eurocopter

FLIGHT MANUAL

AS 350 B2

DOT TYPE APPROVAL No. H.83

"SECTIONS 1, 2, 3, 4 AND 5 OF THIS MANUAL, AS WELL AS THE APPLICABLE SUPPLEMENTS, CONSTITUTE THE APPROVED FLIGHT MANUAL. FOR CANADIAN REGISTERED AIRCRAFT COMPLIANCE WITH SECTION 2 IS MANDATORY"

REGISTRATION No

SERIAL No

APPROVED BY :

The DIRECTION GENERALE DE L'AVIATION CIVILE (DGAC)

Date of approval : December 05, 1990

"This Rotorcraft Flight Manual is the translation of an approved French flight manual. The note "DGAC approved" on all pages means that these pages are an integral translation of the French issue approved by DGAC".

This RFM is approved for Canadian registered aircraft and consists of all pages marked "DGAC approved" and coded C

IMPORTANT NOTE

The pratical value of this manual depends entirely upon its being correctly up-dated. The revisions are recorded on the last page of the manual.
The effectivity of the manual at the latest revision is specified on pages 0.0.P5.

This manual supports the helicopters delivered by both Aerospatiale and EUROCOPTER FRANCE.
Revisions to this manual are made by EUROCOPTER FRANCE using the same procedures as Aerospatiale.

THIS DOCUMENT SHALL BE CARRIED IN AIRCRAFT AT ALL TIMES

EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

CUSTOMIZATION :

A/C : - S/N :

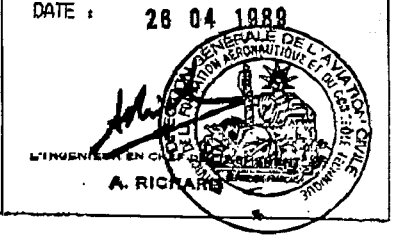
LIST OF ADDITIONAL APPROVED PAGES

SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE
THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.					

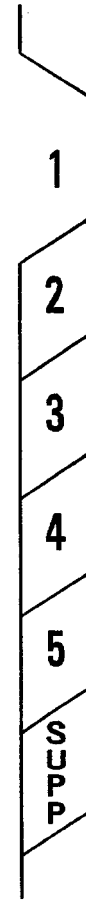
LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989



PART 1



COMPOSITION
OF CONDITIONAL REVISIONS (RC)

This manual assigned to the helicopter mentioned on the title page, contains the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

Section Page Date	Applicable before condition is met :
RC.A 0.0P3 Page 1 *B2* 90-29 2.1 Page 7 *B2* 90-29 3.1 Page 2 *B2* 90-29	AIRWORTHINESS DIRECTIVE No 90-105B (and further revisions) AEROSPATIALE Service Telex No 0125B (and further revisions) Note : This Conditional Revision does not apply to the manuals at Normal Revision 0.
RC.B 0.0P3 Page 1 *B2* 92-33 3.3 Page 5 *RC* 92-33	Modification ams 072596 : Improved engine fire detection system.
RC.C Supersedes RC.B 0.0P3 Page 1 *B2* 92-39 3.3 Page 5 *B2* 92-39	Modification AMS 072598 : Improved engine fire detection system. Note : Modification AMS 072598 supersedes modification AMS 072596. The procedures remain unchanged.

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this year.

OFFICE

COMPOSITION
OF RUSH REVISIONS (RR)

The manual contains the following additional yellow page(s) :

No.RR	SECTION	PAGE	DATE CODE
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No.RR	SECTION	PAGE	DATE CODE
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DGAC Approved :

350 B2

0.0.P4

A C D E F G H

LIST OF EFFECTIVE PAGES

(1) Page Revision Code
- R : Revised, to be replaced
- N : New, to be inserted

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LISTE DES DERNIERES REVISIONS NORMALES

No	Date	No	Date
0	89-17	5	99-48
1	92-12	6	02-03
2	93-05		
3	93-15		
4	99-38		

REVISION NORMALE : 6

COMPOSITION
OF CONDITIONAL REVISIONS (RC)

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Section	Page	Date	Applicable before condition is met :

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this hear.

SECTION	PAGE	DATE	(1)	SECTION	PAGE	DATE	(1)
4. 2	1	90-37	R				
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LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		
1	90-37		

NORMAL REVISION : 1
DGAC APPROVED
DATE : 09.04.1992

SECTION 1

GENERAL

CONTENTS

SECTION 1

1 PRELIMINARY NOTES

1.1 GENERAL

To achieve the required degree of safety, this manual must be used in conjunction with the relevant regulations covering aircraft operation, such as aerial navigation laws in the operator's country. It is essential for the crew to become familiar with the contents of this manual, special certification requirements and any information specific to customized configurations, and to check all revisions and related requirements.

1.2 DESCRIPTION OF MANUAL

This manual contains legally approved information, together with additional manufacturer's information not subject to approval; the entire manual complies with the recommendations of the Helicopter Association International (HAI).

- The approved information is contained in PART 1 "FLIGHT MANUAL", in sections 1,2,3,4,5 and in the Supplements.
- The information not subject to Approval is contained in PART 2 "COMPLEMENTARY FLIGHT MANUAL", as a Supplement to PART 1.
  This information is covered by sections 6,7,8,9 and 10. Each PART of Manual makes up a whole and, for this reason, incorporates its own List of Pages and is revised separately.

1.2.1 Basic Aircraft

The basic helicopter specifications are covered by sections 1 through 10.

1.2.2 Special Systems and Procedures

Information concerning optional equipment systems and operational procedures is covered by Supplements. These are mini Flight Manuals covering any differences from the basic aircraft information, section by section. The supplements are approved on an individual basis.

1.3 ADAPTATION OF MANUAL TO CERTIFICATION REQUIREMENTS

Specific certification requirements may necessitate modifications to the text or layout of certain pages.
Therefore, a specific Flight Manual (PART 1) is drawn up for each certification. Each Flight Manual includes its own particular title page; the alphabetical code, corresponding to the relevant certification, appears in the lower left-hand corner of each page of the approved PART 1.

1.4 CUSTOMIZATION MODIFICATIONS (printed on green paper)

Special features of a particular helicopter may justify prioritary addenda to the information on certain basic manual and supplement pages.
These pages, printed on green paper, are filed in the manual over the corresponding white pages.
The information contained in the green pages supersedes or supplements the information covered by the relevant white page. No white page is deleted.

Page 0.0.P1 page 3 gives the list of green pages.

2 UPDATING

2.1 GENERAL

This Manual is updated periodically through rush revisions (RR) or normal revisions (RN).

2.2 REVISIONS

Aerospatiale makes every effort to keep this manual updated by revisions to complete the user's information and capabilities. Each revision is accompanied by instructions summarizing the major points affected by the change and advising the person responsible for incorporating the revised pages in the manual. (The instruction sheet can be filed separately from the manual).
The user is responsible for ensuring proper updating of the manual complying with the List of Pages given at the beginning of PART 1, PART 2 and of each supplement, since each of the these PARTS or Supplements is revised separately.

R
R

The date code is composed of the last two digits of the year, followed by the number of the week in that year.
The variant code includes two digits placed under the page number for identification of the version, certification or related customization.

2.2.1 Normal revisions (printed on white paper)

Normal revisions fully or partially update the manual. The pages may be new pages or may supersede the existing pages. They are printed on white paper.
The manual effectivity is specified on the new introductory (0.0.P1 page 2). Normal revisions are identified in numerical order.

2.2.2 Rush revisions (printed on yellow paper)

Rush revisions partially update a few major points in the manual.
The new information is given on a page which must face the former text to be modified or completed. The Rush Revision is printed on yellow paper. No white page is deleted. The revised pages are specified on a separate list (0.0.P4, page 1)

Rush revisions are identified by the number of the next normal revision and a letter suffix in normal alphabetical order. Several rush revisions may be issued between two normal revisions. All rush revisions are cancelled when the normal revision bearing the same number is issued. If certain rush revision provisions remain after the subsequent normal revision, they are confirmed by a new rush revision with another identification code.

2.2.3 Conditional revisions RC (printed on pink paper)

The revised manual issued on white pages, corresponds to the recommended standard.
For helicopters authorized to fly at an earlier standard, the conditional revision (RC) retains the previous standard.
The user is responsible for embodiment of the aircraft modification(s) required for compliance with the recommended standard, after which the pink pages may be deleted under the user's responsibility.
The pink pages are specified on a separate list(0.0.P3 page 1).

NOTE : These pages are unaffected by normal and rush revisions or by customization.

3 SYMBOLS & ABBREVIATIONS

	SYMBOLS English	SYMBOLS French
Speeds :		
- Rate of climb	R/C	Vz
- Indicated airspeed	I.A.S.	Vi
- True airspeed	T.A.S.	Vp
- Calibrated airspeed	C.A.S.	Vc
- Optimum climbing speed	Vy	Vy
- Takeoff safety speed	V.TOSS	VSD
- Critical decision speed	V1	V1
- Never exceed speed	VNE	VNE
- Wind velocity	Vw	Vw

NOTE : Unless otherwise specified, speed values used refer to indicated airspeed.

Altitudes :		
- Take-off or landing height	h	h
- Critical decision height	h1	h1
- Pressure altitude	Hp	Zp
- Density altitude	Hσ	Zσ
Weights :		
- Weight	Wt	M
- Maximum take-off weight	M.TOW	m
- Empty weight	E.W	M.V.
- Equipped empty weight	E.E.W.	M.V.E.
- Operating empty weight	E.O.W.	M.O.E.
- All-up weight	A.U.W.	M.T.
Temperature :		
- Outside air temperature, in degrees centigrade	O.A.T.	θ s
Miscellaneous :		
- Power	W	W
- Torque	C	C
- Barometric pressure, in millibars	Po	Po
- Degrees centigrade	°C	°C
- Rotor speed	NR	NR
- Gas generator speed	Ng	Ng
- Free turbine speed	Nf	NTL
- Exhaust Gas Temperature (E.G.T.)	t4	t4
- Out of ground effect	O.G.E.	H.E.S.
- In ground effect	I.G.E.	D.E.S.
- Main gear box	M.G.B.	B.T.P.
- Tail gear box	T.G.B.	B.T.A.

SECTION 2

LIMITATIONS

CONTENTS

SECTION 2.1

OPERATING LIMITATIONS

1 APPLICABILITY

THE LIMITATIONS SPECIFIED IN THIS SECTION ARE MANDATORY.

They cover the basic aircraft version.
Any additional restrictions resulting from installation of optional equipment items are specified in the relevant SUPPLEMENTS.

2 TYPES OF OPERATION APPROVED

Operating the helicopter is approved, out of icing conditions, for :
- Day VFR flight
- Night VFR flight, when the required equipment items are installed and serviceable, provided such operation is permitted by the flight regulations of the country concerned.

3 BASIS OF CERTIFICATION

The helicopter is approved in the "NORMAL" category of FAR PART 27.

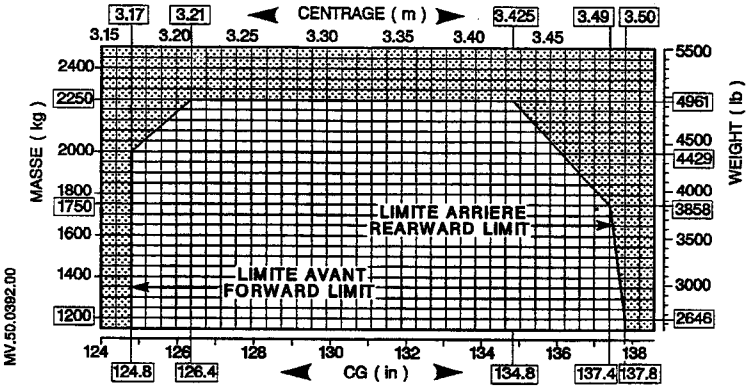
4 WEIGHT LIMITS

- Maximum permissible weight : ---------- 2250 kg (4961 lb)

5 CENTRE OF GRAVITY LIMITS

5.1 Longitudinal c.g.

The c.g. datum is located -3.40 m (133.8 in) forward of the main rotor head centre line.
The longitudinal c.g. limits are given by the graph below :



5.2 Lateral c.g.

- L.H. limit : ---------- 0.18 m (7.08 in)
- R.H. limit : ---------- 0.14 m (5.51 in)

The datum is the aircraft symmetry plane.

6 MAXIMUM SPEED

6.1 VNE with doors closed

6.1.1 VNE Power-on

- Absolute VNE is 155 knots (287 km/hr - 178 MPH) at zero pressure-altitude.
- At higher altitudes this speed is to be reduced by 3 knots (5,5 km/hr or 3,5 MPH) per 1000 ft and 18 km/hr per 1000 m.
  VNE values versus altitudes are marked on the airspeed indicator.
- In cold weather the following must be subtracted from VNE :
  10 knots (19 km/hr - 12 MPH) when O.A.T. is below -30° C.

6.1.2 VNE Power-off

- Absolute VNE is 125 knots (231 km/hr - 144 MPH) at zero pressure-altitude.
- At higher altitudes this speed is to be reduced by 3 knots (5,5 km/hr -3,5 MPH) per 1000 ft or 18 km/hr per 1000 m.
- In cold weather, reduce the VNE as follows :
  20 knots (37 km/hr, 23 MPH) when O.A.T. is below -20°C without dropping below 65 knots (120 km/hr, 75 MPH).

RR 2E

RR 2E Supersedes RR 2D

Subject : Flight in falling snow.

Add the following text in Section 2.1. para. 7 "Approved Flight envelope".

7.4 Flight in falling snow

- Flight when visibility is greater than 1500 m (0.81 NM) : flight in falling snow is authorized.

- Flight when visibility is 800 to 1500 m (0.43 to 0.81 NM) : the total flying time in falling snow is limited to 10 minutes. This time limit includes the time required to leave all snowy conditions. irrespective of the visibility.

- Flight when visibility is less than 800 m (0.43 NM) : flight in falling snow is prohibited.

NOTE : For the preparation before flight. refer to Supp. 4.

6.2 VNE with doors removed

VNE is limited to 70 knots (130 km/hr - 81 MPH) for the following permissible configurations :

. 4 doors removed
. 2 R.H. doors removed
. 2 L.H. doors removed

- Any other configuration is prohibited

7 APPROVED FLIGHT ENVELOPE

7.1 Altitude

Maximum substantiated pressure-altitude : 20000 ft (6096 m)

7.2 Temperature

- Minimum temperature ---------- -40 °C

For temperatures lower than -25 °C, refer to "Instructions for Operation in Cold Weather" (SUP.4)

- Maximum temperature ---------- ISA +35 °C limited to +50 °C

7.3 Manoeuvring limitations

Do not exceed the load factor corresponding to the servocontrol reversibility limit.

8 MAIN ROTOR SPEED

8.1 Power on

. On the ground at low pitch ---------- 380 ± 5 rpm

. In stabilized flight ---------- 390 + 4 rpm
- 5

8.2 Power off

. Maximum ---------- 430 rpm
. Minimum ---------- 320 rpm

NOTE : The horn sounds when the rotor speed is :
. below 360 rpm (continuous sound)
. above 410 rpm (intermittent sound).

9 ROTOR BRAKE LIMITATION

- Maximum rotor speed for rotor brake application : 170 rpm
- Minimum time between two consecutive brakings : 5 minutes

10 TORQUE LIMITATIONS

When airspeed is lower than 40 kt (74 km/hr) (46 MPH) :
- Maximum transient torque (10 sec.) : 107 %
- Maximum continuous torque : 100 %

When airspeed is equal to or higher than 40 kt (74 km/hr) (46 MPH) :
- Maximum continuous torque : 94 %

11 ENGINE LIMITATIONS

The aircraft is equipped with a TURBOMECA "ARRIEL 1D1" engine.
Operating limitations are determined by the free turbine rotation speed (Ng), by the exhaust gas temperature (t4) or by the gas generator rotation speed (Nf) depending on the operating conditions.

11.1 Gas Generator Speed

- Maximum transient rating (less than 5 sec.) Ng = 107.5 % - Ng diff = +6
- Maximum takeoff rating (5 minutes) without P2 air bleed - Ng diff = 0
  with P2 air bleed - Ng diff = -0.6
- Maximum continuous rating : Ng = 98 % - Ng diff = -3.5

NOTE : 100 % Ng corresponds to 51800 rpm.

11.2 t4 Temperature

- Maximum for engine starting ---------- 795 °C
- Maximum transient during starting (5 sec. max.) - 865 °C
- Maximum on takeoff ---------- 845 °C
- Maximum continuous ---------- 795 °C

11.3 Free Turbine Speed

- Maximum continuous equivalent ---------- 417 rpm
- Transient limits (5 sec. max.)
  . minimum ---------- 330 rpm
  . maximum ---------- 463 rpm

NOTE : A rotor speed of 394 rpm corresponds to a free turbine speed of 42452 rpm.

11.4 Fuels

11.4.1 Standard Fuels

Type of fuel	NATO symbol	SPECIFICATIONS			Anti-ice Additive
		U.S.	U.K.	FRENCH	
Kerosene - 50 (AVTUR-FSII X JP8)	F 34	MIL-T-83133 (JP8)	D.ENG.RD 2453	AIR 3405-F34	Yes
Kerosene - 50 (AVTUR) (JP1)	F 35	ASTM-D-1655 JET A1	D.ENG.RD 2494	AIR 3405-F35	No
Kerosene	-	ASTM-D-1655 JET A	-	-	No
Wide cut (JP4) (AVTAG FS II)	F 40	MIL-T-5624 (JP4)	D.ENG.RD 2454	AIR 3407	Yes
Wide cut	-	ASTM-D-1655 JET B	-	-	No
High flash point (JP5) (AVCAT)	- F 43	-	D.ENG.RD 2498	AIR 3404 F43	No
High flash point (JP5) (AVCAT FS11)	F 44	MIL-T-5624 (JP5)	D.ENG.RD 2452	AIR 3404 F44	Yes

NOTE : Specifications are to be used at the latest amendment and dash number.

11.4.2 Emergency fuels

Type of fuel	NATO	SPECIFICATION		
		U.S.	U.K.	FRENCH
Aviation Gasoline (AVGAS)	F 12	MIL G 5572 Grade 80/87	-	AIR 3401 80/87
	F 18	MIL G 5572 Grade 100/130	D.ENG.RD 2485	AIR 3401 100/130
	F 22	MIL G 5572 Grade 115/145	-	AIR 3401 115/145
Automotive Gasoline	F 46	MIL G 3056	DEF . 2401	DCEA/2DMT 80

Restrictions
- Within any one period between overhauls of the engine, the use of gasoline is limited to 25 hours maximum.
- Add 2 % of mineral lubricating oil if possible.
- Hp up to 1500 ft.
- Fuel temperature up to 30 °C.

11.5 Fuel Pressure

- Pressure in the event of filter clogging : under 0.4 bar.
- Preclogging indicator set for 200 mb differential pressure.

NOTE : The filter is equipped with a clogging indicator.

11.6 Additives

11.6.1 Anti-Ice Additive

If the fuel does not contain a fuel system icing inhibitor, the use of an anti-icing additive is compulsory if O.A.T. is below 0°C. The additive shall comply with French specification AIR 3652 (equivalent to MIL-I-27686, D.Eng.RD 2451, S 748, PHILLIPS PFA/55MB).

Maximum concentration shall be from 0.08 % to 0.15 % by volume.

11.6.2 Antistatic Additive

SHELL ASA 3 ; maximum concentration : 0.0001 % by volume.

12 LUBRIFICATION SYSTEM LIMITATIONS

12.1 Authorized Main and Tail Gearbox Lubricants

- Synthetic oil (3 cst) ---------- NATO O 148 or MIL-L-7808
- Synthetic oil (3 cst) ---------- NATO O 150 or AIR 3514
- Synthetic oil (5 cst) ---------- NATO O 156 or MIL-L-23699
- Synthetic oil (5 cst) ---------- NATO O 160 or D.Eng.RD 2797
- Mineral-base oil ---------- NATO O 155 or MIL-L-6086

Mineral-base and synthetic oils are not miscible.
In the event of a change in oil specification, refer to procedure defined in the Maintenance Manual.

12.2 M.G.B. Oil Pressure and Temperature

The oil low pressure warning light and the oil overheating warning light must remain off in flight.

12.3 Authorized Engine Lubricants

LUBRICANT	TYPE	NATO SYMBOL	SPECIFICATION FRENCH	USA	UK
NORMAL OIL whole flight envelope	Synthetic 5 CST	0156	-	MIL-L 23699	-
OTHER OILS Temperature below + 15°C	Synthetic 5 CST	0160	-	-	D.ENG.RD 2497
	Synthetic 3 CST	0148	-	MIL-L 7808	-
		0150	AIR 3514	-	-
	Synthetic 3.9 CST	AEROSHELL TURBINE OIL 390			

In the event of a change in oil specification, refer to procedure defined in the Maintenance Manual.

RR2C

Paragraph 12.3
Replace the existing text as follows :
12.3 Approved Engine Lubricants

NORMAL USE				
OIL TYPE	NATO CODE	SPECIFICATION		
		FRENCH	U.S.A.	U.K.
Medium synthetic oil 5 cSt at 98.9°C	0.156		MIL.L.23699	

OTHER OILS AUTHORIZED BUT NOT RECOMMENDED PROHIBITED ABOVE 15°C				
OIL TYPE	NATO CODE	SPECIFICATION		
		FRENCH	U.S.A.	U.K.
Fluid synthetic oil 3 to 3.5 cSt at 98.9°C	0.148		MIL.L.7808	
	0.150	AIR 3514		
Fluid synthetic oil 3.9 cSt at 98.9°C				

OTHER OILS USE PROHIBITED BELOW -10°C				
OIL TYPE	NATO CODE	SPECIFICATION		
		FRENCH	U.S.A.	U.K.
Thick synthetic oil 7.5 cSt at 98.9°C	0.149			DERD2487

M.V.60.0482.00

NOTE : - The temperature limitations mentioned above apply to engine starting.
- When the oil specification or grade differs from the approved one, the engine manufacturer's agreement must be obtained for using this oil.
- The oils mentioned under OTHER OILS may be the subject of particular recommendations from the engine manufacturer.
- Commercial designation of oils authorized for engines is specified in TURBOMECA document.
- In the event of a change in oil grade or specification, the oil system must be flushed as prescribed in TURBOMECA Maintenance Manual.

RR 2B

Subject : RR 2B supersedes RR 2A.

1) For helicopters subjected to the restrictions laid down in Airworthiness Directive No 91-095-057B, or in Service Telex No 01-32,or in Airworthiness Directive N° 91-156(B), add the following to the prohibited manoeuvres of paragraph 15 :

   - Intentional engine shutdown in flight.

   Mark the following on the instrument panel :

   "INTENTIONAL ENGINE SHUTDOWN IN FLIGHT IS PROHIBITED"

2) The above restriction does no longer apply after embodiment of Mod. TU 221.

RC A

15 PROHIBITED MANOEUVRES

For the helicopters subjected to the restrictions specified in paragraph A of Airworthiness Directive No. 90-105B (and further revisions), or in AEROPASTIALE Service Telex No. 0125B (and further revisions), add the following prohibited manoeuvres :

- Autorotational landing training without engine shut-down.

- Intentional de-synchronization of the engine (torque lower than 10%).

12.4 Engine Oil Pressure and Temperature

12.4.1 Oil Pressure

- Minimum pressure above 85 % Ng ---------- 1.8 bar (26 psi)
- Minimum pressure between 70 % and 85 % Ng ----- 1.3 bar (18.9 psi)
- Maximum pressure outside starting sequence ---- 5 bar (72.5 psi)

12.4.2 Oil Temperature

- Maximum oil temperature ---------- 115°C
- Minimum oil temperature before power application -- 0°C

13 ELECTRICAL AND HYDRAULIC POWER SYSTEM LIMITATIONS

13.1 Hydraulic System

13.1.1 Fluid Used

- Synthetic ---------- MIL-H-83282 (recommended)
- Mineral-base ---------- MIL-H-5606 (AIR 3520 - DTD 585 - NATO H 515)

If the fluid specification is changed, refer to the procedure specified in the Maintenance Manual.

13.1.2 Hydraulic System Pressure

In flight the warning light must be off.

13.2 Electrical System

- Maximum voltage ---------- 31.5 V
  Rated voltage range 26-29 V
- Maximum current ---------- 150 A

14 LANDING AND STOPPING LIMITATIONS ON SLOPES

- Nose-up ---------- 10°
- Nose-down ---------- 6°
- Sideways ---------- 8°

15 RESTRICTIONS

The following are prohibited :
- Flying in icing conditions
- Aerobatics
- Engine power reduction in flight using fuel flow control except for autorotational training.

16 MINIMUM CREW

One pilot, in starboard seat.

17 TRANSPORT OF PERSONNEL

Number of persons carried : 6 maximum (pilot included)

18 LIFED COMPONENTS

Lifed components, and the corresponding S.L.L. are indicated in the Master Servicing Recommendations (P.R.E.), SECTION 5.99, and must be replaced in accordance therewith.

SECTION 2.2

PLACARDS AND INSTRUMENT MARKINGS

1 PLACARDS

1.1 Plates Displayed in the Cockpit

. Operating limitations

THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE D.G.A.C APPROVED ROTORCRAFT FLIGHT MANUAL.
THE AIRWORTHINESS LIMITATIONS SECTION OF THE ROTORCRAFT MAINTENANCE MANUAL MUST BE COMPLIED WITH.

1.2 Loading Instruction Plates

. On the side face of the control pedestral

CHARGES REPARTIES MAXI	
DISTRIBUTED LOADS, MAXI	
SUR PLANCHER CABINE ARRIERE	310kg
ON REAR CABIN FLOOR	682lb
SUR PLANCHER AVANT GAUCHE	150kg
ON LH. FORWARD CABIN FLOOR	330lb

. In the L.H. hold

CHARGE MAXI. 120 kg
MAX. LOAD 264 lb

. In the rear hold

CHARGE REPARTIE, MAXI ——— 80Kg
DISTRIBUTED LOAD, MAXI ——— 176 Lb

. In the R.H. hold

CHARGE MAXI. 100 kg
MAX. LOAD 220 lb

1.3 Fuel Placard

A placard on the instrument panel displays the correspondence between the fuel contents gauge percentage and the fuel quantity for the selected units.

2 INSTRUMENT MARKINGS

Colour code

- Red ---------- : Safety limit
- Red with white hatching ---------- : VNE, power-off
- Yellow ---------- : Caution range
- Green ---------- : Normal operating range
- White ---------- : Equipment operating limit.

INSTRUMENTS		MARKINGS	RANGE
AIRSPEED INDICATOR (NOTE)		Red with white hatching Red line Green Arc	125 kt / 231 km/hr/144 MPH 155 kt / 287 km/hr/178 MPH from 40 to 155 Kt 74 to 287km/hr-46 to 178 MPH
TORQUE INDICATOR		Red triangle Red line Green arc Yellow arc	107 % 100 % 10 - 94 % 94 - 100 %
ROTOR AND FREE TURBINE TACHOMETER	ROTOR	White triangle Red line Yellow arc Green arc Yellow arc Red line	170 rpm 320 rpm 320 - 375 rpm 375 - 394 rpm 394 - 430 rpm 430 rpm
	FREE TURBINE	Red line Yellow arc Green arc Red line	330 rpm 330 - 375 rpm 375 - 417 rpm 417 rpm
NG DIFFERENCE INDICATOR		Green arc Yellow line Yellow arc Red line Red triangle	From lower stop to -3.5 -3.5 From -3.5 to 0 0 +6
EXHAUST GAS TEMPERATURE (T4) INDICATOR		Green arc Yellow arc Red line Red triangle	300 - 795 °C 795 - 845 °C 845 °C 865 °C

NOTE : Each altitude marking corresponds to a power-on VNE value for temperatures above -30 °C.

INSTRUMENTS	MARKINGS	RANGE
ENGINE OIL PRESSURE INDICATOR	Red arc Green arc Yellow arc	1.3 - 1.8 bar (18.9 - 26.1 p.s.i.) 1.8 - 5 bar (26.1 - 72.5 p.s.i.) above 5 bar (72.5 p.s.i.)
ENGINE OIL TEMPERATURE INDICATOR	Green arc Red line	30 - 115°C 115°C
FUEL PRESS. INDICATOR	Green arc Yellow arc	0.4 - 0.9 bars (5.8 - 13.1 p.s.i) 0 - 0.4 bar (0 - 5.8 p.s.i)
VOLTMETER	Green arc Yellow arc Red line	26 - 29 Volts 29 - 31.5 Volts 31.5 Volts
AMMETER	Red line	150 A.

SECTION 3

EMERGENCY PROCEDURES

CONTENTS

SECTION 3.1

EMERGENCY PROCEDURES

1 INTRODUCTION

The procedures outlined in this section deal with the common types of emergencies ; however, the actions taken in each actual emergency must relate to the complete situation.
Throughout this section, "Land immediately","Land as soon as possible" and "Land as soon as practicable" are used to reflect the degree of urgency and are to be interpreted as follows :
- Land (or ditch) immediately
- Land as soon as possible : land at the nearest site at which a safe landing can be made
- Land as soon as practicable : extended flight is not recommended. The landing site and duration of the flight are at the discretión of the pilot.

2 AUTOROTATION LANDING

2.1 Autorotation Landing Procedure following Engine Failure

- Set low collective pitch.
- Monitor and control rotor r.p.m.
- Establish approximately 65 knots (120 km/hr) airspeed.
- Move the fuel flow control to the shutdown position.
- According to the cause of loss of the engine:
  .Re-light the engine (see paragraph 3.2 of this Section).
  .Otherwise : close the fuel shut-off valve
  switch off : the booster pump
  generator
  alternator (if installed)
  electrical power master "ALL-OFF" switch
  (if smell of burning).
  .Manoeuvre to head the helicopter into the wind in final approach.
  .At a height of approximately 65 ft (20 m) above the ground, flare to a nose-up attitude.
- At height 20-25 ft (6-8 m) and at constant attitude, gradually apply collective pitch to reduce the sink-rate.
- Resume level attitude before touch-down, and cancel any side-slip tendency.
- Gently reduce collective pitch after touch-down.

NOTE : IT IS POSSIBLE THAT THE TAIL SKID MAY TOUCH THE GROUND FIRST.

2.2 Landing after Engine Failure in Hover I.G.E.

- Do not reduce collective pitch.
- Control yaw.
- Cushion touch-down by increasing collective pitch.
- Reduce collective pitch as soon as the aircraft is on the ground.

2.3 Landing after Engine Failure in Hover O.G.E.

- Reduce collective pitch.
- Apply forward cyclic pitch to gain air speed according to available height.
- Terminate in accordance with paragraph 2.1 procedure.

2.4 Autorotation Landing Training Procedure

- Reduce collective pitch to establish autorotation configuration.
- Monitor and control rotor r.p.m.
- During final approach, shut down the engine, or reduce power, maintaining the Ng above 67 %.
- After touch-down, still at low collective pitch, apply the normal starting procedure.

3 ENGINE FAILURE

3.1 Flame-out in Flight

The symptoms of an engine failure are as follows :

. Jerk in the yaw axis (only in high-power flight).
. Drop in rotor speed (aural warning sounds below 360 rpm).
. Torque at zero.
. Ng falling off to zero :
. Generator warning light illuminates.
. Engine oil pressure drop warning light illuminates.

In the event of an engine failure in flight, carry out autorotation transition procedure (see paragraph 2).

3.2 Relighting the Engine in Flight

The normal relighting ceiling is 13000 feet, but, relighting may be attempted throughout the altitude envelope.

Proceed as outlined below :

- Booster pumps - on
- Generator - on
- Wait until Ng falls below 30 % then carry out normal starting procedure.

In order to avoid any jerk on re-synchronization, accelerate the engine progressively, when free turbine speed approaches rotor speed.

RC A

2.4 AUTOROTATIONAL LANDING TRAINING PROCEDURE

For the helicopters subjected to the restrictions specified in paragraph A of Airworthiness Directive No. 90-105B (and further revisions), or in AEROPASTIALE Service Telex No. 0125B (and further revisions), the autorotational landing training procedure is as follows :

- Reduce collective pitch to establish autorotational configuration.
- Monitor and control rotor r.p.m. then, without delay,
- shut down the engine (fuel flow lever in the "shut-down" gate).
- After landing, with the collective lever in low position, wait until the engine stops.
- Apply the rotor brake.
- After rotor stopping, apply the normal starting procedure.

4 GOVERNOR FAILURE

4.1 Large Drop in Fuel Flow Rate

Same symptoms as for complete engine failure but after a few seconds, Ng stabilizes at a low r.p.m. value (less than 70 %).

. Establish autorotation I.A.S. 65 kt (120 km/hr), then advance the fuel flow control into the emergency sector. Ng and t4 should rise.
. Control engine speed to 70 % Ng.
. If necessary, increase collective pitch to bring rotor speed to 350r.p.m.
. Increase fuel flow until rotor speed is approximately 380 r.p.m.
. Trim collective pitch and fuel flow control to hold level flight at this rotor speed.

4.2 Exessive Fuel Flow Rate

Ng, t4, NR and torque increase

. Do not reduce collective pitch.
. Reduce fuel flow until rotor speed corresponds to a position of the indicator pointer in the centre of the green area.
. Continue flight with the governor out of action. Any reduction of collective pitch will cause an increase in rotor speed which must be counteracted by adjusting the fuel flow control position.

In both cases mentioned above, the landing approach should be made along a low gradient path, at 65 knots (120 km/hr) I.A.S., holding the rotor speed at the upper limit of the green area (394 r.p.m.) using the fuel flow control. In final approach, reduce forward speed without touching the fuel flow control. The rotor speed will drop when the collective pitch is increased on touchdown. After touchdown, reduce the fuel flow control setting before decreasing the collective pitch.

4.3 Surging

Surging is evidenced by hunting of the r.p.m., torque and t4 indications and jerks in the yaw axis.

. Change the collective pitch setting.
If surging persists while fuel pressure and engine oil pressure are correct, reduce fuel flow slightly to leave the governed range.
If surging still persists, land as soon as possible and shut down the engine if there is a tendency to divergence (see paragraph 2.1).

5 ENGINE FIRE

5.1 Fire during Engine Start

- Close the fuel shut-off cock and apply the rotor brake if necessary.
- Switch off the booster pumps.
- Crank the engine for 10 seconds then switch off the battery.
- Use the nearby extinguishers to fight the fire.

5.2 Fire in Flight ("FIRE" light on)

- Enter autorotation (see paragraph 2.1).
- Close the fuel shut-off cock to shut down the engine.
- Switch off the booster pumps, generator and alternator (if installed).
- Switch off the electrical master "ALL OFF" switch if there is a smell of burning.

6 SMOKE IN THE CABIN

6.1 If Source of Smoke is identified

- Shut off the corresponding system.
- If necessary, use the fire extinguisher*.
- Air the cabin by opening :
  . The front ventilator
  . The ventilation ports
  . The bad weather windows.

6.2 If source of Smoke is not identified

- Shut off the heating * demisting system.
  If the smoke does not clear :
  - Switch off the electrical master switch ("ALL OFF").
  - When the smell of smoke has cleared, set all switches to "OFF", including the generator and alternator (if installed), close the cabin ventilators.
  - Reset the "ALL OFF" electrical master switch to normal position.
  - Switch on the generator, check voltage and current.
  - If everything is normal, switch on the circuits one by one until the malfunction is identified.

NOTE : If the electrical power supply system is faulty, carry out the appropriate procedure, as detailed in Section 3.3.

7 TAIL ROTOR FAILURE

7.1 Tail Rotor Drive Failure

Loss of the tail rotor in power-on flight results in a yaw movement to the left ; the extent of such rotation will depend on the power and speed configuration at the time the failure occurs.

7.1.1 Failure of the Tail Rotor in Hover or at Low Speed

- I.G.E. : bring the aircraft to the ground by reducing collective pitch before the yaw rate is too high.
- O.G.E. : reduce collective pitch moderately, to reduce yaw torque, and simultaneously start to pick up speed.

* If installed

RR 2P

Add the following text to paragraph "7 TAIL ROTOR FAILURE" :

CAUTION : LANDING IS MADE EASIER BY A WIND COMING FROM THE RIGHT. IF THE AIRSPEED IS LOWER THAN 20 kt (36 km/h), GO-AROUND IS IMPOSSIBLE DUE TO THE LOSS OF EFFICIENCY OF THE FIN.

7.1.2 Failure in Forward Flight

- In forward flight reduce the power as much as possible and maintain forward speed (weathercock effect), select a suitable landing area for a steep approach at a power enabling a reasonably coordinated flight.
- On final approach, shut down the engine and make an autorotative landing at the lowest possible speed.

7.2 Tail Rotor Control Failure

- Set I.A.S. 70 knots (130 km/hr), in level flight.
- Press the hyd. accumulator test push-button (this cuts off hydraulic power to the yaw servocontrol and depressurizes the load-compensating servo accumulator). After 5 seconds, reset the test button to the normal position.

- Make a shallow approach to a clear landing area with a slight side slip to the left. Perform a run-on landing ; the side slip will be reduced progressively as power is applied.

SECTION 3.2

SYSTEM FAILURES

1 FUEL SYSTEM FAILURES

1.1 No fuel pressure

Failure is confirmed by illumination of the FUEL P. warning light. See Section 3.3 para. 2.2.

If failure is not confirmed, the faulty item is the fuel pressure gauge. Flight may be continued.

1.2 Low fuel pressure

Failure is confirmed by illumination of the F.FILT. warning light. See Section 3.3 para. 2.2.

If failure is not confirmed, the faulty item is the fuel pressure gauge. Flight may be continued.

2 ENGINE SYSTEM FAILURES

2.1 Low Engine Oil pressure "Gauge pointer in red arc for Ng above 85 %"

- Test Warning-Caution-Advisory Panel and check ENG. P. light illuminates.

. Light does not illuminate when tested :

If torquemeter reading is much too low, shut down engine and make an autorotation landing.

If torquemeter reading is correct, land as soon as possible.

. Light illuminates when tested :

If torquemeter reading is much too low, land as soon as possible.

If torquemeter reading is correct, land as soon as practicable. Monitor ENG. P. light.

2.2 Engine Oil Temperature higher than Maximum specified

2.2.1 At Low Speed or in Hover

. Land if possible.
  - Stop the engine.
  - Check that the cooler fan operates.

. If landing impossible :
  - Increase speed and reduce power
  - Fly at approximately 80 knots (148 km/hr)
    The temperature should fall rapidly.
    If this result is not obtained, land as soon as possible.

2.2.2 In Cruising Flight

Reduce power ; then proceed as prescribed above.

3 Ng DIFF., TORQUE, t4 & NR INDICATOR FAILURES

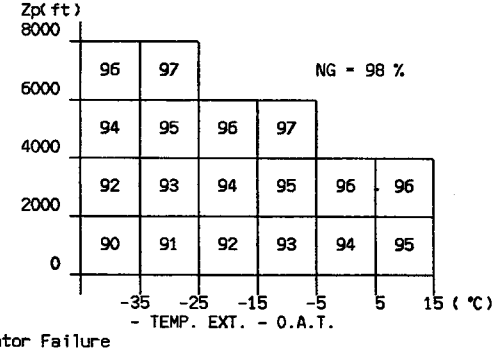
3.1 Ng difference Indicator Failure

In the event of an indicator failure, do not exceed the maximum authorized torque value, and keep the t4 temperature below the following limits :

O.A.T.	t4 limit
Below 15 °C Above 15 °C	730 °C 750 °C

3.2 Torquemeter Failure

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



3.3 t4 Indicator Failure

- Comply with the Ng limitations (refer to "LIMITATIONS" section).
- Do not attempt to start the engine.

3.4 Abnormal NR/Nf Readings

3.4.1 NR/Nf readings below green arc

- Nf and NR values agree
  . Excessive power demand : reduce collective pitch.
  Indicator reading should rise to governed value.
  . Governor failure (refer to Section 3.1 paragraph 4).

3.4.2 Different NR/Nf readings

- NR reading exceeds Nf
  . NR reading is incorrect, except in autorotation (near zero torque).
- Nf reading exceeds NR
  . On the ground during the starting sequence : reduce the engine fuel flow control setting to check for possible freewheel slippage.
  . In flight : NR reading is probably incorrect (refer to § 3.5).

3.5 Rotor RPM Indicator Failure

In the event of complete loss of NR indication :
- Maintain engine torque above 10 % : NR reading is then given by the Nf pointer.
- Land as soon as possible.

3.6 Free Turbine RPM Indicator Failure

Check that NR reading remains within governed range when collective pitch is slowly modified with engine torque above 0 %.
Continue flight.

4 HYDRAULIC SYSTEM FAILURES

4.1 Yaw Servo-control Slide-valve Seizure

- In hover : If no movement about the yaw axis, land normally ; if rotation about the yaw axis, cut off hydraulic pressure by actuating the switch situated on the collective pitch control lever.
- In cruising flight : Reduce speed, entering into a side-slip if necessary, then cut off hydraulic pressure by actuating the switch situated on the collective pitch control lever.

4.2 Main Servo-control Slide-valve Seizure

- Actuate the switch, situated on the collective pitch control lever, to cut off hydraulic pressure.
  Load feedback will be felt immediately ; load feedback may be heavy if the helicopter is flying at high speed :
  . collective pitch : 20 kg pitch increase load
  . cyclic : 7 to 4 kg left-hand cyclic load
  . cyclic : 2 to 4 kg forward cyclic load
  . yaw pedals : practically no load in cruising flight.
- Reduce speed to 60 knots (110 km/hr) and proceed as in the case of illumination of the "HYD" light.

5 BLEED VALVE FLAG ON Ng DIFFERENCE INDICATOR

The flag disappears when the bleed valve closes.
The bleed valve is normally open when the engine is shut down, during starting and at low power.
The Ng values at which the bleed valve opens and closes depend on the temperature and altitude, and are specified in the NORMAL PROCEDURES Section.
If the flag does not disappear above the specified Ng value, the maximum available engine power is reduced, especially in cold weather.
If the flag does not appear below the specified Ng value, engine surging may result. Avoid sudden power variations.

SECTION 3.3

WARNING-CAUTION-ADVISORY PANEL AND AURAL WARNING

1 AURAL WARNING

The horn sounds to warn of :

- Rotor speed (NR) between approx. 250 and 360 r.p.m. (continuous sound).
- Rotor speed above 410 r.p.m. (intermittent sound).
- Hydraulic pressure drop (below 30 bars).

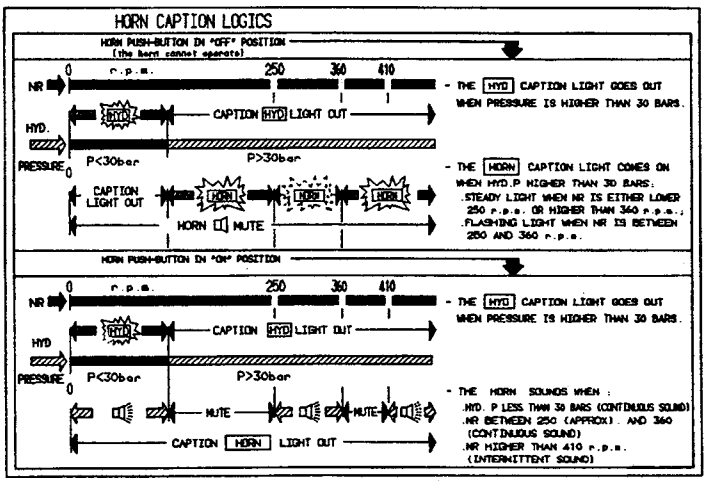
R

It is operative only if the "HORN" push-button is pushed in.
When this push-button is out, at nominal rotor speed, the HORN light of the warning-caution-advisory panel is ON.

Alarm procedure (if HORN sounds) :

- If the HYD warning light is on :
  The malfunction is in the hydraulic system; see paragraph 2.

- If the HYD warning light is out :
  Check NR :
  . If NR below 360 r.p.m. (continuous sound)
    Reduce collective pitch.
    This can only occur in the event of an engine failure. Check the engine parameters by pulling slowly on the collective pitch lever.
  . If NR above 410 r.p.m. (intermittent sound)
    Slightly increase collective pitch in oder not to exceed 430 r.p.m.



2 WARNING-CAUTION-ADVISORY PANEL

The Warning-Caution-Advisory Panel located on the instrument panel includes lights of different colours :

- Red to indicate a failure requiring immediate action.
- Amber to indicate a failure which does not require immediate action.

2.1 Red Lights

Light	Failure	Pilot action
HYD	Servo-control system failure. The pressure stored in the accumulators allows sufficient time to reach the fall-back speed with hydraulic servo-assistance. Warning of the pressure drop is also confirmed by sounding of the horn in the cabin. NOTE : The yaw servo-control is equipped with a load compensator and a hydraulic accumulator which remains pressurized indefinitely after a hydraulic pump failure or after hydraulic power cut-off via the collective lever hydraulic power release control. The accumulator may be depressurized by pressing the HYD. TEST pushbutton. Do not press the HYD. TEST push button : this would cause immediate depressurization of the accumulator and the resulting control loads could be heavy.	- In flight : . Calmy reduce collective pitch and ajust the air-speed to between 40 and 60 knots (74 to 111 km/hr) in level flight. . Cut off the hydraulic pressure, using collective lever pushbutton. Control loads are felt : - on collective pitch increase - on forward and LH cyclic. The horn stops (but the rotor r.p.m. function remains operative). . If necessary, increase I.A.S., but the control load feedback will also increase. . Make a flat approach over a clear landing area and land with slight forward speed. . Shut down the engine, holding the collective pitch lever on the low pitch stop. - In hover . Land normally. . Shut down the engine. holding the collective pitch lever on the low pitch stop.
FEU/FIRE	Refer to Section 3.1 paragraph 5	

Red lights (Cont'd)

Light	Failure	Pilot action
PH BTP MGB.P	Main gearbox oil minimum pressure	- Reduce power, and land as soon as possible.
TH.BTP MGB.T	Main gearbox oil max. temperature	- Test the warning caution advisory panel to check the MGB.P light. . If the light does not illuminate, proceed as for MGB oil pressure at zero. . If the light illuminates, land and check the M.G.B. oil level. If the oil level is normal, fly to the nearest base.
T.BATT BAT T.	Battery maximum temperature	- Isolate the battery (push-button "OFF") and land as soon as possible.
PH M ENG P	Engine oil pressure alarm	- Reduce power. - Check engine oil pressure indicator : . If pressure is low or zero read torquemeter : . If reading very low shut down engine . If reading correct land immediately . If both pressure and torquemeter readings are correct, land as soon as possible.

R
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2.2 Amber lights

Light	Failure	Pilot action
GENE GEN	- D.C. power supply failure (See NOTE 1) - Overvoltage detected	- Test the D.C. voltage. - Check the position of the push-button. - Attempt to reset - If unsuccessful : Shed the least essential consumer circuits ; continue flight, according to circumstances, keeping a close check on voltage (22 volts minimum). - Maximum flight time on battery : Day : 50 mn. / Night : 20 mn. (see NOTE 2) - Land as soon as practicable. See altitude limits after booster pumps have been switched off.
BATT BAT	Battery isolated from the d.c. network ; no longer charging (see NOTE 2)	- Check the push-button (ON). - Keep a watch on voltage. - Continue flight, according to circumstances.
KLAXON HORN	Horn not set	- Set the horn by actuating the push-button situated on the control pedestal panel (see paragraph 6 of this Section).
COMB FUEL	Fuel quantity less than 60 litres (15.8 US.Gal)	- Avoid large attitude changes. NOTE : Remaining usable fuel allows approximately 18 minutes level flight at maximum continuous power.
PITOT (if fitted)	Pitot heating system not energized	- Check the push-button (ON). - Monitor airspeed indicator.
PORTES DOORS	One or both baggage hold side doors unlocked NOTE : If sliding doors fitted see relevant supplement.	- Reduce airspeed (120 kt - 222 km/hr - 138 MPH maximum). - Check visually that doors are closed. - If one or both doors are open, or if checking is impossible : Land if possible, or continue flight at reduced speed (120 kt - 222 km/hr - 138 MPH maximum).

R

RR2C

Illumination of ENG CHIP (MOT LIM) caution light :

Replace the existing text as follows :

CAPTION	MALFUNCTION	PILOT ACTION
ENG CHIP MOT LIM	Metal particles in engine oil system.	Land as soon as possible

RR 21

Illumination of ENG CHIP (MOT LIM) caution light :

Modify the text of RR 2C as follows :

CAPTION	MALFUNCTION	PILOT ACTION
ENG CHIP MOT LIM	Metal particles in engine oil system.	Land as soon as possible It is prohibited to take off again as long as the checks scheduled in TURBOMECA Maintenance Manual have not been performed.

RC.C

Illumination of ENG CHIP (MOT LIM) caution light

Before embodiment of modification AMS 072598 :

In addition to Pilot Action, apply the fire-in flight procedure specified in paragraph 5.2 of Section 3.1 if the following occurs :

- Smoke in assumed engine area and/or
- Smell of burning in cabin and/or
- Hunting of engine oil pressure indicator pointer.

2.2 Amber lights (Cond'd)

Light	Failure	Pilot action
PORTES DOORS (Cont'd)		- Maintain low sink rate and flat landing approach.
MOT LIM ENG CHIP	Metal particles in engine oil system	- Monitor oil pressure variations, the engine parameters (Ng-oil temp.) being identical. If oil pressure increases by 1 bar approx, or if abnormal hunting of torquemèter pointer is noticed : LAND AS SOON AS POSSIBLE Immediately after landing : - Check the engine in accordance with TURBOMECA Maintenance Manual. - Otherwise, remove the magnetic plugs : . If fine metal powder is found, clean the magnetic plug (with electrical indicating) and fly to the nearest base for carrying out the checks specified in the TURBOMECA Maintenance Manual. . If shiny particles or dark shavings are found on one of the magnetic plugs, take-off is PROHIBITED until the checks specified in TURBOMECA Maintenance Manual are performed.

2.2 Amber lights (Cont'd)

Light	Failure	Pilot action
FILTRE C F FILT	Fuel filter clogging	Reduce engine power - If light goes out, continue flight at reduced power. - If light remains on, land as soon as possible.
LIM BTA CHIP TGB	Metal particles detected in TGB	- Continue flight avoiding prolonged hovering.
LIM BTP CHIP MGB	Metal particles detected in MGB	- Reduce engine power. - Monitor MGB.P. and MGB.T. lights. Should either or both lights illuminate refer to illumination of relevant light (s), in "LIGHT" column.
P. COMB FUEL P.	Fuel pressure lower than 0.2 bar on either or both pumps	- Check fuel pressure : . If pressure is normal, only one pump is faulty : flight may be continued. . If pressure is zero, both pumps are faulty : flight may be continued at an altitude lower than 5000 ft (1524 m).

NOTE 1 : Whenever an electrical circuit failure occurs, check the corresponding fuse and change it if necessary.

Replacement fuses are provided on R.H. side of cabin.

NOTE 2 : List of functions which must remain ON when flying on the battery only :

- Day : Battery, fuel pumps, VHF, Radio-Nav.
- Night : Same as day plus : Instrument lighting (1 and 2), horizon, position lights, anticollision light.

SECTION 4

NORMAL PROCEDURES

CONTENTS

SECTION 4.1

OPERATING PROCEDURES

1 EXTERNAL CHECKS

NOTE : Ensure that the inspection after the last flight of the preceding day and before the first flight of the day have been carried out. R R

- Check that the ground round the aircraft is clean and unobstructed.
- Carry out the following check :

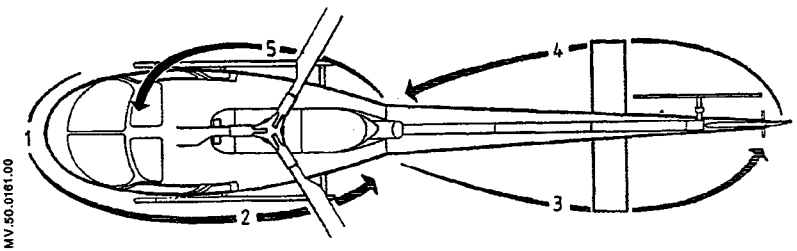

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Figure 1

Station 1

- Total pressure head (PITOT)	- Cover removed - Check clean
- Landing gear (cross-members, skids, wear-resistant plates)	- Security - visual check

Station 2

- Port hold	- Door opening action. No loose objects. Closing, latching.
- Fuel tank and system	- Filler plug closed.
- M.G.B. cowl	- Check M.G.B. oil level (steps). Close cowl, check closed.
- All lower fairing panels	- Closed, check
- Main Rotor Head	- Inspect star, sleeves (peeling), spherical thrust bearing, adaptaters (separation).
- Hydraulic Unit/System	- Check hyd. reservoir fluid level.
- Engine Air Intake	- Clear (water, snow, foreign matter).
- Rear hold	- If applicable : open door, net hooked in place, close door.
- Main Rotor Blades	- Security (attachment), inspect from ground, for signs of impact.

Station 3

- Oil leaks	- No oil under scuppers.
- Tail boom and T.G.B. fairings	- Security (Dzus fasteners locked).
- Tail Rotor Gear Box	- Oil level
- Tail unit	- Security.

Station 4

- Tail rotor blades ———— - Condition of skin, no impact (dents, etc), laminated stops (separation).
- T.G.B. and Tail boom fairings - Security (Dzus fasteners locked).

Section 5

- Starboard hold ———— - If necessary : open door, check no loose objects, close door, check.
- Landing gear (crossmembers, skids, wear resistant plates) - Security - visual check.
- All lower fairing panels ---- - Closed, check.
- External power receptacle door - Closed, check.
- M.G.B. cowl - Check engine oil level (steps).
  - Foreign objects on transmission deck.
  - Close cowl, check.

INTERNAL CHECKS

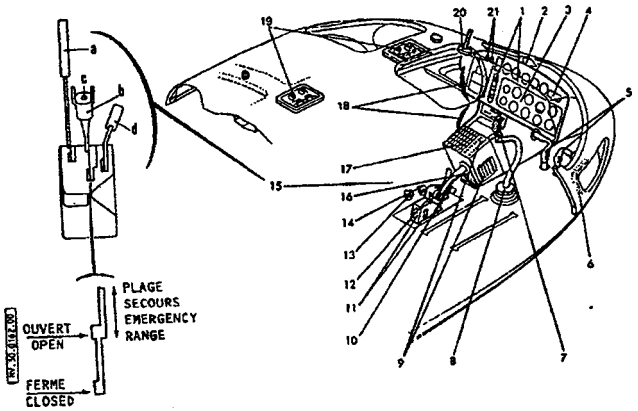
- Cabin ..... Clean
- Fire extinguisher ..... Fitted
- Fuses ..... Fitted
- Objects carried ..... Stowed
- Door jettison ..... Checked

Figure 2

Item	Description	Item	Description
1	Engine monitoring instruments and systems	12	Utility power outlet
2	Stand-by compass	13	Cabin heating (*) control
3	Flight monitoring instruments	14	Demister control
4	Warning-Caution-Advisory Panel	15	Control Quadrant, comprising: a) Rotor brake control b) Fuel Flow Control lever c) Starting switch d) Fuel shut-off control
5	Yaw Control Pedals		
6	Spare fuses		
7	Cyclic stick grip	16	Collective Pitch Lock (low pitch)
8	Cyclic stick friction clamp adjuster	17	Control console
9	Fuse panel	18*	Radio, I.C.S and Radio- Navigation - Control Panels
10	Collective pitch control lever	19	Cabin ventilation ports and lighting fixtures
11	Pilot and Copilot headset jacks	20	O.A.T. Indicator
		21	Instrument panel lighting dimmer potentiometers.

* Optional

Figure 2



2 CHECKS BEFORE STARTING THE ENGINE

Determine aircraft performance limits for the expected flying conditions (see "PERFORMANCE" section)
Ensure that weight and C.G. limits are observed.

Carry out the following checks :
(Item numbers refer to Figure 2)

- Seats and control pedals ..... Adjusted
- Seat belts ..... Fastened

NOTE : Check particularly that the co-pilot seat belt is fastened when this seat is not occupied.

