

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

A12EA  
Revision 22  
Gulfstream  
G-1159  
G-1159A  
G-1159B  
G-IV  
G-V  
  
April 30, 1997

**TYPE CERTIFICATE 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		<u>Kerosene</u>	
	American		ASTM D 1655-75 Jet A ASTM D 1655-75 Jet A-1 ASTM ES 2-74
	British		MIL-T-83133 Grade JP-8 D Eng. R.D. 2482 Issue 3 D Eng. R.D. 2494 Issue 5 D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2453 Issue 3 Am. 1 D Eng. R.D. 2494 Issue 7 Am. 1
	Canadian		3-GP-23f
		<u>JP-4 Wide Cut Type (See NOTE 5)</u>	
	American		ASTM D 1655-75 Jet B MIL-T-5624G Grade JP-4 MIL-T-5624J Grade JP-4 MIL-T-5624K Grade JP-4 ASTM ES 2-74
	British		D Eng. R.D. 2486 Issue 6 D Eng. R.D. 2486 Issue 8 Am. 1 D Eng. R.D. 2454 Issue 3 Am. 1
	Canadian		3-GP-22f 3-GP-22g 3-GP-22h

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Fuel (continued)		<u>JP-5 High Flash-Point Type</u>
	American	MIL-T-5624G Grade JP-5 MIL-T-5624J Grade JP-5 MIL-T-5624K Grade JP-5
	British	D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2498 Issue 6
	Canadian	3-GP-24e 3-GP-24f

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
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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

Engine Limits  
(continued)

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)

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  
(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

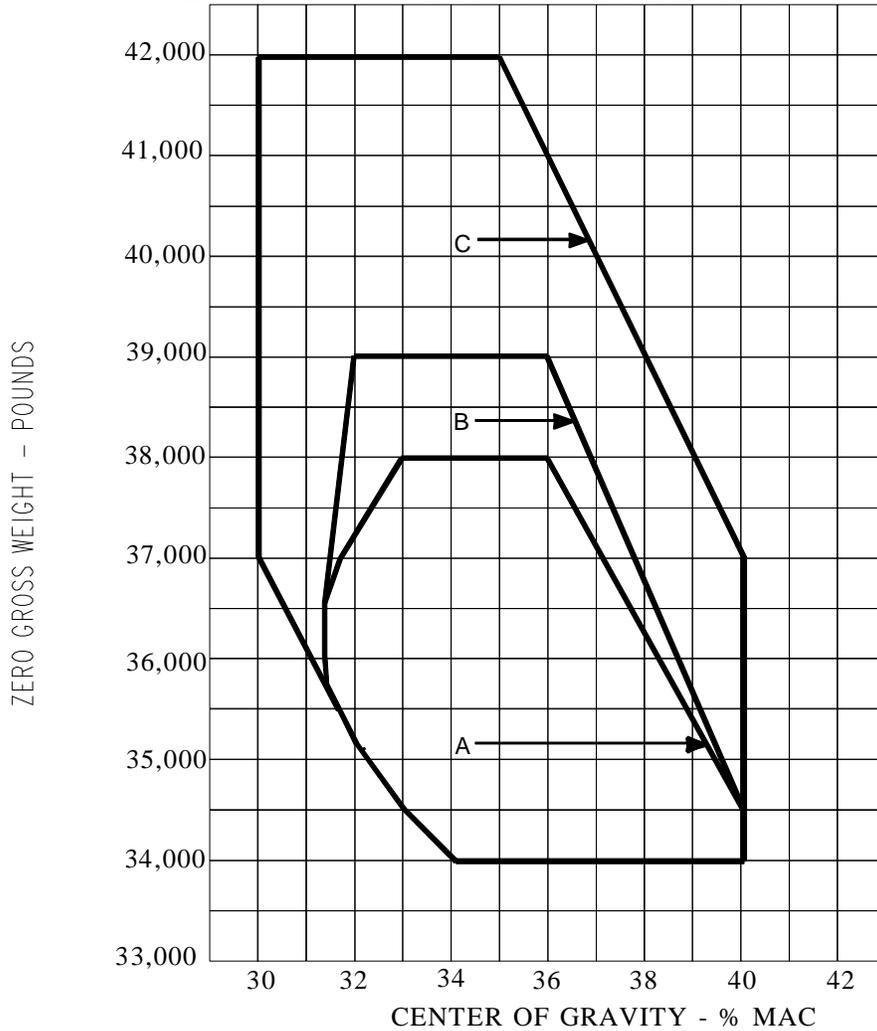
Datum	Station 0 is 45 inches forward of the jig point at the centerline of the airplane in the nose wheel well.							
M.A.C.	147.28 in. (L.E. of M.A.C. = Fuselage Station 404.13)							
Fuel Capacity	S/N 1 thru 82 & 775:							
	Gravity or Pressure Fueling:	<table border="0"> <tr> <td><u>Total</u></td> <td>22,620 lb.</td> </tr> <tr> <td><u>Usable</u></td> <td>22,500 lb.</td> </tr> <tr> <td><u>Arm*</u></td> <td>+433.0</td> </tr> </table>	<u>Total</u>	22,620 lb.	<u>Usable</u>	22,500 lb.	<u>Arm*</u>	+433.0
<u>Total</u>	22,620 lb.							
<u>Usable</u>	22,500 lb.							
<u>Arm*</u>	+433.0							
	S/N 1 thru 82 & 775 with ASC 41 & ASC 10A, and S/N 83 thru 216:							
	Gravity or Pressure Fueling:	<table border="0"> <tr> <td><u>Total</u></td> <td>23,400 lb.</td> </tr> <tr> <td><u>Usable</u></td> <td>23,300 lb.</td> </tr> <tr> <td><u>Arm*</u></td> <td>435.9</td> </tr> </table>	<u>Total</u>	23,400 lb.	<u>Usable</u>	23,300 lb.	<u>Arm*</u>	435.9
<u>Total</u>	23,400 lb.							
<u>Usable</u>	23,300 lb.							
<u>Arm*</u>	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 E2EA)

