

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H7EU Revision 17 AGUSTA Model A109 Model A109A Model A109A II Model A109C Model A109K2 Model A109E September 22, 1998
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TYPE CERTIFICATE DATA SHEET NO. H7EU

This data sheet which is part of Type Certificate No. H7EU prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder. AGUSTA S.p.A.
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I. Model A109 (Normal Category Helicopter) approved June 1, 1975.

Engines. Two (2) Detroit Diesel Allison Division of General Motors Corporation Model 250-C20 turboshaft engines.
 Bendix gas producer fuel control DP-N1.
 Bendix power turbine governor AL-AA1.

Fuel. For all temperatures:
 MIL-T-5624 grade JP-4
 ASTM D-1655 Jet B

For temperature above -18°C (0°F):
 MIL-T-5624 grade JP-5
 ASTM D-1655 Jet A
 ASTM D-1655 Jet A1
 See Note 4

Engine Limits. All-engine operation

Takeoff (5 minutes)

Torque	113% (302 lb.ft) (346 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	102 % (52000 rpm)
Gas temperature	793°C (1460°F)

Maximum Continuous

Torque	113% (302 lb.ft)(346 shp)
Output shaft speed (N2)	95-100% (5716-6016)
Gas producer speed (N1)	101% (51490 rpm)
Gas temperature	737°C (1358°F)

Page No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Rev. No.	17	10	11	11	10	10	11	11	11	11	11	11	14	17	17	14	17	17
Page No.	19	20	21	22														
Rev. No.	14	17	14	17														

I. Model A109 (cont'd)

Single-engine operation (emergency)

Takeoff (5 minutes)

Torque	131% (350 lb.ft)(400 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	102% (52000 rpm)
Gas temperature	793°C (1460°F)

Maximum Continuous

Torque	126% (336 lb.ft)(385 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	101% (51490 rpm)
Gas temperature	77°C (1430°F)

(See RAI-approved Helicopter Flight Manual for rpm and temperature transient limits).

Rotor Limits.

Power Off

Maximum	110 % (424 rpm)
Minimum	90 % (346 rpm)

Power On

Maximum	100 % (385 rpm)
Minimum	95 % (365 rpm)

Rotor Speed Warning.

Low Speed	95 % (365 rpm)
High Speed	105 % (404 rpm)

Airspeed Limits.

Never Exceed Speed (V_{NE})	168 kts	IAS
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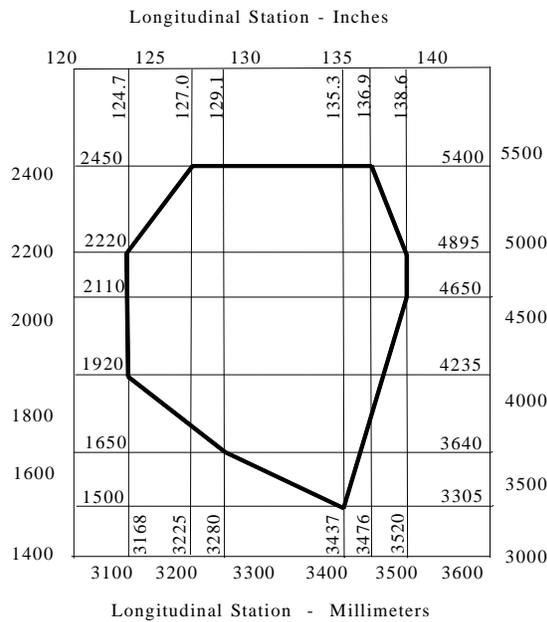
For reduction of V_{NE} with altitude and OAT, see RAI-approved Helicopter Flight Manual.

Maximum Gear Operating Speed (V_{LO})	120 kts	IAS
Maximum Gear Extended Speed (V_{LE})	120 kts	IAS
Maximum Forward Touchdown Speed	40 kts	IAS

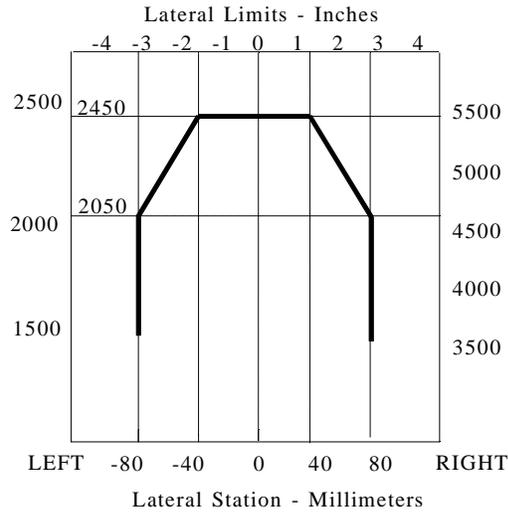
C.G. Range (Gear Down).

Longitudinal Limits

(Gear retraction moment is a 4 kgm (347 lb. in) moving CG forward).



I. Model A109 (cont'd)

CG Range (Gear Down).Empty Weight & CG Range.

(None)

Maximum Weight.

2450 Kg. (5400 lb)

Minimum Crew.

One pilot

Maximum Passenger.

7: For aircraft conforming with Agusta Report 109-06-01.

1 at sta 1650 mm (65 in)

3 at sta 2485 mm (98 in)

3 at sta 3265 mm (129 in)

0: For aircraft in "green" delivery configuration conforming with Agusta Report 109-06-03.

Maximum Baggage.

150 Kg. (330 lb) at sta 4920 mm (194 in)

Maximum floor loading for baggage compartment:
500 Kg/m² (102 lb/ft²)Maximum load per tie-down fitting:
91 Kg. (200 lb.)Fuel Capacity.Total : 148.4 U.S. Gal. (559 lit.) in two tanks of 74.2 U.S. Gal. (279.5 lit.) each,
at sta. 3650 mm (144.0 in.)Usable : 146 U.S. Gal. (550 lit.)
*See NOTE 1 for unusable fuel.*Oil Capacity Engines.2 U.S. Gal. (7.7 lit.) each engine, at sta. 3053 mm (136 in)
*See NOTE 1 for undrainable oil.*Maximum Operating Altitude.

4,560 m (15,000 ft)

Rotor Blade and Control
Movements.

For rigging information refer to the Model A109 Maintenance Manual.

II. Model A109A (Normal Category Helicopter), approved April 2, 1976.

Engines. Two (2) Detroit Diesel Allison Division of General Motors Corporation Model 250-C20B turboshaft engines.

Bendix gas producer fuel control DP-N2.

Bendix power turbine governor AL-AA1.

