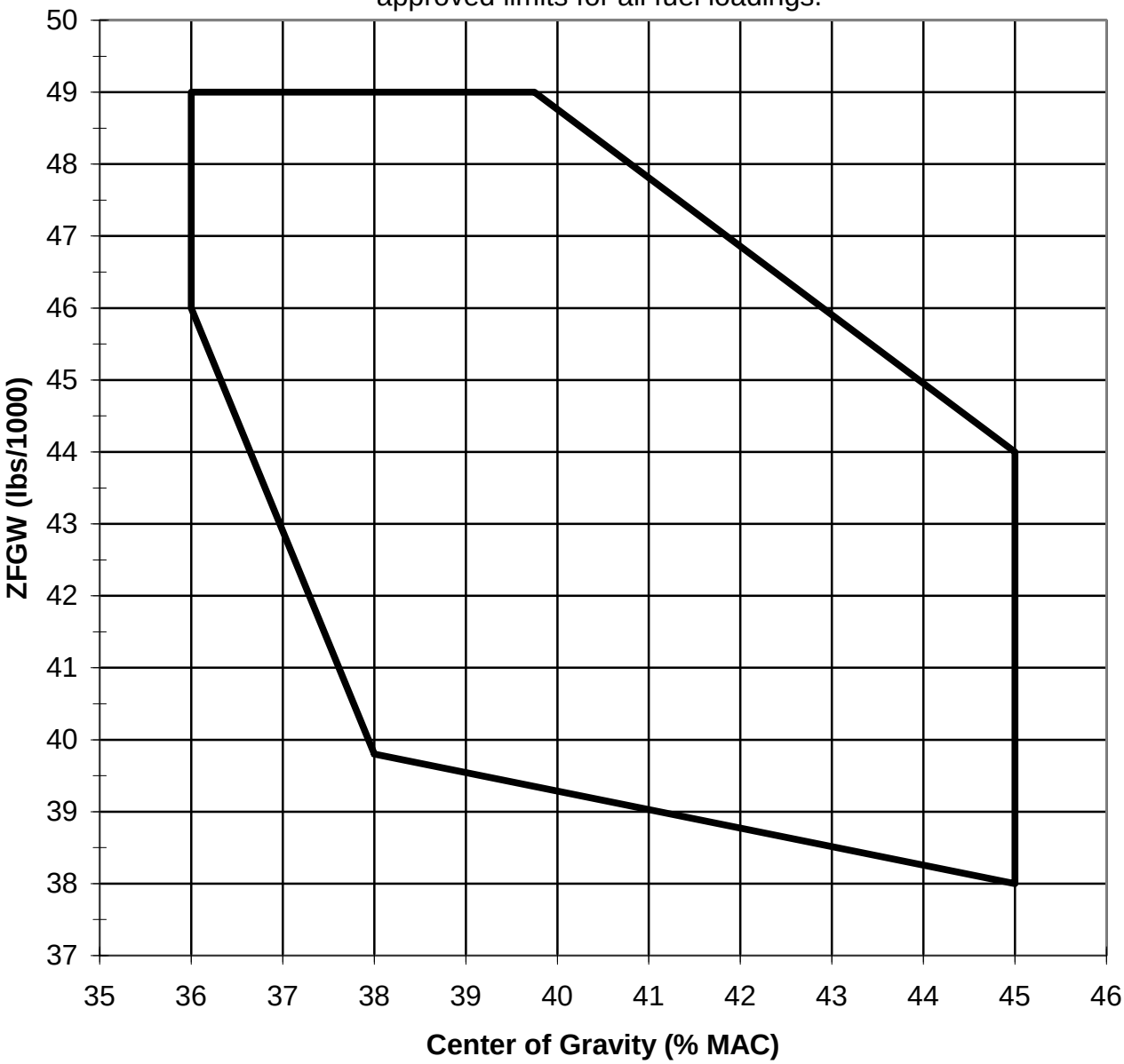
If the ZFGW is within the envelope, the fueled aircraft will be within FAA approved limits for all fuel loadings.



Aircraft Zero Fuel Gross Weight Envelope

For SN 1214 and Subs. and SN 1000-1213 with ASC 190 and SN 1500 and Subs. with ASC 440			
Maximum Weight (lbs)			
Zero Fuel	Landing	Ramp	Takeoff
49,000	66,000	75,000	74,600

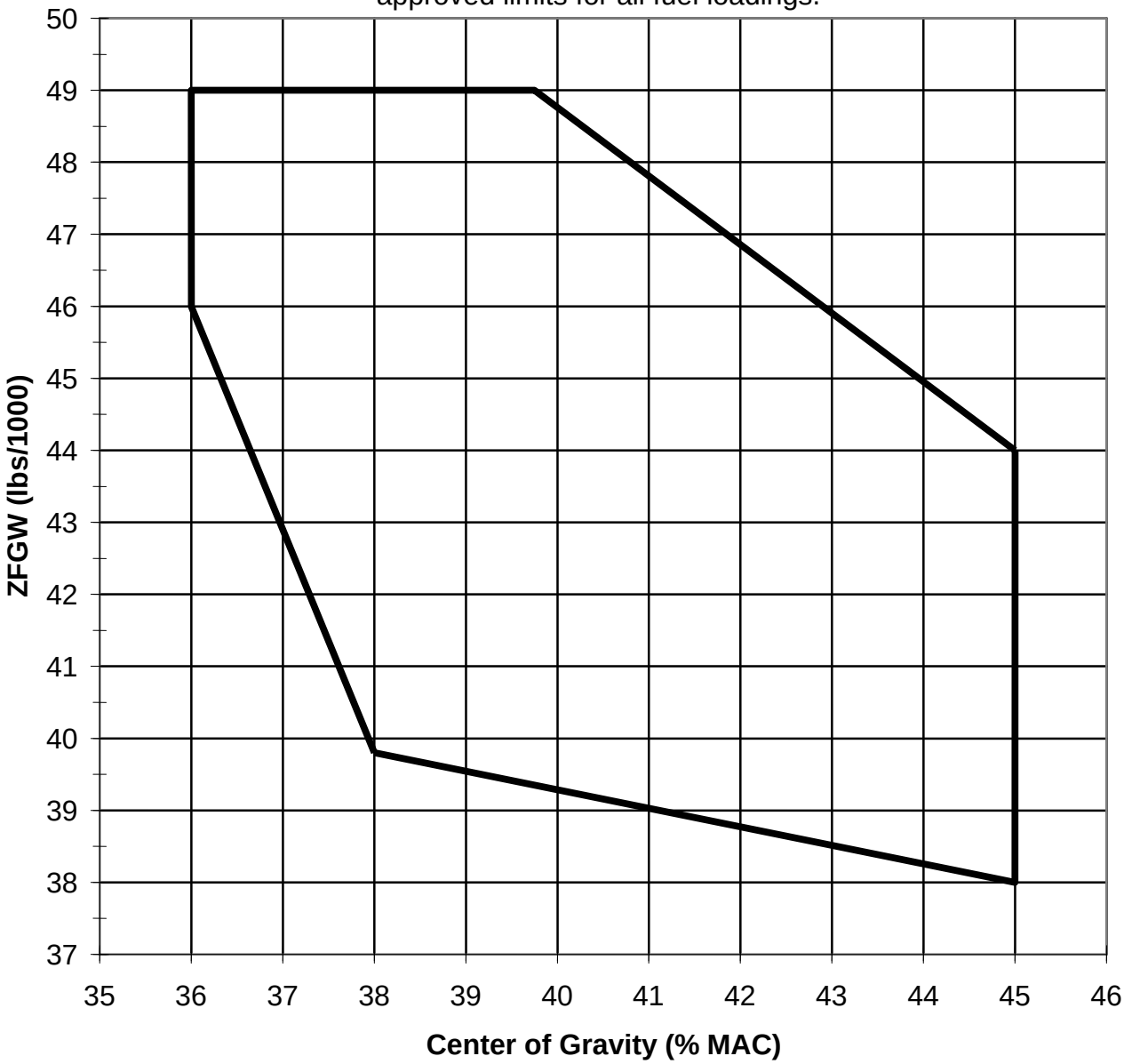
If the ZFGW is within the envelope, the fueled aircraft will be within FAA approved limits for all fuel loadings.



Aircraft Zero Fuel Gross Weight Envelope

For SN 1500 and Subs. with ASC 436			
Maximum Weight (lbs)			
Zero Fuel	Landing	Ramp	Takeoff
49,000	66,000	72,400	72,000

If the ZFGW is within the envelope, the fueled aircraft will be within FAA approved limits for all fuel loadings.



VI. - Model GV (Transport Category), Approved April 11, 1997

The Gulfstream GV is the same as the Gulfstream G-IV except for the following differences:

- approximately 15% increase in maximum takeoff and landing weights
- maximum operating altitude increase from 45,000 ft to 51,000 ft
- engine change from Rolls Royce Tay to Rolls Royce Deutschland BR700-710A1-10 (increased thrust and higher bypass ratio)
- addition of Full Authority Digital Engine Controls (FADEC)
- wing span increased from 74.6 ft to 93.5 ft
- additions to the fuselage of a 5 foot section forward of the main entry door, and a 2 foot section aft of the wing
- approximately 30% increase in horizontal tail area
- addition of composite material flight control surfaces and thrust reversers

Engines

2 BMW - Rolls Royce Deutschland BR700-710A1-10 (FAA Type Certificate No. E00057EN) (EASA Type Certificate No. E.018)

Fuel

	Kerosene
American	ASTM D 1655-92, Jet A
	ASTM D 1655-92, Jet A-1
	MIL-DTL-83133, Grade JP-8
	GSTU 320.00149943.007-97
	GSTU 320.00149943.011-99
British	Def. Stan.91-87
	Def. Stan. 91-91
Canadian	CAN/CGSB-3.23
Chinese	GB 6537-94 No. 3
CIS	GOST 10227-86, T- 1, TS-1 & RT
French	DCSEA 134/A

	JP-4 Wide Cut Type (See NOTE 5)
American	ASTM D6615
	MIL-DTL-5624 (JP4 Grade)
British	Def. Stan.91-88
Canadian	CAN/CGSB-3.22-2001
CIS	GOST 10277-86

	JP-5 High Flash-Point Type
American	MIL-DTL-5624 JP5 Grade
British	Def. Stan. 91-86
Canadian	3-GP-3.24
French	DCSEA 144/A

Fuel shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual (AFM).

See AFM for information on high flash point fuels.

Oil

The following oils are approved for use in the engine and APU:

3 Centistoke Type Oils:	Aeroshell Turbine Oil 390
5 Centistoke Type Oils:	Aeroshell Turbine Oil 500
	Castrol Aero 5000
	Exxon Turbo Oil 2380
	Mobil Jet Oil II
	Mobil Jet Oil 254

NOTE: Mixing of oils is not recommended for APU.

NOTE: Mixing of oils is not recommended but brands may be mixed if operationally essential. Oils of the above brands, when reclaimed to the approved standard for viscosity and grade, are approved for use.

Oil shall conform to the specification as listed or to subsequent revisions in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.

Takeoff (5 min.)	14,750 lb.
Maximum continuous	14,450 lb.

Maximum permissible engine rotor operating speeds:

N1 (low pressure compressor)		
Maximum Takeoff (see Note 14)	(101.1%)	7,513 rpm
Maximum Continuous	(101.0%)	7,505 rpm
Maximum Overspeed (20 seconds)	(101.5%)	7,542 rpm
Reverse Thrust (30 seconds)	(70%)	5,201 rpm
N2 (high pressure compressor)		
Maximum Takeoff (see Note 14)	(99.6%)	15,834 rpm
Maximum Continuous	(98.9%)	15,723 rpm
Maximum Overspeed (20 seconds)	(99.8%)	15,866 rpm

100% N1 equals 7,431 rpm
100% N2 equals 15,898 rpm

Maximum permissible temperatures (°C):
Turbine gas temperature measured at nozzle guide vanes ahead of first low stage pressure turbine:

Takeoff (see Note 14)	900°
Maximum continuous	860°
Maximum prior to start	150°
Maximum overtemperature (20 seconds limit)	905°
Momentary maximum during ground starts	700°
Momentary maximum during inflight restarts	850°
Oil temp (minimum before accelerating for T/O)	+20°
Oil temp (minimum for starting)	-30°
Oil temp (maximum)	160°
Fuel inlet temperature to low pressure pump at S.L.	54°
Fuel outlet temperature from engine high pressure pump (unrestricted maximum)	158°
Fuel outlet temperature (15 min. limit)	165°
Fuel inlet temperature (minimum)	-40°

Bleed Extraction
EPR = P50/P2: The amounts of bleed extraction from stages 5 and 8, respectively, are related to the core entry mass flow, W26. The amount of fan bleed extraction is related to the fan entry mass flow, W1A.