Fuel		<u>Kerosene</u>
	American	ASTM D 1655-75 Jet A ASTM D 1655-75 Jet A-1 ASTM ES 2-74
	British	MIL-T-83133 Grade JP-8 D Eng. R.D. 2482 Issue 3 D Eng. R.D. 2494 Issue 5 D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2453 Issue 3 Am. 1 D Eng. R.D. 2494 Issue 7 Am. 1
	Canadian	3-GP-23f
		<u>JP-4 Wide Cut Type (See NOTE 5)</u>
	American	ASTM D 1655-75 Jet B MIL-T-5624G Grade JP-4 MIL-T-5624J Grade JP-4 MIL-T-5624K Grade JP-4 ASTM ES 2-74
	British	D Eng. R.D. 2486 Issue 6 D Eng. R.D. 2486 Issue 8 Am. 1 D Eng. R.D. 2454 Issue 3 Am. 1
	Canadian	3-GP-22f 3-GP-22g 3-GP-22h
		<u>JP-5 High Flash-Point Type</u>
	American	MIL-T-5624G Grade JP-5 MIL-T-5624J Grade JP-5 MIL-T-5624K Grade JP-5
	British	D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2498 Issue 6
	Canadian	3-GP-24e 3-GP-24f

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	<u>Static Thrust (std. day) S.L.</u>	
	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 (continued)	<u>Maximum permissible temperatures:</u>			
	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)			
		(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	
	<u>Maximum Air Bleed Extraction</u>			
	(Percent of no bleed mass flow)			
	Maximum engine high pressure bleed		2.45%	
	Maximum engine low pressure bleed		3.65%	
	Auxiliary Power Unit (APU)	<u>AirResearch GTCP-36-6: S/N 1 thru 248 and 775</u>		
		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 temperature of 113°F)				
<u>AirResearch GTCP-36-100G: S/N 250 thru 299, except 252</u>				
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			50hp	
(with 46.6 lb. per min. bleed air and ambient temperature of 103°F)				
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:

<u>Total</u>	26,936 lb.
<u>Usable</u>	26,800 lb.
<u>Arm*</u>	+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	13.7/14.6 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)

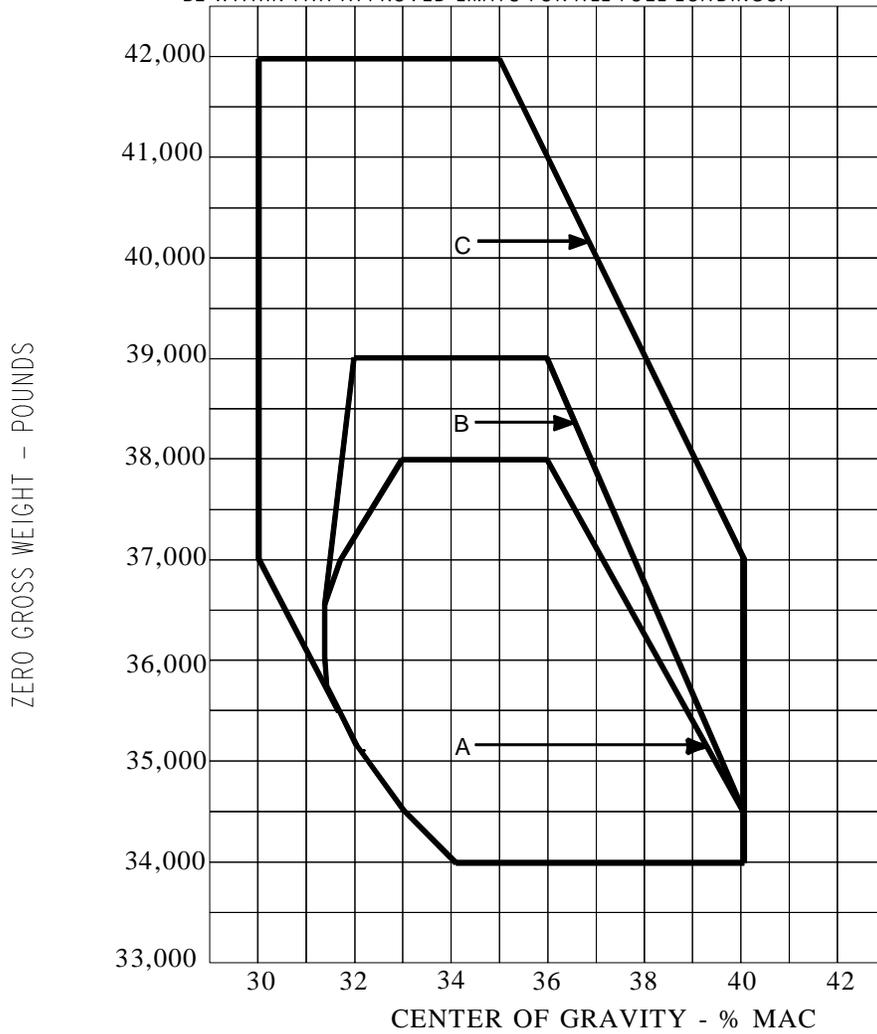
Oil weights based upon oil density of 7.5 lb. per gal.  
See NOTE 1 for system oil.  
Capacities shown are for engine oil tankage only.  
Total engine oil is an additional 14 lb. per engine.

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

	<u>Kerosene</u>
American	ASTM D 1655-75 Jet A ASTM D 1655-75 Jet A-1 ASTM ES 2-74 MIL-T-83133 Grade JP-8
British	D Eng. R.D. 2482 Issue 3 D Eng. R.D. 2494 Issue 5 D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2453 Issue 3 Am. 1 D Eng. R.D. 2494 Issue 7 Am. 1
Canadian	3-GP-23f
	<u>JP-4 Wide Cut Type (See NOTE 5)</u>
American	ASTM D 1655-75 Jet B MIL-T-5624G Grade JP-4 MIL-T-5624K Grade JP-4 ASTM ES 2-74
British	D Eng. R.D. 2486 Issue 6 D Eng. R.D. 2486 Issue 8 Am. 1 D Eng. R.D. 2454 Issue 3 Am. 1
Canadian	3-GP-22f 3-GP-22g 3-GP-22h
	<u>JP-5 High Flash-Point Type</u>
American	MIL-T-5624G Grade JP-5 MIL-T-5624J Grade JP-5 MIL-T-5624K Grade JP-5
British	D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2498 Issue 6
Canadian	3-GP-24e 3-GP-24f

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	50hp
(with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	

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)