Fuel. For all temperatures:
MIL-T-5624 grade JP-4
ASTM D-1655 Jet B

For temperatures above -18°C (0°F):
MIL-T-5624 grade JP-5
ASTM D-1655 Jet A
ASTM D-1655 Jet A1
See NOTE 4

Engine Limits.

All engine operation

Takeoff (5 minutes)

Torque	113% (302 lb.ft) (346 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	810°C (1490°F)

Maximum continuous

Torque	113% (302 lb.ft) (346 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	738°C (1360°F)

Single-engine operation (emergency)

Takeoff (5 minutes)

Torque	131% (350 lb. ft) (400 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	810°C (1490°F)

Maximum continuous

Torque	126% (336 lb.ft) (385 shp)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	810°C (1490°F)

(See RAI-approved Helicopter Flight Manual for rpm and temperature transient limits).

Rotor Limits.

Power off:

Maximum	110%	(424 rpm)
Minimum	90%	(346 rpm)

Power on:

Maximum	100%	(385 rpm)
Minimum	95%	(365 rpm)

Rotor Speed Warning.

Low speed	95%	(365 rpm)
High speed	105%	(404 rpm)

II. Model A109A (Normal Category Helicopter) (cont'd).

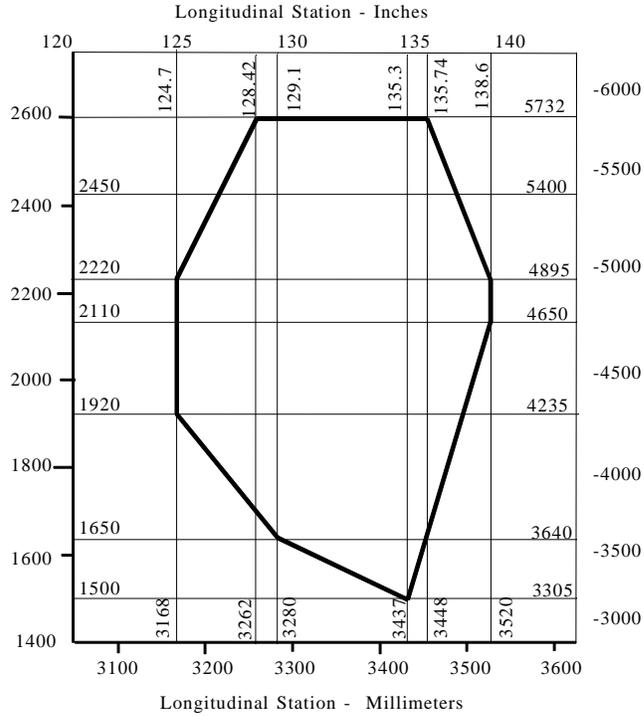
Airspeed Limits.

Never exceed speed (V_{NE}) 158 knots IAS (See NOTE 7)
 For reduction of V_{NE} with altitude and OAT, see RAI-approved
 Helicopter Flight Manual.

Maximum Gear Operating Speed (V_{LO}) 120 kts IAS
 Maximum Gear Extended Speed (V_{LE}) 120 kts IAS
 Maximum Forward Touchdown Speed 40 kts IAS

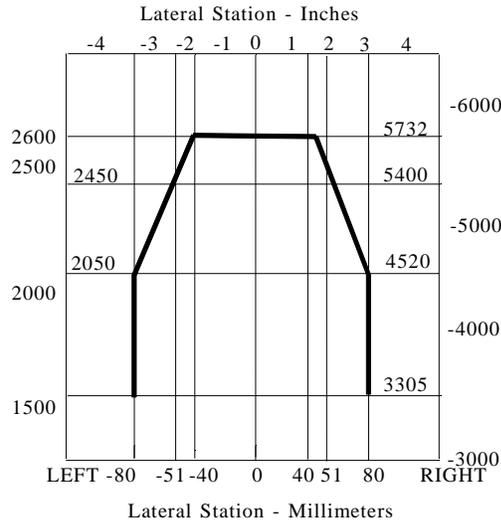
CG Range (Gear Down).

Longitudinal Limits
 (Gear retraction moment is 4 kgm (347 lb.in) moving CG forward)



CG Range (Gear Down).

Lateral Limits



II. Model A109A (Normal Category Helicopter) (cont'd).

<u>Empty Weight & CG Range.</u>	(None)
<u>Maximum Weight.</u>	2600 kg (5732 lb.) (See NOTE 7)
<u>Minimum Crew.</u>	One pilot at Sta. 1630 mm (64 in.) to 1695 mm (67 in.) See NOTE 5.
<u>Maximum Passengers.</u>	7: For aircraft conforming with Agusta Report: 109-06-02. 1 at Sta. 1630 mm (64 in) to 1695 mm (67 in) (See NOTE 4). 3 at Sta. 2485 mm (98 in) 3 at Sta. 3265 mm (129 in) 0: For aircraft in "green" delivery configuration conforming with Agusta Report 109-06-07
<u>Maximum Baggage.</u>	150 kg. (330 lb.) at sta 4920 mm (194 in) Maximum floor loading for baggage compartment: 500 kg/m ² (102 lb/ft ²) Maximum load per tie-down fitting: 91 kg (200 lb.)
<u>Fuel Capacity.</u>	Total: 148 U.S. Gal. (559 lit.) in two tanks of 74.2 U.S. Gal. (279.5 lit.) each, at sta 3652 mm (144.0 in.) Usable: 146 U.S. Gal. (550 lit.) <i>See NOTE 1 for unusable fuel.</i>
<u>Oil Capacity Engines.</u>	2 U.S. Gal. (7.7 lit.) each engine, at sta 3053 mm (120 in). <i>See NOTE 1 for undrainable oil.</i>
<u>Oil Capacity Transmission.</u>	3.2 U.S. Gal. (12 lit.) at sta 3460 mm (136 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Maximum Operating Altitude.</u>	2,432 m. (8,000 ft.) <i>See NOTE 7.</i>
<u>Rotor Blade and Control Movements.</u>	For rigging information refer to the Model A109A/A109AII/A109C Maintenance Manual.

III. Model A109A II (Normal Category Helicopter), approved December 4, 1981.

<u>Engines.</u>	Two (2) Detroit Diesel Allison Division of General Motors Corporation Model 250-C20B or 250-C20R/1 turboshaft engines. Bendix gas producer fuel control DP-N2. Bendix power turbine governor AL-AA1.
<u>Fuel.</u>	For all temperatures: MIL-T-5624 grade JP-4 ASTM D-1655 Jet B For temperatures above -18°C (0°F): MIL-T-5624 grade JP-5 ASTM D-1655 Jet A ASTM D-1655 Jet A1 <i>See NOTE 4</i>

 III. Model A109A II (Normal Category Helicopter) (cont'd)

Engine Limits.