- Battery and Generator in circuit ..... Switches "ON" (17)
  . Lights on with a/c battery power :
  HYD. GEN. MGB P. PITOT. ENG.P
  . Lights on with external power :
  HYD. GEN. MGB P. ENG P. PITOT. BAT (4)
- Battery voltage ..... Checked (1)

- Press the HYD TEST pushbutton for approx. 2 seconds to depressurize the yaw hydraulic accumulator in order to center the yaw pedals (5)(17)
- Flight controls ..... Freedom of travel (5)(7)(10)
- Cyclic pitch control stick ..... Neutral (7)
- Collective pitch control lever :
  low pitch ..... Locked (10)(16)
- Cyclic stick friction lock ..... Adjusted (8)
- Collective lever friction lock ..... Adjusted (10)
- Rotor brake released ..... Forward (15a)
- Fuel shut-off lever lockwired ..... Forward (15d)
- Fuel Flow Control ..... Off (15b)

- Test Warning-Caution-Advisory Panel lamps - W/LT TEST
  (FIRE light illumination time delay = approx. 1 sec.) (17)
- Ng difference indicator :
  . Test ..... Ng difference equal to zero.
  Ng displayed equal to theoretical
  "Ng.MAX T/O PWR" (see section 4.2).
  . Bleed valve flag ..... Visible (4)
- Hydraulic pressure ..... On (10)
  (If isolated the HORN light will come on)
- Heating system*, demister, air
  conditioner* ..... Off (13 X 14 X 21)
- Gyroscopic instruments ..... On (17)

3 STARTING (Item numbers refer to Figure 2)

- Switch on the booster pumps.. On console (17)
  . Check : - Fuel quantity
  - Fuel pressure on each pump separately.

- 30 seconds after switching on the booster pump, press the "start" pushbutton ..... (15c)
- When Ng reaches 10 %, move fuel flow control forward about 1/3 of its travel range ..... (15b)
  (When O.A.T. is below 0 °C, open the fuel flow control at the same time the start pushbutton is pressed).
  NOTE : In all cases, keep the starter running throughout the starting sequence.
  . Check : Ng increase and
  . Control t4 by modulating the fuel flow as required (hold t4 below specified "starting limit")
  . Check that the rotor starts to turn.
- At Ng = 40 - 45 % release the "start" push-button
  . Check that engine oil pressure rises.
- Gradually increase the fuel flow, maintaining a constant rate of rotor acceleration
  . Check that the following Warning-Caution-Advisory Panel lights go out : (see NOTE)
  - PHM (ENG.P) (should be out at 70 % Ng)
  - PH BTP (MGB.P)
  - HYD, with simultaneous illumination of the KLAXON (HORN) light .....
  - KLAXON (HORN) light flashing from 250 rpm (NR) (4)
  - Check aural warning operates at approximately 350 rpm
  . Check NR - pointer in the green zone of the indicator, near the lower limit ..... (3)
  . Check : fuel flow control in "flight" position.

NOTE : During engine acceleration, do not allow NR value to remain steady between 300 and 320 r.p.m.

* Optional

- Disconnect external power, if used
  . Check : Warning-Caution-Advisory Panel GEN and BAT lights off ..... (4)

- Switch on PITOT heating * ..... On pedestal panel (17)
  Switch on the HORN
  . Check that the PITOT and HORN lights go out ..... (4)

- Check :
  . All warning and caution lights off ..... (4)
  . Electrical system voltage and current ..... (1)
  . Engine oil pressure

- Run each booster pump separately and check that :
  . The fuel pressure is correct ..... (1)
  . The FUEL P. warning light is on ..... (4)

- Switch on/engage all necessary systems (VHF, lights, windshield wiper*, etc)

NOTE : Do not use the wiper on a dry windshield or in light rain.

- Carry out a hydraulic accumulator test :
  . Check : collective pitch - locked ..... (10)(16)
  . Cut off hydraulic pressure by actuating the test push-button ..... On console (17)
  . Check that the HYD light illuminates and HORN sounds
  . Move the cyclic stick 2 or 3 times along both axes separately on 10 % of total travel, check for hydraulic assistance by absence of control load.
  . Press the test pushbutton to restore hydraulic pressure ..... On console (17)
  Check that the HORN is cancelled and HYD light goes out.

- Carry out a hydraulic pressure isolation check :
  . Isolate hydraulic pressure by actuating the switch on the collective pitch lever : the HYD light illuminates and control load is felt immediately, except on yaw pedals, where control load should remain low because of load-compensating servo.
  . Restore hydraulic pressure using the switch : the HORN sounds until the HYD light goes out (2 - 3 sec.).

NOTE 1 : In strong wind, apply a little forward cyclic and accelerate the engine, up to approx. 320 rotor r.p.m., as fast as is compatible with t4 limitations, then follow normal procedure.

* Optional

NOTE 2 : . If the starting cycle has to be aborted, return the fuel flow control to the closed position, and switch off the fuel pump and the generator.
. If the reason for aborting the start is high E.G.T. (t4), check the battery voltage.
. If voltage is normal, crank the engine for about 15 seconds and immediately make a second attempt to start, increasing the fuel flow gradually (without allowing Ng to drop between cranking and the second attempt to start).
. If battery voltage falls below 15 Volts during the attempt to start, it may be impossible to obtain light-up.

4 CHECKS BEFORE TAKE-OFF

- Doors — Closed
- Navigation .....
- Radio navigation * ..... — Tests, correct operation
- Radio communication .....
- General and cyclic friction clamps..... Adjusted R
- Pressure and temperatures ..... Correct
- All warning and caution lights ..... Out

5 TAKEOFF

Take off by gradually increasing the collective pitch and maintain hover, head into wind, at a height of about 5 ft (1.5m).
Check that the engine and transmission monitoring instruments are within their normal operating ranges.
For transition from hover, increase speed without increasing the power demand (power required for hover I.G.E.) and without climbing until I.A.S. is 40 kt (74 km/hr).

NOTE : The bleed valve flag disappears when the valve closes.
The bleed valve is normally open when the engine is shut down, during starting and at low power. Bleed valve closing depends on the O.A.T. and on the altitude as shown in the following table of Ng values at which the bleed valve should close.

Zp (ft)

20000	87.1	88.8	90.7	92.4	94	95.6				
15000	85.9	87.7	89.4	91.1	92.7	94.4	95.8			
10000	85	86.7	88.4	90.1	91.8	93.4	95	96.3		
5000	84.2	85.9	87.6	89.4	91	92.6	94.1	95.6	96.9	
0	83.7	85.4	87.1	88.7	90.4	91.9	92.7	94.9	96.2	97.6
	-40	-30	-20	-10	0	10	20	30	40	50

TEMP. EXT. - O.A.T. (°C)

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* Optional

RR2C

Paragraph 4

Complete the collective and cyclic friction clamps check as follows :

- Collective and cyclic friction clamps ..... Adjust as required

NOTE : Sufficient friction must be applied to the collective and cyclic so that the controls do not move without specific pilot action.

6 CLIMB

- Climb to a height of at least 100 feet (30m), while maintaining the same power setting.
  Set an I.A.S. of 55 knots (102 km/h) or that shown at point C on the height/airspeed diagram if greater than 55 knots.
- Above 100 ft (30m) the max. continuous power and the optimum climbing speed of 55 kt (102 km/h) may be assumed.

7 CRUISING FLIGHT, MANOEUVRES

7.1 Cruising Flight

- For fast cruise apply the M.C.P. for the prevailing flight conditions permitted by the first of the following two limitations reached : Ng difference, or Torque.

7.2 Manoeuvres

- Maximum load factor in turns is felt in the form of servo-control "transparency" ; this phenomenon is smooth, and presents no danger.
- In maximum power configuration, it is advisable to decrease collective pitch slightly before initiating a turn, as in this manoeuvre power requirement is increased.
- In hover, avoid rotation faster than 6 seconds for one full rotation.

8 APPROACH AND LANDING

8.1 Approach

- Final approach should be made into the wind at a low sink rate and recommended airspeed of 65 knots (120 km/hr).

8.2 Landing

From hover, reduce collective pitch very gradually until initial touch-down is made, then cancel collective pitch completely.

CAUTION : WHEN LANDING ON A SLOPE, RETURN THE CYCLIC CONTROL STICK TO NEUTRAL BEFORE FINAL CANCELLATION OF COLLECTIVE PITCH.

9 AFTER LANDING

Engine and Rotor shutdown

- Switch off all unnecessary power-consuming systems.
- Wait 30 seconds until temperatures have stabilized, hold Ng corresponding to full low pitch (flight idle) or reduce Ng to 67 and 70 % by retarding fuel flow control.
- Switch off the generator, fuel pumps, then all other consumer circuits.
- Schutdown the engine by setting the fuel flow control to the schutdown position.
- Fully apply rotor brake when rotor speed is :
  140 r.p.m. or lower - Normal NR
  170 r.p.m. or lower - Maximum NR (High wind condition)
- After complete rotor stopping :
  Press the HYD. TEST push-button and leave it in for 1-2 seconds, then press it out, in order to :
  . depressurize the hydraulic accumulator,
  . recenter the yaw pedals, if required.

10 USE OF THE HEATING/DEMISTING SYSTEM

At temperatures higher than +10 °C, check that the t4 temp. limits are not exceeded.

RR 2G

Paragraph 9 AFTER LANDING

2nd. sub-paragraph read :

- Wait 30 seconds until temperatures have stabilized. reducing Ng to 67 - 70% by retarding fuel flow control.

11 DAILY OPERATING CHECKS

Daily helicopter operation requires three checks :
- check before the first flight of the day,
- check in conjunction with flight,
- check after the last flight of the day.

These daily checks may be carried out by qualified maintenance personnel or by a qualified pilot.
Any alteration or detailed inspection to determine serviceability as a result of these checks must be done under the supervision of a properly endorsed Aircraft Maintenance Engineer and duly entered in the Aircraft Log Book.

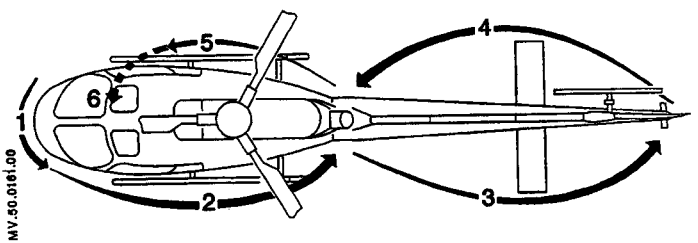
Checks before the first flight of the day (BFF)

11.1 Outside checks

REMARK :

IF THE AIRCRAFT HAS BEEN GROUNDED FOR MORE THAN ONE WEEK, BEFORE OPERATING THE FLYING CONTROLS, WIPE THE SERVOCONTROL PISTON RODS WITH A RAG IMPREGNATED WITH SERVICE FLUID.

- Check that the area is clean and clear.
- Remove the blade socks, if applicable.
- Perform the following checks.



STATION 1

- Transparent panels ..... Cleanliness
- Pitot heads and static vents ... Blanking cover, drain removed
- Sideslip indicator ..... Condition

STATION 2

- Engine air intake ..... Blanking cover removed
- MGB ..... Oil level
- Open the engine cowling :
  . Transmission deck and engine.. Condition, cleanliness
- Close the engine cowling ..... Correctly locked
- Tail pipe cover ..... Removed
- Fuel tank ..... Purge
- Filler cap ..... Closed
- LH baggage compartment door .... Loads tied down, door locked
- Lower cowlings ..... Closed
- Aft baggage compartment ..... No foreign matter, closed
- Main rotor blades ..... No dents

STATION 3

- Tail boom and TGB fairings ..... Security
- TGB ..... Oil level

STATION 4

- Tail rotor blades ..... Condition of skin
- Tail boom and TGB fairings ..... Security

STATION 5

- RH baggage compartment ..... Open
  . Battery ..... Connection
  . Loads ..... Tied down,
    Close and lock compartment
- Ground power receptacle door ... Closed
- Open the engine cowling :
  . Transmission deck and engine.. Condition, cleanliness
  . Engine oil tank ..... Oil level
  . Close the engine cowling ..... Correctly locked

STATION 6

- Collective pitch control
  and yaw pedals ..... Free travel
- Gas generator control ..... Free movement
- Rotor brake control ..... Free movement
- Fuel shut-off control ..... Forward position, snap wire fitted
- Fire extinguisher ..... In place

RR2C

Paragraph 11.2 : Turnaround check (TA)

Complete the Turnaround check as follows :

- Check the engine aft reduction gear magnectic plug (without electrical indication) every 5 flying hours maximum.

11.2 Turnaround check (TA)

The turnaround check consists in :

- checking fluid levels,
- a rapid check of the main and tail rotor blade skins,
- checking that all loads are securely tied down, baggage compartment doors and cowlings are correctly locked.

Should the turnaround time be prolonged, short-term picketing of the aircraft is recommended : blanking plugs, covers fitted, even blade socks and poles in winds greater than 40 knots.

CAUTION : IN THIS CASE, ALL PICKETING AND HANDLING TOOLING MUST BE REMOVED BEFORE THE NEXT FLIGHT.

11.3 Check after the last flight of the day (ALF)

GENERAL :

This check maintains the aircraft flightworthy. It consists in carrying out a visual or tactile examination of the condition of a component, an assembly so as to detect defects which could affect correct operation, but does not require the use of any special techniques or tooling.

Pay particular attention to the elements marked with an asterisk "*".
NOTE A : Magnetic plugs which do not have an electric indicating system may be checked for metal chips during the ALF check nearest to the 30-flying hour limit.

NOTE B : This check for defects may be performed during the ALF check nearest to the 30-flying hour limit.

(ALF CHECK)

STATION 1

- All transparent panels ..... Cleanliness (clean if required)
- Door jambs, canopy arch members. No faults nor cracks
- Cabin access door ..... Security and correctly locked
- Pitot heads and static vents ... Fit blanking covers

STATION 2

- LH baggage compartment door .... Condition, security, open, all objects tied down, close and lock

RR 2F

Paragraph 11.3 - Check After the Lasr Flight of the Day (ALF)

Station 1

Complete the checks with :

- Sliding window (pre modifi-
  cations 07-2573 and 07-2582) ------- Free from faults, cracks, unbonding, loss of slide.

RR 2H

Paragraphe 11.3 Check After the Last Flight of the Day (ALF)

After "GENERAL", please read :

IMPORTANT : For the ARRIEL 1D1 engines not modified TU 197 nor TU 202.
When shutting down the engine after the last flight of the day, confirm that there is no abnormal noise during the autorotation of the gas generator. This check can be performed on completion of a cranking operation of no more than 5 seconds, immediately after engine shutdown.

RR 2K

REPLACES THE INFORMATIONS CONTAINED IN RR 2 H.

Paragraph 11.3 Check After the Last Flight of the Day (ALF)

After GENERAL please read :

NOTE C : This check for defects can be performed during the ALF check before the 30-flying hour or 150 operating cycle limit.

IMPORTANT : For the ARRIEL 1 D1 engines not modified TU 202.
When shutting down the engine after the last flight of the day, confirm that there is no abnormal noise during the autorotation of the gas generator. This check can be performed on completion of a cranking operation of no more than 5 seconds, immediately after engine shutdown.

RR 2J

Paragraph 11.3 - Check after the last Flight of the day (ALF) :

Station 2

Complete the checks with :

- DUNLOP servocontrols - - - - - - - -	No cracks on the body leading to seepage

RR 2K

Paragraph 11.3 Check After the Last Flight of the Day (ALF)

Complete the checks with :

Station 2

- LH landing gear	Condition
. Shock absorber	Condition, no leaks
. Wear resistance plate	Condition
- Bidirectional cross beam ..... pre. Mod. 07-2720	Check for cracks on laminate bearing upper face, on MGB pick-up side. See NOTE C.

- Shock absorber, LH landing gear	Condition, no leaks
. Wear resistance plate	Condition
- MGB cowlings	Open : condition of systems, locking system
- MGB oil	Check level
- Transmission deck	Cleanliness
- MGB suspension bars	Security
- Servocontrols, hydraulic system.	Security, no leaks, lines
- Hydraulic reservoir	Check fluid level, security
- Cooling fan	Motor security, condition of blades
- Fuel filter	Security ; check paint marks ; clogging indicator not visible
- Universal joint assembly	Security, pins in place and locked
- MAIN ROTOR SHAFT	
* Swashplate bearing : check to be performed within five minutes after rotor stops	No abnormal heating felt when touched with hand, no grease runs, no change in colour nor scaling of paint.
. Scissors, swashplates, rods, swivel bearings	No friction point or play.
. Swashplate/pitch change rod end-fitting interface	No traces of contact, paint scaling on swashplate attachment yokes
* Pitch change rods P/N 350A37.1508.00 to .05	Rod upper and lower end-fitting paint marks must be visible and aligned
* Rotor shaft P/N 350A37.1076.00 to .06 inclusive. All visible section of the shaft, particularly under the hub	Condition of paint, no craks, crazing, blistering, corrosion nor tool marks.
* MAIN ROTOR HUB	Security, general condition
* Star	No delamination (splinters)
* Star recesses	No cracks
* Spherical thrust bearings and frequency adapters	No elastomer faults, unbonding, scratches, blisters, extrusion, cracks.

* 2-layer frequency adapter	Check for clearance between the adapter and the metal shim. SEE NOTE B
. Self-lubricating bearings	No debris nor play. SEE NOTE B
- Flared housing magnetic plug ...	No metal chips. SEE NOTE A
- Shock mount	Security
* MAIN ROTOR BLADES	Security, condition of skin, no bonding separation of stainless steel leading edge and no dents.
- Engine air intake	Security, blanking cover fitted
. Aerospatiale air intake	Condition of seal
- Engine cowling	Open : condition of locking systems
- Engine mount	Condition, security
- Engine and engine compartment	
. Engine and accessories	General condition, cleanliness
. Systems	No leakage
. Controls	Interference
. Transmission deck drain	Not plugged
- Freewheel	Operate from the tail rotor : the free turbine should be driven when the tail rotor turns clockwise. When the tail rotor turns counter-clockwise, the freewheel should de-synchronize (less important load). SEE NOTE B
- Tail pipe	Security, blanking cover fitted
- Aft baggage compartment door ...	Security, closing

STATION 3

- Horizontal stabilizer, fin, tail bumper	Security, condition
- TGB	Oil level, no leaks

STATION 4

- TGB	Security by applying a load on the drive shaft
. Bellcrank hinge pin	No play
. Sealant bead	Condition
. Magnetic plug	No metal chips. SEE NOTE A
- Horizontal stabilizer, fin, tail bumper	Security, condition

RR 2H

Complete the checks with :

Station 2 :

- Gas generator ..... ARRIEL 1 D1 engine not modified TU 197 nor TU 202	When the T4 is less than 150 °C, turning the compressor by hand, confirm that the gas generator rotates freely and that there is no abnormal noise.

RR 20

RR 20 SUPERSEDES RR 2L

Paragraph 11.3 : Check After the Last Flight of the Day (ALF)

STATION 4

- TRH

The check : Pitch change rod swivel bearing is replaced by :

. Pitch change rod swivel bearing ... Check, (refer to NOTE B) :

. The absence of play (J) by twisting the blades back and forth, low amplitude movements (A). (Refer to Figure 3)	R R R
. The condition of the ball joint by visual inspection. That no Teflon material has squeezed out. That the ball shows no signs of burnishing or scoring.	

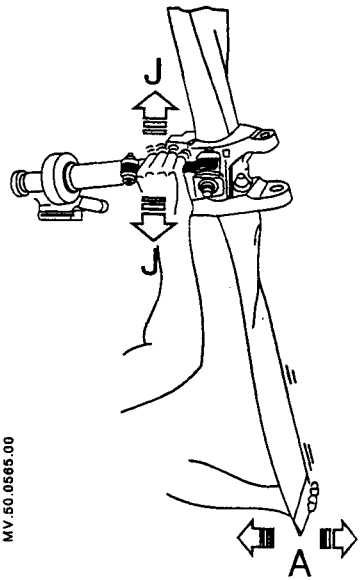


Figure 3

RR 2J

Paragraph 11.3 - Check after the last Flight of the day (ALF) :

Station 5

Complete the checks with :

- DUNLOP servocontrols - - - - - - - -	No.cracks on the body leading to seepage

RR 2K

Paragraph 11.3 Check After the Last Flight of the Day (ALF)

Complete the checks with :

Station 5

- RH landing gear ..... Condition
  - Shock absorber ..... Condition, no leaks
  - Wear resistance plate ..... Condition

- Bidirectional cross beam ..... Check for cracks on laminate bearing
  pre. Mod. 07-2720 upper face, on MGB pick-up side.
  See NOTE C.

* TAIL ROTOR BLADES	Security, general condition of skin, no dents, no bonding separation on the stainless steel leading edge.
* Tail rotor blade spar	Check for abnormal spar noise when the rotor is bent inwards and outwards to form an arc. SEE NOTE B
. Laminated half-bearing	No bonding separation, deep crack or emergence
. Blade horn	No play
- THR	Condition, security
. Pitch change control	
. Pitch change rod swivel bearing	No play. SEE NOTE B
* BALANCE ARM HINGE : (Flapping hinge bearing) according to type :	
. Type 1 : cups on either side of the pin	Visual play and no metallic particules
. Type 2 : flapping bearings ...	No play
. Type 3 : bearing outside cone rubber	No cracks, extrusion, bronze chips
- Tail boom fairing	Security

STATION 5

- Battery	Security
- RH baggage compartment door	Security, condition, locking
- RH landing gear	
. Shock absorber	Condition, no leaks
. Wear resistance plate	Condition
- MGB cowling	Open : condition of locking systems
- Transmission deck	Cleanliness
- MGB	Leaktightness
. Magnetic plug	No metal chips. SEE NOTE A
- MGB suspension bar	Security
- Servocontrols, hydraulic system	Security, no leaks, lines
- Engine oil tank, system	Oil level, security, tightness
- Engine oil cooler	Security, no leaks

- Universal joint assembly ..... Security, pin fitted
- Engine mount ..... Condition, security
- Engine and engine compartment
  . Engine and accessories ..... General condition, cleanliness
  . Systems ..... No leaks
  . Controls ..... Interference
  . Transmission deck drain ..... Not plugged

* MAGNETIC PLUG

- ARRIEL engine magnetic plug .... No metal chips on forward and aft reduction gear magnetic plugs :
  . Aft reduction gear magnetic plug
    - Pre-modification TU 135 .... Daily check
    - Post-modification TU 135 ... SEE NOTE A

  . FWD reduction gear optional magnetic plug ..... SEE NOTE A

- Engine and MGB cowlings ..... Closing, locking

STATION 6

- Seat ..... Security, pin in place
- Cabin ..... General cleanliness

RR2C

The check of the ARRIEL engine magnetic plugs is modified as follows :

- ARRIEL engine magnetic plugs without electrical indication	No metal chips on forward and aft reduction gear magnetic plugs.
- Aft reduction gear magnetic plug	Check every 5 flying hours and daily.
- Forward reduction gear magnetic plug (optional)	See NOTE A

SECTION 4.2

ENGINE POWER CHECK

1 IN-FLIGHT CHECK PROCEDURE

The engine power check is made in flight.

1.1 Record of parameters

- Fly a stabilized, level course, preferably at an altitude where there is little or no turbulence; shut off heating and demisting.

- Set the engine speed to the maximum compatible with the mechanical limitation (torque no higher than 94 %) and Ng limit (M.C.P.). The bleed valve flag should not be visible in these conditions.

- Record the following parameters : torque, Ng, NR, altitude, O.A.T..

1.2 Use of the chart

Read the chart in the direction indicated by the arrows, entering as follows :

- Torque - NR - Altitude

and

- O.A.T. - Ng

Follow the example to locate point "P".

Engine power is O.K. if point "P" is located in the region marked "CORRECT".

NOTE : - If in doubt as to condition of the engine, repeat the check to eliminate any error of reading.

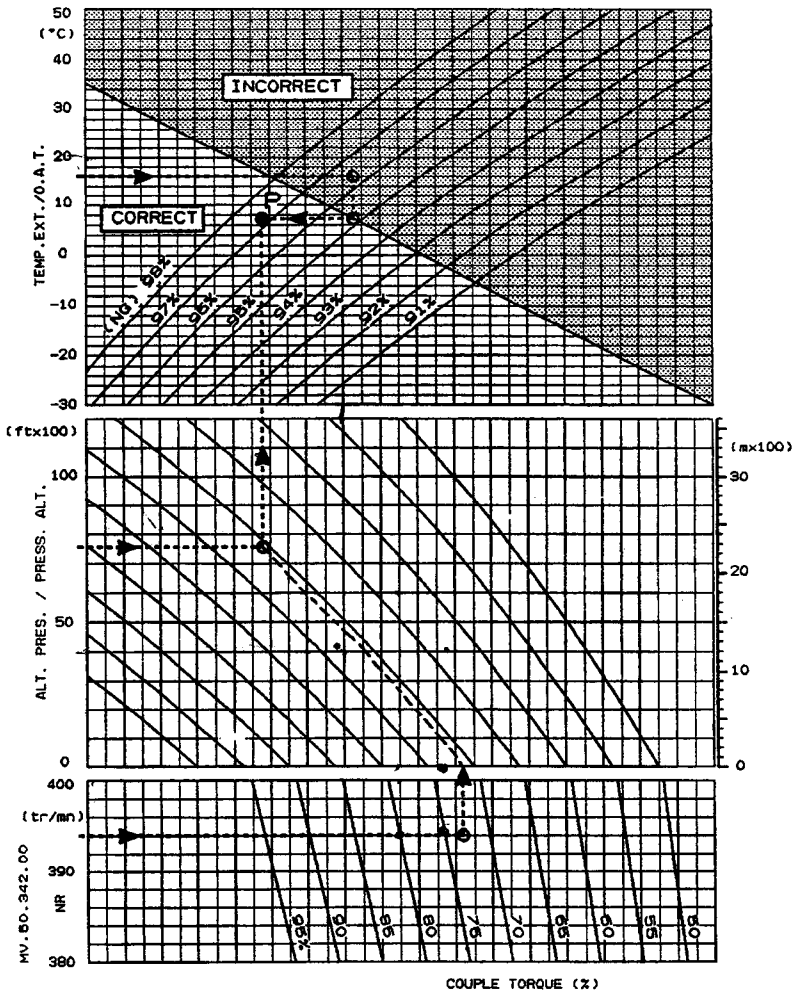
- If necessary, check the T., Ng and NR indicating systems.

2 GROUND CHECK PROCEDURE

The engine power check cannot be carried out at high power level on the ground with a high-power single-engine helicopter of this type.

Before forward flight in a 5 ft hover, increase the collective pitch enough to ensure a momentary Ng increase of at least 1 %.

After having reached a safe altitude, a normal inflight power assurance check may be performed.



ENGINE POWER CHECK

4 Ng DIFFERENCE INDICATOR CHECK

- Record the prevailing pressure-altitude and O.A.T. values.

- Determine the theoretical Ng, using the table below :

TEMP. EXT. O.A.T. / Hp - Zp (ft)	-40 a +5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
-1000	LIMITE DE DEBIT FUEL FLOW LIMIT			101.7	101.5	101.4	101.3	101.1	101.0	100.8
1000			101.7	101.6	101.5	101.3	101.2	101.0	100.9	100.7
3000	101.8	101.7	101.6	101.5	101.4	101.2	101.1	100.9	100.8	
5000	101.7	101.6	101.5	101.4	101.3	101.1	101.0	100.8		
7000	101.6	101.5	101.4	101.3	101.2	101.0	100.9			
9000	101.5	101.4	101.3	101.2	101.1	100.9	100.8			
11000	101.4	101.3	101.2	101.1	101.0	100.8				
13000	101.3	101.2	101.1	101.0	100.9					
15000	101.2	101.1	101.0	100.9						
17000	101.1	101.0	100.9							
19000	101.0	100.9	100.8							

MV.60.0344.01

THEORETICAL "Ng. MAX T/O PWR"

- Press the test push-button.

. The following readings are displayed successively in the window :

1)  , then :

2) (code indicating correct operation of the O.A.T. probe : see NOTE 1), then :

3) Value of the "Ng MAX. T/O PWR" prevailing on the site.

. The analogical pointer reads zero during a few seconds.

- Check that the "Ng. MAX. T/O PWR" read on the instrument is equal to the theorical "Ng. MAX T/O PWR" within 0.2 %.

NOTE 1 :  defective operation (short circuit).

 defective operation (open circuit).

NOTE 2 : When the Ng displayed is equal to 98 % within 0.2 % (Max. continuous power), the pointer should read -3.5.

R

SECTION 5 R

REGULATORY PERFORMANCE DATA

CONTENTS

SECTION 5 R

REGULATORY PERFORMANCE DATA

1 INTRODUCTION

The following performance curves apply to the basic version of the aircraft. Refer to the supplements when optional equipment is fitted.

2 SUBSTANTIATED WIND ENVELOPE

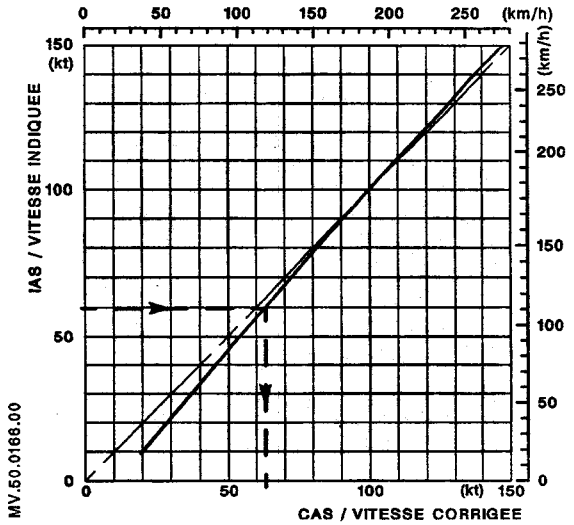
2.1 Wind envelope for spinning and stopping the rotors

Spinning or stopping of rotors has been substantiated for winds of 40 kts from any direction and for 50-kt headwinds.

2.2 Wind envelope in hover

Hovering with wind from any direction has been substantiated over the entire flight envelope up to winds of 17 kts, although this is not to be taken as a limit. For example hover at sea level at maximum weight, for all c.g. locations, has been substantiated at 30 knots.

3 ASI CALIBRATION



4 AIRSPEED-HEIGHT ENVELOPE

The avoidance zone (Z) is defined by four points : A, B, C, D.

Determining Points A and B

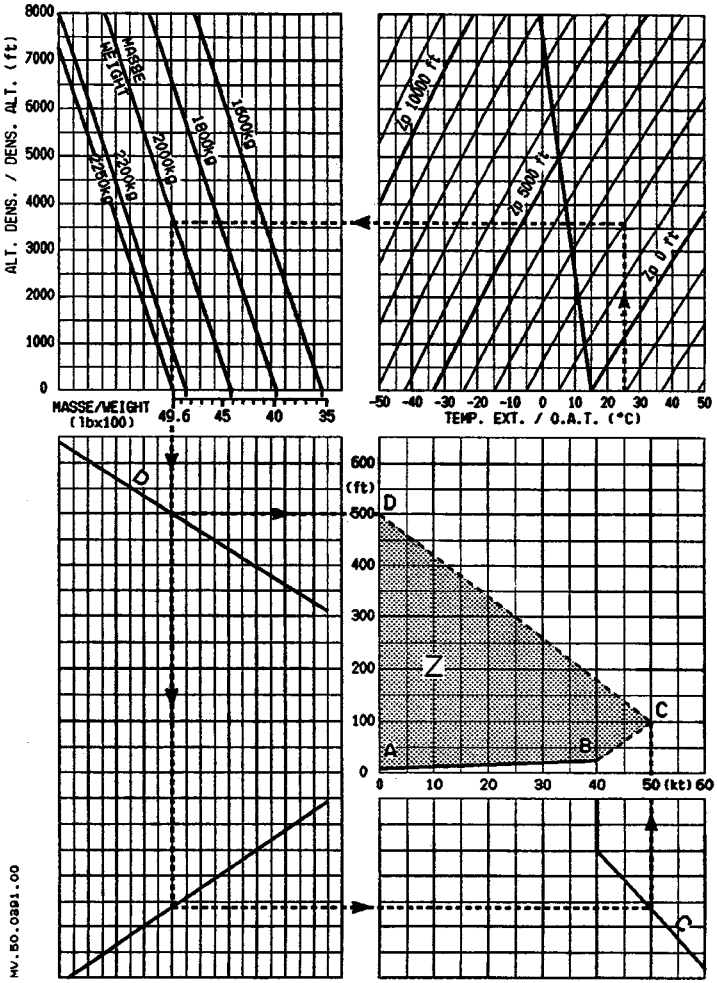
- Point A
  Point A is located at a height of 8 ft (2.5 m) at zero airspeed.

- Point B
  Point B is located at a height of 25 ft (9 m) for an airspeed of 40 knots (74 km/hr).

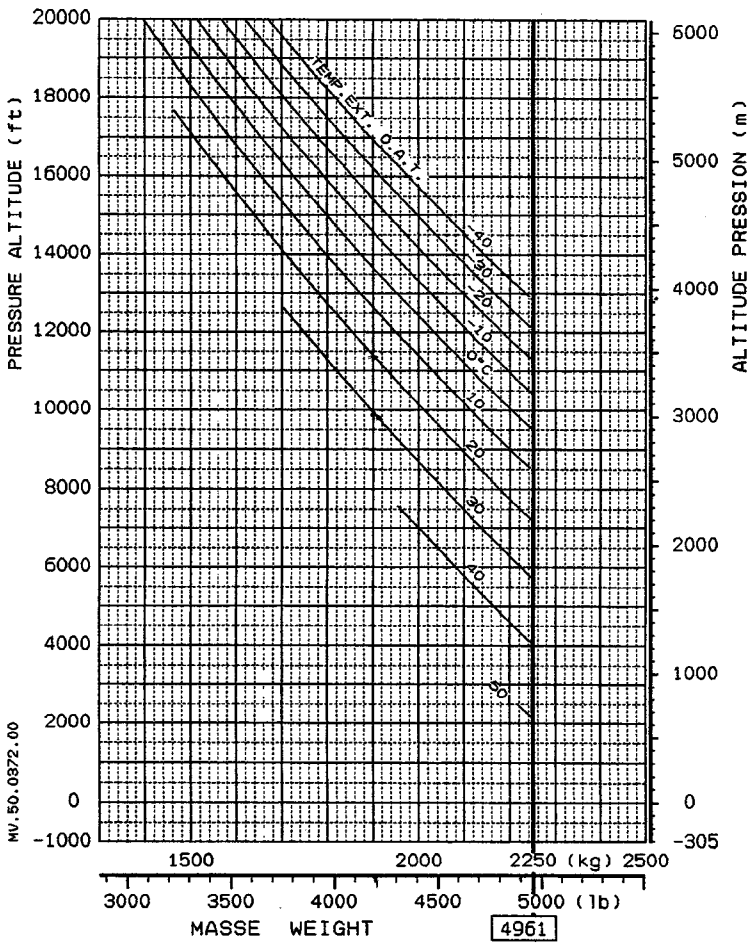
Determining Points C and D

- Point C
  Point C is defined by :
  . a constant height of 100 ft (30 m)
  . a variable airspeed depending on the altitude and on the aircraft weight as determined by line (C).

- Point D
  Point D is defined by :
  . a constant zero airspeed
  . a variable height depending on the altitude and on the aircraft weight as determined by line (D).


ALT. DENS. / DENS. ALT. (ft)
8000
7000
6000
5000
4000
3000
2000
1000
0
MASSE/WEIGHT (1bx100)
49.6
45
40
35
MASSE WEIGHT
1600KG
1800KG
2000KG
2200KG
2250KG
-50 -40 -30 -20 -10 0 10 20 30 40 50
TEMP. EXT. / O.A.T. (°C)
10 000 ft
5 000 ft
0 ft
D
600
(ft)
500
400
300
200
100
0
A
B
C
Z
0 10 20 30 40 50 (kt) 60
MV.50.0881.00

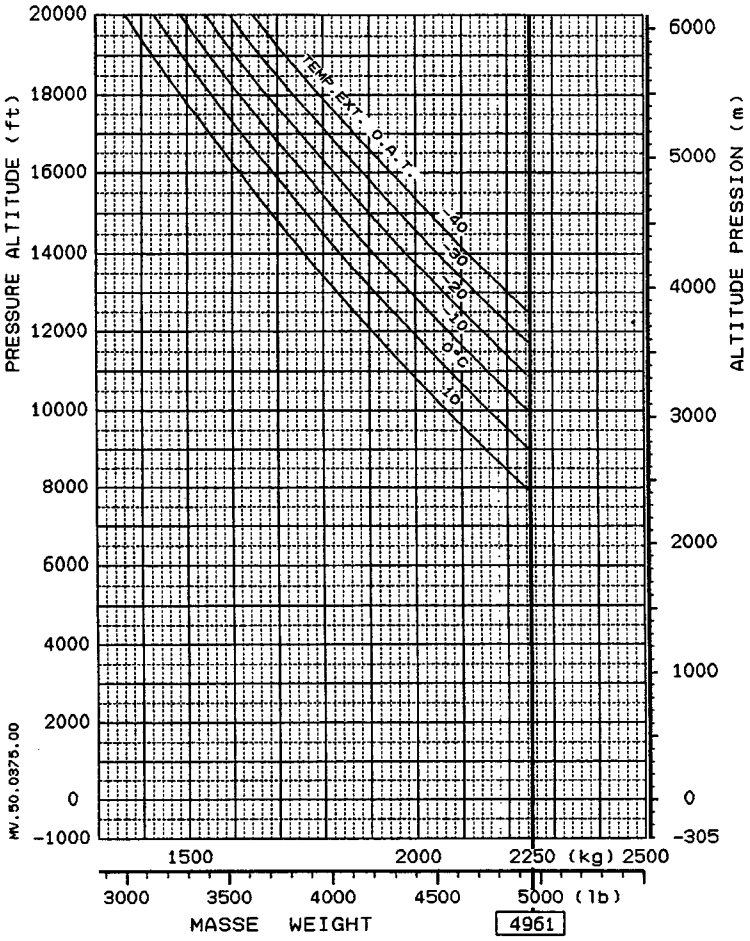
5 HOVER PERFORMANCE I.G.E.



CONDITIONS

- Height 5 ft - 1.5 m
- No P2 air bleed

HOVER PERFORMANCE
I.G.E.



CONDITIONS

- Height 5 ft - 1.5 m
- Heating & demisting systems on

HOVER PERFORMANCE
I.G.E.

DGAC Approved:

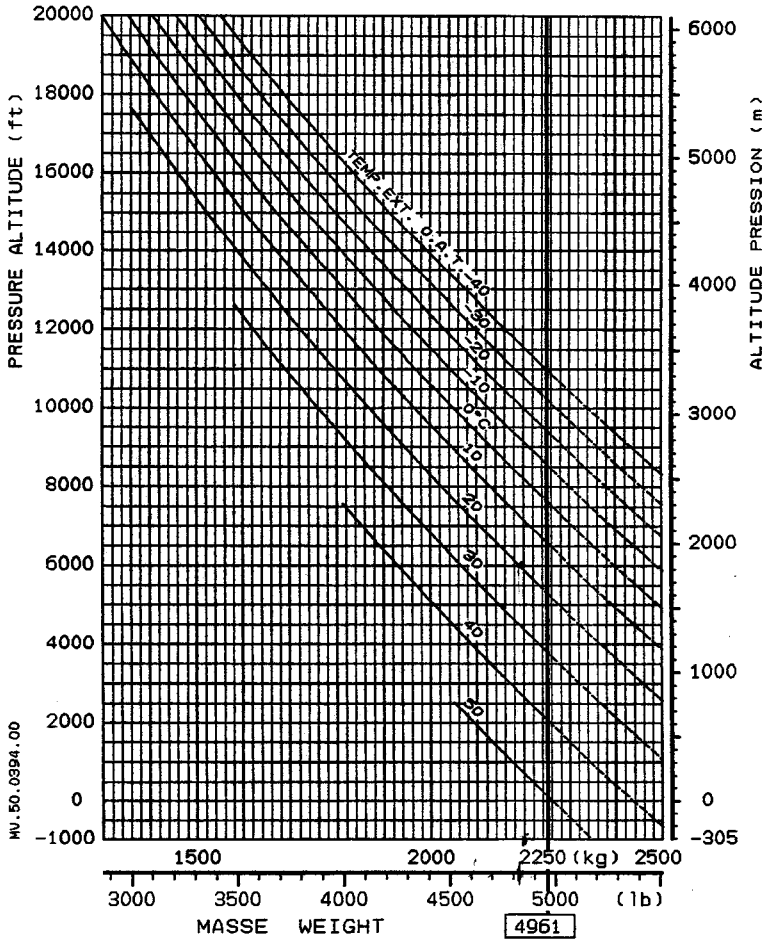
350 B2

5.1

C

89-17

6 HOVER PERFORMANCE O.G.E.



CONDITIONS

- No wind
- No P2 air bleed

HOVER PERFORMANCE
O.G.E.

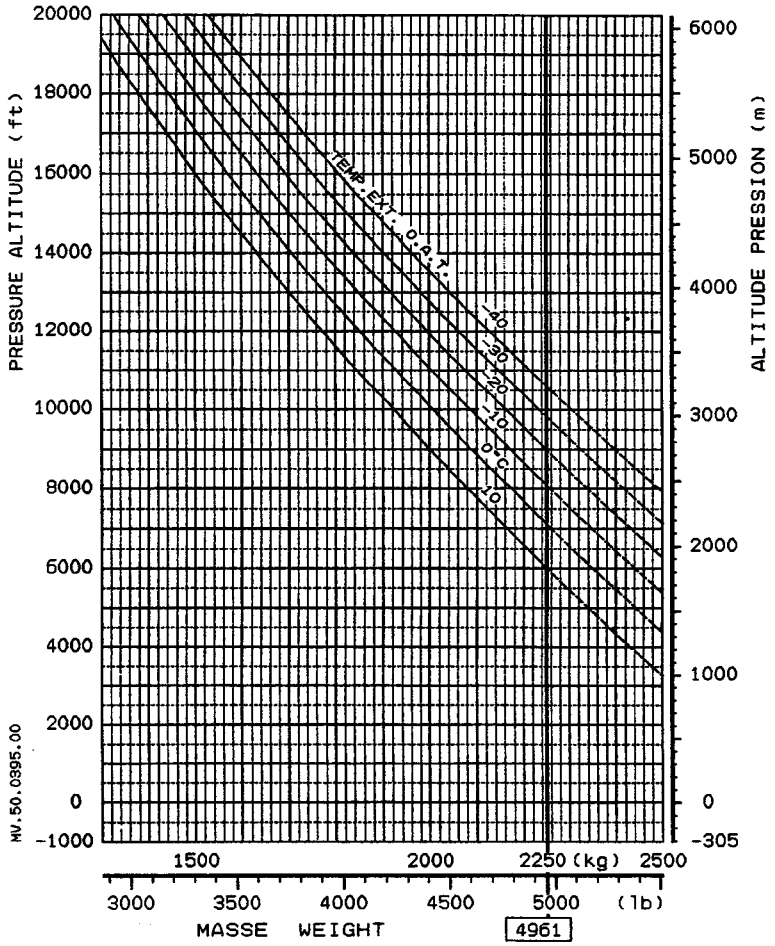
DGAC Approved:

350 B2

5.1

C

89-17



CONDITIONS

- No wind
- Heating and demisting systems on

HOVER PERFORMANCE
OGE

DGAC Approved:

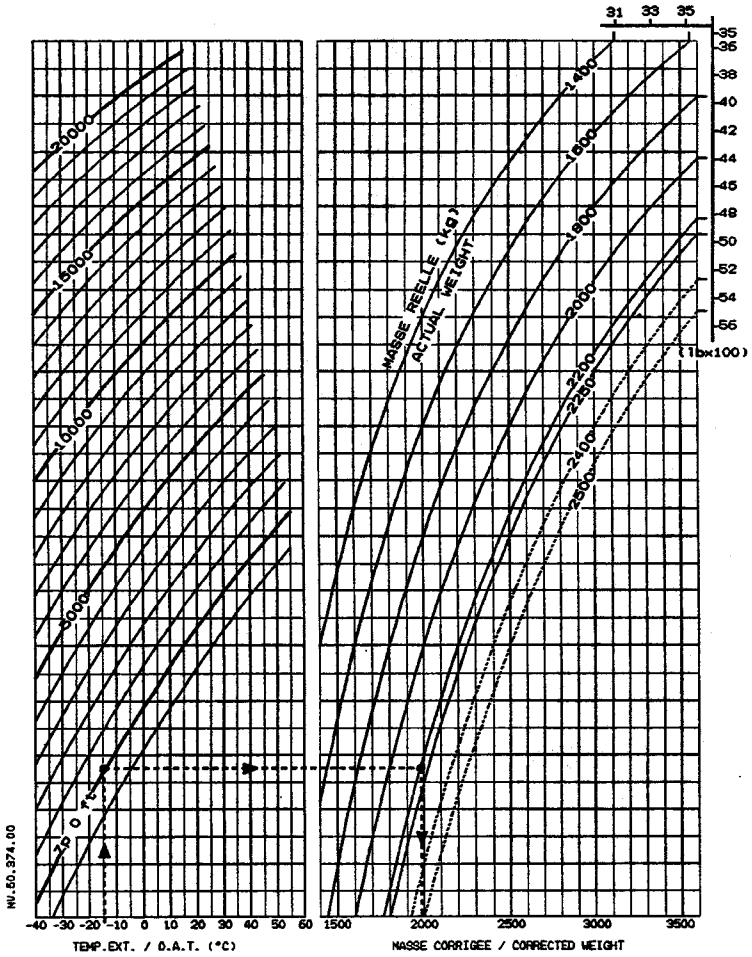
350 B2

5.1

C

89-17

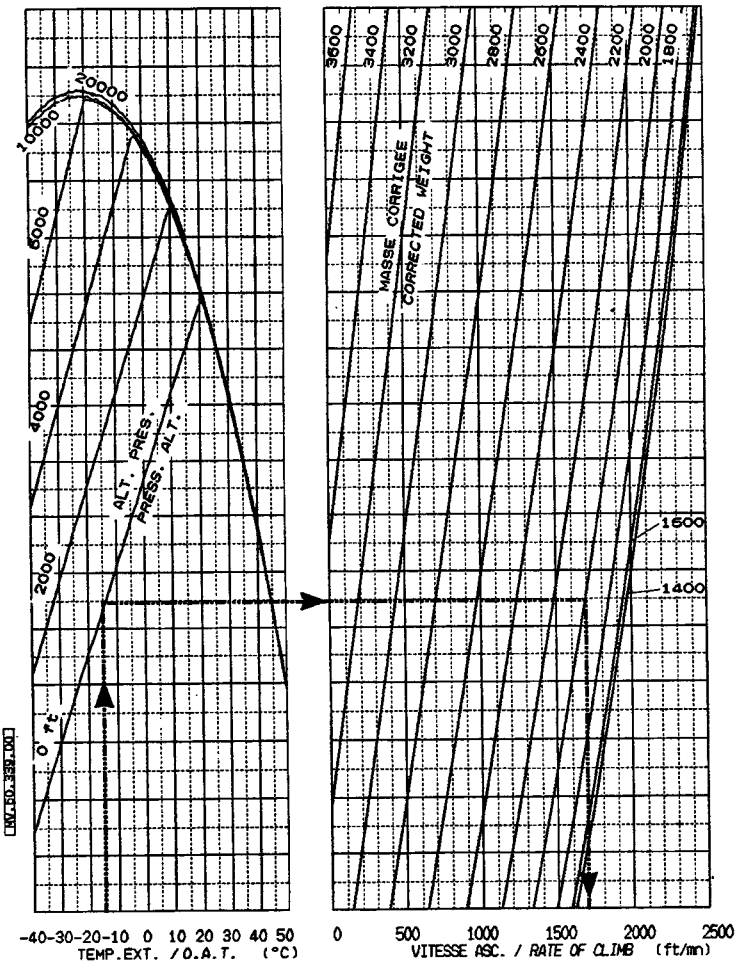
7 RATE OF CLIMB



NOTE :
Weight limitation with internal load :
2250 kg (4961 lb)

CORRECTED WEIGHT FOR
DETERMINING RATE-OF-CLIMB
(on facing page)

RATE OF CLIMB (Cont'd)



CONDITIONS

- C.A.S. = 55 kt - 102 km/hr
- MCP
- No P2 air bleed

RATE OF CLIMB

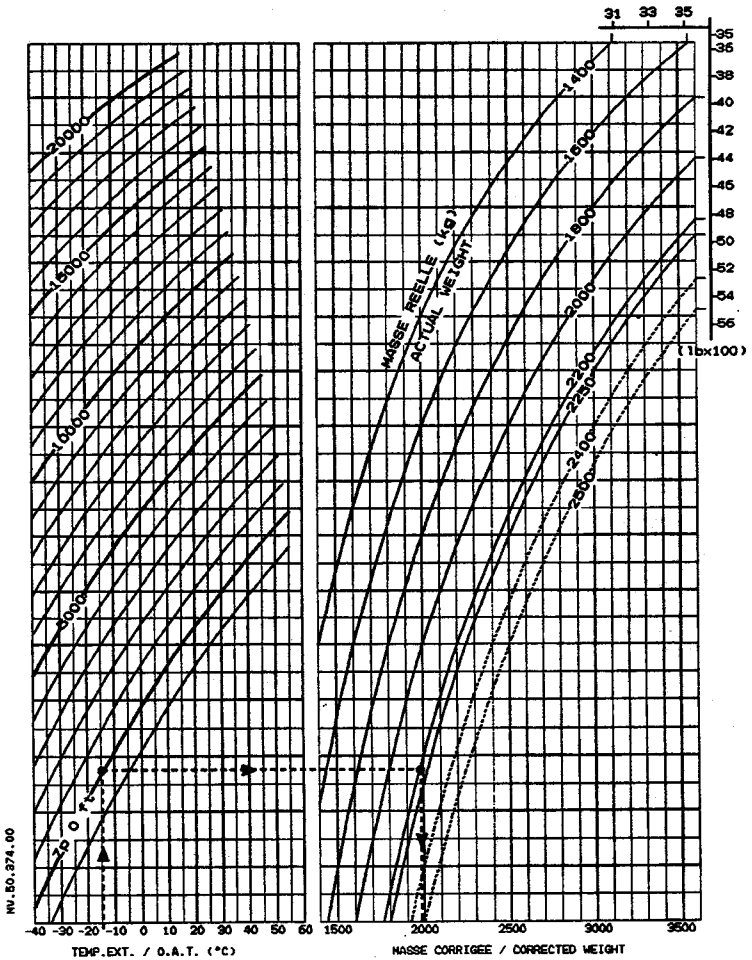
DGAC Approved:

350 B2

5.1

C

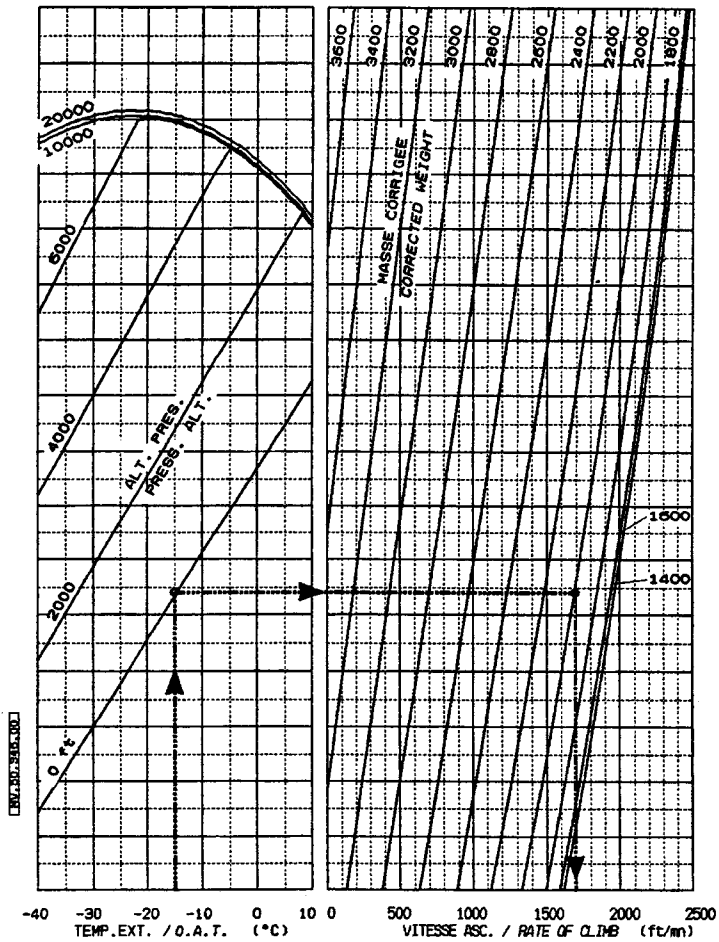
89-17



NOTE :
Weight limitation with internal load :
2250 kg (4961 lb)

CORRECTED WEIGHT FOR
DETERMINING RATE-OF-CLIMB
(on facing page)

RATE OF CLIMB (Cont'd)



CONDITIONS

- C.A.S. = 55 kt - 102 km/hr
- MCP
- Heating and demisting systems ON.

RATE OF CLIMB

8 NOISE LEVELS

The noise levels determined under the conditions prescribed in Chapter 8 and Appendix 4 of Annex 16 of OACI, volume 1, are as follows :

Reference measurement configurations	Noise levels EPNdB	OACI max. noise levels EPNdB
Take off	89.8	93.5
Approach	91.4	94.5
Overflight	87.6	92.5

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FLIGHT MANUAL

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SUPPLEMENT

LIST OF SUPPLEMENTS

INCOMPATIBILITY OF UTILIZATION

EFFECT ON PERFORMANCE DATA

DAILY CHECKS OF OPTIONAL INSTALLATIONS

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

*

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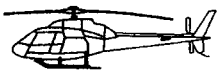
Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.



EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

CUSTOMIZATION :

A/C : AS 350 B2 - S/N :

LIST OF ADDITIONAL APPROVED PAGES

SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE
THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.					

1 LIST OF SUPPLEMENTS

Some supplements covering installations or procedures not used on this helicopter may be withdrawn from this manual. The complete list of supplements appears on this page.

No.	DESCRIPTION
0	OPERATIONAL AND OPTIONAL SUPPLEMENTS
1	RESERVED
2	RESERVED
3	RESERVED
4	INSTRUCTIONS FOR OPERATION IN COLD WEATHER
11	EXTERNAL LOAD TRANSPORT "CARGO SWING"
12	EXTERNAL LOAD TRANSPORT "CARGO SLING"
13	SLIDING DOORS
14	SAND FILTER
15	RESERVED
16	SFIM 85 T 31 3-AXIS AUTOMATIC PILOT SYSTEM
17	EMERGENCY FLOATATION GEAR

R

LIST OF SUPPLEMENTS (cond' t)

18	AIR EQUIPMENT OR BREEZE 136 kg (300 lb) ELECTRIC HOIST
19	RESERVED
20	RESERVED
21	FORWARD TWO-PLACE SEAT
22	RESERVED
23	FUEL HEATING SYSTEM
24	RESERVED
25	PROTECTION OF THE AIR INTAKE AGAINST INDUCTION OF SNOW
28	LONG AND SHORT FOOTSTEPS

R

SPECIAL SUPPLEMENTS

50	FERRY FLIGHT FUEL TANK
56	ABSEILING INSTALLATION

COMPOSITION
OF CONDITIONAL REVISIONS (RC)

The Supplements contain the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

Sup.	Page	Date	Applicable before condition is met :

NOTE : The date code includes the last two digits of the year followed by the week number in that year.