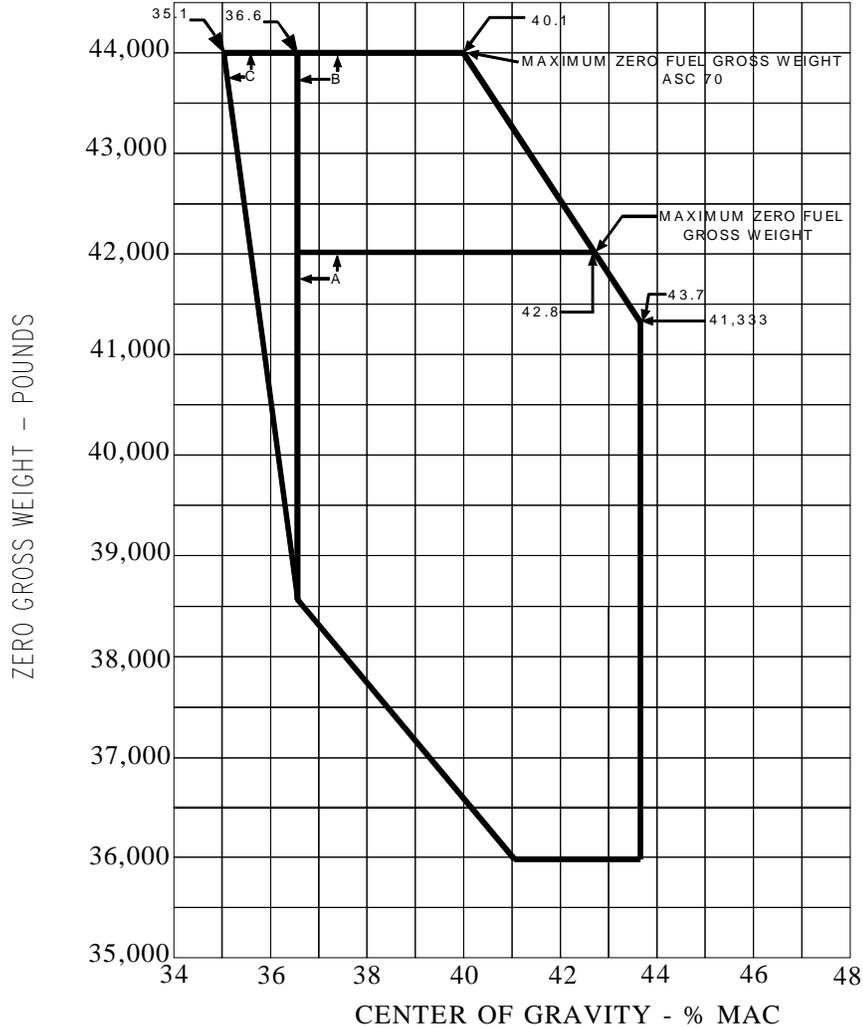
Oil weights based upon oil density of 7.5 lb. per gal.  
See NOTE 1 for system oil.  
Capacities shown are for engine oil tankage only.  
Total engine oil is an additional 14 lb. per engine.

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

**GULFSTREAM AEROSPACE**  
 G1159A 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
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-IIIB (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.

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

## Fuel

	<u>Kerosene</u>
American	ASTM D 1655-75 Jet A ASTM D 1655-75 Jet A-1 ASTM ES 2-74 MIL-T-83133 Grade JP-8
British	D Eng. R.D. 2482 Issue 3 D Eng. R.D. 2494 Issue 5 D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2453 Issue 3 Am. 1 D Eng. R.D. 2494 Issue 7 Am. 1
Canadian	3-GP-23f
	<u>JP-4 Wide Cut Type (See NOTE 5)</u>
American	ASTM D 1655-75 Jet B MIL-T-5624G Grade JP-4 MIL-T-5624J Grade JP-4 MIL-T-5624K Grade JP-4 ASTM ES 2-74
British	D Eng. R.D. 2486 Issue 6 D Eng. R.D. 2486 Issue 8 Am. 1 D Eng. R.D. 2454 Issue 3 Am. 1
Canadian	3-GP-22f 3-GP-22g 3-GP-22h
	<u>JP-5 High Flash-Point Type</u>
American	MIL-T-5624G Grade JP-5 MIL-T-5624J Grade JP-5 MIL-T-5624K Grade JP-5
British	D Eng. R.D. 2498 Issue 4 D Eng. R.D. 2498 Issue 6
Canadian	3-GP-24e 3-GP-24f

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	50hp
(with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	

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	10hp
(with 50 lb. per min. bleed air and ambient temperature of 113°F)	

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

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:	<u>Total</u>	28,014 lb.
		<u>Usable</u>	27,900 lb.
		<u>Arm*</u>	+430.4
	Modification Nos. 9 and Subsequent.		
	Gravity or Pressure Fueling:	<u>Total</u>	28,444 lb.
		<u>Usable</u>	28,300 lb.
		<u>Arm*</u>	+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.



Canadian	CAN 2.3.23-M82
American	<u>JP-4 Wide Cut Type (See NOTE 5)</u> ASTM D 1655-84, Jet B MIL-T-5624L, Grade JP4
British	D Eng. R.D. 2454, Issue 4 D Eng. R.D. 2486, issue 9
Canadian	CAN 2.3.22-M81
American	<u>JP-5 High Flash - Point Type</u> MIL-T-5624L, Grade JP5
British	D Eng. R.D. 2452, Issue 2 D Eng. R.D. 2498, Issue 7
Canadian	CAN 3-GP-24h

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 (5 min.)	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 temperature measured at nozzle guide vanes ahead of first low stage pressure turbine:

Takeoff (5 min)	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 temperature 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 (maximum 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 (with 46.6 lb. per min. bleed air and ambient temperature of 103°F)	50hp

## 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 1159SB41190	49,000	75,000	74,600	66,000
1214 & Sub	49,000	75,000	74,600	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: Total 29,605 lb.  
Usable 29,500 lb.  
Arm\* +430.4