All Engine Operation

Takeoff (5 minutes)

Torque	97% (323 lb.ft) (370 shp)
	(-C20R/1 engine)
Torque	121% (323 lb.ft) (370 shp)
	(-C20B engine)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	810°C (1490°F)

Maximum continuous

Torque	97% (323 lb.ft) (370 shp)
	(-C20R/1 engine)
Torque	121% (323 lb.ft) (370 shp)
	(-C20B engine)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	738°C (1360 °F)
	(-C20B engine)
Gas temperature	752°C (1358°F)
	(-C20R/1 engine)

Single-engine operation (emergency)

Torque	118% (400 lb.ft) (450 shp)
	(-C20R/1 engine)
Torque	137% (350 lb.ft) (420 shp)
	(-C20B engine)
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (53518 rpm)
Gas temperature	810°C (1490°F)

(See the A109AII Helicopter Flight Manual for rpm and temperature transient limits).

Rotor Limits.

Power off

Maximum	110%	(424 rpm)
Minimum	90%	(346 rpm)

Power on

Maximum	100%	(385 rpm)
Minimum	95%	(365 rpm)

Rotor Speed Warning.

Low speed	95%	(365 rpm)
High speed	105%	(404 rpm)

Airspeed Limits.Never exceed speed (V_{NE}) 168 knots IAS

For reduction of V_{NE} with altitude and OAT, see the A109AII Helicopter Flight Manual.

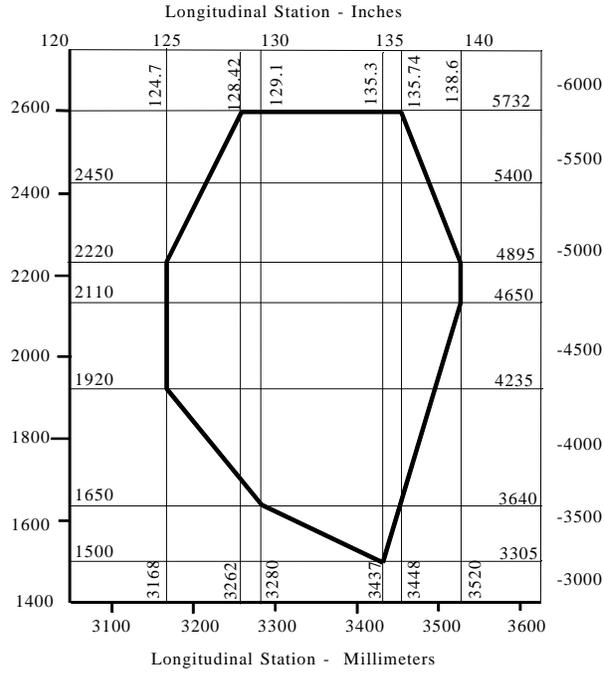
Maximum Gear Operating Speed (V_{LO})	120 kts	IAS
Maximum Gear Extended Speed (V_{LE})	120 kts	IAS
Maximum Forward Touchdown Speed	40 kts	IAS

III. Model A109A II (Normal Category Helicopter) (cont'd)

CG Range (Gear Down).

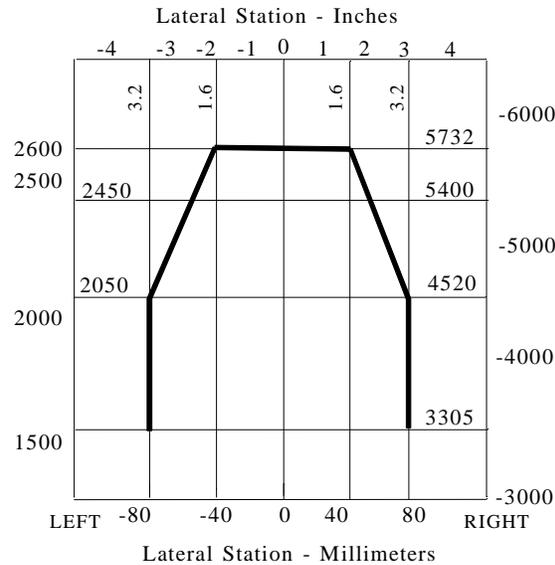
Longitudinal Limits

Gear retraction moment is 4 kgm (347 lb.in.) moving CG forward)



CG Range (Gear Down).

Lateral Limits



Empty Weight & CG Range

(None)

Maximum Weight.

2600 kg (5732 lb.)

Minimum Crew.

One pilot at Sta. 1565 mm (62 in.) to 1630 mm (64 in.)

 III. Model A109A II (Normal Category Helicopter) (cont'd)

<u>Maximum Passengers.</u>	7: For aircraft conforming with Agusta Report 109-06-29. 1 at sta. 1565 mm (62 in) to 1630 mm (64 in) 3 at sta. 2420 mm (95 in) Facing FWD or 3 at sta 2455 (97 in) Facing AFT 3 at sta. 3200 mm (126 in)
	0: For aircraft in "green" delivery configuration conforming with Agusta Report 109-06-07. See Appendix 15 of required flight manual.
<u>Maximum Baggage.</u>	150 kg. (330 lb.) at sta 4920 mm (194 in) Maximum floor loading for baggage compartment: 500 kg/m ² (102 lb/ft ²) Maximum load per tie-down fitting: 91 kg (200 lb.)
<u>Fuel Capacity.</u>	Total: 148.4 U.S. Gal. (559 lit.) in two tanks of 74.2 U.S. Gal. (279.5 lit.) each, at sta 3652 mm (144.0 in.) Usable: 146 U.S. Gal. (550 lit.) <i>See NOTE 1 for unusable fuel</i> <i>See NOTE 9 for fuel capacity with auxiliary fuel tank installation.</i>
<u>Oil Capacity Engines.</u>	2 U.S. Gal. (7.7 lit.) each engine, at sta 3053 mm (120 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Oil Capacity Altitude.</u>	3.2 U.S. Gal. (12 lit.) at sta 3460 mm (136 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Maximum Operating Altitude.</u>	4,560 m. (15,000 ft.)
<u>Rotor Blade Control Movements.</u>	For rigging information refer to the Model A109A/A109AII/A109C Maintenance Manual.

 IV. Model A109C (Normal Category Helicopter), approved August 10, 1989.

<u>Engines.</u>	Two (2) Detroit Diesel Allison Division of General Motors Corporation Model 250-C20R/1 turboshaft engines. Bendix gas producer fuel control DP-N2. Bendix power turbine governor AL-AA1.
<u>Fuel.</u>	For all temperatures: MIL-T-5624 grade JP-4 ASTM D-1655 Jet B For temperature above -18°C (0°F): MIL-T-5624 grade JP-5 ASTM D-1655 Jet A ASTM D-1655 Jet A1 See NOTE 4

 IV. Model A109C (Normal Category Helicopter) (cont'd)

Engine Limits.

