SECTION 4

NORMAL PROCEDURES

CONTENTS

4.8 SPECIAL OPERATING PROCEDURES

4.9 ENGINE POWER AND THERMAL CHECK

SECTION 4.1

GENERAL

This section contains the helicopter operating instructions and procedures from flight planning to the safe helicopter condition after landing, going through the actual flight conditions. These procedures assume normal and standard conditions. The appropriate data of other sections are mentioned wherever applicable. The instructions and procedures covered by this section are set forth for standardization purposes; they are not applicable to all situations.

1 FUNCTIONAL LIMITATIONS

Refer to SECTION 2 for the minimum and maximum limits.

Whenever a functional limitation has been exceeded, record it in the logbook (aircraft, engine, etc.). Record the limit exceeded, the duration of exceedance, the extreme value reached and all the additional information necessary to define the required maintenance action.

NOTE

FLI audio warn

IAS	Time	FLI value
> 45 kt	> 10 s	8.8
	Immediate	9.1
< 45 kt	> 10 s	10.1
	Immediate	10.3

2 FLIGHT PLANNING

Each flight must be suitably planned in order to ensure safe operation and to provide the pilot with the information he will use during flight.
Flight planning must take account of the limitations.
Make sure that the aircraft weight and CG position are correct, by proceeding as follows:

- Refer to SECTION 6 - WEIGHT AND CENTER OF GRAVITY.
- Check the fuel and oil weight, the useful load, etc.
- Compute the total takeoff weight and that which can be predicted for landing.
- Determine aircraft performance with respect to planned flight conditions.
- Compute CG location throughout the flight duration. If a fuel transfer is foreseen, determine the conditions in which it will be possible without exceeding CG limitations.

CAUTION

WHEN INITIAL CG LOCATION IS FORWARD, THERE IS A RISK OF EXCEEDING FORWARD LIMITATION DURING THE FLIGHT.
INITIAL CG LOCATION MUST BE ADAPTED ACCORDINGLY.

PAGE INTENTIONALLY LEFT BLANK

SECTION 4.2

PRE-FLIGHT INSPECTIONS

1 EXTERIOR INSPECTION

NOTE

- Pay particular attention to the operations marked " * "
- Check that area is clean and clear
- Remove the picketing equipment where applicable (covers, blade socks, mooring lines etc).
- Perform the following checks.

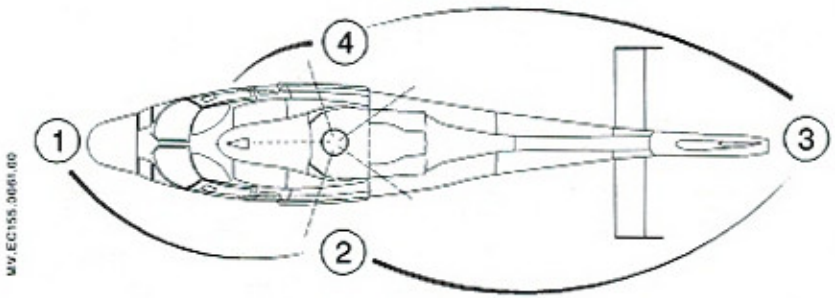


Figure 1: Exterior Inspection

STATION 1

- General appearance..... Condition - No traces of leakage.
- Transparent panels ..... Cleanliness.
- Air intakes (MGB and engine) ..... Check cleanliness; clean if necessary. On snow-covered ground, refer to SECTION 4.8.*
- Main blades and main rotor hub..... Condition - General visual check from ground level.
- Pitots ..... Condition - No foreign object.

- Radome ..... Condition - Closed and locked.
- Nose landing gear ..... Visual examination.
- Battery compartment door ..... Locked.

STATION 2

- Main blades and main rotor hub ..... Condition - General visual check from ground level.
- Hydraulic reservoir ..... Level.
- Engine oil tank ..... Level (max oil consumption: 0.2 l/h).
- Cowlings (MGB and engine) ..... Closed - Locked.
- Fuel tank filler caps ..... Closed - Locked. Compartment door locked after checking caps.
- L/G units ..... Visual examination.
- Fire extinguisher ..... Pressure correct.
- Static ports ..... Condition - No foreign object.
- Luggage compartment ..... Door closed (if installed).
- Engine exhaust nozzle ..... No foreign object.

STATION 3

- Horizontal and vertical stabilizers ..... General condition.
- Shrouded tail rotor ..... No chafing of blades on structure. Condition of blades: leading edges and root in particular.
- TGB ..... Level.
- Tail skid ..... No distortion.

STATION 4

- Tail gearbox cowlings ..... Closed and locked.
- Static ports ..... Condition - No foreign object.
- Engine exhaust nozzle ..... No foreign object.
- Fire extinguisher ..... Pressure correct.(If pressure gauge fitted).
- Luggage compartment ..... Loads lashed, door closed
- L/G unit ..... Visual examination.
- Cowlings (MGB and engine) ..... Closed - Locked.
- Engine oil tank ..... Level (max oil consumption: 0.2 l/h).
- Hydraulic reservoir ..... Level.

- Main blades and main rotor hub ..... Condition - General visual check from ground level.
- Ground power receptacle door ..... Locked (if starting with battery).

2 INTERIOR INSPECTION

- Cabin ..... General check (condition, freight tied down, seat arrangement, etc.).
- Fire extinguisher and first aid kit ..... In place (safety pin snap-wired).
- STATIC-PRESS selector ..... NORM - Snap-wired.
- Power-assisted brake accumulator ..... Pressure > 100 bar (1450 psi). If it is less, recharge the accumulator by means of the electric pump of the emergency system.

NOTE

If the copilot's seat is unoccupied, check that the harness is fastened.

EASA	AIRWORTHINESS DIRECTIVE
	**AD No.: 2006 - 0214** **Date: 14 July 2006**

No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive unless otherwise agreed with the Authority of the State of Registry.

Type Approval Holder's Name:	Type/Model designation(s):
EUROCOPTER	EC 155

TCDS Number: France 159

Foreign AD: None

Supersedure: None

ATA 31 and 63	Indicating System/Rotor Drive - Main Gear Box - Low Oil Pressure Warning

Manufacturer:	EUROCOPTER
Applicability:	EC 155 B and B1
Reason:	This Airworthiness Directive (AD) is issued following the discovery by EUROCOPTER that the electrical ground of the Main Gear Box (MGB) oil pressure sensor is not done via the sensor electrical connection but via the sensor lock-wire. The consequence of this non-compliant connection is that, in case of rupture or different positioning of the lock-wire, the MGB P caution light cannot illuminate to warn of an MGB oil pressure drop. This could lead to prolonged flight with low MGB oil pressure and then to the failure of the MGB. This AD is intended for flight crews.
Effective Date:	28 July 2006.
Compliance:	The following measures are mandatory as from the effective date of this AD: During each pre-starting checklist, follow the instructions regarding the Caution Advisory Display (CAD) defined in section 4.3 § 1 of the referenced EC 155 Flight Manual revisions.
Ref. Publications:	EC 155 B Flight Manual, revision 13, EASA-approved on March 06, 2006. EC 155 B1 Flight Manual, revision 7, EASA-approved on March 06, 2006. or later approved revisions.

Remarks:	1. If requested and appropriately substantiated the responsible EASAmanager for the related product has the authority to accept Alternative Methods of Compliance (AMOCs) for this AD. 2. This AD was posted as PAD 06-122 for consultation on 09 May 2006 with a comment period until 19 May 2006. No comment was raised during consultation period. 3. Enquiries regarding this AD should be addressed to Mr. M. Capaccio, AD Focal Point, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu 4. For any questions concerning the technical content of the requirements in this AD, please contact: EUROCOPTER (STX) Aéroport de Marseille Provence 13725 Marignane Cedex - France. Tel.: 33 (0) 4 42 85 97 97 - Fax: 33 (0) 4 42 85 99 66. E-mail: Directive.technical-support@eurocopter.com

eurocopter
an EADS Company

T.F.S. No. 00000285 dated January 5, 2006
EUROCOPTER - MARIGNANE - TLX 42506F

TELEX INFORMATION

AIRCRAFT: **AS 365**	Civil Version(s):	**N1, N2, N3**
	Military Version(s):	**F, Fi, K**
AIRCRAFT: **AS 565**	Military Version(s):	**AA, MA, SA, MB, SB, UB**
AIRCRAFT: **SA 366**	Civil Version(s):	**G1**
	Military Version(s):	**GA**
AIRCRAFT: **EC 155**	Civil Version(s):	**B, B1**

ATA: 64

SUBJECT: **TAIL ROTOR**
Double Bearing of the Tail Rotor Pitch Control Rod

PURPOSE: The purpose of this TELEX INFORMATION which supersedes TELEX INFORMATION No. 00000283, issued on December 22, 2005, is to:
- Add versions SA 366 G1 and GA which are covered by this TELEX INFORMATION.
- Delete version AS 365 Fs which is not covered by this TELEX INFORMATION.

