





FUEL	SPECIFICATION (Latest Amendment)				REMARKS
	FRENCH	NATO	USA	UK	
AVIATION FUELS	AIR 3405* (TRO)	F34		D.eng.RD 2453 AVTUR/FS II	
		F35		D.eng.RD 2494 AVTUR	
	AIR 3407* (TR4)	F40	MIL-T-5624 (JP.4)	D.eng.RD 2454 AVTAG FS II	
		F45		D.eng.RD 2486 AVTAG	
	AIR 3404* (TR5)	F42			
	TR.5 *	F44	MIL-T-5624 (JP.5)	D.eng.RD 2498 AVCAT	
	Gasoline * AIR 3401	F12 F18 F22	MIL-G-5572 MIL-G-5572	D.eng.RD 2485	
NAVY FUELS	7120 STM Gas Oil =O	F75	MIL-F-16884	DEF STAN 31-4	Do not use below -15°C For the normal use of this fuel the AZ 156 unit containing one of the fuel marked*: -is recommended in all cases. -is essential if the temperature is below 10°C.
	7120 STM Gas Oil =20	F76			
OTHER FUELS	Automotive Gasoline DCEA/2D MT 80	F46		DEF 2401	<u>25 hr. maximum between overhauls</u> it is recommended to add 1% to 2% oil, preferably mineral oil.
	Illuminating oil (kerosene) DCEA/IIC	F58	V V K 211	DEF 2403	Sulfur: less than 0.2% Flash point: not less than 38°C. Freezing point: not greater than -40°C
	Automotive Diesel Oil 40 Dieso DCEA/21C	F54	V V F 800 Class DF 2	TS 10003	Sulfur: less than 1% Kinematic viscosity at 20°C less than 9 cst. Do not use below 0°C. For the normal use of this fuel the AZ 156 unit (SNIAS S.B. 28.14) containing one of the fuel marked*: - is recommended in all cases - is essential if the temperature is below 10°C.

ENGINE OIL	SPECIFICATION (Latest Amendment)				REMARKS
	FRENCH	NATO	USA	UK	
NORMAL	AIR 3513	0.148	MIL-L-7808		Use of brands other than those shown opposite requires S.G.A.C. approval.
	AIR 3515	0.135	Aeroshell Turbine Oil 3.	D.Eng.RD 2490	
			Esso Avn. Utility Oil F Caltex jet engine oil medium heavy		

The mixing of oils AIR 3513 and AIR 3515 is not permitted. The system should be flushed when changing from one type to the other.

Engine Limits	Engine speed : 43,500 r.p.m. held constant by governor (transient variations of $\pm 1500$ r.p.m. are permissible when applying rapid collective - pitch variations) Maximum takeoff power : 523 hp. (See NOTE 6) Maximum continuous power: 473 hp. (See NOTE 6) Maximum tail pipe temperature for starting (30 seconds): 550°C peak value 630°C for period not exceeding 3 seconds (between 5,000 and 10,000 r.p.m.) Maximum for take off : 525°C (See NOTE 6) Maximum continuous tail pipe temperature : 500°C (See NOTE 6)
Rotor limits	Maximum speed 420 r.p.m. Minimum speed 280 r.p.m. Constant speed, power-on flight 362 r.p.m.
Maximum Weight	Model SA 3180 : 3300 lb. Model SA 318B : 3500 lb. (See NOTE 8) Model SA 318C : 3650 lb. (See NOTE 8)

