

Cockpit Preparation

1. Outside checkcompleted
2. Helicopter documents checked
3. Seats and pedalsadjusted
4. Seat belts.....fastened
5. Rotorbrake.....forward / released
6. Fuel shut-off lever forward and secured
7. Twist gripIdle position
8. Hydraulic switch..... ON
- 9. Engine starter (overhead switch).....OFF**
10. BatteryON
- 11. Gen..... OFF**
12. Instrument lightas necessary
- 13. GPS (G430)ON**
14. Warning lights (W/LT TST)Press to test
(Check TRQ indicates 100% for 2 seconds)
15. ACCU / HYD TEST.....press for 2 sec
(centers pedals to neutral)
16. Warning Pannel

GENE	FUEL P	PITOT	HORN
HYDR	ENG P	MGB P	TWT GRIP

with EPU + BATT
17. VEMD check

no message/ 2 screens
Batt > 22 Volts

Bleed valve opened
18. Control pedals free travel
19. Cyclic center and friction
20. Collective down and locked
21. Heating system.....OFF
22. Instruments..... static or zero
23. Flight time counter/Chrono..... checked
24. COM / NAV / Transponder..... off
25. Switches..... all off
26. Cargo hook (electrical + manual)..... checked and set as required

Engine Start

1. Start-up clearance (if necessary) received
2. Rotor..... free
3. Area..... clear
4. **CPW**..... check **GOV** light is **OFF**
5. **Fuel pump**..... **ON**
6. **GENE** **OFF**
7. Starter Selector..... ON
8. Check parameters :
 - Ng..... increase
 - TOTbelow limits
 - Engine oil pressurechecked

When N1 > 60% VEMD switch to FLI MODE
(FLI MODE)

9. When N1 > 67 % -> GENE ON
10. Warning lights..... all out, exc. HORN / PITOT / TWT GRIP
11. Pitot..... ON
12. **Fuel Pump** **OFF**
13. **Engine starter selector guard**.....**closed**
14. Avionics ON
15. All necessary systems ON
16. Avionic / Gyros (Att ind./D..... ON
17. FM / COM / NAV / Transponder /GPS.....on and set
18. Altimeter QNH set
19. **Hyd. accumulator test** **checked**
20. **Hyd. isolation test**..... **checked**
21. Gyros (Att ind./DG) set
22. Twist grip..... flight position
23. Horn..... ON when RRPM at 340 / check sound
24. NR..... check RPM in lower green arc
25. Fire Test..... gong + illumination
26. Parameters.....check NO warning, Voltage and Pressure
27. **Landing Light** **ON**
(for in-flight collision avoidance, keep light ON all flight duration)

CRANKING - after aborted start or maintenance

1. Engine starting selector..... OFF
 2. Shut OFF Lever.....forward
 3. N1 < 10 % check
 4. Crank press max 20 sec
-

4.4 TAKEOFF

4.4.1 BEFORE TAKEOFF CHECK

1. Doors.....CLOSED or sliding doors
OPEN LOCKED.
2. Cyclic and collective frictionsAS REQUIRED.
3. Landing light.....AS REQUIRED.
4. Temperatures and pressures.....NORMAL RANGE.
5. CWP.....All lights OFF.
6. Collective pitchUNLOCK.

NOTE

Adjust collective and cyclic frictions so that friction loads are felt by the pilot when moving the flight controls.

4.4.2 TAKEOFF CHECK AND PROCEDURE

CAUTION

Heating and demisting system can be used during takeoff but this degrades the aircraft hover and climb performance shown in SECTION 5 when operating at engine limits (N1, TOT).

- Gradually increase collective pitch to hover at 5 ft (1.5 m). Check engine and mechanical control instruments, no warning light.
- Increase airspeed with HIGE power until IAS = 40 kt (74 km/h), then begin to climb so as to clear 40 ft (12 m) at IAS = 50 kt (93 km/h).