All Engine Operation

Takeoff (5 minutes)

Torque	104%	(345 lb.ft)	(395 shp)
Output shaft speed (N2)	95-100%	(5715-6016 rpm)	
Gas producer speed (N1)	105%	(53518 rpm)	
Gas temperature	810°C	(1490°F)	

Maximum Continuous

Torque	100%	(332 lb.ft)	(380 shp)
Output shaft speed (N2)	95-100%	(5715-6016 rpm)	
Gas producer speed (N1)	105%	(53518 rpm)	
Gas temperature	752°C	(1385°F)	

Single-engine operation (emergency)

Torque	118%	(400 lb.ft)	(450 shp)
Output shaft speed (N2)	95-100%	(5715-6015 rpm)	
Gas producer speed (N1)	105%	(53518 rpm)	
Gas temperature	810°C	(1490°F)	

(See the A109C Helicopter Flight Manual for rpm and temperature transient limits).

Rotor Limits.

Power off

Maximum	110%	(424 rpm)
Minimum	90%	(346 rpm)

Power on

Maximum	100%	(385 rpm)
Minimum	95%	(365 rpm)

Rotor Speed Limits.

Low speed	95%	(365 rpm)
High speed	105%	(404 rpm)

Airspeed Limits.

Never exceed speed (V_{NE}) 168 knots IAS

For reduction of V_{NE} with altitude and OAT, see the A109C Helicopter Flight Manual.

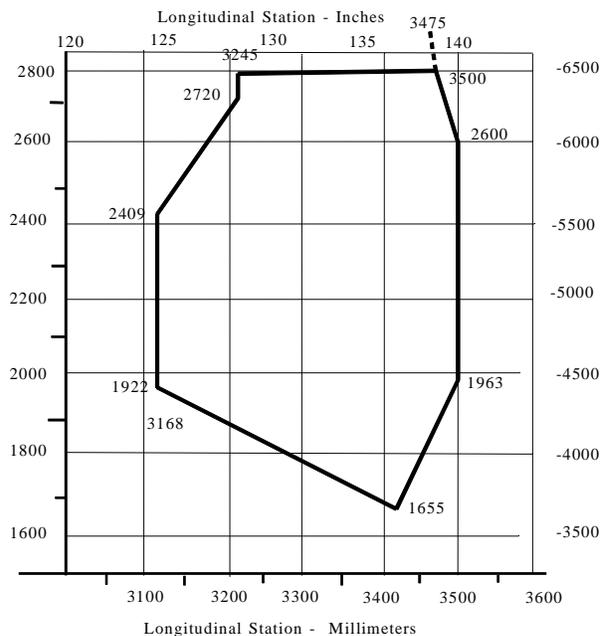
Maximum Gear Operating Speed (V_{LO})	120 kts	IAS
Maximum Gear Extended Speed (V_{LE})	120 kts	IAS
Maximum Forward Touchdown Speed	40 kts	IAS

IV. Model A109C (Normal Category Helicopter) (cont'd)

CG Range (Gear Down).

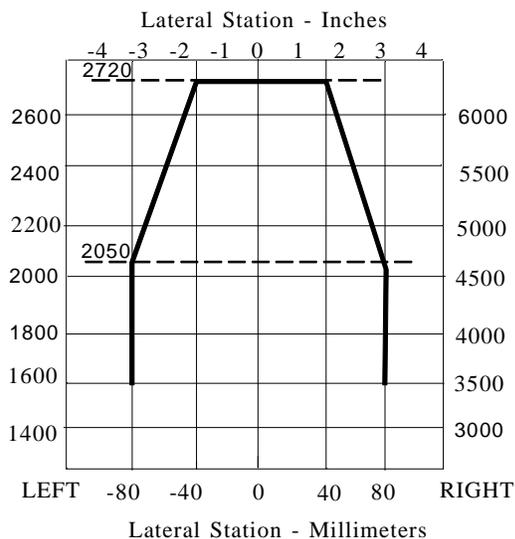
Longitudinal Limits

Gear retraction moment is 4 kgm (347 lb. in.) moving CG forward



CG Range (Gear Down).

Lateral Limits



Empty Weight & CG Range.

(None)

Maximum Weight.

2720 Kg (5997 lb)

Minimum Crew.

One pilot at Sta. 1565 mm (62 in.) to 1630 mm (64 in.)

 IV. Model A109C (Normal Category Helicopter) (cont'd)

<u>Maximum Passengers.</u>	7: For aircraft conforming with Agusta Report 109-06-67 1 at Sta. 1565 mm (62 in) to 1630 mm (64 in) <i>See NOTE 5.</i> 3 at Sta. 2420 mm (95 in) Facing FWD or 3 at Sta 2455 (97 in) Facing AFT 3 at Sta. 3200 mm (126 in)
	0: For aircraft in "green" delivery configuration conforming with Agusta Report 109-06-07. See Appendix 15 of required flight manual.
<u>Maximum Baggage.</u>	150 kg. (330 lb.) at Sta 4920 mm (194 in) Maximum floor loading for baggage compartment: 500 kg/m ² (102 lb/ft ²) Maximum load per tie-down fitting: 91 kg (200 lb.)
<u>Fuel Capacity.</u>	Total: 148.4 U.S. Gal. (559 lit.) in two tanks of 74.2 U.S. Gal. (279.5 lit.) each, at sta 3652 mm (144.0 in.) Usable: 146 U.S. Gal (550 lit.) <i>See NOTE 1 for unusable fuel.</i> <i>See NOTE 9 for fuel capacity with auxiliary fuel tank installation.</i>
<u>Oil Capacity Engines.</u>	2 U.S. Gal. (7.7 lit.) each engine, at sta 3053 mm (120 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Oil Capacity Transmission.</u>	3.2 U.S. Gal. (12 lit.) at sta 3460 mm (136 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Maximum Operating Altitude.</u>	4,560 m. (15,000 ft.)
<u>Rotor Blade Control Movements.</u>	For rigging information refer to the Model A109A/A109AII/A109C Maintenance Manual.