COMPOSITION
OF RUSH REVISIONS (RR)

The manual contains the following additional yellow page(s) :

SUPPLEMENT	No RR	PAGE	DATE CODE
SUP.0		P4.1	99-37
SUP.11	2A	4	98-43

SUPPLEMENT	No RR	PAGE	DATE CODE

COMPOSITION
OF RUSH REVISIONS (RR)

The Supplements contains the following additional yellow page(s) :

No.	SUP. - PAGE	CODE DATE	No.	SUP. - PAGE	CODE DATE

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

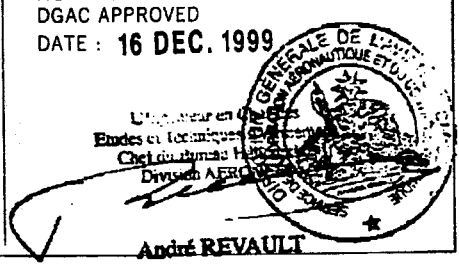
(1) Page Revision Code
- R : Revised, to be replaced
- N : New, to be inserted

SUPPLEMENT	PAGE		DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP. 0	P1	1	93-09					
SUP. 0	P1	3	90-15					
SUP. 0	P2	1	92-40					
SUP. 0	P2	2	99-45	R				
SUP. 0	P3	1	90-15					
SUP. 0	P4	1	90-15					
SUP. 0	P5	1/01	99-45	R				
SUP. 0		1	99-37					
SUP. 0		2	92-40					
SUP. 0		3	99-37					
SUP. 0		4	90-37					
SUP. 0		5	90-37					
SUP. 0		6	90-37					

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17	5	99-37
1	90-15	6	99-45
2	90-37		
3	92-40		
4	93-09		

NORMAL REVISION : 6
DGAC APPROVED
DATE : 16 DEC. 1999



2 INCOMPATIBILITY OF UTILIZATION BETWEEN OPTIONAL EQUIPMENT ITEMS

The following list is non-exhaustive and covers only those DGAC - approved equipment items which are incompatible with one or more items.

NOTE : Incompatibility of installation between items is stated in the Master Servicing Recommendations (PRE).

Operation of the following installations : - - - - - - - - - - - - - : Makes operation with the following equipment items impossible.

ITEM		SUPPL. No.		
15	Emergency floatation gear	17	32* - 66	R
17	Float type undercarriage	15	32 - 70	
21	Ferry flight fuel tank	50	22 - 23 - 32 - 41 - 68 - 72	
22	External load carrying installation "CARGO SLING"	12	21 - 25 - 32 - 44 - 46 - 66	R
23	External load carrying installation "CARGO SWING"	11	21 - 25 - 32 - 44 - 46 - 66	R
25	Air ambulance installation	-	22 - 23 - 32 - 41 - 72	
32	Electric hoist	18	15*- 17 - 21 - 22 - 23 - 25 - 41 - 44 - 46 - 66	R
41	Crop spraying installation	51	21 - 25 - 32 - 44 -46	
44	Forward two-place seat	21	22 - 23 - 32 - 41- 72	
46	Blind flying screens	-	22 - 23 - 32 - 41- 72	
66	abseiling installation	56	15 - 22 - 23 - 32	R
68	TAP kit	-	21	
70	T 31 Automatic pilot system	16	17	
72	Water bomber	53	21 - 25 - 44 - 46	

* Hoisting remain possible when the floats are folded.

3 INFLUENCE OF OPTIONAL EQUIPMENT ITEMS ON PERFORMANCE DATA

Where several optional equipment items are used simultaneously, the basic performance data must be reduced by the value corresponding to the influence of each optional item.

3.1 REGULATORY PERFORMANCE DATA

- Take-off weights

  When the installation of an optional equipment item modifies the take-off weights specified in the basic Flight Manual, the take-off weights are indicated on new charts.

- Rates of climb

  When the rates of climb are modified, the relevant Supplement either provides a new chart or prescribes a reduction with respect to the basic performance.

3.2 ADDITIONAL PERFORMANCE DATA

- The reduced performance data are given in Section 10.

4 DAILY OPERATING CHECKS FOR OPTIONAL EQUIPMENT

For each optional equipment item installed on the helicopter, the daily check must include :

- a check before the first flight of the day,
- a check after the last flight of the day.

These daily checks may be carried out by qualified maintenance personnel or by a qualified pilot.
Any alteration or detailed inspection to determine serviceability as a result of these checks must be done under the supervision of a properly endorsed Aircraft Maintenance Engineer and duly entered in the Aircraft Log Book.

These checks consist in performing a visual examination of each optional equipment item in order to check its general condition and security on the aircraft, in particular for :

- windshield wipers,
- fire extinguisher,
- ski installation,
- air ambulance installation (stretcher),
- flares,
- cargo swing,
- ferry tank,
- blade protection against sand,
- sand filter.

The optional equipment items which require specific checks are listed below.

AIR EQUIPEMENT OR BREEZE ELECTRIC HOIST INSTALLATION R

The hoist must be checked by the hoist operator.

- Check that the hoisting blocks and snap hooks function correctly.
- Perform a hoist functional check : unwind the cable over approximately 0.6 m (2 ft) and then rewind it : check that the "Up" end of travel contact functions correctly.
- Check to be performed during the ALF check nearest the 30-hour operating limit.

USE IN COLD WEATHER :

Check before the first flight (BFF), refer to Section SUPPLEMENTS of this Manual.

CAUTION : DO NOT DRAIN WATER FROM FUEL SYSTEM AT TEMPERATURES EQUAL TO OR LESS THAN MINUS 10°C.

AIR EQUIPEMENT HOIST fitted with an end-of-travel microswitch monitoring system :

Complete the check with the following :

- Switch on the electric hoist.

- Unwind the cable by approximately one to two meters.

- Wind the cable :

  . As the cable winds up, check that :
    - the GREEN light is LIT,
    - the RED light is EXTINGUISHED.

- On completion of the hoisting operation, maintain the "UP" order using the hoist operator's grip.

  . During the "UP" order, check that :
    - the GREEN light is EXTINGUISHED,
    - the RED light is EXTINGUISHED.

- Maintain the "UP" order on the hoist operator's grip and press the test pushbutton :

  . During the "UP" order, check that :
    - the GREEN light is EXTINGUISHED,
    - the RED light ILLUMINATES.

- Check to be performed every 25 hoisting operations :

  . Free rotation of the hook.
  . Condition of the cable.
  . Operation of the cable extraction mechanism.

- Operations to be performed every 50 hoisting operations :

  . Grease the hoist brake assembly.
  . Clean then grease the cable winding screw.

EMERGENCY FLOATATION GEAR INSTALLATION

Check before the first flight

- Place the emergency floatation gear in low position, pins locked, safety pin in place.

- Check that the circuit breakers in the aft baggage compartment are engaged.

Check after the last flight

If the aircraft has flown at low altitude over the sea, wash the inflation cylinders and the cradle assemblies.

FLOATATION GEAR INSTALLATION

Check before the first flight

- Visually check the protective covering and that the floats are clean and free from tears.

- Check that the pressure in each compartment is 0.300 to 0.450 bar.

Check after the last flight

- After alighting in salty water, wash with soft water.

- After landing on a muddy field, wash with soft water.

Parking

Park in the shade, if possible, and protect the floats against the heat.

CROP SPRAYING INSTALLATION

This optional equipment requires the presence of qualified staff to perform the daily operating checks.

ENGINE FIRE EXTINGUISHING SYSTEM

- Check that the pressure of the cylinders is correct.

CARGO SWING

- After the last flight, lightly grease (G354) the end of the load hook at the lock input.

N

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FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

INSTRUCTIONS FOR OPERATION IN COLD WEATHER

IMPORTANT NOTE

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Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.

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Direction Technique Support - 13725 Marignane Cedex - France

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Evolution page code
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SUPPLEMENT PAGE	DATE	(1)	SUPPLEMENT PAGE	DATE	(1)
SUP. 4 P1 1	94-05	R			
SUP. 4 P5 1/01	94-05	R			
SUP. 4 1	94-05	R			
SUP. 4 2	94-05	R			
SUP. 4 3	94-05	R			
SUP. 4 4	94-05	N			

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
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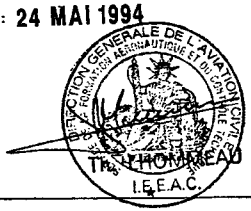
1	91-08		
2	94-05		

NORMAL REVISION : 2
DGAC APPROVED
DATE : 24 MAI 1994



1 GENERAL

This supplement details all the procedures to be followed when the aircraft is used in particular climatic conditions, such as cold weather and snow. Aircraft servicing does not require any special tools or systematic replacement.

2 GENERAL RECOMMENDATIONS

For rational operation of the aircraft in cold weather and snow, it is recommended to carry out the following basic operations : R

- Remove ice or snow deposits from the whole of the aircraft, particularly at hinges and movement transmitting items (main rotor, rotor mast, tail drive and tail rotor, flight controls, engine controls). R

- When the aircraft has been subjected to very low temperatures, it is recommended that: R
  . either regular ground runs be carried out every two hours for temperatures of about -20°C and every hour for lower temperatures. R
  . or preheating of the engine, transmission assemblies and cabin be effected before take-off (althourgh the helicopter is capable of carrying out engine start up and rotor spinning at temperatures down to -40°C). R

During the preheating operation, carefully wipe out the deicing water to avoid all water accretion on the aircraft and water re-icing as soon as preheating is over, particularly on the AIR INTAKES and components located above the air intakes. R

PRACTICAL ADVICES R

- For the preheating and deicing operations, use appropriate heaters in good condition only. Do not refuel the aircraft while the heaters are functioning. R
- During the preheating operation, do not leave the aircraft unwatched. Keep an extinguisher available at hand. R
- Avoid directing hot air towards the following part of the aircraft; tanks and fuel, oil and hydraulic fluid lines. R

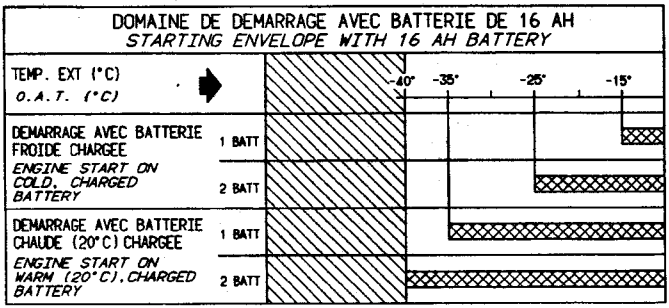
3 LUBRICANTS TO BE USED FOR TRANSMISSION ASSEMBLIES

Below -25 °C, do not use AIR 3525 (O 155) oil for transmission assemblies without initial preheating. R
The other oils authorized in Section LIMITATIONS of the basic Flight Manual may be used down to -40 °C without preheating.

NOTE : It should be remembered that when changing the oil, the system is first to be flushed in accordance with the recommendations in the maintenance publications;

4 USE OF BATTERIES FOR STARTING

During long periods in inoperation it is recommended that the battery be stored in a warm area.
If a ground power unit is not available, start-up may be carried out using the aircraft battery or two aircraft batteries connected in parallel.
The starting envelope is related to the temperature and is indicated in the following chart.



5 PREPARATION FOR FLIGHT R

Independently of the inspections prescribed in the basic Flight Manual, perform the following operations and inspections :

Main rotor blades

Remove the blade socks, then remove snow if need be and, if necessary remove ice from blades using hot air flow at a temperature not exceeding 80 °C.

Main rotor hub and mast

Remove ice from the swashplates, the scissors, the servo controls and the rotor head spring antivibrator.

Power plant

- Remove the air intake cover and the exhaust nozzle blank after removing snow from the aircraft surface.
- Remove snow and ice accretion in the vicinity of the air intake, on either side of the screen and inside the engine air intake duct (remove the air intake screen if necessary).

- It is imperative that the air intake be clean R

Manually and visually check for snow and ice inside the air intake duct up to the first stage of the compressor : R
In case of icing : R
. remove ice using a wooden or plastic scraper, R
. carefully wipe the surface using a cloth soaked with isopropyl alcool R
. inspect drains, unblanked scuppers; check for snow and ice on vent and static ports. R

Tail rotor R

- Remove the blade sockets, then remove ice from the TRH assembly (blades, pitch rods...). R
- Manually rotate the tail rotor so that the main rotor performs 1 turn at least, then check : R
. the swashplate rotation (rotor brake not blocked). R
. the TRH rotation, R
. the freewheel operation. R

Structure R

- Remove the cabin cover once the inspection is completed. R
- Make sure that the windshield wiper has not remained stuck on the canopy R

Flight controls - Engine controls R

- Before operating the controls, it is recommended to heat-up the inside of the cabin. R
- Operate the controls progressively, then operate the rotor brake controls, fuel flow control and collective pitch control over their complete travel. R

It is recommended not to perform extensive travel of the cyclic and tail rotor controls. R

Fuel system bleeding

Do not bleed the fuel system under a temperature equal to or lower than -10 °C where valve seals prove inefficient.

6 STARTING

All the procedures given in this basic manual remain applicable.

7 AFTER STARTING

When nominal speed is reached with the fuel flow control in the gate, check that all warning, caution and advisory lights are off, that pressure readings are O.K. Test the hydraulic accumulators with the collective lever secured at full low pitch. When control loads are felt, move the stick grip 3–4 cm to evaluate the load, then center the stick (no load) and restore pressure.

If operating loads are considered higher than at normal temperatures, move the cyclic stick 3–4 cm forward (nose-down) for 2 minutes to warm up the spherical thrust bearings.

Move the yaw pedals about 50% of their travel range on either side of the mid-position.

8 IN CASE OF ENGINE FAILURE

Following an engine failure at light weight, the stabilized rotor speed may be below the audio warning threshold : the pilot can switch of the horn using the relevant pushbutton.

9 CHECK AFTER LAST FLIGHT OF THE DAY

The operations described in the Basic Normal are to be completed by the following actions :

- Observe the general recommendations mentioned above.
- When the rotor stops rotating, place the cyclic pitch stick close to the neutral position and the collective pitch lever secured at full low pitch, with tail rotor blades in the horizontal position.
- Inspection of the engine magnetic plugs should be performed within 30 mn after the rotor has stopped rotating, in order to avoid seal damaging.
- Care must be taken not to leave doors open.
- Install the air intake cover and exhaust nozzle blank.
- When the aircraft is parked in an unsheltered area it is recommended to apply anti-icing materials and to carry our the aircraft parking and mooring.

NOTE : ANTI-ICING MATERIALS

- Anti-icing fluid – isopropyl alcool as per AIR 3660 or deicing as per AIR 3565 (MIL-A-6091).
- Anti-icing sealing compound B.437.
- Anti-icing compound E.57.
- Anti-rain material S.P.R. G7.
- Anti-icing material to be applied on blades: Kilfrost ABC or Kilfrost DF.

CAUTION : - REFER TO GENERAL INSTRUCTIONS FOR THE USE OF ANTI-ICING MATERIALS.
- ANTI-ICING MATERIALS CAN DAMAGE THE HELICOPTER COMPONENTS.
- USE RECOMMENDED AND APPOVED ANTI-ICING MATERIALS ONLY.

10 EQUIPMENT ITEMS

All the aircraft equipment items allow flying in cold weather conditions except spherical thrust bearing P/N 704A 33.633.109 which must not be used at temperatures below -25 °C.

N

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FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

EXTERNAL LOAD TRANSPORT "CARGO SWING"

Per drawings : 350A 82.8014
350A 82.8015

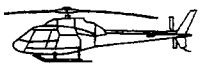
IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

*

This supplement supports the helicopters delivered by both AEROSPATIALE and EUROCOPTER FRANCE.
Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.

THIS SUPPLEMENT MUST BE INCLUDED IN THE FLIGHT MANUAL WHEN THE EQUIPMENT MENTIONED ABOVE IS INSTALLED ON THE AIRCRAFT.



EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Evolution page code
- R : Revised, to be replaced
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SUPPLEMENT	PAGE	DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.11	P1 1	94-01	R				
SUP.11	P5 1/01	94-01	R				
SUP.11	1	94-01	R				
SUP.11	2	94-01	R				
SUP.11	3	94-01	R				
SUP.11	4	94-01	R				
SUP.11	5	94-01	R				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
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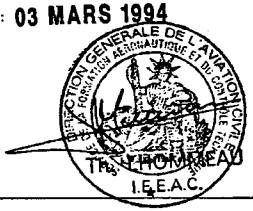
1	94-01		

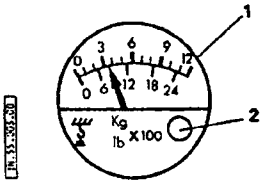
NORMAL REVISION : 1
DGAC APPROVED
DATE : 03 MARS 1994

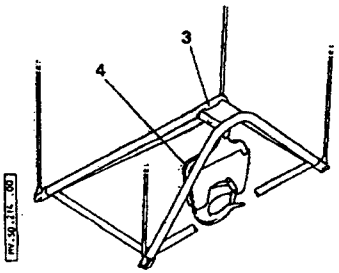


1 GENERAL

The "CARGO SWING" external load carrying installation is composed of :
- A suspended pyramid frame (3) designed to reduce swinging of the load, equipped with a release unit (4). The release unit hook can be opened electrically in normal operation and mechanically in emergency conditions.
- A control and indicating system, for the pilot, comprising :
  . load indicator (1), on the instrument panel, with a zero setting control (2) ;
  . an electrical system supplying power to the normal release circuit via a pushbutton, on the control console and a switch on the pilot's cyclic stick grip ;
  . an "EMERGENCY RELEASE" (jettison) control handle mounted on the underside of the collective lever.

The load indicator electrical circuit is protected by a fuse and the normal release hook control circuit by two fuses.





2 LIMITATIONS

> EXTERNAL LOAD OPERATIONS MUST BE IN ACCORDANCE WITH OPERATING REGULATIONS GOVERNING THESE OPERATIONS.

The limitations laid down in the basic Flight Manual remain applicable but are completed by the following limitations. R R

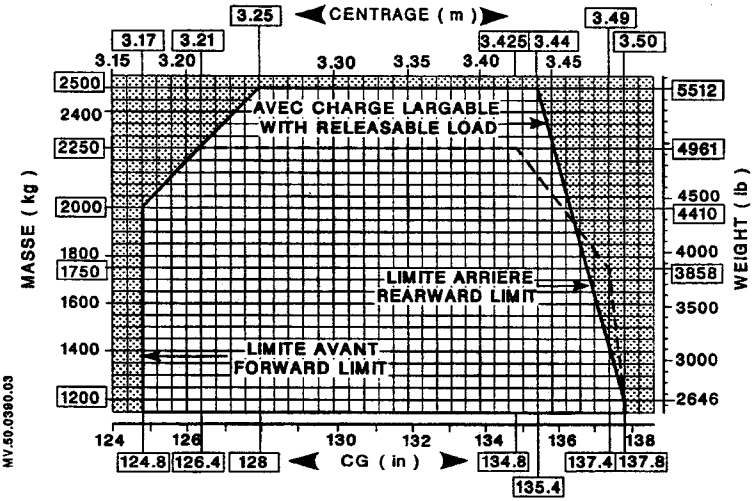
- Maximum load
  The maximum permissible slung load is 1160 kg (2557 lb).
- Maximum gross weight with external load
  Maximum permissible gross weight with an external load is that at which hover O.G.E. can be held. (See Section of the basic Flight Manual).

  Maximum weight including external load : 2500 kg (5512 lb).

  CAUTION : THE MAXIMUM PERMISSIBLE WEIGHT WITHOUT EXTERNAL LOAD IS LIMITED AS SPECIFIED IN THE LIMITATIONS SECTION OF THE BASIC FLIGHT MANUAL.

- Longitudinal c.g. limits

Use chart below to define longitudinal c.g. limits with respect to weights.



R

V.N.E.

Absolute maximum permissible speed with a load on the hook is 80 kt (148 km/h - 92 MPH).
Particular care must be exercised when bulky loads are being carried on the sling.

NOTE : The pilot is responsible for determining the limit speed according to the load and sling length.

- Instruction plates R

. An instruction plate in the cockpit indicates : R

CARRYING OF EXTERNAL LOADS
CLASS OF APPROVED AIRCRAFT/LOAD COMBINATION B. WHEN EXTERNAL LOADS ARE CARRIED, NO PERSON MAY BE CARRIED UNLESS :
- HE IS A FLIGHT CREW MEMBER ;
- HE IS A FLIGHT CREW MEMBER TRAINEE ; OR
- HE PERFORMS AN ESSENTIAL FUNCTION IN CONNECTION WITH THE EXTERNAL-LOAD OPERATION.

OR

EMPORT DE CHARGES EXTERNES
CLASSE DE COMBINAISONS GIRAVION-CHARGES APPROUVEE B AUCUNE PERSONNE NE PEUT ETRE TRANSPORTEE A MOINS DE :
- ETRE UN DES MEMBRES DE L'EQUIPAGE.
- SUIVRE UN COURS DE FORMATION EN TANT QUE MEMBRE D'EQUIPAGE.
- REMPLIR UNE FONCTION ESSENTIELLE AYANT TRAIT A L'UTILISATION DU GIRAVION AVEC CHARGE EXTERIEURE.

. A plate, visible to the ground operator and located near to the hook, indicates the maximum sling load. R R

3 EMERGENCY PROCEDURES

The emergency procedures laid down in the basic Flight Manual remain applicable but are completed by the following procedures. R R

Engine failure with external load

- If an engine failure should occur in flight with an external load, establish autorotational flight and immediately release the load.

- If engine failure occurs whilst ground personnel are hooking up the load, the pilot should move away to the right, applying collective pitch to hold the aircraft up. Ground personnel are to be forewarned that in the event of engine failure they are to move away to the left.

4 NORMAL PROCEDURES

The procedures laid down in the basic Flight Manual remain applicable but are completed by the following procedures. R R

Carring heavy loads is a delicate operation, due to the possible effects of a swinging load on the flight behaviour of the helicopter. Consequently, pilots are advised to train with gradually increased sling loads before undertaking heavy load carrying operations.

CAUTION : IN WET WEATHER, THICK RUBBER GLOVES SHOULD BE WORN BY THE OPERATOR HANDLING THE HOOK AND LOAD. RELEASE THE CHARGE OF STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (Hook).

- Check of the installation

On the ground, before carrying out a load transport operation :

. Check that the hook opens correctly both in normal and jettison control modes.
. Zero the load indicator.
. In flight, press the "SLING" pushbutton in order to set the system in readiness for normal release of the load which will be accomplished by actuating the rocker-switch on the cyclic stick control grip.

- Takeoff

. When the load is secured, apply collective pitch very smoothly, while maintaining the aircraft directly above the load. When the cables are taut, dwell briefly before raising the load.
. Lift the load off the ground vertically, keeping a watch on the load indicator, then move off in a forward climb.

- Manoeuvres

All control movements should be made very gently, with very gradual acceleration and deceleration, and only slightly banked turns. R

R

RR 2A

Paragraph 4 NORMAL PROCEDURE

In the subparagraph Check of the installation after :

"Check that the hook ... control modes"

text added as follows :

. Check the free rotation of the retaining latch and correct operation of its return spring.

- Landing

Establish zero translational ground speed sufficiently high to ensure that the load is not dragged along the ground, then descend vertically until the load is deposited. The load indicator reading is zero.

- Release

To release the load, actuate the switch on the cyclic stick.

Check that the load is effectively released. R

If the load is not off, actuate the jettison handle to release it.

5 PERFORMANCE

The Performance Data given in the basic Flight Manual apply.

The performance curves for weights in excess of 2250 kg (4961 lb) are plotted in dotted line on the performance charts contained in the PERFORMANCE Section of the basic Flight Manual.

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FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

EXTERNAL LOAD TRANSPORT "CARGO SLING"

Per drawings : 350A 82.8012
350A 82.8013

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

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EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

DGAC Approved:

A | C | D | E | F | G | H

LIST OF APPROVED EFFECTIVE PAGES
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SUP.12	4	94-01	R				

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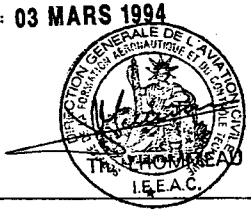
0	89-17		
1	94-01		

NORMAL REVISION : 1
DGAC APPROVED
DATE : 03 MARS 1994



DGAC Approved:

350 B2

SUP.12.P5

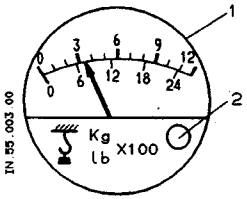
C

1 GENERAL

The external load-carrying installation includes :

- A release unit featuring electrical control of hook release in normal operation and mechanical opening in emergency.
- A control and indicating system, for the pilot, comprising :
  . load indicator (1), with a zero setting control (2). R
  . an electrical system supplying power to the normal release circuit via a press-key on the control console and a switch on the pilot's cyclic stick grip.
  . an "EMERGENCY RELEASE" (jettison) control handle mounted on the underside of the pilot's collective lever. R R

The load indicator electrical circuit is protected by a fuse and the normal release hook control circuit by two fuses.



R

2 LIMITATIONS

EXTERNAL LOAD OPERATIONS MUST BE IN ACCORDANCE WITH OPERATING REGULATIONS GOVERNING THESE OPERATIONS.

The limitations laid down in the basic Flight Manual remain applicable but are completed by the following limitations. R R

- Maximum load

  The maximum permissible sling load is 750 kg (1660 lb).

- Maximum gross weight with external load

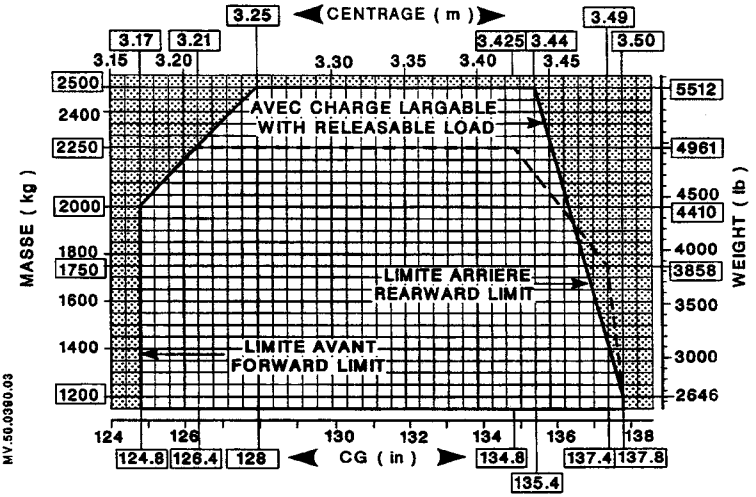
  Maximum permissible gross weight with an external load is that at which hover O.G.E. can be held. (See PERFORMANCE Section of the basic Flight Manual).

  Maximum weight including external load : 2500 kg (5512 lb).

  CAUTION : MAXIMUM WEIGHT WITHOUT EXTERNAL LOAD IS LIMITED AS SPECIFIED IN THE LIMITATIONS SECTION OF THE BASIC FLIGHT MANUAL.

- Longitudinal c.g. limits

Use graph below to define longitudinal c.g. limits with respect to weights.



R

- V.N.E.

Absolute maximum permissible speed with a load on the hook is 80 knots (92 MPH) (148 km/h).
Particular care must be exercised when bulky loads are being carried on the sling.

NOTE : The pilot is responsible for determining the limit speed according to the load and sling length.

- Instruction plates

. An instruction plate in the cockpit indicates :

CARRYING OF EXTERNAL LOADS
CLASS OF APPROVED AIRCRAFT/LOAD COMBINATION B. WHEN EXTERNAL LOADS ARE CARRIED, NO PERSON MAY BE CARRIED UNLESS :
- HE IS A FLIGHT CREW MEMBER ;
- HE IS A FLIGHT CREW MEMBER TRAINEE ; OR
- HE PERFORMS AN ESSENTIAL FUNCTION IN CONNECTION WITH THE EXTERNAL-LOAD OPERATION.

OR

EMPORT DE CHARGES EXTERNES
CLASSE DE COMBINAISONS GIRAVION-CHARGES APPROUVEE B AUCUNE PERSONNE NE PEUT ETRE TRANSPORTEE A MOINS DE :
- ETRE UN DES MEMBRES DE L'EQUIPAGE.
- SUIVRE UN COURS DE FORMATION EN TANT QUE MEMBRE D'EQUIPAGE.
- REMPLIR UNE FONCTION ESSENTIELLE AYANT TRAIT A L'UTILISATION DU GIRAVION AVEC CHARGE EXTERIEURE.

. A plate, visible to the ground operator and located near to the hook, indicates the maximum sling load. R R

3 EMERGENCY PROCEDURES

The emergency procedures laid down in the basic Flight Manual remain applicable but are completed by the following procedures. R R

Engine failure with external load

- If an engine failure should occur in flight with an external load, establish autorotational flight and immediately release the load.
- If engine failure occurs whilst ground personnel are hooking up the load, the pilot should move away to the right, applying collective pitch to hold the aircraft up. Ground personnel are to be forewarned that in the event of engine failure they are to move away to the left.

4 NORMAL PROCEDURES

The procedures laid down in the basic Flight Manual remain applicable but are completed by the following procedures. R R

Carrying heavy loads is a delicate operation, due to the possible effects of a swinging load on the flight behaviour of the helicopter. Consequently, pilots are advised to train with gradually increased sling loads before undertaking heavy load carrying operations.

WARNING : IN WET WEATHER, THICK RUBBER GLOVES SHOULD BE WORN BY THE OPERATOR HANDLING THE HOOK AND LOAD. RELEASE THE CHARGE OF STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (Hook).

- Check of the installation
  On the ground, before carrying out a load transport operation :
  Check that the hook opens correctly both in normal and jettison control modes.
  Zero the load indicator.
  In flight, press the "SLING" pushbutton in order to set the system in readiness for normal release of the load which will be accomplished by actuating the switch situated on the cyclic stick grip.

- Takeoff
  . When the load is secured, apply collective pitch very smoothly, while maintaining the aircraft directly above the load. When the cables are taut, dwell briefly before raising the load.
  . Lift the load off the ground vertically, keeping a watch on the load indicator, then move off in a forward climb.

- Manoeuvres
  All control movements should be made very gently, with very gradual acceleration and deceleration, and only slightly banked turns. R R R

- Landing
  Establish zero translational ground speed sufficiently high to ensure that the load is not dragged along ground, then descend vertically until the load is deposited. The load indicator reading is zero.

- Release
  To release the load, actuate the switch on the cyclic stick grip.
  Check that the load is effectively released. R

  R R

  If the load is not off, actuate the jettison handle to clear it.

5 PERFORMANCE

The Performance Data given in the basic Flight Manual remain applicable.

The performance curves for weights in excess of 4961 lb (2250 kg) are plotted in dotted line on the performance charts contained in the PERFORMANCE Section of the basic Flight Manual.

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

SLIDING DOOR

LH door per drawings : 350A 82.2801.00
or [350A 82.2080.00
[
350A 82.2080.02

RH door per drawings : 350A 82.2081.01
350A 82.2080.01

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic Flight Manual and/or applicable Flight Manual supplements. The effective of the Supplement at the latest revision specified on SUP.13.P5 Page 1

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DIVISION HELICOPTERES - DIRECTION SUPPORT CLIENTS - B.P.176 - 13723 - MARIGNANE FRANCE

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CUSTOMIZATION :

A/C : 350 B2 - S/N :

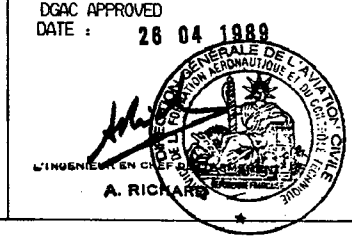
LIST OF ADDITIONAL APPROVED PAGES

SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE
THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.					

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989



COMPOSITION
OF CONDITIONAL REVISIONS (RC)

This manual assigned to the helicopter mentioned on the title page, contains the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

Section	Page	Date	Applicable before condition is met :

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this year.

COMPOSITION
OF RUSH REVISIONS (RR)

The Manual contains the following additional yellow page(s) :

No	SECTION - PAGE	CODE DATE	No	SECTION - PAGE	CODE DATE

LIST OF APPROVED EFFECTIVE PAGES

(1) Evolution page code
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SECTION	PAGE	DATE	(1)	SECTION	PAGE	DATE	(1)
13. 0	P1 1	89-17	N				
13. 0	P1 2	89-17	N				
13. 0	P1 3	89-17	N				
13. 0	P3 1	89-17	N				
13. 0	P4 1	89-17	N				
13. 0	P5 1/ 1 *01*	89-17	N				
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13. 0	2	89-17	N				
13. 0	3	89-17	N				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE
L'INGÉNIEUR EN CHEF
A. RICHARD

DGAC Approved:

350 B2

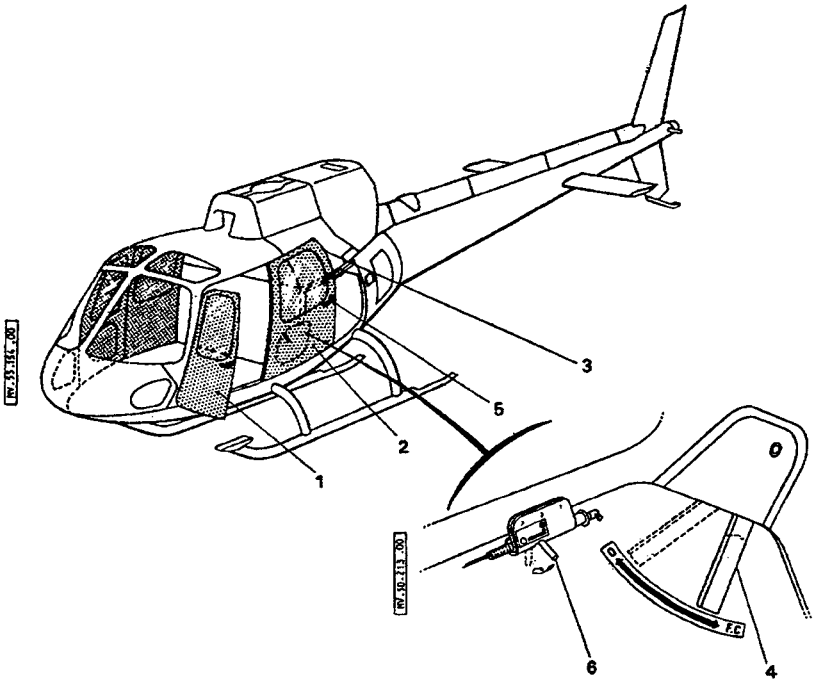
SUP.13.P5

1 GENERAL

The aircraft can be fitted with one or two sliding door installations. These installations are of same design and symmetrical.

Each installation mainly comprises :
- A small, jettisonable forward door (1), providing access to the pilot's or copilot's seat.
- A large, sliding, rear door (2), running on three guide rails. This door is fitted with :
  . an open position catch (3) (door held fully open)
  . an inner control lever (4) connected to the outer handle (5) for opening and closing the door
  . a closing system locking lever (6).

These sliding doors can be opened in flight by the crewmembers for rescue or hoisting operations, and on ground to facilitate freight loading.



2 LIMITATIONS

2.1 Aircraft Fitted with L.H. Sliding Door and two Standard Doors on R.H. Side

BOTH R.H. DOORS / L.H. SLIDING DOOR	CLOSED	REMOVED
CLOSED	VNE	PROHIBITED
OPEN OR REMOVED	135 kt (250 km/hr/155 MPH) or VNE*	70 kt (130 km/hr/81 MPH)

Sliding door operation : - Opening : 110 kts - 204 km/hr - 127 MPH
- Closing : 80 kts - 148 km/hr - 92 MPH

2.2 Aircraft Fitted with R.H. Sliding Door and two Standard Doors on L.H. Side

R.H. SLIDING DOOR / BOTH L.H. DOORS	CLOSED	OPEN OR REMOVED
CLOSED	VNE	110 kt(204 km/hr/127 MPH) or VNE*
REMOVED	PROHIBITED	70 kt (130 km/hr/81 MPH)

Sliding door operation : - Opening : 60 kts - 111 km/hr - 69 MPH
- Closing : 60 kts - 111 km/hr - 69 MPH

2.3 Aircraft fitted with both L.H. and R.H. sliding doors

R.H. SLIDING DOOR / L.H. SLIDING DOOR	CLOSED	OPEN OR REMOVED
CLOSED	VNE	110 kt(204 km/hr/127 MPH) or VNE*
OPEN OR REMOVED	60 kt (111 km/hr/69 MPH)	110 kt(204 km/hr/127 MPH) or VNE*

Sliding door operation :
- Opening : 60 kts - 111 km/hr - 69 MPH
- Closing : 60 kts - 111 km/hr - 69 MPH

ANY OTHER DOOR CONFIGURATION IS PROHIBITED.

* Whichever is lower.

3 EMERGENCY PROCEDURES

If necessary, the forward door(s) can be jettisoned.

Should the DOORS light illuminate the emergency procedures laid down in the basic Flight Manual remain applicable. Maximum speed shall be reduced to 60 knots.

4 NORMAL PROCEDURES

The procedures prescribed in Section 4 of the Flight Manual apply equally to the helicopter fitted with the sliding door installation(s).

In flight with one or two sliding doors open, there is a risk of the rear seat squabs becoming detached at airspeed above 70 knots (130 km/h-81 MPH); consequently they are to be removed before flying in these conditions.

It is also recommended that the security of documents and other objects carried in the cabin be ensured.

5 PERFORMANCE

Performance data as given in Section 5.1 of the Flight Manual applies equally to the helicopter fitted with sliding door installation(s) in closed position.

eurocopter

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

SAND FILTER

Optional : OP 1536

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

*

This supplement supports the helicopters delivered by both AEROSPATIALE and EUROCOPTER FRANCE.
Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.

THIS SUPPLEMENT MUST BE INCLUDED IN THE FLIGHT MANUAL WHEN THE EQUIPMENT MENTIONED ABOVE IS INSTALLED ON THE AIRCRAFT.

EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

AS 350 B2
SUPPLEMENT 14

RR 1A

Subject : Additional protection of the air intake under severe weather conditions.

Either of the following optional installations is used :

- OP 1536 sand filter, or
- OP 2561 system.

Complete the title of the supplement as follows :

- OP 1536 SAND FILTER
- OP 2561 AIR INTAKE PROTECTION SYSTEM

CUSTOMIZATION :

A/C : 350 B2 - S/N :

LIST OF ADDITIONAL APPROVED PAGES

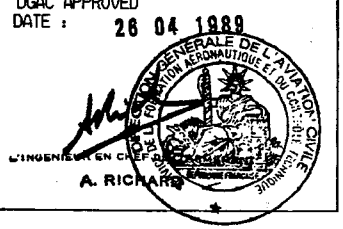
SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE

THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989



COMPOSITION
OF CONDITIONAL REVISIONS (RC)

This manual assigned to the helicopter mentioned on the title page, contains the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

Section Page Date	Applicable before condition is met :

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this year.

COMPOSITION
OF RUSH REVISIONS (RR)

The Manual contains the following additional yellow page(s) :

No	SECTION - PAGE	CODE DATE	No	SECTION - PAGE	CODE DATE
1A	SUP.14.P1 1 SUP.14 1 SUP.14 2 SUP.14 4	92-04 92-04 92-04 92-04			

COMPOSITION
OF RUSH REVISIONS (RR)

The Manual contains the following additional yellow page(s) :

No	SECTION - PAGE	CODE DATE	No	SECTION - PAGE	CODE DATE

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Evolution page code
- R : Revised, to be replaced
- N : New, to be inserted

SUPPLEMENT	PAGE	DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.14	P1 1	92-44	R				
SUP.14	P5 1/01	92-44	R				
SUP.14	1	92-44	R				
SUP.14	2	92-44	R				
SUP.14	3	89-17					
SUP.14	4	92-44	R				
SUP.14	5	89-17					
SUP.14	6	89-17					
SUP.14	7	89-17					
SUP.14	8	89-17					
SUP.14	9	89-17					

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		
1	92-44		

NORMAL REVISION : 1
DGAC APPROVED
DATE : 26 JUIL. 1993

RR 1A

Complete paragraph GENERAL as follows :

This installation which does not use any P2 bleed air, is also designed to protect the air intake against any potential induction of snow in flight, under heavy snow fall.

Protection of the air intake is also ensured by the optional system defined as OP 2561 (filter installed on the air intake, not requiring P2 air supply). The performance data are those laid down for the "Sand Filter Not Operating" configuration.

The sand filtering function is not ensured by the OP 2561 system.

RR 1A

Complete paragraph NORMAL PROCEDURES as follows :

Pre-flight checks

Under severe weather conditions :
- Open the engine cowling.
- Check for snow, ice or water in the air intake, and particularly under the filter.

RR1B

Subject : Flight under falling snow

Complete paragraph LIMITATIONS as follows :

The restrictions to the flight envelope in case of falling snow, given in the basic Flight Manual, are cancelled.

1 GENERAL

The sand filter installation is designed to protect the engine against ingestion of sand. R
This installation even when it does not use any P2 bleed air, is also designed to protect the air intake against any potential induction of snow in flight, in falling snow. R R R

The system mainly consists of the following :
- a filter fitted on the engine air intake, below the ice protection screen,
- a P2 air pressure supply system,
- an electric control and monitoring system.

During engine operation, the ambient air flows through separator tubes which constitute the filter. The filtered air is forced towards the engine air intake. The sand is evacuated by scavenge tubes ventilated by P2 air.

The electrical circuit supplies an electric valve via the "SAND FILT" push-button. Opening and closing of the P2 air pressure circuit is controlled by the electric valve. A blue SAND F. light comes on to indicate that the electric valve is fully open. The electrical circuit is protected by the SAND FILT. fuse on the side panel.

2 LIMITATIONS

The limitations laid down in the basic Flight Manual remain applicable with the exception of the following specific limitations : R R

- The flight envelope restrictions in case of falling snow are cancelled. R R
- Sand filter operating.

  . the heating and demisting systems must be switched off, R
  . comply with the following Ng limits :

O.A.T. (°C)	LOWER THAN + 5°C	BETWEEN + 5°C AND + 35°C	HIGHER THAN + 35°C
Ng. diff. at MAX T/O PWR	0	- 0.5	- 1
Ng. diff. at MAX. CONTINUOUS PWR	- 3.5	- 4	- 4.5

3 EMERGENCY PROCEDURES

All the emergency procedures specified in the basic Flight Manual remain applicable.
If the P2 air valve fails to open (light remains off), avoid flying the helicopter in sand-laden atmosphere to prevent premature damage to the engine.
Should the valve fail to close (light remains on), flight can be continued without adverse consequence.

4 NORMAL PROCEDURES

The normal procedures laid down in the basic Flight Manual remain applicable but are completed by the following procedures.

EXTERNAL CHECKS R

- Engine air intake. R

  . Remove ice or snow from the air intake grid. R
  . Open the engine cowling. R
  . Check for snow, ice or water in the air intake, and particularly under the filter. R R

CHECKS BEFORE STARTING THE ENGINE R

- Test the indicator light located on the instrument panel. R

ENGINE POWER CHECK

When checking the engine, make sure that the sand filter pushbutton is set to "off".
When the sand filter is fitted, use the power assurance check chart on the next page (Figure 1).
The procedures for checks on ground and in flight, given in Section 4, remain applicable. R

FLYING IN SAND-LADEN ATMOSPHERE

- Switch off the heating and de-misting systems.
- Depress the SAND FILTER pushbutton.
- Make sure the SAND FILTER light illuminates.

NOTE : Operating the sand filter causes t4 temperature to rise by approximately 15°C.

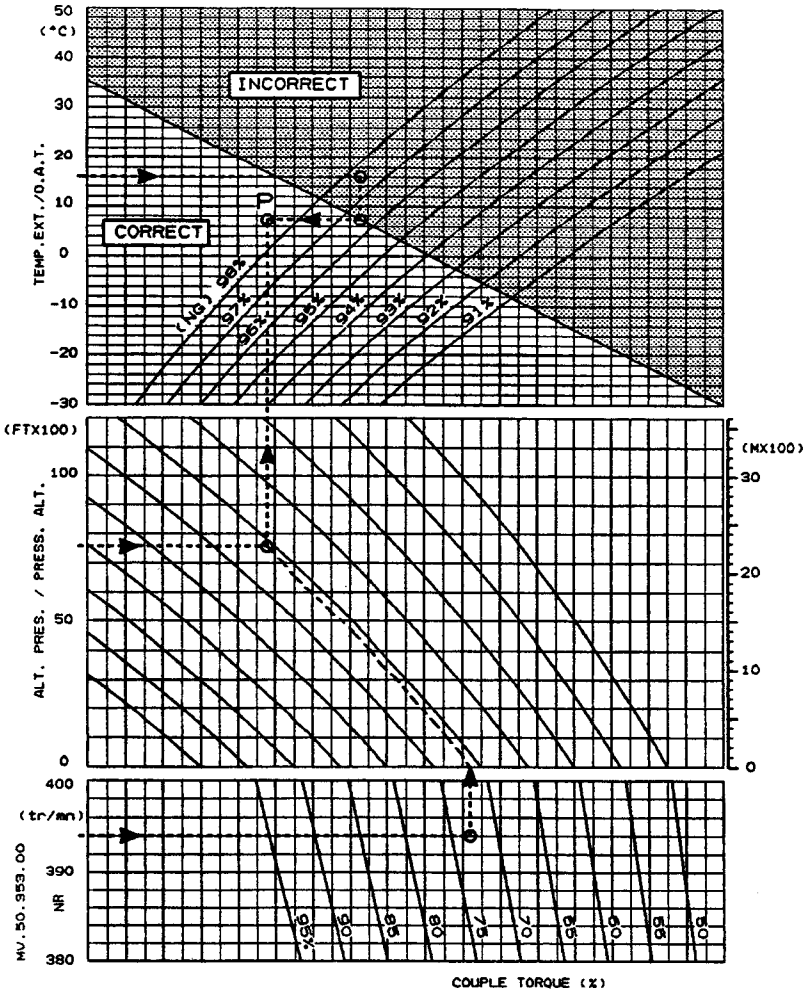


Figure 1 : Power Assurance Check – Sand Filter Not Operating

5 PERFORMANCE

5.1 Regulatory Performance Data

The performance data laid down in the basic Flight Manual Section 5.1 remain applicable with the exception of the following data :

5.1.1 Sand Filter not Operating

FLIGHT CONFIGURATION	HEATING AN DEMISTING SYSTEMS OFF	HEATING AND/OR DEMISTING SYSTEMS OPERATING
I.G.E hover	Figure 2	(Fig.2) minus 60 kg (130 lb)
O.G.E hover	Figure 3	(Fig.3) minus 60 kg (130 lb)
Rate of climb	Figure 5	(Fig.5)

R

5.1.2 Sand Filter Operating

The performance data with the sand filter operating are to be computed from figures 2, 3, 5 and allow for the reductions indicated in the table below :

FLIGHT CONFIGURATION	OUTSIDE AIR TEMPERATURE (°C)		
	LOWER THAN + 5°C	BETWEEN + 5°C AND + 35°C	HIGHER THAN + 35°C
IGE hover	Figure 2	(fig.2) minus 40kg (90lb)	(fig.2) minus 100kg (220lb)
OGE hover	Figure 3	(fig.3) minus 40kg (90lb)	(fig.3) minus 100kg (220lb)
Rate of climb	Figure 5	(fig.5) minus 70ft/mn	(fig.5) minus 180ft/mn

RR 1A

Paragraph 5.1.1 is to be modified as follows :

The "Sand Filter Not Operating" performance data are given in the table below :

FLIGHT CONFIGURATION	HEATING AN DEMISTING SYSTEMS OFF	HEATING AND/OR DEMISTING SYSTEMS OPERATING
I.G.E. hover	Figure 2	(Fig.2) minus 60 kg (130 lb)
O.G.E. hover	Figure 3	(Fig.3) minus 60 kg (130 lb)
Rate-of-climb	Figure 5	(Fig.5)

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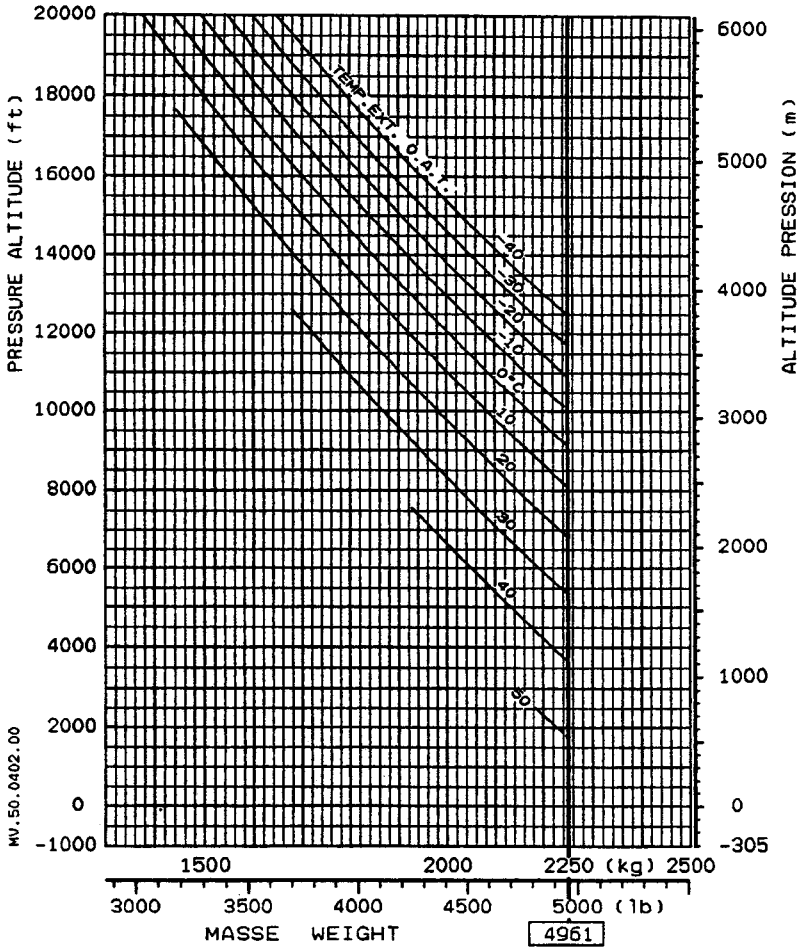

Figure 2

CONDITIONS

- Height : 5 ft - 1.5 m
- Sand filter not operating
- Heating and demisting systems off

IGE HOVER PERFORMANCE

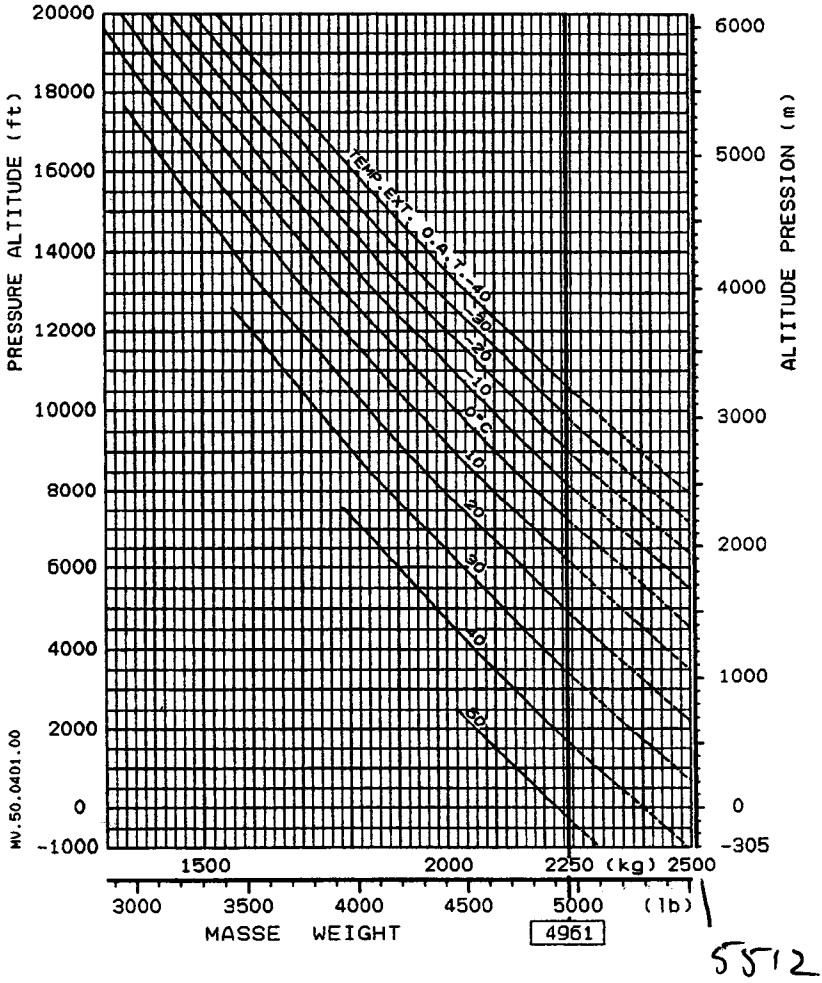

Figure 3

CONDITIONS

- No wind
- Heating and demisting systems off
- Sand filter not operating

OGE HOVER PERFORMANCE

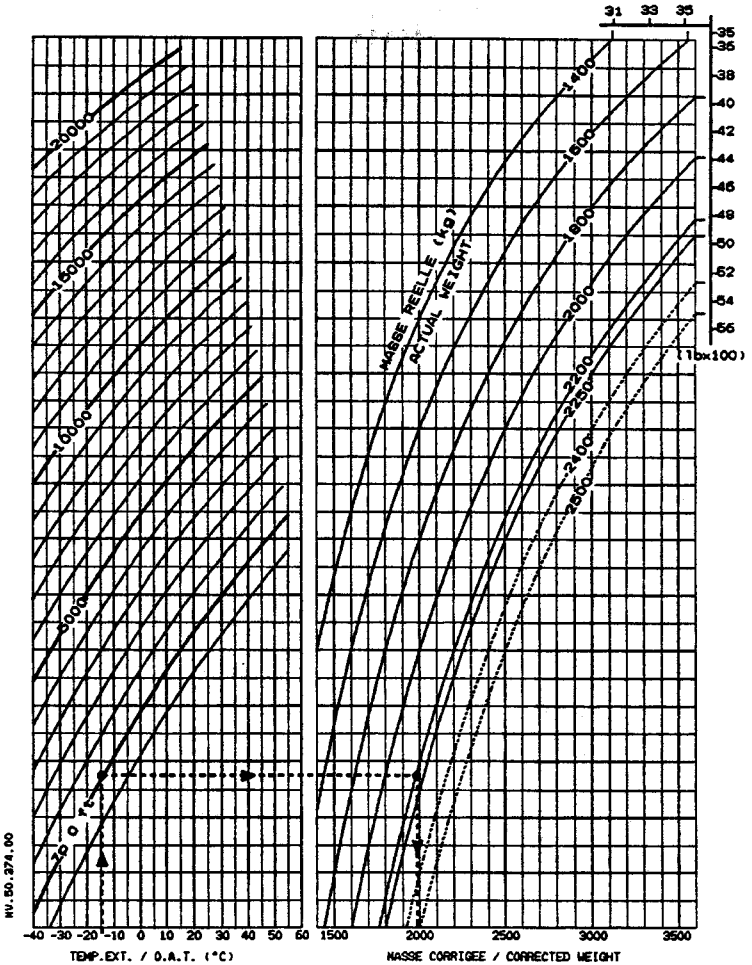

Figure 4

NOTE :
Weight limitation with internal load :
2250 kg (4961 lb)

CORRECTED WEIGHT TO DETERMINE RATES OF CLIMB (on Figure opposite)

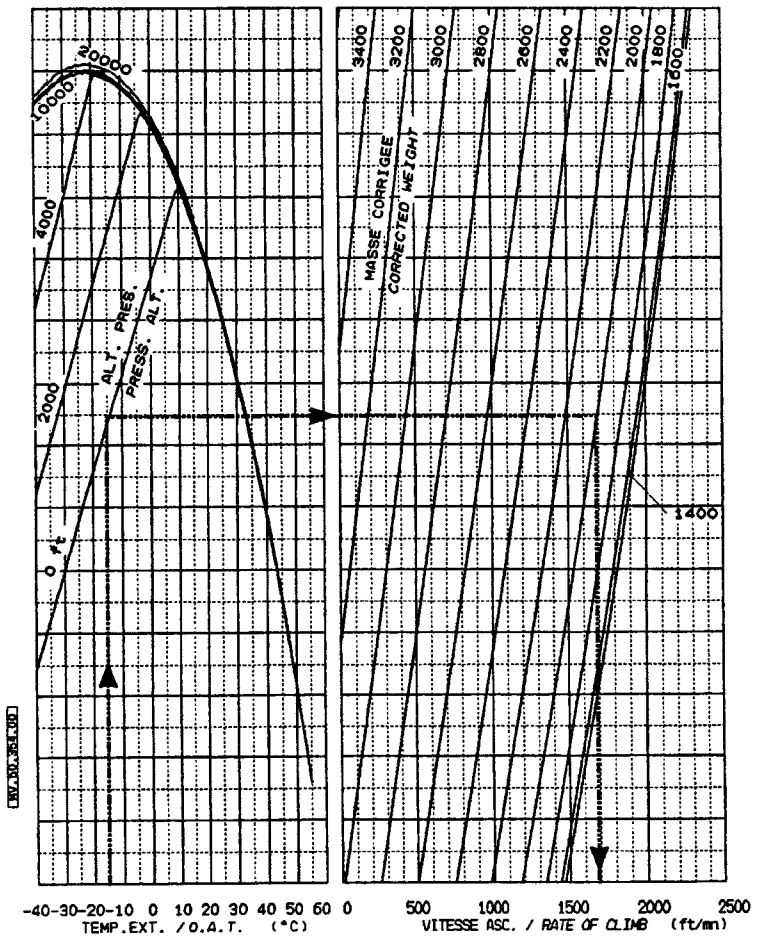

Figure 5

CONDITIONS

- Max. continuous power rating
- IAS 55 kt - 102 km/hr
- Sand filter not operating

RATE OF CLIMB

eurocopter

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

SFIM 85 T 31 AUTOMATIC PILOT

THREE-AXIS

Per drawings : 350A 82.7025.
350A 82.7026.

