1. HELICOPTER GENERAL INFORMATION

The AGUSTA 109 is a high speed, high performance twin engine helicopter, with a single main rotor system and anti-torque tail rotor system.

The twin engine design, which permits helicopter flight at high cruising speed and with a high safety factor, makes the A109 particularly suited for rapid transportation of personnel or cargo.

In order to reduce vibration and noise levels, and to offer the optimum of comfort at high speeds, a four blade fully articulated main rotor was deemed essential. This type of rotor system offers both high control power and high damping action. The higher control power permits the establishment of a wide center of gravity range.

The A109 can accommodate six passengers plus the crew (two places) in full comfort and still have sufficient space for a considerable amount of luggage. The spacious cabin has built-in provisions to permit numerous alternative interior arrangements trough which the helicopter can be adapted for a variety of roles, e.g. personalised executive requirements; passenger service; cargo transportation; aerial ambulance; search and rescue.(*)

During design, particular care was taken to develop a clean aerodynamic form in order to attain the highest possible speed versus power installed ratio, consequently reducing the operating costs per kilometer. The airframe is of metal construction and has built-in provisions for the rapid installation and/or removal of the many optional accessories that are available in after delivery installation kits.

(*) not part of the sales package

2. LEADING PARTICULARS

IMPORTANT NOTE: ALL INDICATED PARAMETERS ARE STANDARD PERFORMANCES. THESE PERFORMANCES ARE NOT GUARANTEED FOR ANY ELEMENT OF THE SALES PACKAGE.

AIRFRAME

- Overall length (Rotor turning) 13,035 m (42,77 ft)
- Fuselage length 11,448 m (37,67 ft)
- Cabin width 1,58 m (5,18 ft)
- Maximum with 2,88 m (9,45 ft)
- Maximum height (Vertical tail fin) 3,50 m (11,48 ft)
- Landing gear track 2,45 m (8,03 ft)
- Landing gear Wheel-base 2,31 m (7,58 ft)

SEATING

- Crew TWO (2)
- Passengers SIX (6)

CARGO CAPACITY

- Main cargo Space Cubic Capacity 2,99 m^3 (105,2 ft^3)
- Length (Overall) 1,62 m (5,3 ft)
- Width 1,44 m (4,72 ft)
- Height 1,28 m (4,19 ft)
- Baggage Compartment Cubic Capacity 0,52 m^3 (18,36 ft^3)
- Length 0,975 m (3,19 ft)
- Width 1,023 m (3,35 ft)
- Height 0,489 m (1,60 ft)
- Floor loading 500 kg/m^2 (102 lbs/ft^2)
- Maximum load 150 kg (330 lbs)

MAIN ROTOR

Type FULLY ARTICULATED

- Number of blades FOUR (4)
- NR 100 % 385 RPM
- Diameter 11,00 m (36,08 ft)
- Disc Area 95,00 m^2 (1022,2 ft^2)
- Engine to Rotor Gear Ratio 1:15,62 (6016 N : 385,08 NR)

TAIL ROTOR

Type SEMI-RIGID

- Number of Blades — TWO (2)
- Diameter — 2,00 m (6,56 ft)
- Disc Area — 3,14 m^2 (33,78 ft^2)
- Transmission to Rotor Gear Ratio — 1:2,8 (5887 shaft RPM:2085 Rotor RPM)

ENGINE

- Type (Free Turbine) — Twin-turbo shaft
- Manufacturer — ALLISON / Rolls-Royce
- Model — 250-C20R1
- Fuel consumption — 200 Kg/Hr

Power Ratings	Output SHP	Gasproducer N1	Power Turbine N2	Output shaft N2 output
Take-off power	450	50537 (99,2%)	33290 (100%)	6016 (100%)
Normal cruise	380	48814 (95,8%)	33290 (100%)	6016 (100%)
Ground Idle	///	33000 (64,7%)	24900	4500

TRANSMISSION RATINGS

TWIN ENGINE OPERATION (Transmission limited)

- (5 min) Take-off — 830 SHP (109,2% Torque)
- Maximum continuous — 800 SHP (105,3% Torque)
- Maximum transient — 900 SHP (118% Torque)

SINGLE ENGINE OPERATION

- Take-off (OEI) — 450 SHP (118% Torque)
- Maximum transient — 450 SHP (118% Torque)

SYSTEM DATA

MAIN ROTOR

- Lubrication System
  - Oil type — SAE-HD-10W30
  - Capacity — 0,5 l
  - Grease (Pitch change Bearing) — MIL-G-81322

- Drag dampers
  - Oil type — MIL-H-5606
  - Capacity — 49,0 cc at 30°C
  - Charging pressure — 28 psi.

AIRFRAME FUEL SYSTEM (TWO INDEPENDENT SYSTEMS)

- Fuel type — JP 4 - JET B; JP 8 - JET A/A1
- Capacity — 285 l (75,2 US Gallons) – 229,9 kg
- Useable — 281 l (74,2 US Gallons) – 226,8 kg
- Auxiliary Tank (optional) — 200 l
- Operating pressure
  - Cautionary — 0 to 7 psi.
  - Continuous — 7 to 25 psi.
  - Maximum — 25 psi.

ENGINE OIL SYSTEM (TWO INDEPENDENT SYSTEMS)

- Oil type — MIL-L-7808 G or MIL-L-23699
- Capacity — 7,7 l (7,5 kg) 2,0 - US Gallons (16,5 lbs.)
- Operating pressure
  - Minimum — 50 psi.
  - Cautionary — 50 to 90 psi.
  - Continuous — 90 to 130 psi.
  - Maximum — 130 psi.
- Operating temperature — 0°C to 107°C max

ELECTRICAL SYSTEMS

DC power Supply system (Starter/Generator and Battery)

- Starter
  - Input — 24 + 28 Volts DC (30V-500A max)
  - Horsepower — 10,1 ft/lb. (20V-300A)
- Generator
  - Kilowatts — 4,5
  - Volts — 30VDC (28VDC regulated)
  - Amperes — 160
  - Speed range — 7200 RPM(24V, 100A, 71%N1) to 12100 RPM (30V,160A,103%N1)
  - Minimum rate speed — 7700
- Battery
  - Type — Nickel Cadmium
  - Rating — 24V, 27Ah

AC power supply system (TWO inverters)

- Type — Monophase
- Ratings — Input: 28VDC-11,9A; Output: 115/26VAC-5,8/2,2A-400Hz)

WEIGHTS

- Empty weight 1944 Kg (4282 lbs.)
- Maximum Gross weight 2850 Kg (6283 lbs.)

PERFORMANCE

CRUISING SPEEDS (IAS)

- VNE 152 KTS
- Cruise speed 130 KTS
- Climbing speed 11,5 m/S
- Service ceiling 15.000 ft (4570 m)
- Autonomy 2 Hr 30 min
- Distance 530 Km