 V. Model A109K2 (Normal Category Helicopter), approved January 15, 1993.

<u>Engines.</u>	Two (2) Turbomeca Model Arriel 1K1 turboshaft engines. Turbomeca Fuel Control Unit 0164348390.
<u>Fuel.</u>	For all temperatures: MIL-T-5624 grade JP-4, JP-5, ASTM D-1655 Jet A, A1, Jet B, MIL-T-83133 grade JP-8, AIR 3404-F43 (AVCAT) For detailed information see Section 1 of the A109K2 Flight Manual FAA approved.
<u>Engine/Xmsn Limits.</u>	All Engine Operation Takeoff Torque 100% (900 SHP at N2 100%) Output shaft speed (N2) 100% (6,000 rpm) Gas producer speed (N1) (5 min.) 102% (52,836 rpm) Gas temperature (5 min.) 845°C (1,553°F)

V. Model A109K2 (Normal Category Helicopter) (cont'd)

Engine Limits (cont'd)

Maximum Continuous	
Torque	100% (900 SHP at N2 100%)
Output shaft speed (N2)	100% (6,000 rpm)
Gas producer speed (N1)	98.2% (50,868 rpm)
Gas temperature	775°C (1,427°F)

Single-engine operation (emergency)

Torque:

(Without Time Limitation)	62.2% (560 SHP at N2 100%)
(2½ min.)	71.1% (640 SHP at N2 100%)

Output Shaft Speed (N2)	100% (6000 rpm)
Gas Producer Speed (N1) (30 min.)	102% (52836 rpm)
(2½ min.)	103.1% (53406)

Gas Temperature

Continuous	775°C (1427°F)
30 min.	845°C (1553°F)
2½ min.	885°C (1625°F)

(See the A109K2 Helicopter Flight Manual for rpm and temperature transient limits).

Rotor Limits.

Power off	
Maximum	110% (422 rpm)
Minimum	90% (346 rpm)
Power on	
Maximum	100% (384 rpm)
Minimum	97% (372 rpm)

Rotor Speed Warning.

Low speed	95% (365 rpm)
High speed	105% (403 rpm)

Airspeed Limits.

Never exceed speed (Vne)	152 knots IAS
For reduction of Vne with altitude and OAT, see the A109K2 Helicopter Flight Manual.	
Maximum Forward Touchdown Speed	40 Kts IAS

V. Model A109K2 (Normal Category Helicopter) (cont'd)

<u>Empty Weight & CG Range.</u>	(None)
<u>Maximum Weight.</u>	2,850 Kg (6,283 lb) (See Note 11)
<u>Minimum Crew.</u>	One pilot at Sta 1,565 mm (62 in) to 1,630 mm (64 in)
<u>Maximum Passengers.</u>	7
<u>Maximum Baggage.</u>	150 Kg (330 lb) at Sta 4,920 mm (194 in) Maximum floor loading for baggage compartment: 500 Kg/m ² (102 lb/ft ²) Maximum load per tie-down fitting: 91 Kg (200 lb)
<u>Fuel Capacity.</u>	Total Usable: 123.6 US Gal (468 lt) at Sta 3,824 mm (150.56 in) <i>See NOTE 1 for unusable fuel.</i> <i>See NOTE 8 for fuel capacity with auxiliary fuel tank installation.</i>
<u>Oil Capacity Engines.</u>	2 US Gal (7.7 lt) each engine, at Sta 3,311 mm (130 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Oil Capacity Transmission.</u>	3.2 US Gal (12 lt) at sta 3,441 mm (135 in) <i>See NOTE 1 for undrainable oil.</i>
<u>Maximum Operating Altitude.</u>	4,560 m (15,000 ft)
<u>Rotor Blade Control Movements</u>	For rigging information refer to the Model A109K2 Maintenance Manual.

VI. Model A109E (Normal Category Helicopter), approved August 26, 1996.

<u>Engines.</u>	Two (2) Pratt & Whitney Canada Inc. PW206C turboshaft engines. FADEC control engines	
<u>Fuel.</u>	For all temperatures: MIL-T-5624 grade JP-4, JP-5, ASTM D-1655 Jet A, A1, A2 Jet B, MIL-T-83133 grade JP-8, For detailed information see Section 1 of the A109E Flight Manual FAA approved.	
<u>Engine/Xmsn Limits.</u>	All Engine Operation	
	Transient torque	110% (990 SHP at N2 100%)
	Takeoff	
	Torque	100% (900 SHP at N2 100%)
	Output shaft speed (N2) range	101 to 102% (6060-to 6120 rpm)
	Gas producer speed (N1) range	97.4 to 98.7% (56500 to 57250 rpm)
	Gas temperature (5 min.) range	820° to 863°C (1508° to 1585.4°F)
	Maximum Continuous	
	Torque	100% (900 SHP at N2 100%)
	Output shaft speed (N2)	99% to 101% (5940 to 6060 rpm)
	Gas producer speed (N1)	97.4% (56500 rpm)
	Gas temperature	820°C (1508°F)

 VI. Model A109E (Normal Category Helicopter (cont'd)

Engine/Xmsn Limits. (cont'd)

Single-engine operation (emergency)

Transient

Torque (6 sec)	125% (700 SHP at N2 100%)
Output Shaft Speed (N2) (20 sec)	112.4% (44706 rpm)
Gas Producer Speed (N1) (20 sec)	103.4% (59994 rpm)
Gas Temperature (20 sec)	972°C (1781.6°F)

2½ min.

Torque	114% (640SHP at N2 100%)
Maximum Output Shaft Speed (N2)	102% (40806 rpm)
Gas Producer Speed (N1)	100.4% to 102.4 % (58250 to 59400 rpm)
Gas Temperature	885° to 930°C (1625° to 1706°F)

Maximum Continuous

Torque	100% (560 SHP at N2 100%)
Output shaft speed (N2)	102% (40806 rpm)
Gas producer speed (N1)	100.4% (58250 rpm)
Gas temperature	885°C (1625°F)

Starting

Gas temperature	875°C (1607°F)
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Rotor Limits.

Power off

Maximum	110% (422 rpm)
Minimum	90% (346 rpm)

Power on

Maximum	102% (394 rpm)
Minimum	99% (380 rpm)
Minimum Transient	90% (346 rpm)

Rotor Speed Warning.

Low speed

power on	Rotor RPM between 80% and 95.5%
power off	Rotor RPM between 80% and 89.5%

High speed

power on	Rotor RPM above or equal to 105.5%
power off	Rotor RPM above or equal to 110.5%

Airspeed Limits.

Never exceed speed (Vne)

168 knots IAS

For reduction of Vne with altitude and OAT, see the A109E Helicopter Flight Manual.