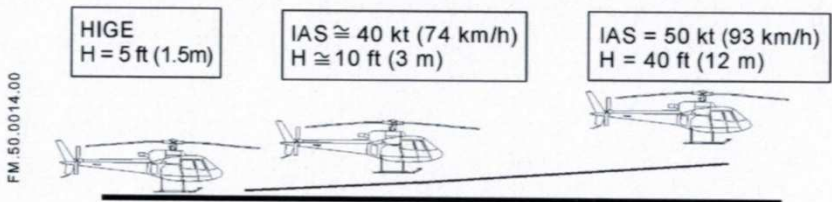


Figure 4-2: Takeoff Procedure

CAUTION

For safe operation, takeoff path should avoid HV diagram (Refer to SECTION 5).

4.5 CLIMB

Above 100 ft (30 m), for maximum climb performance, select Maximum Continuous Power and optimum climbing speed (Vy):

IAS kt = 65 kt at 0 Hp - (1 kt / 1000 ft).

IAS km/h = 120 km/h at 0 Hp - (2 km/h per 300 m).

4.6 CRUISE

Fast cruise is obtained by the first limitation reached corresponding to the beginning of the FLI amber area:

Corresponding mechanical or engine limits (TRQ, N1, TOT) are indicated by underlined numerical value.

Reduce indicated airspeed in turbulence.

4.7 APPROACH AND LANDING

4.7.1 APPROACH

- Begin approach at Vy.
- At approximately 100 ft (30 m), reduce airspeed down to HIGE at 5 ft (1.5 m).
 - Approach check:
 1. Landing light AS REQUIRED.
 2. All parameters CHECK.

4.7.2 LANDING

- In hover, gradually reduce collective pitch until touchdown, then fully reduce collective pitch.
-

Engine Shut Down

1. Cyclic neutral
 2. Collective full down and locked
 3. Frictions on
 4. Horn..... off
 5. Landing light off
 6. Throttle Idle position (TWT Grip) for 30 seconds
 7. FM / COM 2/ NAV / Transponder..... off
- G430 / GPS must remain ON (error on VEMD)**
8. Pitot heat off
 9. Avionic / Gyros (Att / DG)..... off
 10. Engine starting selector (overhead switch)..... off
 11. Generator..... off
 12. Rotor brake..... apply as required below 140 RRPM
 13. Rotor stopped
 14. Instrument lights..... off
 15. HYD TEST button press for 1-2 sec. to center pedals

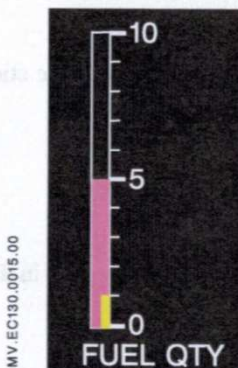
16.VEMDreport datas for techlog

17. Battery off
-

4.9 MISCELLANEOUS PROCEDURES AND DATA

4.9.1. TANK CAPACITY

- **Maximum capacity**
540 liters (142.7 US gal - 427 kg - 941 lb).
- **Fuel gauge**



10 = usable fuel quantity, depending on type of fuel tank (Refer to § 1.3.4, Section 1).

Yellow bar : 15 min. of flight time remains at MCP at the beginning of this range.

NOTE 1

The unusable fuel quantity is reached when zero is indicated on the fuel gauge.

NOTE 2

Fuel quantity indication in kg and fuel flow indication in kg/h is based on a fuel density of 0.79 kg/l.

4.10 EXTREME WEATHER OPERATIONS

4.10.1 HIGH WIND OPERATION (WIND ABOVE 30 KT (56 KM/H))

- **Parking**

- Park the helicopter head into the wind. Maintain rotor brake applied with one blade at 12 o'clock. Keep blade socks until start up.
- For wind above 40 kt (74 km/h) the helicopter must be tied down.

- **Start up**

- When the rotor begins to turn, apply a small cyclic stick input into the wind.
- As soon as $N1 > 67\%$:
Twist grip.....FLIGHT position.

- **Run up check**

- Perform the hydraulic checks with the twist grip in FLIGHT position and NR at nominal speed.

- **Engine and rotor shutdown**

- Allow engine oil to cool with twist grip in FLIGHT position.

NOTE

Start up and shutdown have been demonstrated up to 40 kt (74 km/h) of wind from any direction and for 50 kt (93 km/h) headwind.

4.10.2 COLD WEATHER OPERATION

Refer to SUP.4 "Instructions for use in cold weather".

SNOW CONDITIONS

FLIGHT UNDER FALLING SNOW **IS FORBIDDEN** UNLESS FITTED WITH SAND FILTER .