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
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EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Page Revision Code
- R : Revised, to be replaced
- N : New, to be inserted

SUPPLEMENT	PAGE	DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.16	P1 1	95-09					
SUP.16	P5 1/01	95-41	N				
SUP.16	1	95-41	R				
SUP.16	2	95-41	R				
SUP.16	3	95-41	R				
SUP.16	4	95-09					
SUP.16	5	95-41	R				
SUP.16	6	95-41	R				
SUP.16	7	95-41	R				
SUP.16	8	95-41	R				
SUP.16	9	95-41	R				
SUP.16	10	95-41	R				
SUP.16	11	95-41	R				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		
1	95-09		
2	95-41		

NORMAL REVISION : 2
DGAC APPROVED
DATE : 03 AVR 1996

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE DE LA NAVIGATION AÉRONAUTIQUE ET DE LA COOPÉRATION CIVILE INTERNATIONALE
SERVICE TECHNIQUE
REVAU

1 GENERAL

The three-axis (pitch, roll, yaw) autopilot (AP) is intended to hold the attitudes and heading selected by the pilot. R
Additional modes can provide :

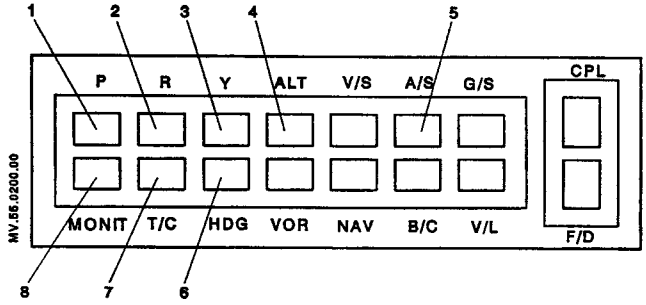
- airspeed hold,
- altitude hold,
- acquire and hold of heading selected on the HSI.

The AP unit mainly consists of :

- A control panel on the console.
- A computer underneath the cabin floor on copilot's side that receives data from the following detectors :
  . vertical gyro,
  . horizontal situation indicator (HSI),
  . gyro-compass,
  . air data sensor,
  . control pedal displacement detector ,
  . lateral accelerometer .
- An artificial load release system.
- A control for adjustment of the rudder pedals friction.
- Three control actuators (one per axis).
- Two trim actuators (on pitch and roll axes).
- Three galvanometers (pitch, roll, yaw).
- Three "disengaged channel" indicating lights (P, R and Y).
- An AP coupler monitoring panel.
- A failure monitoring unit.
  This module monitors the operation of the pitch and roll channels at different levels by comparing the data delivered from the instrument panel vertical gyro and gyro horizon :
  . Attitude sensors.
  . Command inputs generating system.
  . Control actuators.
  In case of abnormal operation, this unit warns the pilot and cuts out the defective channel. It starts operating automatically as the AP pitch and roll channels are engaged.

R

1.1 Autopilot control panel (figure 1)



ITEM No.	Description - Function
1	Pitch channel engage pushbutton
2	Roll channel engage pushbutton
3	Yaw channel engage pushbutton
4	Altitude hold pushbutton
5	Airspeed hold pushbutton
6	Selected heading hold pushbutton
7	Coordinated turn mode pushbutton
8	Failure monitoring unit and AP disengage pushbutton

Only the functions of the pushbuttons identified on the figure can be used. When pressed in these pushbuttons illuminate to indicate that their functions are effective. This causes the green ON marking to appear.

1.2 Instrument Panel Galvanometers (Figure 2)

The galvanometers indicate the position of the series-mounted actuators with respect to their middle position; when the actuator is centered, the pointer is in the middle. In pitch and roll, the actuators are recentered automatically. R R R R

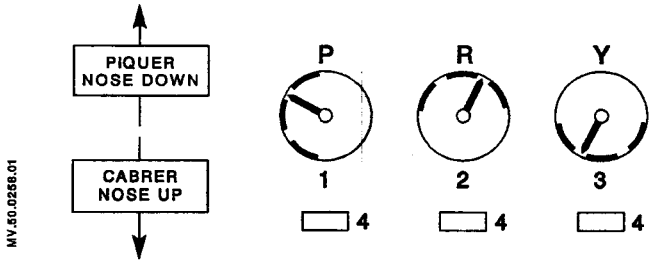


Figure 2

Item No.	Description	Direction of Indication	R
1	P (pitch) galvanometer	Indicates a nose-down order given by the autopilot	R R R
2	R (roll) galvanometer	Indicates a roll-to-right order given by the autopilot	R R R
3	Y (yaw) galvanometer	Indicates a yaw-to-left order given by the autopilot	R R R
4	Amber indicator lights	When on, the associated channel(s) is (are) not engaged	R R

NOTE : The yaw galvanometer pointer is recentered by moving the rudder pedals in the direction shown by the pointer.

1.3 Cyclic Stick Grip Controls

The autopilot controls are located on pilot's and copilot's cyclic stick grips (if dual controls installed) :

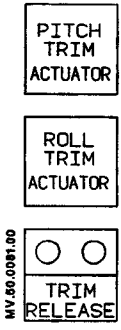
- A four-way beep-trim button. Allows the pilot to operate the stick and change the aircraft attitudes.
- A trim release pushbutton. Momentarily releases pitch and roll channel artificial feel loads.
- A pushbutton. Disengages AP system.

1.4 Vertical Gyro Valid Data Light (If installed)

An amber GYRO light on the failure monitoring panel illuminates to indicate that the vertical gyro valid data signal is lost.

5 AUTOPILOT CONTROL PUSHBUTTONS (Figure 3)

- On the instrument panel or on the console.

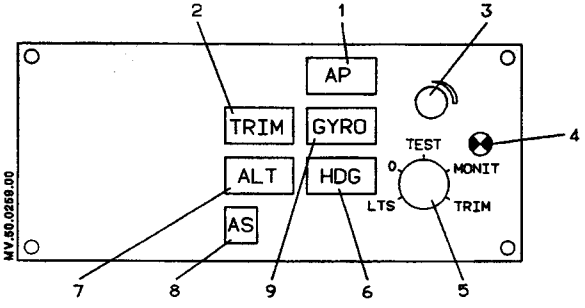


ITEM No.	Description - Function
1	Pitch trim actuator release
2	Roll trim actuator release
3	Permanent release of artificial loads in Pitch and Roll.

- On the console

An ON/OFF pushbutton located on the console controls the static inverter (115-V and 26-V, 400 Hz, a.c. power generating system).

6 AUTOPILOT MONITORING PANEL (Figure 4)



ITEM No.	Description - Function
1	A.P. warning light (blinking, red)
2	TRIM caution light (blinking, amber)
3	Light dimmer
4	TEST function indicator light
5	TEST selector switch
6	Selected heading hold mode engagement advisory light (green)
7	Altitude hold mode engagement advisory light (green)
8	Airspeed hold mode engagement advisory light (green)
9	GYRO warning light (amber)

2 LIMITATIONS

Apart from the specific limitations given below, all the limitations laid down in Section 2 remain applicable :

- When the aircraft is on the ground, the AP must be disengaged except when checks are to be performed.
- Do not engage the AP before take-off if trim test is not satisfactory.
- If height is less than 400 ft (120 m), the pilot must keep his hand on the cyclic stick.
- Minimum gross weight with AP in operation : 1300 kg.

3 EMERGENCY PROCEDURES

All emergency procedures specified in Section 3 of the basic Flight Manual remain applicable, together with the following additional procedures ;

3.1 General

If jerks or sudden movements independent of air turbulence are felt during flight with autopilot engaged, this may be caused by the autopilot. Consequently disengage the autopilot :

- If the anomaly disappears after disengagement, re-engage each channel in turn until failure is identified. Retain channels that operate properly.
- If the anomaly persists the AP is not at fault. Re-engage the autopilot if required.

3.2 Failure of hydraulic system

- Comply with procedure specified in Section 3.
- Disengage AP

3.3 Failure of the vertical gyro or gyro horizon

INDICATION	SYMPTOM	PILOT'S ACTION
- AP light blinks for 10 sec. (Fig. 4). - Gyro light illuminates or gyro horizon flag comes into view. - P, R, MONIT pushbutton lights on AP control panel go out (Fig. 1) - P and R lights (below galvanometers) illuminate (Fig. 2, Detail 4).	- Automatic disengagement of pitch and roll channels or of failure monitoring unit.	- Manual control by the pilot. The yaw channel remains operative - The HDG, ALT and A/S modes are inoperative. - Continue flight.

3.4 Failure of the gyro-compass

INDICATION	SYMPTOM	PILOT'S ACTION
- AP light blinks for 10 seconds (Fig. 4).	- The yaw channel disengages automatically. Y and T/C push-button (3,7 Fig.1) light goes out and Y indicator light (3,Fig. 2) illuminates.	- Yaw control by the pilot (Yaw channel and heading hold are inoperative).
- Failure flag appears on HSI (HDG).	- The "selected heading" function disengages automatically. HDG pushbutton light (Fig. 1) and HDG indicator light (Fig.4) go out.	- Continue flight.

3.5 Sudden failure of the auto-pilot

INDICATION	SYMPTOM	PILOT'S ACTION
- AP light blinks for 10 seconds (Fig. 4)	- Hardover to the defective axis.	- Manual control by the pilot (power reduction may be required to comply with the limitations).
- Automatic disengagement of faulty channel		- Continue flight.

3.6 TRIM malfunction

INDICATION	SYMPTOM	PILOT'S ACTION
- TRIM light illuminates for 10 sec. (Fig. 4) and defective trim disengages automatically.	- Before operation of the safety system (automatic disengagement), the stick tends to move in the direction of the failure	- Manual control by the pilot. - Momentarily disengage the artificial loads to trim stick. - Disengage the faulty trim function. - Continue flight. The autopilot continues to operate without the faulty axis being trimmed.
	- The pilot can no longer operate trim.	- Bring galvanometer pointer back to the centre using the stick release button

3.7 Blockage of artificial load system

INDICATION	SYMPTOM	PILOT'S ACTION
	- Blockage of cyclic stick	- Release the stick trim loads : . The blockage disappears : disengage the stick trim release pushbutton and continue flight. . The blockage persists : break mechanical shear pin of load compensator shaft by applying a 10 daN load approx on cyclic stick.

R R R R R R R R R R

3.8 A.C. power supply failure

INDICATION	SYMPTOM	PILOT'S ACTION
- AP light blinks for 10 sec. (Fig. 4).	- AP disengages automatically	- Check that ALTER pushbutton is pressed in. - Continue flight without autopilot.

3.9 Total power supply failure

In the event of a total power supply failure the autopilot disengages automatically and cannot be re-engaged.

4 NORMAL PROCEDURES

Apart from the specific procedures given below, the normal procedures laid down in the basic Flight Manual remain applicable :

NOTE : In case the copilot's cyclic stick has been removed check for presence of threaded shunt plug on relevant connector (28-VDC power supply to autopilot).

4.1 Checks before take-off

- Pushbuttons : . TRIM RELEASE (ARTIFICIAL LOADS) . PITCH TRIM ACTUATOR . ROLL TRIM ACTUATOR	- Released
- Cyclic stick	- Friction untightened
- Rudder pedals	- Friction tightened
- Static inverter	- Pushbutton pressed in
- Horizontal Situation Indicator	- HDG flag not visible
- Pilot's and copilot's gyro horizons	- Flag not visible

4.1.1 Autopilot test

- Test selector switch set to LTS (Detail 5 on Figure 4).	- Lights on control panel (Fig. 1) illuminate. - Lights on AP monitoring panel (Fig. 4) illuminate (2 1/2 second time delay). - Test function light (4) (Figure 4) illuminates.
- Test selector switch set to 0.	- Test function light (4) (Figure 4) extinguishes.
. Pitch, roll and yaw channels engaged.	- P, R, Y , MONIT pushbutton lights illuminate (Fig. 1). - Lights below galvanometers extinguish (Detail 4, Fig. 2).
. Four-way beep trim button : successively actuate in each direction.	- Check cyclic stick and relevant galvanometer pointer move in the right direction.
. Switch off autopilot through AP release pushbutton on pilot's cyclic stick. Then repeat this step through same pushbutton on copilot's cyclic stick (if fitted) after re-engaging the three autopilot channels.	- Lights below galvanometers illuminate. - AP light (Fig.5) blinks for 10 seconds. - Lights on control panel (Fig. 1) extinguish.

4.1.2 Failure monitoring unit test

- Pitch channel engaged	- Pitch pushbutton light illuminates (Fig. 1). - MONIT pushbutton light illuminates (Fig. 1).
- Actuate four-way button to offset cyclic stick in pitch direction.	- Cyclic stick moves in the chosen direction.
- Test selector switch set to MONIT, (Fig. 4).	- Cyclic stick stops moving. - Galvanometer re-centers (light on). - AP warning light flashes (Fig. 4). - GYRO warning light illuminates (Fig. 4). - MONIT pushbutton light flashes (Fig. 1). - Pitch pushbutton light extinguishes (Fig. 1).
- Test selector switch set to 0 - Roll channel engaged.	- Roll pushbutton light illuminates (Fig. 1). - MONIT pushbutton light illuminates (Fig. 1).

Same procedure as the pitch channel.

4.1.3 Pitch trim test

- Pitch channel engaged.	- Relevant pushbutton light (Fig. 1) illuminates : ON appears.
- Test selector switch set to TRIM (Detail on Fig. 4).	- TRIM caution light (Fig. 4) illuminates with 2-second time delay, then alternate nose-up displacement of cyclic stick with TRIM light (Fig. 4) blinking.
- Test selector switch set to 0. - Disengage pitch channel.	- P pushbutton light (Fig. 1) extinguishes.

4.1.4 Roll trim test

- Roll channel engaged. - Test selector switch set to TRIM.	- Same as pitch trim test above with alternate displacement of cyclic stick to the left.
- Test selector switch set to 0. - Disengage roll channel.	

CAUTION : DO NOT OPERATE THE AUTOPILOT IF THE TRIM LIGHT DOES NOT ILLUMINATE OR REMAINS ON STEADY DURING THE TEST.

4.2 Autopilot engagement before take-off

- Engage the three autopilot channels	- Check that the channels are engaged. P, R, Y , MONIT pushbutton lights illuminate : ON is visible (Fig. 1). R
- Test selector switch set to 0 (Fig. 4).	- Test light extinguishes (item 4, Fig. 4).
WARNING : DO NOT ALLOW THE AIRCRAFT TO REMAIN ON THE GROUND WITH THE AP ENGAGED AS THE TRIM ACTUATORS MAY UNWIND, THUS CAUSING THE STICK TO MOVE AGAINST THE STOP.	

4.3 Operating the autopilot in flight

4.3.1 Basic modes (P, R, Y, T/C)

4.3.1.1 Pitch and roll

- Hands off the stick.	- Autopilot holds attitudes.
- Artificial loads released.	- Autopilot operates as a damper.
- Overriding the artificial loads	- Trim actuators are inhibited. The actuators counteract within the limits of their authority.
- Through the 4-way button.	- Deviation in the direction of operation of the attitude references.

4.3.1.2 Yaw

- Feet off the pedals	- Channel holds "present heading" within the limits of its authority. Operating the pedals causes the heading reference to be altered. The pilot must bring the aircraft to the desired heading (angular speed less than 1.5°/sec.) then remove his feet from pedals so that the yaw channel can hold the new heading.
NOTE 1 : Collective pitch/yaw coupling is efficient when some friction is applied to the pedals. It is therefore recommended to apply friction.	
NOTE 2 : When the RH rudder pedal is near the stop (e.g. high LH cross wind) moving the collective pitch lever fully upward requires a greater effort than the usual value due to spring rod.	

4.3.1.3 Coordinated turns (T/C)

When airspeed is above 50 kt (92 km/h - 57 mph), the pilot can alter heading by flying the aircraft to a bank angle above 7°. The yaw channel then coordinates the turn.

4.3.2 Additional modes (HDG, ALT, A/S)

4.3.2.1 Selected heading (HDG)

This mode may be operated when the airspeed is above 50 kt (92 km/h - 57 mph).

When this mode is engaged, the autopilot captures and holds the heading selected on the HSI via the roll channel (the roll attitude reference is the nil). The yaw channel provides coordination.

4.3.2.2 Altitude (ALT)

This mode may be operated when the airspeed is above 60 knots (111 km/h - 69 mph).

When this mode is engaged, the autopilot holds the engagement altitude through the pitch channel.

NOTE : It is recommended to engage this mode only when vertical speed is lower than 1000 ft/min.

4.3.2.3 Airspeed (A/S)

This mode may be operated when the airspeed is above 50 kt (92 km/h - 57 mph).

When this mode is engaged, the autopilot holds the engagement airspeed through the pitch channel.

4.4 After landing

Disengage the autopilot via the cyclic stick pushbutton.

5 PERFORMANCE

Not affected.

R

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

EMERGENCY FLOATATION GEAR

per drawings : 350 A 82.8041.02
350 A 82.8042.00

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic Flight Manual and/or applicable Flight Manual supplements. The effective of the Supplement at the latest revision specified on SUP.17.P5 Page 1

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DIRECTION GÉNÉRALE DE L'AVIATION CIVILE
L'INGÉNIEUR EN CHEF
A. RICHARD

COMPOSITION
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DATE : 26 04 1989

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE
FORMATION AÉRONAUTIQUE ET TOURISME
L'INGÉNIEUR EN CHEF
A. RICHARD

DGAC Approved:

350 B2

SUP.17.P5

C

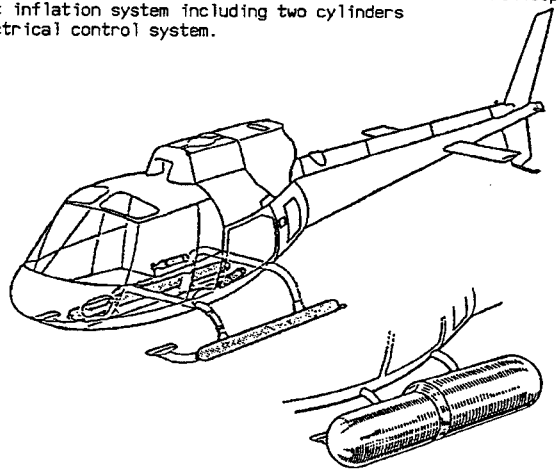
1 GENERAL

The emergency floatation gear allows the helicopter to alight on water, if necessary.

The installation is designed to allow the aircraft to land on an airstrip or prepared hard ground with floats inflated.

The emergency floatation gear comprises :

- two skid assemblies
- two parallel float assemblies, one on either side of the helicopter
- a float inflation system including two cylinders
- an electrical control system.



2 LIMITATIONS

All limitations specified in the basic Manual remain applicable, independently of the following :

- Floats stowed, system not armed
  . no special limitations
- Floats stowed, system armed or floatation gear inflated
  . maximum I.A.S. in powered flight :
  135 kt (250 km/h)
  . maximum I.A.S. at less than 40 % torque :
  100 kt (185 km/h)
- Maximum altitude for float inflation : 6600 ft (2000 m)
- When flying over water at an altitude below 400 ft (122 m) the floatation gear system must be armed.
- Minimum weight : when the O.A.T. is lower than 0°C, the minimum weight must remain greater than 1480 kg (3263 lb), in order to comply with the min. rotor r.p.m. upon engine failure.

3 EMERGENCY PROCEDURES

In the event of engine failure or other need for ditching, check rotor r.p.m. and apply the following procedure :

- Arm the emergency floatation gear firing system
- Fire the float inflation cartridges (Recommended maximum firing speed 80 kt - 148 km/h)
- Complete the autorotation procedure as described in the basic Manual. Alight broadside-on to the sea; avoid ramming of the nose of the floats on touch-down.

NOTE : Inflation of emergency floatation gear reduces the rotor speed by 20 rpm in autorotation descent.

IMPORTANT NOTE : WHEN THE HELICOPTER IS AFLOAT, THE FORWARD DOORS MUST BE OPENED BY ACTUATING THE JETTISON CONTROL.

4 NORMAL PROCEDURES

Normal procedures specified in the basic Manual remain applicable, independently of the following :

- External checks :

  . Float covers properly laced
  . Correct cylinder pressure

Limit pressure values are given by the following table :

TEMPERATURE C° FAHRENHEIT DEGREE	- 40 - 40	- 30 - 22	- 20 - 4	- 10 14	0 32	10 50	20 68	30 86	40 104	50 122
PRESSION MAXI BARS MAX PRESSURE PSI	256 3713	266 3958	277 4018	287 4163	298 4322	309 4482	321 4656	332 4815	344 4989	356 5163
PRESSION MINI BARS MIN PRESSURE PSI	238 3452	248 3597	258 3742	268 3887	279 4047	290 4206	301 4366	312 4525	324 4699	335 4859

NOTE : A placard located near the cylinders indicates the limit pressure values.

. Float elements locked down

- Arming the emergency floatation gear

  . Depress the FLOAT ARMING (ARM.FLOT.SEC) push-switch

  . Check that both lights illuminate in the FLOAT FIRING (PERCUT FLOT SEC) push-switch.

5 PERFORMANCE

With the emergency floatation gear in stowage position the performance data specified in SECTION 5.1 remain applicable except for climbing performance which is reduced by 50 ft/mn (15 m/mn) at 55 kt IAS.

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

ELECTRIC RESCUE HOIST

AIR EQUIPMENT OR BREEZE

per drawings : 350 A 82.8002
350 A 82.8003

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic Flight Manual and/or applicable Flight Manual supplements. The effective of the Supplement at the latest revision specified on SUP.18.P5 Page 1

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RR 1A

The title of the Supplement is replaced by :

"BREEZE" or "AIR EQUIPEMENT"
136 kg (300 lb) ELECTRIC HOIST

As per drawing : 350A 82-8002
350A 82-8003

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A/C : 350 B2 - S/N :

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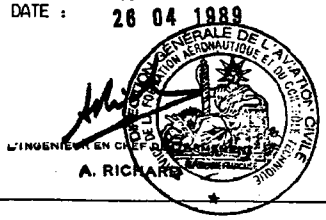

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SUP.18		P4.1	96-22
SUP.18	1A	P1.1	96-22

SUPPLEMENTS	RR No.	PAGE	CODE DATE

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L'INGENIEUR EN CHEF DIRECTEUR
A. RICHARD

DIRECTION GENERALE DE L'AVIATION CIVILE
DIRECTION DE LA NAVIGATION AERONAUTIQUE ET DU CONTROLE TECHNIQUE

1 GENERAL

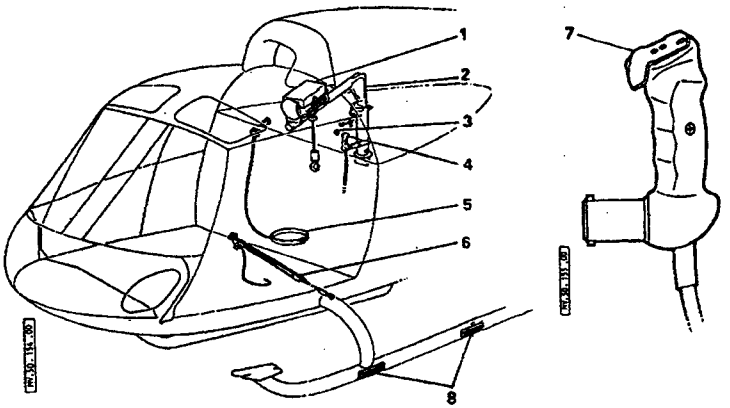
The hoist installation is designed to lower or haul on board people or loads, while the aircraft is hovering.

The aircraft can be fitted with either of the two electric hoists : BREEZE BL 15600 or AIR EQUIPEMENT 76370.

The hoist installation comprises essentially :
- A pivoting jib (2) provided with a locking bolt (3), mounted on the port side of the helicopter.
- An electrically operated winch (1) fitted with :
  . a 33.5-metre (110-ft) cable in the case of the BREEZE hoist
  . a 40-metre (130-ft) cable in the case of the AIR EQUIPEMENT hoist.
- A snap hook mounted on a pulley-block tackle (6).
- An electrical control system including :
  . A cable release guarded switch on the pilot's collective lever, which is used to sever the cable in an emergency.
  . A rocker switch (7) on the hoist operator's control grip, which is used to raise, lower and stop the cable.
- Two cable guards (8) secured to the L.H. landing skid.

The hoist installation is protected by :
. a 100-Amp fuse provided in the electrical master box
. a 60-Amp fuse (4) provided on the aft wall near the hoist operator's grip support. Both these fuses power the hoist.
. two 2.5-Amp. fuses protecting the "emergency release" circuit
. a 2.5-Amp. fuse protecting the "up-down" circuit.

A cutter provided on the rear wall allows the hoist operator to sever the cable, if necessary.



2 LIMITATIONS

HOIST OPERATIONS MUST BE IN ACCORDANCE WITH OPERATING REGULATIONS GOVERNING THESE OPERATIONS.

The limitations laid down in the basic Flight Manual remain applicable in full with the addition of the following specific points :

- Minimum crew : one pilot and one hoist operator.
- Maximum load on the hoist cable : 136 kg (300 lb).
  For the aircraft equipped with the A.E Hoist, before embodiement of modification AMS 1587, limit rigid compact loads to 80 kg (176 lb).
- Landing with a suspended load of 136 kg (300 lb) is not permissible.
- Speed limitation in forward flight with hoist cable reeled in and no load on :
  . when aircraft is fitted with L.H. sliding door, is given in relevant Supplement.
  . when L.H. door and sub-door are removed from aircraft is 70 kt - 81 MPH - 130 km/hr.

3 EMERGENCY PROCEDURES

The hoist installation incorporates a pyrotechnic cable cutter controlled by a guarded pushbutton, located on the pilot's collective lever grip, which permits the load to be released in an emergency.

In the event of a complete electrical failure, have the cable severed by means of the mechanical cutter available to the hoist operator.

4 NORMAL PROCEDURES

The L.H. door and sub-door must be removed if the aircraft is not fitted with the sliding door.

Make sure that both cable guards are present and firmly secured.

The jib locking bolt and the hoist operator's control grip complete with support must be installed before take-off.

The hoist must be controlled by the hoist operator attached with safety belt (5) and standing on left side of the cabin. A control grip stowed on the aft wall and provided with an UP-DOWN rocker switch (7) marked M/U - D is available to the operator.

For carrying out a hoisting operation :

- Stabilize the aircraft in hover above the hoisting site
- Ensure sufficient power reserve is available that will permit moving off in forward flight once the load is hoisted on board.
- Set the jib in hoisting position.

The hoist operator can now control the winch. To bring the load into the cabin, unlock the jib and pivot it inwards.

The snap-hook can be used to hold the load while the hoist cable is being unhooked.

Do not move off in forward flight until the load is hoisted on board.

With "Air Equipment" hoist, when rigid compact loads (over 80 kg - 176 lb post mod AMS 1587) are being hoisted inconsequential oscillations may appear. Operate the hoist.

NOTE 1 : AIR EQUIPEMENT hoist

Overheating of the winch motor must be avoided. Consequently never exceed 5 consecutive hoisting operations plus one descent with maximum load, and maximum cable reel-out or equivalent.

NOTE 2 : BREEZE hoist

After each operation of the winch (lowering or raising) wait 30 seconds. After three complete cycles (first lowering with maximum load ; the following two lowerings with no load ; plus three raisings at full load) it is recommended to stop the winch for forty minutes.

5 PERFORMANCE

With hoist jib folded, the performance data laid down in Section 5.1 remain applicable.

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

FORWARD TWO-PLACE SEAT

As per drawings : 350A 82.2046.
350A 82.2047.
or
350A 82.2128.
350A 82.2129.
350A 82.2046.

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic Flight Manual and/or applicable Flight Manual supplements.

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DIRECTION GÉNÉRALE DE L'AVIATION CIVILE
FORMATION AÉRONAUTIQUE ET DU CONTRÔLE TECHNIQUE
L'INGÉNIEUR EN CHEF
A. RICHARD

COMPOSITION
OF CONDITIONAL REVISIONS (RC)

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SECTION GÉNÉRALE DE L'AVIATION CIVILE
DIRECTION DE LA NAVIGATION AÉRONAUTIQUE ET DU CONTRÔLE TECHNIQUE
L'INGÉNIEUR EN CHEF DE L'ARMEMENT
A. RICHARD

DGAC Approved:

350 B2

SUP.21.P5

C

1 GENERAL

This Supplement applies to the aircraft equipped with the two-place seat. When it is mounted in lieu of the copilot's seat the aircraft can carry seven persons.

2 LIMITATIONS

All the limitations specified in Section 2 remain applicable with the exception of the following specific limitations :

- The maximum number of persons carried is increased to seven (including pilot).
- The total weight of the two passengers on the forward two-place seat shall not exceed 154 Kg (339 lb).
- The optional dual controls shall be removed in order to install the forward two-place seat.

3 EMERGENCY PROCEDURES

All the emergency procedures specified in the basic Flight Manual remain applicable.

4 NORMAL PROCEDURES

The normal procedures given in the basic Flight Manual remain applicable. Special attention shall be paid to c.g. determination.

CAUTION : C.G. LIMITS AT EMPTY WEIGHT ARE TO BE RE-DETERMINED IN ACCORDANCE WITH THE INFORMATION CONTAINED IN THE MAINTENANCE MANUAL, WORK CARD No. 25.22.20.401.

NOTE : Flying with one pilot, then with 7 persons on board present very significant differences in c.g. limits. It is imperative that this be checked in every configuration.

Determination of C.G. limits

Forward two-place seat	350 A 82.2046 350 A 82.2047	350 A 82.2128 350 A 82.2129
Weight	10.1 kg - 22.27 lb	11.4 kg - 25.22 lb
Moment	17.2 mkg - 1490 inlb	19.4 mkg - 1688 inlb

Front passenger distance : 1.70 m - 66.93 in.

kg	50	60	70	80	90	100	110	120	130	140	150
m.kg	85	102	119	136	153	170	187	204	221	238	255

lb	100	125	150	175	200	225	250	275	300	325
in. lb	6693	8366	10039	11712	13386	15059	16732	18405	20079	21752

5 PERFORMANCE

The approved performance data given in the basic Flight Manual and relevant Supplements remain applicable.

eurocopter

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

FUEL HEATING SYSTEM

Optional : OP 1760

350 A 82.5067.00

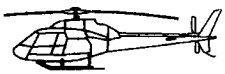
IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

*

This supplement supports the helicopters delivered by both AEROSPATIALE and EUROCOPTER FRANCE.
Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.

THIS SUPPLEMENT MUST BE INCLUDED IN THE FLIGHT MANUAL WHEN THE EQUIPMENT MENTIONED ABOVE IS INSTALLED ON THE AIRCRAFT.



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DIRECTION GÉNÉRALE DE L'AVIATION CIVILE – FORMATION AÉRONAUTIQUE ET DU CONTRÔLE

L'INGÉNIEUR EN CHEF DU GÉNIE RURAL

A. RICHARD

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SUP.23	P5	1/01	89-17	N					
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FORMATION AÉRONAUTIQUE ET DU CONTRÔLE TECHNIQUE
L'INGÉNIEUR EN CHEF DE L'ARMEMENT
A. RICHARD

DGAC Approved:

350 B2

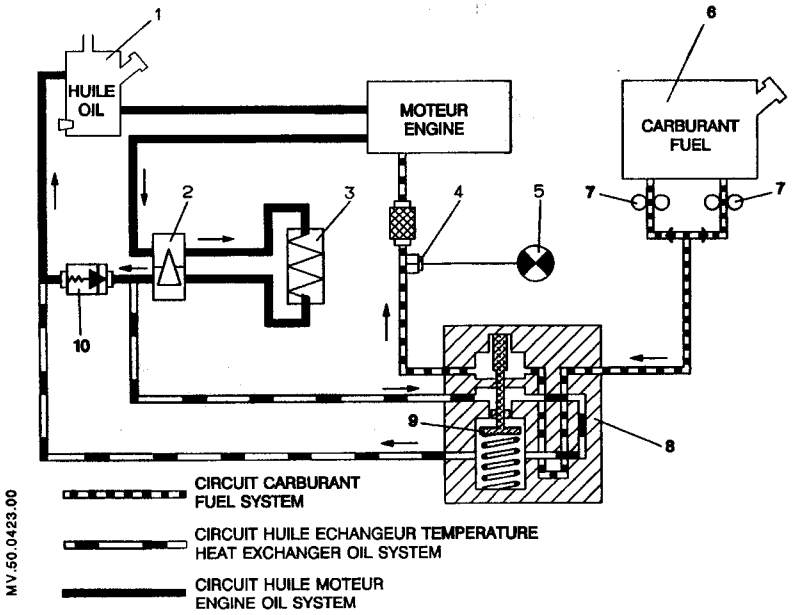
SUP.23.P5

C

89-17 Page 1

1 GENERAL

The fuel warm-up installation allows the fuel to be kept at a temperature between +5°C and +50°C, thus avoiding the use of anti-ice additives.
The fuel is warmed up by the engine oil circulating through a heat exchanger before it returns to the oil tank. The fuel temperature is monitored by a regulating system. An indicator light illuminates when the operating temperature range is exceeded.



OIL SYSTEM	FUEL SYSTEM
1 Oil tank 2 Thermal valve 3 Oil coolers 4 Thermal switches 5 Indicator light 6 Fuel tank	7 Booster pumps 8 Oil/Fuel heat exchanger 9 Thermal capsule (fuel temperature) 10 Heat exchanger by pass-valve

2 LIMITATIONS

The limitations specified in Section 2 of the basic Flight Manual remain applicable except for the limitations mentioned below :

- With one booster pump inoperative :
  . limitations are the same as for the basic aircraft.
- With two booster pumps inoperative :
  . maximum altitude with F34, F35, JET A, F42, or F44 fuel : 5000 ft (1524 m)
  . maximum altitude with F40 or JET B fuel : 2000 ft (609 m)
- Anti-icing additive is not required.

- The use of emergency fuels is limited to temperatures of +10°C or less.

3 EMERGENCY PROCEDURES

- Illumination of the fuel temperature amber light (FUEL T°) if temperature is less than +5°C or greater than +50°C :
  In flight avoid sudden power variations and monitor the filter pre-clogging indicator light in cold weather.

4 NORMAL PROCEDURES

The normal procedures specified in the basic Flight Manual remain applicable.

5 PERFORMANCE DATA

The performance data specified in the basic Flight Manual remain applicable.

eurocopter

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

PROTECTION OF THE AIR INTAKE
AGAINST INDUCTION OF SNOW

Optional : OP 2561

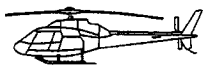
IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.
The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

*

This supplement supports the helicopters delivered by both AEROSPATIALE and EUROCOPTER FRANCE.
Revisions to this supplement are made by EUROCOPTER FRANCE using the same procedures as AEROSPATIALE.

THIS SUPPLEMENT MUST BE INCLUDED IN THE FLIGHT MANUAL WHEN THE EQUIPMENT MENTIONED ABOVE IS INSTALLED ON THE AIRCRAFT.



EUROCOPTER FRANCE Etablissement de Marignane
Direction Technique Support - 13725 Marignane Cedex - France

DGAC Approved:

A | B | C | D

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Evolution page code
- R : Revised, to be replaced
- N : New, to be inserted

SUPPLEMENT	PAGE	DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.25	P1 1	93-09	N				
SUP.25	P5 1/01	93-09	N				
SUP.25	1	93-09	N				
SUP.25	2	93-09	N				
SUP.25	3	93-09	N				
SUP.25	4	93-09	N				
SUP.25	5	93-09	N				
SUP.25	6	93-09	N				
SUP.25	7	93-09	N				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	93-09		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 JUIL. 1993

Th. LHOMMEAU
I.E.E.A.C.

1 GENERAL

This installation is designed to protect the air intake against any potential induction of snow in flight, in falling snow.

The snow protection device is fitted on the engine air intake and below the ice protection screen. It is composed of vortex generator tubes through which the ambient air flows before being forced towards the engine air intake.

2 LIMITATIONS

The limitations laid down in the basic Flight Manual remain applicable, with the exception of the flight envelope restrictions in case of falling snow which are cancelled.

3 EMERGENCY PROCEDURES

The Emergency Procedures specified in the basic Flight Manual remain applicable.

4 NORMAL PROCEDURES

The Normal Procedures specified in the basic Flight Manual remain applicable, but are completed by the following procedures :

EXTERNAL CHECKS

- Engine air intake :

  . remove snow or ice from the air intake grid,
  . open the engine cowling,
  . check for snow, ice or water in the air intake, and particularly under the snow protection device.

ENGINE CONDITION CHECK

Use the power check chart of the following page (Figure 1).

The procedures for checks on ground and in flight, given in Section 4, remain applicable.

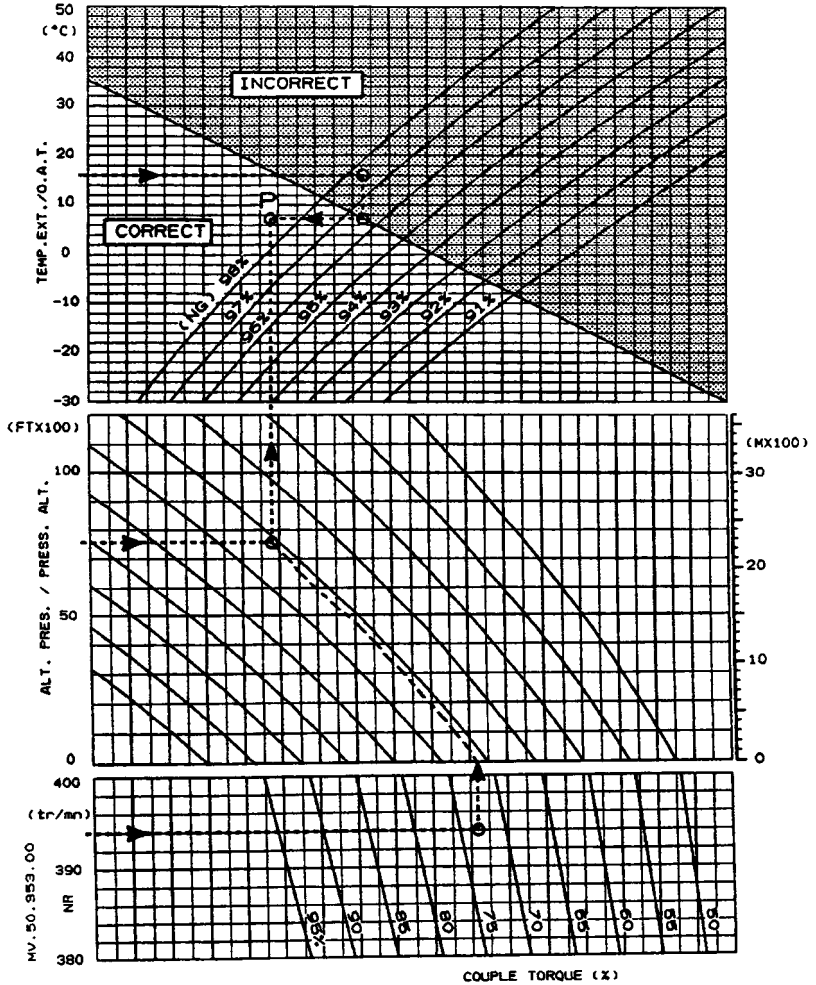


Figure 1 : Engine Power Check with Air Intake Protection Device

5 PERFORMANCE

The Perfomance Data specified in Section 5.1 of the basic Flight Manual are unaffected, with the exception of the following specific performance data :

FLIGHT CONFIGURATION	HEATING AND DEMISTING SYSTEMS OFF	HEATING AND/OR DEMISTING SYSTEMS OPERATING
I.G.E. hover	Figure 2	Figure 2 minus 60 kg (130 lb)
O.G.E. hover	Figure 3	Figure 3 minus 60 kg (130 lb)
Rate-of-climb	Figure 5	Figure 5

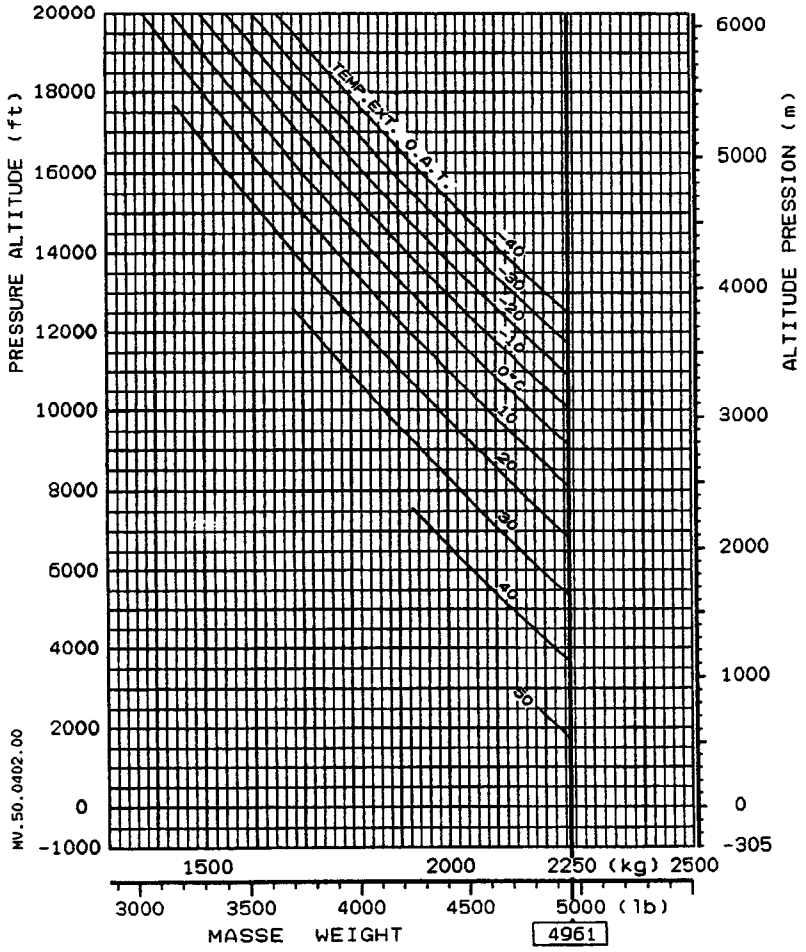


Figure 2

CONDITIONS

- Height : 5 ft – 1.5 m
- Heating and demisting systems off

IGE HOVER PERFORMANCE

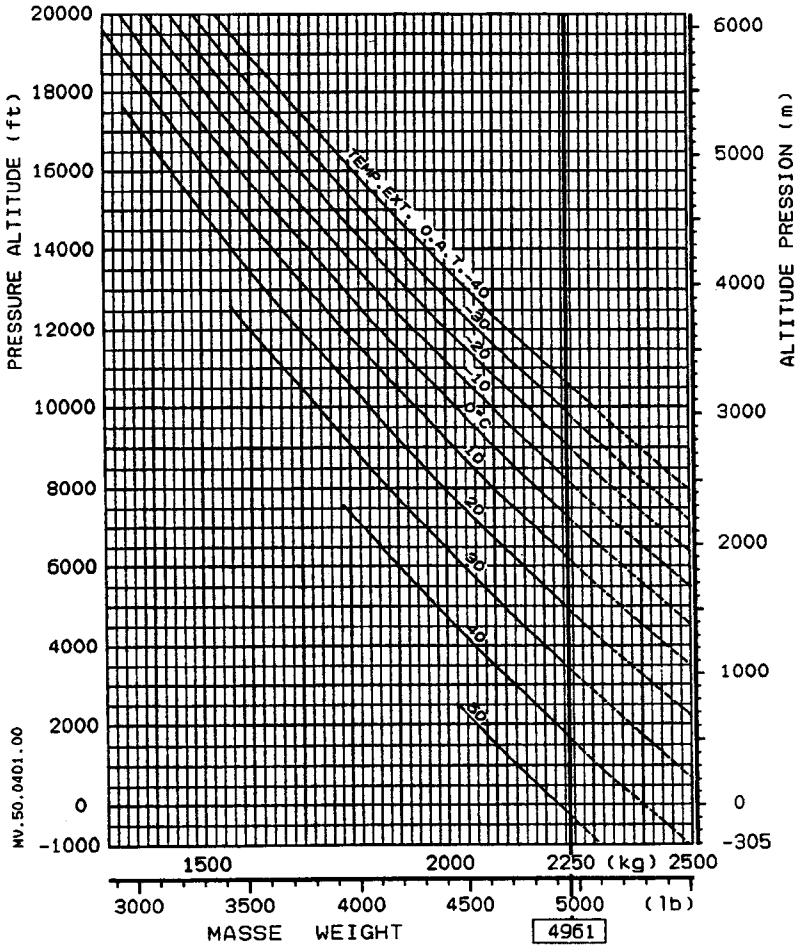


Figure 3

CONDITIONS

- No wind
- Heating and demisting systems off

OGE HOVER PERFORMANCE

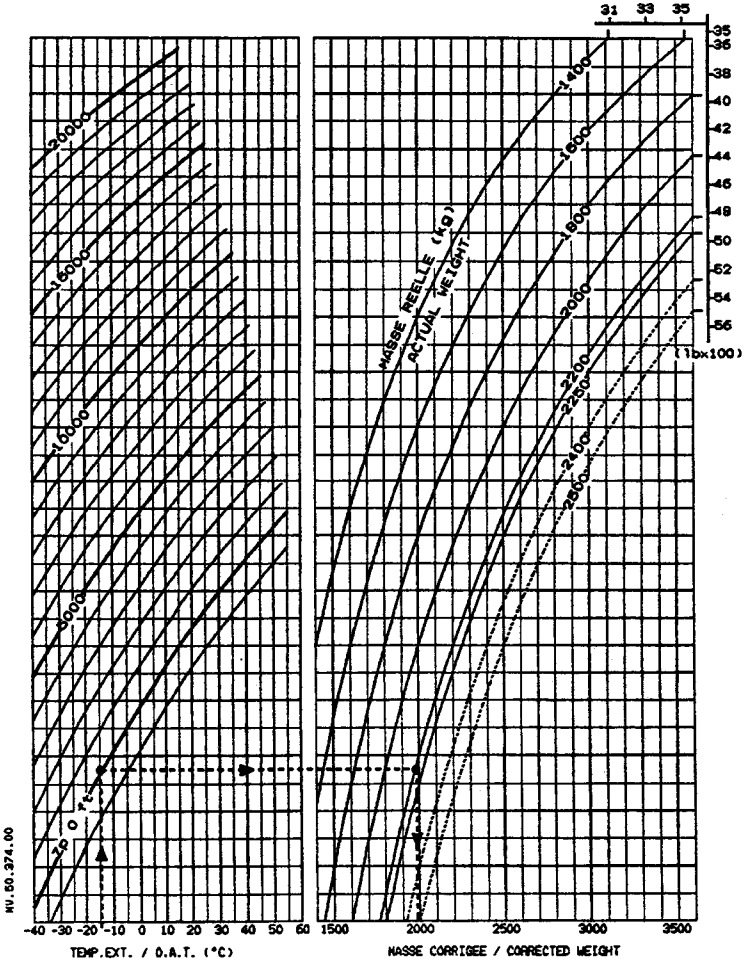


Figure 4

NOTE :

Weight limitation with internal load : 2250 kg (4961 lb)

CORRECTED WEIGHT TO DETERMINE RATES OF CLIMB (On Figure opposite)

DGAC Approved:

350 B2

SUP.25

A | B | C | D

93-09 Page 6

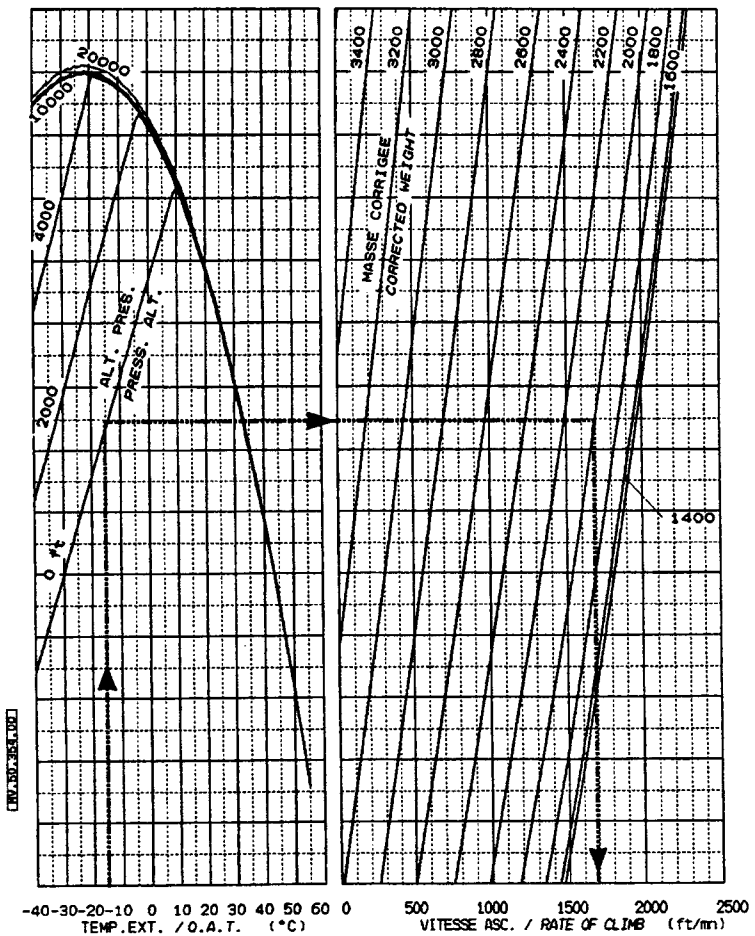


Figure 5

CONDITIONS

- Max. continuous power rating
- IAS 55 kt - 102 km/hr

RATE OF CLIMB

eurocopter

FLIGHT MANUAL

AS 350 B2

SUPPLEMENT

LONG AND SHORT FOOTSTEPS

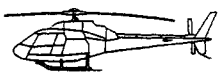
LONG D.350-591-111-a
SHORT D.350-591-113

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or supplements listed in supplement 0.

The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

THIS SUPPLEMENT MUST BE INCLUDED IN THE FLIGHT MANUAL WHEN THE EQUIPMENT MENTIONED ABOVE IS INSTALLED ON THE AIRCRAFT.



EUROCOPTER Direction Technique Support
Aéroport international Marseille-Provence 13725 Marignane Cedex - France

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

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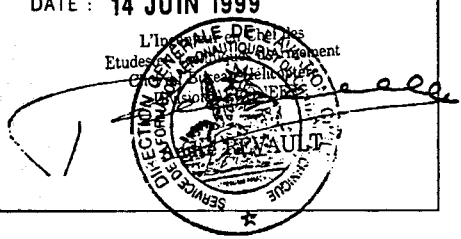
- R : Revised, to be replaced
- N : New, to be inserted

SUPPLEMENT	PAGE		DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.28	P1	1	99-21	N				
SUP.28	P5	1/01	99-21	N				
SUP.28		1	99-21	N				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	99-21		

NORMAL REVISION : 0
DGAC APPROVED
DATE : **14 JUIN 1999**



DGAC Approved:

350 B2

SUP.28.P5

C

99-21

1 GENERAL

The long footstep (P/N D.350-591-111-a) on the high landing gear facilates cabin access and inspection of the transmission platform.

The short footstep (P/N D.350-591-113) on the high landing gear facilates cabin access.

2 LIMITATIONS

The limitations specified in the basic Flight Manual and relevant Supplements remain applicable.

3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic Flight Manual and relevant Supplements remain applicable.

4 NORMAL PROCEDURES

The normal procedures given in the basic Flight Manual and relevant Supplements remain applicable.

5 PERFORMANCE

Performance data given in the basic Flight Manual and relevant Supplements remain applicable but are completed by the following procedures :

- Rate of climb : reduce by 2,5 %.

FLIGHT MANUAL

AS 350 B2

SPECIAL SUPPLEMENT

FERRY FLIGHT FUEL TANK

per drawings : 350A 82.2005
350A 82.2036

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic Flight Manual and/or applicable Flight Manual supplements. The effective of the Supplement at the latest revision specified on SUP.50.P5 Page 1

aerospatiale SOCIETE NATIONALE INDUSTRIELLE
DIVISION HELICOPTERES - DIRECTION SUPPORT CLIENTS - BP 176 - 13723 - MARIGNANE FRANCE

DGAC Approved:

C

PAGE INTENTIONALLY LEFT BLANK

CUSTOMIZATION :

A/C : 350 B2 - S/N :

LIST OF ADDITIONAL APPROVED PAGES

SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE
THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.					

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989

COMPOSITION
OF CONDITIONAL REVISIONS (RC)

This manual assigned to the helicopter mentioned on the title page, contains the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

Section	Page	Date	Applicable before condition is met :

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this year.

COMPOSITION
OF RUSH REVISIONS (RR)

The Manual contains the following additional yellow page(s) :

No	SECTION - PAGE	CODE DATE	No	SECTION - PAGE	CODE DATE

DGAC Approved:

C

350 B2

SUP.50.P4

89-17 Page 1

LIST OF APPROVED EFFECTIVE PAGES

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- R : Revised, to be replaced
- N : New, to be inserted

SECTION	PAGE	DATE	(1)	SECTION	PAGE	DATE	(1)
50. 0	P1 1	89-17	N				
50. 0	P1 2	89-17	N				
50. 0	P1 3	89-17	N				
50. 0	P3 1	89-17	N				
50. 0	P4 1	89-17	N				
50. 0	P5 1/ 1 *01*	89-17	N				
50. 0	1	89-17	N				
50. 0	2	89-17	N				
50. 0	3	89-17	N				

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	89-17		

NORMAL REVISION : 0
DGAC APPROVED
DATE : 26 04 1989

L'INGÉNIEUR EN CHEF DE L'ARMEMENT
A. RICHARD ★

DGAC Approved:

350 B2

SUP.50.P5

C

1 GENERAL

The range of the helicopter can be increased by installing a special ferry flight tank transversally in the rear cabin area.
The installation consists essentially of :
- A 475-litre (125-US gal.) capacity removable tank. The unusable fuel quantity is negligible.
- A vent line
- A fuel transfer line, with an isolating valve, between the ferry fuel tank and main fuel tank.

2 LIMITATIONS

THIS INSTALLATION IS TO BE USED ONLY FOR FERRY FLIGHT WITH THE SPECIAL PERMISSION OF THE COMPETENT AUTHORITIES.

The limitations laid down in the basic Flight Manual remain applicable.
In addition :
- Only personnel indispensable to the accomplishment of the mission are authorized to fly in the aircraft.
- Smoking is prohibited, due to the presence of fuel in the tank in the cabin.
- Maximum airing of the cabin is to be ensured.

The weight of fuel that can be carried in the ferry tank will depend on the loading of the helicopter and can be determined by referring to the C.G. chart, bearing in mind that the forward c.g. limit on take-off with a full main tank must not be exceeded.

3 EMERGENCY PROCEDURES

If a fuel leak should occur in the cabin :
- Land as soon as possible.

4 NORMAL PROCEDURES

Checks before filling the tank

- Make sure that the ferry flight tank is securely attached.
- Check that the ferry tank vent line is correctly installed.
- Close the transfer valve.