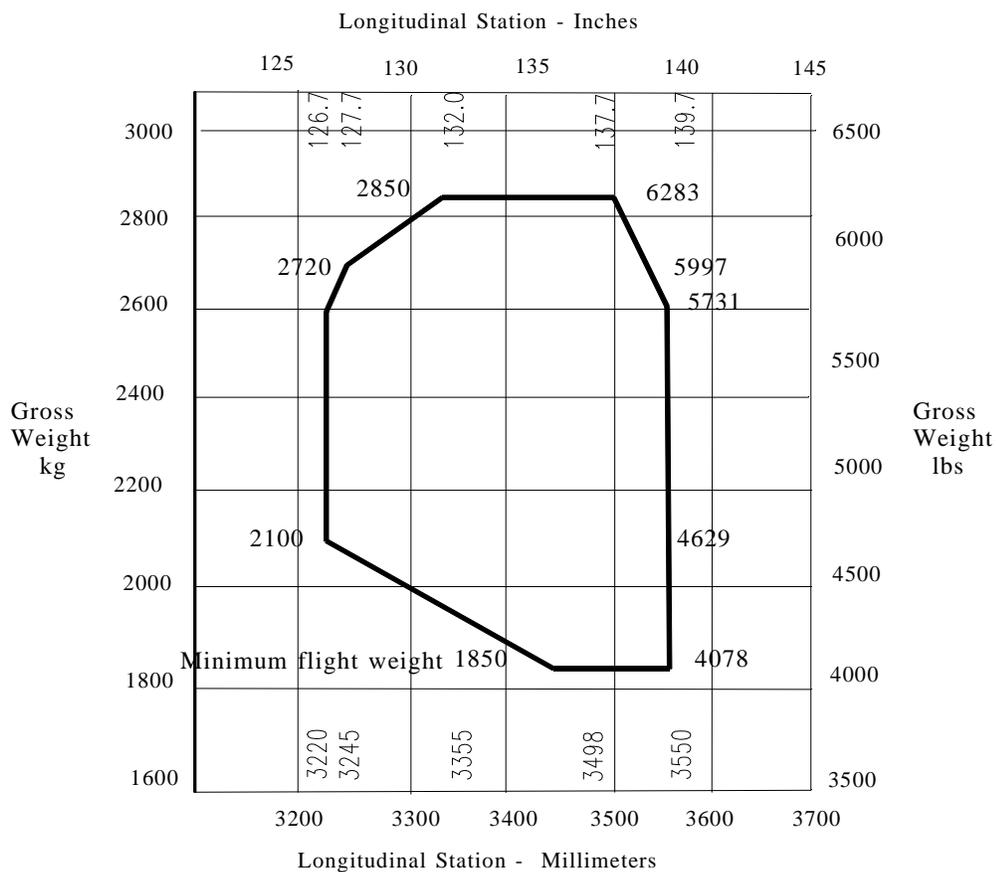
Maximum Forward Touchdown Speed

40 Kts IAS

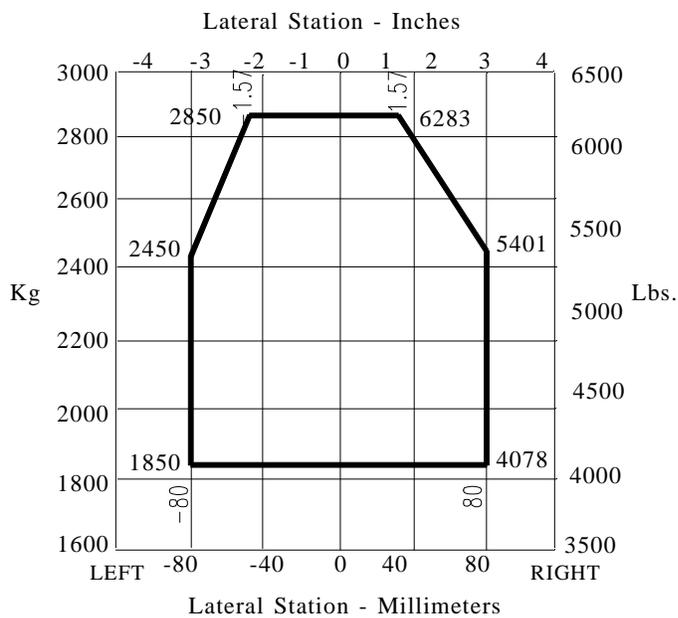
VI. Model A109E (Normal Category Helicopter) (cont'd)

C.G. Range

Longitudinal limits



Lateral limits



 VI. Model A109E (Normal Category Helicopter) (cont'd)

<u>Empty Weight & CG Range.</u>	(None)
<u>Maximum Weight.</u>	2,850 Kg (6,283 lb) (See Note 11)
<u>Minimum Crew.</u>	One pilot at Sta 1,565 mm (62 in) to 1,630 mm (64 in)
<u>Maximum Passengers.</u>	7
<u>Maximum Baggage.</u>	150 Kg (330 lb) at Sta 5,300 mm (209 in) Maximum floor loading for baggage compartment: 500 Kg/m ² (102 lb/ft ²) Maximum load per tie-down fitting: 91 Kg (200 lb)
<u>Fuel Capacity.</u>	Total Usable: 157 US Gal (595 lt) <i>See NOTE 1 for unusable fuel.</i>
<u>Oil Capacity Engines.</u>	1.35 US Gal (5.12 lt) each engine <i>See NOTE 1 for undrainable oil.</i>
<u>Oil Capacity Transmission.</u>	2.9 US Gal (11 lt) <i>See NOTE 1 for undrainable oil.</i>
<u>Maximum Operating Altitude.</u>	4,560 m (15,000 ft)
<u>Rotor Blade Control Movements</u>	For rigging information refer to the Model A109E Maintenance Manual.

DATA PERTINENT TO ALL MODELS

<u>Datum.</u>	Longitudinal station 0 (datum) is 1835 mm (72 in) forward of the front jack point. Lateral station 0 (datum) is ± 450 mm (± 18 in) inboard of each main jack point and coincides with the rotorcraft longitudinal plane of symmetry.
<u>Leveling Means.</u>	Plumb line from ceiling reference point to index plate on floor of passenger cabin.
<u>Serial Numbers Eligible.</u>	A Registro Aeronautico Italiano Certificate of Airworthiness for Export endorsed as noted under import requirements must be submitted for each individual rotorcraft for which application for certification is made.
<u>Certification Basis.</u>	FAR 21.29 and FAR Part 27 dated February 1, 1965, including Amendments 27-1 through 27-8. FAR Part 29 dated February 1, 1965, para. 29.903(b), for Category "A" engine isolation. Special Conditions for Agusta Model A109 helicopter No. 27-54-EU-17, issued on June 26, 1973. Equivalent safety in lieu of compliance shown for: -FAR 27.1189, re shutoff means -FAR 27.1305(d), re fuel quantity indicator for A109A up to S/N 7165. -FAR 27.927(c) at amendment 27-12 elected by the applicant

