Section 2
NORMAL PROCEDURES

CONTENTS

1 - FOREWORD

The SA 319 is a high-performance machine designed for operation over a very wide range of weight, c.g. and altitude conditions. In view of its excess power capability close to the ground, and considering the high altitude up to which the aircraft may be flown at maximum gross weight, it is not recommended to check out a pilot until he has completed 5 flying hours at the controls of the aircraft with an instructor who will have stressed the following points :

- collective-pitch limitations versus altitude and temperature conditions.
- need to watch autorotative r.p.m. at maximum gross weight, when flying close to ceiling of aircraft.

Peculiarities of helicopters powered by single shaft turbine engines are as follows :

The LAMA is powered by a constant speed single-shaft turbine engine which means that power changes merely entail a variation in torque.

The pilot has no means of acting directly on engine power. Power demand is altered by acting on the collective-pitch angle, and an automatic device renders engine power output equal to the power demand, thereby maintaining a constant r.p.m. value.

Since the pilot has no direct control, over power output, he is not given any engine parameter to abide by (such as manifold pressure in the case of piston-engined helicopters). He is told what collective-pitch value should be adopted. The prime instrument for the Alouette pilot is the collective-pitch indicator. This indicator serves a dual purpose :

1) It enables the weight of the helicopter to be determined in hovering flight.

   Since, for a given angle of attack, lift is proportional to air density, the ratio $\frac{\text{Weight}}{\text{Density}} = \frac{W}{\sigma}$, in hovering flight, is always the same.

   Consequently, instead of reading degrees, the collective-pitch indicator has been graduated in values of $\frac{W}{\sigma}$ relative to the value of $\frac{W}{\sigma}$ at maximum collective-pitch.

   This maximum collective-pitch value is defined as the blade angle limit not to be exceeded ; the polar curve of the airfoil tends to flatten out and, at a certain moment, an increase in blade angle very rapidly amplifies the power demand on the engine without any practical gain in lift.

   Experience has shown that the angle of attack at which this occurs corresponds to the blade angle obtained in hovering flight I.G.E. with a $\frac{W}{\sigma}$ value of 3100 kg. Therefore :

   $$\frac{W}{\sigma} \text{ max.} = 3100 \text{ kg}$$

   $$\text{and } \theta = \frac{\frac{W}{\sigma}}{3100}$$

   Whence : $W = 3100 \times \theta \times \sigma = 3100 \times \theta \times \frac{Pa}{1013} \times \frac{288}{T}$,

   Pa = Atmospheric pressure T = Absolute air temperature
   this calculation is made instantaneously, using the computer incorporated in the collective-pitch indicator.
2) It is used for setting a given power value and for checking that maximum design power is not exceeded.

2 - MAINTENANCE INFORMATION

A. CAPACITY OF SYSTEMS

1) Fuel System :
- Aircraft equipped with a standard (cubic) fuel tank :
  . Usable fuel : 555 l
  . Non-usable fuel : 10 l
- Aircraft equipped with a four-lobe fuel tank
  . Usable fuel : 573 l
  . Non-usable fuel : 2 l

2) Engine Oil Reservoir
- Minimum total capacity : 12 dm3
- Minimum oil volume : 7 dm3

3) Hydraulic System
- Usable capacity of the reservoir : 2.3 litres

4) Main Gearbox Oil System
- Volume of oil at max. level : 4.5 litres

5) Tail Rotor Gearbox (max. level) : 0.5 litre

B. USE OF ANTI-ICING ADDITIVE IN FUEL

- An anti-icing additive meeting the requirements of the French specification AIR 3652 (or equivalent foreign specifications specified in paragraph 4C of the Limitations section) must be incorporated in the following proportions :
  . Minimum concentration in a tank already filled. 0.035 % by volume.
  . Minimum concentration in fuel which will be used for aircraft refuelling : 0.06 % by volume.
- The additive which meets the requirements of the AIR 3652 specification is intended primarily to be used with fuels TR4 and TR5 (JP4 and JP5). The military fuel JP4 (AIR 3407) normally contains this additive.
- Should there be any doubt as to the concentration of the additive in the fuel, the tank must be drained and refilled with fuel containing the additive in the above mentioned proportions.
- Refer to the instructions given by the vendor for the additive incorporation procedure.