Power Range	Normal Flow (%)			Maximum Flow (%)		
	Stage 5	Stage 8	Fan	Stage 5	Stage 8	Fan
Idle to 1.06 EPR	*****	7.8	*****	3.0	12.1	0.6
1.06 to 1.3 EPR	4.4	4.2	0.2	8.3	7.9	1.6
Above 1.3 EPR	4.3	*****	0.4	8.5	*****	1.8

Auxiliary Power Unit (APU)

Allied Signal - Model RE220 {GV}

Rated Output Shaft Power	62 hp (continuous)
	70 hp (5 minutes)
	101 hp (5 seconds)
Maximum Generator Output Shaft Speed	12,000 rpm
Maximum Exhaust Gas Temp (EGT) at Rated Output	1241 °F (T_2 = 140 °F)
Maximum Allowable Rotor Speed	48,320 rpm (T_2< 115 °F)
Maximum Allowable EGT	Starting: 1922 °F (1050 °C)
	[for T_2 < -20 °F (-29 °C), P_2 > 6.75 psia]
	Operating: 1350 °F (732 °C)
	[for T_2=140 °F (60 °C)]

Airspeed Limits (CAS)

		(mph)	(KCAS)
V_{mo}/M_{mo}	(Maximum operating)		
	See AFM for Altitude/Mach Flight Operating Envelope		
V_a	(Maneuvering)	237 mph	206 knots
V_{fe}	(Flaps down to 39°)	190 mph	165 knots
	(Flaps down to 39° with ASC19A or 73A incorporated)	196 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mcg}	(Minimum control ground)	118 mph	103 knots
V_{mca}	(Minimum control air)	129 mph	112 knots

Maximum Operating Altitude

51,000 feet

Maximum Weight (lb.)

Aircraft S/N	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
501 & Subs	54,500	90,900	90,500	75,300

Datum

For weight and balance purposes, the zero datum is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.

M.A.C.

171.19 in. (L.E. of M.A.C. = Fuselage Station 524.74)

Fuel Capacity

Gravity or Pressure Fueling:

	S/N 501 thru 548 Without ASC 50	S/N 549 and subs, and 501 thru 548 with ASC 50
Total	41,506 lb.	41,489 lb.
Usable	41,026 lb.	41,300 lb.
Arm*	+558.0	+ 558.5

Fuel weights based upon fuel density of 6.75 lb. per gal.
*Arm based on ground static attitude (-1.5° FRL)

Oil Capacity

Total engine oil capacity (each engine):

Lucas-Western Gearbox	16.9 lb./18 U.S. pints
APT Gearbox (Arm = +785.00)	22.0 lb./24.4 U.S. pints

Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.

Capacities shown are for engine oil tankage only.
Total engine oil is an additional 9.5 lb. per engine.

APU oil 9.00 lb./9.6 U.S. Pints
(Arm = +782.5)

Serial No. Eligible

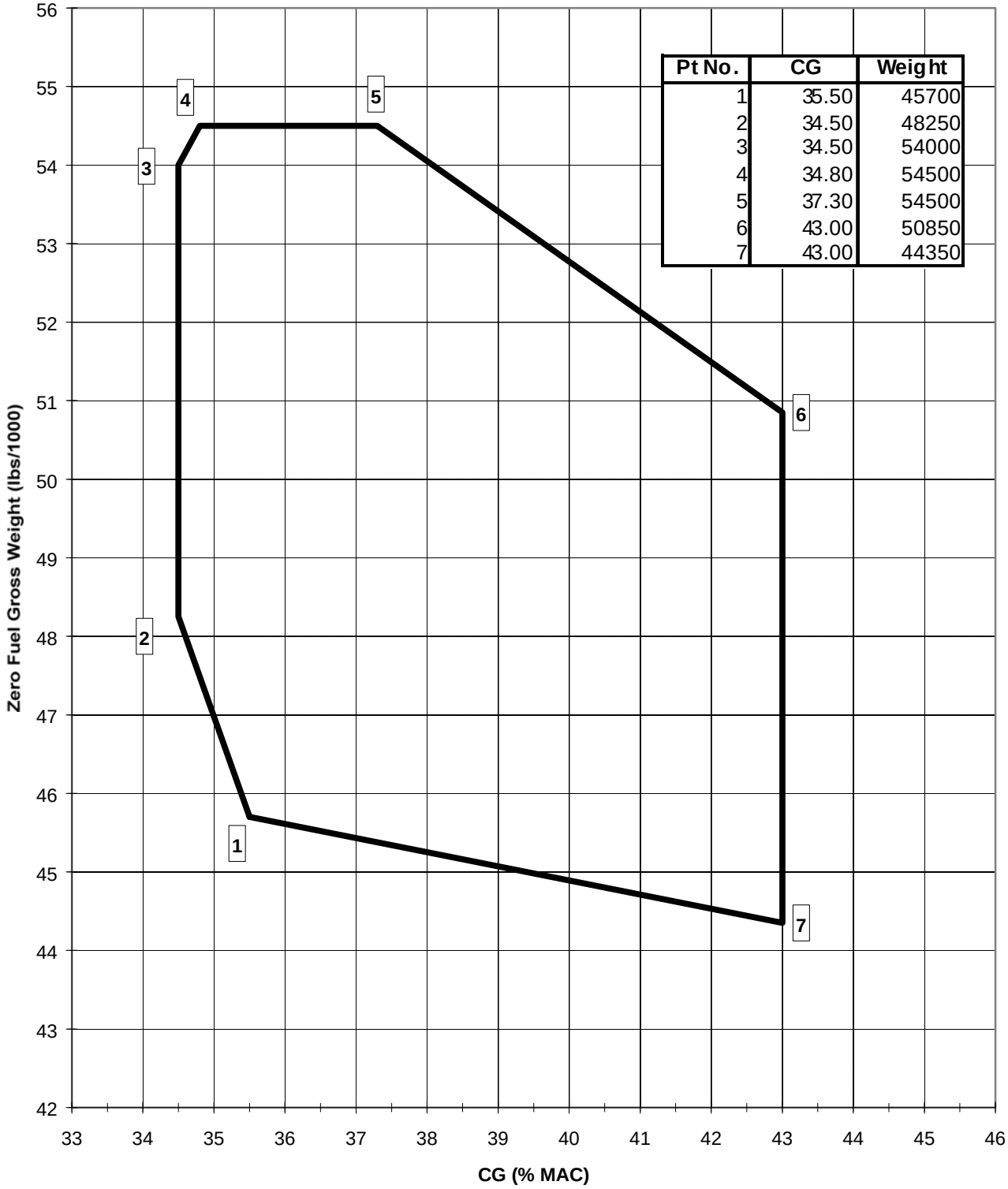
S/N 501 through 693, plus 699 (s/n 666 changed to 699).

C. G. Envelope

See Figure 1-3 for GV Zero Fuel Gross Weight vs. Center of Gravity
(S/N 501 through 569 without ASC 73/73A)

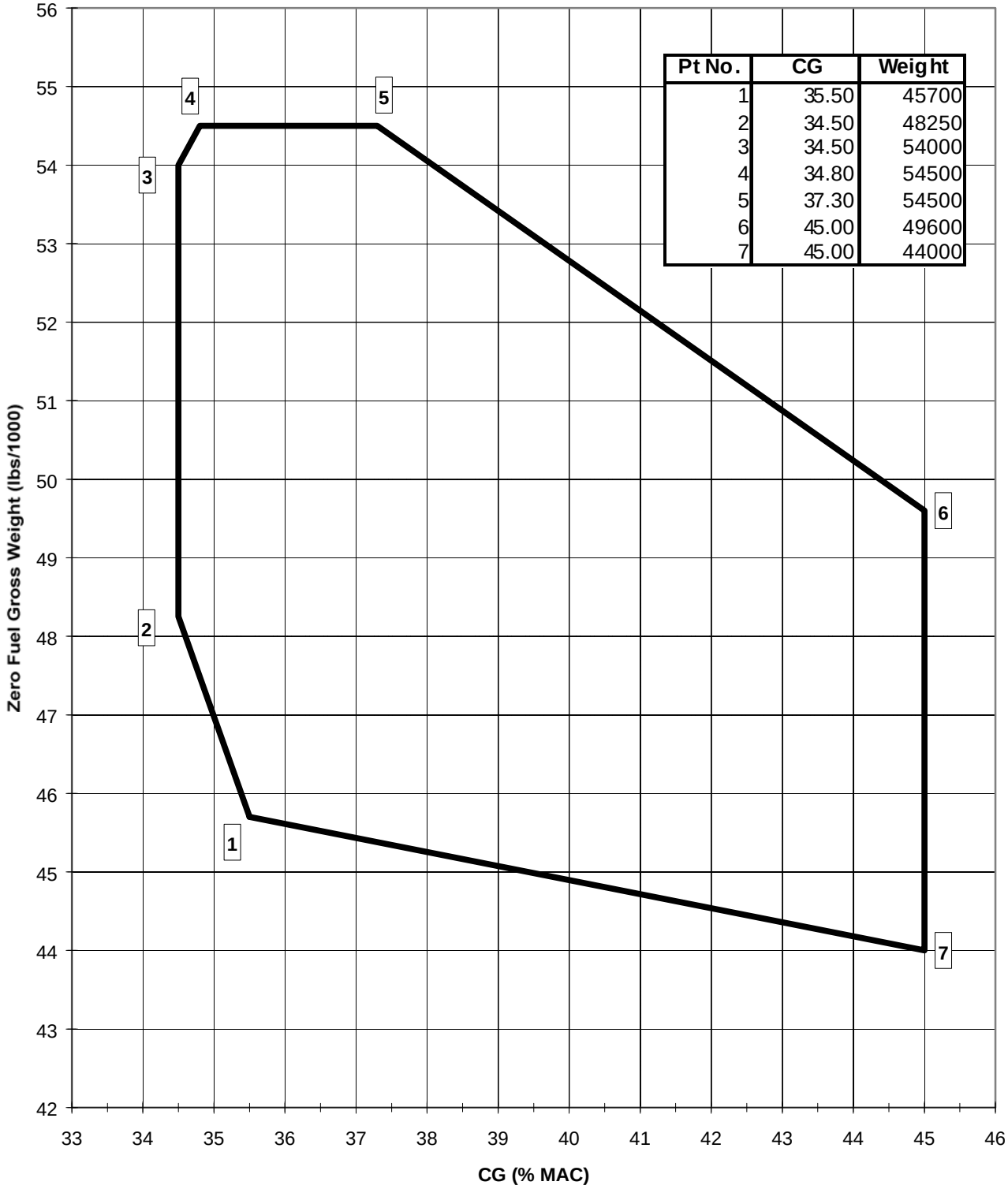
See Figure 1-3A for GV Zero Fuel Gross Weight vs. Center of Gravity
(S/N 570 and subs, and S/N 501 through 569 with ASC 73/73A)

Figure 1-3: Zero Fuel Gross Weight Center of Gravity Envelope
(For Airplanes Without ASC 73/73A)



Pt No.	CG	Weight
1	35.50	45700
2	34.50	48250
3	34.50	54000
4	34.80	54500
5	37.30	54500
6	43.00	50850
7	43.00	44350

Figure 1-3A: Zero Fuel Gross Weight Center of Gravity Envelope
(For Airplanes With ASC 73/73A)



Pt No.	CG	Weight
1	35.50	45700
2	34.50	48250
3	34.50	54000
4	34.80	54500
5	37.30	54500
6	45.00	49600
7	45.00	44000

VII - Model GV-SP (Transport Category), Approved August 14, 2003

The Gulfstream GV-SP is the same as the Gulfstream GV except for the following differences:

- A Honeywell Advanced Flight Deck Display Suite to improve flight crew situational awareness and operational capabilities.
- Airframe aerodynamic improvements, engine improvements, and operational changes for increased performance, range and economics.
- Cabin main entry door relocated forward and seventh cabin window pair added.
- Cabin improvements for increased baggage space, external visibility and comfort.
- Minor system changes for reliability and space utilization.

NOTE: There are two variants of the GV-SP (See Note 8): (1) The G550, which is identical to the GV-SP, and (2) the G500, which has a reduced fuel capacity.

Engines

2 BMW - Rolls Royce Deutschland BR700-710C4-11 (FAA Type Certificate No. E00057EN) (EASA Type Certificate No. E.018)

Fuel

	Kerosene
American	ASTM D 1655-92, Jet A
	ASTM D 1655-92, Jet A-1
	MIL-DTL-83133, Grade JP-8
	GSTU 320.00149943.007-97 (RT Type)
	GSTU 320.00149943.011-99 (TS-1 Type)
British	DEF. STAN. 91-87
	DEF. STAN. 91-91)
Canadian	CAN/CGSB-3.23
Chinese	GB 6537-94 No. 3
CIS	GOST 10227-86, TS-1 & RT
French	DCSEA 134/A

	JP-4 Wide Cut Type (See NOTE 5)
American	ASTMD6615
	MIL-DTL-5624 (JP4 Grade)
British,	Def. Stan. 91-88
Canadian	CAN/CGSB-3.22-2001
CIS	GOST 10277-86 (Grade T-2)

	JP-5 High Flash-Point Type
American	MIL-DTL-5624 (JP5 Grade)
British	Def. Stan. 91-88
Canadian	3-GP-3
French	DCSEA 144/A

Fuel shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual (AFM).

See AFM for information on high flash point fuels.

Oil

The following oils are approved for use in the engine and APU:

5 Centistoke Type Oils:

Aeroshell Turbine Oil 500
Aeroshell Turbine Oil 560
BP Turbo Oil 2197
Castrol Aero 5000
Exxon Turbo Oil 2197
Exxon Turbo Oil 2380
Mobil Jet Oil II
Mobil Jet Oil 254
Mobil Jet Oil 291
TurboNycoil 600
Royco 500
Royco 560

Oil (con't)

NOTE: Mixing of oils is not recommended for APU.