Dear Customer,

EUROCOPTER has received a report of loss of the tail rotor efficiency on an AS 565 MB helicopter.

According to the information received, during transition to hovering prior to the ILS landing procedure, the pilot actuated the RH yaw pedal to counteract the start of a left-hand rotation of the helicopter. It did not respond although the RH yaw pedal was against its stop, the pilot therefore decided to slam the helicopter on the ground.

After the helicopter was grounded, the pilot confirmed the loss of the tail rotor anti-torque efficiency.

Investigations carried out on the helicopter revealed binding at the control rod. The TGB was therefore removed and sent to EUROCOPTER for expert analysis.

eurocopter
an EADS Company

T.F.S. No. 00000285 dated January 5, 2006
EUROCOPTER - MARIGNANE - TLX 425066F

The investigations carried out at the EUROCOPTER works have revealed significant damage to the double bearing of the control rod. The lubricating oil is black and has a strong smell of burning.

In the present state of the findings and pending the results of the expert analyses, EUROCOPTER recommends that you increase the oil level in the TGB close to the MAX level and that you check the oil level during the flight-related check.

EUROCOPTER will keep you informed of the results of the ongoing investigations.

EUROCOPTER
DIRECTION TECHNIQUE SUPPORT
13725 MARIGNANE CEDEX FRANCE

CIVIL VERSION(S): B,B1

ALERT SERVICE BULLETIN

No. 05A011

SUBJECT: **TIME LIMITS - MAINTENANCE CHECKS**

Tail Rotor Blade Check

ATA : 64

REVISION No.	DATE OF APPROVAL	DATE OF ISSUE
Revision 0	Date: February 27, 2006	2006.03.01

1. PLANNING INFORMATION

1.A. EFFECTIVITY

1.A.1. Helicopters / Installed equipment: Helicopters fitted with tail rotor blades P/No. 365A12-0060-01 or 365A12-0070-00.

1.A.2. Non-installed equipment: Tail rotor blades P/No. 365A12-0060-01 or 365A12-0070-00.

1.B. ASSOCIATED REQUIREMENTS

Not applicable.

1.C. REASON

- To check that there is no slippage in order to prevent the in-flight loss of the (75 mm-diameter) stainless steel ring of the tail rotor blade sleeve.

- This ALERT SERVICE BULLETIN will form the subject of an EASA Airworthiness Directive.

- This ALERT SERVICE BULLETIN:

  . supersedes ALERT TELEX No. 05A011, issued on August 04, 2005.

  . replaces the compliance requirement at each flight-related check without exceeding 15 flying hours, in paragraph 1.E., with, compliance every 15 flying hours.

1.D. DESCRIPTION

EUROCOPTER has received a report of separation and loss of a (75 mm-diameter) stainless steel ring from a tail rotor blade sleeve, in flight. After becoming distorted, the stainless steel ring slipped along the tail rotor blade prior to embedding itself in the Fenestron duct. This resulted in heavy high-frequency vibrations. Landing was nevertheless carried out normally.

In view of the elements outlined above, EUROCOPTER renders compliance with this ALERT SERVICE BULLETIN, mandatory.

1.E. COMPLIANCE

EUROCOPTER renders compliance with this ALERT SERVICE BULLETIN, mandatory.

1.E.1. Compliance at the works

1.E.1.a. On helicopters / installed equipment: Before delivery:

On each tail rotor blade:

- comply once with paragraph 2.B.1. within 15 flying hours following receipt of this ALERT SERVICE BULLETIN, issued on the date indicated at the foot of the page,

then,

- comply with paragraph 2.B.1. every 15 flying hours.

1.E.1.b. Non-installed equipment: For tail rotor blades with flying hours, comply with paragraph 2.B.1. before installation on a helicopter.

1.E.2. Compliance in operation: By the operator,

1.E.2.a. On helicopters / installed equipment:

On each tail rotor blade:

- comply once with paragraph 2.B.1. within 15 flying hours following receipt of this ALERT SERVICE BULLETIN, issued on the date indicated at the foot of the page,

then,

- comply with paragraph 2.B.1. every 15 flying hours.

1.E.2.b. Non-installed equipment: For tail rotor blades with flying hours, comply with paragraph 2.B.1. before installation on a helicopter.

1.F. APPROVAL

Approval is limited to civil version helicopters subject to an Airworthiness Certificate.

The technical information contained in Revision 0 of this ALERT SERVICE BULLETIN No. 05A011, was approved on February 27, 2006 under the authority of EASA Design Organisation Approval No. 21J.056.

1.G. MANPOWER

Qualification: 1 mechanic.
Time: Negligible.

1.H. WEIGHT AND BALANCE

Weight: Not applicable.
Moment: Not applicable.

1.I. EFFECT ON ELECTRICAL LOADS

Not applicable.

1.J. SOFTWARE MODIFICATION EMBODIMENT STATE

Not applicable.

1.K. REFERENCES

Not applicable.

1.L. OTHER DOCUMENTS CONCERNED

Maintenance Programs (MSM) and Maintenance Manual (AMM).

1.M. INTERCHANGEABILITY AND MIXABILITY OF PARTS

Not applicable.

2. ACCOMPLISHMENT INSTRUCTIONS

2.A. GENERAL

Not applicable.

2.B. OPERATIONAL PROCEDURE

2.B.1. Check for absence of slippage of the stainless steel ring of the tail rotor blade sleeve

Visually check that the stainless steel ring of the tail rotor blade sleeve has not moved. Any slippage is indicated by a shift of the stainless steel ring with respect to the blade root, towards the blade tip.
This shift is revealed by the fact that the stainless steel ring is located outside of the profile of the flat area of the blade root (see the example shown on the photos in Appendix 1).
This shift can also be detected by running your finger over the ring-to-blade root junction.

a) If the stainless steel ring has not moved:
- Keep the blade in service.

b) If the stainless steel ring has moved:
- Replace the tail rotor blade,
- Contact the Blades Technical Support Department in La Courneuve, for repair, by:
  Tel.: 33 (0)1.49.34.43.96
  Fax: 33 (0)1.49.34.41.70

2.C. IDENTIFICATION

- Record initial compliance with this ALERT SERVICE BULLETIN in the aircraft documents and on the Equipment Log Card (FME) of each tail rotor blade.
- Complete the sheet enclosed in Appendix 2 on initial compliance with this ALERT SERVICE BULLETIN, and return the sheet to:

EUROCOPTER
Support Pales – Service à la clientèle
2 à 20 avenue Marcel Cachin
93126 La Courneuve Cedex

Tel.: 33 (0) 1.49.34.43.96
Fax: 33.(0) 1.49.34.41.70
E-mail: daniel.corbel@eurocopter.com

2.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Not applicable.

3. MATERIAL INFORMATION

3.A. MATERIAL: COST - AVAILABILITY

For any information concerning kits and / or components, contact the Customer Service Sales Department of the EUROCOPTER Network.

3.B. INFORMATION CONCERNING INDUSTRIAL SUPPORT

Not applicable.

3.C. MATERIAL REQUIRED FOR EACH AIRCRAFT, ENGINE / COMPONENTS

3.C.1. Component(s):

Not applicable.

3.C.2. Materials to be ordered separately:

Not applicable.

The materials identified by an asterisk "*" or required for compliance with the tasks and/or work cards listed in paragraph 1.K., can be ordered from the INTERTURBINE company,
Website: http://www.itlogistics.de
Phone: +49.41.91.809.300
AOG: +49.41.91.809.444

3.C.3. Tool(s):

Not applicable.

3.D. MATERIAL REQUIRED FOR EACH SPARE PART

Not applicable.

3.E. RE-IDENTIFIED PARTS

Not applicable.

3.F. TOOLING: COST - AVAILABILITY

Not applicable.

3.G. PROCUREMENT CONDITIONS

Order the required quantity (unless otherwise specified)

from

EUROCOPTER
Etablissement de Marignane
Direction VENTES Service Client
S.V.
13725 MARIGNANE CEDEX
FRANCE

NOTE 1

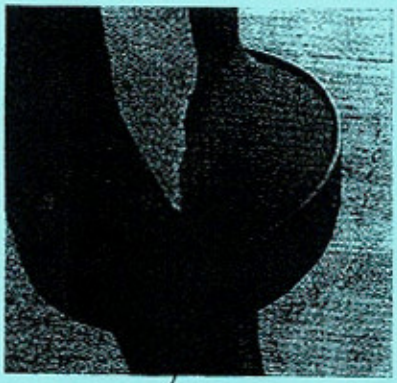
For ALERT SERVICE BULLETINS, order by:
Telex: HELICOP 410 969F
Fax: +33 (0)4.42.85.99.96.

NOTE 2

On the purchase order, please specify the mode of transport, the destination and the serial numbers of the aircraft to be modified.