Certification BasisFor the Model A109K2, in addition to the above:

-27.25	Amendment 11
-27.79	Amendment 21
-27.143	Amendment 21
-27.865	Amendment 11
-27.923	Amendment 12 (for reference only)
-27.939	Amendment 11
-27.951	Amendment 9
-27.1093	Amendment 20

For the Model A109E in addition to the above:

-27.2	Amendment 28
-27.21	Amendment 21
-27.45	Amendment 21
-27.71	Amendment 21
-27.141	Amendment 21
-27.175	Amendment 21
-27.177	Amendment 21
-27.401	Amendment 27
-27.610	Amendment 21
-27.901	Amendment 23
-27.903	Amendment 23
-27.927	Amendment 23
-27.954	Amendment 23
-27.1091	Amendment 23
-27.1189	Amendment 23
-27.1305	Amendment 23
-27.1321	Amendment 13
-27.1322	Amendment 11
-27.1323	Amendment 13
-27.1325	Amendment 13
-27.1401	Amendment 10
-27.1505	Amendment 21
-27.1519	Amendment 21
-27.1521	Amendment 23
-27.1527	Amendment 14
-27.1529	Amendment 18
-27.1549	Amendment 23
-27.1555	Amendment 21
-27.1557	Amendment 11
-27.1581	Amendment 14
-27.1583	Amendment 16
-27.1585	Amendment 21
-27.1587	Amendment 21

Special conditions for Agusta Models A109D and A109E helicopters, High Intensity Radiated Fields No. 27-ASW-3 issued on June 13, 1996.

Equivalent safety in lieu of compliance shown for: FAR 27.175(c), re static longitudinal stability.

Date of Application for Type Certificate: February 18, 1971
 Type Certificate No. H7EU issued June 1, 1975; amended April 2, 1976 to include Model A109A; amended December 4, 1981 to include Model A109A II; amended August 19, 1989 to include Model A109C; amended January 15, 1993 to include Model A109K2; amended August 26, 1996 to include Model A109E.

For IFR operations see NOTE 6.

Import Requirements.

To be considered eligible for operation in the United States, each aircraft manufactured under this type certificate must be accompanied by a certificate of airworthiness for export or certifying statement endorsed by the exporting foreign civil airworthiness authority which states (in the English language): This aircraft conforms to its U.S. type design (type certificate number H7EU) and is in a condition for safe operation.

The U.S. airworthiness certification basis for aircraft type certificated under FAR Section 21.29 and exported by the country of manufacture is FAR Sections 21.183(c) or 21.185(c).

The U.S. airworthiness certification basis for aircraft type certificated under FAR Section 21.29 exported from countries other than the country of manufacture (e.g. third party country) is FAR Sections 21.183(d) or 21.183(b).

Equipment.

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

In addition the following items of equipment are required:

(a) Approved Helicopter Flight Manual:

1. Model A109: A109 Helicopter Flight Manual dated May 21, 1975 or later revision.
2. Model A109A: A109A Helicopter Flight Manual dated May 16, 1979 or later revision.

Equipment.

NOTE: for operations at 2450 Kg (5400 lbs) pages 1-2A, 1-2B and 1-12A are applicable.

3. Model A109A II: A109A II Helicopter Flight Manual dated June 2, 1981 or later revision.
4. Model A109C: A109C Helicopter Flight Manual dated October 2, 1989 or later revision.
5. Model A109K2: A109K2 Helicopter Flight Manual dated January 23, 1992 or later revision.
6. Model A109E: A109E Rotorcraft Flight Manual dated May 31, 1996 or later revision

(b) Low-rotor-rpm and engine-failure warning systems in accordance with Agusta drawing Nos 109-0729-21 or 109-0729-31 and 109-0729-22 for A109A and A109A II Models; 109-0741-06 for Model A109C; 109-0741-27 and 109-0752-40 for Model A109K2; 109-0753-28 for Model A109E.

(c) OAT indicator MS28028-1

On A109E the OAT dated are shown on the IDS system and the sensor is P/N E22307-2-4.

Required and optional approved equipment are listed in the A109 Equipment List Report No. 109-07-01; A109A Equipment List Report No. 109-07-03; A109A II Equipment List Report No. 109-07-06; A109C Equipment List Report No. 109-07-09; A109K2 Equipment List Report No. 109-07-14; A109E Equipment List Report No. 109-07-16. For IFR operations see NOTE 6.

Placards.

Placards listed in the RAI-approved Helicopter Flight Manual must be displayed in the appropriate location.

Service Information.

Information essential for proper maintenance of the rotorcraft is presented in the following documentation:

- A109A/A109A II/A109C A109K2 A109E Continued Airworthiness Schedule and Airworthiness Limitations Manual (CASALM).
- A109A/A109A II/A109C A109K2 A109E Maintenance Manual which must be supplied with each rotorcraft at time of delivery.

Service Information (cont'd) "Service bulletins, structural repair manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is Registro Aeronautico Italiano (RAI) approved, are accepted by the FAA and are considered FAA approved. These approvals pertain to the type design only."

Mandatory Bulletins will be identified as such.

NOTE 1. Current weight and balance report including list of equipment included in the certificated empty weight and loading instructions must be provided for each rotorcraft at the time of the original certification.

The certificated empty weight and corresponding CG location must include total undrainable oil of zero U.S. gal. and unusable fuel of 2.4 U.S. gal. (9 lit.) at sta. 3750 mm (148") for Model A109A/AII/C and of 3.2 U.S. gal. (12 lit.) at sta. 3750 mm (148") for Model A109K2 and 2.66 U.S. gal. (10lt) at sta 3320 for Model A109E.

NOTE 2. Model A109 helicopters may be converted to Model A109A helicopters in accordance with RAI-approved Service Instructions No. A109-1.

NOTE 3. Life-limited components and approved retirement times of the Model A109A/A109AII/A109C/A109K2/A109E are listed in the section IX "Airworthiness Limitations Schedule" of the applicable "Continued Airworthiness Schedule and Airworthiness Limitations Manual" and must be replaced as prescribed therein.

NOTE 4. For operation below 4°C (40°F) of the Model A109A/AII/C the use of anti-ice additive is authorized, but is not mandatory due to aircraft anti-ice fuel filter installation. Below 4°C (40°F) the AVGAS JET FUEL MIXTURE may be used as an alternative fuel. Refer to Allison Operation and Maintenance Manual for AVGAS mix, cold weather fuel and blending instructions.

For A109E operation below 4°C (40°F) the use of anti-ice additive is authorized but not mandatory due to aircraft anti-ice fuel filter installation. For additive requirements and blending procedures refer to Pratt & Whitney manuals.