NOTE: Mixing of oils is not recommended but brands may be mixed if operationally essential. Oils of the above brands, when reclaimed to the approved standard for viscosity and grade, are approved for use.

Oil shall conform to the specification as listed or to subsequent revisions in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.

Takeoff (5 minutes)	15,385 lb.
Maximum continuous	14,450 lb.

Maximum permissible engine rotor operating speeds:

N1 (low pressure compressor)		
Maximum Takeoff (see Note 14)	(101.1%)	7,513 rpm
Maximum Continuous	(101.0%)	7,505 rpm
Maximum Overspeed (20 seconds)	(101.5%)	7,542 rpm
Reverse Thrust (30 seconds)	(70%)	5,201 rpm
N2 (high pressure compressor)		
Maximum Takeoff (see Note 14)	(99.6%)	15,834 rpm
Maximum Continuous	(98.9%)	15,723 rpm
Maximum Overspeed (20 seconds)	(99.8%)	15,866 rpm

100% N1 equals 7,431 rpm
100% N2 equals 15,898 rpm

Maximum permissible temperatures (°C):

Turbine gas temperature measured at nozzle guide vanes ahead of first low stage pressure turbine:

Takeoff (see Note 14)	900°
Maximum continuous	860°
Maximum prior to start	150°
Maximum overtemperature (20 seconds limit)	905°
Momentary maximum during ground starts	700°
Momentary maximum during inflight restarts	850°
Oil temp (minimum before accelerating for T/O)	+20°
Oil temp (minimum for starting)	-30°
Oil temp (maximum)	160°
Fuel inlet temperature to low pressure pump at S.L.	54°
Fuel outlet temperature from engine high pressure pump (unrestricted maximum)	158°
Fuel outlet temperature, HP pump maximum (15 min. limit)	165°
Fuel inlet temperature (minimum)	-40°

Bleed Extraction

EPR = P50/P2: The amounts of bleed extraction from stages 5 and 8, respectively, are related to the core entry mass flow, W26. The amount of fan bleed extraction is related to the fan entry mass flow, W1A.

Power Range	Normal Flow (%)			Maximum Flow (%)		
	Stage 5	Stage 8	Fan	Stage 5	Stage 8	Fan
Idle to 1.06 EPR	*****	7.7	*****	3.0	12.0	0.6
1.06 to 1.3 EPR	4.3	4.1	0.2	8.2	7.8	1.6
Above 1.3 EPR	4.2	*****	0.4	8.3	*****	1.8

Auxiliary Power Unit (APU)

Allied Signal - Model RE220 {GV}

Rated Output Shaft Power	62 hp (continuous)
	70 hp (5 minutes)
	101 hp (5 seconds)

APU (con't)

Maximum Generator Output Shaft Speed	12,000 rpm
Maximum Exhaust Gas Temp (EGT) at Rated Output	1241 °F (T_2 = 140 °F)
Maximum Allowable Rotor Speed	48,320 rpm (T_2< 115 °F)
Maximum Allowable EGT	Starting: 1922 °F (1050 °C) [for T_2 < -20 °F (-29 °C), P_2 > 6.75 psia] Operating: 1350 °F (732 °C) [for T_2 =140 °F (60 °C)]

Airspeed Limits (CAS)

		(mph)	(KCAS)
V_{mo}/M_{mo}	(Maximum operating)		
	See AFM for Altitude/Mach Flight Operating Envelope		
V_a	(Maneuvering)	237 mph	206 knots
V_{fe}	(Flaps down to 39°)	196 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mcg}	(Minimum control ground)	123 mph	107 knots
V_{mca}	(Minimum control air)	129 mph	112 knots

Maximum Operating Altitude

51,000 feet

Maximum Weight (lb.)

Aircraft S/N	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
5001 & Subs (also G550)	54,500	91,400	91,000	75,300
5001 & Subs with ASC 10 (G500)	54,500	85,500	85,100	75,300

Datum

For weight and balance purposes, the zero datum is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.

M.A.C.

171.19 in. (L.E. of M.A.C. = Fuselage Station 524.74)

Fuel Capacity

Gravity or Pressure Fueling:

	GV-SP (G550)	GV-SP (G500)
Total	41,489 lb.	35,389 lb.
Usable	41,300 lb.	35,200 lb.
Arm*	+ 558.5	+ 551.9

Fuel weights based upon fuel density of 6.75 lb. per gal.
*Arm based on ground static attitude (-1.5° FRL)

Oil Capacity

Total engine oil capacity (each engine):

Hispano-Suiza Gearbox	25.7 lb./27.4 U.S. pints
Usable Oil	10.4 lb./11.0 U.S. pints
(Arm = +785.00)	

Oil weights based upon oil density of 7.5 lb. per gal.
See NOTE 1 for system oil.

Capacities shown are for engine oil tankage only.
Total engine oil is an additional 9.5 lb. per engine.

APU oil 9.00 lb./9.6 U.S. Pints
(Arm = +782.5)

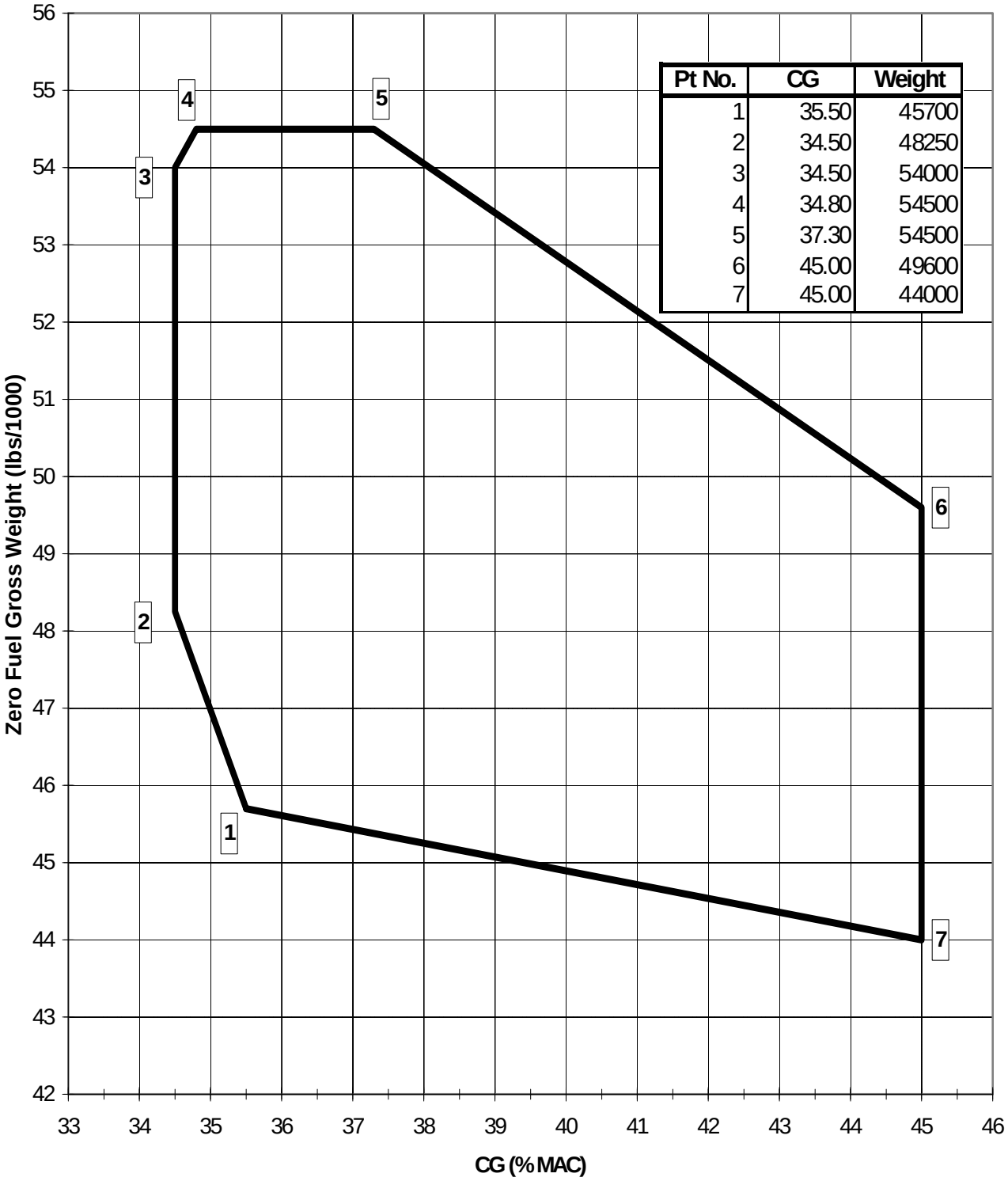
Serial No. Eligible

S/N 5001 and subsequent.

C. G. Envelope

See figure on next page for GV-SP Zero Fuel Gross Weight vs. Center of Gravity (S/N 5001 and subsequent).

GV-SP Zero Fuel Gross Weight Center of Gravity Envelope
(For S/N 5001 and Subsequent)



Pt No.	CG	Weight
1	35.50	45700
2	34.50	48250
3	34.50	54000
4	34.80	54500
5	37.30	54500
6	45.00	49600
7	45.00	44000

VIII - Model GIV-X (Transport Category), Approved August 12, 2004

The Gulfstream GIV-X is the same as the Gulfstream GIV except for the following differences:

- A Honeywell advanced flight deck display suite (common with the GV-SP) to improve flight crew situational awareness and operational capabilities
- Airframe nose common with the GV-SP
- Airframe aerodynamic improvements and engine improvements for increased range and payload
- Cabin main entry door relocated aft and fuselage 12 inch extension incorporated
- Tay 611 engine replaced with derivative Tay 611-8C. Added engine FADEC
- Redesigned thrust reverser, nacelle and pylon
- System improvements
  - Electrical power generation (common with GV-SP)
  - Dual digital cabin temperature control and pressurization (common with GV-SP)
  - Nose landing gear (common with GV-SP)
  - Replaced APU with Honeywell 36-150 APU
  - Redesigned flap/stab actuation system with digital control
  - Redesigned main landing gear wheels and brakes
  - Added flight control system hard-over protection system

NOTE: There are two variants of the GIV-X (see Note 8): (1) The G450, which is identical to the GIV-X, and (2) the G350, which has a reduced fuel capacity.

Engines	2 Rolls Royce Tay Mark 611-8C	(FAA Type Certificate No. E25NE) (EASA/LBA Type Certificate No. 6327)

Fuel		Kerosene
	American	ASTM D 1655, Jet A
		ASTM D 1655, Jet A-1
		MIL-T-83133, Grade JP8*
		MIL-DTL-83133, Grade JP8
	British	DEF STAN 91-87
		DEF STAN 91-91
	Canadian	CAN/CGSB-3.23
	Chinese	GB 6537-94 No. 3
	CIS	GOST 10227-86, T-1, TS-1 & RT
	French	DCSEA 134
		JP-4 Wide Cut Type (See NOTE 5)
	American	ASTM D 1655, Jet B
		ASTM D6615
		MIL-PFR-5624, Grade JP4*
		MIL-DTL-5624 Grade JP4
	British	DEF STAN 91-86
	Canadian	CAN/CGSB-3.22
		JP-5 High Flash - Point Type
	American	MIL-DTL-5624, Grade JP5
		MIL-PRF-5624 Grade JP5
	British	DEF. STAN.91-88
	Canadian	CAN 3-GP-3.24
	French	DCSEA 144

Fuel shall conform to the specification as listed or to subsequent revisions found in the latest approved Airplane Flight Manual.

*With fuel system icing inhibitor (FSII). Maximum concentration 0.15% by volume. DERD 2451 Issue 2 and 3 MIL-I-27686E. or any exact equivalent

Oil

The following oils are approved for use in the engine and APU:

3 Centistoke (Type I)
Aeroshell Turbo Oil 390
Castrol 325 Engine Oil
ESSO/Exxon Turbo 2389

5 Centistoke (Type II)
Esso/Exxon Turbo Oil 2380
Mobil Jet Oil II
Mobil Jet Oil 254
Castrol Aero 5000
Aeroshell Turbine Oil 500
Royco Turbine Oil 500

NOTE: Mixing of oils is not recommended for APU.

NOTE: Mixing of oils is not recommended but brands may be mixed if operationally essential. Oils of the above brands, when reclaimed to the approved Rolls-Royce standard for viscosity and grade, are approved for use.

Oil shall conform to the specification as listed or to subsequent revisions in the latest approved Airplane Flight Manual.

Engine Limits

Static Thrust (std. day) S.L.

Rated Takeoff (See Note 14)	13,850 lb.
Rated Maximum continuous	12,420 lb.