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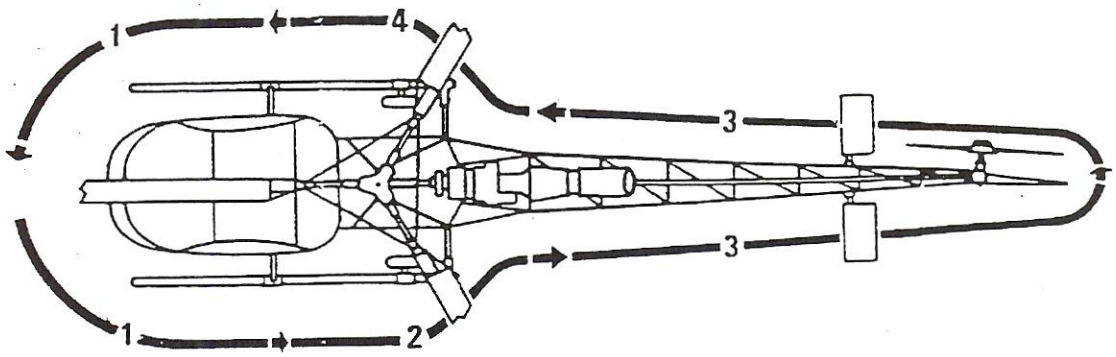
3 - PREFLIGHT EXTERNAL CHECKS

ASCERTAIN THAT THE INSPECTION AFTER THE LAST FLIGHT OF THE DAY HAS BEEN COMPLETED.



OUTSIDE THE CABIN

(1)

- Side-slip indicator : Check that the woolen thread is installed

BODY STRUCTURE, L.H. SIDE

(2)

- Air intake : Check grid or sand filter for security and condition.
- Fuel tank : Bleed before the first flight and after each refueling
- Engine oil tank : Check for level and freedom from leaks.

(3)

TAIL BOOM, TAIL GEAR BOX

- Tail gear box : Check for level and freedom from leaks and ensure that the filler plug is installed.
- Tail rotor blades : Check for condition

BODY STRUCTURE, R.H. SIDE

- Fuel tank : Check that the filler plug is installed and locked in closed position.
- Main gear box : Checks for level and freedom from leaks.
- Engine : Check for freedom from leaks
- Air intake : Security condition of grid or sand filter
- Fuel filter : Bleed before the first flight. Check that the clogging indicator is in.

(4)

- Main rotor blades : Check for condition of leading edge and tip fairing.

PLACE THE AIRCRAFT HEADWIND WITH ONE BLADE FORWARD ON THE AIRCRAFT CENTRE LINE.
CHECK FOR FREEDOM FROM FOREIGN BODIES IN THE VICINITY, LIABLE TO BE INGESTED OR TO CAUSE DAMAGE TO THE ROTORS.

4 - CHECKS BEFORE ENTERING THE HELICOPTER

A. OPERATING LIMITATIONS. Refer to limitations and restrictions specified in chapter 1.

B. PERFORMANCES INFORMATION.Refer to performance values specified chapter 4 for the proposed flight conditions.

C. WEIGHT AND BALANCE.The take-off weight and anticipated landing weight, as well as the corresponding c.g's should be carefully determined prior to taking off and checked as specified in appendix "weight and balance". On take-off, it is recommended not to exceed the maximum weight which can be maintained in hover O.G.E., and this especially under difficult take-off conditions (narrow platform, obstacles ...).