Filling procedure

- Fill the main fuel tank
- Fill the ferry tank to the amount previously determined..
- Check C.G. location :
  . Weight and moment of empty ferry tank are given in Section 6
  . Fuel is located at 91.3 in. (2.32 m) from datum line.

In-flight procedure

- Take off and fly with the transfer valve closed.
- When the fuel gauge reads 80 %, open the transfer valve. The fuel level in the two tanks is then equal if the quantity in the ferry tank is approx 79.2 US gal. (300 l.).
- If there is a difference in fuel level, transfer will occur and balance will be attained within ten minutes.
- When the fuel levels are balanced the quantity corresponding to the gauge reading is :

Gauge Reading		90	80	70	60	50	40	30	20
VOLUME	Litres	805	705	605	505	405	305	205	105
	US Gal	212	186	159	133	107	80	54	27
	IMP Gal	176	154	132	110	88	66	45	23

When the gauge reads 20 % the ferry tank is empty and the quantity of fuel remaining in the main tank is 27 US gal./23 Imp. gal./105 litres.

When the transfer valve is open it is important to ensure that transfer is effective by making sure that the fuel gauge indicator pointer is moving

CAUTION : IF FUEL TRANSFER IS NOT OPERATIVE, LAND BEFORE THE FUEL GAUGE READING FALLS TO 60 %. FAILURE TO LAND ABOVE 60 % MAY RESULT IN CENTRE OF GRAVITY MOVING OUTSIDE ALLOWABLE LIMITS.

5 PERFORMANCE

The approved performance data contained in Section 4 of the Flight Manual are not affected by the ferry flight tank installation.

eurocopter

FLIGHT MANUAL

AS 350 B2

SPECIAL SUPPLEMENT

ABSEILING INSTALLATION

Per drawing : 355P84.0080

IMPORTANT NOTE

The information contained herein supplements or supersedes the information given in the basic flight manual and/or applicable flight manual supplements.

The effectivity of the supplement at the latest revision is specified on the List of Effective Pages.

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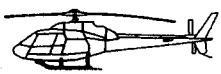

EUROCOPTER Direction Technique Support
Aéroport international Marseille-Provence 13725 Marignane Cedex - France

LIST OF APPROVED EFFECTIVE PAGES
DOT CERTIFICATION

(1) Page Revision Code
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- N : New, to be inserted

SUPPLEMENT PAGE	DATE	(1)	SUPPLEMENT PAGE	DATE	(1)
SUP.56 P1 1	99-37	N			
SUP.56 P5 1/01	99-37	N			
SUP.56 1	99-37	N			

LIST OF THE LATEST NORMAL APPROVED REVISIONS

No	Date	No	Date
0	99-37		

NORMAL REVISION : 0
DGAC APPROVED
DATE : **13 SEP. 1999**

L'Ingénieur en Chef des [illegible]
Etudes et Techniques d'Aéronefs
Chef [illegible] Hélicoptères
Division AERONEFS

SERVICE DE LA NAVIGABILITÉ ET DES NORMES TECHNIQUES
DIRECTION GÉNÉRALE DE L'AVIATION CIVILE ET DU CONTRÔLE TECHNIQUE

André REVAULT

1 GENERAL

This installation allows trained personnel to perform abseiling. It consists of two rings fixed to the cabin floor in front of the passenger's seats and of a protection for the lower rail of each sliding door.

2 LIMITATIONS

THE USE OF THIS TYPE OF INSTALLATION IS SUBJECTED TO THE APPROVAL OF THE COMPETENT OPERATIONAL AUTHORITIES.

The limitations specified in the basic Flight Manual and relevant Supplements remain applicable ; however, they are completed or modified by the following limitations :

- Abseiling is limited to hover flight.
  After completion of the abseiling operation, transition to forward flight or landing is prohibited with the ropes unwound.

- The load on the abseiling installation is limited to 120 kg per ring.
  A plate affixed close to each ring indicates the maximum load.

3 EMERGENCY PROCEDURES

The Emergency Procedures specified in the basic Flight Manual and relevant Supplements remain applicable.

4 NORMAL PROCEDURES

The normal Procedures specified in the basic Flight Manual and relevant Supplements remain applicable ; however, they are completed by the following :

- Before takeoff, determine the weight and CG conditions which will prevail during the mission, knowing that the load on the asbeil ropes is located at :
  . 2.24 m from the longitudinal datum,
  . 1.09 m from the aircraft centerline.

5 REGULATORY PERFORMANCE DATA

The Regulatory Performance Data specified in the basic Flight Manual and relevant Supplements remain applicable.

DART AEROSPACE LTD
2071 Malaview Avenue
Sidney, BC, V8L 5N7
Canada

Tel: 604 656 2262
Fax: 604 656 2993

FLIGHT MANUAL SUPPLEMENT

Spacepod™

SIDE CARGO COMPARTMENT EXTENDERS

EUROCOPTER AS350/355 MODELS

This supplement must be attached to the approved flight manual when the listed equipment is installed. The information contained herein supplements the information in the basic Helicopter Flight Manual. For limitations, procedures and performance data not contained in this document, consult the Helicopter Flight Manual.

CAA APPROVED

Amendment: A
Date: 95.09.25

LOG OF AMENDMENTS

Rev. No.	Pages Revised	Revised By and Date	Approved By and Date	Inserted By	Date Inserted
A	NEW ISSUE	B. Williams 95.09.25	95/09/25		

CAA APPROVED

SECTION 1 - GENERAL

NO CHANGE

SECTION 2 - LIMITATIONS

VFR FLIGHT ONLY

Flight under IFR is prohibited with the pods installed.

INTERNAL GARGO LOADING

Maximum Load in the LH (Port) Hold: **364 lb (165 kg)**

DECAL: (located inside door)

MAXIMUM DISTRIBUTED LOAD

IN THIS COMPARTMENT

364 lb / 165 kg

Maximum Load in the RH (Stbd) Hold: **320 lb (145 kg)**

DECAL: (located inside door)

MAXIMUM DISTRIBUTED LOAD

IN THIS COMPARTMENT

320 lb / 145 kg

SECTION 3 - EMERGENCY PROCEDURES

NO CHANGE

SECTION 4 - NORMAL PROCEDURES

DAILY INSPECTION (Preflight)

Check physical integrity and security of the *Spacepod*™ body and door.

SECTION 5 - REGULATORY PERFORMANCE DATA

CLIMB

Climb performance will be reduced by up to 100 fpm when pods installed.

DART AERO ACCESSORIES INC
PO Box 23003
Victoria International Airport
Sidney, BC, V8L 5N7, Canada

Tel: 604 656 2262
Fax: 604 656 2993

FLIGHT MANUAL SUPPLEMENT

Heli-Utility-Basket™

EUROCOPTER AS 350 MODELS

STA No. SH94-14

This supplement must be attached to the approved flight manual when the listed equipment is installed. The information contained herein supplements the information in the basic Helicopter Flight Manual. For limitations, procedures and performance data not contained in this document, consult the Helicopter Flight Manual.

COMPLIANCE WITH SECTION 1, OPERATING LIMITATIONS IS MANDATORY.

DOT APPROVED: L.B. Samoil
Regional Airworthiness Engineer
Pacific Region

Amendment: **A**
Date: May 20th, 1994

LOG OF AMENDMENTS

Rev. No.	Pages Revised	Revised By and Date	Approved By and Date	Inserted By	Date Inserted
A	None	J.Bradley May 16, 1994	L.B. Samoil May 20th, 1994		

DOT APPROVED

SECTION 1 - LIMITATIONS

Vne

MAXIMUM Vne - 124 KIAS

Autorotation Vne

MAXIMUM AUTORATION Vne - 100 KIAS

COMPATABILITY

Heli-Utility- Basket™ is compatible with:

Approved Bearpaws
DART *Heli-Access Steps*™
Approved Mirror Assembly
DART Vertical Reference Widow

PLACARD: (located on lid)

MAXIMUM DISTRIBUTED LOAD

200 lb / 91 kg

NOTE: THE BASKETS ARE LOCATED CENTRALLY AT:

LONGITUDINAL STATION:	135 in / +3422 mm
LH LATERAL BL:	-48 in / -1222 mm
RH LATERAL BL:	+48 in / +1222 mm
BASKET EMPTY WEIGHT:	65 lb / 29.5 kg

SECTION 2 - NORMAL PROCEDURES

PREFLIGHT

Ensure lid is closed and securely latched.

DAILY INSPECTION

Check physical integrity and security of the *Heli-Utility-Basket*™

DOT APPROVED

Amendment : A
May 20, 1994

SECTION 3 - EMERGENCY PROCEDURES

NO CHANGE

SECTION 4 - PERFORMANCE DATA

CRUISE

Vh reduced by up to 15 KIAS

CLIMB

Rate of climb may be reduced by up to 200 FPM

AUTORATION

Rate of descent may be increased by up to 100 FPM

HOVER

No Change

DOT APPROVED

Amendment: A
May 20, 1994

United States of America

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SR00213NY

This certificate, issued to Dart Aero Accessories Inc.
P.O. Box 23003 CDO
Victoria International Airport
Sidney, British Columbia
Canada V8L 5N7

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product — Type Certificate Number: H9EU (AS-350 Series), H11EU (AS355 Series)

Make: Eurocopter France

Model: AS-350B, AS-350B1, AS350B2, AS350BA, AS-350C, AS-350D, AS-350D1, AS355E, AS355F, AS355F1, AS355F2

Description of Type Design Change:

...llation of Utility Basket in accordance with Dart Aero Accessories, Inc., Drawing No. D350-607, Rev. B, dated February 22 1994.

Limitations and Conditions:

1. Dart Aero Accessories, Inc. Maintenance Manual Supplement MMS-D350-607, Revision A, dated February 22, 1994 is required with this STC.

2. Dart Aero Accessories, Inc. Flight Manual Supplement FMS D350-607, Amendment A, dated May 20, 1994 (AS-350 Series Only) is required with this STC.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: May 18, 1994

Date of issuance: August 8, 1994

Date reissued:

Date amended:

By direction of the Administrator

I. Brumer

Irwin N. Brumer (Signature)
Mgr. New York Aircraft
Certification Office

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number

SR00213NY
Date of Issuance: August 8, 1994

Limitations and Conditions (continued):

3. Dart Aero Accessories, Inc. Flight Manual Supplement FMS D355-607, Amendment A, dated May 20, 1994 (AS-355 Series Only) is required with this STC.

4 approval should not be incorporated in any aircraft of these specific models on which other approved modifications are inc ,orated, unless it is determined that the interrelationship between this change and any of those previously incorporated approved modifications will not introduce any adverse effect upon the airworthiness of the aircraft.

--END--

DEPARTMENT OF TRANSPORT

Supplemental Type Approval

Number: SH94-14

This approval is issued to:

Dart Aero Accessories Inc.
P.O. Box 23003 CDO
Victoria International Airport
Sidney, British Columbia
Canada V8L 5N7

Issue No.: 1

Approval Date: May 20, 1994

Issue Date: May 20, 1994

Responsible Region	Pacific
Aircraft/Engine Type or Model:	Eurocopter France AS-350B/B1/B2/BA/C/D/D1 AS-355E/F/F1/F2
Canadian Type Approval or Equivalent:	H-83 (AS-350 Series) & H-87 (AS-355 Series)
Description of Type Design Change:	Utility Basket Installation

Installation/Operating Data, Required Equipment and Limitations:

The Utility Basket Installation is to be carried out in accordance with DOT sealed Dart Aero Accessories Inc. Drawing No. D350-607, Revision B, dated February 22, 1994*.

Required Equipment:

1) Dart Aero Accessories Inc. Maintenance Manual Supplement MMS-D350-607, Revision A, dated February 22, 1994.
2) **AS-350 Series Only**: DOT Approved copy of Dart Aero Accessories Inc. Flight Manual Supplement FMS D350-607, Revision A, dated May 20, 1994*.
3) **AS-355 Series Only**: DOT Approved copy of Dart Aero Accessories Inc. Flight Manual Supplement FMS D355-607, Revision A, dated May 20, 1994*.

(* or later approved revisions)

Conditions: This approval is only applicable to the type / model of aeronautical product specified therein. Prior to incorporating this modification, it shall be established that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

L.B. Samoil
Regional Airworthiness Engineer

For Minister of Transport

Canada

26-0357 (10-88)

FLIGHT MANUAL SUPPLEMENT

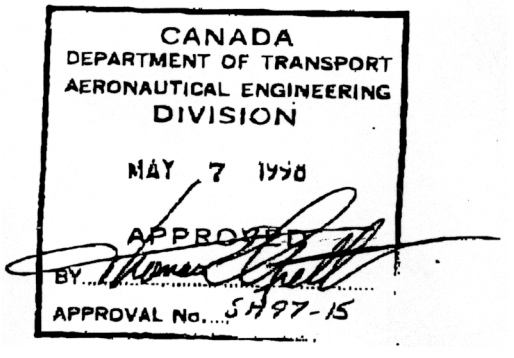
FOR MODEL
AS 350 / AS 355 HELICOPTERS

WITH LH AND / OR RH CARGO PODS ("SQUIRREL CHEEKS") INSTALLED

This supplement shall be attached to the applicable approved EUROCOPTER AS 350 and AS 355 Flight Manuals, when the "SQUIRREL CHEEKS" are installed on the aircraft in accordance with DOT STC No. . . SH97-15 . SH97-60

Section 2,3,4, and 5 of this document comprise the approved Flight Manual Supplement. Compliance with Section 2, Certification Limitations, is mandatory. Section 1 and 6 (if applicable) of this document do not require D.O.T. approval but contain information which may be of use to the pilot and therefore are included as "Manufacturer's Data".

Department of Transport (Canada) Approved



Regional Airworthiness Engineer
Ontario Region

GENERAL (unapproved)

The optional Cargo Pods ("SQUIRREL CHEEKS)" are an enlargement of the LH and / or RH cargo compartments.

The volume of the normal baggage compartment with no cargo pods installed is 7.1 cubic feet on the right side with the battery in the basic helicopter configuration, and 8.3 cubic feet on the left side.

With installation of the Cargo Pods ("SQUIRREL CHEEKS") on each side, the baggage compartment volume is almost doubled (right side 14.1 cubic feet, left side 15.3 cubic feet). With the Cargo Pods ("SQUIRREL CHEEKS") installed, the RH cargo compartment can carry up to 175 kg (386 lb), and the LH compartment can carry up to 195 kg (430 lb). They are constructed with a reinforced aluminium floor with no lip at the door for easier loading. The Cargo pod floor and top can be stood upon by maintenance personnel.

The Cargo Pods have large doors that are hinged to open in the forward direction, with gas struts to hold the door in the open position.

The doors incorporate high quality door latches which are easy to operate.

Additional RH Cargo Pod volume and weight capacity can be achieved with the additional installation of Optional Equipment ECL-6, Battery Relocation.

2 LIMITATIONS

No change

3. EMERGENCY AND MALFUNCTION PROCEDURES

No change

4. NORMAL PROCEDURES

No change

5 PERFORMANCE DATA

The following performance data is equally applicable with LH, RH or both Cargo Pods installed:

AS 350 C, D, D1, B, B1, B2, B3, BA

a. For hover IGE and OGE, use the standard performance charts in Section 5 of the Flight Manual but reduce the resulting helicopter weight by 30 kg.

NOTE: The HOGE chart in Section 5 may be extrapolated to 30 kg above maximum weight for this calculation, but the the maximum weight of the helicopter does not change.

b. For Climb, use the standard performance chart in Section 5 of the Flight Manual, but reduce the resulting rate of climb by the following amount:

- for AS 350 C, D, D1, B, BA: ..... 200 ft/min.
- for AS 350 B1, B2, and B3: ..... 250 ft/min

AS 355 E, F, F1, F2

a. For hover IGE and OGE, use the standard performance charts in Section 5 of the Flight Manual but reduce the resulting helicopter weight by 60 kg.

NOTE: The HOGE chart in Section 5 may be extrapolated to 60 kg above maximum weight for this calculation, but the the maximum weight of the helicopter does not change.

b. For Climb, use the standard performance chart in Section 5 of the Flight Manual, but reduce the resulting rate of climb by the following amount:

- for AS 355 E, F, F1 and F2:

AEO ..... 150 ft/min
OEI ..... 110 ft/min

NOTE: At altitudes over 10,000 ft, the AEO climb performance penalty given above is estimated only.

DOT Approved:_____

eurocopter

COMPLEMENTARY

FLIGHT MANUAL

AS 350 B2

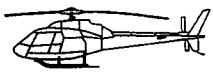
REGISTRATION No

SERIAL No

IMPORTANT NOTE

The practical value of this manual depends entirely upon its being up-dated correctly by the operator.

The effectivity of the manual at the latest revision is specified on the List of Effective Pages.



EUROCOPTER Direction Technique Support
Aéroport international Marseille-Provence 13725 Marignane Cedex - France

CUSTOMIZATION

A/C : AS 350 B2 - S/N :

LIST OF ADDITIONAL PAGES

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

SECTION	PAGE	DATE CODE	SECTION	PAGE	DATE CODE
THIS AIRCRAFT DOES NOT OFFER ANY PARTICULAR FEATURES REQUIRING THE CUSTOMIZATION OF THE FLIGHT MANUAL ON GREEN PAGES.					

PART 2

COMPOSITION
OF CONDITIONAL REVISIONS (RC)

This manual assigned to the helicopter mentioned on the title page, contains the following pink pages except those cancelled when the conditions are complied with.

CAUTION

IF A NORMAL REVISION (RN) MODIFIES THE PAGE NUMBER FOR ANY INFORMATION CONCERNED BELOW, THE READER WILL HAVE TO CHANGE THE NUMBER OF THE PINK PAGE BY HAND, SO THAT THE INFORMATION REMAINS IN ACCORDANCE WITH THE PARAGRAPH CONCERNED.

N°	SECTION – PAGE		DATE	APPLICABLE BEFORE CONDITION IS MET :
RC A	7.7	2 3	99-38 99-38	MOD. 072453
RC B	7.8	4	99-38	MOD. 072272
RC C	7.11	1	99-38	MOD. 071827
RC D	7.11	3	99-38	MOD. 072488
RC E	8.4	3	99-38	MOD. 072573 and MOD. 072582
RC F	8.4	8	99-38	MOD. TU 232
RC G	8.4	4 8	99-38 99-38	MOD. 072720

NOTE : The date is coded and consists of the last two figures of the year followed by the number of the week in this year.

COMPOSITION
OF RUSH REVISIONS (RR)

The manual contains the following additional yellow page(s) :

N° RR	SECTION	PAGE	DATE CODE
7A	8.4	4 *RR* 8 *RR*	02-14 02-14
7B	9.2 9.2 0.0.P4	7 *RR* 8 *RR* 1 *RR*	02-20 02-20 02-20

N° RR	SECTION	PAGE	DATE CODE

COMPOSITION OF
RUSH REVISIONS (RR)

The manual contains the following additional yellow page(s) :

No.RR	SECTION	PAGE	DATE CODE
6A	8.4	7 *RR*	00-12
6B	8.4	11 *RR*	00-14
6C	0.0.P4	1 *RR*	00-41
	8.4	7 *RR*	00-41

No.RR	SECTION	PAGE	DATE CODE

LIST OF EFFECTIVE PAGES

(1) Page Revision Code
- R : Revised, to be replaced
- N : New, to be inserted

SECTION	PAGE	DATE	(1)	SECTION	PAGE	DATE	(1)
0. 0	P1 1	99-38		7. 3	2	89-17	
0. 0	P1 3	99-38		7. 3	3	89-17	
0. 0	P2 1	89-17		7. 3	4	99-38	
0. 0	P3 1	99-38		7. 4	1	89-17	
0. 0	P4 1	89-17		7. 4	2	99-38	
0. 0	P5 1/03	99-48	N	7. 5	1	89-17	
6. 0	P6 1	99-38		7. 5	2	89-17	
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6. 1	2	89-17		7. 5	4	99-38	
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6. 1	10	99-38		7. 8	2	89-17	
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7. 3	1	99-38		8. 2	1	99-38	

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8. 2	4	99-38	
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9.11	2	99-38	
9.11	3	99-38	
9.11	4	99-38	

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10. 4	7	99-38					
10. 4	8	99-38					

LIST OF THE LATEST NORMAL REVISIONS

No	Date	No	Date
0	89-17	5	99-48
1	92-12		
2	93-05		
3	93-15		
4	99-38		

NORMAL REVISION : 5

SECTION 6

WEIGHT AND BALANCE

CONTENTS

4.1.2 Example : Analysis for a passenger transport mission

4.1.2.1 Before takeoff

1) Determine the maximum permissible takeoff weight.
2) Note the equipped empty weight and the moment.
3) Refer to tables given below to determine loading conditions ; totalize weights and moments.
4) Calculate the c.g. location.
5) Check that c.g. falls within permissible limits.

Example :

	kg	m.kg
EEW	1200	4272
Crew	160	248
Passengers	140	356
Side cargo hold	50	160
Fuel	400	1390
TOTAL	1950	6426

C.g. : $\frac{6426}{1950} = 3.295$ m

i.e. longitudinal c.g. is within the permissible limits.

4.1.2.2 In flight or on landing

Same procedure as above, taking into account the weight and moment of the fuel remaining.

Example : - Initial c.g. : 3.295 m
- C.g. after consumption of 350 kg of fuel.

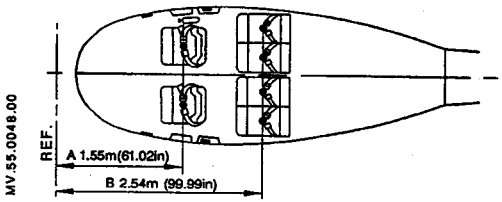
	kg	m.kg
EEW	1200	4272
Crew	160	248
Passengers	140	356
Side cargo hold	50	160
Fuel	50	173
TOTAL	1600	5209

Longitudinal c.g. becomes : $\frac{5209}{1600} = 3.255$ m

i.e. c.g. is within permissible limits.

4.2 Loading Data

4.2.1 Crew and Passengers



METRIC UNITS		
WEIGHT kg	MOMENT : m.kg (A)	(B)
60	93	152
80	124	203
100	155	254
120	186	305
140	219	356
160	248	406
180	279	457
200	310	508
220	341	559
240		610
260		660
280		711
300		762
320		812

IMPERIAL UNITS		
WEIGHT lb	MOMENT : in.lb (A)	(B)
100	6102	9999
150	9153	12999
200	12204	19998
250	15255	24997
300	18306	29997
350	21357	34996
400	24400	39996
450	27459	44995
500	30510	49995
550		54994
600		59994
650		64993
700		69993

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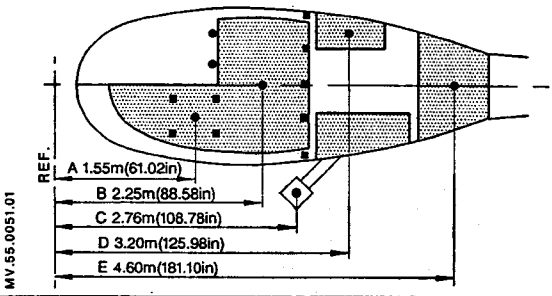
4.2.2 Freight and baggage transport



METRIC UNITS					
WEIGHT kg	MOMENT : m.kg (A)	(B)	(C)	(D)	(E)
10	15.5	22.5	27.6	32	46
20	31.0	45.0	55.2	64	92
50	77.5	112.5	138.1	160	230
70	108.5	157.5	193.4	224	322
80	124.0	180.0	221.0	256	368
100	155.0	225.0	276.3	320	
120	186.0	270.0	331.5	384	
150	232.5	337.5	414.4		
200		450.0	552.6		
250		562.5	690.7		
300		675.0	828.9		
310		697.5	856.5		

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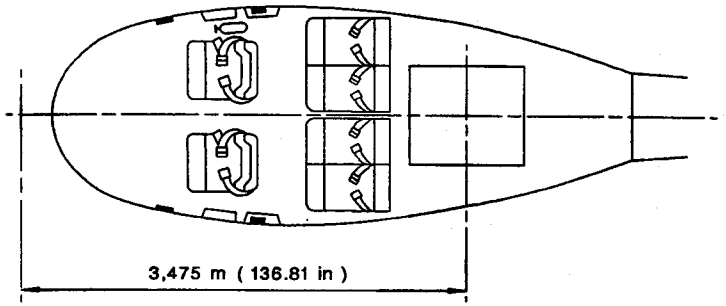
IMPERIAL UNITS					
WEIGHT lb	MOMENT : in.lb (A)	(B)	(C)	(D)	(E)
50	3051	4429	5439	6299	9055
100	6102	8858	10878	12598	18110
150	9153	13287	16317	18897	27165
176	10740	15590	19036	22172	31874
200	12204	17716	21756	25196	
220	13424	19488	23931	27716	
250	15255	22145	27195	31495	
264	16109	23385	28718	33259	
300	18306	26574	32634		
330	20137	29231	35897		
400		35432	43512		
500		44290	54390		
600		53148	65268		
682		60412	74188		

4.2.3 Fuel



NOTE : Fuel specific gravity : 0.79

METRIC UNITS		
litre	Kg	m.kg
10	8	28
20	16	56
40	32	111
60	47	163
80	63	219
100	79	275
150	119	414
200	158	549
250	198	688
300	237	824
350	277	963
400	316	1098
540	427	1484

IMPERIAL UNITS		
UK gal.	lb	in. lb
5	40	5472
10	79	10808
20	158	21616
30	238	32561
40	317	43369
50	396	54177
60	475	64985
70	554	75793
80	633	86601
90	712	97409
100	792	108353
110	871	119161
119	940	128601

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IMPERIAL UNITS						
US gal.	lb	in. lb		US gal.	lb	in. lb
5	33	4515		70	462	63206
10	66	9029		80	527	72099
15	99	13544		90	593	81128
20	132	18059		100	659	90158
30	198	27088		110	725	99187
40	264	36118		120	791	108217
50	330	45147		130	857	117246
60	396	54177		143	940	128601

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4.3 CG Charts

The following charts (metric units and Imperial units) are used to easily know the aircraft centre-of-gravity. When the point obtained is close to the limits, it should be confirmed by calculations.

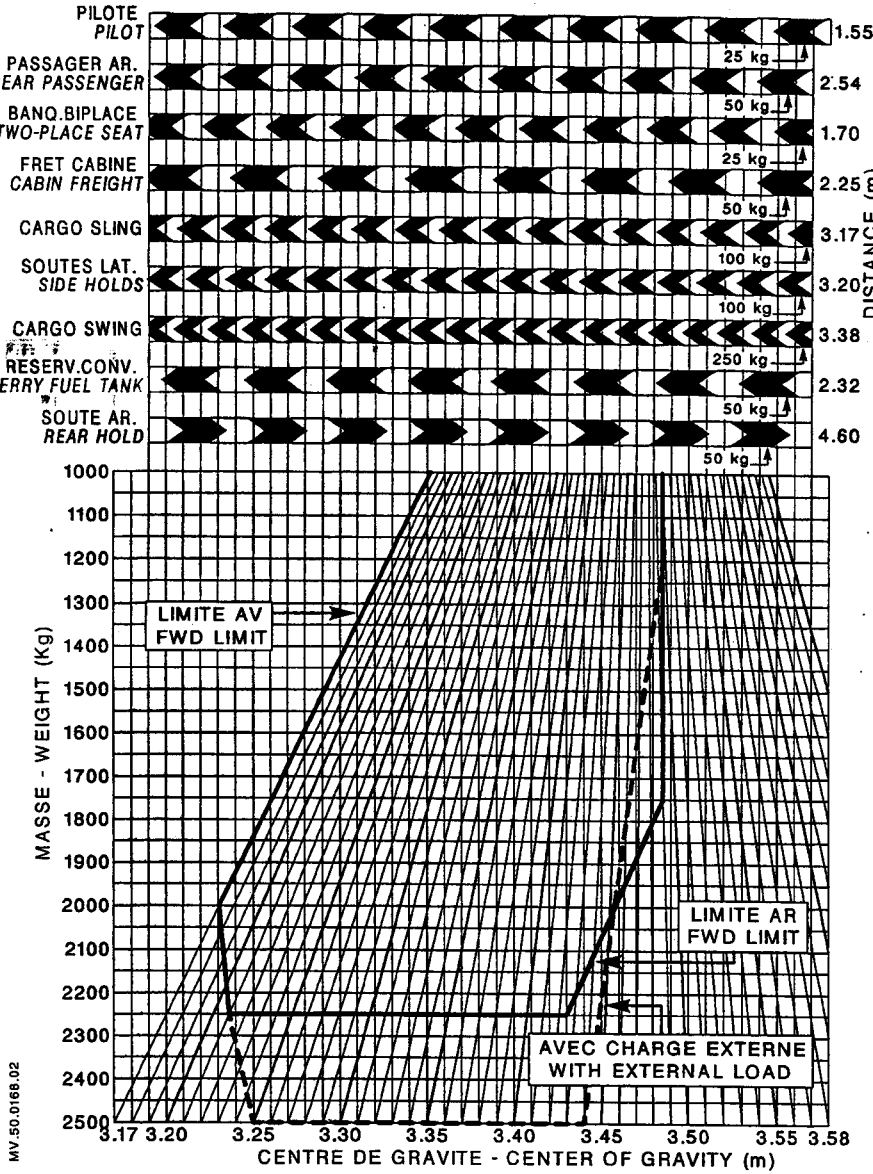
These charts are designed so that the variations in the fuel weight make CG move along a vertical line.

Example 1 : Total weight 1800 kg for a centre of gravity of 3.30 m. During the flight, after consumption of 200 kg of fuel, the centre of gravity will be 3.28 (Refer to chart).

Example 2 : Total weight 4000 lb for a centre of gravity of 131 in. During the flight after consumption of 600 lb of fuel, the centre of gravity will be 130 in. (Refer to chart).

The weight and CG limits are given in the LIMITATIONS SECTION and may be modified by the Supplements corresponding to the optional items fitted.

ABAQUE DE CENTRAGE *LOADING CHART*



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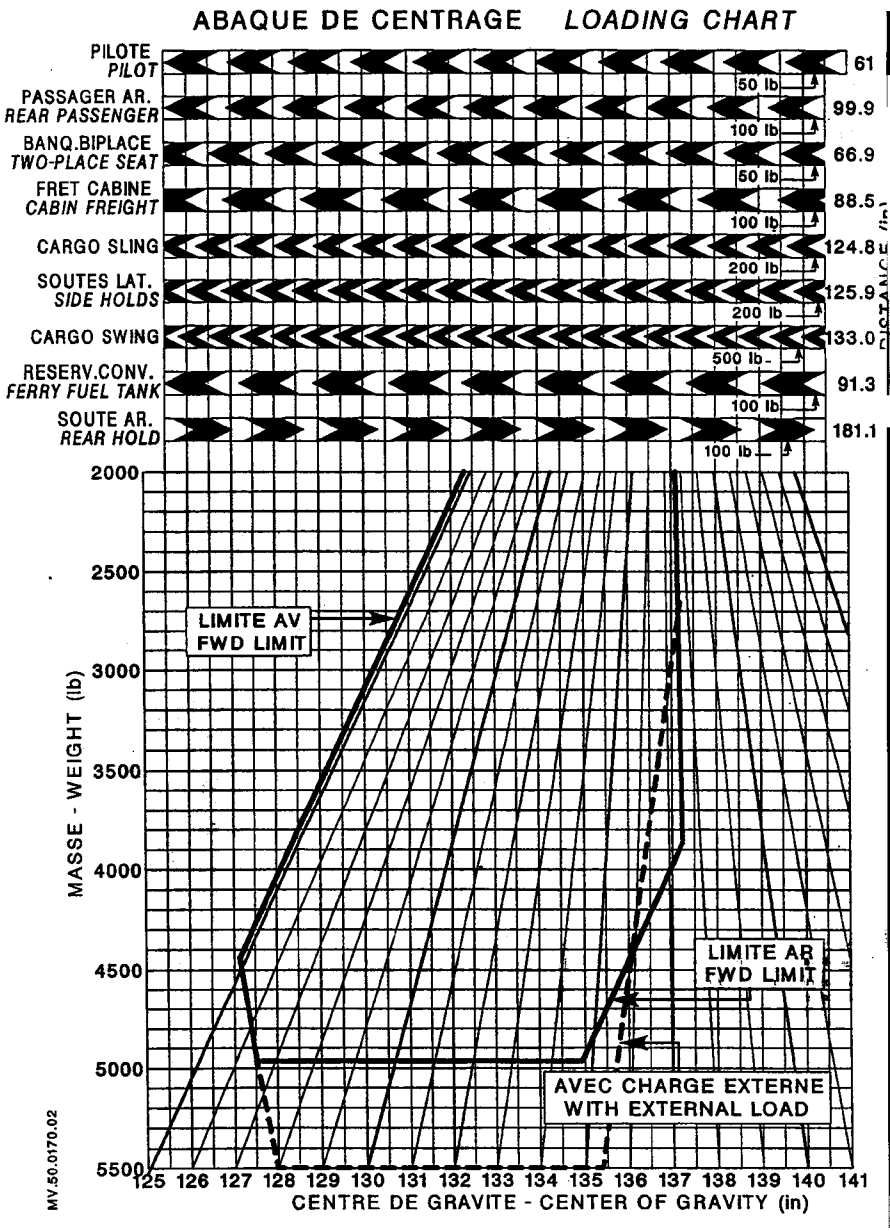
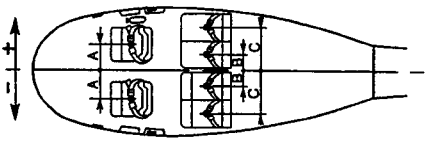

ABAQUE DE CENTRAGE LOADING CHART
PILOTE
PILOT
61
PASSAGER AR.
REAR PASSENGER
50 lb
99.9
100 lb
BANQ.BIPLACE
TWO-PLACE SEAT
66.9
FRET CABINE
CABIN FREIGHT
50 lb
88.5
100 lb
CARGO SLING
124.8
200 lb
SOUTES LAT.
SIDE HOLDS
125.9
200 lb
CARGO SWING
133.0
500 lb
RESERV.CONV.
FERRY FUEL TANK
91.3
100 lb
SOUTE AR.
REAR HOLD
181.1
100 lb
DISTANCE (in)
MASSE - WEIGHT (lb)
2000
2500
3000
3500
4000
4500
5000
5500
LIMITE AV
FWD LIMIT
LIMITE AR
FWD LIMIT
AVEC CHARGE EXTERNE
WITH EXTERNAL LOAD
125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141
CENTRE DE GRAVITE - CENTER OF GRAVITY (in)
MV.50.0170.02

5 LATERAL C.G.

The tables below give the lateral c.g. positions for different weights and their moments with respect to the Y plane (positive dimensions on the right, negative dimensions on the left).

5.1 Crew and passengers



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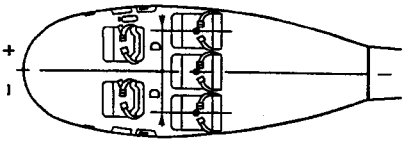

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METRIC UNITS								
WEIGHT kg	MOMENT : m.kg							
	A +	A -	B +	B -	C +	C -	D +	D -
50	+ 18	- 18	+ 10	- 10	+ 31	- 31	+ 27	- 27
60	+ 22	- 22	+ 12	- 12	+ 37	- 37	+ 32	- 32
70	+ 25	- 25	+ 14	- 14	+ 43	- 43	+ 37	- 37
80	+ 29	- 29	+ 17	- 17	+ 50	- 50	+ 43	- 43
90	+ 32	- 32	+ 19	- 19	+ 56	- 56	+ 48	- 48
100	+ 36	- 36	+ 21	- 21	+ 62	- 62	+ 54	- 54
110	+ 40	- 40	+ 23	- 23	+ 68	- 68	+ 59	- 59
120	+ 43	- 43	+ 25	- 25	+ 75	- 75	+ 64	- 64

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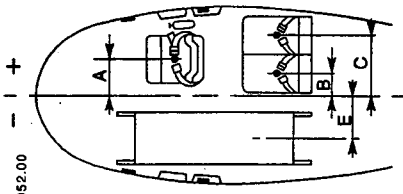
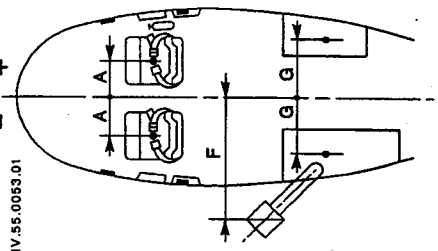
IMPERIAL UNITS								
WEIGHT lb	MOMENT : in.lb							
	A +	A -	B +	B -	C +	C -	D +	D -
100	+ 1417	- 1417	+ 815	- 815	+ 2445	- 2445	+ 2106	- 2106
120	+ 1700	- 1700	+ 978	- 978	+ 2934	- 2934	+ 2528	- 2528
140	+ 1984	- 1984	+ 1141	- 1141	+ 3423	- 3423	+ 2949	- 2949
160	+ 2267	- 2267	+ 1304	- 1304	+ 3912	- 3912	+ 3370	- 3370
180	+ 2551	- 2551	+ 1467	- 1467	+ 4401	- 4401	+ 3791	- 3791
200	+ 2834	- 2834	+ 1630	- 1630	+ 4890	- 4890	+ 4213	- 4213
220	+ 3117	- 3117	+ 1793	- 1793	+ 5379	- 5379	+ 4634	- 4634
240	+ 3401	- 3401	+ 1956	- 1956	+ 5868	- 5868	+ 5055	- 5055
260	+ 3684	- 3684	+ 2119	- 2119	+ 6357	- 6357	+ 5476	- 5476

5.2 Air ambulance, hoist and lateral baggage holds





METRIC UNITS								
WEIGHT Kg	MOMENT : m.kg							
	A +	A −	B +	C +	E −	F −	G +	G −
50	+ 18	− 18	+ 10	+ 31	− 21	− 77	+ 28	− 28
60	+ 22	− 22	+ 12	+ 37	− 25	− 93	+ 33	− 33
70	+ 25	− 25	+ 14	+ 43	− 29	− 108	+ 39	− 39
80	+ 29	− 29	+ 17	+ 50	− 33	− 124	+ 44	− 44
90	+ 32	− 32	+ 19	+ 56	− 37	− 139	+ 50	− 50
100	+ 36	− 36	+ 21	+ 62	− 41	− 154	+ 56	− 56
110	+ 40	− 40	+ 23	+ 68	− 46	− 170		− 61
120	+ 43	− 43	+ 25	+ 75	− 50	− 185		− 67
130	+ 47	− 47	+ 27	+ 81	− 54	− 201		
136	+ 49	− 49	+ 28	+ 84	− 56	− 210		

IMPERIAL UNITS								
WEIGHT lb	MOMENTS en in.lb							
	A +	A −	B +	C +	E −	F −	G +	G −
100	+ 1417	− 1417	+ 815	+ 2445	− 1634	− 6079	+ 2189	− 2189
120	+ 1700	− 1700	+ 978	+ 2934	− 1961	− 7294	+ 2627	− 2627
140	+ 1984	− 1984	+ 1141	+ 3423	− 2287	− 8510	+ 3065	− 3065
160	+ 2267	− 2267	+ 1304	+ 3912	− 2614	− 9726	+ 3502	− 3502
180	+ 2551	− 2551	+ 1467	+ 4401	− 2941	−10942	+ 3940	− 3940
200	+ 2834	− 2834	+ 1630	+ 4890	− 3268	−12157	+ 4378	− 4378
220	+ 3117	− 3117	+ 1793	+ 5379	− 3595	−13373	+ 4816	− 4816
240	+ 3401	− 3401	+ 1956	+ 5868	− 3921	−14589		− 5254
260	+ 3684	− 3684	+ 2119	+ 6357	− 4248	−15805		− 5691
280	+ 3968	− 3968	+ 2282	+ 6846	− 4575	−17020		
300	+ 4252	− 4252	+ 2445	+ 7335	− 4902	−18236		

R

5.3 Determination of lateral c.g. location

The computation method is the same as that used for determining the longitudinal c.g. location (para. 4.1).

Add weights and moments to the aircraft empty weight and moment referring to preceding page.

Lateral c.g. location values during the mission shall fall within the permissible limits.

Example during hoisting operation

	Kg	m Kg	
Equipped Empty Weight	1200	+ 14	
Pilot	80	+ 29	
Hoist operator	80	- 43	(negative moment : hoist operator located left to aircraft symmetry plane)
Hoisted load	136	- 210	
Fuel during hoisting	200	0	
	1696	- 210	

Lateral c.g. location $\frac{-210}{1696} = -0{,}124$ m

This value falls within the permissible limits.

6 WEIGHT AND MOMENT OF EQUIPMENT ITEMS

The following list covers the optional equipment items. It gives the approximate weight and moment of the removable components.

DESCRIPTION	WEIGHT		MOMENT		
	kg	lb	m.kg	in.lb	
Aircraft tool kit					
Cabin fire extinguisher	2.1	4.6	3.2	275	
Axe	1.1	2.4	1.7	149	
Door + subdoor	14.0	30.9	27.2	2360	
High front seat	10.6	23.4	17.1	1484	
Low front seat	7.3	16.1	11.5	998	
2 Two-place seats, rear	21.1	46.5	54.6	4739	
1 Three-place seat, rear (complete with armrests)	26.2	57.8	67.6	5867	
Dual control	2.3	5.1	2.6	225	
Battery	17.3	38.1	69.0	5990	
Skis SEFA complete with struts	30.4	67.0	105.6	9165	R
Skis SEFA without struts	23.6	52.0	82.4	7152	R
Skis "SURFAIR"	26.8	59.2	113.4	9871	R
Emergency floatation gear	67.6	148.8	227.5	19708	
Sling (cargo swing)	13.3	29.3	43.4	3771	R
Wheels for soft ground	44.8	98.9			R
Ferry tank	35.0	77.2	82.3	7143	
Single stretcher installation (not including stretcher)	0.7	1.5	1.1	95	
Double stretcher installation (not including stretcher)	2.3	5.1	3.9	340	
Stretcher	15.1	33.3	26.7	2318	

DESCRIPTION	WEIGHT kg	WEIGHT lb	MOMENT m.kg	MOMENT in.lb	
BREEZE electric hoist 136 kg (300 lb) (arm, winch, grip, pulley-block, belt, shears)	26.0	57.4	68.4	5947	R R R
AIR EQUIPEMENT electric hoist 136 kg (300 lb) (arm, winch, grip, pulley-block, belt, shears)	33.4	73.7	87.9	7637	R R R
LOCATOR search light	10.1	22.3	9.3	809	
Low landing gear	42.9	94.5	145.6	12618	
High landing gear	55.5	122.2	187.1	16189	
Footstep	2.9	6.4	5.5	478	
WANDEL AND GOLTERMANN hailers	16.6	36.6	63.9	5548	R

SECTION 7

SYSTEMS AND DESCRIPTION

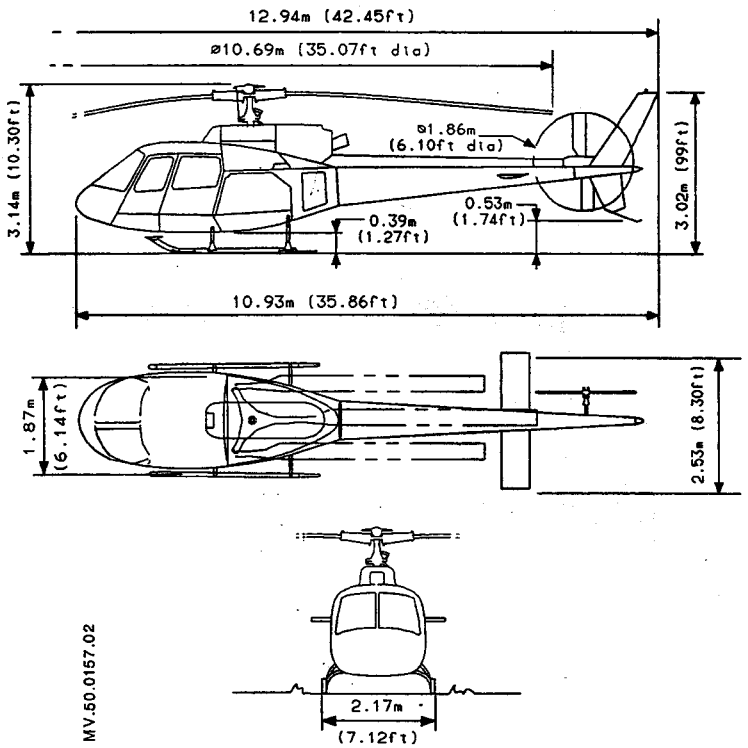
CONTENTS

R

SECTION 7.0

LEADING PARTICULARS

1 MAIN AIRCRAFT DIMENSIONS

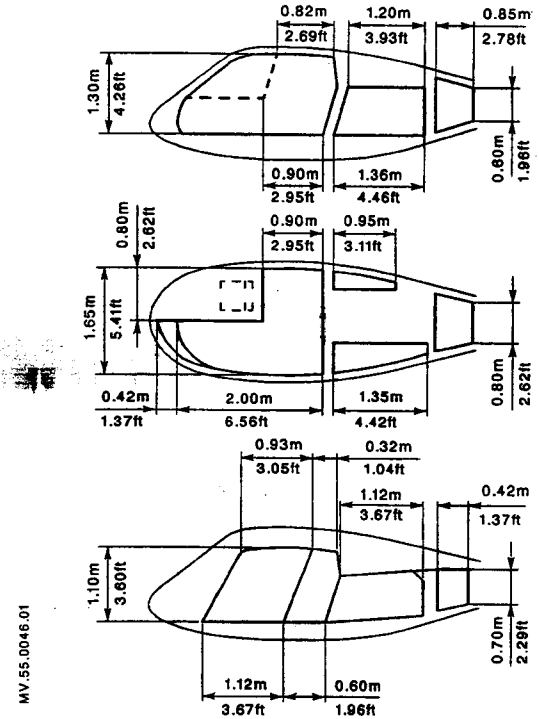


Overall dimensions of helicopter

- Overall length, rotor turning	12.94 m	42.45 ft
- Main rotor diameter	10.69	35.07
- Height to top of fin, low L/G *	3.02	9.91
- Length, blades folded	10.93	35.86
- Width, blades folded	2.53	8.30
- Height to rotor head, low L/G *	3.14	10.30
- Ground clearance below cabin, low L/G *	0.39	1.27
- Width of fuselage	1.87	6.14
- Length of fuselage	10.93	35.86

* Plus 0.20 m (0.65 ft) when aircraft equipped with high L/G

2 ACCESS DOORS AND COMPARTMENTS DIMENSIONS



Cabin

- Max. length	2.42 m	7.94 ft
- Max. width	1.65 m	5.41 ft
- Max. height	1.30 m	4.26 ft
- Available floor area	2.60 m2	27.98 sq.ft
- Available volume	3.00 m3	105.94 cu.ft

Baggage compartment areas

- LH hold	0.43 m2	4.62 sq.ft
- RH hold	0.35 m2	3.76 sq.ft
- Rear hold	0.55 m2	5.92 sq.ft

Cabin doors

- Forward doors

. Width	1.12 m	3.67 ft
. Height	1.10 m	3.60 ft
. Area	1.29 m2	13.89 sq.ft

- Rear subdoors

. Width	0.60 m	1.97 ft
. Height	1.10 m	3.60 ft
. Area	0.69 m2	7.43 sq.ft

Baggage compartment volumes

- LH hold	0.235 m3	8.29 cu.ft
- RH hold	0.200 m3	7.06 cu.ft
- Rear hold	0.565 m3	19.94 cu.ft

3 ENGINE DATA

The aircraft is equipped with an ARRIEL 1D1 modular-design free-turbine turboshaft engine, mounted aft of the MGB in a separate fireproof bay.

3.1 General

- Direction of rotation (viewed looking forward) - - - - Clockwise

- Main dimensions

. Overall length	1.200 m	47.24 in
. Overall height	0.465 m	18.31 in
. Overall width	0.612 m	24.09 in

- Approximate weight of complete engine : 269 lb (122 kg)

3.2 Design Characteristics

The engine comprises :

- a single-stage axial compressor
- a centrifugal compressor
- an annular combustion chamber with centrifugal fuel injection and ignition
- a two-stage axial turbine driving the compressors
- a single-stage free power turbine
- a hydraulic governor using fuel as the motive fluid, comprising :
  . a free turbine governor maintaining constant Nf by modifying the Ng setpoint of the gas generator governor,
  . a gas generator governor controlling the fuel flowrate.

4 TRANSMISSION SYSTEM DATA

The main transmission system components driving the main and tail rotors are the following :

- engine-to-MGB coupling shaft with hydraulic pump drive pulley
- main gearbox (MGB)
- two-piece tail drive shaft
- tail gearbox (TGB).

In power-on flight the rotor turns at a practically constant speed of 394 rpm. At this speed the transmission components rotate at :

- 42452 rpm for the free power turbine
- 6125 rpm for the engine-to-MGB coupling shaft and the tail rotor drive shaft
- 2086 rpm for the tail rotor.

5 FUEL TANK CAPACITY

Fuel Quantity	Litres	US Gal.	UK Gal.	kg	lb	Remarks
Total	540	143	119	427	940	Specific gravity : 0.79
Usable after illumination of low-level flight	60	15.8	13.1	47.4	104	
Unusable	1.25	0.33	0.28	1	2.20	

s.g.= 0.79

CONVERSION TABLE
GAUGE READING - CAPACITY/WEIGHT

Graduation	Litres	US Gal.	UK Gal.	kg	lb
10	540	143	119	427	940
9	486	129	107	384	846
8	432	114	95	342	752
7	378	100	83	299	658
6	324	86	71	256	564
5	270	74	59	213	470
4	216	57	48	171	376
3	162	43	36	128	282
2	108	29	24	85	188
1	54	14	12	43	94
0	0-3	0-0.8	0-0.6	0-2.3	0-5

6 HYDRAULIC AND LUBRICATION SYSTEM CAPACITIES

The hydraulic and lubrication system capacities are given in the following table :

	Litres	US Gal.	UK Gal.
MGB lubrication system	6.5	1.7	1.4
TGB lubrication system	0.33	0.08	0.07
Engine lubrication system	6.2	1.64	1.36
Hydraulic system	3	0.79	0.66

5 FUEL TANK CAPACITY

Fuel Quantity	Litres	US Gal.	UK Gal.	kg	lb	Remarks
Total	540	143	119	427	940	Specific gravity : 0.79
Usable after illumination of low-level light	60	15.8	13.1	47.4	104	
Unusable	1.25	0.33	0.28	1	2.20	

s.g.= 0.79

CONVERSION TABLE
GAUGE READING - CAPACITY/WEIGHT

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6	324	86	71	256	564
5	270	74	59	213	470
4	216	57	48	171	376
3	162	43	36	128	282
2	108	29	24	85	188
1	54	14	12	43	94
0	0-3	0-0.8	0-0.6	0-2.3	0-5

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The hydraulic and lubrication system capacities are given in the following table :

	Litres	US Gal.	UK Gal.
M.G.B. lubrication system	6.5	1.7	1.4
T.G.B. lubrication system	0.33	0.08	0.07
Engine lubrication system	6.2	1.64	1.36
Hydraulic system	3	0.79	0.66

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SECTION 7.1

COCKPIT

This Section is customized

SECTION 7.2

WARNING-CAUTION-ADVISORY PANEL

This Section is customized

SECTION 7.3

POWERPLANT

1 DESCRIPTION

1.1 Installation

The engine is mounted at the top of the body structure in a fireproof bay. It is installed aft of the main gearbox, to which it is connected by a shaft mounted between two flexible couplings.

1.2 Brief Description of the Engine

The engine is a free power turbine design.

The gas generator supplies power in the form of kinetic energy to a "free" turbine, which converts it into the mechanical energy required to fly the helicopter.

The engine consists of five separate interchangeable modules :

- Axial Compressor Module

  Mounted at the forward end of the engine, comprising a single-stage axial compressor. R

- Gas Generator Module

  Centrally located, comprises :
  . a centrifugal compressor
  . a combustion chamber
  . generator turbine drying the compressors.

- Free Turbine Module

  At the aft end, consisting of a turbine wheel and shaft.

- Reduction Gear Module

  Reduces the free turbine speed from 41586 rpm to 6000 rpm R

- Output Shaft Module

  Transmits engine power to the main gearbox and accessory drive couplings.

2 OIL SYSTEM

The engine includes a self-contained lubrication system with an external oil cooling system and oil tank.

The lubrication system basically comprises the following :

- Oil tank
- Oil cooler
- Pressurizing pump
- Three scavenge pumps
- Oil filter assembly (filter, bypass valve, clogging indicator).

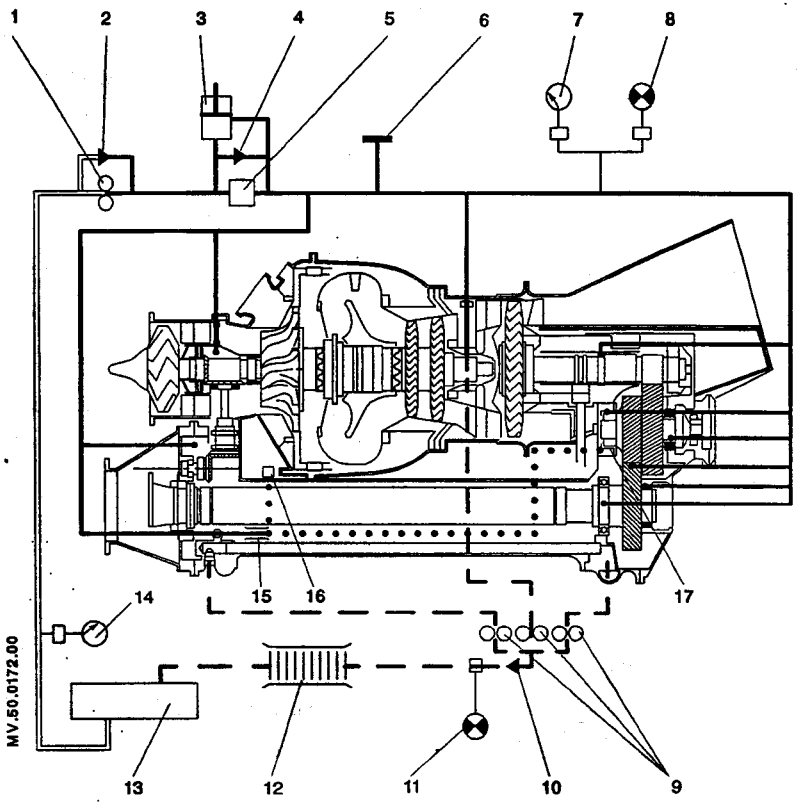
Oil system monitoring is ensured by oil temperature and pressure indicators. In addition, the Warning-Caution-Advisory Panel includes lights that illuminate to indicate :

- minimum oil pressure
- metal particles on the magnetic chip detectors.

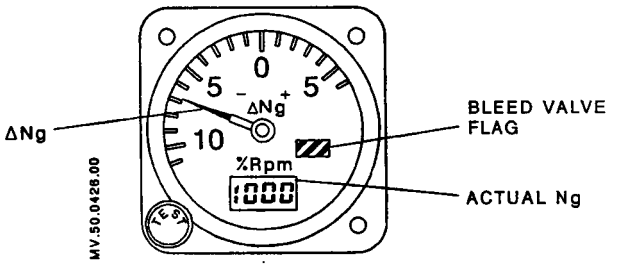
KEY TO FIGURE

OIL SYSTEM

Item	DESCRIPTION	Item	DESCRIPTION
1	Pressurizing pump	10	Non-return valve
2	Pressure relief valve	11	Chip detection light
3	Clogging indicator	12	Oil cooler
4	Bypass valve	13	Oil tank
5	Oil filter	14	Oil temperature indicator
6	Pressure tap	15	Torquemeter oil jet
7	Oil pressure indicator	16	Torquemeter transmitter
8	Minimum oil pressure light	17	Torquemeter
9	Scavenge pumps		


1
2
3
4
5
6
7
8
14
15
16
17
MV.50.0172.00
13
12
11
10
9
Aspiration - Oil suction line
Pression - Oil pressure line
Retour - Oil return line
Couplemètre - Torquemeter oil line

3 ΔNg INDICATOR



This instrument displays several indications :

- ΔNg :

  The pointer shows the difference between the actual Ng value and the "Ng at MAX T/O PWR", computed as a function of altitude and outside air temperature.