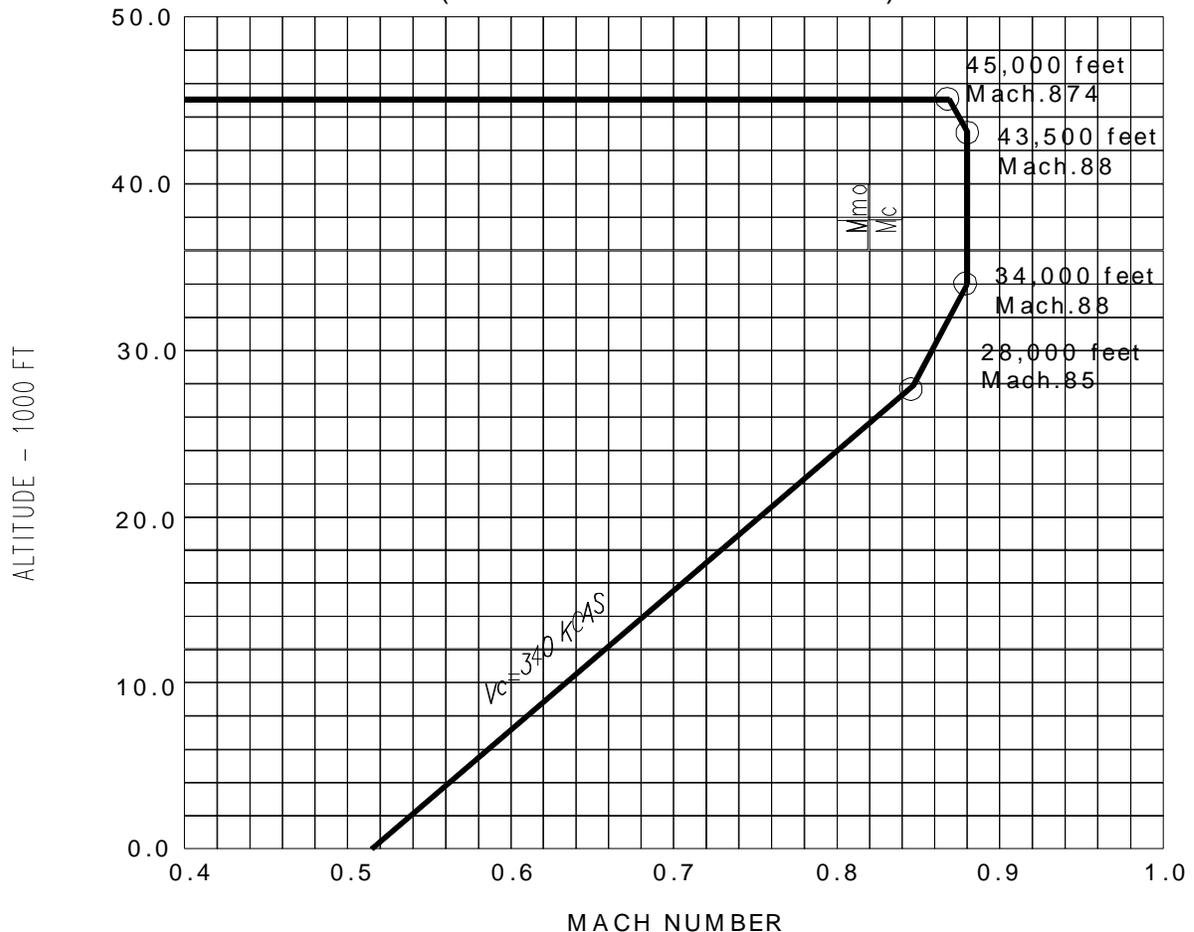
Fuel weights based upon fuel density of 6.75 lb. per gal.  
 \*Arm based on ground static altitude (-1.5° FRL)

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)

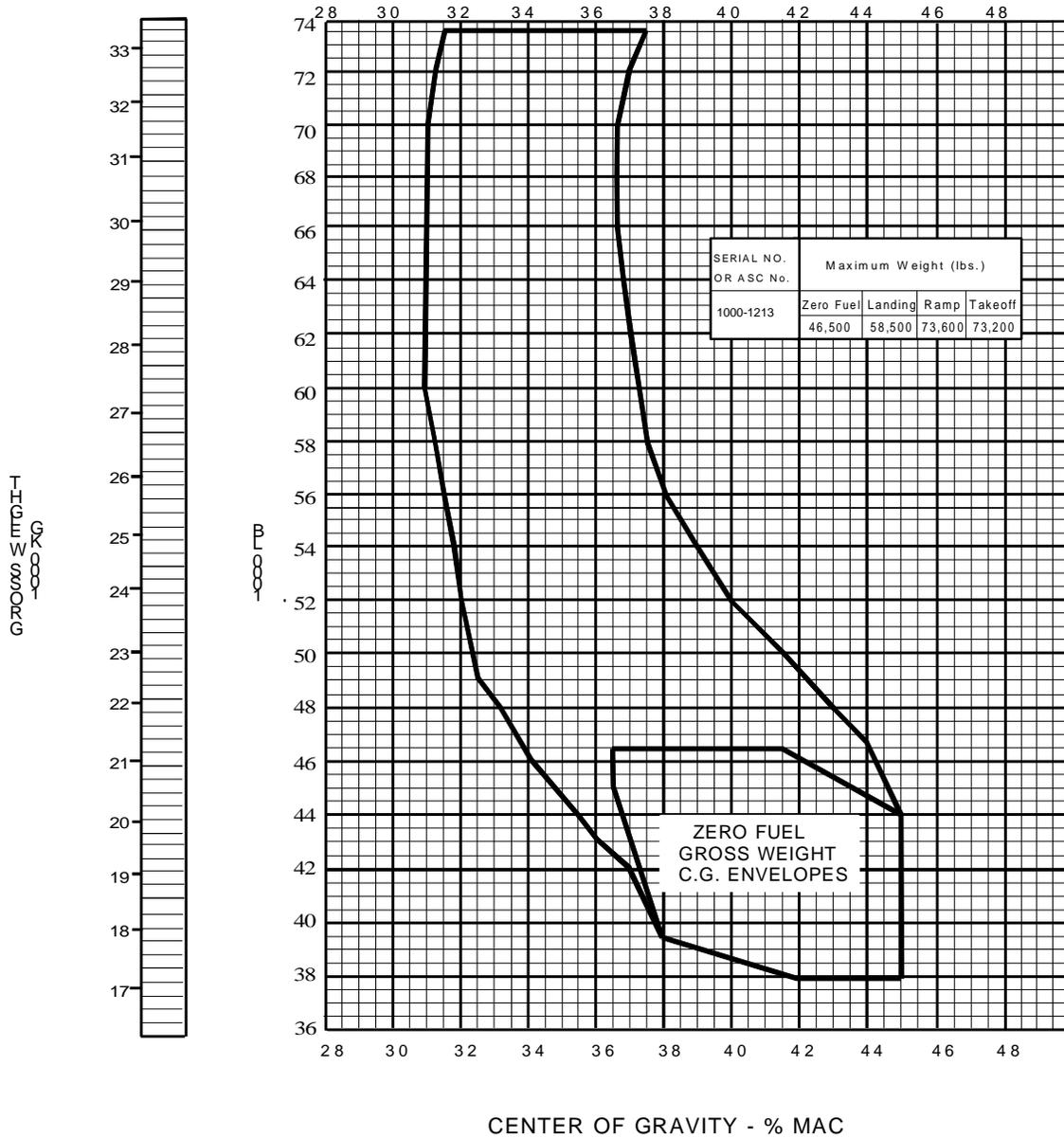
Serial No. Eligible S/N 1000 and subsequent.