### **Section III, Data Applicable to All Models**

Airspeed Limits	Never Exceed Speed: 105 kt for SE 3130, SE 313B ) SA 3180, SA 318B ) 111 kt for SA 318C )	See NOTE for required placard
C.G. Range	(107.1) to (120.9) for SE 3130, SE 313B (107.09) to (124.02) for SA 3180, SA 318B, and for SA 318C with speed limitation.	
Datum	118.11 forward of rotor centroid.	
Leveling Means	Two leveling lugs on body structure LH lower corners and two leveling lugs on body structure RH lower corners.	
Number of Seats	5. Pilot, co-pilot (51); 3 passengers (87).	
Maximum baggage	220 lb. under rear seat (86.6) (with 5 persons of 176 lb. ea. on board) or 507 lb. behind pilot's and front passenger's seats, with rear seat folded (74.8) (One pilot and one front passenger on board). (See NOTE 2 for required placard).	
Fuel capacity	153 gals. (120), usable 149 gals.	
Oil Capacity	2 gals. (137 for model SE 3130 and SE 313B) (150 for model SA 3180, SA 318B and SA 318C)	
Rotor Blade Movements	For rigging information, refer to Alouette II or Alouette Astazou Maintenance Manual, as applicable.	
Serial Nos. Eligible	The French Government Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual helicopter for which application for certification is made.	
Certification Basis	CAR 10. CAR 6 effective January 15, 1951 including Amendment 6-1 through 6-8, plus Special Conditions notified by the U.S. government to the Government of France in FAA letter of May 28, 1957. Type Certificate No. 7H1 issued January 14, 1958 Date of Application October 11, 1955	

**Import Requirements** A U.S. Airworthiness Certificate may be issued on the basis of a Certificate of Airworthiness for Export signed by a representative of the Secretariat General a l'Aviation Civile containing the following statement: "The helicopter covered by this certificate has been examined and found to comply with U.S. Civil Air Regulation Part 6, dated January 15, 1951, including Amendments 6-1 through 6-8, and with the Special Requirements notified to the Government of France by the Government of the United States of America and conforms to T.C. 7H1.

**Equipment** The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following item of equipment is required:  
 (a) SGAC approved Alouette II or Alouette Astazou Flight Manual, as applicable.

**NOTE 1:** Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each helicopter at the time of original certification. In order to obtain the most consistent weight and balance results, all model helicopters should be weighed on jackpoints rather than on skids, wheels or floats. When changes are made to the helicopter which affect the weight and balance refer to the Flight Manual for instructions.

The certificated empty weight and corresponding center of gravity location must include unusable fuel of 26 lb. (120) and undrainable oil of 2.2 lb. (162.2 for models SE 3130, SE 313B and 172.5 for models SA 3180, SA 318B and SA 318C).

**NOTE 2:** The following placards must be displayed:

- (1) In full view of the pilot:
  - (a) "This helicopter must be operated in compliance with the operating limitations specified in the SGAC approved helicopter Flight Manual".
  - (b) "Never exceed speeds. Variation of Vne with altitude and weight".
    - (b) (1) SE 3130 Alouette II and SA 3180 Alouette Astazou.

Altitude	Sea Level	3,000 ft	6,000 ft	9,000 ft	12,000 ft	13,500 ft
Weight (lb)	kt	kt	kt	kt	kt	kt
3,300	105	95	85			
3,100	105	100	90	80		
2,900	105	105	95	85	75	
2,700	105	105	100	90	80	75
2,400	105	105	105	95	85	80
2,200	105	105	105	100	90	85

- (b) (2) SE 313B Alouette II and SA 318B Alouette Astazou.

Altitude	Sea Level	3,000 ft	6,000 ft	9,000 ft	12,000 ft	13,500 ft
Weight (lb)	kt	kt	kt	kt	kt	kt
3,500	100	90	80			
3,300	105	95	85			
3,100	105	100	90	80		
2,900	105	105	95	85	75	
2,700	105	105	100	90	80	75
2,400	105	105	105	95	85	80
2,200	105	105	105	100	90	85

## (b) (3) SA 318C Alouette Astazou

Altitude	Sea Level	3,000 ft	6,000 ft	9,000 ft	12,000 ft	13,500 ft
Weight (lb)	kt	kt	kt	kt	kt	kt
3,650	111	108	95	78		
3,500	111	108	95	78		
3,300	111	108	95	81	67	
3,100	111	108	96	84	73	67
2,900	111	108	98	88	78	73
2,700	111	108	100	92	84	80
2,400	111	108	101	95	89	85

(2) Secured to the floor in the rear right corner:

"Maximum baggage 220 pounds under rear seat (+86.6 in) with 5 persons of 176 pounds each on board, or 507 pounds behind pilot and front passenger seats, with rear seat folded (+74.8 in) and one pilot and one front passenger on board".