4. APPENDIX

2 Appendices.



Ring slippage

Area to be inspected

Appendix 1

INFORMATION SHEET

Aircraft serial number: ____

No. of flying hours per month: ____

Blade part number	Serial number	No. of flying hours

Appendix 2

SECTION 4.3

STARTING PROCEDURES

1 PRE-STARTING CHECKLIST

Check the following points:

1. Doors ..... Closed and locked.
2. Seats, Yaw pedals ..... Adjusted.
3. Seatbelts and harnesses ..... Fastened.
4. Circuit breakers ..... All engaged.
5. Switches:
   - LG PUMP ..... NORM.
   - HYD ISOL ..... NORM.
   - SHEDBUS ..... AUTO.(guarded).
   - RPM ..... NORM.
   - TNG ..... FLT.
   - NORMAL/BACKUP ..... NORMAL (guarded).
   - ENG 1 and ENG 2 ..... OFF.
   - Others ..... All OFF.
   - S/B HRZ ..... ON - Light on.
6. BAT/ESS ..... ON.
   - Check: BAT
   - Voltmeter reading ..... Checked ≥ 23 V.

NOTE

When a ground power unit is plugged in: BAT

Electrical power application starts the self-test of the engine computer.

Upon completion of the test, check: FADEC FAIL and GOV

NOTE

OAT value may not be available on the VEMD during self test of the system.

Upon self test completion, scroll to system status page and check the displayed failure message:

- TO.DISC A or B: Difference of more than 5° C between the two fadec thermal probes due to sun exposure.

  Continue start up procedure. Before take off check that the temperature difference is less than 15° C, otherwise cancel take-off and refer to Maintenance Manual.

- Any other message: Abort start up procedure and refer to Maintenance Manual.

NOTE

- If on CAD **INP FAIL** + any of **HYD** **GEN** **MGB AUX P** **MGB P** **SERVO** Apply appropriate maintenance before start up.

CAUTION

IF THE RED LIGHT  **(OEI HI USED) IS DISPLAYED ON FLI PAGE, REPORT TO MAINTENANCE PROCEDURES.**

7. Brightness, PFD and ND.....Adjusted.
8. Heating and ventilation controls.....Off.
9. Fuel shutoff control levers.....Forward and snap wired. Red light out.
10. Rotor brake control .....Released, fully forward. ROTOR BRK
11. Position lights.....ON (if necessary).
12. Anti-collision light .....ON.
13. Emergency lighting system .....Test performed, then ARM.

NOTE

For aircraft fitted with single emergency battery (after MOD 07 24C25), ARM position supplies standby horizon from main battery.

14. Passenger ordinance lights.....ON (if passenger on board).
15. Indicator light test function .....Test (to be performed on DAY position **ONLY**)
16. Instrument lighting.....As required.
17. Vent selector.....OFF.
18. Mission selector .....OFF.
19. Emergency locator transmitter (if installed).....NORM.
20. Audio warning .....ON. AUDIO WARN
21. L/G PUMP.....TEST (Do not exceed a duration of 2 min.). (After MOD 07-29B64 HYD)
22. Control travel / **LMT** .....Checked.
23. Controls.....Centered (AP ON then OFF to use centering function if needed).
24. L/G PUMP.....NORM.
25. TEST SERVO .....When pressing the push-button, check: SERVO
26. TRIM FEEL .....ON
27. GEN 1, 2 and ALT (if installed) .....ON
28. EMERGENCY CUT OFF .....Forward and snap wired.

29. Engine fire system test ..... Check both positions.
   - FIRE (overhead panel),
   - ENG FIRE (Red warning panel),

     red light (fuel shutoff control lever) on and WARN (instrument panel) flashing.
   - FAIL (detection failure) on overhead panel.

30. Cargo fire system test ..... Check both positions
   - CAR FIRE + OVERHEAT + FIRE + WARN flashing.
   - FAIL (detection failure) on overhead panel.

31. Standby magnetic compass ..... Checked.
32. Light illuminated on Red Warning Panel..... Check

    ENG # RH + LH MGB P FUEL Q See NOTE item 36
33. Clock ..... Wound and set.
34. Altimeter ..... Set.
35. Gear ..... Down with safety pin removed.
36. Fuel management panel:
   - Test..... Fuel level at 0 on CAD
   - Transfer pump ..... Tested (green arrow + characteristic noise).
   - For each booster pump ..... Check pressure ≥ 0.4 bar
   - All booster pumps ..... On

NOTE

If feeder tank is not full, the FUEL Q + QTY (feeder tank level) lights may come on. They will go out only when jet pumps have filled the feeder tank.

37. Parking brake ..... Applied.
38. Nose wheel castoring lock..... As required (if fitted).

2 ENGINE STARTING

CAUTION

CHECK THAT CYCLIC STICK IS IN NEUTRAL POSITION AND THE COLLECTIVE PITCH LEVER LOCKED IN LOW PITCH POSITION. DO NOT MOVE THE CONTROLS IF HYDRAULIC POWER IS NOT SUPPLIED (L.G PUMP TO TEST POSITION).

If AP version permits, the following pitch centering procedure automatically centers cyclic stick:

1. LG PUMP ..... TEST
2. AP ..... ON
3. Cyclic ..... Free
4. Centering button (upper mode release) ..... Pressed more than 2 s (cyclic moves to neutral position)
5. AP ..... OFF
6. LG PUMP ..... NORM

NOTE

- When OAT ≤ 0°C: In case of aborted start, when TOT > 120°C, perform a cranking operation before attempting another start.
- Engines may be started in any order.
- For OAT ≤ 0°C start up procedure is identical as § 2.1 but "FLT/IDLE/OFF" switch must be held on "IDLE" until engine oil temperature reaches:
  - 0°C for 5 cSt oil.
  - -10°C for 3 to 3.9 cSt oil.

  Then select the "FLT/IDLE/OFF" switch to "FLT".

2.1 STARTING 1ST ENGINE

1. NORMAL/BACKUP ..... NORMAL.
2. ENG ..... FLT.
   - Check battery voltage: if < 17 V, stop starting sequence (battery insufficiently charged).
   - On engine concerned, on VEMD:
     - OEI ..... HI
     - START ..... Flashes.
     - Monitor the TOT and N1 numerical values.
     - OEI select ..... LO then CT

CAUTION

ABORT THE STARTING PROCEDURE BY SETTING THE ENG # SWITCH TO OFF IF:
- IGNITION IS NOT EFFECTIVE AFTER 30 s.
- THE TOT NUMERICAL VALUE IS UNDERSCORED
or
- THE ENG # LIGHT IS STILL ON AT N1 = 70%
or
- THE ROTOR DOES NOT RUN AT N1 = 25%
or
- FADEC FAIL
or
- IF FREE TURBINE SPEED POINTER MOVES BEYOND ROTOR SPEED POINTER ON TRIPLE INDICATOR (FREEWHEELING).

- Check:

ENG # and GEN LH or RH, N1 ≤ 70%

HYD LH and RH and SERVO at N2 ≤ 80 rpm (equivalent NR).

MGB P at N2 ≤ 120 rpm (equivalent NR).

- Audio warning sounds when NR is between 165 and 330 rpm.
- Check PRS LH or RH.

3. Safety device ..... In position.

CAUTION

IN ORDER TO PREVENT OVERHEATING OF THE STARTER-GENERATOR, DO NOT ATTEMPT MORE THAN 5 CONSECUTIVE ENGINE STARTS OR CRANKING CYCLES. AFTER 5 UNSUCCESSFUL ATTEMPTS, WAIT 20 MINUTES BEFORE TRYING AGAIN.

2.2 STARTING 2ND ENGINE

- Proceed as for 2.1, except for disarming of the OEI stops.
  - Check that triple indicator pointers (NR, N2) are superimposed.
  - Check:

    ENG # and SEN RH or LH, N1 ≤ 70%.
  - Check that the VEMD is switched to the AEO mode when N1 > 60%.
  - Check DIFF LH and PRS RH or LH

2.3 CRANKING

The cranking procedure can be performed for verification purposes.

Proceed as follows:

- Check:
  - ENG # .....OFF.
  - AUTO/MANU or NORMAL/BACKUP.....AUTO or NORMAL.
- Booster pumps .....ON
- CRANK.....20 s maximum.

CAUTION

DO NOT CRANK THE ENGINE WITH THE MANUAL FUEL SHUTOFF VALVE CLOSED AS THIS COULD DAMAGE THE ENGINE FUEL PUMP.

3 POST-STARTING CHECKLIST

3.1 OVERALL CHECKS

1. Ground power unit ..... Disconnected.
2. Exterior lights ..... As required.

NOTE

In some operational circumstances (clouds, dark night or others), the white strobe (if fitted) may disturb the pilot. Switch to red position if needed.