AIRSPEED LIMITS (MAXIMUM OPERATING)

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

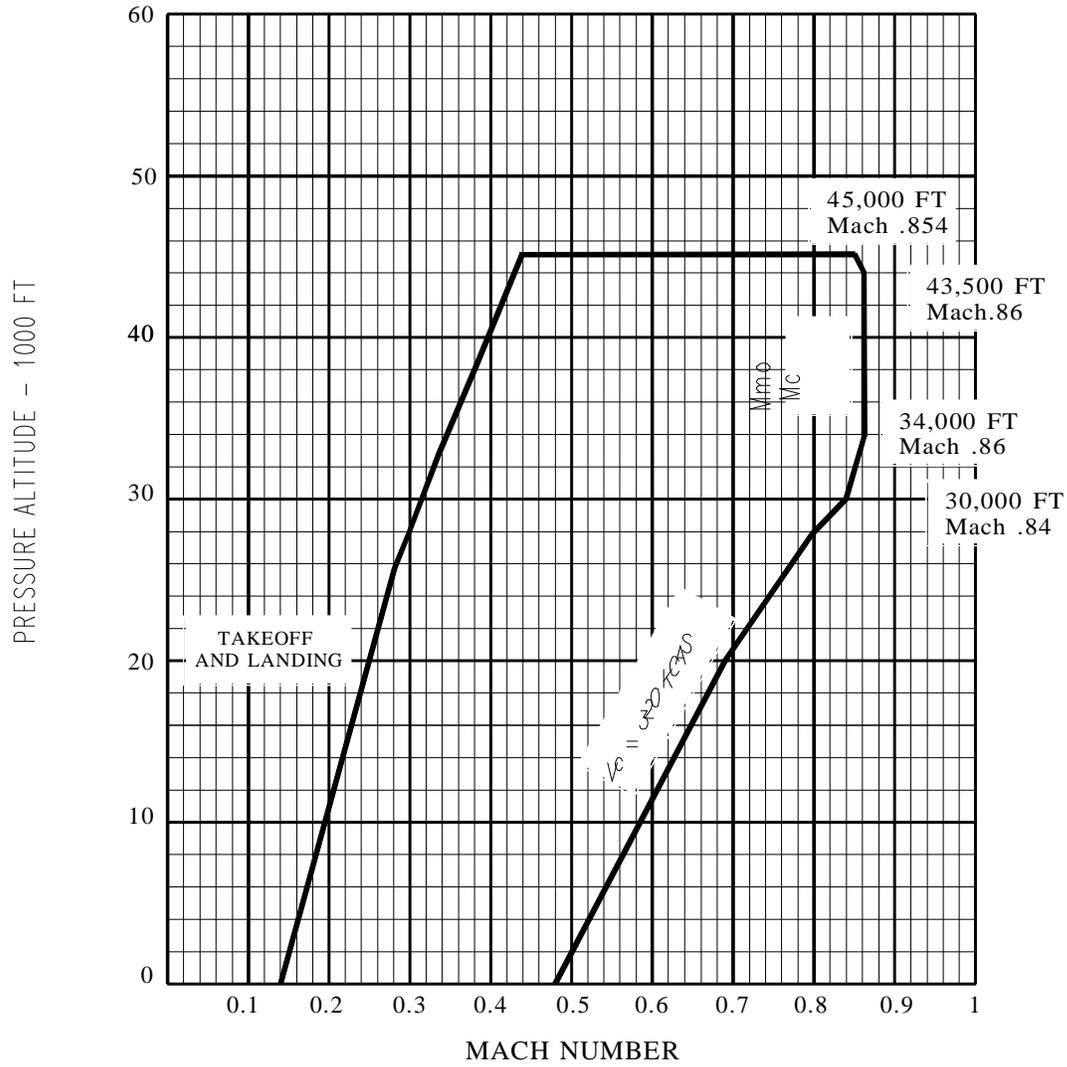


CENTER OF GRAVITY  
VERSUS  