  The pointer on graduation "0" indicates that the actual Ng is equal to the computed "Ng at MAX T/O PWR".

- Gas generator speed

  The actual Ng is shown as a digital value (in percentage).

- Bleed valve position

  A flag on the instrument indicates the position of the bleed valve :

  . Black flag : Valve closed

  . Green and yellow hatched flag : Valve open

A test push-button is used to check the instrument operation. In "test" mode, the "Ng at MAX T/O PWR", computed as a function of external factors, is displayed as a digital value in the window, and the ΔNg pointer moves and stops at zero.

SECTION 7.4

FUEL SYSTEM

1 FUEL TANK

Fuel is contained in a spin-molded polyamide fuel cell located in the body structure beneath the transmission deck. It is equipped with a gravity refuelling spout on the LH side of the aircraft, as well as a vent line and a water bleed valve.

2 ENGINE FUEL SUPPLY SYSTEM

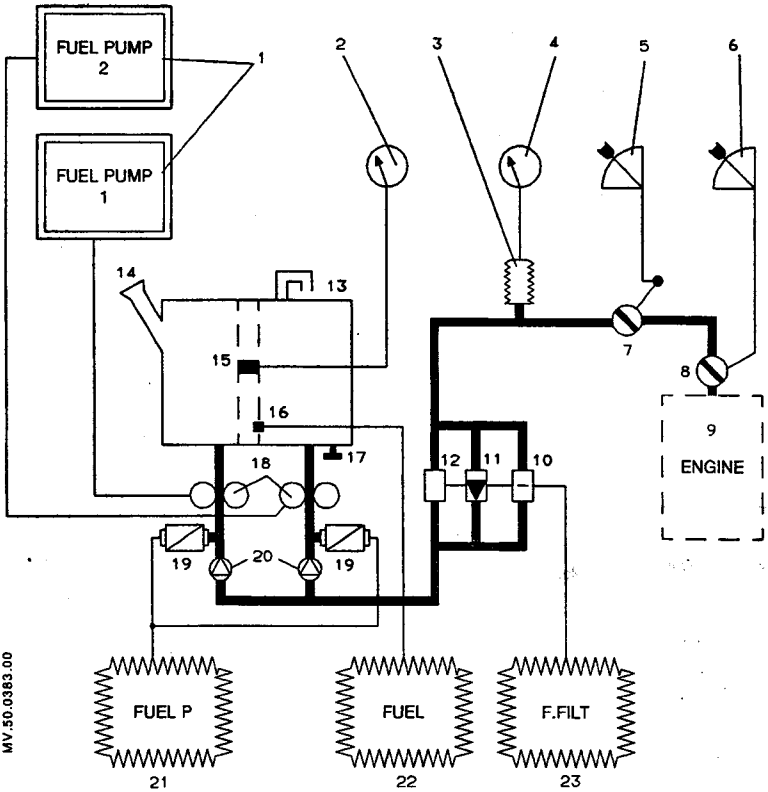
Fuel is supplied from the fuel cell to the engine through the following components in turn :

- two booster pumps at the bottom of the fuel tank
- a fuel filter
- a filter bypass valve.

3 FUEL SYSTEM CONTROLS AND MONITORING

The following cockpit provisions are available to the pilot :

- a fuel flow control to meter the fuel on engine starting
- a fuel shutoff lever that actuates the shutoff valve in the engine fuel supply system
- a fuel contents gauge
- a fuel pressure indicator
- a "FUEL" light that illuminates to indicate a low fuel level in the tank
- a "F. FILT" light that illuminates when the pressure drop across the fuel filter exceeds 200 mb.
- a "FUEL P." light that illuminates when the fuel pressure is lower than 200 mb at either pump or both pumps.



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Booster pump push-buttons	14	Refuelling spont
2	Fuel contents indicator	15	Fuel contents gauge
3	Fuel pressure transmitter	16	Fuel low level contactor
4	Fuel pressure indicator	17	Fuel tank water bleed valve
5	Fuel shutoff lever	18	Booster pump
6	Fuel flow control lever	19	Pump pressure switches
7	Fuel shutoff valve	20	Check valve
8	Fuel flow control valve	21	Booster pump failure warning light
9	Engine	22	Low fuel level warning light
10	Differential pressure switch	23	Fuel filter clogging early warning light
11	Filter bypass valve		
12	Fuel filter		
13	Fuel tank vent		

R

SECTION 7.5

ROTORS AND TRANSMISSIONS

1 ROTORS

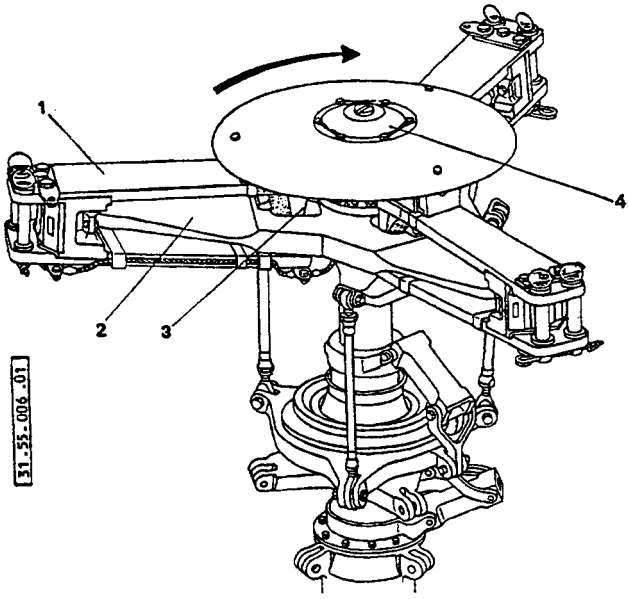
1.1 Main rotor

The main rotor head and shaft transmit M.G.B. rotation and flight controls motion to the main rotor blades. As viewed from the top, the main rotor turns clockwise.

The STARFLEX type semi-rigid main rotor head is made from new materials (resin glass fibre, laminated thrust bearings, self-lubricating bearings) allowing all conventional bearings and lubrication systems to be eliminated.

The three main rotor blades of the glass-resin laminate flexible construction are attached to the rotor hub through flanges (1) and star (2). Pitch variation is achieved through distortion of elastomer items (3).

The vibration dampening device (4) mounted in centre of the rotor head consists of a weight oscillating between three springs fitted 120° apart.



1.2 Tail Rotor

The two-blade tail rotor is see-saw mounted on the T.G.B. The tail rotor blades rotate anti-clockwise as viewed from the right side of the aircraft.

2 TRANSMISSIONS

The transmission system consists of :

- engine-to-main gearbox coupling system
- main gearbox (M.G.B.)
- tail rotor drive shaft
- tail gearbox (T.G.B.).

2.1 Engine-to-M.G.B. Coupling

It transmits engine power to the M.G.B. through a shaft and flexible coupling turning inside a flared coupling tube. The shaft drives the M.G.B. input coupling by means of a pulley used to drive a hydraulic pump.

2.2 Main Gearbox (M.G.B.)

The main gearbox is designed to transmit engine power to the main rotor and to reduce the rotation speed.

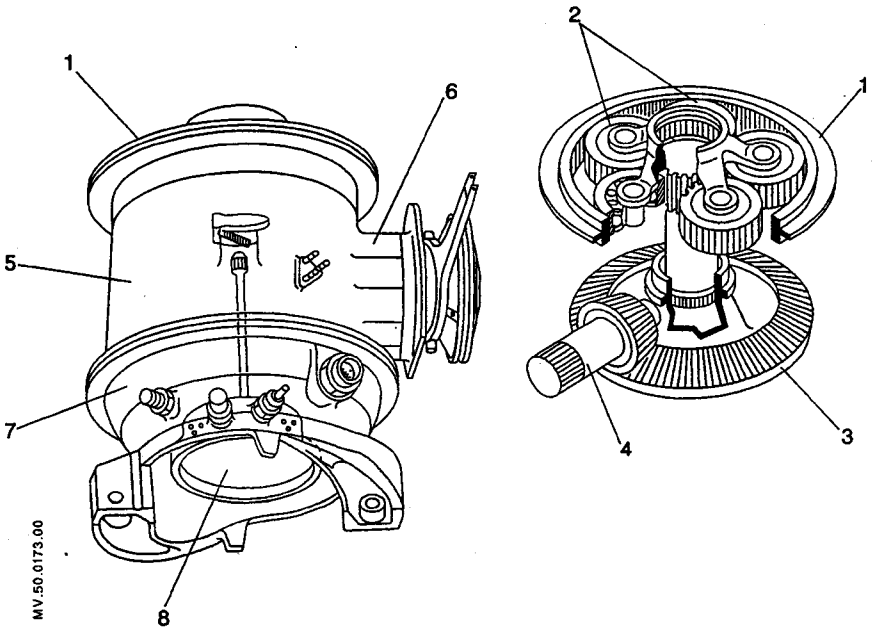
The M.G.B. consists of three interchangeable modules :

- an epicyclic reduction gear module (1) with five planet gears (2) providing a 4.33:1 reduction ratio ;

- a bevel reduction gear module with a ring gear (3) and pinion (4) providing a further 3.59:1 reduction ratio ; this module is housed in two casings :

  . main casing (5) supporting a power takeoff coupling (6)
  . lower casing (7) with M.G.B. mounting provisions ;

- a lubrication module (8) attached to the lower casing.

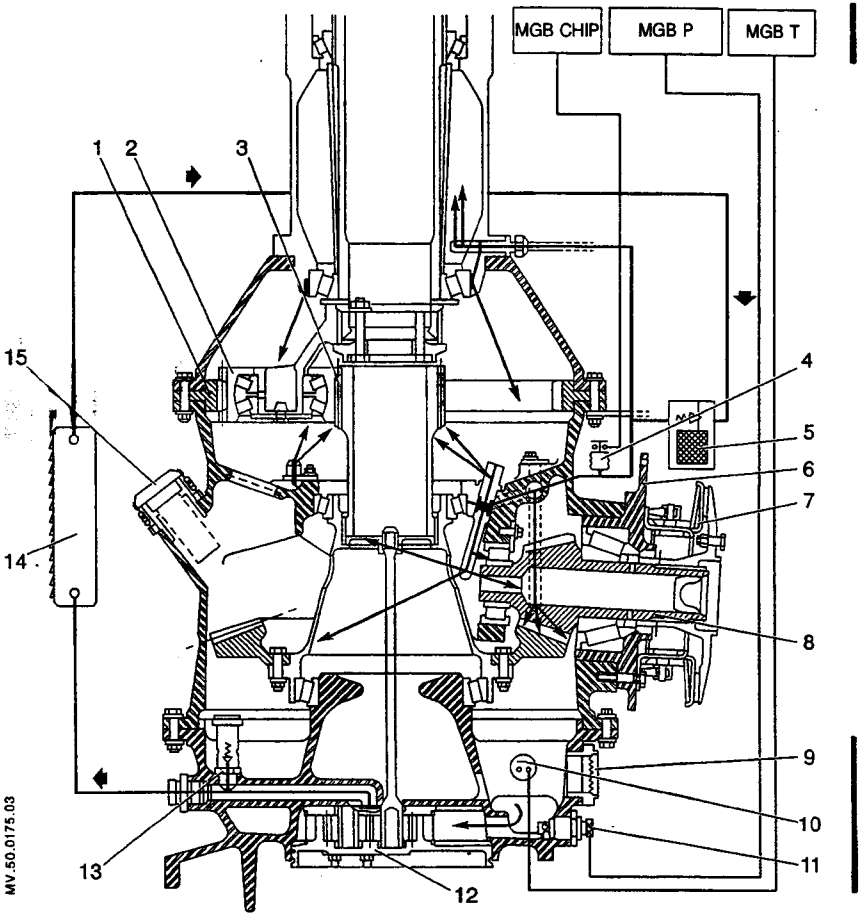


The gears and bearings are lubricated by a pressurized oil system. The bottom (7) of the MGB casing is used as an oil tank and houses the pump.

The pump draws the oil through a strainer and forces it to the oil coolers. After cooling, the oil flows through the main filter to the oil jets. A by-pass valve mounted on the main filter allows the oil to flow to the main gearbox when the filtering elements are clogged.

Lubrication of the MGB is monitored through :

- a pressure switch causing the "MGB. P" light to illuminate on the warning-caution-advisory panel when the pressure drops below 1 bar (14.50 psi)
- a thermal switch causing the "MGB. T" light to illuminate on the warning-caution-advisory panel when the temperature reaches 115°C
- as optional equipment an MGB. oil pressure and temperature indicator can be fitted in complement to the lubrication monitoring system.
- a magnetic plug that causes the "MGB CHIP "light to illuminate when metal particles are present.



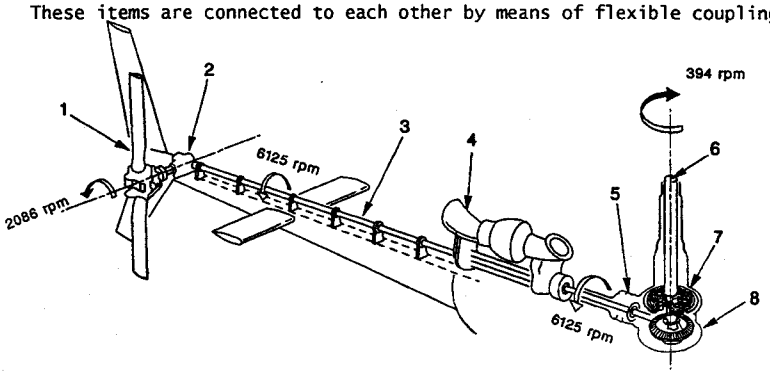
ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Epicyclical reduction gear	9	Oil level sight
2	Planet gear	10	Oil temperature switch
3	Sun gear	11	Magnetic plug
4	Low pressure switch	12	Oil pump
5	Oil filter and bypass	13	Pressure relief valve
6	Power input module	14	Oil cooler
7	Rotor brake assembly	15	Oil filler cap
8	Bevel pinion		

2.3 Tail Rotor Drive System

The tail rotor drive system transmits rotation from the engine rear power takeoff to the tail rotor.
It consists of two items :

- a forward short shaft at the engine output
- a long shaft supported by five ball bearing assemblies .

These items are connected to each other by means of flexible couplings.



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1	Tail rotor	5	Rotor brake
2	Tail gearbox	6	Main rotor head
3	Tail rotor drive shaft	7	Main gearbox
4	Engine	8	Oil pump

2.4 Tail Gearbox (TGB)

The TGB is a right-angle drive that steps the rotational speed from 6125 down to 2086 rpm.

It is splash-lubricated and is provided with an oil level sight.

2.5 Rotor Brake

The rotor brake is mechanically controlled by the LH lever on the cockpit control quadrant.

When the lever is FORWARD, the rotor brake is released ; when the lever is AFT, the rotor brake is applied.

On brake application, the lever causes a diaphragm spring to compress, thus keeping the friction linings under constant load. A return spring brings the device back to the "brake released" position when the lever is moved forward.

SECTION 7.6

FLIGHT CONTROLS

The flight controls are used to fly the helicopter through variation of the pitch angle of main and tail rotor blades.

The basic aircraft is fitted with controls at pilot's station (R.H. seat). As an optional item, the aircraft can be provided with dual controls if flown with a copilot. These controls can quickly be removed for transportation of long loads inside the cabin.

The flight controls consist of three channels :

- a lateral and fore-and-aft cyclic pitch channel
- a collective pitch channel
- a yaw channel.

The main rotor controls are of the rigid type (control rod) and the tail rotor controls are mixed (ball type control cables and rods).

Three mobile cylinder servo-controls whose piston rod is integral with the M.G.B. directly operate the swashplate (two in lateral, one in fore-and-aft). These servo-controls allow the aircraft to be flown manually in the event of a hydraulic supply failure.

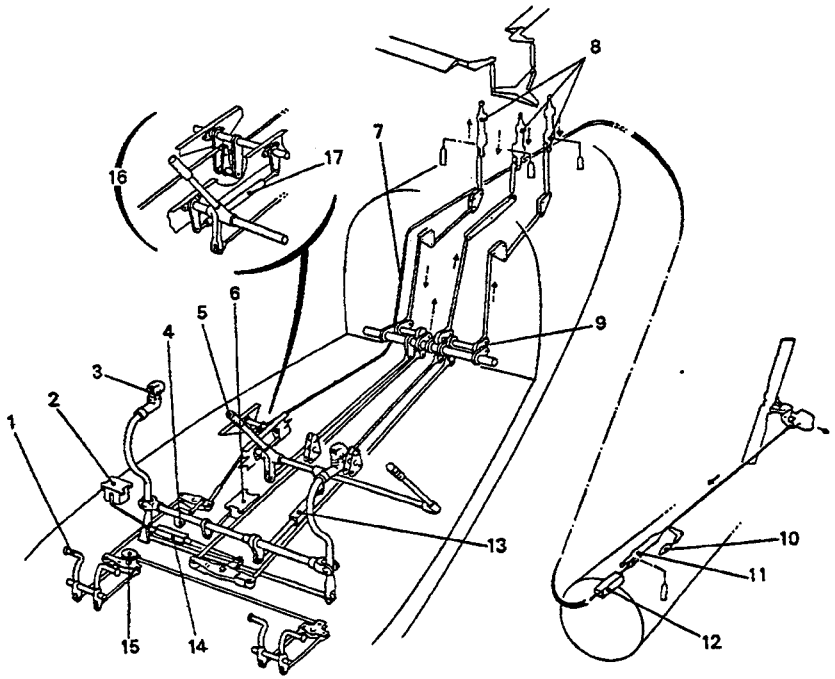
A tail rotor servo-control mounted on the tail boom actuates a rod which controls the tail rotor spider bellcrank. In the event of a hydraulic system failure, a load-compensating servo in the tail rotor linkage limits the yaw pedal operating load. The hydraulic accumulator that supplies the compensation system may be depressurized by means of a HYD. TEST pushbutton.

The mixing unit allows operation of the cyclic and collective pitch controls separately and without interaction.

When the aircraft is fitted with the optional autopilot each channel is completed by the following :

- for the pitch and roll channels :
  . an electric actuator
  . a trim actuator

- for the yaw channel :
  . an electric actuator
  . a collective pitch - yaw coupling system
  . an elastic rod
  . an adjustable friction lock on the pedals
  . a pedal movement detector.



Item	DESCRIPTION	Item	DESCRIPTION
1	Yaw control pedals	10	Load-compensating servo
2*	Roll channel trim actuator	11	Yaw servo-unit
3	Cyclic stick	12*	Yaw channel actuator
4*	Yaw movement detector	13*	Pitch channel actuator
5	Collective lever	14*	Roll channel actuator
6*	Pitch channel trim actuator	15*	Pedal friction lock
7	Ballflex control	16*	Collective pitch-yaw coupling
8	Main servo-units	17*	Elastic rod
9	Mixing unit		

* Optional autopilot

Flight Control Linkage

SECTION 7.7

HYDRAULIC SYSTEM

1 GENERAL

The hydraulic system reduces the pilot's workload by providing hydraulically assisted servo-controls to actuate the flight controls.

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The total system fluid volume is 3 litres (0.79 US gal. or 0.66 UK gal.) up to the maximum level mark on the reservoir.

2 SYSTEM DESCRIPTION (Figure 1)

The hydraulic system basically includes the following :

- A gear pump (20) driven by the main gearbox.
- A regulator unit mounted on the RH side of the MGB, containing :
  . a pressure regulating valve (19)
  . a pressure switch (17)
  . a filter (18)
  . a solenoid valve (16).
- A hydraulic reservoir (21) supplying the pump.
- Three single-cylinder main servo-controls (1) (2) (3) driving the non-rotating star. Each servo-control is equipped with a safety system comprising :
  . a hydraulic accumulator (4)
  . a non-return valve (5)
  . a solenoid valve (6).

  In the event of a hydraulic pressure failure, this system provides hydraulic assistance for sufficient time to enter a flight configuration with acceptable control operating loads.

- A single-cylinder yaw servo-control (10) driving the tail rotor control rod. In the event of a hydraulic pressure failure, a load compensating system is provided to actuate the control rod with acceptable yaw pedal operating loads ; this system comprises :
  . a hydraulic accumulator (4)
  . a non-return valve (5)
  . a pressure-drop solenoid valve (8) on the accumulator
  . a servo compensator (9)
  . pressure relief valve (7).

The rated system operating pressure is 40 bar.

3 SYSTEM CONTROLS AND MONITORING (Figure 1)

The pilot is informed of hydraulic system fault conditions by a red "HYD" low-pressure warning light (15)on the Warning-Caution-Advisory Panel, and by an aural alarm (14), both of which are actuated by the pressure switch (17) on the regulator unit.

A switch (11) on the collective pitch lever (12) can be used to cut off all hydraulic power by opening the three solenoid valves on the main rotor servo-controls to depressurize the system.

A push-button (13) on the control console is used :

- to test the hydraulic accumulators by opening the regulator unit solenoid valve (16)
- to depressurize the load compensating servo (9).

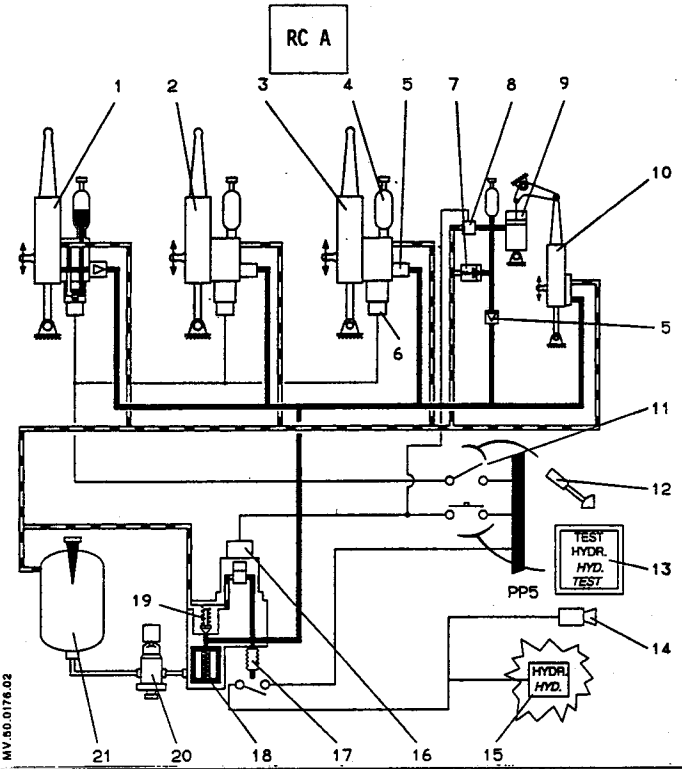
The hydraulic system filter, located on the regulator unit, is fitted with a clogging indicator (20). R R

RC A

3 SYSTEM CONTROLS AND MONITORING (Figure 1)

Do not take into account the blocked filter warning light check.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. 072453.



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Roll servo-control	12	Collective pitch lever
2	Pitch servo-control	13	Accumulator test push-button
3	Roll servo-control	14	Horn
4	Hydraulic accumulator	15	Low pressure warning light
5	Non-return valve	16	Solenoid valve
6	Solenoid valve	17	Low pressure switch
7	Pressure relief valve	18	Filter
8	Pressure- drop solenoid valve	19	Pressure regulator
9	Load compensation servo	20	Hydraulic pump
10	Yaw servo-control	21	Hydraulic fluid reservoir
11	Hydraulic pressure cutoff switch		

Figure 1

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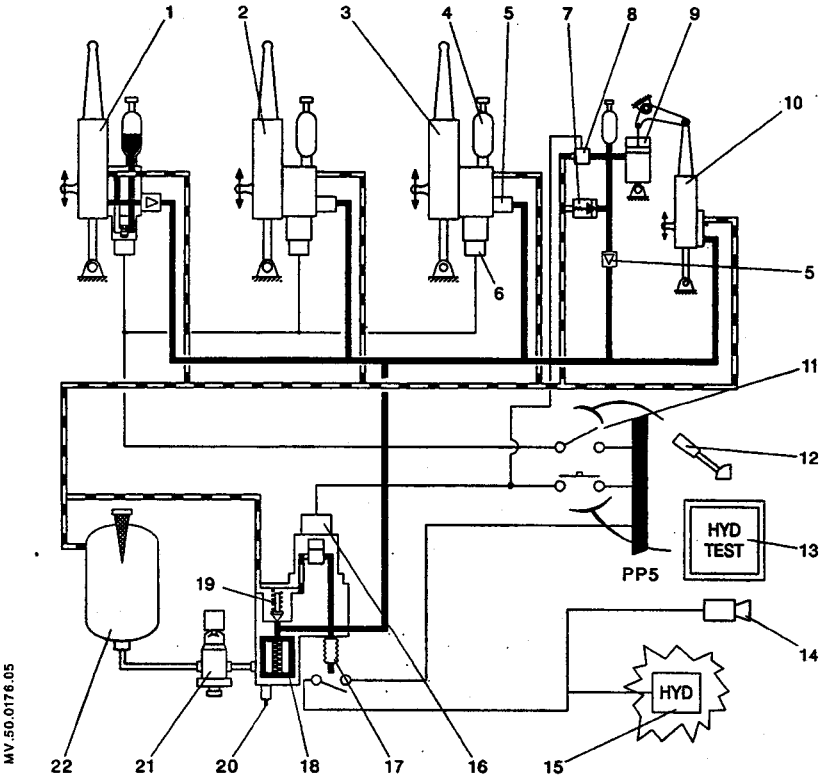

ITEM	DESCRIPTION	ITEM	DESCRIPTION
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3	Roll servo-control	14	Horn
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5	Non-return valve	16	Solenoid valve
6	Solenoid valve	17	Low pressure switch
7	Pressure relief valve	18	Filter
8	Pressure- drop solenoid valve	19	Pressure regulator
9	Load compensation servo	20	Clogging indicator R
10	Yaw servo-control	21	Hydraulic pump R
11	Hydraulic pressure cutoff switch	22	Hydraulic fluid reservoir R

Figure 1

SECTION 7.8

1 - DC POWER SYSTEM

1 GENERAL

DC power is provided by a starter-generator and by a 16 amp-hr buffer-mounted storage battery.

A second identical storage battery may be installed as optional equipment.

An external power receptacle on the R.H. side of the aircraft may be used to supply the aircraft electrical system from a 28 VDC ground power unit.

The generator and the battery are coupled to the distribution bus by means of line contactors, which can only close if the ground power unit is disconnected.

2 EXTERNAL POWER CIRCUIT

The ground power unit is coupled to the primary distribution bus by means of its contactor when the following conditions are met :

- electric power is available to the external power receptacle
- the "MASTER SW" pushbutton is released
- the "EXT PWR BATT" pushbutton is depressed.

The "GEN" and BATT" lights are illuminated.

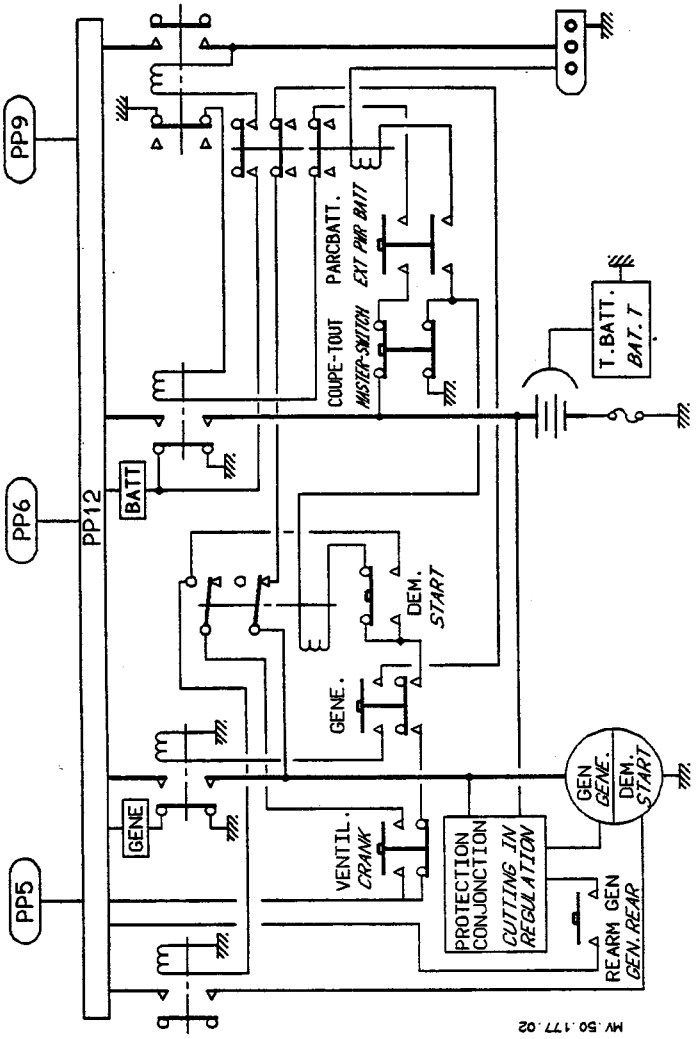
The battery and the generator are isolated from the system until the ground power unit is disconnected.

3 BATTERY CIRCUIT

The battery is coupled to the primary distribution bus by means of its contactor when the following conditions are met :

- electric power is not available to the external power receptacle
- the "MASTER SW" pushbutton is released
- the "EXT PWR BATT" pushbutton is engaged.

The battery may be isolated from the aircraft power system either manually (by means of the "MASTER SW" or "EXT PWR BATT" switches) or automatically (by connecting a ground power unit).


PP9
PP6
PP5
PP12
BATT
GENE
COUPE-TOUT
MASTER-SWITCH
PARCBATT.
EXT PWR BATT
T.BATT.
BAT.T
DEM.
START
GENE.
VENTIL.
CRANK
PROTECTION
CONJONCTION
CUTTING IN
REGULATION
REARM GEN
GEN.REAR
GEN
GENE.
DEM.
START
MV.50.177.02

4 GENERATOR CIRCUIT

The generator is coupled to the primary distribution bus by means of its contactor when the following conditions are met :

- electric power is not available to the external power receptacle
- the "MASTER SW", "CRANK" and "START" pushbuttons are released
- the "GEN" pushbutton is engaged
- the generator voltage exceeds the battery voltage by at least 0.5 V.

The generator may be isolated from the aircraft power system :

- manually by disengaging the "GEN" pushbutton or by pressing the "MASTER SW", "CRANK" and starter pushbuttons.

- automatically if a reverse current is detected from the battery to the generator, if a ground power unit is connected, or if the generator voltage exceeds 31.5 V.
  A push-button is provided to attempt resetting of the generator.

When the generator is isolated, the "GEN" light illuminates on the Warning-Caution-Advisory Panel.

5 ELECTRICAL SYSTEM CONTROL AND MONITORING

5.1 Controls

5.1.1 Console Pushbuttons

- "MASTER SW"
- "CRANK"
- "GEN"
- "RESET"

5.1.2 Fuel Flow Control Lever Pushbutton

- "START"

5.2 Indicator Lights

The following lights are included in the Warning-Caution-Advisory Panel :

- Red warning light : "BATT T"
- Amber caution lights : "BAT"
  "GEN"

5.3 Panel Indicators

- Ammeter
- Voltmeter

SECTION 7.8

2 - AC POWER SYSTEM

1 GENERAL

The AC power system is an optional installation required when the aircraft is equipped with an automatic pilot or with certain gyroscopic instruments. Two different types of installation are available, depending on the power required.

AC power is supplied by a static inverter from the DC power system. The inverter is located beneath the cabin floor. Performance specifications include the following :

250-VA A.C power system

- Input voltage	28 VDC
- Output voltages	115 and 26 VAC
- Frequency	400 Hz
- Power output : 115 VAC	150 VA) limited to 250 VA
26 VAC	150 VA)

10-VA A.C. power system

- Input voltage	28 VDC
- Output voltage	26 VAC
- Frequency	400 Hz
- Power output	10 VA

2 DESCRIPTION OPERATION

The static inverter is supplied from bus bar PP9, through a fuse located on the RH side fuse panel (16-amp. fuse for the 250-VA power system, 2.5-amp. fuse for the 10-VA power system).

The system is switched on by means of the "INVERT" push-button located on the control panel.

AC power distribution circuits are protected by fuses located on the LH side fuse panel.

An amber caution light on the instrument panel indicates a failure of the A.C. power system. R R

RC B

2 DESCRIPTION - OPERATION

Do not into account the amber warning light on the instrument panel indicating an ac generation failure.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. 072272.

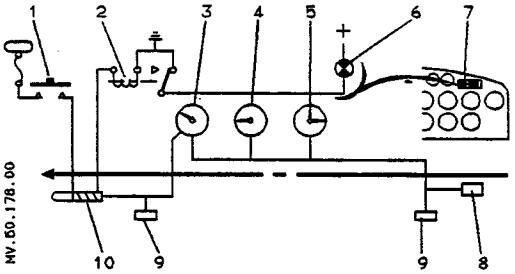
SECTION 7.9

PITOT-STATIC SYSTEM

It consists of :
- A total pressure circuit
- A static pressure circuit
- Three flight instruments
  . an airspeed indicator
  . a vertical speed indicator
  . an altimeter.

The static pressure port is provided underneath the cabin, slightly to the left of the aircraft centreline. The static pressure circuit supplies the three instruments.
The total pressure port is mounted on the nose slightly to the left of the aircraft centreline. It may include an optional heating resistor operated by the "PITOT" pushbutton on the control console. A light illuminates on the Warning-Caution-Advisory panel :
- when the pushbutton is released
- in the event of failure of the heating resistor
- in the event of power supply failure.

The total pressure circuit supplies the airspeed indicator.
A bleed valve provided on each pressure circuit allows condensation water to be drained off.



Item	DESCRIPTION	Item	DESCRIPTION
1	"PITOT" pushbutton	7	Warning-caution-advisory panel
2	Winding	8	Static pressure port
3	Airspeed indicator	9	Water bleed valves
4	Rate-of-climb indicator	10	PITOT head (with optional heater)
5	Altimeter		
6	"PITOT" light		

AUTO-PILOT AIR DATA CIRCUIT

When the aircraft is fitted with the auto-pilot, an air data unit supplied with static and total pressure complements the copilot's system.

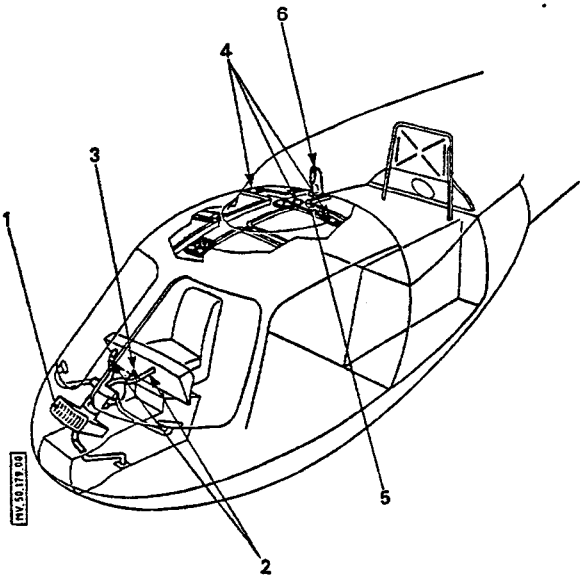
SECTION 7.10

AIR CONDITIONING

1 CABIN VENTILATION

Two separate circuits provide ventilation to the cabin.

- Front ventilation
  The air taken from the front cabin area flows through two ducts and is distributed to the crew. A pull-knob on the instrument panel controls opening and adjustment of the ventilation circuit.
- Overhead ventilation
  The air taken from the upper cabin area through a ram air scoop is then circulated to the air outlets via the structure posts.
  Air is diffused by opening and orientation of each air outlet.

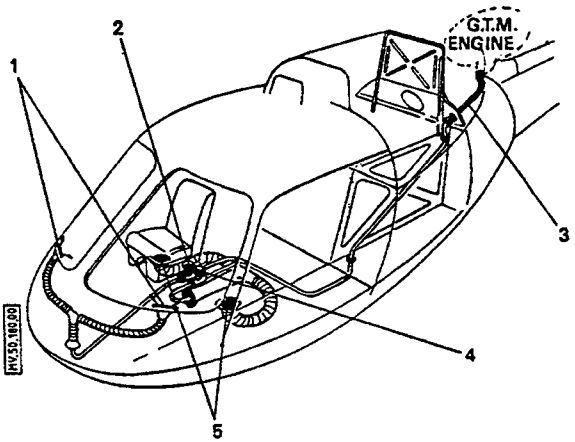


Item	DESCRIPTION	Item	DESCRIPTION
1	FRONT aerator	4	Overhead air outlets
2	FRONT air outlets	5	Ventilation duct
3	Control pull-knob	6	Ram air scoop

2 HEATING * AND DEMISTING SYSTEM

These systems provide cabin heating and windscreen demisting by mixing of hot P2 air taken from the engine with air taken from under the floor.

The air mixture is circulated through two separate circuits to the heating diffusers provided under the front seats and to the demisting air diffusers. Two manually operated valves mounted on the P2 lines are used to control air distribution.



Item	DESCRIPTION	Item	DESCRIPTION
1	Demisting air diffusers	4	Heating control valve
2	Demisting control valve	5	Heating diffusers
3	P2 air ducts		

* Optional

RC C

1 CABIN LIGHTING

No take in account :

"The rear dome light is supplied from the battery direct busbar and controlled by a switch on the overhead panel (emergency lighting)."

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. 071827.

SECTION 7.11

LIGHTING

1 CABIN LIGHTING

The cabin lighting consists of two dome lights provided on the overhead panel, one at front available to the crew and the other at rear for the passengers.

Each dome light comprises two swivel diffuser units. Lamp lighting is controlled by rotating the diffuser.

Each front diffuser unit includes a dimmer mounted on the overhead panel.

The cockpit dome light is directly supplied from the battery through two circuits and protected by a fuse. The cabin dome light is supplied through one circuit and protected by a fuse on the RH side fuse panel.

The rear dome light is supplied from the battery direct busbar and controlled by a switch on the overhead panel (emergency lighting). R R

2 INSTRUMENT PANEL AND CONSOLE LIGHTING

The instruments are lighted by two separate circuits :

- Lighting circuit 1 provides lighting to :
  . The instrument panel indicators from a light generator
  . The stand-by compass
  . The thermometer
- Lighting circuit 2 provides lighting to :
  . The push-buttons
  . The potentiometers
  . The radio control units

The instruments are lighted from a light generator made up of a halogen lamp and a loom of optical fibers each component of which is connected to a light diffuser arranged close to the instrument to be lighted.

The INST. LTS 1 and INST. LTS 2 push-buttons control the lighting system. The "CONSOLE" and "PIL. INST. PANEL" potentiometers control the brightness of the lighting circuits. R R R

RC D

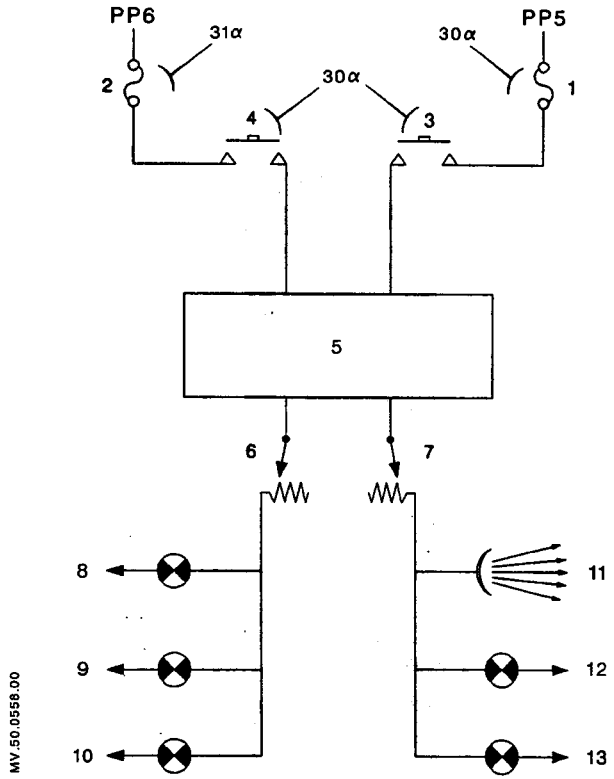
5 LANDING LIGHT

The 450 W searchlight is located beneath the forward cabin on the RH side.

6 TAXI LIGHT

The 150 W searchlight is located beneath the forward cabin on the LH side.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. 072488.



ITEM	DESCRIPTION	ITEM	DESCRIPTION	
1	INST. LTS 1 fuse	8	Console lighting	
2	INST. LTS 2 fuse	9	Push-button lighting	
3	INST. LTS 1 push-button	10	Radio control unit lighting	R
4	INST. LTS 2 push-button	11	Light generator	R
5	Light dimming unit	12	Thermometer lighting	R
6	CONSOLE potentiometer	13	Stand-by compass lighting	R
7	PIL. INST. PANEL potentiometer			R

Instrument panel and console lighting circuits

3 POSITION LIGHTS

The aircraft is fitted with three position lights :

- one red light on port end of the horizontal stabilizer
- one green light on starboard end of the horizontal stabilizer
- one white light at rear end of the fuselage.

The circuit is protected by two "POS. LT." fuses. R
The installation is controlled by the "POS. LT." push-button on the control console. R

4 ANTI-COLLISION LIGHT

The anti-collision light fitted at the top of the vertical fin indicates the aircraft's presence at a great distance.

The circuit is protected by the "A/COLL LT" fuse. R
The anti-collision light is controlled by the push-button on the control console. R

5 LANDING LIGHT

This light makes approach and landing by night easier. R
The 450-W landing light is mounted on the RH side, below the cabin R
R

It is controlled by a LAND LIGHT push-button on the control console and is R
protected by two fuses (LAND. LT. CONT. and LAND LIGHT) provided on the R
RH side panel. R

6 TAXI LIGHT

This light improves the safety of the helicopter when flying near the ground.

The 150-W taxi light is mounted on the LH side, below the cabin. R

The light is controlled by a TAXI LIGHT push-button provided on the control R
console and is protected by the TAXI LIGHT fuse. R

SECTION 8

SERVICING

R

CONTENTS

SECTION 8.1

GROUND HANDLING

1 EQUIPMENT REQUIRED

- For moving the aircraft by hand :
  . single or twin handling wheels
  . jacking lever.
- For towing the aircraft with a tractor :
  the above-mentioned equipment, plus :
  . a towing cable.

2 HANDLING

- Moving the helicopter by hand

On prepared ground

. Position the ground handling wheels on the mounting studs according to aircraft balance.
. Install ground handling wheels (wheels outside skids, see Detail B).
. Check that wheels are correctly locked (see Detail A).
  Lift the aircraft onto its wheels using a jacking lever.
  Lock in this position with retaining pins.

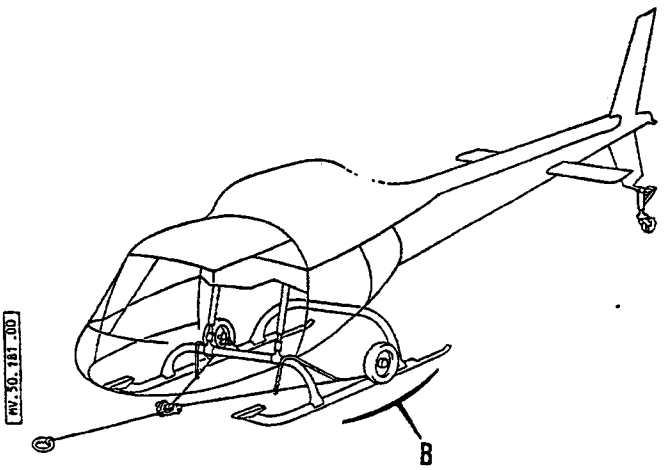
On rough ground

. Use twin ground handling wheels.
  Install as described above.

- Towing the helicopter with a tractor

Prepare the aircraft as above and attach the towing cable.
Elastic cords are wrapped round the undercarriage front arch.

NOTE : Handles secured to the tail boom should always be used to guide the aircraft when towed.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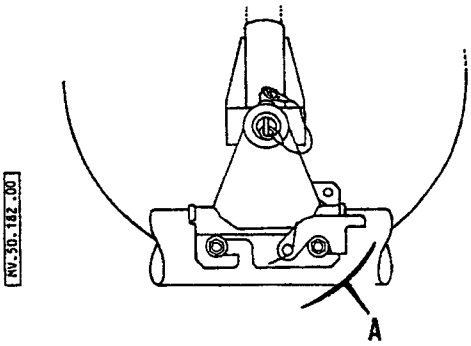
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SECTION 8.2

SERVICING INSTRUCTIONS

1 FUELS

1.1 Commercial Designation of Fuels

The authorized fuels are given in the LIMITATIONS SECTION. R
The commercial designations are given in the TURBOMECA Engine Maintenance R
Manual. R

1.2 Capacity

	Litres	U.S. Gal.	Imp. Gal.	Kg	lb	REMARKS
TOTAL FUEL TANK CAPACITY	540	143	119	427	940	Specific weight = 0.79
NON-CONSUMABLE FUEL	1.25	0.33	0.28	1	2.20	
CONSUMABLE FUEL REMAINING WHEN LIGHT COMES ON	60	15.8	13.1	47.4	104	

2 FUEL ADDITIVES

The anti-ice additive when used shall meet the requirements of French Specification AIR 3652 or the equivalent non-French specifications :
MIL-I-27686 - D.Eng. RD.2451 - PHILIPS PFA 55 MB NATO code S748 R
MIL-I-85470. R

The additive is to be mixed with the fuel in the following proportions :

- Minimum concentration, by volume :
  . 0.035 % in a tank already filled
  . 0.06 % in fuel to be used for refuelling.

- Maximum concentration, by volume : 0.15 %.

If there exists any doubt as to the concentration of additive in the contents of a fuel tank, the fuel is to be drained from the tank and replaced by fuel containing a known proportion of additive within the afore-mentioned limits unless it is possible to measure the concentration using a differential refractometer.

Instructions permitting the correct concentration of additive to be obtained are given by the vendor.

3 LUBRICANTS

3.1 Engine Lubrication System

3.1.1 Engine Oils/Commercial Designations

- Authorized lubricants : refer to LIMITATIONS SECTION. R
- Commercial designations : refer to TURBOMECA documentation. R

3.1.2 Capacity

Engine oil tank and system capacity : 6.2 litres (1.64 US gal or 1.36 Imp gal)

3.2 Transmission Components

3.2.1 Lubricants/Commercial Designations

- The authorized lubricants are given in the LIMITATIONS SECTION. R

3.2.2 Capacity

Main gearbox (system included) : 6.5 litres (1.7 US gal or 1.4 Imp gal)
Tail gearbox (system included) : 0.33 litre (0.08 US gal or 0.07 Imp gal).

4 HYDRAULIC FLUIDS

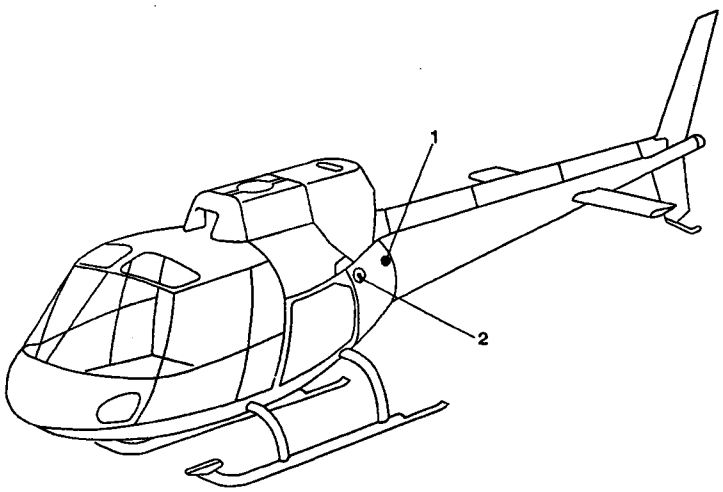
4.1 Hydraulic Fluids/Commercial Designations

- The hydraulic fluids are given in the LIMITATIONS SECTION. R

4.2 System

Total capacity of system : 3 litres or 0.8 US gal or 0.65 Imp gal.
Operating pressure : 40 bar (580 psi).
The warning light situated on warning-caution-advisory panel illuminates when pressure is lower than 30 bar (435 psi).

5 REFUELLING



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- Place the helicopter on a level surface.
- Connect the bower earthling cable to the electro-static balance connector (1) on the helicopter.
- Check, on the fuel gauge, the quantity of fuel remaining in the tanks.
- Observe the following safety precautions :
  . Ensure that the aircraft electrical power supply is switched off.
  . Place a fire extinguisher near the work area.
  . Strictly prohibit smoking in the security area.
  . Prohibit the use of any means of lighting not conforming to the rules of safety.
  . Ensure, during refuelling (or defuelling), that the bower (or the defuelling unit) is connected to the aircraft by the electro-static balance connectors.
  . Strictly prohibit draining of fuel tanks, whether partial or total, inside a hangar or shop.
- Fill the tanks, monitoring the quantity of fuel delivered on the bower flowmeter.
- Position and lock the filler plug (2), using the key.
- Disconnect the bower earthling connector from the aircraft electro-static balance connector (1).
- Check that the difference in the aircraft fuel gauge readings corresponds to the quantity of fuel delivered and determine the corresponding weight.

Refuelling with rotors turning

WARNING : REFUELLING WITH ROTORS TURNING SHALL BE PERFORMED ONLY AFTER PRIOR AGREEMENT IS GIVEN BY THE COMPETENT AUTHORITY IN COMPLIANCE WITH OPERATIONAL REGULATIONS.

- Strictly comply with the instructions defined below.
- Head aircraft into forward wind sector ± 45° if wind above 10 kt.
- Lock the collective pitch lever in full low pitch position.
- Check main rotor is at nominal speed with fuel flow control in flight detent.
- Limit refuelling at 95% in order to prevent any fuel spillage.
- The pilot must have someone well in sight to signal the mechanic to stop refuelling.
- After refuelling give the filler plug key to the pilot.

R
R
R
R
R
R
R

Refuelling with rotors turning

WARNING : REFUELLING WITH ROTORS TURNING SHALL BE PERFORMED ONLY AFTER PRIOR AGREEMENT IS GIVEN BY THE COMPETENT AUTHORITY IN COMPLIANCE WITH OPERATIONAL REGULATIONS.

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- Limit refuelling at 95% in order to prevent any fuel spillage.
- The pilot must have someone well in sight to signal the mechanic to stop refuelling.
- After refuelling give the filler plug key to the pilot.

6 DAILY CHECKS

The daily checks must be conducted by qualified personnel, in accordance with standard aircraft practices and the appropriate manufacturer's recommendations. Information concerning the daily check, prescribed in the Master Servicing Recommendations, is detailed in the Maintenance Manual.

In order to perform the checks, have the required documents available.

SECTION 8.3

TEST SHEETS

1 GENERAL

The test sheets are intended to sum up the checks to be carried out in flight or on the ground, with rotors turning either after replacement of major components, or after an extensive operation, or further to periodic inspections.

The test sheets are in the form of reproducible sheets which can directly be filled in by the crew.

CAUTION : SINCE THESE CHECKS DO NOT FORM PART OF NORMAL HELICOPTER OPERATION, THEY SHALL BE CARRIED OUT ONLY BY QUALIFIED PERSONNEL UNDER THE OPERATOR'S RESPONSIBILITY.

LIST OF TEST SHEETS

N° 0 FLIGHT REPORT

N° 1 CHECKS AFTER ENGINE OR MODULE REPLACEMENT

N° 2 CHECKS AFTER MRH FREQUENCY ADPATER OR MAIN ROTOR BLADE REPLACEMENT

N° 3 CHECKS AFTER MGB REPLACEMENT

N° 4 CHECKS AFTER TRH OR TAIL ROTOR BLADE REPLACEMENT

N° 4 A CHECKS AFTER TAIL ROTOR DRIVE SHAFT REPLACEMENT

N° 5 CHECKS AFTER OPERATIONS ON FLYING CONTROLS

N° 6 CHECKS AFTER GENERATOR OR ELECTRICAL MASTER BOX REPLACEMENT

N° 7 SYSTEM CHECKS

OPERATIONS ON ENGINE OR MODULE

- TESTS TO BE CONDUCTED ACCORDING TO THE COMPONENT REPLACED.