3. Windshield wiper selector ..... As required.
4. Heating/Ventilation ..... As required.
5. PITOT 1, 2 and EMER PIT ..... ON.
6. Tail rotor servocontrol isolation test ..... Performed.
   - HYD. ISOLATE ..... CUT OFF:
     HYD LEV RH then SERVO
   - HYD.ISOLATE ..... NORM:
     HYD LEV RH and SERVO
7. SERVO test ..... Performed.
   - SERVO
8. Electrical parameters ..... Checked.
9. Chip test ..... Performed. ENG CHIP or MGB CHIP
10. Caution Advisory Panels ..... All lights out.
11. Temperature and pressure readings ..... Checked.
12. Engine and flight instruments ..... Checked.
13. Engine fuel low pressure sensor test ..... Performed.
    - Booster pump ..... All OFF, check PRS LH + RH.
    - Booster pump ..... All ON.

NOTE

If the copilot's seat is unoccupied, switch off the left screens.

3.2 SPECIAL CHECKS (FIRST FLIGHT OF THE DAY)

3.2.1 P2 Valve and Heating System automatic switch-off test

1. VENT selector .....HEAT. 
2. Heating control .....Aft.
3. Check heating system .....Off.
4. Engine associated with the valve to be tested .....IDLE# (TNG mode).
5. Heating control .....Forward: check heating system on.
6. Check that the T4 temperature of the normally operating engine increases more than 10°C.

NOTE

If the T4 temperature does not increase, the P2 valve of the idling engine is probably seized in the open position. Confirm the failure by applying the same procedure with collective pitch increased.

7. SOV CUT. .....Press: check heating system off +  + reset

NOTE

If SOV CUT test fails, automatic heating system switch off will not operate in case of engine failure

8. Perform the same check on the other engine.

3.2.2 Test of Autopilot

- Collective pitch.....Unlocked.
- Hands and feet.....off.
- BEEP TRIM.....Check.
- AP .....OFF OFF .
- Test .....ON ON flashes.

Successive flashing of:

- On PFD strip

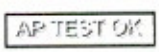
- On CAD:

- On PFD strip

Slight movement of cyclic stick collective pitch and pedals, then

- Upon completion of the test

..... On CAD

- AP ..... ON 

- AP ..... OFF (cyclic).
- SAS ..... ON 

- AP ..... ON 

CAUTION

TAKEOFF WITH AUTOPILOT INOPERATIVE IS FORBIDDEN

3.2.3 Miscellaneous AP failures

3.2.3.1 AP degraded

- "AP Test OK" message on CAD:
  - Abnormal load on yaw control
    On PFD ..... ⚠ flashing.
    On CAD ..... AP TEST OK
    AP can normally be engaged. In flight, monitor yaw axis and push respective pedal to extinguish ⚠.

- No "AP Test OK" message on CAD

  - Yaw trim failure

    On CAD ..... TRIM

    On PFD..... Y

    On AP box .....A trim yaw OFF

    AP can normally be engaged. In flight, monitor yaw axis and push respective pedal to extinguish ▲

  - Collective trim failure

    On CAD ..... TRIM

    On PFD..... C

    Switch off the collective button on overhead panel. AP can be engaged. The 4th axis is not operative.

  - Minor AP failure

    On AP box .....Test ON flashes.

    On PFD.....

    AP can be engaged. Upper mode can not be used. Attitude hold only.

3.2.3.2 AP inoperative

No "AP Test OK" message on CAD:

- Pitch or roll trim failure

  On CAD ..... TRIM

  On PFD..... R or P

  On AP box .....A trim cyc OFF

  AP must not be used(only SAS function on cyclic).

- Loss of AP module

  On AP box .....Test ON steady and AP OFF

  On PFD..... OFF OFF OFF

  AP cannot be engaged.

- Loss of actuator

  On AP box .....Test ON steady and AP OFF

  On CAD ..... ACTUATOR

  On PFD..... + X on relevant axis.

  AP cannot be engaged.

SECTION 4.4

TAXIING - TAKEOFF

1 PRE-TAXIING CHECKLIST

1. Radioaltimeter ..... ON (if installed) – Tested – DH set.
2. Radionavigation systems ..... Set and tested
3. Radiocommunication systems ..... Set and tested
4. Collective pitch lever ..... Released
5. Pressure and temperature readings ..... Normal
6. Warning lights ..... All out
7. Autopilot ..... ON

NOTE

- If on PFD strip

  - AP / SAS ..... RESET
  - Autopilot ..... ON

8. Heating and ventilation ..... As required
9. Parking brake ..... Released
10. Nose wheel castoring lock (if option installed) ... Release (if necessary).

2 TAXIING - TAKEOFF

2.1 TAXIING

- Increase collective pitch, then move cyclic stick forward moderately to initiate low-speed taxiing.
- Brakes, (collective pitch set to full low pitch) ..... Checked
- Attitude indicators stability ..... Checked
- Headings ..... Checked
- Steer the aircraft with the yaw pedals and not the wheel brakes, which are normally used only to slow down and stop the aircraft.

CAUTION

- IF LMT + GONG, RECENTER THE CYCLIC STICK.
- ON GROUND, IN ORDER TO PREVENT ANY RISK OF VERTICAL OSCILLATIONS, THE TRIM LOADS MUST BE RELEASED BY DEPRESSING THE COLLECTIVE TRIM RELEASE TRIGGER WHENEVER THE COLLECTIVE LEVER IS MOVED.

2.2 TAKEOFF AND HOVERING

- Warning and caution lights .....All out.
- Engine parameters .....Normal.
- Heating .....Switch off.
- Enter hover IGE at 6 ft.

NOTE

may appear temporarily on the PFD

Check:

- All warning and caution lights out.
- Pressure and temperature readings normal.
- Take off while adjusting the collective pitch so as to maintain constant height up to 30 kt (55 km/h), then allow the aircraft to climb.
- Reduce power below MTOP before reaching 40 kt (74 km/h)

CAUTION

THE TAKEOFF PATH MUST REMAIN OUTSIDE THE HEIGHT/VELOCITY DIAGRAM DEFINED IN SECTION 2.

- Retract landing gear at Vy.

2.3 CLIMBING

- Gear .....Retracted.

The best rate of climb speed (Vy) is 80 kt (TAS).
For practical purposes, it will be assumed here that Vy(IAS) = 80 kt (148 km/h) less 1 kt per 1000 ft of altitude (3 km/h per 500 m).

- Heating .....As required.

NOTE

The climb is done with about 2° bank right.

SECTION 4.5
CRUISING FLIGHT

1 LEVEL FLIGHT

1.1 CRUISING FLIGHT

- Maximum range is obtained by flying at Vy (refer to para. 2.3 - section 4.4).
- Balance fuel quantities in left and right tanks as soon as possible while respecting CG limits (Transfer pump flow ≈ 280 kg/h (617 lb/h)).

1.2 MANEUVERING

Avoid sudden maneuvers causing the load factor to be reached abruptly.

- At weight > 4400 kg, do not hold turns beyond 45° bank.

NOTE

- AP upper mode operation envelopes.

IAS; HDG	Minimum engagement speed: 3 Axis operation 60 kt 4 Axis operation 30 kt
VOR	Recommended minimum interception distance: 10 NM Minimum interception speed: 60 kt

- It is recommended to set IAS bug at desired airspeed without exceeding V_H + 5 kt.

1.3 FLYING IN TURBULENCE

Reduce IAS.

1.4 HEATING - DEMISTING – VENTILATION

NOTE

- LH control in forward position disables individual nozzle.
  (If control not fitted, individual nozzle bleeds are always available).
- Center control in forward position allows recirculation and increases heating efficiency. Prolonged use of this position on ground is not advised.
- After MOD 07 21B99: closing of lower pilot and copilot diffusers increases demisting efficiency.

1.4.1 Heating - Demisting

1. Selector button ..... Press.
2. Selector ..... HEAT.
3. LH control (if fitted) ..... As required.
4. Center control ..... As required.
5. RH control ..... As required for heating regulation.
6. On VEMD ..... 

In case of ECS automatic shut off:

- On CAD ..... 
- RH control ..... Slightly reduced
- Wait for automatic switch on of P2 bleed ..... ECS + 

NOTE

On engine failure, P2 bleed is automatically switched off when exceeding the OEI continuous rating on N1. Reset the system using pushbutton on rotary selector, if needed (for N1 rating ≤ OEI continuous).

1.4.2 Ventilation

1. Selector ..... VENT.
2. Controls ..... As required.

SECTION 4.6

APPROACH - LANDING

1 APPROACH – LANDING

Passenger ordinance lights ..... ON

Extend the landing gear and check the following:

1. Gear ..... Down and locked
2. Light ..... As required
3. Nose wheel castoring lock..... As required (if option installed).
4. Parking brake ..... Released
5. Caution, warning and instrument readings ..... Checked
6. Heating..... Switch off

The recommended final approach speed is 45 kt

The descent path must remain outside the risk zone specified on the height/velocity diagram (refer to SECTION 2).

- For IFR coupled approach at minima when in sight

7. Upper mode ..... Disengaged

NOTE

AP upper mode operation envelopes.