5 - INTERNAL CHECKS BEFORE STARTING ENGINE

1. Seat : ADJUST position and CHECK locking
2. Tail rotor control pedals : - ADJUSTED
   - CHECK free travel
3. Cyclic pitch stick : - CHECK free travel
   - CENTER the control stick
   - HOLD the stick, using the friction lock
4. Collective pitch lever : - CHECK free travel
   - With the lever against the low pitch stop, TIGHTEN the friction lock fully.
5. Microphones and earphones : CONNECTED
6. Safety harness : BUCKLED
7. Doors : CLOSED
8. Fuel flow control lever in CLOSED position (against rear stop)
9. Servo system control cock : MARCHE (OPEN) position
10. Fuel shut-off control lever lockwired in FORWARD POSITION
11. Circuit breakers : Engaged, except for : landing light, cabin lighting system, position lights (engaged for night flying only) 24-volt power supply
12. Switch battery and generators "ON"
13. Engine selector switch : OFF
14. Rotor brake RELEASED - One main rotor blade FORWARD
15. Check : voltmeter (24-volt minimum) and electric instruments (fuel contents gauge, etc...)
16. Check warning lights
17. Check and adjust : altimeter, compass and clock
18. In the event of night flying : check interior and exterior lighting
19. Artificial horizon and directional gyro : CAGED (if installed).

6 - STARTING THE ENGINE AND ROTOR

Operations	Checks and comments
1. Switch the booster pump to "ON" (MARCHE) and wait 20 seconds.	- The fuel low pressure warning light goes out. - Wait until fuel flows from the micro-pump drain; this should normally be within 5 to 15 seconds (this time may be longer if the circuit has been drained).
NOTE : If the engine has been stopped less than 5 minutes before, crank the engine for 5 seconds.	
2. Set the starting selector switch to "ON" (MARCHE) and start the stop watch at the same time.	- The green "START" (DEM) indicator light comes on. - A few seconds later, the yellow "INJ" indicator light comes on

SET THE STARTING SELECTOR SWITCH TO "OFF" IF :

. The "START" (DEM) indicator light remains out

. The "INJ" indicator light remains out

. The "STOP" (BLOC.) red warning light comes on

. 8 seconds after the "INJ" indicator light has come on, the t4 temperature has not yet risen.

. The t4 temperature exceeds 630°C.

- Within 5 to 15 sec. (approx. 6000 r.p.m) the "INJ" indicator light should go out, and engine speed continue to rise.

SET THE STARTING SELECTOR SWITCH TO "OFF" IF :

. The "INJ" indicator light has not gone out within 15 seconds.

. The "STOP" (BLOC.) warning light comes on.

- At about 13000 r.p.m., the "START" (DEM) green indicator light should go out and engine speed continue to rise.

. As soon as the "START" (DEM) green indicator light has gone out, switch on the radio set to "warm up"

SET THE STARTING SELECTOR SWITCH TO "OFF" IF :

. The "START" (DEM) green indicator light has not gone within 60 seconds.

. The oil pressure does not rise.

2

Operations	Checks and comments
3. The engine stabilizes at idling speed (between 16000 and 19000 rpm)	

NOTE 1 : See Maintenance Manual for idling speed adjustment.

NOTE 2 : On engine starting, a residual friction inside the clutch may cause a slow rotation of the rotor, without noticeable acceleration. This stabilized rotation shall not exceed 10 rpm.

- Gradually move the fuel flow control lever forward until the main rotor just begins to turn and start the stop watch.		- The generator indicator light and the gyro instrument warning light should go out above 21 000 engine r.p.m.	
Engine speed at start of clutch engagement may be different, according to the type of clutch, as indicated in the table below.		NORMAL CLUTCH	UNIFIED CLUTCH (After AMS 1722)
MINIMUM VALUES	MINIMUM VALUE ON RECEIPT (new or overhauled clutch unit)	19 500	23 000
	MINIMUM VALUE IN OPERATION (shoe linings separated)	18 500	22 000
MAXIMUM VALUE	VALUE ENTAILING REMOVAL (worn out clutch unit)	24 000	27 000
- To spin the rotor, increase engine speed sufficiently to maintain a constant rotor acceleration rate of 5-10 r.p.m. per second (monitor engine speed by means of the fuel flow control lever).		- If the droop restrainers strike the droop restrainer ring, re-position the cyclic stick. - Synchronization should be obtained in 34-45 seconds. -The oil pressure warning light should be out above a rotor speed (NR) of 250 r.p.m.	

NOTE : This acceleration corresponds to an engine speed of 1000 - 2000 r.p.m. above the initial r.p.m. (this figure is given purely as a rough guide).