GROSS WEIGHT  
ENVELOPES

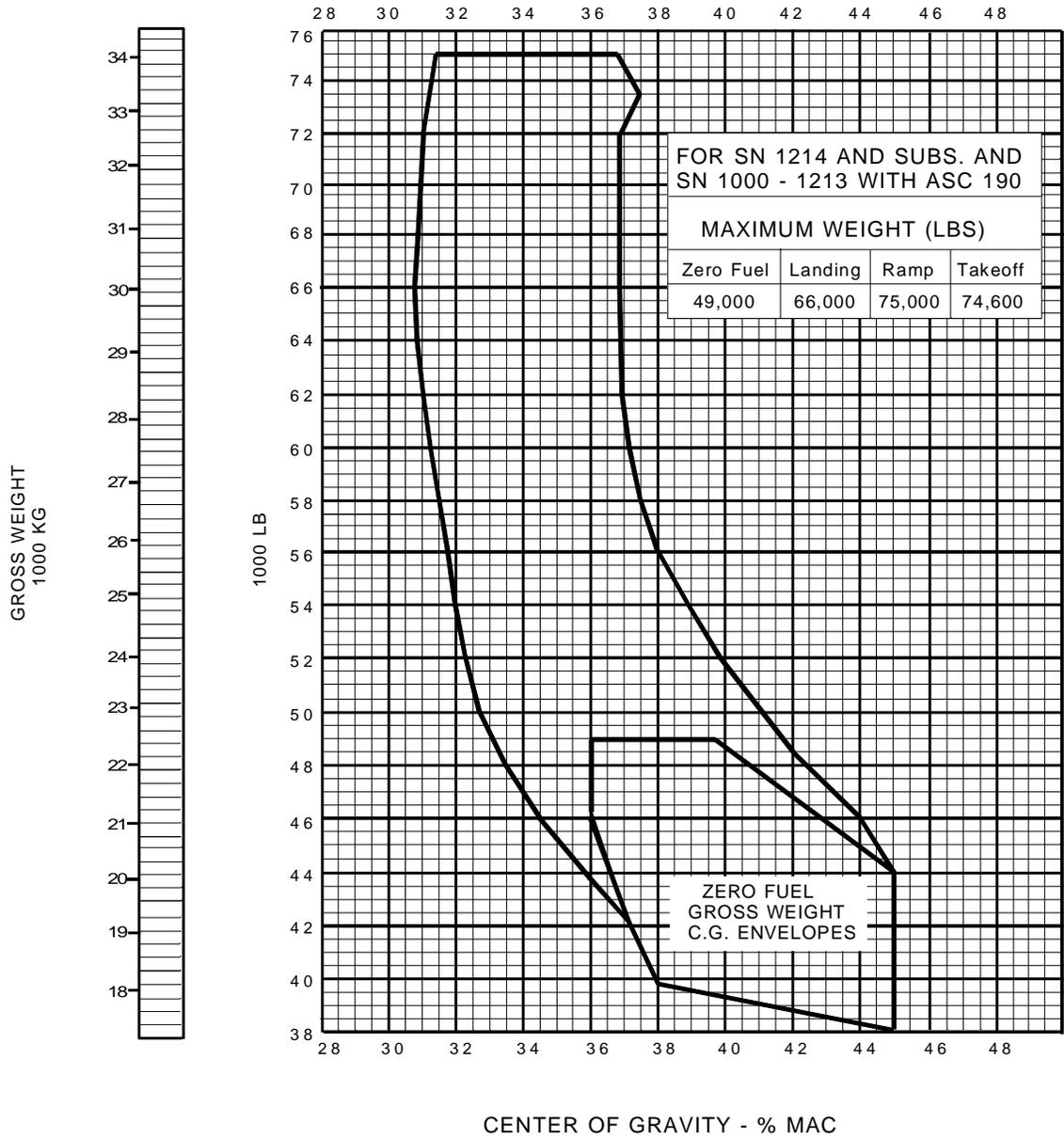


### ALTITUDE - MACH FLIGHT ENVELOPE

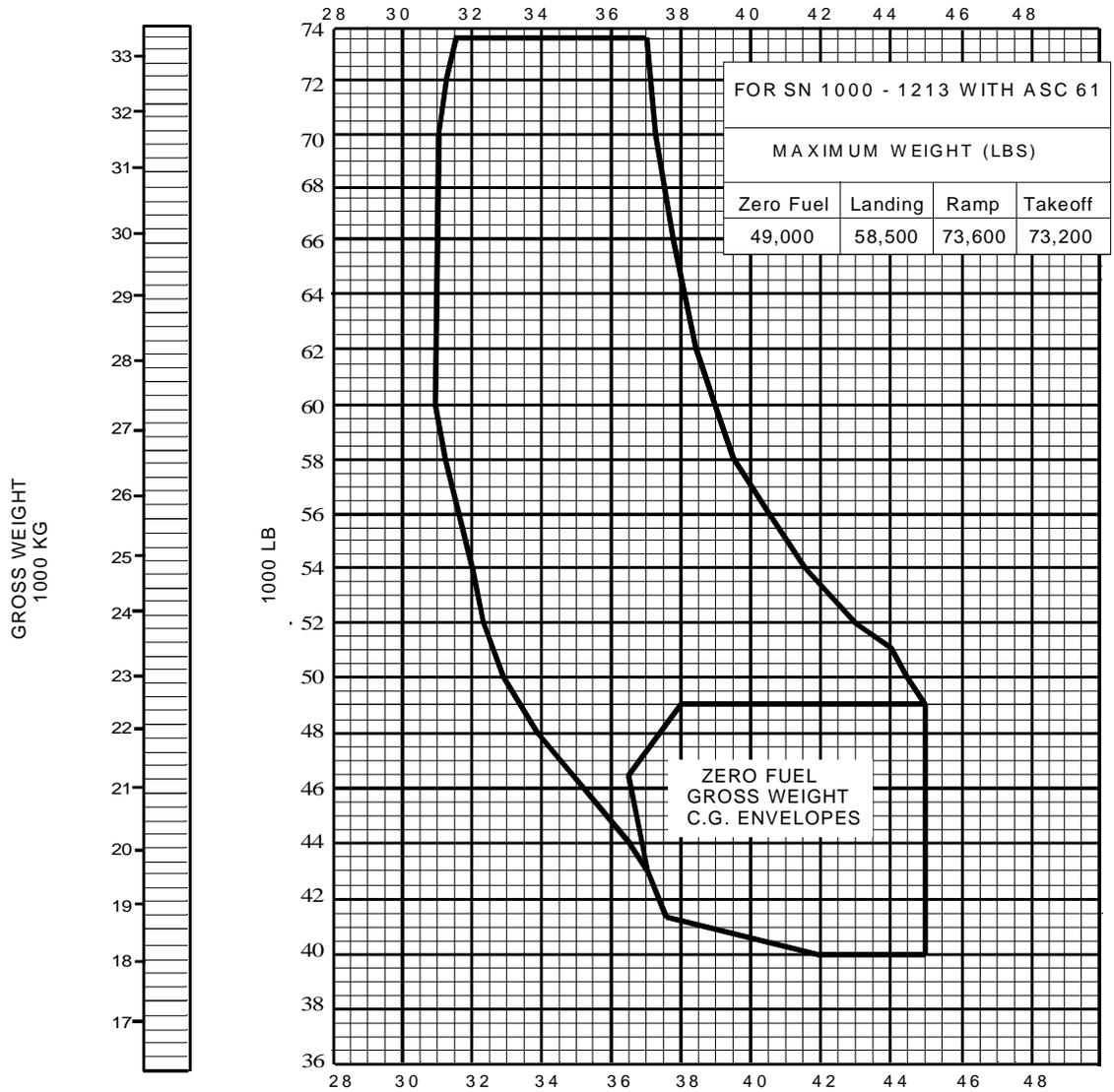
(SN 1000 - 1213 WITH ASC 61)