VOR.A	Recommended minimum interception distance: 5 NM
LOC/GS	Recommended minimum interception distance: 5 NM Recommended interception angle≤ 60°

CAUTION

ON GROUND, IN ORDER TO PREVENT ANY RISK OF VERTICAL OSCILLATIONS, THE TRIM LOADS MUST BE RELEASED BY DEPRESSING THE COLLECTIVE TRIM RELEASE TRIGGER WHENEVER THE COLLECTIVE LEVER IS MOVED.

SECTION 4.7

ENGINE AND ROTOR SHUTDOWN

1 ENGINE SHUTDOWN

- Wait for 30 s before shutting down engines. The taxiing duration can be subtracted from these 30 s.

1. Controls ..... Centered (use AP centering function if available).
2. AP ..... OFF
3. Collective pitch lever ..... Locked.
4. Pitots - Audio warning - Landing light ..... OFF
5. ENG 1 and ENG 2 ..... IDLE then OFF
6. Booster pumps ..... OFF

NOTE

If the engine does not stop immediately (Solenoid valve failure), the FADEC will shut down the engine 5 to 6 s later.
Do not pull the fuel shutoff control lever before 10 s have elapsed.

2 STOPPING THE ROTOR

CAUTION

ROTOR BRAKE APPLICATION IS PROHIBITED BEFORE ENGINE SHUTDOWN.

- At NR ≤ 120 rpm.

1. Rotor brake ..... Applied
2. Radio - Radio Nav ..... OFF
3. S/B HRZ ..... OFF

- When the rotor is stopped

1. Switches ..... All OFF (except HYD ISOL)
2. VEMD flight report page information ..... Check
3. BAT/ESS ..... OFF

NOTE

At shutdown, do not open the front doors before the rotor is fully stopped.

SECTION 4.8

SPECIAL OPERATING PROCEDURES

1 COLD-WEATHER OPERATIONS (-40°C < OAT < -15°C)

Helicopters fitted with extreme cold weather kit (refer to 2.3 page 3) are allowed to operate at -40°C < OAT < -15°C.

NOTE

IF AIRCRAFT IS PARKED AT AN -30°C ≤ OAT ≤ -25°C

1) Refer to Aircraft Maintenance Manual: applicable document 05-21-00-218

IF AIRCRAFT IS PARKED AT AN OAT < -30°C

1) Refer to Aircraft Maintenance Manual: applicable document 05-21-00-218
2) Remove the battery and store it in a warm place.
3) Fuel onboard must contain anti icing additive (refer to § 2.5p.5).

2 TAKEOFF AFTER PARKING IN FALLING SNOW

Before starting the engines, check (opening MGB cowlings if necessary) that there is no snow or ice built up inside the air intake ducts.
Carefully remove any trace of snow from the grid, around the air intakes, from the cowlings and top of fuselage

3 TAKEOFF AND LANDING ON SLOPES

3.1 TAKEOFF AND LANDING-ON-SLOPE ENVELOPE

See section 2.6 page 1

3.2 TAKEOFF

- Before takeoff:
  - Parking brake .....Applied.
  - Nose wheel.....Locked.
- After takeoff:
  - Parking brake .....Released.
  - Nose wheel.....Unlocked.

3.3 LANDING

- Before landing:
  - Parking brake .....Applied.
  - Nose wheel.....Locked.
- Before fully reducing collective pitch, move cyclic stick to neutral position to prevent LMT light from coming on.

4 GOVERNOR FAILURE TRAINING

CAUTION

BEFORE ACTUATING AUTO / MANU OR NORMAL / BACKUP TOGGLE, PILOT MUST CHECK THAT THERE IS NO RESOLVER DISCREPANCY ON VEMD FADEC STATUS PAGE.

1. VEMD ..... SCROLL TWICE.

On FADEC status page:

2. NO RESOLVER ANNUNCIATION..... CHECK.
3. VEMD ..... RESET.
4. AUTO/MANU or NORMAL / BACKUP ..... MANU or BACKUP.

SECTION 4.9
ENGINE POWER AND THERMAL CHECK

1 GENERAL

The purpose of the engine power check is to determine the available power margin and thermal margin relative to the minimum guaranteed engine values.

The periodicity of this test must be in accordance with applicable operational regulations and TURBOMECA documentation. I

These checks can be done in three different configurations:

On ground: Power or thermal check can be done on ground, but the stability needed is often difficult to obtain. This test has to be considered as indicative. If in doubt, a check in flight has to be done.

In cruise flight at MCP: This is the most useful test condition. The test can be done in normal twin-engine cruise flight at around 140 kt.

In OEI Training level flight: This test is considered as the reference test because it is done in single-engine condition and therefore uses high N1 and TOT. It is to be performed to confirm a bad or questionable result obtained in the twin-engine power or thermal check test.

The engine power and thermal check can be done:

Automatically by FADEC and VEMD by pressing SCROLL on VEMD, or

Manually by comparison with reference data, by entering the parameters recorded on the corresponding chart.

NOTE

- The result of the automatic power check is referenced to the 100% of each engine. To compare it to manual power check result, it is necessary to divide it by two.
- For the same reason in the parameters displayed by VEMD after power check, the torque has to be divided by two.

1.1 AUTOMATIC POWER AND THERMAL CHECK PROCEDURE

- Press the scroll button on VEMD to start the EPC.
- Positive results are satisfactory.
- If any result is negative, the corresponding engine may be faulty.

NOTE

The filling of the white rectangle gives an idea of the timing.

At the end of the test the VEMD displays the results of power and thermal check or one of the following messages:

- EPC NOT VALID : Stability was not achieved with enough accuracy. Start another EPC.
- EPC NOT AVAILABLE : Failure of one parameter. Do a manual check.

1.2 MANUAL POWER CHECK

The corrected torque value is determined on the corresponding chart and has to be compared with the recorded torque.

- If the recorded torque is higher than the corrected torque, the result is satisfactory.
- If the recorded torque is lower than the corrected torque, the engine may be faulty.

1.3 MANUAL THERMAL CHECK

The corrected TOT value is determined on the corresponding chart and has to be compared with the recorded TOT.

- If the corrected TOT is higher than the recorded TOT, the result is satisfactory.
- If the corrected TOT is lower than the recorded TOT, the engine may be faulty.

2 ON GROUND ENGINE POWER AND THERMAL CHECK

NOTE

- If questionable or unstable results are obtained, it is advisable to repeat the test procedure at different N1 values.
- If any result is unsatisfactory, do an in flight power check.

2.1 RECORDING CONDITIONS

The check is to be performed :

- Head the aircraft into the wind on a clear area.
- After starting both engine, set one engine to IDLE/TRAINING.
- Switch off all P2 bleed air flow.
- Raise the collective pitch lever to obtain the maximum available power (from the engine which is not in IDLE TRAINING mode) at the limit of liftoff, without allowing rotor speed to drop below 342 rpm.
- Check that the bleed valve is closed and that parameter readings are stable.
- For manual power check, record following values on the engine in TRAINING mode :
  - engine torque : Tq (%).
  - exhaust gas temperature : TOT (°C).
  - gas generator speed : N1 (%).
  - rotor speed : NR (rpm).
  - pressure altitude : Hp (ft).
  - outside air temperature : OAT (°C).
- Apply the same procedure for checking the other engine.

2.2 AUTOMATIC POWER AND THERMAL CHECK

- Press the scroll button on VEMD to start the EPC.
- Positive results are satisfactory.
- If any result is negative, corresponding engine may be defective. A check in flight has to be performed.

2.3 MANUAL POWER CHECK

- The corrected torque value is determined on Figure 1 chart and has to be compared with the recorded torque.
  - If the recorded torque is higher than the corrected torque, the result is satisfactory.
  - If the recorded torque is lower than the corrected torque: engine may be defective.
    A check in flight has to be performed.

2.4 MANUAL THERMAL CHECK

- The corrected TOT is determined by using figure 2 and has to be compared with the recorded TOT.
  - If the corrected TOT is higher than the recorded TOT, the result is satisfactory.
  - If corrected TOT is lower than the recorded TOT: engine may be defective.
    A check in flight has to be performed.

3 IN CRUISE FLIGHT ENGINE POWER AND THERMAL CHECK

3.1 RECORDING CONDITIONS

- P2 bleed air flow ..... Shut off.
- Stable cruise at 140 kt ..... Maintain for three minutes.

NOTE

If the configuration do not allow to maintain level flight at 140 kt, it is possible to do this check at 100 kt.

- For manual testing record the following values :
  - engine torque : Tq (%).
  - exhaust gas temperature : TOT (°C).
  - gas generator speed : N1 (%).
  - rotor speed : NR (rpm).
  - pressure altitude : Hp (ft).
  - outside air temperature : OAT (°C).
  - aircraft airspeed : IAS (kt).

3.2 AUTOMATIC POWER AND THERMAL CHECK

Stabilize level flight, switch off all P2 air bleed and press scroll button on VEMD to start the EPC.

If any result is negative, corresponding engine may be defective. A reference check in training OEI level flight has to be performed (§4).

3.3 MANUAL POWER CHECK

Determine the corrected torque value by using Figure 4 (140 kt) or Figure 5 (100 kt).