4. Gradually move the fuel flow control lever forward to the travel limit stop	- t4 temperature should not rise by more than 50°C during acceleration - Fuel flow control lever indicator light is out - Engine speed is 33500 ± 200 r.p.m
- Set the starting selector switch to OFF - Set the switch back to ON	- The engine does not stop
- Adjust friction devices (cyclic stick and collective lever) as desired	- Residual friction (on stick and lever) is not nil
- Uncage the artificial horizon and adjust the silhouette to the correct height. - Adjust, then uncage the directional gyro.	

2

REMARKS

1. After an unsuccessful start, do not make more than three consecutive tries to start, in all, to avoid overheating the starter generator. After three unsuccessful tries, wait 20 minutes before trying again.

2. Allow at least 5 minutes between two successive clutch engagements to let the clutch unit cool down.

3. In the event of re-starting shortly after engine shut-down, ventilation (cranking) is required to lower residual T4 temperature to less than 150°C.

4. Starting with external power supply : adjust power to 800 Amp., 24 V. and proceed as described above. When the "START" (DEM) indicator light goes out, have external power disconnected.

   Never release the cyclic stick without first locking it, either between knees or by tightening the friction knob.

5. In turbulent strong wind, endeavour to obtain synchronization in 20 or 30 seconds.

6. If, during the starting cycle, t4 temperature rises above :

   - 630°C, but remains below 680°C, the engine should be adjusted then kept in service.
   - 680°C, this is permissible once only with a time restriction of two seconds maximum.
     Such overheat must be noted in the engine log book.
     If the two-seconds time limit is exceeded, or if a second overheat above 680°C occurs, the engine must be changed.

7. TAKE-OFF

Operations	Checks
1. Take off without hesitation and maintain hovering flight at 1 metre (3 feet) above the ground. 2. Slowly establish forward flight by gradually increasing the collective pitch, without exceeding the maximum pitch corresponding to the density-altitude of the take-off area.	Check collective-pitch, and tail pipe temperature (t4). - t4 should remain below the t4 limitations given in Section 1, para. 4 and be in accordance with chart at the top of the instrument panel (see Section 2. para. 14)

As soon as the transition speed (35 km/h - 20 knots) has been exceeded, it is recommended to gain altitude progressively so that, a power-off landing if required, can be accomplished under the best possible conditions : 5 to 10 m at 50 km/h (15 to 30 ft at 30 knots) 15 to 20 m at 65 km/h (50 to 60 ft at 40 knots) Climbing speed is 95 km/h (50 knots)	Tail pipe temperature T4 : not to exceed 500°C.

NOTES : 1. During climb, the collective-pitch indicator pointer should normally be opposite the density-altitude indication. However as long as O.A.T. is not more than 20°C below standard temperature, pressure and density-altitudes may be assumed to be the same. Otherwise, it is still possible to refer to pressure-altitude after reducing by 0.05 the collective-pitch indicator for standard temperature conditions. When maximum performance in hot weather conditions is desired, it should be borne in mind that an additional 20°C above standard temperature implies that density-altitude is approximately 500 m (1650 ft) higher than pressure altitude.

2. When rate-of-climb drops below 200 m/minute (650 ft/minute), establish a climb speed of 80 km/h (45 knots) instead of 95 km/h (50 knots).

8 - IN-FLIGHT OPERATIONS

A. CRUISING

Economical cruising pitch above 1000 m (3300 ft) is 0.85. It is equal to pitch for maximum speed in straight, level flight below 1000 m (3300 ft).
The speeds obtained in cruising flight, and the corresponding fuel consumption are given in appendix.

NOTES : 1. In straight, steady flight (with no side-slip) the helicopter lists to the right. The amount of list depends on the amount of power being used.

2. When the friction nuts are backed right off, the remaining friction should be sufficient to hold the cyclic control stick and collective pitch control lever steady in any position.
Adjustable stops are provided to meet this requirement ; if necessary, request adjustment of the stops upon landing, after setting the friction nuts as required. (See maintenance manual chapter 27).

B. QUICK-STOP

A "Quick-stop" is performed by applying full low collective pitch, and maintaining constant height above the ground ; this will never result in an excessive nose-up attitude (maximum authorized nose-up attitude = 30 degrees).