HB-ZSY IS NOT FITTED WITH SAND FILTER !

AS 350 B3 e - EMERGENCY PROCEDURES

ENGINE FAILURE

1. Enter autorotation immediately
2. If altitude permits, attempt engine air restart

ENGINE AIR RESTART

1. Establish steady autorotation
2. Starting selector OFF
3. Generator - OFF
4. Carry out normal starting procedure

SMOKE IN THE CABIN

- Source of smoke identified
 1. Shut off the corresponding system
 2. If necessary use fire extinguisher
 3. Air the cabin
- Source of smoke not identified
 1. Shut off heating/demisting system
 2. Switch off "EMER SHED" , GENE OFF, AVIONICS OFF
 3. When smell has disappeared, set all switches to "OFF"
 4. Reset battery switch to "ON"
 5. Switch on generator, check voltage
 6. Switch on circuits one by one until malfunction is identified or land as soon as possible

NB: VEMD will go out during procedure -> refer to VEMD failure

YAW SERVO CONTROL MALFUNCTION (BLOCKED PEDALS)

- Hover
 1. If no yaw – land normally
 2. If helicopter is yawing – hydraulic switch on collective OFF
- Forward flight
 1. Reduce speed
 2. Hydraulic switch on collective - OFF
 3. Perform run-on landing if necessary

TAIL ROTOR CONTROL FAILURE

- Complete Loss of Thrust - OGE
 1. Enter autorotation – maintain 65 kt IAS
 2. Shut down engine
 - Complete Loss of Thrust - IGE
 1. Reduce collective before yaw rate is too high
-

- Fixed Pitch Failure
 1. Set IAS to 70 kt in level flight
 2. Press hydraulic push-button for 5 seconds
 3. Make shallow approach with run-on landing

ENGINE OIL TEMPERATURE HIGHER THAN MAX

- At Low Speed or in Hover
 1. Land if possible
 2. Shut down engine
 3. Check that cooler fan is operating

If landing is impossible

 1. Increase speed and reduce power
 2. Fly at approximately 80 kt – temperature should fall rapidly
 3. Check Engine pressure
 3. If cooling can not be obtained – land as soon as possible
- In Cruise Flight
 1. Reduce power
 2. Proceed as above (A)

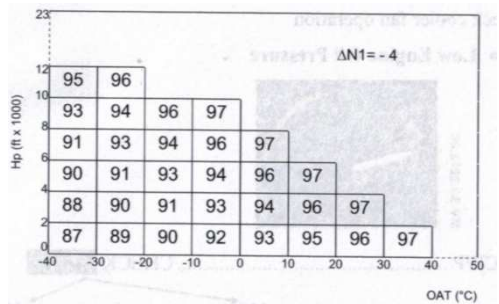
NG INDICATOR FAILURE

In the event of an NG indicator failure, do not exceed the maximum authorized TRQ and 842 °C TOT value limits

NB: in this case, maximum TOT displayed is starting limitations

TORQUEMETER FAILURE

In the event of a torquemeter failure, do not allow the engine speed to rise above the **following limits**:



T4 INDICATOR FAILURE

1. Comply with the N1 and TRQ limitations
3. Switch off heating and demisting
2. Do not attempt to start the engine

VEMD FAILURE

One screen failure: OFF 1 or OFF 2 according to failure
Information will be switch automatically to the not affected screen.
FLI not available (3 parameters page)
Use scroll to switch form page to page

Both screen failure: IAS : 100 kts minus 2 kts/1'000 ft
carry a shallow approach and no hover landing

COMPLETE ROTOR RPM (NR) INDICATOR FAILURE

1. Maintain engine torque above 10%. Use Nf needle as reference
2. Land as soon as possible

FREE TURBINE RPM (Nf) INDICATOR FAILURE

1. Check that NR reading remains within governed range when collective is changed
2. Keep torque above 0% and continue flight

Note: in case of Nf failure, ECBAU may be not available !