NOTE 5. For helicopters up to and including S/N 7114 not equipped with adjustable seat kit P/N 109-0700-49-1, moment arm of pilot and forward passenger seat is 1650 mm (65 in) from sta. 0.

- NOTE 6.
- a. Model A109A helicopters, S/N 7107, 7130 and subsequent, are eligible for day and night IFR operations, with one pilot or with two pilots, when "IFR" installation Agusta Kit No. 109.0810-22, Rev. E or later FAA-approved revision is incorporated and the helicopter is operated in accordance with Model A109A Flight Manual IFR Supplement No. 1 approved by RAI under date of July 16, 1978 and subsequent approved revisions. (NOTE: the above-noted kit and flight manual supplement comprise the Agusta version of FAA-approved STC No. CH2699SW).
 - b. Model A109A II and A109C helicopters S/N 7256, and subsequent, are eligible for day and night IFR operations with one, or with two pilots when "IFR" installation Kit No. 109-0810-22, Rev. E or, later FAA approved revision, is incorporated and the helicopter is operated in accordance with Model A109 II and A109C Rotorcraft Flight Manuals.
 - c. Model A109K2 helicopters S/N 10001 and subsequent, are eligible for day and night, single pilot IFR operation when IFR installation Agusta Kit No. 109-0810-22-135 and subsequent approved dash numbers are incorporated.
Certification Basis:
- Appendix B to Part 27 - Airworthiness criteria for helicopter instrument flight - Amdt. 27.19.
- FAR Part 27 Paragraph 27.672 Amdt. 21; 27.1309 Amdt 21; 27.1329 Amdt 21; 27.1335 Amdt. 13.
The helicopter shall be operated in accordance with the Model A109K2 Flight Manual IFR Supplement No. 2.
 - d. Model A109E Helicopters S/N 11001 and subsequent, are eligible for day and night, single pilot IFR operation when IFR installation Agusta Kit P/N 109-0810-22-143 and subsequent approved dash number are incorporated.
Certification Basis:
- Appendix B to Part 27 - Airworthiness criteria for helicopter instrument flight - Amdt. 27.19.
- FAR Part 27 Paragraph 27.672 Amdt. 21; 27.1309 Amdt 21; 27.1329 Amdt 21; 27.1335 Amdt. 13.

The helicopter shall be operated in accordance with the Model A109E Flight Manual.

NOTE 7.

Model A109A helicopters are eligible for operations at maximum weight of 2600 kg (5732 lb.) when Agusta Technical Bulletin No.109-20 and subsequent approved revisions are incorporated. For Model A109A helicopters not incorporating the Agusta Technical Bulletin No. 109-20, the following limitations are to be applied.

- Airspeed limits

Never exceed speed (V_{NE}) 168 kts IAS

For reduction of VNE with altitude and OAT, see page 1-2A of the RAI-approved Helicopter Flight Manual.

- CG Range (Gear Down)

Longitudinal Limits --

Refer to diagram on page 5 (Model A109A) for weight up to 2450 kg. (5400 lb.)

Lateral Limits --

Refer to diagram on page 6 (Model A109A) for weight up to 2450 kg. (5400 lb.)

- Maximum Weight

2450 kg (5400 lb.)

See Page 1-2B of the RAI-approved Helicopter Flight Manual.

- Maximum Operating Altitude

4560m (15000 ft)

See Page 1-2B of the RAI-approved Helicopter Flight Manual.

NOTE 8.

For Models A109AII, A109C, and A109K2, the auxiliary fuel tank installation P/N 109-0810-56 adds a total fuel capacity of 40.8 U.S. Ga. (153 lit.) at sta. 4708 mm (185.3 in.) of which 40 U.S. Gal. (150 lit.) is usable.

NOTE 9.

The Models A109/A109A/A109AII/A109C/A109K2/A109E are identified by the general assembly drawing as follows:

109-9000-01-5	for A109
109-9000-01-11/15/19/23/27	for A109A
109-9000-01-31	for A109AII
109-9000-01-135	for A109C
109-9000-01-139	for A109K2
109-9000-01-149	for A109E

NOTE 10.

The model A109K2 is eligible for operations on clear airfield and helipad with the critical engine failure concept when the installation P/N 109-0822-47 (all the approved dashes) is incorporated and the helicopter is operated in accordance with the Model A109K2 Flight Manual Supplement No. 3 "Take-off and landing procedures and performance data on clear airfield and helipad with critical engine failure".

Certification Basis:

That applicable to the A109K2 plus JAR 29.45(a), (b)(2) Amdt. Base; JAR 29.49(a) Amdt. Base; JAR 29.51 Amdt. Base; JAR 29.53 Amdt. Base; JAR 29.55 Amdt. Base; JAR 29.59 Amdt. Base; JAR 29.60 Amdt. Base; JAR 29.61 Amdt. Base; JAR 29.62 Amdt. Base; JAR 29.64 Amdt. Base; JAR 29.65 (a) Amdt. Base; JAR 29.67 (a) Amdt. Base; JAR 29.75 Amdt. Base; JAR 29.77 Amdt. Base; JAR 29.79 Amdt. Base; JAR 29.81 Amdt. Base; JAR 29.85 Amdt. Base; JAR 29.87 (a) Amdt. Base; FAR 29.861(a) Amdt. 26; FAR 29.901(c) Amdt. 25 for engines installations only; FAR 29.901 (c) Amdt. 25. For engines installation only; FAR 29.903(b), (c), (e) Amdt. 31; FAR 29.908(a) Amdt. 25; FAR 29.923 Amdt. 23; FAR 27.927 (a), (b) Amdt. 12; FAR 29.927 (c)(1) Amdt. 26; FAR 29.953 (a) Amdt. Base; JAR 29.1027(a) Amdt. Base; JAR 29.1045 (a)(1), (b), (c), (d), (f) Amdt. Base; JAR 29.1047 (a) Amdt. Base; JAR 29.1181 (a) Amdt. Base; JAR 29.1187 (e) Amdt. Base; JAR 29.1189 (c) Amdt. Base; JAR 29.1191 (a)(1) Amdt. Base; JAR 29.1193 (e) Amdt. Base; JAR 29.1305 (a)(6), (b) Amdt. Base; JAR 29.1309 (b)(2)(i), (d) Amdt. Base; JAR 29.1323 (e)(1) Amdt. Base; JAR 29.1331 (b) Amdt. Base; JAR 29.1587 (a) Amdt. Base.

The JAR requirements listed above meet or exceed the FAR Part 27 and FAR Part 29 CAT A. requirements.

NOTE 11.

The A109 models with a maximum weight exceeding 6000 lb have been approved following the grant of the exemption No. 6518 dated October 9, 1996.

.....END.....