If the recorded torque is higher than the corrected torque, the result is satisfactory.

If not, confirm these values by performing a reference check in training OEI level flight (§4).

3.4 MANUAL THERMAL CHECK

Determine the corrected TOT by using Figure 2 or 3.

If the corrected TOT is higher than the recorded TOT, the result is satisfactory.

If not, confirm these values by performing a reference check in training OEI level flight (§4).

2.1 RECORDING CONDITIONS

To perform the check:

- Head the aircraft into the wind on a clear area.
- After starting both engines, set one engine to IDLE/TRAINING.
- Switch off all P2 bleed air flow.
- Raise the collective pitch lever to obtain the maximum available power (from the engine which is not in IDLE TRAINING mode) at the limit of liftoff, without allowing rotor speed to drop below 342 rpm.
- Check that the bleed valve is closed and that parameter readings are stable.
- For manual power check, record the following values on the engine in TRAINING mode :
  - engine torque : Tq (%).
  - exhaust gas temperature : TOT (°C).
  - gas generator speed : N1 (%).
  - rotor speed : NR (rpm).
  - pressure altitude : Hp (ft).
  - outside air temperature : OAT (°C).
- Apply the same procedure for checking the other engine.

2.2 AUTOMATIC POWER AND THERMAL CHECK

- Press the scroll button on the VEMD to start the EPC.
- Positive results are satisfactory.
- If any result is negative, the corresponding engine may be faulty. A check in flight has to be performed.

2.3 MANUAL POWER CHECK

- The corrected torque value is determined using Figure 1 and has to be compared with the recorded torque.
  - If the recorded torque is higher than the corrected torque, the result is satisfactory.
  - If the recorded torque is lower than the corrected torque, the engine may be faulty.
    A check in flight has to be performed.

2.4 MANUAL THERMAL CHECK

- The corrected TOT is determined using Figure 2 and has to be compared with the recorded TOT.
  - If the corrected TOT is higher than the recorded TOT, the result is satisfactory.
  - If corrected TOT is lower than the recorded TOT, the engine may be faulty.
    A check in flight has to be performed.

3 IN CRUISE FLIGHT ENGINE POWER AND THERMAL CHECK

3.1 RECORDING CONDITIONS

- P2 bleed air flow ..... Shut off.
- Stable cruise at 140 kt ..... Maintain for three minutes.

NOTE

If the configuration does not allow level flight at 140 kt, it is possible to do this check at 100 kt.

- For manual testing, record the following values:
  - engine torque : Tq (%).
  - exhaust gas temperature : TOT (°C).
  - gas generator speed : N1 (%).
  - rotor speed : NR (rpm).
  - pressure altitude : Hp (ft).
  - outside air temperature : OAT (°C).
  - aircraft airspeed : IAS (kt).

3.2 AUTOMATIC POWER AND THERMAL CHECK

Stabilize level flight, switch off all P2 air bleed and press scroll button on VEMD to start the EPC.

If any result is negative, the corresponding engine may be faulty. A reference check in OEI training level flight has to be performed (§4).

3.3 MANUAL POWER CHECK

Determine the corrected torque value using Figure 4 (140 kt) or Figure 5 (100 kt).

If the recorded torque is higher than the corrected torque, the result is satisfactory.

If not, confirm these values by performing a reference check in OEI training level flight (§4).

3.4 MANUAL THERMAL CHECK

Determine the corrected TOT using Figure 2 or 3.

If the corrected TOT is higher than the recorded TOT, the result is satisfactory.

If not, confirm these values by performing a reference check in OEI training level flight (§4).

4 IN OEI TRAINING LEVEL FLIGHT ENGINE POWER AND THERMAL CHECK: REFERENCE CHECK

4.1 CHECKING PRINCIPLES

This check must be carried out if one of the previous results is not satisfactory.
The purpose of this in-flight check is to determine the margin of the engine at a higher N1 than during the previous check.

4.2 RECORDING CONDITIONS

- P2 bleed air flow ..... Shut off.
- Training mode ..... Select.
- OEI rating ..... HI.
- Level flight at 100 kt ..... Maintain.
- RPM $\geq$ 342 ..... Maintain.

NOTE

Training mode is not damaging for the engine, it can be maintained with no time limitation.

4.3 AUTOMATIC THERMAL AND POWER CHECK

If any result is negative, refer to the Engine Maintenance Manual.

4.4 MANUAL POWER CHECK

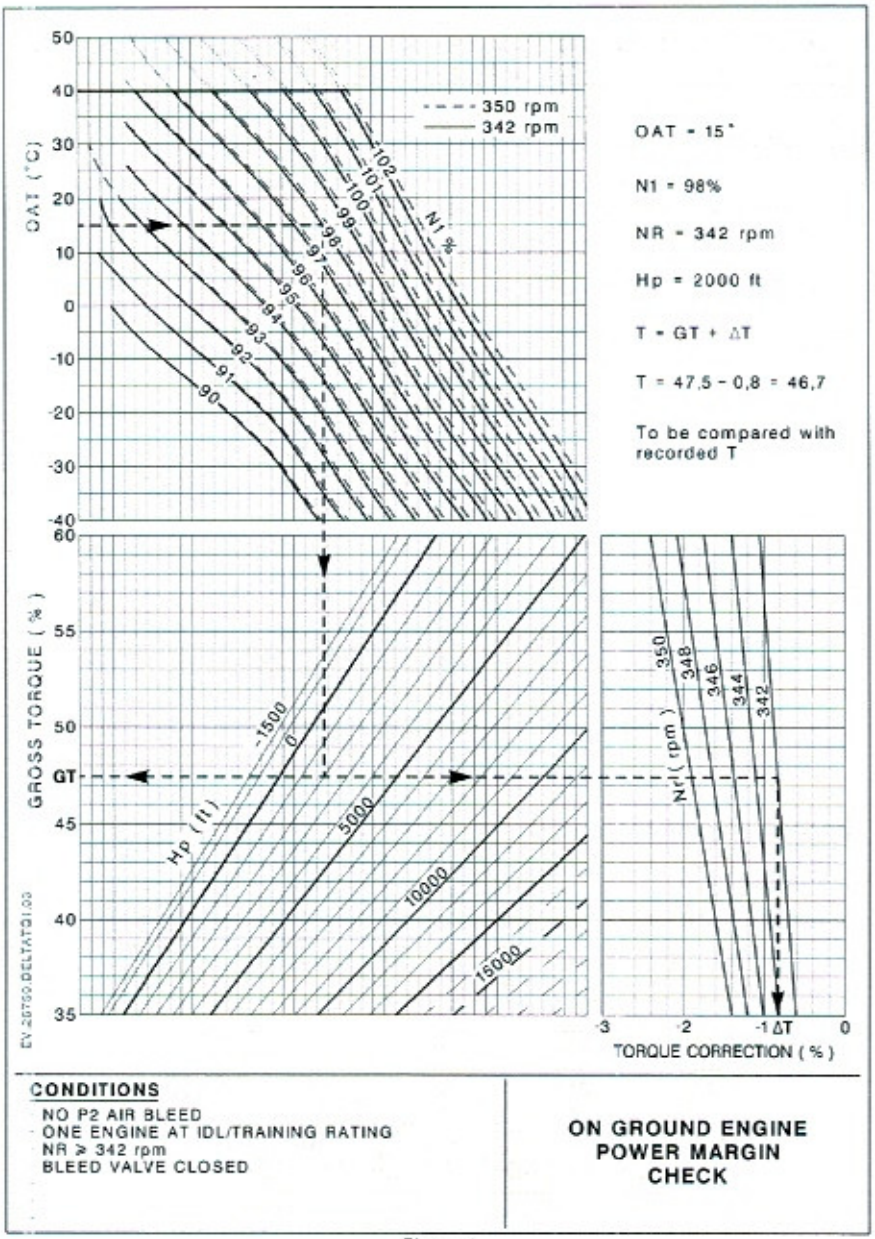
Determine the corrected torque value using Figure 5 (100 kt).
If the recorded torque is higher than the corrected torque, the result is satisfactory.
If not, refer to the Engine Maintenance Manual.

4.5 MANUAL THERMAL CHECK

Determine the corrected TOT value using Figure 2 (100 kt).
If the corrected TOT is higher than the recorded TOT, the result is satisfactory.
If not, refer to the Engine Maintenance Manual.

CAUTION

WHEN THE REFERENCE CHECK IS DONE FOLLOWING AN UNSATISFACTORY RESULT OF AN IN FLIGHT ENGINE POWER CHECK, IF THE RESULT OF THE REFERENCE CHECK IS SATISFACTORY, THE CORRESPONDING ENGINE CAN BE KEPT IN SERVICE WITH APPROPRIATE MAINTENANCE (REFER TO MAINTENANCE MANUAL).