Maximum permissible continuous rotor operating speeds:

N1 (low compressor)	(95.5%)	8,015 rpm
N2 (high compressor)	(97.5%)	12,172 rpm

Maximum permissible temperatures (°C):
Turbine gas temp measured at nozzle guide vanes ahead of first low stage pressure turbine:

Takeoff (See Note 14)	800°
Maximum continuous	715°
Momentary maximum during ground starts	700°
Momentary maximum during airstarts (relights)	780°
Maximum over-temperature (20 second limit)	820°
Oil temp (minimum for starting)	-40°
Oil temp (maximum)	105°
Oil temp (15 minute limit)	120°
Fuel inlet temp to engine high pressure pump	95°
Fuel inlet temperature (15 min. limit)	130°

Maximum Permissible Air Bleed Extraction

7th Stage HPC Bleed	7.0 lb./sec
12th Stage HPC Bleed (max continuous and below)	6.9 lb./sec
HPC Bleed Total (max continuous and below)	10.0 lb./sec
Fan Bleed	10.5 lb./sec

Auxiliary Power Unit (APU)

Honeywell 36-150
Maximum permissible exhaust gas temperature -

Up to 60% rpm during start	985°C
60% - 100% during start	985°C to 757°C (linear decrease)
Running	757°C
Maximum rotor speed - all conditions	107%
APU alternator load rating	40Kva
APU rated output shaft power (with 62.4 lb. per min. bleed air and ambient temp of 103°F)	61hp

Airspeed Limits (CAS)

V_{mo}/M_{mo}	(Maximum operating)		
	See AFM for Altitude/Mach Flight Operating Envelope		
V_a	(Maneuvering)	235 mph	206 knots
V_{fe}	(Flaps down to 39°)	196 mph	170 knots
	(Flaps down to 20°)	253 mph	220 knots
	(Flaps down to 10°)	288 mph	250 knots
V_{lo}	(Landing gear operation)	259 mph	225 knots
V_{le}	(Landing gear extended)	288 mph	250 knots
V_{mcg}	(Minimum control ground)	125 mph	109 knots
V_{mca}	(Minimum control air, takeoff)	122 mph	106 knots
Vmcl	(Minimum control air, landing)	114 mph	99 knots

Maximum Operating Altitude 45,000 feet

Maximum Weight (lb.)

Aircraft S/N	Max. Zero Fuel	Max. Ramp	Max. Take-Off	Max. Landing
4001 and subs	49,000	74,300	73,900	66,000
4001 and subs with ASC 004 (G350)	49,000	71,300	70,900	66,000
4001 and subs with ASC 016 (G450 only)	49,000	75,000	74,600	66,000

Datum For weight and balance purposes, the zero datum is 27 inches aft of the jig point at the centerline of the airplane in the nose wheel well or 206 inches forward of Fuselage Station 206.

M.A.C. 166.22 in. (L.E. of M.A.C. = Fuselage Station 387.7)

Fuel Capacity

		GIV-X (G450)
Gravity or Pressure Fueling:	Total	29,605 lb
	Usable	29,500 lb.
	Arm*	+430.4

Fuel weights based upon fuel density of 6.75 lb. per gal.
*Arm based on ground static attitude (-1.5° FRL)

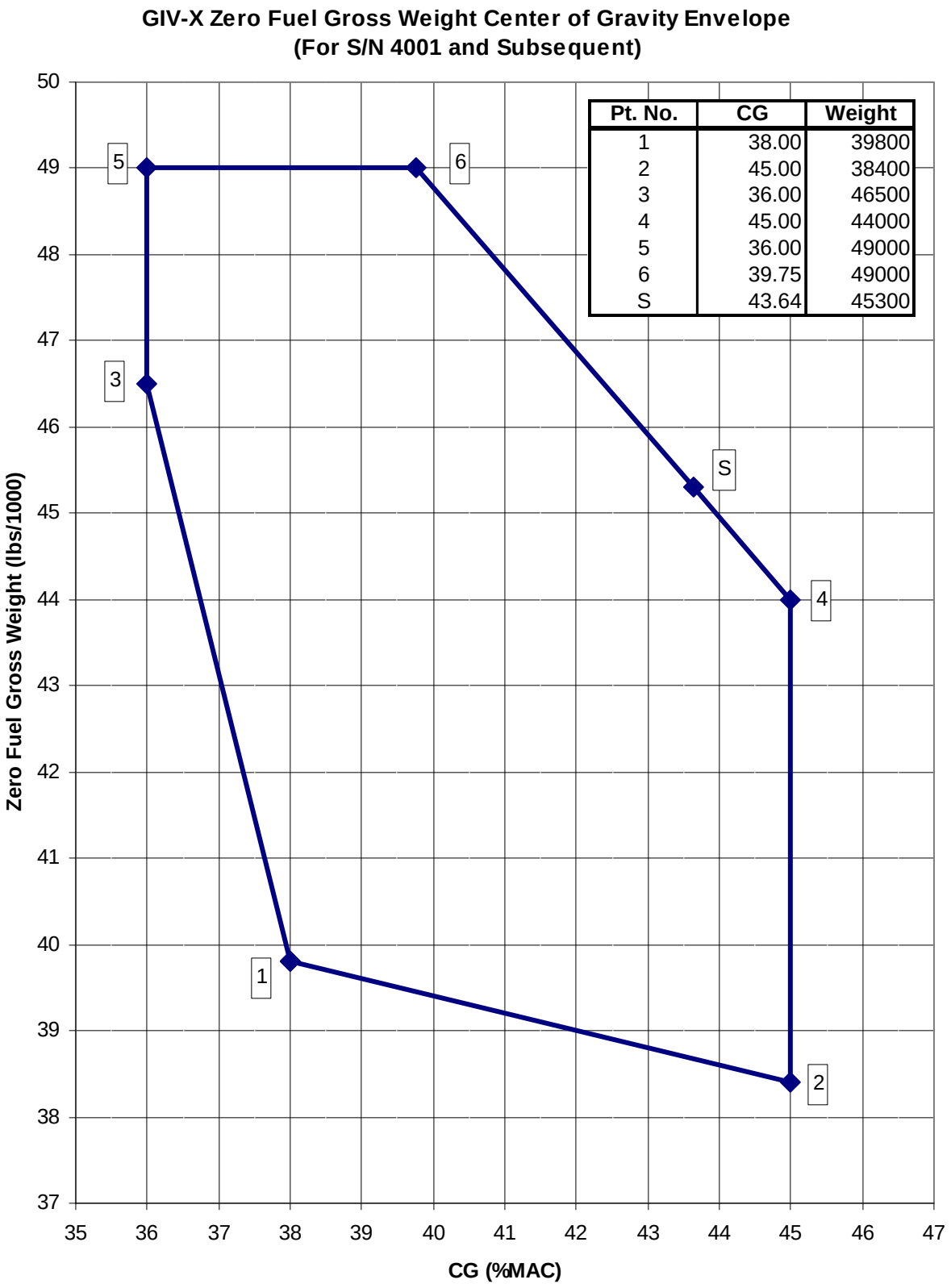
Oil Capacity

Total engine oil tank capacity 13.5 lb./14.4 U.S. pints (each engine)
Usable engine oil tank capacity 10.1 lb./10.8 U.S. pints (each engine)
(Arm = +582.00)
Oil weights based upon oil density of 7.5 lb. per gal.
Capacities shown above are for engine oil tankage only.
Total engine oil is 27 lb/28.8 US pints per engine
See NOTE 1 for system oil.

Usable APU oil 5.7 lb./6.0 U.S. Pints
(Arm = +620.0)

Serial No. Eligible S/N 4001 and subsequent.

C.G Envelope See figure on next page for the GIV-X Zero Fuel Gross Weight vs. Center of Gravity envelope (S/N 4001 and subsequent).



Pt. No.	CG	Weight
1	38.00	39800
2	45.00	38400
3	36.00	46500
4	45.00	44000
5	36.00	49000
6	39.75	49000
S	43.64	45300

Data Pertinent to All Models Except as Indicated

Leveling Means	Longitudinal: Lugs at right nose well door longeron STA 61.5 & 72.5 Lateral: Lugs on rear face of bulkhead STA 44.5 in nose wheel well.
Minimum Crew	2 (Pilot and Co-Pilot)
Maximum Passengers	19 - limited by emergency exit requirements
Baggage or Cargo Limitations	Cabin Floor

Aircraft S/N 1 thru 299 and 316 and subsequent, including 775, except 249 & 252:
Main cabin floor fuselage station 193 to 321.5. Dead weight cargo loading maximum uniform load over entire width of floor shall be 49 lb. per square foot. Maximum uniform load with a 20-inch clear aisle down the middle shall be 98 lb. per square ft. Maximum dead weight, cargo load on one isolated square foot, at least 30 inches from another load, shall be 260 lb., except in the middle aisle where it shall be 184 lb.

Aircraft S/N 249, 252, 300 thru 315:
Main cabin floor fuselage station 193 to 213. Dead weight cargo loading maximum uniform load over entire width of floor shall be 20 lb. per square foot. Maximum uniform load with a 20-inch clear aisle down the middle shall be 40 lb. per square foot. Maximum dead weight, cargo load on one isolated square, at least 30 inches from another load, shall be 260 lb., except in the middle aisle where it shall be 184 lb.

Main cabin floor fuselage station 213 to 321.5. Dead weight cargo loading maximum uniform load over entire width of floor shall be 49 lb. per square foot. Maximum uniform load with a 20-inch clear aisle down the middle shall be 98 lb. per square foot. Maximum dead weight, cargo load on one isolated square foot, at least 30 inches from another load, shall be 260 lb., except in the middle aisle where it shall be 184 lb.

All Aircraft, S/N 1 and subsequent:
Main cabin floor fuselage station 321.5 to 498. Dead weight cargo loading maximum uniform loading shall be 100 lb. per square foot.

Main cabin floor fuselage station 498 to 539.75. Maximum uniform loading shall be 65 lb. per square foot.

Maximum Baggage (all models excluding GV, GV-SP):
Compartment aft of fuselage station 539.75 to bulkhead or pressure dome.
Capacity - 2,000 lb. less any weight added in equipment bay
Maximum floor loading - 65 lb./sq. ft.
C.G. - STA 565 for 2000 lb. If further aft, corresponding reduction in capacity required.

Main cabin floor loading limitations, GV S/N 501 and subsequent:
Main cabin floor fuselage station 229 to 426: Dead weight cargo loading maximum uniform load over entire width of floor shall be 49 lb/ft^2. Maximum uniform load with a 20 inch clear aisle down the middle shall be 98 lb/ft^2. Maximum dead weight cargo load on one isolated square foot, at least 30 inches from another load, shall be 200 lb., except in the middle aisle where it shall be 187 lb.

Main cabin floor fuselage station 426 to 632: Dead weight cargo loading maximum uniform loading shall be 100 lb/ft^2.

Main cabin floor fuselage station 632 to 684: Max uniform loading shall be 65 lb/ft^2.

Maximum Baggage, GV S/N 501 and subsequent:
Compartment aft of fuselage station 684.00 to pressure bulkhead:
Capacity - 2500 lb. less any weight added in equipment bay
Maximum floor loading - 65 lb/ft^2
Approved smoke detection system required.

Main cabin floor loading limitations, GV-SP S/N 5001 and subsequent:
Main cabin floor fuselage station 205 to 426: Dead weight cargo loading maximum uniform load over entire width of floor shall be 49 lb/ft^2. Maximum uniform load with a 20 inch clear aisle down the middle shall be 98 lb/ft^2. Maximum dead weight cargo load on one isolated square foot, at least 30 inches from another load, shall be 200 lb., except in the middle aisle where it shall be 187 lb.

Main cabin floor fuselage station 426 to 632: Dead weight cargo loading maximum uniform loading shall be 100 lb/ft^2.

Main cabin floor fuselage station 632 to 684: Maximum uniform loading shall be 65 lb/ft^2.

Maximum baggage, GV-SP S/N 5001 and subsequent:
Compartment aft of fuselage station 684.00 to pressure bulkhead:
Capacity - 2500 lb., less any weight added in equipment bay
Maximum floor loading - 65 lb/ft^2
Approved smoke detection system required.

Main cabin floor loading limitations, GIV-X S/N 4001 and subsequent:
Main cabin floor forward of the overwing pressure floor (Fuselage station 145 to 321.5): Dead weight cargo loading maximum uniform load over entire width of floor is 49 pounds per square foot. Maximum uniform load with a 20-inch clear aisle down the middle is 93 pounds per square foot. Maximum dead weight load on one isolated square foot, at least 30 inches from another load, is 260 pounds except in the center aisle where it is 184 pounds. Overwing pressure floor (Fuselage station 321.5 to 498): Dead weight cargo maximum uniform loading is 100 pounds per square foot. Main cabin floor structure aft of the overwing pressure floor (Fuselage station 498 to 539.75): Dead weight cargo maximum uniform loading is 65 pounds per square foot.

Maximum baggage, GIV-X S/N 4001 and subsequent:
Compartment aft of fuselage station 539.75 to 596 (flat pressure bulkhead).
Capacity - 2,000 lb. less any weight added in equipment bay
Maximum floor loading - 65 lb./sq. ft.
C.G. - STA 565 for 2000 lb. If further aft, corresponding reduction in capacity required.

Other Operating Limitations

The aircraft must be operated in accordance with the latest FAA approved revision to the Airplane Flight Manual.

- The Model GV-SP Airplane Flight Manual is GAC-AC-G550-OPS-0001.
- The Model GV-SP (G550) Airplane Flight Manual is GAC-AC-G550-OPS-0001.
- The Model GV-SP (G500) Airplane Flight Manual is GAC-AC-G500-OPS-0001.
- The Model GIV-X Airplane Flight Manual is GAC-AC-G450-OPS-0001.
- The Model GIV-X (G450) Airplane Flight Manual is GAC-AC-G450-OPS-0001.
- The Model GIV-X (G350) Airplane Flight Manual is GAC-AC-G350-OPS-0001.