IMPORTANT NOTE : Flight with side-slip, hover flight in cross wind, lateral travel, tight turns, sudden manoeuvers on yaw axis fatigue the tail rotor, particularly the control rod, and should be avoided.

RR 4 A

Add the following text at the beginning of the paragraph 11-A :

11 - AFTER LANDING

A. STOPPING

CAUTION : DURING AND IMMEDIATELY AFTER THE ENGINE SHUTDOWN, MAKE SURE THAT NO SMOKE COMES OUT OF THE TAIL PIPE, THE AIR INTAKE OR THE ENGINE CASING DRAIN.
IF YOU DO SEE SMOKE, DO NOT RESTART THE ENGINE.

IF YOU HAVE NO OUTSIDE HELP, STOP THE ROTOR BEFORE SHUTTING DOWN THE ENGINE, IN ORDER TO PERFORM THIS CHECK.

9 - DESCENT

Descent may be accomplished with any collective pitch value provided a rotor speed of 420 r.p.m. is not exceeded (need to maintain collective-pitch margin when flying at altitude with heavily loaded aircraft).
Recommended approach speed is 110 km/h (60 knots) for clear landing areas.
A lower approach speed should be adopted in the event of a confined landing area being used.

10 - LANDING

From a hovering attitude, land without hesitation and apply full low collective pitch.

11 - AFTER LANDING

A. STOPPING

Fully retard the fuel flow control lever.
Apply the friction controls.
Shut down the engine by moving engine selector switch to "OFF".
At 175 r.p.m., apply the main rotor brake.
Wait until the "STOP" warning light goes out before switching off the radio, booster pump, battery and generator.
Cage the gyro horizon : pull out the caging knob and rotate clockwise until the red caging flag appears. Cage the directional gyro by pushing its caging knob in, if this equipment is installed on aircraft.

B. STOPPING THE ROTOR WITH ENGINE RUNNING

The rotor can be stopped without stopping the engine, provided that there is no clutch drag ; proceed as follows :

1) Set the fuel flow control lever in fully closed position and wait for rotor speed to fall below engine speed (check indicator pointers).

2) Apply the rotor brake at 175 r.p.m. ; partially release the brake just before the rotor stops, in such a way that one of the rotor blades comes to rest forward.

3) Release the brake completely and check that the clutch has no tendency to drag.
If the rotor starts to rotate or creep, either :
- switch the engine off
- or, accelerate the engine to ensure full clutch engagement.

NOTE 1 : A very slight rotation of the rotor is permissible in the same conditions as for engine starting (paragraph 6 operation 3).
If required, immobilize the rotor by a brief action on the rotor brake handle, in such a way that one of the blades comes to rest forward.

NOTE 2 : After flight in turbulent weather have the main and tail rotor blades and the stabilizer checked.

12 - RE-STARTING

If immediate re-starting, just following shutdown, is disered, do not switch on the booster pump but first carry out a ventilation in order to reduce the residual tail pipe temperature down to no more than 150°C.
Switch on the booster pump immediately after engine start up.