CENTER OF GRAVITY  
VERSUS  
GROSS WEIGHT  
ENVELOPES

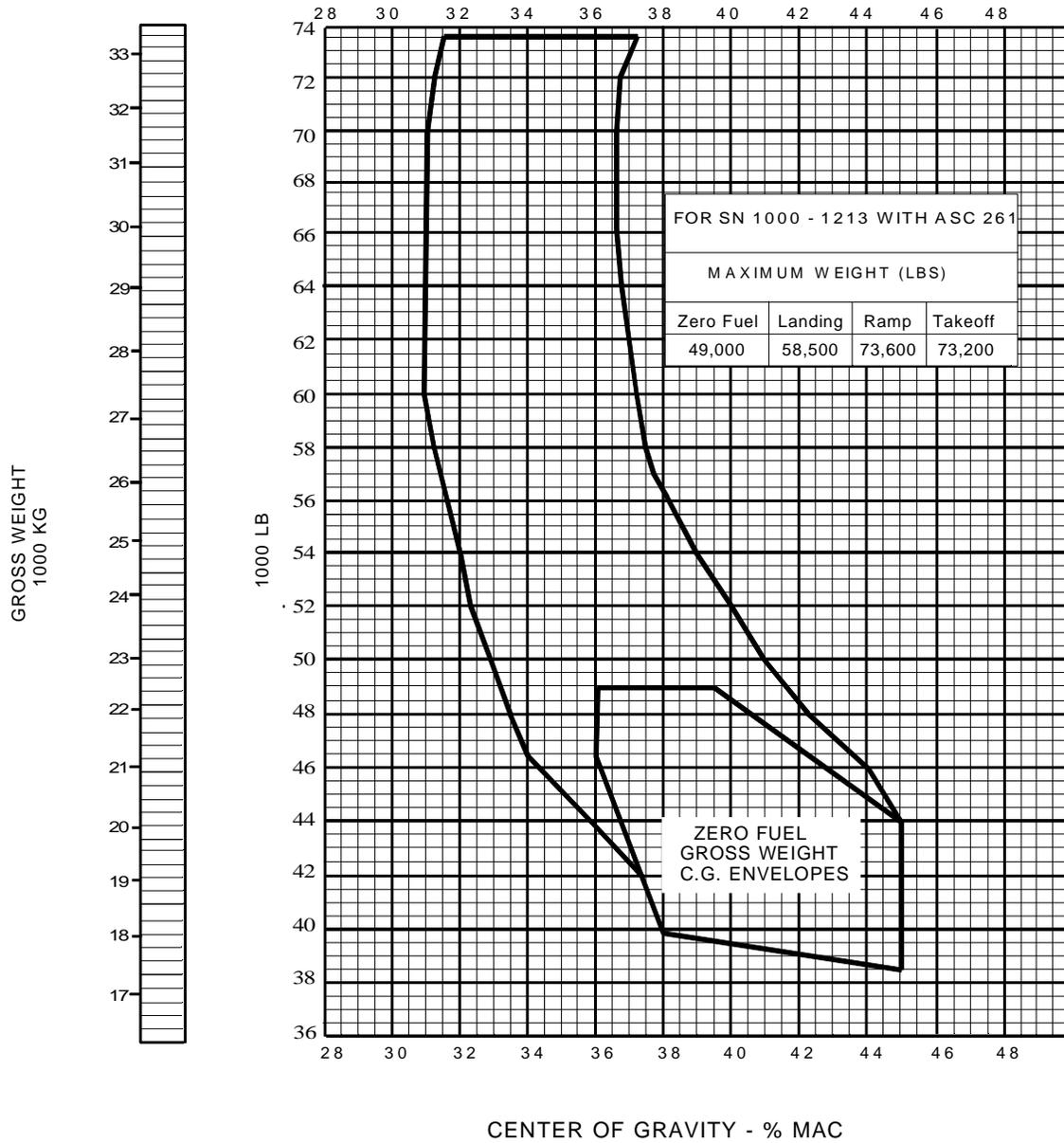


CENTER OF GRAVITY  
VERSUS  
GROSS WEIGHT  
ENVELOPES



CENTER OF GRAVITY - % MAC

CENTER OF GRAVITY  
VERSUS  
GROSS WEIGHT  
ENVELOPES



**VI. - Model G-V (Transport Category), Approved April 11, 1997**

The Gulfstream G-V 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 BMW-Rolls Royce 700-710A1-10 (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 Mark BR700-710A1-10 (Type Certificate E00057EN)

Fuel

	<u>Kerosene</u>
American	ASTM D 1655-92, Jet A ASTM D 1655-92, Jet A-1 MIL-T-83113, Grade JP-8
Canadian	CAN/CGSB-3.23
British	DERD 2453 DERD 2494
French	AIR 3405
CIS	GOST 10227-86, Am 1, TS-1 & RT
IATA	kerosene type

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 15)	(101.0%)	7,505 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 15)	( 99.6%)	15,834 rpm
- Maximum Continuous	( 98.9%)	15,723 rpm
- Maximum Overspeed (20 seconds)	( 99.8%)	15,866 rpm

Engine Limits (cont'd) 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 15)	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	54°
Fuel inlet temperature from engine high pressure pump (unrestricted maximum)	140°
Fuel inlet 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 {G-V}

Rated Output Shaft Power	95 hp (continuous) 142 hp (5 minutes) 190 hp (5 seconds)
Maximum Generator Output Shaft Speed	12,000 rpm
Maximum Exhaust Gas Temp at Rated Output	1300 °F (T <sub>2</sub> = 140 °F)
Maximum Allowable Rotor Speed	48,320 rpm (T <sub>2</sub> < 115 °F)
Maximum Allowable Exhaust Gas Temperature	Starting: 1922 °F (1050 °C) for T <sub>2</sub> < -20 °F (-29 °C), P <sub>2</sub> > 6.75 psia Operating: 1585 °F (863 °C) for T <sub>2</sub> < -10 °F (-23 °C)

Airspeed Limits (CAS)	V <sub>mo</sub> /M <sub>mo</sub> (Maximum operating)	(mph)	(KCAS)	
	See Altitude/Mach Flight Operating Envelope			
	V <sub>a</sub> (Maneuvering)	237 mph	206 knots	
	V <sub>fe</sub> (Flaps down to 39°)	190 mph	165 knots	
		(Flaps down to 20°)	253 mph	220 knots
	V <sub>lo</sub> (Landing gear operation)	259 mph	225 knots	
	V <sub>le</sub> (Landing gear extended)	288 mph	250 knots	
	V <sub>mCG</sub> (Minimum control ground)	128 mph	108 knots	
	V <sub>mca</sub> (Minimum control air)	120 mph	112 knots	

Maximum Operating Altitude 51,000 feet



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 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.

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 G-V)

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 (G-V only):

Main cabin floor fuselage station 253 to 441.5. Dead weight cargo loading maximum uniform load over entire width of floor shall be 49 lb/ft<sup>2</sup>. Maximum uniform load with a 20 inch clear aisle down the middle shall be 98 lb/ft<sup>2</sup>. 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.

Main cabin floor fuselage station 441.5 to 642. Dead weight cargo loading maximum uniform loading shall be 100 lb/ft<sup>2</sup>.

Main cabin floor fuselage station 642 to 742. Maximum uniform loading shall be 65 lb/ft<sup>2</sup>.

Maximum Baggage (G-V only)

Compartment aft of fuselage station 684.00 to bulkhead or pressure dome.

Capacity - (2500 lb. less any weight added in equipment bay)

Maximum floor loading - 65 lb/ft<sup>2</sup>

Approved smoke detection system required.

## Other Operating Limitations

The aircraft must be operated in accordance with the FAA Approved Airplane Flight Manual.