Control Surface Movements

Models G-1159, G-1159A and G-1159B:

Elevators	Up	24° (+1/2°, -1/2°)	Down	13° (+0°, -1°)
Elevator trim tab	Up	10° (+1°, -1°)	Down	20° (+1°, -1°)
Rudder	Right	22° to 22.5°	Left	22° to 22.5°
Rudder trim	Right	7.5° (+1°, -1°)	Left	7.5° (+1°, -1°)
Ailerons	Up	10° (+1°, -1°)	Down	10° (+1°, -1°)
Aileron trim	Up	15° (+4°, -4°)	Down	15° (+4°, -4°)
Flaps			Down	39° (+0°, -1 1/2°)
Speed brakes:				
Airplanes with four panel speed brakes				
	Right	43° (+3°, -3°)	Left	43° (+3°, -3°)
Airplanes with six panel speed brakes				
	Right	26° (+2°, -2°)	Left	26° (+2°, -2°)
Ground spoiler (all spoilers)	Up	55° (+3°, -3°)		

Horizontal stabilizer travel range - Leading edge down:

G-1159; S/N 1 thru 100, including 775, without ASC No. 81:	(0° to -4.5°)
G-1159; S/N 1 thru 100 with ASC No. 81, and S/N 101 thru 299:	(0° to -5°)
G-1159A; S/N 300 and subsequent, including S/N 249 and 252:	(-1° to -6°)
G-1159B:	(-1° to -6°)

Model G-IV:

Elevators	Up	24° (+1/2°, -1/2°)	Down	13° (+0°, -1°)
Elevator trim tab	Up	8° (+1°, -1°)	Down	22° (+1°, -1°)
Rudder	Right	22° to 22.5°	Left	22° to 22.5°
Rudder trim	Right	7.5° (+1°, -1°)	Left	7.5° (+1°, -1°)
Ailerons	Up	10° (+1°, -1°)	Down	10° (+1°, -1°)
Aileron trim	Up	15° (+4°, -4°)	Down	15° (+4°, -4°)
Flaps			Down	39° (+0°, -1 1/2°)
Speed brakes	Right	26° (+2°, -2°)	Left	26° (+ 2°, -2°)
Ground spoiler (all spoilers)	Up	55° (+4°, -3°)		

Horizontal stabilizer travel range - Leading edge down: -1° (+1/4°, -1/4°) to -4.6° (+1/4°, -1/4°)

Models GV and GV-SP:

Elevators	Up	24° (+1/2°, -1/2°)	Down	13° (+0°, -1°)
Elevator trim tab	Up	8° (+1°, -1°)	Down	22° (+1°, -1°)
Rudder	Right	22° to 25°	Left	22° to 25°
Rudder trim	Right	7.5° (+1°, -1°)	Left	7.5° (+1°, -1°)

Note: Rudder trim may be offset (+3°, -3°) maximum as required for directional trim with the cockpit trim knob and rudder pedals re-referenced to zero. See FCS Rigging Procedures Report GV-MS-51.

Ailerons	Up	11° (+1°, -2°)	Down	11° (+1°, -2°)
Aileron trim	Up	15° (+4°, -4°)	Down	15° (+4°, -4°)
Flaps			Down	39° (+1°, -1°)
Speed brakes (Right & Left)				
4 Outb'd Panels (Flight Spoilers)			Up	30° (+2°, -8°)
2 Inb'd Panels (Ground Spoilers)			Up	30° (+2°, -5°)
Ground spoilers (all)			Up	55° (+4°, -5°)

Horizontal stabilizer travel range - Leading Edge Travel:

Normal Operation	-1.5° (+1/4°, -1/4°) to -4.6° (+1/4°, -1/4°)
Emerg. Stab. Mode	-1.25° (+1/4°, -1/4°) to -4.6° (+1/4°, -1/4°)

Model GIV-X:

Elevators	Up	24° (+1/2°, -1/2°)	Down	13° (+0°, -1°)
Elevator trim tab	Up	8° (+1°, -1°)	Down	22° (+1°, -1°)
Rudder	Right	22° to 25.0°	Left	22° to 25.0°
Rudder trim	Right	7.5° (+1°, -1°)	Left	7.5° (+1°, -1°)
Ailerons	Up	10° (+1°, -1°)	Down	10° (+1°, -1°)
Aileron trim	Up	15° (+4°, -4°)	Down	15° (+4°, -4°)
Flaps			Down	39° (+0°, -1 1/2°)
Speed brakes (Right & Left)				
4 Outb'd Panels (Flight Sp)			Up	26º (+2º -5º)
2 Inb'd Panels (Ground Sp)			Up	26º (+2º -2º)
Ground spoilers (all)			Up	55° (+4°, -3°)

Horizontal stabilizer travel range - Leading edge down: -1° (+1/4°, -1/4°) to -4.6° (+1/4°, -1/4°)

Certification Basis

Model G-1159; S/N 1 thru 299, and 775:

CAR 4b dated December 31, 1953, including Amendments 4b-1 thru 4b-14, Special Regulations SR422B and SR450A, and Special Conditions in Attachment A of FAA letter to Grumman dated September 27, 1965, plus FAR 25.1325 (effective February 1, 1965); 25.175 (effective Mar. 1, 1965) in lieu of 4b.155(b), and exemption: No. 695A, CAR 4b.437, "Fuel Jettisoning System," FAR Part 36 par. 36.1(c)(2) for airplane S/N 1 thru 165 and 775 approved for a 62,000 lb. takeoff weight and FAR Part 36 Appendix C for airplane S/N 166 thru 299 except 249, 252, and 775. Type Certificate A12EA issued October 19, 1967. Date of application for Type Certificate was June 24, 1964.

Compliance with the following optional requirements has been established:
Data covering ditching requirements of 4b.361, including 4b.362(d) and 4b.742(e) (but excluding 4b.645 and 4b.636) are approved. When the operating rules require emergency ditching equipment compliance with 4b.645 and 4b.646 must be demonstrated. Gulfstream Report 1159-GER-7 entitled "Outfitting Requirements for FAA Certification for Ditching" provides an acceptable means for showing compliance with 4b.645 and 4b.646. Airplane Flight Manual Revision 13 must be incorporated.

Equivalent Safety Findings:
(1) CAR 4b.160 and FAR 25.201, Stall Demonstration
(2) CAR 4b.362(b)(4) and FAR 25.807(a)(4) Emergency Exits

Model G-1159A; S/N 249, 252, 300 and subsequent:

Part 25 of the FAR effective February 1, 1965, and Amendments 25-2 through 25-8, 25-10, 25-12, 25-16 through 25-22, 25-24, 25-26, 25-27, 25-29 through 25-34, 25-37, 25-40 (as applicable to a new APU installation); FAR 25.1309 of Amendment 25-41 and FAR 25.1329 of Part 25 dated February 1, 1965 (as applied to a new autopilot installation); FAR 25.994 (crashworthiness fuel system components); and FAR 25.581 (lightning protection) of Amendment 25-23;Special FAR 27 through Amendment 2 (fuel venting emission); FAR 36 through Amendment 8 (noise requirements).

The special conditions contained in the FAA's letter to Grumman dated September 27, 1965, applicable to the Gulfstream Model G-1159 airplane, are also applicable to the Gulfstream Model G-1159A airplane, except that reference to "4b.450" in the "Cooling Systems" special conditions is replaced by "FAR 25.1043 contained in Part 25 of the FAR effective February 1, 1965." In addition, special conditions pertaining to dynamic gust loads contained in the enclosure to FAA AEA-212 letter dated July 22, 1980.

Compliance with the following Optional Requirements has been established:
Data covering ditching requirements of 25.801, including 25.807(d) and 25.1585(a) (but excluding 25.1411) are approved. When the operating rules require emergency ditching equipment, compliance with 25.1411 and 25.1415 must be demonstrated. Gulfstream Report 1159-GER-7 entitled "Outfitting Requirements for FAA Certification for Ditching" provides an acceptable means for showing compliance with 25.1411 and 25.1415.

Equivalent Safety Findings:
(1) CAR 4b.160 and FAR 25.201, Stall Demonstration
(2) CAR 4b.362(b)(4) and FAR 25.807(a)(4) Emergency Exits
(3) FAR 25.773(b) (2), Direct Vision Window

Model G-1159B; S/N 1 through 299, including 775:

Fuselage, Empennage, Autopilot and Noise:
Car 4b, dated December 31, 1953, including Amendments 4b-1 thru 4b-14, Special Regulation SR450A, and Special Conditions in Attachment A of FAA letter to Grumman dated September 27, 1965, plus FAR 25.1325 (effective February 1,1965); FAR 25.175 (effective March 1, 1965) in lieu of CAR 4b.155(b); FAR 36.7(d)(3)(ii); CAR 4b.450, Cooling Systems.

Wing Assembly, Landing Gear, Fuselage and Empennage Modifications:
FAR 25, effective February 1, 1965, Amendments 25-2 thru 25-8, 25-10, 25-12, 25-16 thru 25-22, 25-24, 25-26, except FAR 25.1203(b)(3), 25-27, 25-29 thru 25-31, 25-34, 25-37, 25-40 (as applicable to a new APU installation); FAR 25.1309 of Amendment 25-41 and FAR 25.1329 of FAR 25 dated February 1, 1965; FAR 25.994 (Crashworthiness Fuel System Components); and FAR 25.581 (Lightning Protection) of Amendment 25-23; Special Federal Aviation Regulation 27 through Amendment 2 (Fuel Venting Emissions).

The special conditions contained in the FAA's letter to Grumman dated September 27, 1965, applicable to Gulfstream Model G-1159 airplane, are also applicable to the Gulfstream Model G-1159B airplane. In addition, the special condition pertaining to dynamic gust loads, contained in the enclosure to FAA letter AEA-212, dated July 22, 1980, is applicable to the Model G-1159B airplane.

Compliance with the following Optional Requirements has been established: Data covering ditching requirements of 4b.361, including 4b.362(d) and 4b.742(e) (but excluding 4b.645 and 4b.646) are approved. When operating rules require emergency ditching equipment, compliance with 4b.645 and 4b.646 must be demonstrated. Gulfstream Report 1159-GER-7 entitled "Outfitting Requirements for FAA Certification for Ditching" provides an acceptable means for showing compliance with 4b.645 and 4b.646.

Equivalent Safety Findings:
(1) CAR 4b.160 and FAR 25.201, Stall Demonstration
(2) CAR 4b.362(b)(4) and FAR 25.807(a)(4) Emergency Exits

Models G-1159, G1159A, and G-1159B:

FAR 25.771, Amendment 4. A lockable door is not required between the pilot and passenger compartments.

Model G-IV; S/N 1000 and subsequent:

FAR Part 25, effective February 1, 1965, including Amendments 25-1 through 25-56, except for the following sections which are limited to showing compliance with the amendments indicated:

Section	Amendment
25.109	FAR 25, dated February 1, 1965
25.571	25-22 (as applies to fuselage and empennage)
25.671	FAR 25, dated February 1, 1965
25.807(c)(2)	25-15
25.813	FAR 25, dated February 1, 1965

FAR 36, including Amendments 36-1 through 36-12.
SFAR 27, including Amendments 27-1 through 27-5.

Compliance with the following Optional Ditching Requirements has been established: Data covering ditching requirements of 25.801, including 25.563, 25.807(d) and 25.1585(a) (but excluding 25.1411) are approved. When the operating rules

require emergency ditching equipment, compliance with 25.1411 and 25.1415 must be demonstrated. Gulfstream Report 1159-GER-7 entitled "Outfitting Requirements for FAA Certification for Ditching" provides an acceptable means for showing compliance with 25.1411 and 25.1415.

Equivalent Safety Findings:
(1) FAR 25.201, Stall Demonstration
(2) FAR 25.729(e)(2), Landing Gear Warning Horn
(3) FAR 25.773(b)(2), Direct Vision Window
(4) FAR 25.807(a)(4), effective February 1, 1965, Oval Emergency exit Windows with Horizontal Major Axis
(5) FAR 25.811(d) and 25.812(b), Emergency Exit Marker, Locator, and Bulkhead/Divider Signs

Model GV: S/N 501 and subsequent:

FAR Part 25, effective February 1, 1965, including Amendments 25-1 through 25-81, except for the following sections which are limited to showing compliance with the amendments indicated:

Section	Amendment
25.109	FAR 25, dated February 1, 1965
25.807(c)(2)	25-15
25.813	FAR 25, dated February 1, 1965

FAR 34, including Amendments 34-1.
FAR 36, including Amendments 36-1 through 36-20

Shoulder harness on all seats will be in lieu of demonstrated compliance to the test requirements of FAR 25.562(c)(5) and (c)(6) per Amendment 25-64. Compliance with the requirements of FAR 25.785 in reference to FAR 25.562 (c)(5) and (c)(6) need not be demonstrated due to this concession.

> Note: The certification basis of the GV regarding 25.562 was established based on FAA understanding that this model will not operate in part 121 service. Therefore, installation of shoulder harnesses in lieu of demonstrated compliance to 25.562(c)(5) and (c)(6) applies only to aircraft not engaged in part 121 passenger carrying service. If the aircraft is operated in part 121, full compliance to the requirements of 25.562 (including paragraphs (c)(5) and (c)(6)) and 25.785 must be shown.