13 - USE OF THE COMPUTER

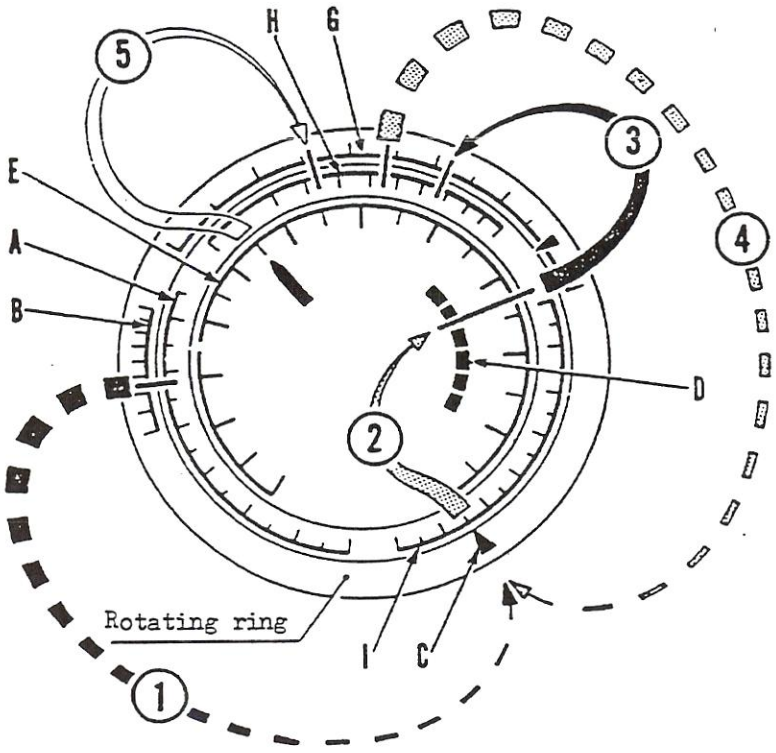
The computer surrounding the collective-pitch indicator is used to determine various parameters, as follows :

(1) Density-altitude :

a) By means of the rotating ring, line up :

- The O.A.T. value (scale B) transferred from the O.A.T. indicator.
- The pressure altitude (scale A) transferred from the altimeter set at 1013 mbars.

b) Read the corresponding density altitude value on scale I opposite arrow C.



(2) Maximum permissible collective pitch for hovering

a) Determine density altitude as specified in para. (1) above.

b) Convert the density altitude figure into km (or thousands of feet), transfer the result to scale D, then read opposite, on scale E, the maximum permissible collective pitch for this density altitude.

(3) Maximum hovering take-off weight out of ground effect

a) Determine maximum permissible collective pitch as specified in para. (2) above.

b) Transfer the maximum permissible collective pitch figure to scale G and read opposite, on scale H, the approximate maximum permissible weight.

④ - "Pending"

⑤ - Approximate effective gross weight during hover O.G.E. :

a) Carry out step (1).

b) Read on scale E the collective pitch indicated by the pointer.

c) Transfer the above pitch to scale G and read on scale H the weight corresponding to this pitch.

14 - OPERATIONAL CHECKS

A. HOVERING FLIGHT POWER CHECK

When it is desired to check available power, establish hovering flight and note the collective pitch value, tail pipe temperature and outside air temperature (in the shade) then land and perform the following check :

1) Apply to tail pipe temperature reading the correction specified for the installed engine (as shown on chart provide above the instrument panel.

NOTE : The correction value to be entered in the "correction" block of the chart is the difference between the tail pipe temperature, recorded during the hovering flight carried out after installation of the engine (new or overhauled), and the tail pipe temperature determined from the chart for the collective pitch and outside temperature values recorded during hover. The correction value is preceded by a plus sign (+) if the actual indicated tail pipe temperature is lower than the tail pipe temperature shown on the chart ; in the opposite case, the correction value is preceded by a minus sign (-).

2) Read theoretical tail pipe temperature on chart in cockpit.

3) Check that the difference between indicated and corrected tail pipe temperature and tail pipe temperature read on chart is less than 40°C.

If the difference exceeds 40°C, discontinue flying and conduct the following checks :

- O.A.T. indicator check
- tail pipe temperature indicator calibration check
- collective-pitch indicator calibration check by checking the hovering collective pitch value.

If calibrations are correct, tail pipe temperature is abnormal and the engine should be returned for overhaul.