BLEED VALVE FLAG ON /NG INDICATOR REMAINS ON IN FLIGHT

1. If possible, increase power to check if bleed valve closes
If bleed valve remains open:
1. Avoid sudden power changes – compressor stall may occur
2. Make a flat approach be prepared for decreased hover performance

Note : Bleed vlave failure result in **GOV**

ICS INOPERATIVE

1. ICS OFF
2. COM 1 ON

VHF for RH pilot only via COM 1 and audio warning available via COM 1
Avoid or cancel hoist operations

AS 350 B3 e - WARNINGS

ENG P

Check gauge
if pressure low or nil : **Land immediately**
and be prepared to autorotate

if pressure normal: Land as soon as practicable

MGB P

Land as soon as possible

Collective : reduce
if landing not possible, proceed to suitable
landing place at minimum power speed / Vy
(55' test bench)

GOV

Major governor fail - emerg. mode self engaged
Flight parameters: check

avoid abrupt changes

Hp < 20'000ft maintain Ng > 80 %

Hp > 20'000ft maintain Ng > 85 %

Land as soon as practicable

Powered approach
avoid steep angle
slowly down collective

GOV failure can occur if loss of NG and torque
on VEMD

During start: shut down immediately

ENG FIRE

at start up

Starting selector : OFF

Fuel shut-off lever : AFT

Booster pump : OFF

Crank depress 10s

BATT : OFF

Rotor brake : apply (< 170 rpm)

Evacuate aircraft

at hover, takeoff, final

Land immediately

Carry out a no hover powered landing,
then apply same procedure as above (start)

ENG FIRE

in flight

Land immediately

collective pitch : reduce

IAS : Vy (70 kts)

Autorotation procedure : apply

Emergency fuel shut-off lever : AFT

Fuel Pump : OFF

Starting selector : OFF

After landing:

BATT: OFF

Rotor brake : apply (< 170 rpm)

Evacuate aircraft

HYDR

Keep aircraft in level attitude

Do not use ACCU test button (yaw)

Do not turn twist grip to Idle (load on collective)

Carry a slightly running landing (10kts)

in Hover

Land normally,

Lock collective on ground / Shut down

In Flight

immediately :

Reduce speed between 40 to 60 kts MAX

Collective HYD switch off below 60 kts

Land as soon as possible, flat approach and running landing (10 kts)

Lock collective on ground / Shut down

BATT TEMP

BATT -> OFF

check volatge

if normal , land as soon as practicable

if above U normal

-> Batt ON

-> GENE OFF

-> Unnecessary equip

OFF

TWT GRIP

Turn to flight position

FUEL

Land as soon as possible

Fuel Quantity less than < 48 kg

Max 15 minutes flight remaining at MCP

Avoid large attitude changes

FUEL P

Land as soon as possible

Low Fuel Pressure

Collective pitch : reduce

Fuel Booster Pump ON

Be prepared to autorotate in case of flame out

FUEL FLT

Fuel filter level 2 reached

By-pass open - risk of fuel contamination

- **land as soon as practicable**

Monitor NG

- **if NG oscillation NG : land immediately and be prepared to autorotate**

GENE

Check U voltage bus on VEMD

Check push button GENE is ON [press]

- if light goes out : continue flight
- if light stays : press GENE RESET button
- **if light goes out : continue flight**
- **if light stays: unnecessary equip OFF**
land as soon as practicable

Note : if batt fails, VEMD goes out. NR stays

Max time on battery: day 50 min
 night 20 min

BATT

EXT BATT or BATT: check ON

- **if light goes out : continue flight**
- **if light stays : check voltage on VEMD**
: land as soon as practicable

PITOT

Continue flight

Check push button: PITOT / ON

- if light goes out: continue flight
 - if light stays: monitor IAS
-

HORN

Continue flight

Check push button: HORN / ON
if light goes out: continue flight
if light stays: aural warning failure

MGB TEMP

IAS set to V_y / 70 kts
CPW, check

- if light goes out : land as soon as practicable
- if light stays: land as soon as possible

DOOR

Land as soon as practicable

1 or 2 cargo doors open
Reduce speed to 70 kts
Low sink rate approach

INST LIGHT

on or both instrument light u/s
forward reading lights can be used (dct batt)

GOV

Land as soon as practicable

Minor governor failure
Collective : avoid abrupt change
IAS, maintain below PowerOff VNE

Do not restart

Flashing at idle or startin & shut down:
Start up : abort procedure , ref to Maint Manuel
AR training : abort training