Compliance with the Optional Ditching Requirements has been established as follows: Data covering the ditching requirements of FAR 25.801, including 25.563, 25.807(e), and 25.1585(a), but excluding 25.1411, are approved. When the operating rules require emergency ditching equipment, compliance with 25.1411 and 25.1415 must be demonstrated. Gulfstream Report 1159-GER-7, entitled “Outfitting Requirements for FAA Certification for Ditching” provides an acceptable means for showing compliance with 25.1411 and 25.1415.

Special Conditions:
HIRF (High Intensity Radiated Fields) No. 25-NM-105, effective September 28, 1995.
High Altitude Operations No. 25-ANM-108, effective November 16, 1995.

> NOTE: The high altitude special condition includes pressurization system requirements, as well as damage tolerance requirements on the pressure vessel. Therefore, any changes to the pressurization system or modifications or repairs to the pressure vessel must be approved in accordance with the requirements defined in the special condition.
>
> The damage tolerance requirements in the special condition are specified in terms of cabin altitude time history, which is a function of the cabin leak rate. The specified cabin altitude time history requirement can be met with a pressure vessel opening of 7.2 square inches effective area (which considers the appropriate discharge coefficient assuming an emergency descent). The determination of an equivalent crack length will depend upon the particular location of the crack, the pressure vessel configuration in that location, the direction of the crack, etc. The approval of modifications and/or repairs must take into account the requirements of the special condition and how they apply to the particular location and

configuration being modified or required. The resulting inspection program must also consider other applicable structural criteria.

Exemptions: 25.571(e)(1) Bird Impact Speed

Equivalent Safety Findings:
(1) FAR 25.103, Stall Speeds defined by Vs1g in lieu of Vmin
(2) FAR 25.341, JAR Discrete Tuned Gust in lieu of Static Gust
(3) FAR 25.807(a)(4), effective February 1, 1965, Oval Emergency Windows with Horizontal Major Axis
(4) FAR 25.811(d) and 25.812(b), Emergency Exit Marker, Locator, and Bulkhead/Divider Signs
(5) FAR 25.933, Prevention of Inadvertent Inflight Thrust Reverser Deployment
(6) FAR 25.562(c)(8) and FAR 25.807(g)(2),"Seat Deformation into Emergency Exits," (documented in TAD ELOS Memo ST8906AT-T-A-10)]

Model GV-SP: S/N 5001 and subsequent

FAR Part 25, effective February 1, 1965, including Amendments 25-1 through 25-98, with the following exceptions:

- Shoulder harnesses on all seats will be provided in lieu of demonstrated compliance to the test requirements of FAR 25.562(c)(5) and (c)(6) of Amendment 25-64. Compliance with the requirements of FAR 25.785 in reference to FAR 25.562(c)(5) and (c)(6) are not demonstrated due to this concession.

  Note: The certification basis of the GV-SP regarding 25.562 was established based on FAA understanding that this model will not operate in part 121 service. Therefore, installation of shoulder harnesses in lieu of demonstrated compliance to 25.562(c)(5) and (c)(6) applies only to aircraft not engaged in part 121 passenger carrying service. If the aircraft is operated in part 121, full compliance to the requirements of 25.562 (including paragraphs (c)(5) and (c)(6)) and 25.785 must be shown.

- The requirements of FAR 25.571 at Amdt 25-98 are limited to the fuselage and fuselage changes only. The remainder of the aircraft structure is certified to the requirements of 25.571 at Amdt 25-81.

FAR Part 34, including Amendments 34-1 through 34-3.
FAR Part 36, including Amendments 36-1 through 36-22.
Compliance with the Optional Ditching Requirements has been established as follows: Data covering the ditching requirements of FAR 25.801, including 25.563, 25.807(e), and 25.1585(a), but excluding 25.1411, are approved. When the operating rules require emergency ditching equipment, compliance with 25.1411 and 25.1415 must be demonstrated. Gulfstream Report 1159-GER-7, entitled "Outfitting Requirements for FAA Certification for Ditching" provides an acceptable means for showing compliance with 25.1411 and 25.1415.

Special Conditions:
No. 25-180-SC, Enhanced Vision Systems.
No. 25-262-SC, HIRF (High Intensity Radiated Fields).

Exemptions:
No. 7946 [FAR 25.813(e)], Mid-Cabin Doors Between Passenger Compartments.
No. 8004, 8142 [FAR 25.901(c)], Uncontrollable High Thrust Failure Conditions.
NOTE: The FAA has concluded that the occurrence of any uncontrollable high thrust failure condition, or any of the associated causal failures listed in Section 05-50-00 of the applicable airplane Maintenance Manual "may endanger the safe operation of an airplane" and hence are reportable under FAR 121.703, 125.409 and 135.415.
No. 10044 [FAR 25.1447(c)(1)], Passenger Oxygen Equipment Deployed at 15,000 feet
NOTE: Exemption permits passenger oxygen mask deployment at cabin pressure altitudes of 15,750 ± 250 feet when operating into and out of airports with landing-field elevations between 14,000 and 15,000 feet

Equivalent Safety Findings:

(1) FAR 25.807(g)(2), Gulfstream Overwing Emergency Exit Windows, TAD ELOS Memo No. AT5177AT-T-A-2

A crewmember trained in evacuation is an additional required crewmember on all flights of 10 to 19 passengers. The required pilot and co-pilot cannot serve this function. The additional crewmember must be trained in the optimum method for evacuating through the Gulfstream elliptical exits and in procedures for directing passenger flow to prevent someone who does not fit through an elliptical exit from blocking it so that others cannot use it. Each operator must establish and maintain a training program for this additional crewmember (to include an initial and recurrent curriculum) in accordance with Gulfstream Document G500-OMS-1, Revision 1 (for G500 operations) or G550-OMS-1, Revision 1 (for G550 operations), and must keep a record of that training available for inspection by the FAA.

A pre-flight briefing on the configuration specific egress procedures and exits of the airplane must be provided to all passengers before each flight. This briefing must include a detailed explanation of the optimum method for evacuating through the overwing Gulfstream elliptical exits, which is dependant upon the interior configuration inboard of the exit.

(2) FAR 25.811(d) and 25.812(b), Emergency Exit Marker, Locator and Bulkhead/Divider Signs, TAD ELOS Memo No. AT5177AT-T-C-1

(3) FAR 25.841(b)(6), Cabin Pressurization - High Altitude Takeoff and Landing Operations, TAD ELOS Memo No. AT5177AT-T-S-29

(4) FAR 25.853, 25.869, Flammability Substantiation of Electronic Equipment, TAD ELOS Memo No. AT5177AT-T-A-9

(5) FAR 25.813(c)(2)(ii), "Emergency Exit Access," TAD ELOS Memo DAS3567Al-C-3]

(6) FAR 25.562(c)(8) and FAR 25.807(g)(2),“Seat Deformation into Emergency Exits,” (documented in TAD ELOS Memo ST8906AT-T-A-10)]

Model GIV-X: S/N 4001 and subsequent

14 CFR Part 25, effective February 1, 1965, including Amendments 25-1 through 25-101 with the exceptions listed below:

Section	Title	Amendment
25.21(e)	Proof of compliance.	25-7
25.305	Strength and deformation.	25-54, 25-86**
25.321	Flight loads – General.	25-23, 25-86**
25.333	Flight maneuvering envelope.	25-0, 25-86**
25.335(b)	Design airspeeds (speed margin).	25-23
25.341	Gust and turbulence loads.	25-0, 25-86**
25.343	Design fuel and oil loads.	25-18, 25-86**
25.365	Pressurized compartment loads.	25-54, 25-87**
25.373	Speed control devices.	25-0, 25-86**
25.391	Control surface loads – General.	25-0, 25-86**
25.427	Unsymmetrical loads.	25-0, 25-86**
25.445	Auxiliary aerodynamic surfaces.	25-0, 25-86**
25.459	Special devices.	25-0*
25.491	Takeoff run	25-0, 25-91**
25.561	Emergency landing conditions	25-23, 25-64 (seats), 25-91 (new structure)**
25.571	Damage tolerance and fatigue evaluation of structure.	25-54 (wing and empennage) 25-96 (fuselage changes)**
25.671	Control systems-General.	25-0
25.677(c)	Trim systems	25-0
25.693	Joints	25-0*
25.695	Power-boost and power-operated control system	25-0
25.807	Emergency exits	25-55*
25.807(c)(2),(d)(4)	Emergency exits	25-15*
25.813(a),(b),(c),(d),(f)	Emergency exit access	25-46*
25.841	Pressurized cabins	25-38, 25-87**
25.857	Cargo compartment classification	25-32*

25.858	Cargo or baggage compartment smoke or fire detection systems.	25-54*
25.963	Fuel Tanks	25-40*
25.973	Fuel tank filler connection	25-40*
25.1013	Oil tanks	25-36*
25.1447	Equipment standards for oxygen dispensing units	25-41, 25-87**
25.1517	Rough air speed, VRA	25-86 (new paragraph-**NA**)*****
25.1557	Miscellaneous markings and pounds	25-38*

* These systems have no changes from the basic GIV model; therefore the paragraphs remain at the original GIV certification basis and the later amendment was not adopted. Amendment 25-0 is the original published version of Part 25, February 1, 1965.

** Unmodified structure remains in compliance with the earlier amendment listed. New or modified structure is in compliance with the later amendment level listed.

Part 34, Amendment 34-3
Part 36, Amendment 36-24

Shoulder harness on all seats will be in lieu of demonstrated compliance to the test requirements of §25.562(c)(5) and (c)(6) per Amendment 25-64. Compliance to the test requirements of §25.785 in reference to §25.562(c)(5) and (c)(6) need not be demonstrated due to this concession. These provisions are acceptable for single or multiple occupant seating systems which are forward, aft, or side facing.

> Note: The certification basis of the GIV-X regarding 25.562 was established based on FAA understanding that this model will not operate in part 121 service. Therefore, installation of shoulder harnesses in lieu of demonstrated compliance to 25.562(c)(5) and (c)(6) applies only to aircraft not engaged in part 121 passenger carrying service. If the aircraft is operated in part 121, full compliance to the requirements of 25.562 (including paragraphs (c)(5) and (c)(6)) and 25.785 must be shown.

Compliance with the Optional Ditching Requirements has been established as follows: Data covering the ditching requirements of 14 CFR Part 25.801, including 25.563, 25.807 and 25.1585(a), but excluding 25.1411, are approved. When the operating rules require emergency ditching equipment, compliance with Parts 25.1411 and 25.1415 must be demonstrated.
Gulfstream Report no. 1159-GER-7, entitled "Outfitting Requirements for FAA Certification for Ditching", provides an acceptable means for showing compliance with Parts 25.1411 and 25.1415.

FAR 25.813(e) at Amendment 25-46 is not included in the certification basis.

Special Conditions:
No. 25-262-SC, HIRF (High Intensity Radiated Fields).
No. 25-180-SC, Enhanced Vision System (EVS).
No. 25-258-SC Interaction of Systems and Structure.

Exemptions:
No. 8142 [FAR 25.901(c)], Uncontrolled High Thrust Failure Condition.
NOTE: The FAA has concluded that the occurrence of any uncontrollable high thrust failure condition, or any of the associated causal failures listed in Section 05-50-00 of the applicable airplane Maintenance Manual "may endanger the safe operation of an airplane" and hence are reportable under FAR 121.703, 125.409, and 135.415.
No. 10044 [FAR 25.1447(c)(1)], Passenger Oxygen Equipment Deployed at 15,000 feet
NOTE: Exemption permits passenger oxygen mask deployment at cabin pressure altitudes of 15,750 ± 250 feet when operating into and out of airports with landing-field elevations between 14,000 and 15,000 feet

Equivalent Safety Findings:
(1) FAR 25.807, Elliptical Overwing Emergency Exits with a Horizontal Major Axis, TAD ELOS Memo No. AT5080AT-T-A-2
(2) FAR 25.811(d) and 25.812(b), Emergency Exit Marker, Locator, and Bulkhead Divider Signs, TAD ELOS Memo. No. AT5177AT-T-C-1

(3) FAR 25.841(b)(6), Cabin Pressurization – High Altitude Takeoff and Landing Field Elevations, TAD ELOS Memo No. AT5177AT-T-S-29
(4) FAR 25.853 and 25.869, Flammability Substantiation for Electrical Equipment, TAD ELOS Memo No. AT5177AT-T-A-9
(5) FAR 25.933, Flight Critical Thrust Reverser, TAD ELOS Memo No. AT5080AT-T-P-1
(6) FAR 25.813(c)(2)(ii), "Emergency Exit Access," TAD ELOS Memo DAS3567Al-C-3]
(7) FAR 25.562(c)(8) and FAR 25.807(g)(2),"Seat Deformation into Emergency Exits," (documented in TAD ELOS Memo ST8906AT-T-A-10)]

Production Basis

Models G-1159, G-1159A, G-1159B, G-IV, GV-SP and GIV-X:

Production Certificate No. 23, issued June 11, 1968;
Production Certificate No. 507, issued July 17, 1968;
Production Certificate No. 7SO, issued September 1,1978; reissued September 22, 1980; November 19, 1982; August 31, 1987; June 11, 1997, and August 14, 2003, and November 16, 2004, except Model 1159B.
See NOTE 7 and NOTE 8.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. Approved equipment is shown in Grumman G-1159 Type Design Equipment List, 1159-GER-1, or Gulfstream III G-1159A Type Design Equipment List, 1159A-GER-37, latest FAA approved revision. For the Models G-IV, GV, GV-SP and GIV-X, see the Illustrated Parts Catalog (IPC) for an approved equipment listing. In addition, the following items of equipment are required:

(a) When an airplane is outfitted to carry passengers, an FAA approved passenger oxygen system must be installed.
(b) FAA Approved Airplane Flight Manual.