EXAMPLE

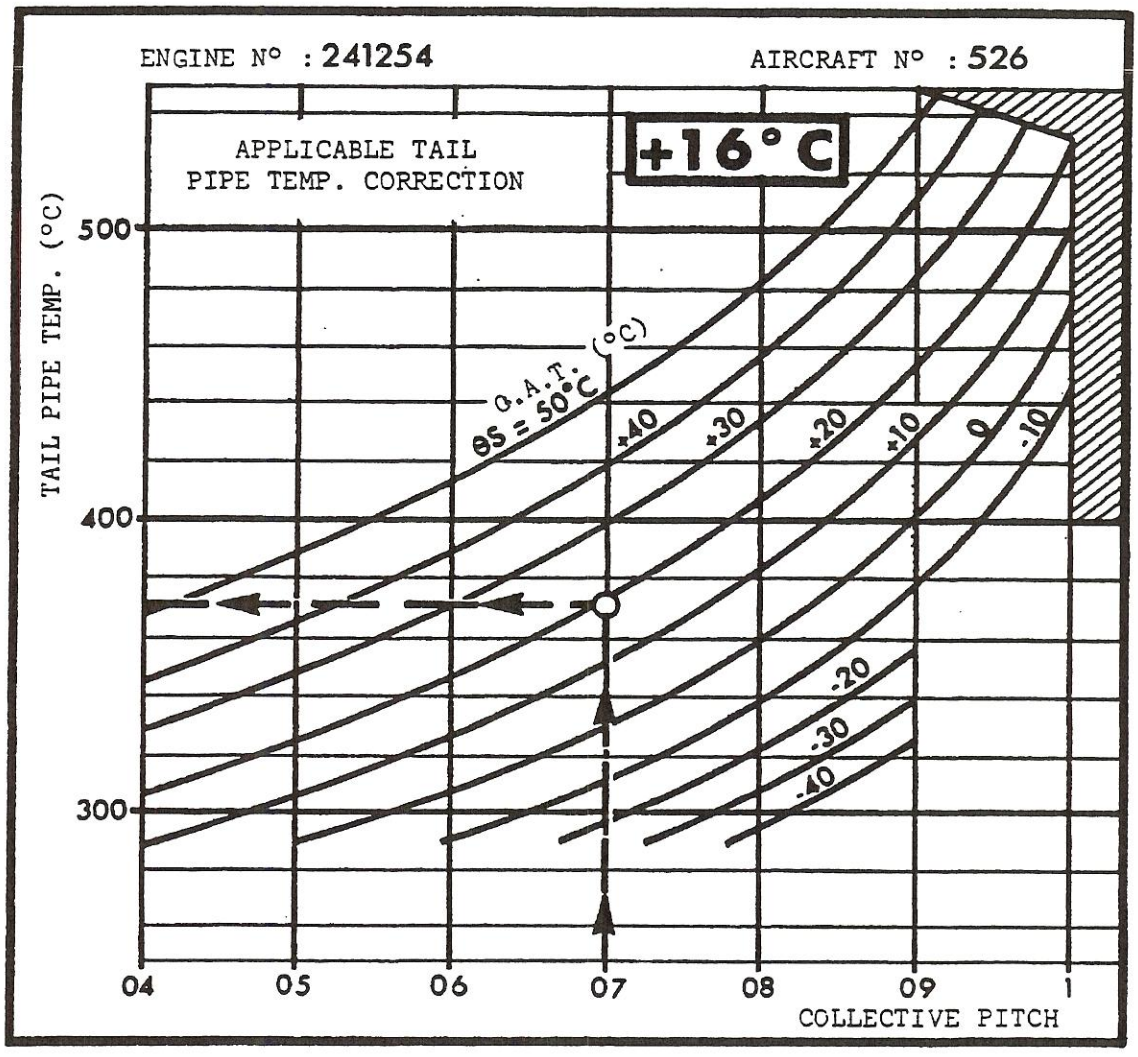
1) Values recorded in hovering flight at 1.5 m from ground :

   a. on O.A.T. indicator (under shelter) + 19°C
   b. on collective-pitch indicator 0.7
   c. on tail pipe temp. indicator 380°C

2) After landing :

   a. Apply to the recorded tail pipe temperature the applicable correction specified on the chart above the instrument panel, e.g. : 380° + 16° = 396°C
   b. Read on the chart the tail pipe temp. corresponding to the collective pitch and O.A.T. values recorded in hovering flight, i.e. for 0.7 collective pitch and + 19°C ..... 370°C
   c. Determine the difference ..... 396°C - 370 = 26°C.

The difference being less than 40°C, engine power is correct.



Hovering flight power check

15 - STARTING THE ROTOR IN HIGH WIND

In high wind it is important to avoid starting or stopping the rotor to the leeward of hangars, buildings etc... due to the danger of erratic blade flapping in eddying air currents.