CONDITIONS

NO P2 AIR BLEED
ONE ENGINE AT IDL/TRAINING RATING
NR ≥ 342 rpm
BLEED VALVE CLOSED

ON GROUND ENGINE POWER MARGIN CHECK

Figure 1

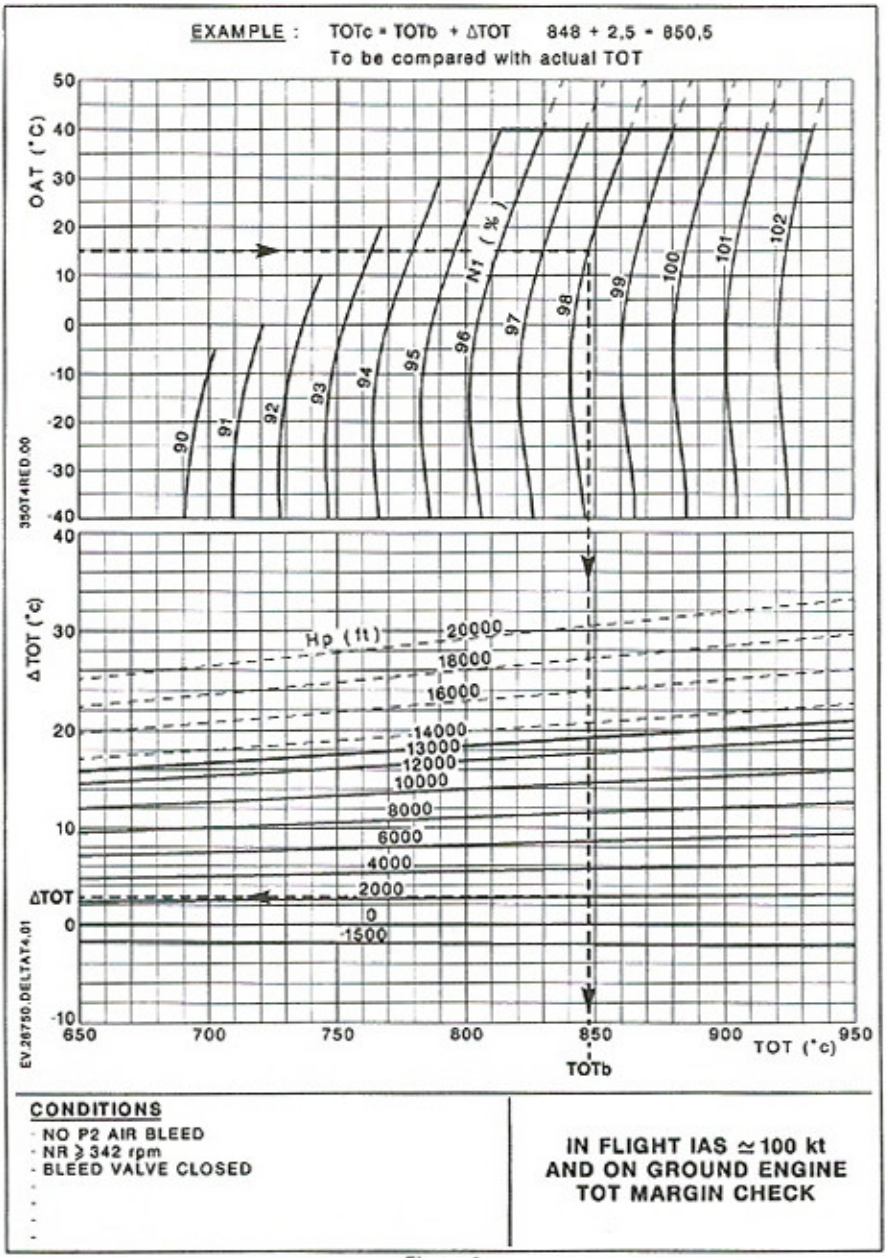

EXAMPLE : TOTc = TOTb + ΔTOT 848 + 2,5 = 850,5
To be compared with actual TOT
OAT (°C)
50
40
30
20
10
0
-10
-20
-30
-40
NT (%)
90
91
92
93
94
95
96
97
98
99
100
101
102
350T4RED 00
ΔTOT (°c)
40
30
20
10
0
-10
Hp (ft)
20000
18000
16000
14000
13000
12000
10000
8000
6000
4000
2000
0
-1500
ΔTOT
650
700
750
800
850
900
950
TOT (°c)
TOTb
EV.26750.DELTAT4.01
CONDITIONS
- NO P2 AIR BLEED
- NR ≥ 342 rpm
- BLEED VALVE CLOSED
IN FLIGHT IAS ≃ 100 kt
AND ON GROUND ENGINE
TOT MARGIN CHECK

Figure 2

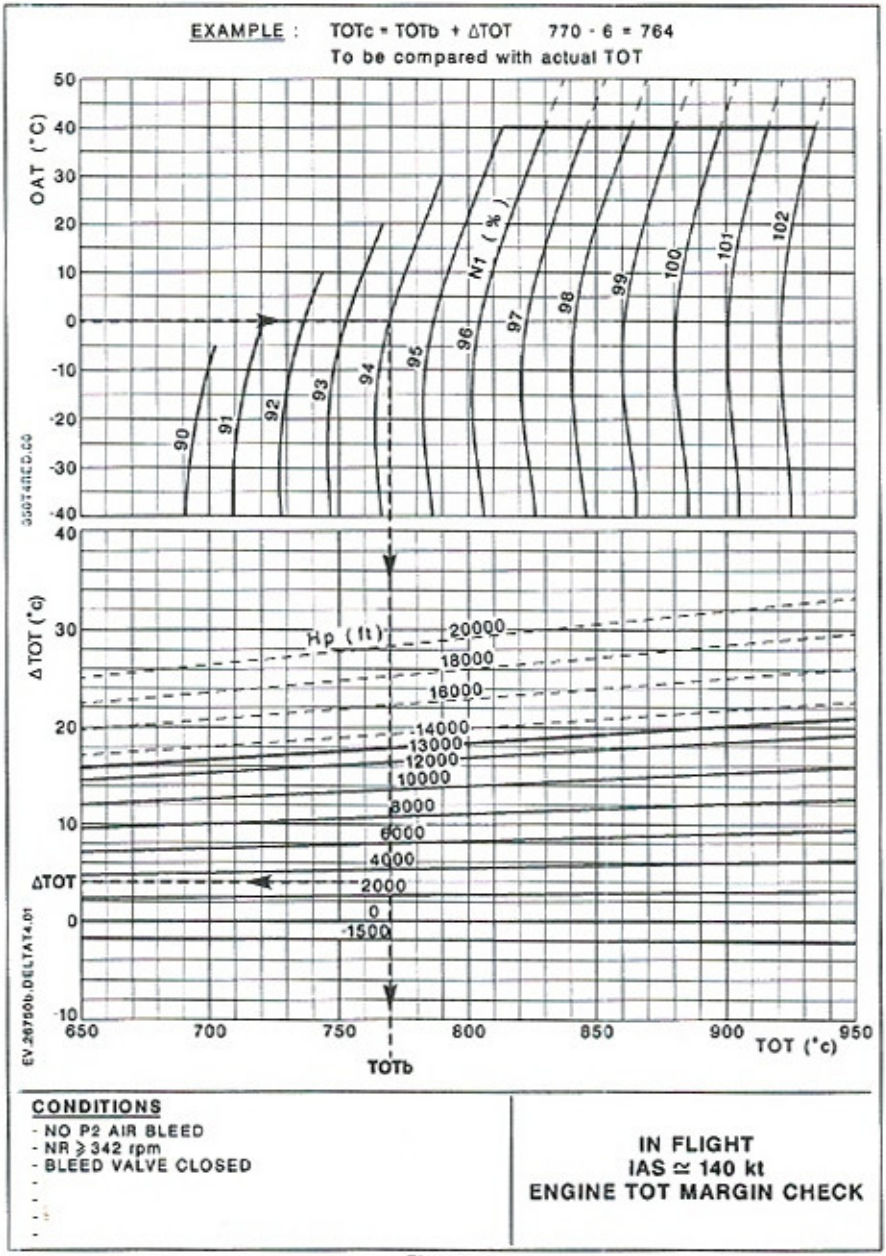

EXAMPLE : TOTc = TOTb + ΔTOT 770 - 6 = 764
To be compared with actual TOT
OAT (°C)
N1 (%)
90
91
92
93
94
95
96
97
98
99
100
101
102
ΔTOT (°c)
Hp (ft)
20000
18000
16000
14000
13000
12000
10000
8000
6000
4000
2000
0
-1500
ΔTOT
TOTb
TOT (°c)
650
700
750
800
850
900
950
EV 26750b.DELTA74.01
CONDITIONS
- NO P2 AIR BLEED
- NR ⩾ 342 rpm
- BLEED VALVE CLOSED
IN FLIGHT
IAS ≃ 140 kt
ENGINE TOT MARGIN CHECK