ENG CHIP

Land as soon as possible

Reduce power
Be prepared of engine loss of power

Restart / take off prohibited before engine
maint.agreement

MGB CHIP

Land as soon as possible

Reduce power
Monitor MGB P and MGB TEMP

TGB CHIP

Continue flight or land as soon as practicable

Avoid prolonged hovering

GENERAL LIMITATIONS - for details refer to AFM

Forbidden : aerobatics
engine start with snow and ice in ou around engine air intake
flight under falling snow if no sand filter fitted
flight in freezing /icing conditions
power reduction using thottle (except training)
in flight complete shut off VEMD (1+2)

Crew minimum 1 pilot right seat / maximum 6 occupants

Maximum weight 2'250kg
Minimum weight 1'310 kg

Max Cargo Weight 2'800 kg

Sliding door manoeuvring : opening 110 kt / closing 80 kts
locked 135 kt

Slopes up 10°
down 6°
lateral 8°

Max Alt. 23'000ft

AOT - 40°C to + 50°C (or ISA +35)

Engine Limitation Markings



caution range : take off range 0 to 40 kts



max continuous, safety or take off limitation



max VNE Power OFF / Autorotation



max transient (no intentional use)

TRQ 100 to 104% : 5 sec transient

△NG 0 to +1% : 20 sec transient

T4 starting : max 750°C / max 840 °C transcient 10 sec
in flight: 949 °C to 981 °C : 20 sec transient

N2 413 to 440 max transcient : 20 sec

Voltage 31.5 V max / 150 A max continuous

other gauges self explanatory on instruments

PERFORMANCES

FLIGHT MANUAL
AS 350 B3e

5.7 HOVER OUT OF GROUND EFFECT

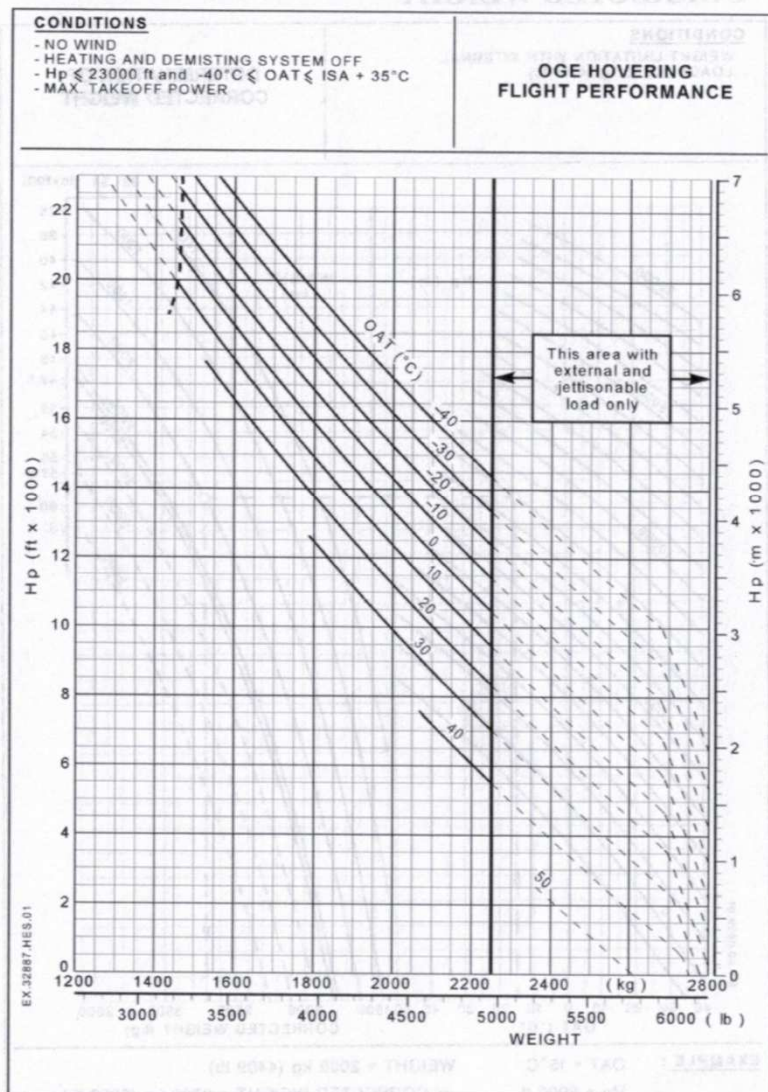


Figure 5 - 6

AS 350 B3E - NORMAL PROCEDURES – PREFLIGHT CHECK
(NB : Daily Check & Check après le dernier vol : voir document spécifique)