A. IN TURBULENT ATMOSPHERE

Nevertheless, in cases where rotor starting/stopping in zones of eddying air currents cannot be avoided (e.g. on aircraft carriers), the rotor may be started in relative wind up to a force of 45 knots (83 km/h) if the following exceptional procedure is adopted :

1. Starting the rotor
Head the helicopter into the wind, cyclic pitch stick in neutral position; proceed as follows, to engage the clutch :
- Bring engine to idling speed
- Release rotor brake
- Gradually push the fuel flow control lever forward. When the rotor starts to turn, slightly increase the speed of fuel flow control lever displacement to ensure a fairly fast rate of rotor acceleration up to 80-100 rotor r.p.m. Fuel flow rate may then be slightly reduced to provide normal acceleration up to operating speed.

In this way, synchronization can be attained in approximately 25 seconds.

2. Stopping the rotor
With the collective pitch lever on the low pitch limit stop and the cyclic pitch stick in neutral position, promptly reduce fuel flow. At 175 rotor r.p.m. apply the rotor brake, holding the collective pitch lever on the low pitch limit stop.

B. IN NON-TURBULENT ATMOSPHERE

In exposed areas, where no eddying air currents are encountered, the rotor may be started and stopped in winds of up to 60 knots (111 km/h). The procedure to be adopted is as follows :

1. Starting the rotor

With the helicopter headed into the wind, push the cyclic pitch stick forward 10 - 20 mm (0.4 to 0.8 in.). Rotor starting should be accomplished faster than in normal condition; (synchronization being attained in approximately 25 seconds). Pay particular attention to the height of the blades as they pass over the nose of the helicopter and, if necessary, adjust cyclic pitch stick position until they track at normal height (as in no-wind conditions with cyclic control stick in neutral postion).

2. Stopping the rotor

With the helicopter headed into the wind, the cyclic stick just forward 10 - 20 mm (0.4 to 0.8 in.) of neutral position, and collective pitch lever on low pitch limit stop, promptly reduce fuel flow. At 175 rotor r.p.m. apply the rotor brake, still holding collective on the low pitch limit stop. At approximately 160-170 rotor r.p.m. the droop restrainers come into operation; if the cyclic stick has been positioned correctly there will be little or no jerking during droop restrainer engagement. If necessary, to attenuate jerkiness or correct blade tracking, gently adjust cyclic stick position.

NOTE : If, at low rotor speed (below 100 r.p.m.), one blade is seen to be tracking much lower than the others (droop restrainer not engaged), push the cyclic stick further forward.

16 - FLIGHTS AT EXTREME C.G. LOCATION

A. FORWARD C.G. LOCATION

With the cabin full of passengers, the aircraft is flying near the extreme forward c.g. location. In this case, the pilot must expect to have the fuselage in a nose-down attitude during hover. He will also have the stick towards the rear, particularly when hovering with a tail wind.

It should be borne in mind that maximum permissible velocity of tail wind in hover is 32 km/h (18 knots); under these conditions the remaining aft displacement margin is at least 10 % of the total displacement of the control when c.g. location is at 2.76 mètres (108.70 in).

B. AFT C.G. LOCATION

When the pilot is alone on board, the aircraft is flying near the extreme aft c.g. location. In this case, the pilot must expect to have the fuselage in a nose-up attitude during hover, and the tail rotor guard will then be close to the ground.

Under these conditions, it is recommended :

- To take-off and land, up-hill when operating on a slope
- To take-off and land, head into the wind, when operating on flat ground.

On take-off advance slowly when the skids leave the ground to prevent the aircraft from swinging round the rear of the skids.

On landing, hover at an altitude of at least 2 to 3 mètres (6.5 to 10 feet) for several seconds before landing, so that the aircraft attitude is stabilized at its hover position.

Critical flight condition, affecting forward stick displacement, is flight at maximum speed and maximum pitch : however the remaining forward displacement margin is at least 5 % of the total displacement of the control when c.g. location is at 3.15 metres (124.00 in).

This margin increases as soon as the pilot reduces pitch or airspeed, and all the more so, if he reduces both simultaneously.