NOTE 3: The retirement times of critical parts are listed in Alouette II Maintenance Manual, or Alouette Astazou Maintenance Manual, chapters 5, SGAC-approved.

NOTE 4: These helicopters must be serviced and maintained in conformance with the following manuals, as applicable, of which chapter 5 "Periodic Inspection" is SGAC approved:

- (a) Alouette II Maintenance Manual (airframe and engine)
- (b) Alouette - Astazou Maintenance Manual (airframe and engine)

NOTE 5: The Siren Sling and Air Equipment rescue hoist are special purpose equipment and should be operated in accordance with the limitations described in CAR 8. Information concerning operation limitations is also contained in the helicopter Flight Manual.

NOTE 6: Maximum certificated horsepower for this installation is limited to 400 hp due to rotor transmission limitations.

For the same reason, the maximum permissible exhaust gas temperatures are limited to:

- Takeoff: 490°C (For OAT 15°C and below) and 515°C at OAT: 45°C;  
Straight line interpretation between 15°C and 45°C.
- Maximum continuous : 460°C

NOTE 7: To convert the model SE 3130 Alouette II to the Model SA 3180 Alouette-Astazou the following assemblies must be installed in place of the corresponding assemblies designed for the SE 3130 Alouette II in accordance with Sud Aviation modification AM 817:

<u>Assembly</u>	<u>Drawing No.</u>
- Engine Astazou II A	3180-50-50.000
- Oil system (engine and M.G.B.)	3180-54-10.000
- Engine vent	3180-50-50.010
- Clutch unit	3180-63-10.000
- Rear engine mount	3180-21-03.100
	or 3180-21-03.200
- Engine controls	3180-76-13.000
- Fuel system	3180-52-00.000.1
- Main gear box	3160-62-00.000.9
- Main rotor shaft	3160.68.10.000.2
- Starter wiring installation	3180.72.22.300
- Spring actuator	3180-89-00.000
- Instrument panel installation	3180-76.50.000
- Firewall assembly	3180-59-10.000
- Transmission support platform (Stainless steel)	3180-27-60.000

Further, the following equipment (optional on Alouette II) must mandatorily be installed.

- Servo-unit installation 3130-73-71.000

NOTE 8: (1) to convert the model SE.3130 Alouette II to the Model SE 313B or the model SA 3180 Alouette - Astazou to the Model SA 318B the following modifications are required:

- High pitch stop adjusted for 15°
- Reinforced main rotor blades P/N 3130-11-20.000
- Body structure reinforced transversal bar P/N 3130-21-15.100
- Artouste IIC5 or IIC6 engines must be installed for model SE 3130 Alouette II only.
- Instruction plates P/N 3130-25-20.090, index marks on pitch indicator P/N 3130-90-00.144, instruction plates P/N 3180-76-26.011.
- Modification of marking helicopter 318-00-10.006 (Alouette-Astazou) 313B-00-00.020 (Alouette II).
- And the following tail rotor gear box/tail rotor hub modifications:

Either: Reinforced tail rotor gear box P/N 3130-66-70.000 and tail rotor head P/N 3130-33-30.000.1.

or Fork type rotor hub 3180-33-00.000 and tail rotor blades P/N 3160-34-10.000.6  
Tail rotor gear box P/N 3160-66-10.000.1

The following modifications must be embodied before floats are installed:

- Reinforced float type landing gear P/N 3130-73-54.500
- Hydraulic dampers on float type landing gear P/N 3130-46-10.560

(2) To convert the model SA 3180 Alouette-Astazou to the model SA 318C the following modifications are required in addition to the foregoing (except instruction plates P/N 3130-25-20.090 and P/N 3180-76-26.011)

- Landing gear reinforced transversal bar P/N 3180-46-10.010 or P/N 3180-46-10.015
- Landing gear shock strut P/N 3180-46-10.100
- Instruction plates P/N 3180-25-10.040 and P/N 3180-76-26.019
- Marking on airspeed indicator P/N 3180-90-00.006

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