4.2 PREFLIGHT CHECK

- Make sure that all flightworthiness-required corrective maintenance operations have been performed.
- These preflight checks can be done without opening any cowlings unless the helicopter had been parked for more than 2 days or in case of any visible leak or doubt.
- Check that the aircraft area is clean and unobstructed.
- Remove all picketing items if applicable
- Carry out the following checks:

4.2.1 EXTERIOR CHECK

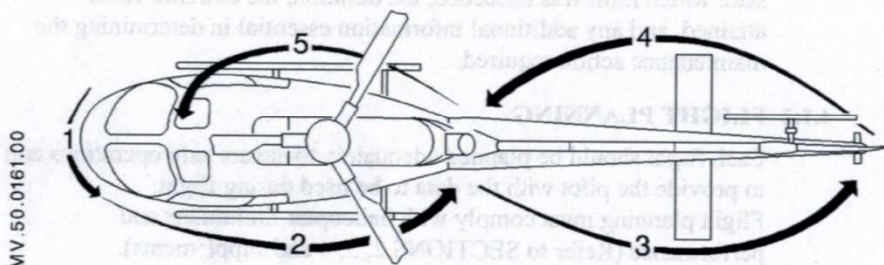


Figure 4-1: Sequence of checks

Station 1

- Transparent panelsCondition - Cleanliness.
- Windshield wiper (if installed)Condition.
- MGB – Engine oil cooler air inletCheck no obstruction nor debris.
- Side slip indicatorCondition.
- Pitot tubeCover removed - Condition.
- Landing lightsCondition.

Station 2

WARNING

ICE OR SNOW ACCUMULATIONS THAT REMAIN IN OR AROUND THE ENGINE AIR INTAKE MAY BE INGESTED AND CAN CAUSE A SUDDEN IN-FLIGHT ENGINE FAILURE.

- Front door..... Condition, jettison system check.
- Rear door..... Condition, closed or open locked (sliding door).
- Left cargo door..... Open.
- Loads and objects carried..... Secured.
- Left cargo door..... Closed, locked.
- Fuel tank filler plug..... Closed, locked.
- Fuel tank Drained (before the first flight, if OAT $\geq 0^{\circ}\text{C}$), absence of leakage at the drain.
- MGB cowl..... MGB oil level - Cowl locked.
- All lower fairing panels..... Locked.
- Landing gear and foot step..... Secure - Visual check.
- Static ports..... Clear, covers removed.
- OAT sensors, antennas..... Condition.
- Main rotor head and blades..... Visual inspection, no impact.
- Engine cowl..... Locked.
- Rear cargo door..... Open.
- Loads and objects carried..... Secured.
- ELT..... Check ARMED.
- Rear cargo door..... Closed, locked.
- Oil drain..... No oil under scupper.

Station 3

- Heat shield on tail rotor drive Condition, attachment.
- Tail boom, antennas Condition - Fairing fasteners locked.
- Stabilizer, fin, external lights..... General condition.
- Tail rotor guard (if fitted)..... Condition, attachment.
- TGB fairing Secured, fasteners locked.
- TGB oil level..... Checked.
- Tail skid..... Condition, attachment.

Station 4

- Tail rotor head.....Condition, laminated bearing.
Checked for separation, cracks, etc.
- Tail rotor blades.....Visual inspection, no impact.
- Stabilizer, fin, external lights.....General condition.
- Tail boom, antennas.....Condition - Fairing fasteners
locked.
- Heat shield on tail rotor driveCondition, attachment.

Station 5

- Oil drainNo oil under scupper.
- EPU door.....Closed or EPU connected.
- Engine air intakeClean - No foreign objects or
accumulations of ice or snow
in or around the engine air
intake and no stagnant water at
the drain hole.
- Engine cowlLocked.
- Exhaust cover.....Removed.
- Right cargo doorOpen.
- Loads and objects carriedSecured.
- Right cargo doorLocked.
- Main rotor head and blades.....Visual inspection, no impact.
- MGB cowl.....No foreign objects on
transmission deck.
Cowl locked.
- Hydraulic oil levelCheck reservoir level.
- Engine oil levelCheck reservoir level.
- Landing gear and foot stepSecure – Visual check.
- All lower fairing panelsLocked.
- DoorCondition, jettison system
check.
- External mirror (if fitted).....Set to avoid dazzling (night
flight).