Figure 3

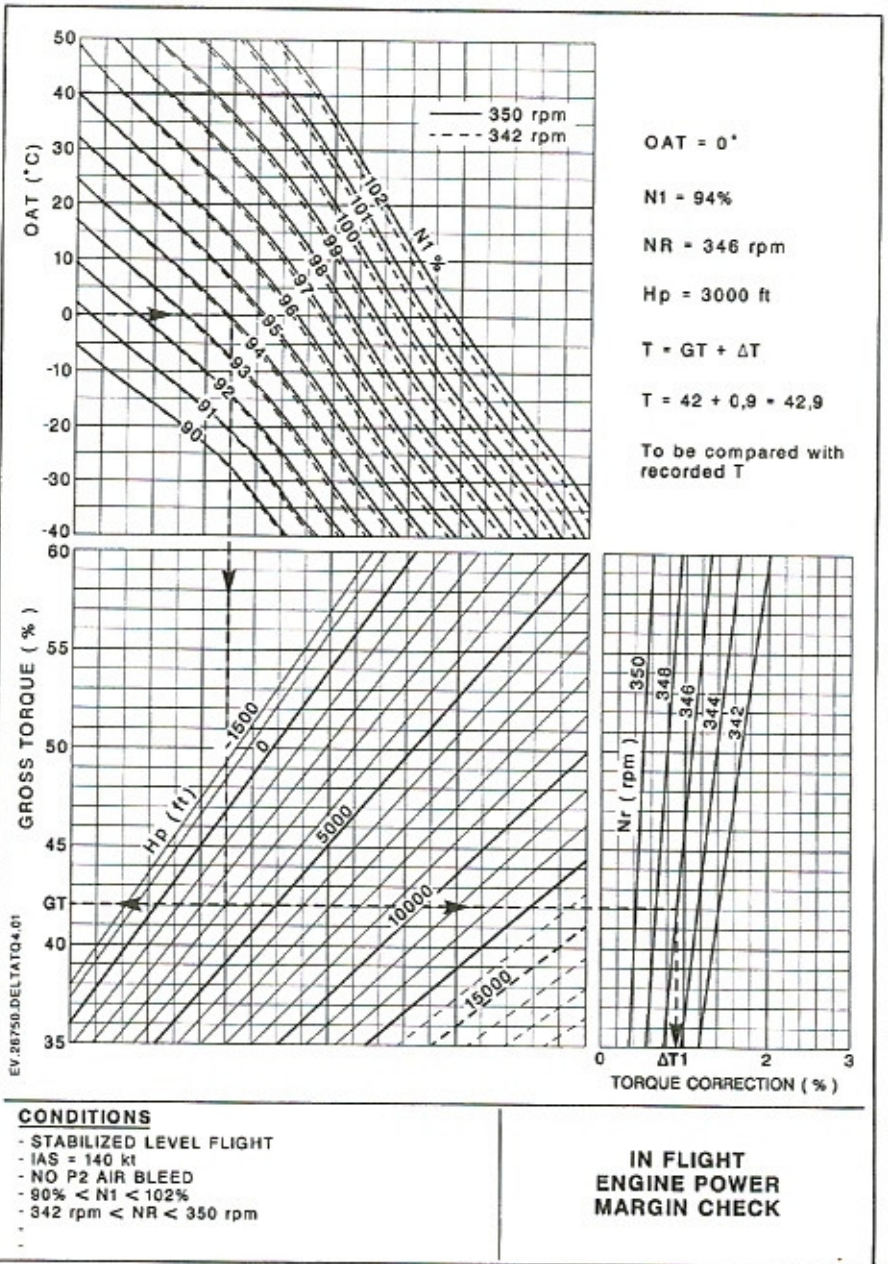

OAT (°C)
50
40
30
20
10
0
-10
-20
-30
-40
350 rpm
342 rpm
N1 %
102
101
100
99
98
97
96
95
94
93
92
91
90
OAT = 0°
N1 = 94%
NR = 346 rpm
Hp = 3000 ft
T = GT + ΔT
T = 42 + 0,9 = 42,9
To be compared with recorded T
GROSS TORQUE (%)
60
55
50
45
GT
40
35
Hp (ft)
-1500
0
5000
10000
15000
Nr (rpm)
350
348
346
344
342
0
ΔT1
2
3
TORQUE CORRECTION (%)
EV.26750.DELTATQ4.01
CONDITIONS
- STABILIZED LEVEL FLIGHT
- IAS = 140 kt
- NO P2 AIR BLEED
- 90% < N1 < 102%
- 342 rpm < NR < 350 rpm
IN FLIGHT ENGINE POWER MARGIN CHECK

Figure 4

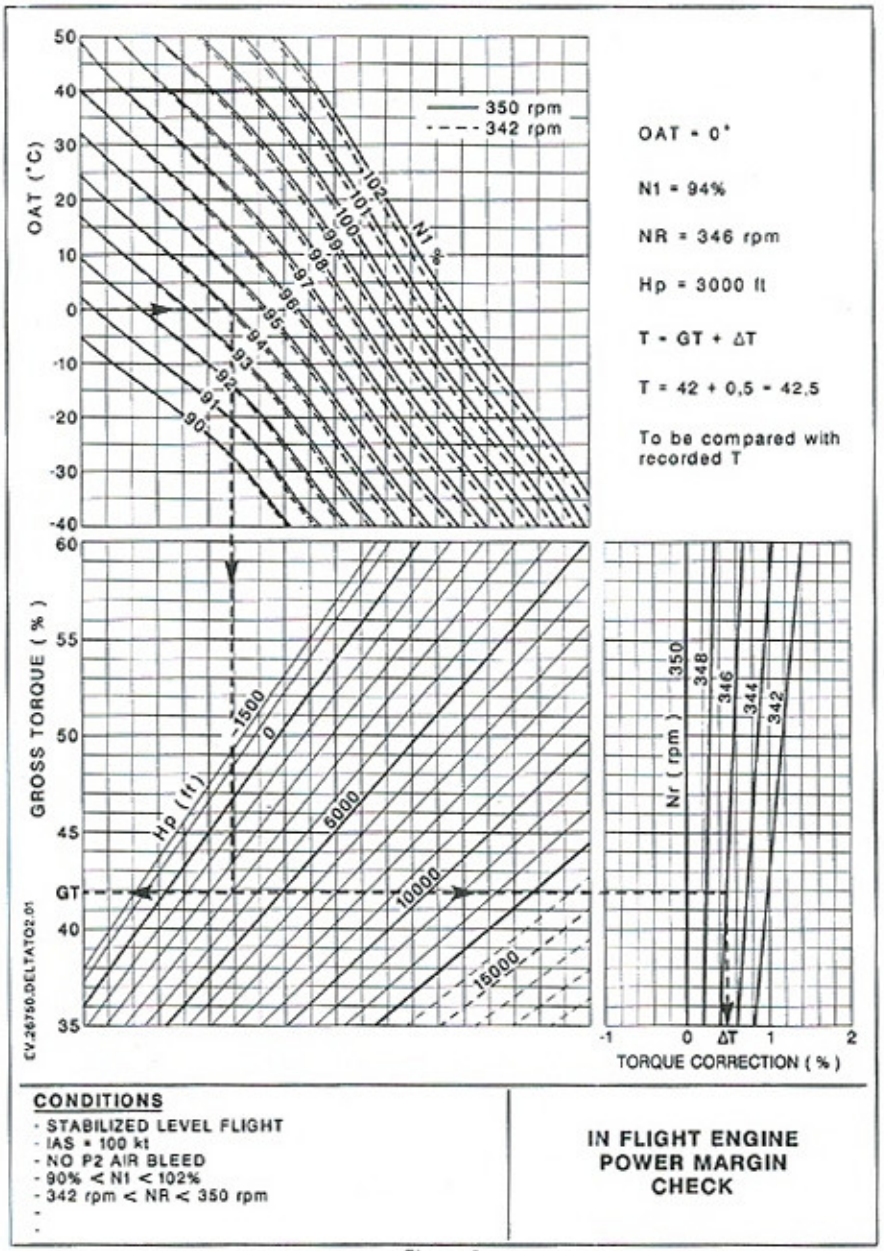

OAT (°C)
50
40
30
20
10
0
-10
-20
-30
-40
350 rpm
342 rpm
N1 %
102
101
100
99
98
97
96
95
94
93
92
91
90
OAT = 0°
N1 = 94%
NR = 346 rpm
Hp = 3000 ft
T = GT + ΔT
T = 42 + 0,5 = 42,5
To be compared with recorded T
GROSS TORQUE (%)
60
55
50
45
GT
40
35
Hp (ft)
1500
0
5000
10000
15000
Nr (rpm)
350
348
346
344
342
-1
0
ΔT
1
2
TORQUE CORRECTION (%)
CV.26750.DELTAT02.01
CONDITIONS
- STABILIZED LEVEL FLIGHT
- IAS = 100 kt
- NO P2 AIR BLEED
- 90% < N1 < 102%
- 342 rpm < NR < 350 rpm
IN FLIGHT ENGINE POWER MARGIN CHECK

Figure 5