The G-V aircraft must be operated in accordance with the FAA Approved Airplane Flight Manual, dated April 11, 1997, or later FAA approved revision.

## Control Surface Movements

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°)

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°)

G-V:

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°)
Ailerons	Up	11° (+1°, -1°)	Down	11° (+1°, -1°)
Aileron trim	Up	15° (+4°, -4°)	Down	15° (+4°, -4°)
Flaps			Down	39° (+1°, -1°)
Speed brakes	Right	30° (+2°, -5°)	Left	30° (+2°, -5°)
Ground spoiler (all spoilers)	Up	55° (+4°, -4°)		

Horizontal stabilizer travel range - Leading edge down: -1.5° (+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.

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 25.329 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.

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.

Models G-1159, G1159A, and G-1159B: FAR 25.771, Amendment 4. A lockable door is not required between the pilot and passenger compartments.

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:

<u>Section</u>	<u>Amendment</u>
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(d)	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 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.

Model G-V: 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:

<u>Section</u>	<u>Amendment</u>
25.109	FAR 25, dated February 1, 1965
25.807(c)(2)	25-15
25.813(d)	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)(1), (c)(5) and (c)(6) per Amendment 25-64.

Special Conditions: HIRF (High Intensity Radiated Fields) and High Altitude Operations.

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

Equivalent Safety Findings:Model G-1159A:

FAR 25.773(b) (2), Direct Vision Window

Model G-1159 Series:

- (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-IV:

- (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

Model G-V:

- (1) FAR 25.341, JAR Discrete Tuned Gust in lieu of Static Gust
- (2) FAR 25.807(a)(4), effective February 1, 1965, Oval Emergency Windows with Horizontal Major Axis
- (3) FAR 25.933, Prevention of Inadvertent Inflight Thrust Reverser Deployment

## Production Basis

G-1159, G-1159A, G-1159B and G-IV

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 November 19, 1982, and August 31, 1987, except Model 1159B.  
 See NOTE 8 and NOTE 9.

## 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. 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.

- (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. G-V airplanes (FAR 25.959):
  - (i) All serial numbers:
    - Unusable fuel\* - 480 lb.
    - Fuel lines - 30 lb.
    - System fuel - 510 lb.
    - \*Includes 32 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. The engine oil tank capacity shown elsewhere in this data sheet includes only the usable oil for which the tanks must be placarded.
- (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 altitude to obtain equal fuel quantities during servicing.
  - (3) Fuel additives.

NOTE 2. The required placards for the Models G-1159, G-1159A, and G-1159B are listed in the appropriate Airplane Flight Manual. The required placards for the Model G-IV are listed on Drawings 1159F40273, 1159F40274, 1159F40290, 1159F40291, 1159F40292, and 1159FP40025. The required placards for the Model G-V are listed on Drawings 1159F50273, 1159F50274, 1159F50290, 1159F50291, 1159F50292, and 1159F40125.

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 G-V are listed in Section 05-10-00 of the G-V 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. 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. 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 Change (ASC) 10A, "Wing-Fuel Balance Lines - Modification of."  
Applicable to S/N 1 thru 82 and S/N 775.

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

Aircraft Service Change (ASC) 81, "62,500 Pound Increased Gross Weight Modification."  
Applicable to S/N 1 thru 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 thru 165 and S/N 775.

Aircraft Service Change (ASC) 200, "Fuel Tip Tanks - Installation Of."

Applicable to S/N 1 thru 216 and S/N 775.

Aircraft Service Change (ASC) 233, "Installation of Tip Cap."

Applicable to S/N 1 thru 216 and S/N 775 with ASC 200 and S/N 217 and sub, 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.

Aircraft Service Change (ASC) 70, "Increased Gross Weights, G-1159A."

Applicable to S/N 249, 252, 300 thru 426, and 875.

Aircraft Service Change (ASC) 275, "Increased Gross Weights, G-1159B."

Applicable to all G-1159B S/N.

Aircraft Service Change (ASC) 30, "Increased Fuel Capacity to 28,300 lb., G-1159A."

Applicable to S/N 249, 252, 300 thru 371, and 875.

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) 190, "Increased Ramp, Landing and Zero Fuel Gross Weight, G-IV."

Applicable to S/N 1000 thru 1213.

Aircraft Service Change (ASC) 261, "49,000 lb. Zero Fuel Gross Weight Increase, G-IV."

Applicable to S/N 1000 thru 1213.

Aircraft Service Change (ASC) 61, "49,000 lb. Zero Fuel Gross Weight Increase (with Speed Restriction), G-IV."

Applicable to S/N 1000 thru 1213.

NOTE 7.

Production Basis

Airplanes produced at Bethpage, New York (Model G-1159):

Type Certificate A12EA (issued October 19, 1967), S/N 1 thru 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 (Model G-1159, Model G-1159A and G-IV):

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, and August 31, 1987); S/N 24, 27, 29, 31, 32, 33, 36, 38, 39, 41 and up, including S/N 775 and 875.

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

Airplanes produced at Savannah, Georgia (Model G-V):

Type Certificate A12EA (issued October 19, 1967 and reissued April 11, 1997), S/N 501 and up.

Prior to original certification of each aircraft, an FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data, and a check of the flight characteristics. Provisionally type certificated G-V aircraft were produced under the Provisional Type Certificate issued December 13, 1996 and terminated by the reissued Type Certificate A12EA dated April 11, 1997.

NOTE 8.

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.

- NOTE 9. The cockpit front windshield dimensions for the Models G-1159, G-1159A, G-1159B, G-IV and G-V airplanes are critical for forward visibility 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. 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. The G-V and the G-IV incorporate an integrated avionics systems using software-based line replaceable units (LRU) which share a digital signal transmission bus. The software configuration of the G-V or the G-IV, as delivered from production, is critical to the proper operation of the cockpit instrumentation system. Modification to the LRU software supplied with the G-V or the G-IV, 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 software. No changes to the integrated avionics system should be made without coordination with the Aircraft Certification Office having jurisdiction over the modifier.
- NOTE 12. 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. Drawing The Gulfstream Model Gulfstream G-V certificated airplane configuration is defined by Gulfstream List G-V-GER-1209, latest FAA approved revision. Maintenance Limitations are listed in the G-V Maintenance Manual, Chapter 5. Operational Limitations are listed in G-V Airplane Flight Manual, Section 1.
- NOTE 15. 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 16. Information to modifiers on limitations which impact original certification requirements of the Gulfstream G-V are contained in Gulfstream Report G-V-GER-1242, Gulfstream Interior Certification Requirements Document.

...END...