NOTE 1. Weight and Balance

(a) Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each airplane at the time of original certification. The weight and balance report shall include as part of the empty weight, system fuel, total oil and hydraulic fluid.
(b) System fuel: The weight of all fuel required to fill all lines and tanks up to zero/readable fuel point on the fuel gages in the most critical flight attitude.
1. G-1159 airplanes (CAR 4b.416):
(i) S/N 1 through 299 without tip tanks:
Unusable fuel - 120 lb. total
Fuel lines - 44 lb. total
System fuel - 164 lb. Total
(ii) S/N 1 through 299 having tip tanks installed (ASC 200):
Unusable - 136 lb. total
Fuel lines - 50 lb. total
System fuel - 186 lb. Total

2. G-1159A and G-1159B airplanes (FAR 25.959):
(i) All serial numbers:
Unusable fuel* - 114 lb. total
Fuel lines - 44 lb. total
System fuel - 158 lb. total
*Includes 26 lb. undrainable.
3. G-IV airplanes (FAR 25.959):
(i) All serial numbers:
Unusable fuel* - 105 lb. total
Fuel lines - 45 lb. total
System fuel - 150 lb. total
*Includes 13 lb. undrainable
4. GV airplanes (FAR 25.959):
(i) S/N 501 through 549 without ASC 50:
Unusable fuel* - 480 lb.
Fuel lines - 30 lb.
System fuel - 510 lb.

(ii) S/N 550 & subs, and S/N 501 through 549 with ASC 50:
Unusable fuel* - 189 lb.
Fuel lines - 30 lb.
System fuel - 219 lb.
*Includes 32 lb. undrainable

5. GV-SP airplanes (FAR 25.959):
   (i) S/N 5001 and subsequent
   Unusable fuel* - 189 lb.
   Fuel lines - 30 lb.
   System fuel - 219 lb.
   *Includes 32 lb. undrainable
6. GIV-X airplanes (FAR 25.959)
   (i) S/N 4001 and subsequent
   Unusable fuel* - 105 lb.
   Fuel lines - 45 lb.
   System fuel - 150 lb.
   *Includes 13 lb. undrainable

(c) System oil: The weight of oil remaining in the engine lines and tanks after subtracting the oil in the tanks which is above the "zero gage" levels.

(d) The above "unusable" fuel is that amount of fuel in the tanks, including tank trapped fuel as defined in CAR 4b.416 or FAR 25.959, which is unavailable to the engines under critical flight conditions. The usable fuel capacity is given under section entitled "Fuel Capacity" for each airplane model. The "unusable" fuel is included in the system fuel as indicated in (a) above and need not be accounted for separately. See FAA approved Airplane Flight Manual for information concerning the following:

(1) Maximum fuel unbalance between left and right tanks for take-off and in-flight operations.
(2) Recommended airplane ground attitude to obtain equal fuel quantities during servicing.
(3) Fuel additives.

NOTE 2. Placards:

The required placards for Models G-1159, G-1159A, and G-1159B are listed in the appropriate Airplane Flight Manual. The required placards for Models G-IV, GV, GV-SP and GIV-X are listed in Chapter 11 of the appropriate Airplane Maintenance Manual.

NOTE 3. Retirement Times:

The retirement times of fatigue critical life limited components are listed in Section IV, Chapter 5 of the appropriate Gulfstream Aerospace Model G-1159 (GII), G-1159A (GIII), G-1159B (GIIB), or G-IV. Retirement times for the GV, GV-SP and GIV-X are listed in Section 05-10-00 of the applicable Airplane Maintenance Manual. The retirement times of these life limited components cannot be altered without FAA Engineering approval.

For airplanes having time (landings) in more than one configuration, contact Gulfstream Aerospace Engineering for remaining life limitations.

NOTE 4. Use of CASC Regulators:

In the event the CASC 146 regulators are used, the aircraft is limited to 18,000 ft. altitude, unless Gulfstream American G-1159 Aircraft Service Change 17 or Drawing No. 1159RDF163D is incorporated. When the CASC 174 fuel flow regulator is installed, Aircraft Service Change 52 must also be incorporated.

NOTE 5. Use of JP-4 Fuel:

The use of JP-4 fuel (wide cut) as agreed to by the operator, Rolls-Royce, and the appropriate airworthiness authority may result in a reduction of HP fuel pump life.

NOTE 6. Aircraft Service Changes:

The following are the more significant Aircraft Service Changes (ASC's) for the respective model aircraft, dealing primarily with weight limit changes, fuel system changes,, and service difficulty corrections. This is not the complete list of ASC's for any of these models.

NOTE: Gulfstream model aircraft GIV, GIV-X, GV & GV-SP having installed certain Aircraft Service Changes (ASCs) are complaint to 14 CFR Part 36, through amendment 36-28, Stage 4 Noise requirements. Substantiating data is documented in Gulfstream reports GIV-GER-423, GAC-CR-4058, GIVX-GER-1642, GIVX-GER-7117 and GVSP-GER-5866, each model specific ASC is identified below in each model section.

Model G-1159 (GII):

Aircraft Service Change (ASC) 10A, "Wing-Fuel Balance Lines - Modification of."
Applicable to S/N 1 through 82 and S/N 775.

Aircraft Service Change (ASC) 41, "Increased Gross Weight Wing Modifications."
Applicable to S/N 1 through 82 and S/N 775.

Aircraft Service Change (ASC) 81, "62,500 Pound Increased Gross Weight Modification."
Applicable to S/N 1 through 100 and S/N 775.

Aircraft Service Change (ASC) 175, "Exhaust (ATA No. 78) Noise Abatement Program Thrust Reverser Installation."
Applicable to S/N 1 through 165 and S/N 775.

Aircraft Service Change (ASC) 200, "Fuel Tip Tanks - Installation Of."
Applicable to S/N 1 through 216 and S/N 775.

Aircraft Service Change (ASC) 226, "Drag Brace Penetration Prevention."
Applicable to S/N 1 through 208 and S/N 775.

Aircraft Service Change (ASC) 233, "Installation of Tip Cap."
Applicable to S/N 1 through 216 and S/N 775 with ASC 200 and S/N 217 and subs, except S/N 775.

Aircraft Service Change (ASC) 256, "Increased Gross Weight (65,300 lb. without Tip Tanks)."
Applicable to S/N 1 and subsequent.

Aircraft Service Change (ASC) 299, "45,000 Foot Operating Altitude."
Applicable to S/N 1 and subsequent.

Model G-1159A (GIII):

Aircraft Service Change (ASC) 30, "Increased Fuel Capacity to 28, 300 lb., G-1159A."
Applicable to all S/N 249, 252, 300 through 371, and 875.

Aircraft Service Change (ASC) 70, "Increased Gross Weights, G-1159A."
Applicable to S/N 249, 252, 300 through 426, and 875.

Model G-1159B (GIIB):

Aircraft Service Change (ASC) 252, "Increased Fuel Capacity to 28,300 lb., G-1159B."
Applicable to all G-1159B S/N.

Aircraft Service Change (ASC) 275, "Increased Gross Weights, G-1159B."
Applicable to all G-1159B S/N.

Model GIV:

Aircraft Service Change (ASC) 61, "49,000 lb. Zero Fuel Gross Weight Increase (with Speed Restriction), G-IV."
Applicable to S/N 1000 through 1213.

Aircraft Service Change (ASC) 190, "Increased Ramp, Landing and Zero Fuel Gross Weight, G-IV."

Applicable to S/N 1000 through 1213.

Aircraft Service Change (ASC) 261, "49,000 lb. Zero Fuel Gross Weight Increase, G-IV."
Applicable to S/N 1000 through 1213.
Aircraft Service Change (ASC) 436, "G300 Modification" will designate those aircraft as Model G-IV (G300). Those aircraft shall be operated under Airplane Flight Manual GAC-AC-G300-OPS-0001.
Applicable to S/N 1500 and subsequent.

Aircraft Service Change (ASC) 440, "G400 Modification" will designate those aircraft as Model G-IV (G400). Those aircraft shall be operated under Airplane Flight Manual GAC-AC-G400-OPS-0001.
Applicable to S/N 1500 and subsequent.

Aircraft Service Change (ASC) 465 “Auxiliary Power Unit (APU) 36-150(G) Installation.”
Applicable to S/N 1000 to S/N 1535.

Aircraft Service Change (ASC) 485B “GIV Auxiliary Power Unit (APU) Enclosure –Thermal Barrier Installation to S/N 1311-1535

Aircraft Service Change (ASC) 487 “GIV Stage 4” Applicable to S/N 1001-1535

Model GV:

Aircraft Service Change (ASC) 50, "Aft Fuel Pickups-Location, GV.
Applicable to S/N 501 through 548.

Aircraft Service Change (ASC) 73A, "Honeywell Enhancement-Winter Certification, (includes 56021 IAC, 45% CG Expansion, and Revised Stall Barrier Activation Schedule), GV”.
Applicable to S/N 501 through 569.

Aircraft Service Change (ASC) 198A “GV Auxiliary Power Unit (APU) Enclosure –Thermal Barrier Installation to S/N 514-693 & 699

Aircraft Service Change (ASC) 197 “GV Stage 4” Applicable to S/N 501-693 including 699

Model GV-SP:

Aircraft Service Change (ASC) 10, "G500 Modification" will designate those aircraft as Model GV-SP (G500). Those aircraft shall be operated under Airplane Fight Manual GAC-AC-G500-OPS-0001.
Applicable to S/N 5001 and subsequent.

Aircraft Service Change (ASC) 11, "G550 Modification" will designate those aircraft as Model GV-SP (G550). Those aircraft shall be operated under Airplane Fight Manual GAC-AC-G550-OPS-0001.
Applicable to S/N 5001 and subsequent.

Aircraft Service Change (ASC) 035A, "European Aviation Safety Agency (EASA)/Joint Aviation Authorities (JAA) Certification Basic Requirements” converts aircraft to the configuration required by the EASA Type Certificate for the GV-SP (No. EASA.IM.A.070). Data supporting ASC 035A are FAA approved for GV-SP aircraft under Gulfstream control specifically being prepared for and prior to export to an EASA member country, or to a country that requires the EASA Type Design configuration. Following transfer to the foreign registry, if the aircraft is returned to U.S. registration and an application for Standard Airworthiness is submitted, then this ASC must be removed and the aircraft returned to its U.S. Type Design configuration. Aircraft fitted with ASC 035A shall be operated under the latest approved version of Airplane Fight Manual, GAC-AC-G500-OPS-0001 (for aircraft with ASC 10) or GAC-AC-G550-OPS-0001 (for aircraft with ASC 11), plus Airplane Flight Manual Supplement No. G550-2008-02 (applicable to both the G500 and G550 variants).
Applicable to S/N 5001 and subsequent.

Aircraft Service Change (ASC) 090A “GVSP Auxiliary Power Unit (APU) Enclosure –Thermal Barrier Installation to S/N 5001-5249 excluding 5011, 5225, and 5245

Aircraft Service Change (ASC) 089 “GVSP Stage 4” Applicable to S/N 5001-5288

Model GIV-X:

Aircraft Service Change (ASC) 002A, "European Aviation Safety Agency (EASA)/Joint Aviation Authorities (JAA) Certification Basic Requirements" converts aircraft to the configuration required by the EASA Type Certificate for the GIV-X (No. EASA.IM.A.070). Data supporting ASC 002A are FAA approved for GIV-X aircraft under Gulfstream control specifically being prepared for and prior to export to an EASA member country, or to a country that requires the EASA Type Design configuration. Following transfer to the foreign registry, if the aircraft is returned to U.S. registration and an application for Standard Airworthiness is submitted, then this ASC must be removed and the aircraft returned to its U.S. Type Design configuration. Aircraft fitted with ASC 002A shall be operated under the latest approved version of Airplane Fight Manual GAC-AC-G350-OPS-0001 (for aircraft with ASC 004) or GAC-AC-G450-OPS-0001 (for aircraft with ASC 005), plus Airplane Flight Manual Supplement No. G450-2008-01 (applicable to both the G350 and G450 variants).
Applicable to S/N 4001 and subsequent.

Aircraft Service Change (ASC) 004, "G350 Modification" will designate those aircraft as Model GIV-X (G350). Those aircraft shall be operated under Airplane Fight Manual GAC-AC-G350-OPS-0001.
Applicable to S/N 4001 and subsequent.

Aircraft Service Change (ASC) 005, "G450 Modification" will designate those aircraft as Model GIV-X (G450). Those aircraft shall be operated under Airplane Fight Manual GAC-AC-G450-OPS-0001.
Applicable to S/N 4001 and subsequent.

Aircraft Service Change (ASC) 016, "G450 Maximum Takeoff Gross Weight Increase."
Applicable to S/N 4001 and subsequent.