TEST	Engine Removal/ Installatioin	Engine replace-ment	Hydro-mechanical governor replacement	Module Replacement		
				No. 1-5	No. 2-3	No. 4
Starting Ground Run	●	●	●	●	●	●
Hover Flight		●	●			
Acceleration		●	●		●	
Bleed Valve		●			●	
Engine condition Power Check		●		●	●	●
Ng at Max. T/O PWR or Static droop check		●	●			
Engine coast-down		●		●	●	●

SHEET No. 0	HELICOPTER AS 350	FLIGHT REPORT

DATE : CREW : AREA :	Start : Duration : Number of landings :	WEATHER QFE : QMU : QAN : - Direction : - Force :

EQUIPPED EMPTY WEIGHT------ :
Crew ---------- :
Ballast ---------- :
WEIGHT WITHOUT FUEL ------- :
Fuel ---------- :
GROSS WEIGHT ---------- :

CG LOCATION :

MAJOR WORK CARRIED OUT BEFORE FLIGHT	REMARKS MADE BY CREW AFTER FLIGHT

UNITS USED
(cross out as applicable)

WEIGHT	FUEL	ALTITUDE	AIRSPEED
kg - lb	kg - lb - l - %	m - ft	km/h - kt - MPH

SPECIAL INSTALLATIONS	WRITER'S VISA

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Engine starting - Ground run

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
ENGINE STARTING		
Comply with the Normal Procedures of the Flight Manual, SECTION 4.1.		Hp [ ] OAT [ ]
- Battery voltage	. Voltage = 25 V Approx.	U : [ ]
- Booster(s) pump ON	. Pressure greater than 0.4 bar	Pressure : [ ]
Starter ON	. Battery voltage ≥ 18 V	U : [ ]
Check :	Max. t4 : BA : 840° C (5 sec. max. above 775° C) Other versions : 795° C 865° C (less than 5 sec.)	t4 : [ ]
	The GEN. light goes out before Ng is 50 %. The ENG.P. light goes out before Ng is 70 %.	Correct / Incorrect Correct / Incorrect
Record parameters at flight idle rating :	Torquemeter ponter in green arc	ΔNg* [ ] Ng [ ] t4 [ ] [ ] Fuel press. [ ] Oil press. [ ] Oil temp. [ ] Nf** [ ] NR [ ] * B2 version ** Except BA-BB versions
	Synchronization of NR/Nf pointers : ± 3 rpm	Correct / Incorrect

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Engine starting - Ground run

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
ENGINE AND FUEL SYSTEM CHECK		
Switch off booster pump(s).	No Ng or t4 hunting.	Correct / Incorrect
Switch on : - 350 BA-BB : booster pump, - Other versions : booster pumps one after the other, separately.	Correct operation of the pumps	Correct / Incorrect
Check injection safety system : Press the starter pushbutton at Ng equal to or more than 70 %	No engine flame-out.	Correct / Incorrect
CHECK AFTER GOVERNOR REPLACEMENT		
Use the fuel flow control lever to adjust the Ng value. Immediately push the lever into the "flight" detent. As soon as the Ng value exceeds 90 %, use the lever again to reduce the engine acceleration. Repeat this operation once more.	Ng = 70 % - During these operations, no compressor surging noise should be heard.	Correct / Incorrect
ENGINE SHUT-DOWN		
Check the engine generator coast-down time, after 30 seconds' stabilization at Ng between 67 and 72 %	Coast-down time from Ng = 30 % : equal to or more than 30 sec.	Correct / Incorrect
Apply rotor brake from NR = 170 rpm	Rotor stopping time : equal to or less than 25 s.	Correct / Incorrect

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Hover flight - Acceleration

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
HOVER IGE (6 ft) All air bleeds shut off : Record parameters	. Refer to Limitations, in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ]
ENGINE ACCELERATION Aircraft on the ground. Increase pitch from full low pitch to hover IGE flight pitch within 2 to 3 sec.	- No engine surge - Min. transient NR : more than 360 rpm - t4 less than max . t4	Correct Incorrect Correct Incorrect Correct Incorrect

ΔNg*	
Ng	
t4	
Fuel press.	
Oil press.	
Oil temp.	
Nf**	
NR	
* B2 Version ** Except BA-BB versions	
Fuel contents	

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Level flight - Engine condition

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
LEVEL FLIGHT AT MAX. CONTINUOUS POWER Altitude equal to or less than 3000 ft. All air bleeds shut off. Engine condition check : comply with the Flight Manual, SECTION 4.2. Record parameters :	. Refer to Limitations, in Flight Manual, SECTION 2.1. REMINDER : NR = 393 rpm ± 1 Engine condition : refer to Flight Manual, SECTION 4.2.	Hp [ ] OAT [ ] ΔNg* [ ] Ng [ ] t4 [ ] ♪ [ ] Fuel press. [ ] Oil press. [ ] Oil temp. [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions IAS : [ ] Correct Incorrect
BLEED VALVE OPERATION CHECK IAS : 55 kt Actuate the collective pitch lever to obtain closing then opening of the bleed valve	See TURBOMECA Maintenance Manual Refer to Flight Manual, SECTION 4.1.	Correct Incorrect

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Level flight - Engine condition

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
CHECK IN ALTITUDE LEVEL FLIGHT AT MAX. CONTINUOUS POWER To be performed at usual operational altitude and high enough for the discharge valve to be closed. All air bleeds shut off. Record parameters :	Refer to Limitations, in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ] ΔNg* [ ] Ng [ ] t4 [ ]  [ ] Fuel press. [ ] Oil press. [ ] Oil temp. [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions
ENGINE GOVERNOR CHECK At IAS = 65 kt : - Recuce the pitch from MCP fo full fine pitch.	. No engine flame-out. . ENG.P light does not illuminate. . Comply with NR max. limitation.	Correct Incorrect
- In 2 to 3 sec., increase pitch from re-synchronization (NR = 395 rpm approx.) to Max. Continuous Power.	. No engine surge . Min. NR more than 360 rpm . t4 less than t4 max.	Correct Incorrect

SHEET No. 1	HELICOPTER AS 350	CHECKS AFTER ENGINE OR MODULE REPLACEMENT Level flight - Engine condition

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
MAX. ENGINE POWER CHECK At IAS = 55 kt, increase pitch to reach the Ng of the takeoff power. NOTE : In order to avoid exceeding the torque limitation, it may be necessary to climb. All air bleeds shut-off. Record parameters :	It must be possible to get the Ng value at max. takeoff power. Refer to Limitations, in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ] Ng [ ] t4 [ ] [ ]

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Ground run - Blade track - Unbalance

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
Aircraft on the ground. Full low pitch. BLADE TRACK Record blade track.	Deviation lower than 6 mm.	
UNBALANCE NOTE : The unbalance is to be checked only after obtaining a correct blade track. Record unbalance (Accelerometer on base of MGB flared housing).	Unbalance equal to or less than : aircraft with low L/G : 0.2 ips aircraft with high L/G : 0.3 ips	Final result obtained : ips Time Number of balancing plates : Y R B

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Hover Flight IGE

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
HOVER IGE (6 ft) All air bleeds shut off.		
Record parameters :	Refer to Limitations in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ] ΔNg* [ ] Ng [ ] t4 [ ] Wf [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions Fuel contents [ ]
Check and, if necessary, adjust blade track.	Deviation less than 6 mm.	
Check and, if necessary, adjust unbalance.	Unbalance equal to or less than 0.2 ips.	Unbalance : ips [ ] Time [ ]

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Level flight at Max. Continuous Power and VNE (low altitude)

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
Level flight at Max. Continuous Power. Altitude equal to or less than 3000 ft. All air bleeds shut off. Record parameters :	Refer to Limitations in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ]
	REMINDER : NR : 393 rpm ± 1	ΔNg* [ ] Ng [ ] t4 [ ] Wf [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions Fuel contents [ ]
Check performance data :	IAS : Refer to Flight Manual SECTION 5.2 (BA, BB, B1, L1) or SECTION 10 (B2)	IAS : [ ]
Record the blade track and the value given by the aircraft nose accelerometer :		
a) In stabilized level flight at Max. Continuous Power	. Blade track deviation equal to or less than 6 mm . γz (a/c nose) : equal to or less than 0.2 ips	γz in level flight : ips [ ] Time [ ]

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Level flight at Max. Continuous Power and VNE (low altitude)

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
b) In 45° turn, at the speed corresponding to level flight at Max. Continuous Power	. Blade track deviation : equal to or less than 12 mm	
	. γz (a/c nose) : equal to or less than 0.35 ips	γz in 45° turn : ips [ ] Time [ ]
c) From level flight at Max. Continuous Power, accelerate, at constant power, up to VNE	. No signifcant variation of the vibratory level.	
d) Record 3 Ω p vibration level. Using an accelerometer placed on he floor along the aircraft Z datum line, at the front of the pilot's seat, record the vibratory level in level flight at Max. Continuous Power.	. 3 Ω p peak level : equal to or less than 0.2 g (or 0.62 ips for NR 394 rpm). NOTE : If the result is incorrect, i.e. if the level is higher than 0.2 g ; the adjustment of the cabin anti-vibrators is to be checked.	[Correct] [Incorrect]

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Level flight at Max. Continuous Power and VNE (low altitude)

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
CHECK OF MAX. NR Altitude greater than 5000 ft In autorotation, with collective pitch lever against low pitch stop and IAS = 65 kt : Progressively increase the load factor, if necessary (pull-up or turn to the left), in order to bring the rotor speed, transiently, to the aural warning threshold (B2) or to 410 rpm (BA, BB, B1, L1).	REMINDER : 350 B2 : Warning Max. NR : 410 rpm Max. NR : 430 rpm . No significant variation of the vibratory level during or after the manoeuvre (unbalance)	Correct Incorrect Correct Incorrect

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Level flight at Max. Continuous Power and VNE (high altitude)

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
HIGH ALTITUDE Recommended according to the type of operation. Level flight at Max. Continuous Power. Altitude about 10000 ft (or max. altitude compatible with the operational constraints). All air bleeds shut off. Record parameters :	Refer to Limitations in Flight Manual, SECTION 2.1. REMINDER : NR : 393 rpm ± 1	Hp [ ] OAT [ ] ΔNg* [ ] Ng [ ] t4 [ ] √ [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions Fuel contents [ ]
Check performance data :	IAS : Refer to Flight Manual, SECTION 5.2 (BA, BB, B1, L1) or SECTION 10 (B2)	IAS : [ ]

SHEET No. 2	HELICOPTER AS 350	CHECKS AFTER MRH, FREQUENCY ADAPTER OR MAIN ROTOR BLADE REPLACEMENT Level flight at Max. Continuous Power and VNE (high altitude)

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINDED OR LIMITATIONS	RESULTS OBTAINED
Record the blade track and the value given by the a/c nose accelerometer		
a) In stabilized level flight at Max. Continuous Power	. Blade track deviation equal to or less than 12 mm	
	. γz (a/c nose) equal to or less than 0.35 ips	γz in level flight : ips [ ] Time [ ]
b) In 30° turn, at the speed corresponding to level flight at Max. Continuous Power	. No significant variation of the vibratory level.	Correct / Incorrect
c) From level flight at Max. Continuous Power, accelerate, at constant power, up to VNE.	. No significant variation of the vibratory level.	Correct / Incorrect

SHEET No. 3	HELICOPTER AS 350	CHECKS AFTER MGB REPLACEMENT Ground run - Hover flight

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
Start engine as prescribed in the Normal Procedures of the Flight Manual, SECTION 4.1.	MGB.P warning light goes out for NR : less than 200 rpm (warm) less than 110 rpm (cold)	Correct Incorrect
Engage "HORN" pushbutton	Aural warning continuous sound for NR between 250 and 360 rpm.	Correct Incorrect
Perform 5 to 10 minutes' hover flight IGE (6 ft) at a weight approaching the maximum takeoff weight. Refer to Flight Manual, SECTION 5.1.	Refer to Limitations in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ] ΔNg* [ ] Ng [ ] t4 [ ] [ ] MGB oil temp. ** [ ] MGB oil press. ** [ ] NR [ ] * B2 Version ** Optional Fuel contents [ ]
	Warning lights : MGB.P MGB.T must remain off.	Correct Incorrect
Engine and rotor shut-down Rotor brake from 170 rpm	t equal to or less than 25 s.	t : [ ]

SHEET No. 4	HELICOPTER AS 350	CHECKS AFTER TRH OR TAIL ROTOR BLADE REPLACEMENT Ground run - TRH unbalance

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
CHECK OF TRH UNBALANCE Aircraft on the ground. Full low pitch. Increase NR up to 270 rpm. Record unbalance value.	. If unbalance is greater than 1 ips, do not increase NR beyond 270 rpm.	ips ☐ Time ☐
Make required corrections.	When unbalance at NR = 270 rpm is less than 1 ips, increase rotor speed up to flight idle. The correction to be applied shall be a compromise between the values found at the two rotor speeds to obtain an unbalance of less than 0.35 ips.	Chordwise balancing : Recordings Sector A ☐☐☐ Sector B ☐☐☐ Spanwise balancing : Recordings Blade 1 ☐☐☐ Blade 2 ☐☐☐ ips ☐

SHEET No. 4 A	HELICOPTER AS 350	CHECKS AFTER TAIL ROTOR DRIVE SHAFT REPLACEMENT Tail rotor drive shaft balancing

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
Aircraft on the ground. Full low pitch. Record the unbalance value.	Unbalance less than 0.8 ips.	Unbalance : ips ☐ Time ☐

SHEET No. 5	HELICOPTER AS 350	CHECKS AFTER OPERATIONS ON FLYING CONTROLS Hydraulic checks

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
Start engine as prescribed in the Normal Procedures of the Flight Manual, SECTION 4.1.	HYD warning light goes out for NR : less than 200 rpm (warm) less than 110 rpm (cold)	Correct Incorrect
Aircraft on the ground. Full low pitch, collective lever locked. Test accumulators of main servo-units : Press the TEST HYD pushbutton	HYD warning light comes on. The aural warning sounds.	Correct Incorrect
Move the cyclic stick in the longitudinal, then in the lateral axis by ± 10 % of the total stroke (± 25 mm).	The loads must not appear before 3 or 4 motions are made.	Correct Incorrect
Set TEST HYD back to Normal.	. The aural warning stops. HYD warning light goes out.	Correct Incorrect
Shut off hydraulic pressure on collective lever.	HYD warning light comes on. The aural warning sounds. The loads appear immediately at the controls. 350 B1 - L1 - B2 : The loads at the pedals remain weak (accumulator)	Correct Incorrect
Close the hydraulic circuit.	The aural warning keeps sounding as long as HYD warning light stays on (2 to 3 sec.).	Correct Incorrect

SHEET No. 5	HELICOPTER AS 350	CHECKS AFTER OPERATIONS ON FLYING CONTROLS Check of the low pitch stop adjustment

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
ADJUSTMENT OF THE LOW PITCH STOP Altitude lower than 5000 ft Perform autorotation with collective lever against low pitch stop. IAS : 65 kt	LIMITATIONS : Max. NR : 430 rpm.	

NOTE : Select the weight and altitude values which allow an NR between 395 and 415 rpm to be obtained at full low pitch.
Do not pull back the fuel flow control lever.

Record the following parameters :	NR in compliance with the values computed by means of Figure 1 + 0 rpm + 10	Hp	
		OAT	
		Fuel contents	
		Computed weight	
		NR obtained	
		Design NR	

SHEET No.	HELICOPTER	CHECKS AFTER OPERATIONS ON FLYING CONTROLS
5	AS 350	Check of the low pitch stop adjustment

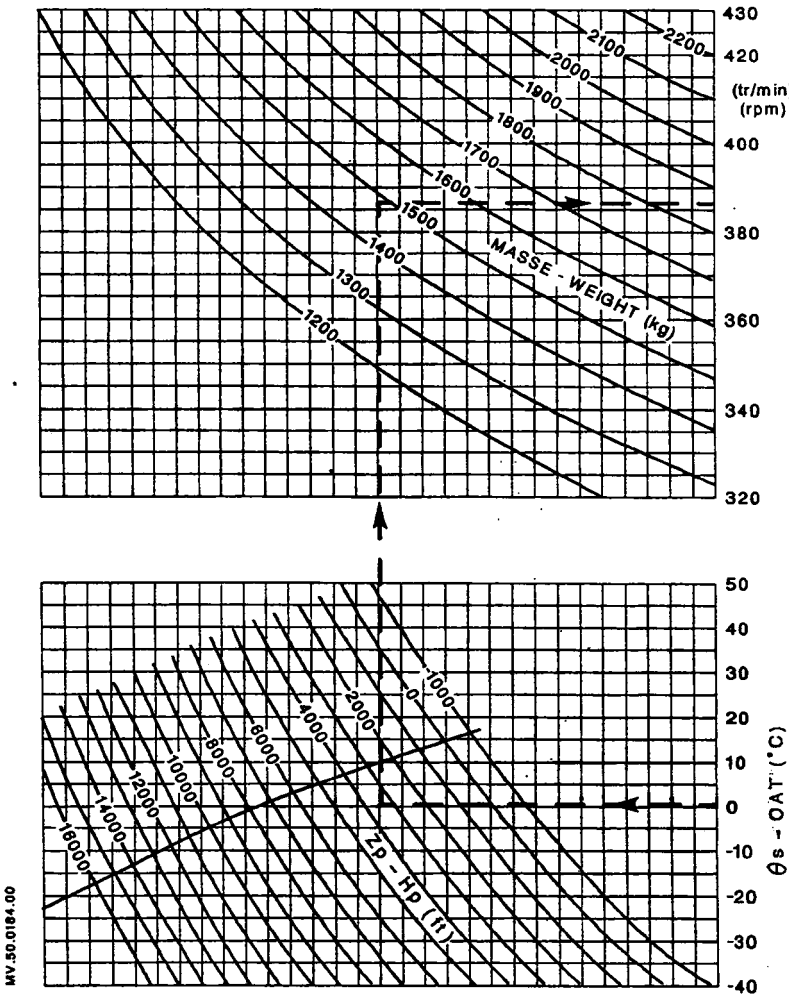


FIGURE 1

SHEET No. 5	HELICOPTER AS 350	CHECKS AFTER OPERATIONS ON FLYING CONTROLS Level flight at Max. Continuous Power

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
Level flight at Max. Continuous Power Altitude equal to or less than 3000 ft		
Record parameters :	Refer to Limitations in Flight Manual, SECTION 2.1.	Hp [ ] OAT [ ]
	REMINDER : NR : 393 rpm ± 1	ΔNg* [ ] Ng [ ] t4 [ ] ♪ [ ] Nf** [ ] NR [ ] * B2 Version ** Except BA-BB versions Fuel contents [ ]
Check performance data :	IAS : Refer to Flight Manual SECTION 5.2 (BA, BB, B1, L1) or SECTION 10 (B2).	IAS [ ]
	Vibratory level	Correct Incorrect

SHEET No. 6	HELICOPTER AS 350	CHECK AFTER GENERATOR OR ELECTRICAL MASTER BOX REPLACEMENT

TEST PHASES AND REQUIREMENTS	RESULTS TO BE OBTAINED OR LIMITATIONS	RESULTS OBTAINED
ENGINE AT FLIGHT IDLE RATING		
BATT switch OFF. Check GEN. voltage	U = 28.5 V approx.	Correct Incorrect
Operate the EMERG. CUT OUT pushbutton	350 BA - BB : All power supplies are cut off , except : Ng, t4, NR, forward dome light.	Correct Incorrect
	350 B1 - L1 : All power supplies are cut off, except : Ng, NR, forward dome light.	Correct Incorrect
	350 B2 : All power supplies are cut off, except : NR, forward dome light.	Correct Incorrect

SHEET No. 7	HELICOPTER AS 350	SYSTEM CHECKS

THE PERFORMANCE DATA OF THE SYSTEMS TO BE CHECKED UPON COMPLETION OF A MAJOR INSPECTION ARE INDICATED IN THE STANDARD PRACTICES MANUAL (MTC)

	Ch	Sect	Subj	Task
- Radio-communication	20	07	07	501
- Radio-navigation	20	07	07	502
- Navigation	20	07	07	503
- Autopilot and associated couplings	20	07	07	504

SECTION 8.4

DAILY OPERATING CHECKS

The daily checks must be conducted in accordance with standard aircraft practices and the appropriate manufacturer's recommendations, by qualified maintenance personnel or by a specially trained pilot. Any alteration or detailed inspection to determine serviceability as a result of these checks must be done under the supervision of a properly endorsed Aircraft Maintenance Engineer and duly entered in the Aircraft Log Book. R R

NOTE : Some certification authorities may require specific qualifications from the operators. R R

1 DAILY OPERATING CHECKS APPLICABLE TO THE BASIC AIRCRAFT R

Daily helicopter operation requires three checks :

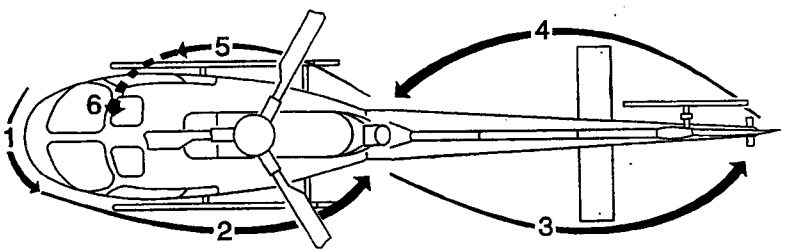
- check before the first flight of the day,
- check in conjunction with flight,
- check after the last flight of the day.

1.1 Checks Before The First Flight of the Day (BFF) R

REMARK :

IF THE AIRCRAFT HAS BEEN GROUNDED FOR MORE THAN ONE WEEK, BEFORE OPERATING THE FLYING CONTROLS, WIPE THE SERVO-CONTROL PISTON RODS WITH A RAG IMPREGNATED WITH SERVICE FLUID.

- Check that the area is clean and clear.
- Remove the blade socks, if applicable.
- Perform the following checks.



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STATION 1

- Transparent panels ..... Cleanliness
- Pitot heads and static vents ... Blanking cover, drain removed
- Sideslip indicator ..... Condition

STATION 2

- Engine air intake ..... Blanking cover removed
- Tail pipe cover ..... Removed
- MGB ..... Oil level
- Open the engine cowling :
  . Transmission deck and engine.. Condition, cleanliness
- Fuel tank ..... Purge
- Filler cap ..... Closed
- LH baggage compartment door .... Loads tied down, door locked
- Lower cowlings ..... Closed
- Aft baggage compartment ..... No foreign matter, closed
- Main rotor blades ..... No dents

STATION 3

- Tail boom and TGB fairings ..... Security
- TGB ..... Oil level
- Tail rotor guard (if fitted) ... Condition, security R

STATION 4

- Tail rotor blades ..... Condition of skin
- Tail boom and TGB fairings ..... Security

STATION 5

- RH baggage compartment ..... Open
  . Battery ..... Connection
  . Loads ..... Tied down,
    Close and lock compartment
- Ground power receptacle door ... Closed
- Engine compartment : R
  . Transmission deck and engine.. Condition, cleanliness
  . Engine oil tank ..... Oil level
  . Close the engine cowling ..... Correctly locked

STATION 6

- Collective pitch control
  and yaw pedals ..... Free travel
- Gas generator control ..... Free movement
- Rotor brake control ..... Free movement
- Fuel shut-off control ..... Forward position, snap wire fitted
- Fire extinguisher ..... In place

1.2 Check after the Last Flight of the Day (ALF)

1.2.1 General R

This check maintains the aircraft flightworthy. It consists in carrying out a visual or tactile examination of the condition of a component, an assembly so as to detect defects which could affect correct operation, but does not require the use of any special techniques or tooling.

Pay particular attention to the elements marked with an asterisk "*".

NOTE A : Magnetic plugs which do not have an electric indicating system may be checked for metal chips during the ALF check before the 30-flying hour limit. R

NOTE B : This check for defects can be performed during the ALF check before the 30-flying hour limit. R

NOTE C : This check for defects can be performed during the ALF check before the 30-flying hour or 150 operating cycle limit. R R

1.2.2 ALF check R

IMPORTANT : FOR THE ARRIEL 1D1 ENGINES NOT MODIFIED TU 202. R
WHEN SHUTTING DOWN THE ENGINE AFTER THE LAST FLIGHT OF THE R
DAY, CONFIRM THAT THERE IS NO ABNORMAL NOISE DURING THE R
AUTOROTATION OF THE GAS GENERATOR. THIS CHECK CAN BE R
PERFORMED ON COMPLETION OF A CRANKING OPERATION OF NO MORE R
THAN 5 SECONDS, IMMEDIATELY AFTER ENGINE SHUTDOWN. R

STATION 1

- All transparent panels ..... Cleanliness (clean if required)
- Door jambs, canopy arch members. No faults nor cracks
- Cabin access door ..... Security and correctly locked
- Pitot heads and static vents ... Fit blanking covers

STATION 2

- LH baggage compartment door	Condition, security, open, all objects tied down, close and lock	
- LH landing gear	Condition	R
. Shock absorber	Condition, absence of leaks	R
. Wear resistance plate	Condition	R
- MGB cowlings	Open : condition of locking systems	
- MGB oil	Check level	
- Transmission deck	Cleanliness	
- MGB suspension bars	Security	
- Servo-controls, hydraulic system	Security, no leaks, lines	
- DUNLOP servo-controls	Security, no leaks, no cracks on the body leading to seepage	R R
- Hydraulic filter	Clogging indicator (if fitted) not visible	R R
- Hydraulic reservoir	Check fluid level, security, tightness	
- Cooling fan	Motor security, condition of blades	
- Fuel filter	Security ; check paint marks ; clogging indicator not visible	
- Universal joint assembly	Security, pins in place and locked	

RC E

1.2 Check after the Last Flight of the Day (ALF)

STATION 1

Added the following checks :
- Sliding window ..... Free from faults, cracks, unbonding, loss of slide.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. 072573 and 072582.

RC G

STATION 2

- Bidirectional cross beam ..... Check for cracks on laminate bearing upper face, on MGB pick-up side.
  Refer to NOTE C.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MODIFICATION 072720.

RR 7A

STATION 2

After the check "universal joint assembly", add the following check:

- Firewall ..... Condition

- MAIN ROTOR SHAFT

  * Swashplate bearing : check to be performed within 5 min after rotor stops ..... No abnormal heating felt when touched with hand, no grease runs, no change in colour nor scaling of paint.

  . Scissors, swashplates, rods, swivel bearings ..... Condition, security ; no friction pointer play

  . Swashplate/pitch change rod end-fitting interface ..... No traces of contact, paint scaling on swashplate attachment yokes

  * Pitch change rods P/N 350A37.1508.00 to .05 .... Rod upper and lower end-fitting paint marks must be visible and aligned

  * Rotor shaft P/N 350A37.1076.00 to .06 inclusive. All visible section of the shaft, particularly under the hub ... Condition of paint, no craks, crazing, blistering, corrosion nor tool marks.

- MAIN ROTOR HUB ..... Security, general condition

  * Star ..... No delamination (splinters)
  * Star recesses ..... No cracks
  * Spherical thrust bearings and frequency adapters ..... No elastomer faults, unbonding, scratches, blisters, extrusion, cracks
  * 2-layer frequency adapter .... Check for clearance between the adapter and the metal shim. Refer to NOTE B

  . Self-lubricating bearings .... No debris nor play. Refer to NOTE B
  . Bushes in the ends of the STARFLEX hub arms ..... No space between the adhesive bead and the bush. Refer to NOTE B.

- Flared housing magnetic plug ... No metal chips. Refer to NOTE A.
- Shock mount ..... Security

* MAIN ROTOR BLADES	Attachment, general condition of	R
	polyurethane protection coating and of	R
	the zone of tabs (visually inspect for	R
	debonding, blisters, scratches, cracks	R
	dents and distortion).	R
	On the stainless steel leading edge	R
	strip, inspect for holes (erosion),	R
	splaying and dents.	R
- Engine air intake	Security, blanking cover fitted	
. Manufacturer's air intake ..	Condition of seal	R
- Engine cowling	Open : condition of locking systems	
- Engine mount	Condition, security	
- Engine and engine compartment		
. Engine and accessories	General condition, cleanliness	
. Systems	No leakage	
. Controls	Interference	
. Transmission deck drain	Not plugged	
- Freewheel	Operate from the tail rotor : the free turbine should be driven when the tail rotor turns clockwise. When the tail rotor turns counter-clockwise, the freewheel should de-synchronize (less important load). Refer to NOTE B	
- Gas generator..... ARRIEL 1 D1 engine not modified TU202	When the T4 is less than 150°C,	R
	turning the compressor by hand,	R
	confirm that the gas generator	R
	rotates freely and that there is no	R
	abnormal noise.	R
- Tail pipe	Security, blanking cover fitted	
- Aft baggage compartment door .	Security, closing	

STATION 3

- Horizontal stabilizer, fin, tail bumper	Security, condition	
- TGB	Oil level, no leaks	
- Tail rotor guard (if fitted) ...	Security, condition	R

STATION 4

- TGB	Security by applying a load on the drive shaft	
. Bellcrank hinge pin	No Play	
. Sealant bead	Condition	
. Magnetic plug	No metal chips. Refer to NOTE A	
- Horizontal stabilizer, fin, tail bumper	Security, condition	

* TAIL ROTOR BLADES	Attachment, general condition of polyurethane protection coating in the trailing edge (visually inspect for debonding, blisters, scratches, cracks, dents and distortion). On the stainless steel leading edge strip, inspect for holes (erosion), splaying and dents.	
* Tail rotor blade spar	Check for abnormal spar noise when the rotor is bent inwards and outwards to form an arc. Refer to NOTE B	
. Laminated half-bearing	No bonding separation, deep crack or emergence	
. Blade horn	No play	
- THR	Condition, security	
. Pitch change control		
. Paint line on pitch change control and spacer/baffle	No misalignment.	R R
. Pitch change rod swivel bearing	Check, (Refer to NOTE B) :	R
	. the absence of play (J) by twisting the blades back and forth, low amplitude movements (A) (Refer to Figure 3).	R R R
	. the condition of the ball joint, by visual inspection. That no Teflon material has squeezed out. That the ball shows no signs of burnishing or scoring.	R R R R R

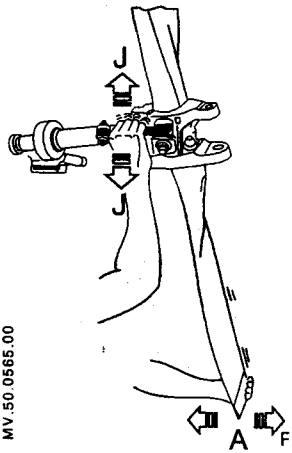


Figure 3 R

* BALANCE ARM HINGE : (Flapping hinge bearing) according to type :	
. Type 1 : cups on either side of the pin	Visual play and no metallic particles
. Type 2 : flapping bearings ...	No play
. Type 3 : bearing outside cone rubber	No cracks, extrusion, bronze chips
- Tail boom fairing	Security

STATION 5

- Battery	Security	
- RH baggage compartment door	Security, condition, locking	
- RH landing gear	Condition	R
. Shock absorber	Condition, no leaks	
. Wear resistance plate	Condition	
- MGB cowling	Open : condition of locking systems	
- Transmission deck	Cleanliness	
- MGB	Leaktightness	
. Magnetic plug	No metal chips. Refer to NOTE A	
- MGB suspension bar	Security	
- Servo-controls, hydraulic system	Security, no leaks, lines	
- DUNLOP servo-controls	No cracks on the body leading to seepage.	R R
- Engine oil tank, system	Oil level, security, tightness	
- Engine oil cooler	Security, no leaks	
- Universal joint assembly	Security, pin fitted	
- Engine mount	Condition, security	
- Engine and engine compartment		
. Engine and accessories	General condition, cleanliness	
. Systems	No leaks	
. Controls	Interference	
. Transmission deck drain	Not plugged	

* MAGNETIC PLUG

- ARRIEL engine magnetic plugs without electrical indication	No metal chips on forward and aft reduction gear magnetic plugs.	R
- Aft reduction gear magnetic plug.	Refer to NOTE A	R R
- Forward reduction gear magnetic plug (optional)	Refer to NOTE A	
- Engine and MGB cowlings	Closing, locking	

STATION 6

- Seat	Security, pin in place
- Cabin	General cleanliness

N

RR 7A

STATION 5

After the check "universal joint assembly", add the following check:

- Firewall ..... Condition

RC F

STATION 5

* MAGNETIC PLUG :

- ARRIEL engine magnetic plugs without electrical indication

Replace the existing text :

"Aft reduction gear magnetic plug ..... REFER TO NOTE A"

as follows :

"Aft reduction gear magnetic plug ..... Check every 8 flying hours and daily"

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MOD. TU 232.

RC G

STATION 5

- Bidirectional cross beam ..... Check for cracks on laminate bearing upper face on MGB pick-up side. Refer to NOTE C.

CAUTION : THIS PAGE MUST ONLY BE REMOVED FROM THE MANUAL AFTER INCORPORATION OF MODIFICATION 072720.

2 DAILY OPERATING CHECKS FOR OPTIONAL EQUIPMENT

For each optional equipment item installed on the helicopter, the daily check must include :

- a check before the first flight of the day,
- a check after the last flight of the day. R

These checks consist in performing a visual examination of each optional equipment item in order to check its general condition and security on the aircraft, in particular for :

- windshield wipers,
- fire extinguisher,
- ski installation,
- air ambulance installation (stretcher),
- flares,
- cargo swing,
- ferry tank,
- blade protection against sand,
- sand filter.

The optional equipment items which require specific checks are listed below.

2.1 AIR EQUIPEMENT or BREEZE electric hoist installation R

The hoist must be checked by the hoist operator.

- Check that the hoisting blocks and snap hooks function correctly.
- Perform a hoist functional check : unwind the cable over approximately 0.6 m (2 ft) and then rewind it : check that the "Up" end of travel contact functions correctly.
- Check to be performed during the ALF check before the 30-hour operating limit. R

AIR EQUIPEMENT HOIST fitted with an end-of-travel microswitch monitoring system :

Complete the check with the following :

- Switch on the electric hoist.

- Unwind the cable by approximately one to two metres.

- Wind the cable :

  . As the cable winds up, check that :
    - the GREEN light is LIT,
    - the RED light is EXTINGUISHED.

- On completion of the hoisting operation, maintain the "UP" order using the hoist operator's grip.

  . During the "UP" order, check that :
    - the GREEN light is EXTINGUISHED,
    - the RED light is EXTINGUISHED.

- Maintain the "UP" order on the hoist operator's grip and press the test push-button :

  . During the "UP" order, check that :
    - the GREEN light is EXTINGUISHED,
    - the RED light ILLUMINATES.

- Check to be performed every 25 hoisting operations :

  . Free rotation of the hook.
  . Condition of the cable.
  . Operation of the cable extraction mechanism.

- Operations to be performed every 50 hoisting operations :

  . Grease the hoist brake assembly.
  . Clean then grease the cable winding screw.

2.2 Emergency floatation gear installation

Check before the first flight

- Place the emergency floatation gear in low position, pins locked, safety pin in place.

- Check that the circuit-breakers in the aft baggage compartment are engaged.

Check after the last flight

If the aircraft has flown at low altitude over the sea, wash the inflation cylinders and the cradle assemblies.

2.3 Floatation gear installation

Check before the first flight

- Visually check the protective covering and that the floats are clean and free from tears.

- Check that the pressure in each compartment is 0.300 to 0.450 bar.

Check after the last flight

- After alighting in salty water, wash with soft water.

- After landing on a muddy field, wash with soft water.

Parking

Park in the shade, if possible, and protect the floats against the heat.

2.4 Crop spraying installation

This optional equipment requires the presence of qualified staff to perform the daily operating checks.

2.5 Engine fire extinguishing system

- Check that the pressure of the cylinders is correct.

2.6 Cargo swing

- After the last flight, lightly grease (G354) the end of the load hook at the lock input.

2.7 SSB Wire antenna installation R

- Check the condition and attachment of the wire antenna. R

3 OPERATION IN COLD WEATHER

3.1 General

This SECTION groups all the operating procedures to be followed when the aircraft is used in particular climatic conditions, such as cold weather and snow. Aircraft servicing does not require any special tools or systematic replacement.

3.2 General Recommendations

For rational operation of the aircraft in cold weather and snow, it is recommended to carry out the following basic operations :

- Remove ice or snow deposits from the whole of the aircraft, particularly at hinges and movement transmitting items (main rotor, rotor mast, tail drive and tail rotor, flight controls, engine controls).

- When the aircraft has been subjected to very low temperatures, it is recommended that:
  . either regular ground runs be carried out every two hours for temperatures of about -20°C and every hour for lower temperatures.
  . or preheating of the engine, transmission assemblies and cabin be effected before take-off (although the helicopter is capable of carrying out engine start up and rotor spinning at temperatures down to -40°C).

  During the preheating operation, carefully wipe out the deicing water to avoid all water accretion on the aircraft and water re-icing as soon as preheating is over, particularly on the AIR INTAKES and components located above the air intakes.

  PRACTICAL ADVISES

  - For the preheating and deicing operations, use appropriate heaters in good condition only. Do not refuel the aircraft while the heaters are functioning.
  - During the preheating operation, do not leave the aircraft unwatched. Keep an extinguisher available at hand.
  - Avoid directing hot air towards the following parts of the aircraft ; tanks and fuel, oil and hydraulic fluid lines.

3.3 Lubricants to be used for Transmission Assemblies

Below -25 °C, do not use AIR 3525 (O 155) oil for transmission assemblies without initial preheating.
The other oils authorized in Section LIMITATIONS of the basic Flight Manual may be used down to -40 °C without preheating.

NOTE : It should be remembered that when changing the oil, the system is first to be flushed in accordance with the recommendations in the maintenance publications.

3.4 Use of Batteries for Starting

During long periods of inoperation it is recommended that the battery be stored in a warm area.
If a ground power unit is not available, start-up may be carried out using the aircraft battery or two aircraft batteries connected in parallel.
The starting envelope is related to the temperature and is indicated in the supplement instruction for operation in cold weather.

3.5 Preparation for Flight

Independently of the inspections prescribed in sections 8.4.1 and 8.4.2, perform the following operations and inspections :

Main rotor blades

Remove the blade socks, then remove snow if need be and, if necessary remove ice from blades using hot air flow at a temperature not exceeding 80 °C.

Main rotor hub and mast

Remove ice from the swashplates, the scissors, the servo controls and the rotor head spring antivibrator.

Power plant

- Remove the air intake cover and the exhaust nozzle blank after removing snow from the aircraft surface.
- Remove snow and ice accretion in the vicinity of the air intake, on either side of the screen and inside the engine air intake duct (remove the air intake screen if necessary).

- It is imperative that the air intake be clean

  Manually and visually check for snow and ice inside the air intake duct up to the first stage of the compressor :
  In case of icing :
  . remove ice using a wooden or plastic scraper,
  . carefully wipe the surface using a cloth soaked with isopropyl alcohol.
  . inspect drains, unblancked scuppers; check for snow and ice on vent and static ports

Tail rotor

- Remove the blade sockets, then remove ice from the TRH assembly (blades, pitch rods...).
- Manually rotate the tail rotor so that the main rotor performs 1 turn at least, then check :
  . the swashplate rotation (rotor brake not blocked),
  . the TRH rotation,
  . the freewheel operation.

Structure

- Remove the cabin cover once the inspection is completed.
- Make sure that the windshield wiper has not remained stuck on the canopy.

Flight controls - Engine controls

- Before operating the controls, it is recommended to heat-up the inside of the cabin.
- Operate the controls progressively, then operate the rotor brake controls, fuel flow control and collective pitch control over their complete travel.

  It is recommended not to perform extensive travel of the cyclic and tail rotor controls.

Fuel system bleeding

Do not bleed the fuel system under a temperature equal to or lower than -10 °C where valve seals prove inefficient.

3.6 Check after Last Flight of the Day

The operations described in SECTIONS 8.4.1 and 8.4.2 are to be completed by the following actions

- Inspection of the engine magnetic plugs should be performed within 30 min after the rotor has stopped rotating, in order to avoid seal damaging.
- Care must be taken not to leave doors open.
- Install the air intake cover and exhaust nozzle blank.
- When the aircraft is parked in an unsheltered area it is recommended to apply anti-icing materials and to carry out the aircraft parking and mooring.

NOTE : ANTI-ICING MATERIALS

- Anti-icing fluid - isopropyl alcohol as per AIR 3660 or deicing as per AIR 3565 (MIL-A-6091).
- Anti-icing sealing compound B.437.
- Anti-icing compound E.57.
- Anti-rain material S.P.R. G7.
- Anti-icing material to be applied on blades: Kilfrost ABC or Kilfrost DF.

CAUTION : - REFER TO GENERAL INSTRUCTIONS FOR THE USE OF ANTI-ICING MATERIALS.
- ANTI-ICING MATERIALS CAN DAMAGE THE HELICOPTER COMPONENTS.
- USE RECOMMENDED AND APPROVED ANTI-ICING MATERIALS ONLY.

SECTION 9

OPERATIONAL DATA

CONTENTS

SECTION 9.1

RECOMMENDATIONS FOR CARGO SLING OPERATIONS

1 PERSONNEL TRAINING

Cargo sling operations may only be conducted by pilots who already have considerable experience with their aircraft.

No pilot may make solo cargo-carrying flights without first having accomplished such operations in the company of an instructor.

Mechanics on ground duty must be fully informed by the pilot before each new operation, in particular as regards :

- their position on the ground considering the proposed flight path ;
- the direction in which to move away ;
- the hook-up operation ;
- hand signals to be used or radio instructions ;
- protective equipment : helmets, gloves, glasses (if applicable) ;
- the number of round trips between replenishments ;
- the manner of retrieving slings and nets.

2 MANDATORY PRE-OPERATIONAL CHECKS

2.1 Helicopter Condition

In addition to the usual examination of the helicopter, the release unit must be carefully examined and the mechanism checked for correct release operation.

2.2 Condition of Sling Equipment

The nets, strops and slings must be examined thoroughly. Any worn or frayed components are to be discarded.

The cables, strops and shackles must be capable of carrying three times the maximum anticipated load.

2.3 Preparation of Loads

Make sure that all participants are well aware of the weight of the loads.
Ensure that the method of suspension is understood.

2.4 Condition of Loading and Unloading Areas

Remove or tie down all that might be displaced by the rotor downwash.

2.5 Total Weight of Helicopter with Load

Define maximum acceptable load compatible with terrain configuration and atmospheric conditions. Unless the platforms are in clear surroundings and fairly large, consider as maximum weight that which can be held in hover O.G.E. in calm air over the higher of the two platforms (take-off or landing).

3 AIRBORNE LOADS

Heavy loads, such as bags of cement or drums of kerosen, which are carried in a net, present no particular problem.

Special precautions must be taken in the case of bulky loads, which have a tendency to oscillate and even to "float" during transport on the sling. Permeability to air can have a stabilizing effect on a bulky load : for example, a teleferic car should be carried with both its doors open.

Never carry an airfoil alone : there is a great risk of the airfoil flying up into the tail rotor.

If several cables are used to sling the load, they must be long enough to form an angle of less than 45° between cables at the point of suspension under the helicopter ; experience shows that oscillation of the load is thus less likely to occur.

On the other hand, if the load is slung on a single sling cable, it is preferable that a fairly short cable be used as there is then less risk of the load swinging, and it is easier to judge the height of the load during approach.

For the retrieval of crashed helicopters it is generally possible to use a lifting ring on the rotor shaft.

Airplanes are carried using straps passing under the fuselage or under the wings. The cables must be attached in such a way that the airplane is in a slightly nose-down attitude when the helicopter is in the hover.

4 IN-FLIGHT PRECAUTIONS

After hooking on the load the ground mechanic is to check the position of the sling cables then move away. The pilot must then make sure that the mechanic has moved clear and then confirm by signs that he may lift off the load.

Power must be applied slowly enough to allow the helicopter to centre itself above the load.

A vertical take-off must be made, avoiding dragging the load along the ground or striking any obstacle.

Carefully avoid flying over houses, vehicles and persons.

If the load starts to swing, reduce speed.

Approach must be made head into the wind with gradual reduction in airspeed, and transition into hover high enough above the ground to eliminate the risk of dragging the load.

Set the load down, then reduce collective pitch sufficiently to slacken the cables before opening the release unit hook ; this also allows the pilot to ensure that the load is deposited. If the cables are long enough, move sideways a little before opening the hook, to prevent the ring and tackle from falling onto the freight.

Even after the mechanic has signalled that the load is released, move away as if it were not ; this is an advisable precaution against possible misinterpretation of signals.

Never fly away with an empty net or an unballasted sling.

SECTION 9.2

1. JOLLIET JE2 EMERGENCY LOCATOR TRANSMITTER R

1 GENERAL

The JOLLIET J.E.2 emergency locator transmits radio beacon signals simultaneously on the international distress frequencies (121.5 MHz and 243.0 MHz) to aid helicopter search and rescue operations.

The unit operates automatically in the event of crash impact. It may be operated manually by means of a switch on the transmitter front panel, or by means of a remote control switch.

2 COMPONENT LOCATIONS

- A locator beacon is attached to the structure and is located inside the rear baggage compartment.
- A beacon location label is attached to the outside of the aircraft.
- A control switch is fitted underneath the instrument panel on the pilot's side.
- An antenna is located on the tail boom.
- A label fitted close to the switch reads :

EMERGENCY LOCATOR TRANSMITTER
FOR AVIATION EMERGENCY USE ONLY

3 CHECKS

3.1 Pre-flight inspection

On the instrument panel :

- Check that remote control switch is set to "AUTO".

On transmitter :

- For old generation locator beacons :
  . Check that the switch is set to "AUTO"
  . Press in the "RESET" push-button.

- For new generation (NG) locator beacons :
  . Set the switch to "OFF/RST" for 2 to 3 seconds
  . Set the switch back to "AUTO".

3.2 Pre-flight checks

- Select the international distress frequency on the aircraft VHF or UHF system.
- Set switch beneath instrument panel to "MANU" for approximately one second. R
- The transmitter output signal should be audible in the headphones.
- Set switch back to "AUTO". R

3.3 Post-flight check

After landing, ensure that the emergency locator transmitter has not been accidentally switched on.

4 OPERATING PROCEDURE

4.1 Automatic operation

The transmitter is actuated automatically in the event of an impact if the switch is set to "AUTO". R

Impact detector reset :

- New generation locator beacon (NG) :
  . Select the locator switch to "OFF/RST", hold it in this position for 2 or 3 seconds then select it back to "AUTO".

- Old generation locator beacon :
  . The impact detector may be reset by means of the "RESET" push-button located on the transmitter ; the reset push-button also stops the automatic actuation of the transmitter.

4.2 Manual operation

The unit may be actuated manually by setting the switch to "MANU". R

4.3 Portable Operation

The transmitter may be used on the ground as follows :

- Remove the transmitter from its mount.
- Select an unobstructed area.
- Pull out the built-in antenna.
- Hold the unit upright with the antenna on top.
- Switch on the transmitter by setting the switch to "MANU".

SECTION 9.2

2. ELT 96 EMERGENCY LOCATOR TRANSMITTER

1 GENERAL

The ELT 96 radio beacon is an emergency transmitter which is used to locate the helicopter in an emergency. It transmits simultaneously on the international frequencies (121,5 - 243 - 406 MHz).

The transmitter starts operating automatically in case of impact or in case of cable breakage.
It may be switched on manually via the switch located on the top face of the transmitter or via the remote control switch located under the instrument panel.

2 COMPONENT LOCATION

- A transmitter attached to the structure inside the rear cargo hold.
- An external label indicating transmitter location.
- An AUTO - MANU control switch located under the instrument panel on the pilot's side.
- An AUTO TEST/RESET pushbutton located next to the control switch.
- A red XMIT ALERT indicator light located on the instrument panel on the pilot's side.
- An antenna on the LH side of the cabin roof.
- A label fitted close to the switch reads :

EMERGENCY LOCATOR TRANSMITTER FOR AVIATION EMERGENCY USE ONLY.

3 CHECKS

3.1 Pre-flight Inspection

Check the following under the instrument panel :
- The remote control switch is set to "AUTO".

CAUTION : IF THE SWITCH IS SET TO "AUTO" AND THE CONNECTOR IS UNPLUGGED, THE TRANSMITTER WILL OPERATE.

Check the following on the transmitter :
- The connector is plugged in.
- The switch is set to "AUTO".

3.2 Pre-flight Checks

- Tune in to 121.5 or 243 MHz.
- Press and hold pressed the "AUTO TEST/RESET" pushbutton.
  The following should occur :
  . The red "XMIT ALERT" light comes on.
  . The transmitter should be heard on the distress frequency.

NOTE : If the indicator light flashes, it indicates that the batteries are faulty or the transmitter is inoperative.

3.3 Post-flight Check

After landing, check for untimely transmitter operation (the red "XMIT ALERT" light should be extinguished).

Check the following on the transmitter :

- The switch is set to "OFF".

4 OPERATING PROCEDURE

4.1 Automatic Operation

The transmitter will begin operating automatically in case of impact if the remote control switch is set to the "AUTO" position.
The red "XMIT ALERT" light comes on during transmitter operation.

Resetting the impact detector

- Control switch set to "AUTO".
- Press the "AUTO TEST/RESET" pushbutton.
- The transmitter should cease operating.

NOTE : If the transmitter continues transmitting, perform the operation again. If, after several attempts, the transmitter remains in operation, set the switch on its top face to "OFF".

4.2 Manual Operation

The transmitter will begin operating when the remote control switch is set to "MANU".
The red "XMIT ALERT" light comes on during transmitter operation.

4.3 Portable Operation

The transmitter may be used on the ground as follows :

- Set the switch to "OFF".
- Remove the transmitter from its support.
- Work in a clear space.
- Hold the transmitter in the vertical position with the antenna upwards.
- Set the switch to "MAN/RESET" to begin transmission.

SECTION 9.2

3. NARCO ELT 910 EMERGENCY LOCATOR TRANSMITTER

1 GENERAL

The NARCO ELT 910 emergency locator transmits radio beacon signals simultaneously on the international distress frequencies (121,5 Mhz and 243.0 Mhz) to aid helicopter search and rescue operations.

2 COMPONENTS - LOCATION

- A locator beacon, attached to the structure, is positioned inside the rear baggage hold.
- An external identification label of the locator beacon.
- A control unit, located on the instrument panel.
- An antenna, located on the tail boom.
- A label fitted close to the switch reads :

  EMERGENCY LOCATOR TRANSMITTER FOR AVIATION EMERGENCY USE ONLY.

3 CHECKS

3.1 Pre-flight Inspection

On the instrument panel :

- check that remote control switch is set to "ARM".

On transmitter, check that :

- ON-OFF-ARM is set to "ARM".

3.2 Pre-flight Checks

- Select the international distress frequency on the aircraft VHF or UHF system.
- Set control unit switch to "ON" for approximately two seconds.
- The indicator light on the remote control unit lights up.
- The transmitter output signal should be audible in the headphones.
- Set control unit switch to "ARM".

3.3 Post-flight Check

After landing, ensure that the emergency locator transmitter has not accidentally been switched on.

4 OPERATING PROCEDURE

4.1 Automatic Operation

The transmitter is actuated automatically in the event of an impact, assuming the switch is set to "ARM".

NOTE : In order to reset the locator beacon following automatic actuation, proceed as follows :

- Select the remote control switch "ON" for two seconds, or the transmitter selector to "OFF".
- Re-select the switch to "ARM".

4.2 Manual Operation

The unit may be actuated manually by setting the switch to "ON".

4.3 Portable Operation

The transmitter may be used on the ground as follows :

- Remove the transmitter from its mount.
- Select an unobstructed area.
- Extend the antenna.
- Place the unit upright with the antenna on top.
- Switch on the transmitter by setting the "ON-OFF-ARM" switch to "ON".

RR 7B

SECTION 9.2

KANNAD 406 AF EMERGENCY LOCATOR TRANSMITTER

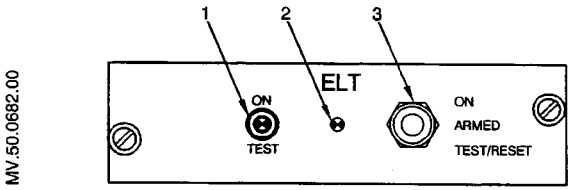
1 GENERAL

The emergency locator transmits radio beacon signals simultaneously on the international distress frequencies 121.5 MHz, 243.0 MHz and 406.025 Mhz to aid helicopter search and rescue operations.

It can be actived manually or automatically in case of a crash.

2 DESCRIPTION

The KANNAD 406 AF beacons consist essentially of the following :
- A transmitter, located in the rear cargo compartment is fitted with "ARM-ON-OFF" switch,
- An antenna, located in the upper section of the intermediate structure,
- A remote control switch, located in instrument panel.



REMOTE CONTROL PANEL
KEY

REPERE	DESCRIPTION	FONCTION
1	Amber light	- ON : transmission is effective - Test mode : . One long flash indicates good test. . A series of short flashes indicates bad test. . Beginning of the test is indicated by a short flash.
2	Buzzer	- Aural signal
3	3 position switch	The switch of the ELT is in position "ARM" - ON : beacon is actived. - ARMED : arms the shock sensor circuit. - TEST/RESET : . Self-test mode. . In case of activation, the ELT can be reset by switching to TEST/RESET.

RR 7B

3 OPERATION

3.1 Pre-Flight Check

- On transmitter : check that ARM-OFF-ON switch is set to ARM.
- In cockpit : check that remote control switch is set to ARMED.

3.2 Operation Testing

The self-test mode is a temporary mode.

This mode is selected either :

- When switching from OFF to ARM the switch of the ELT.
- When switching to TEST/RESET on the remote control panel (provided that the switch of the ELT is in position ARM).

The buzzer operates during the self-test procedure.

NOTE : It is strictly prohibited to test the ELT by transmitting.

3.3 Post-Flight Check

After landing, set the VHF receiver to 121.5 MHz to ensure that the emergency locator transmitter has not accidentally been switched on.

4 OPERATING PROCEDURE

4.1 Automatic Operation

The transmitter is actuated automatically in the event of an impact assuming the switches are set to ARMED.

NOTE : The TEST/RESET position stops locator transmitting and resets the impact detector.

4.2 Manual Operation

The unit may be actuated manually by setting one control switch to ON.

4.3 Portable Operation

The transmitter may be used for self-contained operation on the ground as follows :

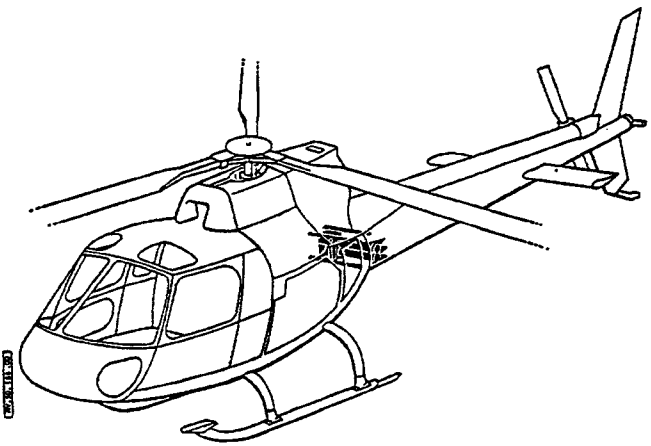
- Remove the transmitter from its mounting bracket.
- Disconnect the coax from the aircraft antenna.
- Select an unobstructed area.
- Extend the built-in tape antenna.
- Place the unit upright with the antenna on top.
- Switch on the transmitter by setting the ARM-OFF-ON switch to ON.

SECTION 9.3

SCHERMULY FLARES

1 GENERAL

SCHERMULY flares are used to illuminate the ground during night operations. Two flares are carried on a support on the port side of the fuselage.



LOCATION OF SCHERMULY FLARES

2 PILOT'S CONTROLS

Firing of the flares is controlled electrically. The control system comprises :

- a "FLARES" pushbutton (1) situated on the control
- a firing pushbutton on the pilot's cyclic control grip.

The firing circuit is protected by a fuse situated on the control console fuse panel.

3 OPERATING INSTRUCTIONS

The maximum altitude for firing the flares is 1500 ft (500 m).
For maximum effectiveness, the second flare should be fired at an altitude of at least 800 ft (250 m).
It should be noted, however, that firing the flares below 1200 ft (400 m) may be dangerous if a fire hazard exists in the area to be illuminated.

SECTION 9.4

AIR AMBULANCE INSTALLATION

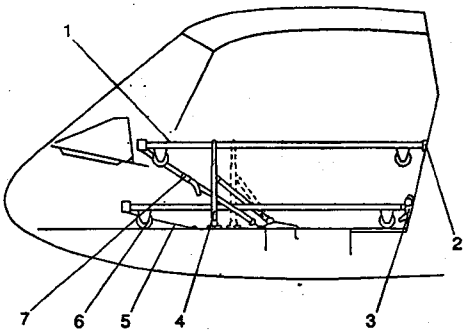
1 GENERAL

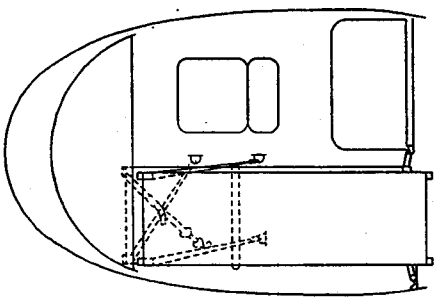
The air ambulance duty version is designed to carry one or two stretcher patients accompanied by one or two medical assistants seated on the RH rear seat.

R

2 DESCRIPTION

The air ambulance installation occupies the LH portion of the cabin and thus precludes any other use of the LH side of the aircraft.
It is therefore necessary to remove the copilot's seat, the dual controls and in some cases the LH rear passenger seat. The lower stretcher (6) is placed on the cabin floor and is secured by straps (3 and 5) to tie-down rings and fittings.
The upper stretcher (1) is held by brackets (2) on the rear bulkhead, carried by a support frame (4) at the front, and secured by straps (7) to the floor tie-down rings.





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3 UTILIZATION

Three configurations are possible :

- 1 stretcher (upper or lower)
- 2 stretchers

NOTE : If only one stretcher is being used it will be time-saving to use the lower stretcher.

When not in service the stretchers are folded and stowed with their straps in the baggage hold. The upper stretcher support frame folds down onto the cabin floor.

Stretchers are installed in the following order :

1. Lower stretcher (6)
2. Upper stretcher (1).

3.1 Preparation of the Cabin

Installation of the air ambulance duty version requires a number of preliminary cabin alterations.

3.1.1 Lower Stretcher

- Remove : dual controls, copilot's seat, seat cushions from L.H. rear passenger seat.
- Fold up L.H. rear passenger seat against rear bulkhead.

3.1.2 Upper Stretcher

- Remove : dual controls (tail rotor control pedals need not be removed), copilot's seat, seat cushions from L.H. rear passenger seat, L.H. carpeting.
- L.H. rear passenger seat remains open.
- Raise the support to vertical position and secure.

3.1.3 Upper and Lower Stretchers

- Remove : dual controls, copilot's seat, L.H. rear passenger seat cushions and seat, L.H. carpeting.

NOTE : For the "plush" version, both armrests of the L.H. rear passenger seat must be removed.

3.2 Installing the Stretchers

- Open the port side doors.
- Load the stretchers into place in the cabin forwards.
  . Set the lower stretcher on the cabin floor
  . Set the upper stretcher on the support post.
- Engage the rear handles of the stretchers in the brackets on the rear bulkhead.
- Secure the retaining straps and hooks at the front and "PIP" pins at the rear.

CAUTION : THE PATIENTS ARE STRAPPED TO THE STRETCHERS AND MUST BE EMBARKED FEET FORWARDS, HEAD TOWARDS THE TAIL.

SECTION 9.5

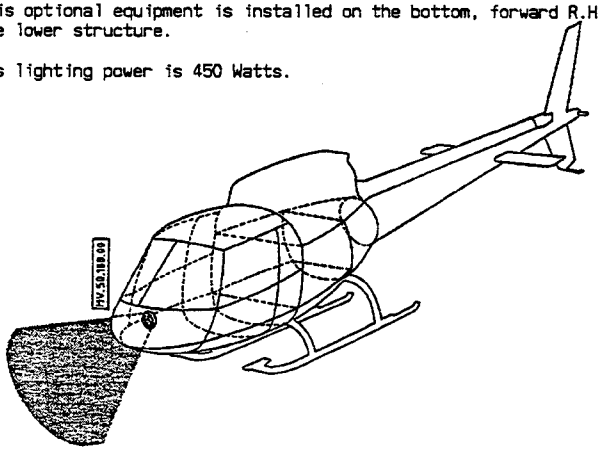
SWIVELLING LANDING LIGHT

1 GENERAL

This swivelling landing light that can be orientated in azimuth, is an optional equipment item designed to improve safety during the approach phase and taxiing operations.