4.2.2 INTERIOR CHECK

- Cabin Clean.
- Fire extinguisher Secured - Checked.
- Fuses or breakers All set.
- Loads and objects carried Stowed and secured.
- Front door jettison systems Check - Plastic guard condition.

4.2.3 TURNAROUND CHECK

- Overall aspect Condition, cleanliness.
- Engine / MGB / TGB Oil level.
- Main and tail rotor blades Visual inspection, no impact.
- Loads Secured.
- All cowlings Locked.
- Doors Closed or sliding door open-locked.

NOTE

If the aircraft is to be parked for some time between flights, temporary picketing is recommended by fitting blanks, covers and blade socks (in winds above 40 kt (74 km/h)).

In this case, perform a complete pre-flight check.

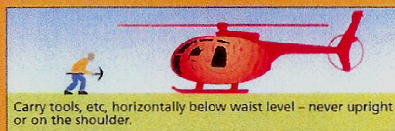
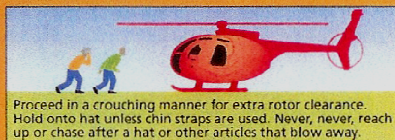
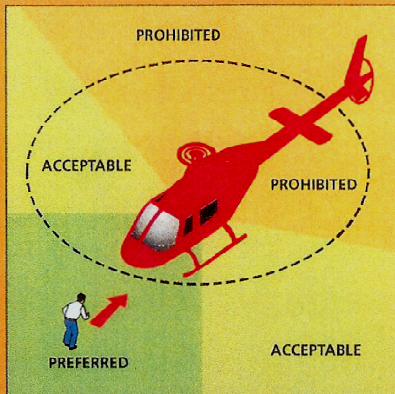
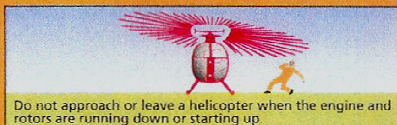
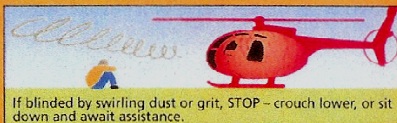
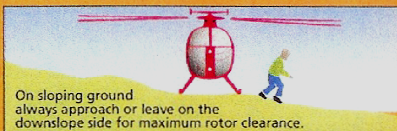
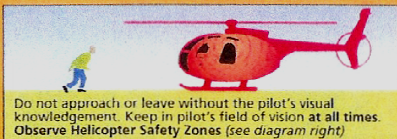
QUI	QUAND	QUOI	COMMENT	CONTACT
EQUIPAGE	Immédiat 1	Alerte	REGA - Ambulance - Police - Pompiers	1414 canal K/R 144 117 118
	Immédiat 2	Secours	- sécuriser le site de l'accident - actions pour sauver les vies - information aux sauveteurs	
	Immédiat 3	Information	Communication externe EXCLUSIVEMENT par le management de la COMPAGNIE. Aucune information aux médias ou tiers	
			- Management compagnie - Responsable des opérations - Management technique	
		Protocole	- noter tous les appels et messages	

Les principes les plus importants lors de l'alerte

Alerte	Que s'est-il passé Où cela s'est-il passé (lieu, rue, montagne, altitude, coordonnées, etc.) Quand cela s'est-il passé Qui est concerné (nombres personnes, blessés, décès, etc.) Hélicoptère et immatriculation Quelles mesures ont été prises Tous les appels, messages et mesures prises ont été enregistrées jusqu'à ce que le management prenne le relais
Proches	Les proches sont informées exclusivement par le management ou une personne autorisée par le management
Information	L'information à des tiers et aux médias est effectuée exclusivement par le management ou une personne autorisée par le management

SAFETY AROUND HELICOPTERS

APPROACHING OR LEAVING A HELICOPTER



LANDING, TAKE-OFF AND LOADING OPERATIONS