Aircraft Service Change (ASC) 065A "GIV-X Auxiliary Power Unit (APU) Enclosure –Thermal Barrier Installation to S/N 4001-4171 excluding 4152

Aircraft Service Change (ASC) 064 "GIV-X Stage 4" Applicable to S/N 4001-4200

NOTE 7. Production Basis:

Airplanes produced at Bethpage, New York:

(a) Model G-1159 (G-II): Type Certificate A12EA (issued October 19, 1967), S/N 1 through 7, 9, 11, 12, 13, 15, 16, 17, 18, and 22. Production Certificate No. 23 (issued June 11, 1968), S/N 23, 25, 26, 28, 30, 34, 35, 37, and 40.

Airplanes produced at Savannah, Georgia:

(a) Model G-1159 (G-II): Type Certificate A12EA (issued October 19, 1967), S/N 8, 10, 14, 19, 20, and 21. Production Certificate No. 507 (issued July 18, 1968), and 7SO (issued September 1, 1978 and reissued November 19, 1982); S/N 24, 27, 29, 31, 32, 33, 36, 38, 39, 41 through 256 (excluding 249 and 252) and 775.

(b) Model G-1159A (G-III): Production Certificate No. 7SO (issued September 1, 1978 and reissued September 22, 1980); S/N 249, 252, 300 through 495, and 875.

(c) Model G-1159B (G-IIB), none. Modified Model G-1159 airplane.

(d) Model G-IV (G-IV): Production Certificate No. 7SO (issued September 1, 1978 and reissued August 31, 1987), S/N 1000 and subsequent.

(e) Model GV (GV): Production Certificate No. 7SO (issued September 1, 1978 and reissued June 11, 1997), S/N 501 and subsequent.

(f) Model GV-SP (GV-SP): Production Certificate No. 7SO (issued September 1, 1978 and reissued August 14, 2003), S/N 5001 and subsequent.

(g) Model GIV-X (GIV-X): Production Certificate No. 7SO (issued September 1, 1978 and reissued November 16, 2004), S/N 4001 and subsequent.

NOTE 8. Alternate Aircraft Identifications:

The following provides approved alternate aircraft identification information assuming incorporation of the associated (listed) ASC:

Model G-IV, serial number 1500 & Subs, are eligible for identification as Model G-IV (G300) when modified in accordance with GAC Aircraft Service Change (ASC) 436.

Model G-IV, serial number 1500 & Subs, are eligible for identification as Model G-IV (G400) when modified in accordance with GAC Aircraft Service Change (ASC) 440.

Model GV-SP, serial number 5001 and subsequent are eligible for identification as Model GV-SP (G550) when modified in accordance with GAC Aircraft Service Change (ASC) 11.

Model GV-SP, serial number 5001 and subsequent are eligible for identification as Model GV-SP (G500) when modified in accordance with GAC Aircraft Service Change (ASC) 10.

Model GIV-X, serial number 4001 and subsequent are eligible for identification as Model GIV-X (G450) when modified in accordance with GAC Aircraft Service Change (ASC) 005.

Model GIV-X, serial number 4001 and subsequent are eligible for identification as Model GIV-X (G350) when modified in accordance with GAC Aircraft Service Change (ASC) 004.

NOTE 9. Cockpit Field of View:

The cockpit front windshield dimensions for the Models G-1159, G-1159A, G-1159B, G-IV, G-V, GV-SP, and GIV-X airplanes are critical for forward field of view certification requirements; therefore, no equipment should be installed on top of the glare shield without prior coordination with an FAA Aircraft Certification Office.

NOTE 10. Model G-1159A, S/N 249, 313 and 330:

The equipment listed in Gulfstream American Report No. 1159A-GER-78, "Royal Danish Air Force Gulfstream III Log Book Entry," dated April 8, 1982, must be FAA approved, removed, or rendered inoperative prior to issuance of a standard airworthiness certificate on Model G-1159A, S/N 249, 313, and 330.

NOTE 11. Systems Modifications:

The G-IV, GV, GV-SP and GIV-X models incorporate integrated avionics systems using software-based line replaceable units (LRU's) which share a digital signal transmission bus. The avionics configuration of the
G-IV, GV, GV-SP and GIV-X as delivered from production, is critical to the proper operation of the cockpit instrumentation system. Modification to the LRU software supplied with the G-IV, GV, GV-SP or GIV-X, replacement of an LRU with a different LRU, addition of new LRU, or alteration of an LRU interface could adversely affect the airworthiness of the certified product. Accordingly, no changes to the integrated avionics system should be made without coordination with the Aircraft Certification Office having jurisdiction over the modifier.

NOTE 12. Cockpit Modifications:

Any modification or changes in cockpit configuration which may affect aircrew workload, cockpit noise level or day/night lighting must be evaluated by an FAA Aircraft Certification Flight Test Pilot or Flight Standards Operation Inspector.

NOTE 13. Deleted (January 13, 1997)

NOTE 14. Use of Takeoff Thrust:

For Models G-IV, GV, GV-SP and GIV-X, use of takeoff thrust for more than five (5) minutes [not to exceed ten (10) minutes] is approved for use only in the event of an inoperative engine due to shutdown or failure.

NOTE 15. Information to Modifiers:

Information to modifiers on limitations which impact original certification requirements of the Gulfstream GV are contained in Gulfstream Report GV-GER-1242, Gulfstream V Interior Certification Requirements

Document. Information to modifiers on limitations which impact original certification requirements of the Gulfstream GV-SP are contained in Gulfstream Report GVSP-GER-6044, Gulfstream GV-SP Interior Certification Requirements Document. Information to modifiers on limitations which impact original certification requirements of the Gulfstream GIV-X are contained in Gulfstream Report GIVX-GER-1619, GIV-X Interior Certification Requirements Document.

NOTE 16. G-II Aging Aircraft Program

As part of the G-II Aging Aircraft Program, an Airworthiness Limitations Section (ALS) is being added to the current G-II Maintenance Manual. In addition, a Supplemental Structural Inspection Document (SSID) is being developed in order to provide the corresponding inspection procedures and methods. The ALS and SSID are being developed to FAR 25.571 at Amendment 25-54, based on the damage tolerance requirements of AC91-56A. Through the damage tolerance requirements, the ALS and SSID will remove certain life limitations on previous safe life certified components. With the incorporation of the ALS and SSID, the G-II airframe Extended Service Goal (ESG) will be 40,000 flight hours and 36,000 flights.

NOTE 17. GIV Airworthiness Limitations:

As part of the MSG3 Program, an Airworthiness Limitations Section (ALS) has been added to the GIV Maintenance Manual for aircraft serial number 1400 and subsequent, and for all other GIV aircraft having incorporated ASC 416. This ALS has been developed to FAR 25.571 at Amendment 25-54, based on the damage tolerance requirements of AC91-56A. It is controlled by the FAA and can not be changed by the aircraft operator. Through the damage tolerance requirements, the ALS removes certain life limitations on previous safe life certified components.

NOTE 18. Deleted (August 14, 2003)

NOTE 19. RVSM:

Per the approved Type Design, GV-SP S/N 5001 and subsequent (i.e., G550 and G500 model aircraft) are considered to be compliant with the Reduced Vertical Separation Minima (RVSM) technical requirements contained in FAA Document 91-RVSM; however, operational approval to fly in RVSM airspace must still be granted by the cognizant Flight Standards organization.

Per the approved Type Design, GIV-X S/N 4001 and subsequent (i.e., G450 and G350 model aircraft) are considered to be compliant with the Reduced Vertical Separation Minima (RVSM) technical requirements contained in FAA Document 91-RVSM; however, operational approval to fly in RVSM airspace must still be granted by the cognizant Flight Standards organization.

NOTE 20. Cockpit Video Display:

The avionics architecture of the GV-SP and GIV-X models includes a capability to display multiple, assorted video inputs on the cockpit display units positioned directly in front of the pilots. Because these displays affect crew workload, changes to the approved video input sources (including the addition of new video sources or capabilities) will require a specific FAA approval, including specific acknowledgement and concurrence from an FAA Aircraft Certification Office.

NOTE 21. Direction Indicator Requirements:

Gulfstream Models G-IV, GV, GV-SP, and GIV-X meet 14 CFR part 25.1303(a)(3) requirements for a direction indicator (non-stabilized magnetic compass) by installation of Standby Digital Reading Magnetic Indictor Systems through the following means:

G-IV	Standby Digital and Bearing Distance Indicator (DBDI) system driven by flux valve
GV	Standby Radio Magnetic Indicator (RMI) system driven by flux valve
GV-SP/GIV-X	Integrated Standby Instrument System (ISIS) and Electronic Bearing Distance Indicator (EBDI) system driven by magnetometer

NOTE 22. Forward Observer's Seat (Jump Seat)

The Forward Observer's Seat (Jump Seat) is approved for taxi, takeoff, and landing on the GV, GV-SP, and GIV-X models as part of Type Design. The Forward Observer's Seat (Jump Seat) is approved for taxi, takeoff, and landing on the GII, GIII, and GIV if verified by the installing STC or other FAA approved data. In flight use of the jump seat in any Gulfstream model also requires that related articles, specifically an FAA approved shoulder harness and Oxygen system, are installed. In addition, GII S/N 1through 208 and S/N 775 require ASC 226 be installed for jump seat approval.

NOTE 23. APU Limitations

For GIV-X series (G450/G350) airplane serial numbers 4147, 4151, and 4153 through 4171, the Gulfstream Airplane Flight Manual Supplements noted below must be attached to the G450 AFM dated 12 August 2004, or the G350 AFM dated 28 October 2004. If any of these aircraft is subsequently outfitted with ASC 065A, or with ASC 065 plus 065Am1, then it will no longer require the AFMS:

S/N	AFMS #	S/N	AFMS #
4147	G450-2009-04-4147	**4162**	G450-2009-04-4162
4151	G450-2009-04-4151	**4163**	G450-2009-04-4163
4153	G450-2009-02 or G450-2009-04-4153	**4164**	G450-2009-04-4164
4154	G450-2009-02 or G450-2009-04-4154	**4165**	G450-2009-04-4165
4155	G450-2009-02 or G450-2009-04-4155	**4166**	G450-2009-04-4166
4156	G450-2009-02 or G450-2009-04-4156	**4167**	G450-2009-04-4167
4157	G450-2009-02 or G450-2009-04-4157	**4168**	G450-2009-04-4168
4158	G450-2009-04-4158	**4169**	G450-2009-04-4169
4159	G450-2009-04-4159	**4170**	G450-2009-04-4170
4160	G450-2009-02 or G450-2009-04-4160	**4171**	G450-2009-04-4171
4161	G450-2009-04-4161		

For GV-SP series (G550/G500) airplane serial numbers 5205, 5218, 5220 through 5224, 5226 through 5244, and 5246 through 5249, the Gulfstream Airplane Flight Manual Supplements noted below must be attached to the G550 AFM dated 14 August 2003, or the G500 AFM dated 05 December 2003. If any of these aircraft is subsequently outfitted with ASC 090A, or with ASC 090 plus 090Am1, then it will no longer require the AFMS:

S/N	AFMS #	S/N	AFMS #
5205	G550-2009-02 or G550-2009-05-5205	**5235**	G550-2009-05-5235
5218	G550-2009-05-5218	**5236**	G550-2009-05-5236
5220	G550-2009-02 or G550-2009-05-5220	**5237**	G550-2009-05-5237
5221	G550-2009-02 or G550-2009-05-5221	**5238**	G550-2009-05-5238
5222	G550-2009-02 or G550-2009-05-5222	**5239**	G550-2009-05-5239
5223	G550-2009-02 or G550-2009-05-5223	**5240**	G550-2009-05-5240
5224	G550-2009-05-5224	**5241**	G550-2009-05-5241
5226	G550-2009-02 or G550-2009-05-5226	**5242**	G550-2009-05-5242
5227	G550-2009-02 or G550-2009-05-5227	**5243**	G550-2009-05-5243
5228	G550-2009-02 or G550-2009-05-5228	**5244**	G550-2009-05-5244
5229	G550-2009-02 or G550-2009-05-5229	**5246**	G550-2009-05-5246
5230	G550-2009-02 or G550-2009-05-5230	**5247**	G550-2009-05-5247
5231	G550-2009-05-5231	**5248**	G550-2009-05-5248
5232	G550-2009-05-5232	**5249**	G550-2009-05-5249
5233	G550-2009-05-5233	**5246**	G550-2009-05-5246
5234	G550-2009-05-5234		

Note 24 Stage 4 Noise

Gulfstream model aircraft GIV, GIV-X, GV & GV-SP having installed the following Aircraft Service Changes (ASCs) are complaint to 14 CFR Part 36, through amendment 36-28, Stage 4 Noise requirements. Substantiating data is documented in Gulfstream reports GIV-GER-423, GAC-CR-4058, GIVX-GER-1642, GIVX-GER-7117 and GVSP-GER-5866

GV-SP ASC 089 “Stage 4” Serial Number Effectivity 5001-5288
GIV-X ASC 064 “Stage 4” Serial Number Effectivity 4001-4200
GV ASC 197 “Stage 4” Serial Number Effectivity 501-693 including 699
GIV ASC 487 “Stage 4” Serial Number Effectivity 1000 - 1535