This optional equipment is installed on the bottom, forward R.H. side of the lower structure.

Its lighting power is 450 Watts.



2 CONTROLS

The controls of the swivelling landing light are located on the pilot's collective pitch lever handgrip assembly.

An ON/OFF switch is used to control the lighting which is confirmed by the illumination of an indicator light on the instrument panel or on the Warning-Caution-Advisory panel.

A four-way switch is used to retract and extend the landing light.

3 CIRCUIT PROTECTION

Circuits are protected as follows :

- a 2.5-Amp. fuse on the R.H. side panel for the control circuits,
- a 20-Amp. fuse in the electrical master box for the lighting circuit.

SECTION 9.6

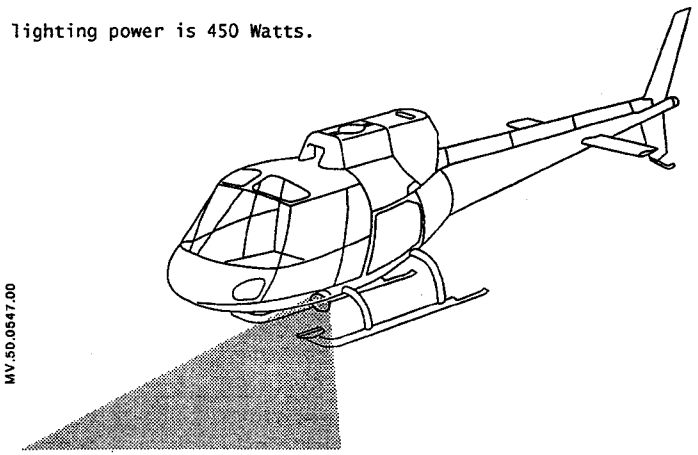
RETRACTABLE SWIVELLING LANDING LIGHT

1 GENERAL

This swivelling landing light that can be orientated both in elevation and azimuth, is an optional equipment designed to improve safety during the approach phase and taxiing operations.

This optional equipment is installed on the bottom, forward LH side of the lower structure.

Its lighting power is 450 Watts.



2 CONTROLS

The controls of the retractable swivelling landing light are located on the pilot's collective pitch lever handgrip assembly and optional, on the copilot's collective pitch lever. R R
An ON/OFF switch is used to control the lighting which is confirmed by the illumination of an indicator light on the instrument panel or on the Warning-Caution-Advisory panel.

The rear (spring return) position of the "ON" switch must be used to retract the searchlight. R R
This ensures that the searchlight is always switched off when it is in the "RETRACTED" position. R R
The extension and orientation of the searchlight are carried out using the four-way control button. R R

3 CIRCUIT PROTECTION

Circuits are protected as follows :
- a 2.5-Amp. fuse on the RH side panel for the control circuits.
- a 20-Amp. fuse in the electrical master box for the lighting circuit.

SECTION 9.7

SEARCHLIGHT

1 GENERAL

The LOCATOR searchlight installation is intended to illuminate the ground by a swivelling light beam in order to facilitate certain missions (search, rescue, surveillance...).

2 COMPONENT LOCATIONS

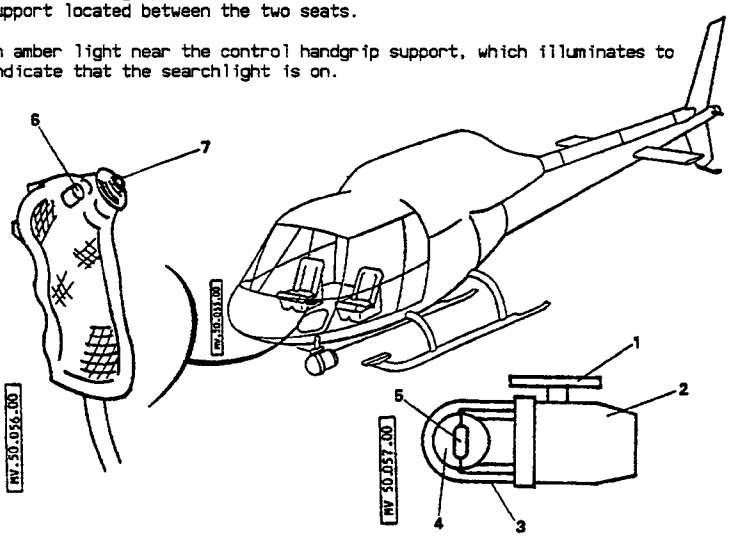
This installation consists mainly of :

- A 450-W power light (Detail A) secured to the bottom, forward L.H. side of the lower structure, forward L.H. side, comprising :

  . a glass dome (3),
  . a swivelling parabolic reflector (4),
  . a fixed-arc lamp (5),
  . a housing (2),
  . a mount (1).

- A control handgrip (Detail B) which, when not used, is hooked onto a support located between the two seats.

- An amber light near the control handgrip support, which illuminates to indicate that the searchlight is on.



Detail B Detail A

3 OPERATION

An ON/OFF pushbutton (6) located on the control grip is used to switch on and off the LOCATOR searchlight installation.

Full brightness is obtained 15 seconds after the searchlight has been switched on. This is confirmed by the illumination of the amber indicator light.

A four-way button (7) is used to operate the reflector for orientating the light beam in the desired direction.

NOTE : To prevent any premature damage to the lamp it is advisable :

- after the searchlight has been switched on, to wait 15 seconds before switching it off,
- after the searchlight has been switched off, to wait 30 to 60 seconds before switching it on again.

SECTION 9.8

FUELTRON FUEL FLOWMETER

1 GENERAL

The "FUELTRON" fuel computer is a device used to monitor a helicopter's fuel consumption.

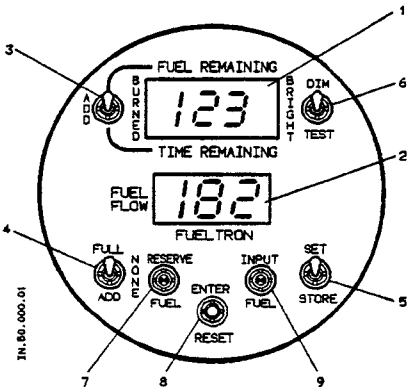
From a given quantity of fuel stored in its memory the device can compute :

- The amount of fuel burned
- The amount of fuel remaining
- The flying time remaining.

These values are computed from the momentary consumption which depends on existing flight parameters.

The computer is powered from the aircraft supply via the battery contact or the "RAZ-FUEL" pushbutton (if installed) on the control pedestal. The computer memory has its own battery supply.

2 DESCRIPTION



The indicator on the instrument panel consists mainly of :

- A digital read-out (1) which indicates any one of the following :
  . the amount of fuel remaining
  . the amount of fuel burned
  . the flying time remaining (in hours and tenths of an hour).
- A digital read-out (2) which indicates the momentary consumption.
- A selector switch (3) with which one of the functions of (1) may be chosen.
- A test selector (6) which :
  . in "Test" position, shows if 1 and 2 are functioning correctly
  . in "DIM" position, reduces the brightness of items 1, 2 and 7.

- A selector switch (4) used to enter the initial fuel data :
  . full
  . quantity added
  . no addition

- A switch (5) used to store in memory the fuel quantity.

- An amber caution light (7) which comes on when the remaining flying time is less than 0.8 hour.

- A white light (9) which indicates the computer is on and the memory is accessible.

- A pushbutton (8) used to enter data regarding fuel.

3 OPERATION

The "FUELTRON" measures the fuel flow rate but does not take into account the fuel contained in the helicopter's fuel tank. It is therefore essential to program the amount of fuel on board at the beginning of the flight.
The memory is accessible only when the white light is on. Thus, in order to enter or add a fuel quantity or to enter a new value, the power must be cut off using the RAZ FUEL pushbutton (or by switching off the battery on units not equipped with this function).

NOTE : When the engine is shut down but the booster pump is running, the unburned regulator bleed fuel flow is approximately 45 litres/hour (12 U.S. Gal./hour). This flow disappears when the engine is started.

A) Test

Displays should read all 8's.

B) Entering a Fuel Quantity

- 3 in ADD position
- 6 in BRIGHT or DIM position as required
- 4 in ADD position
- 5 in STORE position : . one pulse for units
  . two pulses for tens
  . three pulses for hundreds
  . four pulses for thousands.
- 5 in SET position to set digits
- 9 on
- 7 on
- 6 in TEST position and 8 held depressed until light 9 goes out and light 7 dims
- 3 in FUEL REMAINING position. Read fuel quantity entered.

C) Recalling Parameters before Switching Off Battery

- 3 in ADD position
- 6 in BRIGHT or DIM position as required
- 9 on
- 7 on
- 4 in NONE position
- 8 held depressed until light 9 goes out and light 7 dims
- 3 in FUEL REMAINING position. Read fuel quantity stored in memory.

D) Adding Fuel

- Switch off power supply to illuminate light 9 (RAZ-FUEL or battery)
- 3 in ADD position
- 6 in BRIGHT or DIM position
- 4 in ADD position
- 5 in STORE position : . one pulse for units
  . two pulses for tens
  . three pulses for hundreds
  . four pulses for thousands
- 5 in SET position to set digits
- 9 on
- 7 on
- 8 held depressed until light 9 goes out. Light 7 dims
- 3 in FUEL REMAINING position. Read sum of fuel (remaining fuel plus added fuel).

E) Entering a Preset Refuelling Quantity

.This function is available when the required fuel quantity has been stored in memory as per procedure set forth in paragraph B.
- 9 on
- 4 in FULL position
- 6 in BRIGHT or DIM position
- 5 in middle position
- 8 held depressed until light 9 goes out. Light 7 dims.

F) In-Flight Use

- 3 in BURNED position, quantity of fuel burned since memory entry
- 3 in FUEL REMAINING position, quantity entered less quantity burned
- 3 in TIME REMAINING position FUEL REMAINING / FUEL FLOW
- FUEL FLOW displayed by lower readout.

SECTION 9.9

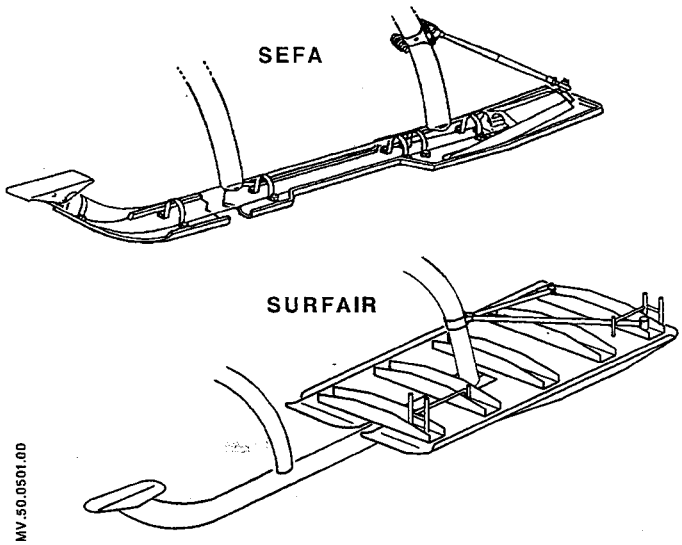
SKI INSTALLATION

1 GENERAL

The ski installation is designed for takeoff or landing on normal or snow-covered ground.

2 DESCRIPTION

The skis are secured to the pads via clamps. SEFA skis have a glass-fiber/resin laminate structure and SURFAIR skis have a metal structure. R
The rear spatula of the ski is reinforced with one or two struts. R
SURFAIR skis enable 4 pairs of Alpine skis to be carried. R



3 OPERATION

Special attention is required to the tail rotor ground clearance when landing in deep snow.

SECTION 9.10

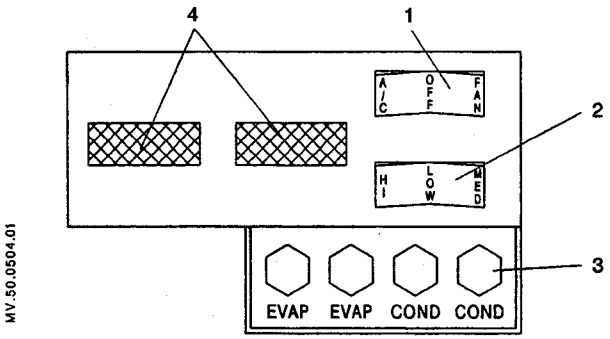
FREON AIR CONDITIONER

1 GENERAL

The air conditioning system is designed to maintain a comfortable temperature within the cabin.

2 SYSTEM CONTROLS AND INDICATORS

- Available to the pilot



ITEM	DESCRIPTION	FUNCTION
1	Rocker switch : . OFF neutral . FAN engaged . A/C engaged	Stops system operation Switches on ventilation Switches on ventilation and air conditioning
2	Rocker switch : . LOW neutral . HI engaged . MED engaged	Slow ventilation Fast ventilation Medium ventilation
3	Protection fuses for condenser and fan blowers	
4	Ventilation outlets	

- Available to the passengers

Six swivelling and adjustable outlets used to obtain the desired ventilation rate.

R

3 UTILIZATION

System operation

- Set rocker switch 1 to FAN to obtain cabin ventilation
  to A/C to obtain air conditioning

- Select ventilation rate using rocker switch 2.

System shutdown

- Set rocker switch 1 to "OFF" (neutral position).
- Should the system fail, set rocker switch 1 to "OFF".

4 PERFORMANCE DATA

The impact of the air conditioning system on the performance data given in the Basic Flight Manual is negligible.

3 UTILIZATION

System operation

- Set rocker switch 1 to FAN to obtain cabin ventilation
  to A/C to obtain air conditioning.

- Select ventilation rate using rocker switch 2.

System shutdown

- Set rocker switch 1 to OFF (neutral position)

- Should the system fail, set rocker switch 1 to OFF.

4 PERFORMANCE DATA

The impact of the air conditioning system on the performance data given in the basic Flight Manual is negligible.

SECTION 9.11

FAURE HERMAN FUEL FLOWMETER

1 GENERAL

This system is used to monitor the quantity of fuel contained in the helicopter.

The device can compute the following, taking into account the instantaneous flow rate measured and the quantity of fuel stored in its memory :

- The amount of fuel burned
- The amount of fuel remaining
- The flying time remaining.

2 OPERATING PRINCIPLE

KEY

1 Temperature signal
2 Temperature probe
3 Turbine
4 Permanent magnet
5 Flowrate signal
6 Digital indicator

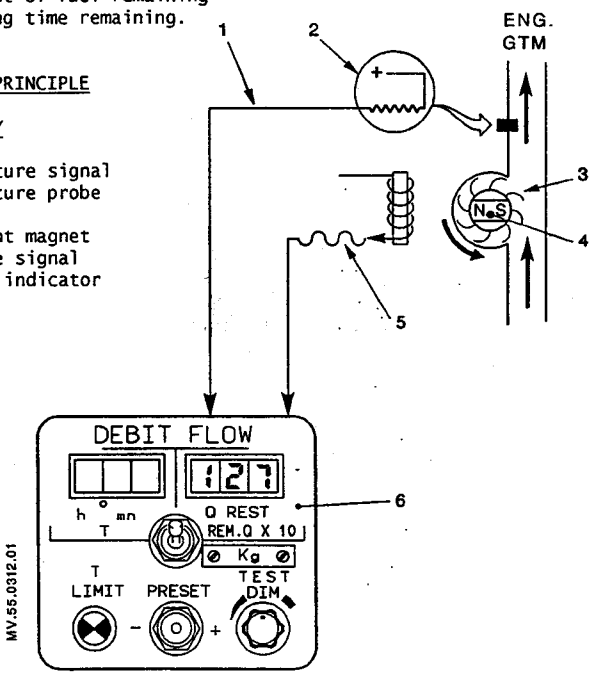
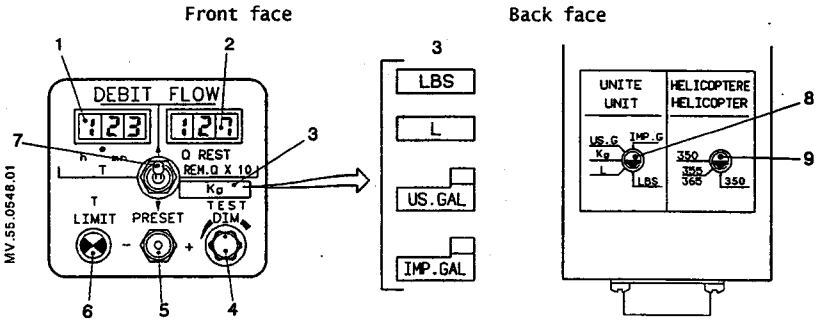


Figure 1 – Functional diagram

3 DESCRIPTION

3.1 Indicator



ITEM	DESCRIPTION	FUNCTION
1	LH side digital displays	- When switch (7) is in the center position, they indicate : . the remaining flight time (in hours and minutes)
2	RH side digital displays	- According to the position of switch (7), they indicate : . the hourly consumption rate of the engine . the amount of fuel remaining, . the amount of fuel loaded at the start, previously displayed by switch (5).
3	Removable units label	- Indicates the measuring unit according to the position of switch (8) on the rear face
4	"TEST" "DIM" push-button	- When rotated, adjusts the brightness of the display lighting. - When pressed, tests the lighting of the displays by making the eights appear.
5	"PRESET" switch	- Displays the amount of fuel when switch (7) is in bottom released position. Reading in tens of units is displayed in (2) - Switch position : . Centre : rest . I LH : amount displayed reduces slowly . II RH : amount displayed increases rapidly.

R

ITEM	DESCRIPTION	FUNCTION	
6	"T.LIMIT" amber indicator light	- Comes on when only 40 minutes of flight remain, or during test routine providing that the hourly fuel consumption remains the same. - Flashes when the indicator batteries are used.	R R
7	Three-position function switch	- Up position : indicates hourly fuel consumption of the engine (RH display) - Centre position : indicates remaining flight time (LH display) and the amount of fuel remaining (RH display). - Down position : displays the amount of fuel available in the fuel tank. This position is protected by a locking detent.	R
8	"UNIT" switch	Used to select the desired measure unit.	
9	"HELICOPTERS TYPE" switch	Switch must be set to the corresponding type of aircraft.	

4 OPERATION

NOTE : The standard aircraft fuel quantity gauge readings must take precedence over the fuel flowmeter computer.

4.1 In flight

- Flow (debit) read on display unit (2).
- Remaining time (T) read on the LH display and remaining quantity (REM.Q) read on the RH display (2).

4.2 On the ground

This operation is carried out when fuel is added in the tank.
- Trip selector switch (7) to down position (position protected by a locking system). R

The amount of fuel remaining is indicated on the RH display.

Actuating selector switch "PRESET" (5) : R
- toward position (-) slowly reduces the value displayed,
- toward position (+) rapidly increases the value displayed.

After displaying the actual amount of fuel on board, return selector switch (7) to its initial position. R

5 TESTING THE INDICATOR

When pushbutton (4) is pressed all 8's should appear on the displays, and indicator light (6) should come on.

If this light flashes the indicator battery must be changed (the "amount of fuel remaining" information retained in the memory is not valid).

SECTION 9.12

WANDEL AND GOLTERMANN HAILERS OP 2480

1 GENERAL

The hailers are designed to transmit either messages of a high sound level, or a continuous signal (siren).

The installation of this optional system does not affect the approved sections of the Flight Manual. The effect on the additional performance data is negligible.

2 DESCRIPTION

The system mainly consists of :

- two amplifiers located in the LH side baggage hold,
- four hailers fixed two by two on the rear cross beam of the landing gear,
- one microphone located on the RH side of the copilot's seat and fitted with two push-buttons : a black one for the mike function and a red one for the siren.

The system is swtiched on by means of a push-button and is protected by a fuse.

SECTION 9.27

MINI-HUMS SYTEM

1 GENEREAL

The MINI-HUMS SYSTEM is used as a maintenance aid to perform the acquisition, analysis and recording of the parameters monitored during the flight. The results of the monitoring operation are processed after the flight in order to determine the maintenance tasks to be carried out before resuming the flights.

2 DESCRIPTION

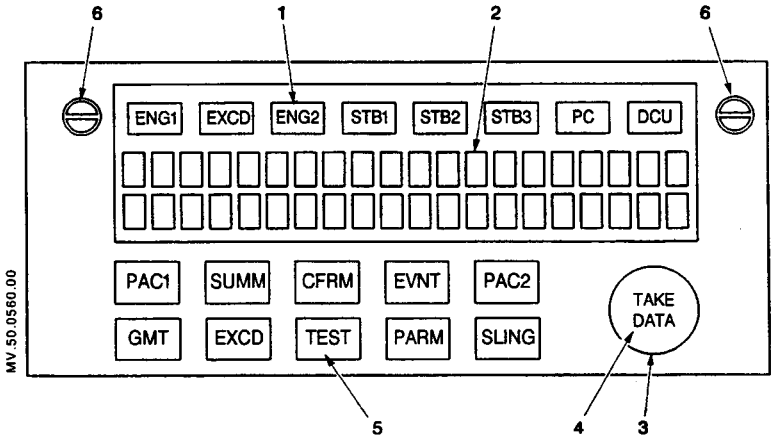
2.1 General layout

The MINI-HUMS installation comprises the following items :

. An airborne acquisition and monitoring unit which achieves :
  - data acquisition,
  - data processing,
  - data recording,
  - user interface function.
. An assembly of sensors and wires performing the interface between the airborne unit and the aircraft.
. A ground station used to process and analyze the recording parameters and thus determine the maintenance tasks to be performed on the aircraft.

The data are transferred from the airborne unit to the ground station via a removable magnetic card of the PCMCIA type.

2.2 Control and display unit

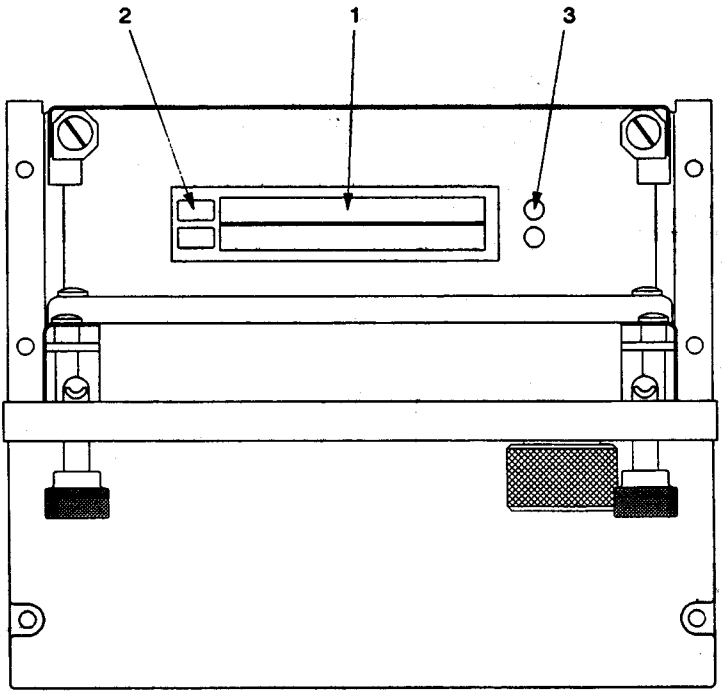


ITEM	DESCRIPTION	FUNCTION
1	Annunciator lights	
	- ENG 1	Illuminates when an action pertinent to that engine is in process : automatic engine-power assurance check, limit exceedance....
	- EXCD	Illuminates when a limit exceedance occurs.
	- ENG 2	Non-active annunciator light (function used on twin-engine aircraft only).
	- STB 1, STB 2 & STB 3	Used in conjunction with the automatic engine-power assurance check : their status shows which phase of the power check session has been reached.
	- PC	Illuminates to show the absence of the PCMCIA card or a fault condition on the card.
	- DCU	Illuminates to show a fault condition on the computer of the airbone unit.
2	Display panel	Alpha-numeric display of the checking and monitoring data.
3	Vernier knob	Used to change pages on the display screen and to increment or decrement the value of a selected parameter.
4	"TAKE DATA" push-button	Used to validate the data which have been modified.
5	Push-button	
	- PAC 1	Used to access the engine-power assurance check function.
	- SUMM	Used to summarize the various cycles and operating times.
	- CFRM	Used, at the end of a flight session, to confirm the parameters recorded during the flight(s) of the session.
	- EVNT	Used to mark an event which occured, in flight, during the data recording time.
	- PAC 2	Non-active position (used on twin-engine aircraft only).
	- GMT	Used to display the date.
	- EXCD	Used to display the limit exceedances which may have occured.
	- TEST	Used to access the test function and adjust the display brightness.
	- PARM	Used to display, in real time, the monitored parameters.
	- SLING	Used to count the SLING or HOIST cycles.
6	Locking knobs	Used to lock/unlock the front face to get access to the PCMCIA card readers.

2.3 PCMCIA card readers

These card readers can be accessed after unlocking and folding down the front face of the airborne unit.

NOTE : To handle the card, it is recommended to have the aircraft network de-energized.



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ITEM	DESCRIPTION	FUNCTION
1	Loading orifices	Used to insert a PCMCIA card in one of the two readers.
2	Push-button	Used to eject the PCMCIA card out of the reader.
3	Indicator light	Green : normal operation Red : card not inserted or, if the card is inserted, fault condition.

3 OPERATION

On power-up, the airborne unit is energized and the self-test sequence is initiated. During this test, if no fault is detected on the computer or on the PCMCIA card, the PC and DCU lights must be out and the data related to the aircraft are displayed (refer to the approved section of the Flight Manual).

3.1 "TEST" function : test and brightness adjustment

The first press on the "TEST" push-button initiates a computer test sequence. A press on another push-button terminates the test function.

A second press on the "TEST" push-button initiates the test of the annunciator lights and of the alpha-numeric display panel. The test sequence lasts until another push-button is pressed.

A third press on the "TEST" push-button gives access to the brightness adjustment function.
The following procedure must then be observed :

- Rotate the vernier knob to adjust the brightness of the alpha-numeric display panel.
- When the desired brightness is obtained, press the "TAKE DATA" push-button to pass on to the next adjustment.
- Rotate the vernier knob to adjust the brightness of the push-buttons.
- When the desired brightness is obtained, press the "TAKE DATA" push-button to pass on to the next adjustment.
- Rotate the vernier knob to adjust the brightness of the lights.
- When the desired brightness is obtained, press the "TAKE DATA" push-button to pass on to the next adjustment. Then the sequence reverts to the adjustment of the display panel brightness and so on.

A press on another push-button terminates the brightness adjustment function.

3.2 "GMT" function : time and date display

One press on the GMT push-button allows the initial power-up screen, showing the time and date, to be displayed.

To modify these data, the following procedure must be carried out :

- Press the "TAKE DATA" push-button.
- The Hours field starts to blink and the figure can be modified by means of the vernier knob.
- Press the "TAKE DATA" push-button again to validate the time and pass on to the next field, and so on.

This function will terminate when all the fields have been selected.

NOTE : The modification of the date and time in flight does not affect the flights of the session being recorded. The modification will only come into effect when a new session starts.

3.3 "PAC 1" function : automatic engine-power assurance check

During the flight, a press on the PAC 1 push-button initiates an automatic power assurance check cycle. When the checking process starts, a blue indicating light illuminates on the instrument panel.

NOTE : During all the phases of the engine-power assurance check cycle, the procedure described in section 4.2 of the Flight Manual must be applied.

The progress of the automatic power assurance check is shown, on the alpha-numeric display panel, by the illumination of STB 1, STB 2 or STB 3 annunciator light. Each phase of the engine-power assurance check corresponds to a parameter stability check. The further the check progresses, the more stable the parameters must be. In case of inadequate stability for one of the parameters, the check will automatically revert to the previous phase.

At the end of phase No.3, the indicating light on the instrument panel extinguishes, showing that the engine-power assurance check is over. The three STB 1, STB 2 and STB 3 lights are illuminated simultaneously and the result is displayed on the alpha-numeric panel. A rotation of the vernier knob displays the parameters which have given this result. The result remains displayed until a new function is selected.

NOTE : If another function is selected during the stabilization phases of the automatic engine-power assurance check, the checking cycle is aborted.

3.4 "PARM" function : display of parameters in real time

A press on the PARM push-button causes the real-time value of the monitored parameters to be displayed on the alpha-numeric panel. A rotation of the vernier knob allows the desired parameter to be selected.

NOTE : The ΔNg parameter is not to be taken into account on the 350 BA, 350 BB and 350 B1 versions.

3.5 "EVNT" function : event marking

During the flight, the pilot can mark the occurrence of an event for future analysis by pressing the EVNT push-button. A file containing the following items is thus created :
. The number of the event since the beginning of the session,
. The time,
. The airspeed,
. The OAT
. The altitude.

3.6 "SLING" fuction : counting of SLING or HOIST cycles

A press on the SLING push-button gives access to the SLING cycles counting function. A rotation of the vernier knob causes the desired value to be displayed.
A press on the "TAKE DATA" push-button validates this value.
At that stage, a new rotation of the vernier knob will have no effect.
A prolonged press on the SLING push-button gives access, after a certain time, to the HOIST cycles counting function. A rotation of the vernier knob causes the desired value to be displayed.
A press on the "TAKE DATA" push-button validates this value.
At that stage, a new rotation of the vernier knob will have no effect.

3.7 "EXCD" function : monitoring of the limit exceedances

When a limit exceedance is detected, the EXCD annunciator light illuminates.
If the limit exceedance concerns an engine parameter, the ENG 1 annunciator light illuminates too.

The limit exceedances can be reviewed by pressing the EXCD push-button.
The last exceedance that occured will be displayed.
A rotation of the vernier knob allows all the limit exceedances recorded during the session to be reviewed.

An exceedance file includes :
. The number of the exceedance,
. The parameter concerned,
. The time of the exceedance,
. The limit concerned,
. The duration of the exceedance,
. The peak value reached.

3.8 "SUMM" function : summary of the various cycles and operating time.

A press on the SUMM push-button gives access to a brief summary of the flights performed during the latest session. A rotation of the vernier knob allows various parameters (such as those given below) to be selected :
. Number of take-offs,
. Flight duration,
. Engine cycles,
. Number of alarms,
. Number of exceedances ....

3.9 "CFRM" function : confirmation of the data recorded during the flights of the session.

This function can only be used on the ground, with the engine and the rotor stopped. A press on the CFRM push-button activates the function permitting the data recorded during the session to be validated.

NOTE : All the data are validated by default. An information is not erased when it is not validated. It is simply marked as "REJECTED".

By pressing one of the "SUMM", "PAC 1", "EVNT", "EXCD" push-buttons, the pilot can review the recording reports associated with each function. A rotation of the vernier knob allows the various reports of one same function to be displayed. When the report to be rejected is displayed on the screen, press the "TAKE DATA" push-button :
The "REJECTED" message should appear.
The confirmation of the alarms met during the session can be performed at the end of the limit exceedance confirmation session.

SECTION 10

ADDITIONAL PERFORMANCE DATA

CONTENTS

SECTION 10.1
CONVERSION TABLES

km/h	kt	km/h — kt	km/h	kt	km/h — kt
1.852	1	0.540	94.452	51	27.535
3.704	2	1.080	96.304	52	28.075
5.556	3	1.620	98.156	53	28.615
7.408	4	2.160	100.008	54	29.155
9.260	5	2.700	101.860	55	29.695
11.112	6	3.239	103.712	56	30.234
12.964	7	3.779	105.564	57	30.774
14.816	8	4.319	107.416	58	31.314
16.668	9	4.859	109.268	59	31.854
18.520	10	5.399	111.120	60	32.394
20.372	11	5.939	112.972	61	32.934
22.224	12	6.479	114.824	62	33.474
24.076	13	7.019	116.676	63	34.014
25.928	14	7.559	118.528	64	34.554
27.780	15	8.099	120.380	65	35.094
29.632	16	8.638	122.232	66	35.633
31.484	17	9.178	124.084	67	36.173
33.336	18	9.718	125.936	68	36.713
35.188	19	10.258	127.788	69	37.253
37.040	20	10.798	129.640	70	37.793
38.892	21	11.338	131.492	71	38.333
40.744	22	11.878	133.344	72	38.873
42.596	23	12.418	135.196	73	39.413
44.448	24	12.958	137.048	74	39.953
46.300	25	13.498	138.900	75	40.493
48.152	26	14.037	140.752	76	41.032
50.004	27	14.577	142.604	77	41.572
51.856	28	15.117	144.456	78	42.112
53.708	29	15.657	146.308	79	42.652
55.560	30	16.197	148.160	80	43.192
57.412	31	16.737	150.012	81	43.732
59.264	32	17.277	151.864	82	44.272
61.116	33	17.817	153.716	83	44.812
62.968	34	18.357	155.568	84	45.352
64.820	35	18.897	157.420	85	45.892
66.672	36	19.436	159.272	86	46.431
68.524	37	19.976	161.124	87	46.971
70.376	38	20.516	162.976	88	47.511
72.228	39	21.056	164.828	89	48.051
74.080	40	21.596	166.680	90	48.591
75.932	41	22.136	168.532	91	49.131
77.784	42	22.676	170.384	92	49.671
79.636	43	23.216	172.236	93	50.211
81.488	44	23.756	174.088	94	50.751
83.340	45	24.296	175.940	95	51.291
85.192	46	24.835	177.792	96	51.830
87.044	47	25.375	179.644	97	52.370
88.896	48	25.915	181.496	98	52.910
90.748	49	26.455	183.348	99	53.450
92.600	50	26.995	185.200	100	53.990

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m	ft	m ft	m	ft	m ft
0.305	1	3.281	15.545	51	167.326
0.610	2	6.562	15.850	52	170.607
0.914	3	9.843	16.154	53	173.888
1.219	4	13.124	16.459	54	177.169
1.524	5	16.405	16.764	55	180.450
1.829	6	19.685	17.069	56	183.730
2.134	7	22.966	17.374	57	187.011
2.438	8	26.247	17.678	58	190.292
2.743	9	29.528	17.983	59	193.573
3.048	10	32.809	18.288	60	196.854
3.353	11	36.090	18.593	61	200.135
3.658	12	39.371	18.898	62	203.416
3.962	13	42.652	19.202	63	206.697
4.267	14	45.933	19.507	64	209.978
4.572	15	49.214	19.812	65	213.259
4.877	16	52.494	20.117	66	216.539
5.182	17	55.775	20.422	67	219.820
5.486	18	59.056	20.726	68	223.101
5.791	19	62.337	21.031	69	226.382
6.096	20	65.618	21.336	70	229.663
6.401	21	68.899	21.641	71	232.944
6.706	22	72.180	21.946	72	236.225
7.010	23	75.461	22.250	73	239.506
7.315	24	78.742	22.555	74	242.787
7.620	25	82.023	22.860	75	246.068
7.925	26	85.303	23.165	76	249.348
8.230	27	88.584	23.470	77	252.629
8.534	28	91.865	23.774	78	255.910
8.839	29	95.146	24.079	79	259.191
9.144	30	98.427	24.384	80	262.472
9.449	31	101.708	24.689	81	265.753
9.754	32	104.989	24.994	82	269.034
10.058	33	108.270	25.298	83	272.315
10.363	34	111.551	25.603	84	275.596
10.668	35	114.832	25.908	85	278.877
10.973	36	118.112	26.213	86	282.157
11.278	37	121.393	26.518	87	285.438
11.582	38	124.674	26.822	88	288.719
11.887	39	127.955	27.127	89	292.000
12.192	40	131.236	27.432	90	295.281
12.497	41	134.517	27.737	91	298.562
12.802	42	137.798	28.042	92	301.843
13.106	43	141.079	28.346	93	305.124
13.411	44	144.360	28.651	94	308.405
13.716	45	147.641	28.956	95	311.686
14.021	46	150.921	29.261	96	314.966
14.326	47	154.202	29.566	97	318.247
14.630	48	157.483	29.870	98	321.528
14.935	49	160.764	30.175	99	324.809
15.240	50	164.045	30.480	100	328.090

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kg	kg	lb	kg	kg	lb
0.454	1	2.205	23.134	51	112.436
0.907	2	4.409	23.587	52	114.640
1.361	3	6.614	24.041	53	116.845
1.814	4	8.818	24.494	54	119.049
2.268	5	11.023	24.948	55	121.254
2.722	6	13.228	25.402	56	123.459
3.175	7	15.432	25.855	57	125.663
3.629	8	17.637	26.309	58	127.868
4.082	9	19.842	26.762	59	130.073
4.536	10	22.046	27.216	60	132.277
4.990	11	24.251	27.670	61	134.482
5.443	12	26.455	28.123	62	136.686
5.897	13	28.660	28.577	63	138.891
6.350	14	30.865	29.030	64	141.096
6.804	15	33.069	29.484	65	143.300
7.258	16	35.274	29.938	66	145.505
7.711	17	37.479	30.391	67	147.710
8.165	18	39.683	30.845	68	149.914
8.618	19	41.888	31.298	69	152.119
9.072	20	44.092	31.752	70	154.323
9.526	21	46.297	32.206	71	156.528
9.979	22	48.502	32.659	72	158.733
10.433	23	50.706	33.113	73	160.937
10.886	24	52.911	33.566	74	163.142
11.340	25	55.116	34.020	75	165.347
11.794	26	57.320	34.474	76	167.551
12.247	27	59.525	34.927	77	169.756
12.701	28	61.729	35.381	78	171.960
13.154	29	63.934	35.834	79	174.165
13.608	30	66.139	36.288	80	176.370
14.062	31	68.343	36.742	81	178.574
14.515	32	70.548	37.195	82	180.779
14.969	33	72.752	37.649	83	182.983
15.422	34	74.957	38.102	84	185.188
15.876	35	77.162	38.556	85	187.393
16.330	36	79.366	39.010	86	189.597
16.783	37	81.571	39.463	87	191.802
17.237	38	83.776	39.917	88	194.007
17.690	39	85.980	40.370	89	196.211
18.144	40	88.185	40.824	90	198.416
18.598	41	90.389	41.278	91	200.620
19.051	42	92.594	41.731	92	202.825
19.505	43	94.799	42.185	93	205.030
19.958	44	97.003	42.638	94	207.234
20.412	45	99.208	43.092	95	209.439
20.866	46	101.413	43.546	96	211.644
21.319	47	103.617	43.999	97	213.848
21.773	48	105.822	44.453	98	216.053
22.226	49	108.026	44.906	99	218.257
22.680	50	110.231	45.360	100	220.462

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Litre	US gal		Litre	US gal	
Litre	US gal		Litre	US gal	
3.785	1	0.264	193.055	51	13.473
7.571	2	0.528	196.841	52	13.737
11.356	3	0.793	200.626	53	14.001
15.142	4	1.057	204.412	54	14.265
18.927	5	1.321	208.197	55	14.529
22.712	6	1.585	211.982	56	14.794
26.498	7	1.849	215.768	57	15.058
30.283	8	2.113	219.553	58	15.322
34.069	9	2.378	223.339	59	15.586
37.854	10	2.642	227.124	60	15.850
41.639	11	2.906	230.909	61	16.114
45.425	12	3.170	234.695	62	16.379
49.210	13	3.434	238.480	63	16.643
52.996	14	3.698	242.266	64	16.907
56.781	15	3.963	246.051	65	17.171
60.566	16	4.227	249.836	66	17.435
64.352	17	4.491	253.622	67	17.699
68.137	18	4.755	257.407	68	17.964
71.923	19	5.019	261.193	69	18.228
75.708	20	5.283	264.978	70	18.492
79.493	21	5.548	268.763	71	18.756
83.279	22	5.812	272.549	72	19.020
87.064	23	6.076	276.334	73	19.284
90.850	24	6.340	280.120	74	19.549
94.635	25	6.604	283.905	75	19.813
98.420	26	6.868	287.690	76	20.077
102.206	27	7.133	291.476	77	20.341
105.991	28	7.397	295.261	78	20.605
109.777	29	7.661	299.047	79	20.869
113.562	30	7.925	302.832	80	21.134
117.347	31	8.189	306.617	81	21.398
121.133	32	8.453	310.403	82	21.662
124.918	33	8.718	314.188	83	21.926
128.704	34	8.982	317.974	84	22.190
132.489	35	9.246	321.759	85	22.454
136.274	36	9.510	325.544	86	22.719
140.060	37	9.774	329.330	87	22.983
143.845	38	10.038	333.115	88	23.247
147.631	39	10.303	336.901	89	23.511
151.416	40	10.567	340.686	90	23.775
155.201	41	10.831	344.471	91	24.039
158.987	42	11.095	348.257	92	24.304
162.772	43	11.359	352.042	93	24.568
166.558	44	11.623	355.828	94	24.832
170.343	45	11.888	359.613	95	25.096
174.128	46	12.152	363.398	96	25.360
177.914	47	12.416	367.184	97	25.624
181.699	48	12.680	370.969	98	25.889
185.485	49	12.944	374.755	99	26.153
189.270	50	13.209	378.540	100	26.417

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Litre	Litre — UK gal	UK gal	Litre	Litre — UK gal	UK gal
4.546	1	0.220	231.846	51	11.218
9.092	2	0.440	236.392	52	11.438
13.638	3	0.660	240.938	53	11.658
18.184	4	0.880	245.484	54	11.878
22.730	5	1.100	250.030	55	12.098
27.276	6	1.320	254.576	56	12.318
31.822	7	1.540	259.122	57	12.538
36.368	8	1.760	263.668	58	12.758
40.914	9	1.980	268.214	59	12.978
45.460	10	2.200	272.760	60	13.198
50.006	11	2.420	277.306	61	13.418
54.552	12	2.640	281.852	62	13.638
59.098	13	2.860	286.398	63	13.858
63.644	14	3.080	290.944	64	14.078
68.190	15	3.300	295.490	65	14.298
72.736	16	3.520	300.036	66	14.518
77.282	17	3.739	304.582	67	14.738
81.828	18	3.959	309.128	68	14.958
86.374	19	4.179	313.674	69	15.178
90.920	20	4.399	318.220	70	15.398
95.466	21	4.619	322.766	71	15.618
100.012	22	4.839	327.312	72	15.838
104.558	23	5.059	331.858	73	16.058
109.104	24	5.279	336.404	74	16.278
113.650	25	5.499	340.950	75	16.498
118.196	26	5.719	345.496	76	16.718
122.742	27	5.939	350.042	77	16.938
127.288	28	6.159	354.588	78	17.158
131.834	29	6.379	359.134	79	17.378
136.380	30	6.599	363.680	80	17.598
140.926	31	6.819	368.226	81	17.818
145.472	32	7.039	372.772	82	18.038
150.018	33	7.259	377.318	83	18.258
154.564	34	7.479	381.864	84	18.477
159.110	35	7.699	386.410	85	18.697
163.656	36	7.919	390.956	86	18.917
168.202	37	8.139	395.502	87	19.137
172.748	38	8.359	400.048	88	19.357
177.294	39	8.579	404.594	89	19.577
181.840	40	8.799	409.140	90	19.797
186.386	41	9.019	413.686	91	20.017
190.932	42	9.239	418.232	92	20.237
195.478	43	9.459	422.778	93	20.457
200.024	44	9.679	427.324	94	20.677
204.570	45	9.899	431.870	95	20.897
209.116	46	10.119	436.416	96	21.117
213.662	47	10.339	440.962	97	21.337
218.208	48	10.559	445.508	98	21.557
222.754	49	10.779	450.054	99	21.777
227.300	50	10.999	454.600	100	21.997

N

mm	inch	inch	mm	inch	inch
25.4	1	0.039	1 295.4	51	2.008
50.8	2	0.079	1 320.8	52	2.047
76.2	3	0.118	1 346.2	53	2.087
101.6	4	0.157	1 371.6	54	2.126
127.0	5	0.197	1 397.0	55	2.165
152.4	6	0.236	1 422.4	56	2.205
177.8	7	0.276	1 447.8	57	2.244
203.2	8	0.315	1 473.2	58	2.283
228.6	9	0.354	1 498.6	59	2.323
254.0	10	0.394	1 524.0	60	2.362
279.4	11	0.433	1 549.4	61	2.402
304.8	12	0.472	1 574.8	62	2.441
330.2	13	0.512	1 600.2	63	2.480
355.6	14	0.551	1 625.6	64	2.520
381.0	15	0.591	1 651.0	65	2.559
406.4	16	0.630	1 676.4	66	2.598
431.8	17	0.669	1 701.8	67	2.638
457.2	18	0.709	1 727.2	68	2.677
482.6	19	0.748	1 752.6	69	2.717
508.0	20	0.787	1 778.0	70	2.756
533.4	21	0.827	1 803.4	71	2.795
558.8	22	0.866	1 828.8	72	2.835
584.2	23	0.906	1 854.2	73	2.874
609.6	24	0.945	1 879.6	74	2.913
635.0	25	0.984	1 905.0	75	2.953
660.4	26	1.024	1 930.4	76	2.992
685.8	27	1.063	1 955.8	77	3.031
711.2	28	1.102	1 981.2	78	3.071
736.6	29	1.142	2 006.6	79	3.110
762.0	30	1.181	2 032.0	80	3.150
787.4	31	1.220	2 057.4	81	3.189
812.8	32	1.260	2 082.8	82	3.228
838.2	33	1.299	2 108.2	83	3.268
863.6	34	1.339	2 133.6	84	3.307
889.0	35	1.378	2 159.0	85	3.346
914.4	36	1.417	2 184.4	86	3.386
939.8	37	1.457	2 209.8	87	3.425
965.2	38	1.496	2 235.2	88	3.465
990.6	39	1.535	2 260.6	89	3.504
1 016.0	40	1.575	2 286.0	90	3.543
1 041.4	41	1.614	2 311.4	91	3.583
1 066.8	42	1.654	2 336.8	92	3.622
1 092.2	43	1.693	2 362.2	93	3.661
1 117.6	44	1.732	2 387.6	94	3.701
1 143.0	45	1.772	2 413.0	95	3.740
1 168.4	46	1.811	2 438.4	96	3.780
1 193.8	47	1.850	2 463.8	97	3.819
1 219.2	48	1.890	2 489.2	98	3.858
1 244.6	49	1.929	2 514.6	99	3.898
1 270.0	50	1.969	2 540.0	100	3.937

N

bar	bar — psi	psi	bar	bar — psi	psi
0.069	1	14.506	3.516	51	739.791
0.138	2	29.011	3.585	52	754.296
0.207	3	43.517	3.654	53	768.802
0.276	4	58.023	3.723	54	783.308
0.345	5	72.529	3.792	55	797.814
0.414	6	87.034	3.861	56	812.319
0.483	7	101.540	3.929	57	826.825
0.552	8	116.046	3.998	58	841.331
0.620	9	130.551	4.067	59	855.836
0.689	10	145.057	4.136	60	870.342
0.758	11	159.563	4.205	61	884.848
0.827	12	174.068	4.274	62	899.353
0.896	13	188.574	4.343	63	913.859
0.965	14	203.080	4.412	64	928.365
1.034	15	217.586	4.481	65	942.871
1.103	16	232.091	4.550	66	957.376
1.172	17	246.597	4.619	67	971.882
1.241	18	261.103	4.688	68	986.388
1.310	19	275.608	4.757	69	1.000.893
1.379	20	290.114	4.826	70	1.015.399
1.448	21	304.620	4.895	71	1.029.905
1.517	22	319.125	4.964	72	1.044.410
1.586	23	333.631	5.032	73	1.058.916
1.655	24	348.137	5.101	74	1.073.422
1.723	25	362.643	5.170	75	1.087.928
1.792	26	377.148	5.239	76	1.102.433
1.861	27	391.654	5.308	77	1.116.939
1.930	28	406.160	5.377	78	1.131.445
1.999	29	420.665	5.446	79	1.145.950
2.068	30	435.171	5.515	80	1.160.456
2.137	31	449.677	5.584	81	1.174.962
2.206	32	464.182	5.653	82	1.189.467
2.275	33	478.688	5.722	83	1.203.973
2.344	34	493.194	5.791	84	1.218.479
2.413	35	507.700	5.860	85	1.232.985
2.482	36	522.205	5.929	86	1.247.490
2.551	37	536.711	5.998	87	1.261.996
2.620	38	551.217	6.067	88	1.276.502
2.689	39	565.722	6.135	89	1.291.007
2.758	40	580.228	6.204	90	1.305.513
2.826	41	594.734	6.273	91	1.320.019
2.895	42	609.239	6.342	92	1.334.524
2.964	43	623.745	6.411	93	1.349.030
3.033	44	638.251	6.480	94	1.363.536
3.102	45	652.757	6.549	95	1.378.042
3.171	46	667.262	6.618	96	1.392.547
3.240	47	681.768	6.687	97	1.407.053
3.309	48	696.274	6.756	98	1.421.559
3.378	49	710.779	6.825	99	1.436.064
3.447	50	725.285	6.894	100	1.450.570

N

SECTION 10.2

BASIC PERFORMANCE DATA

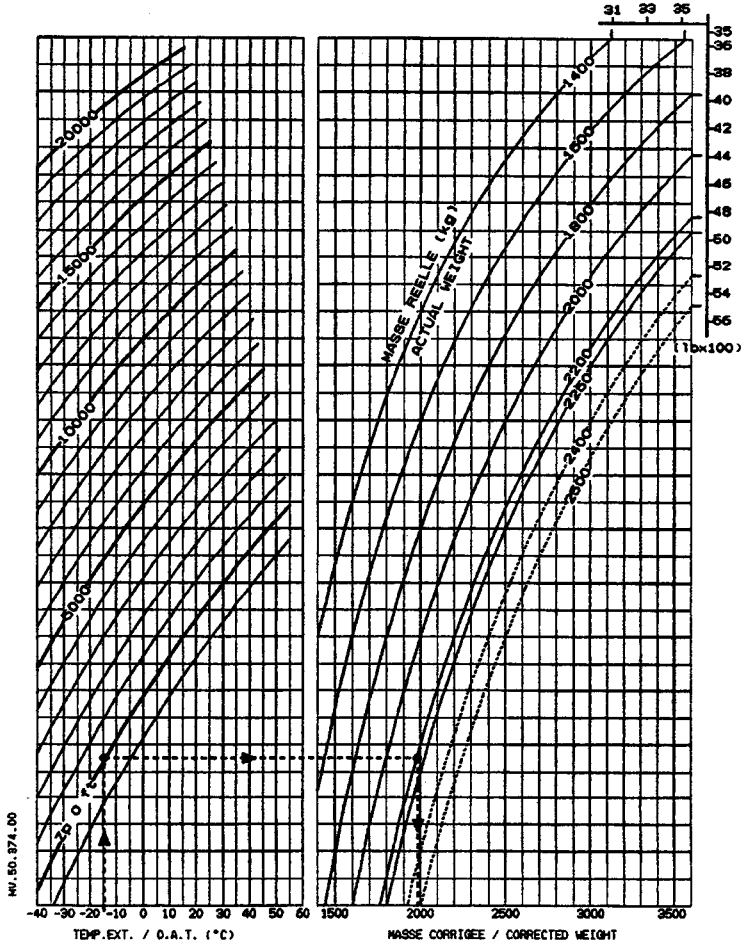


Figure 1

NOTE :
Weight limitations with internal load are given in section 2

CORRECTED WEIGHT TO DETERMINE SPEEDS (on facing page)

N

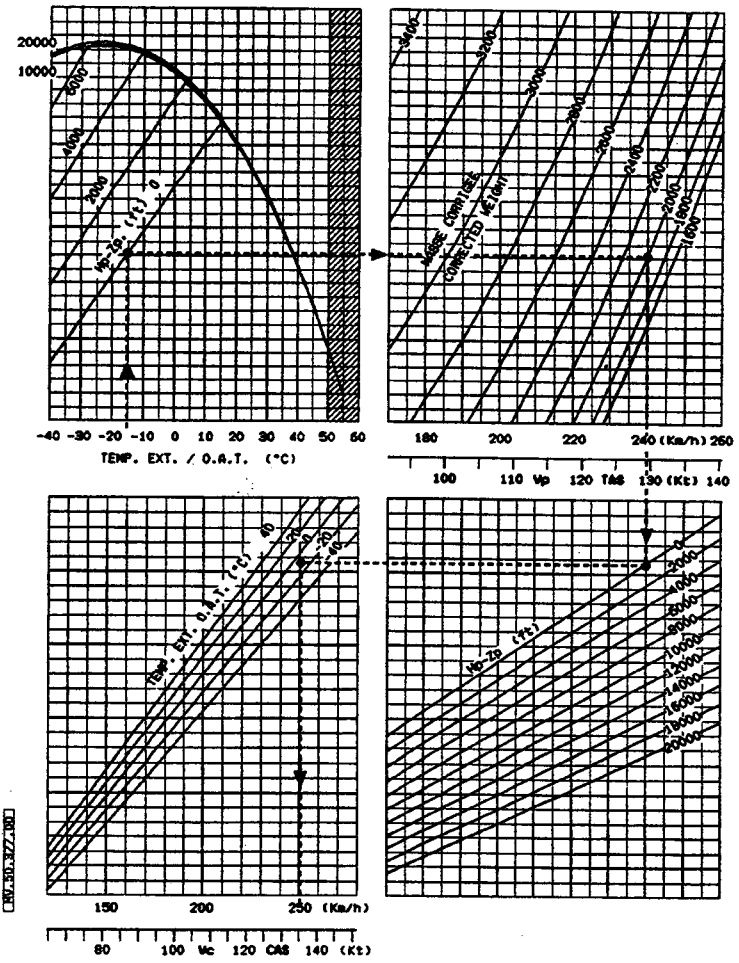


Figure 2

CONDITION

- Stabilized level flight

TAS/CAS IN FAST CRUISE

N

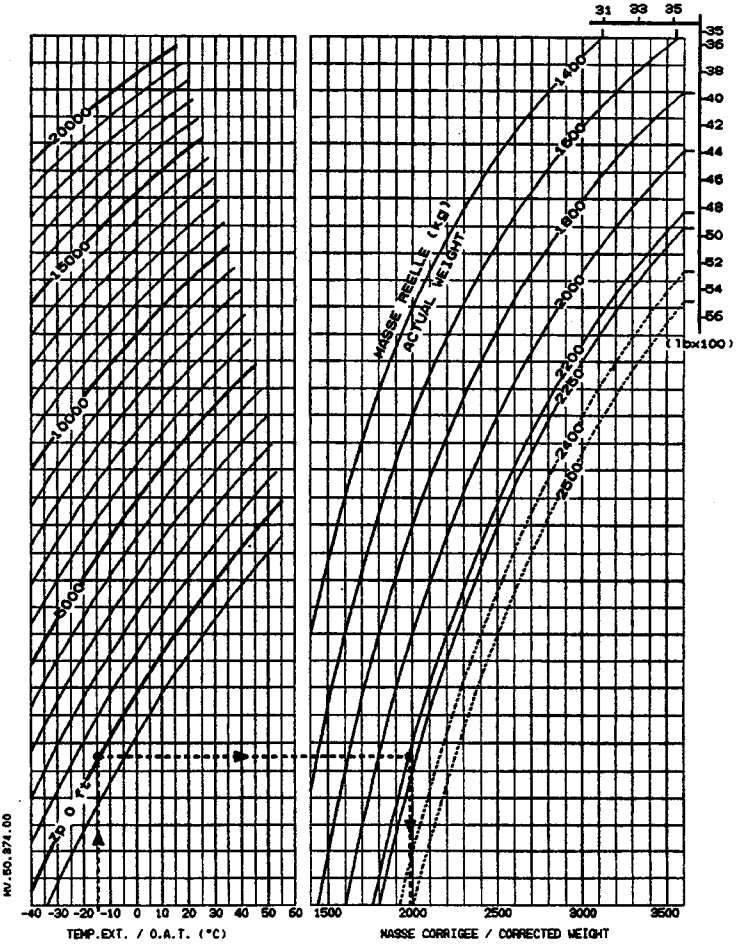


Figure 1

NOTE :
Weight limitations with internal load are given in section 2

CORRECTED WEIGHT TO DETERMINE SPEEDS (on facing page)

N

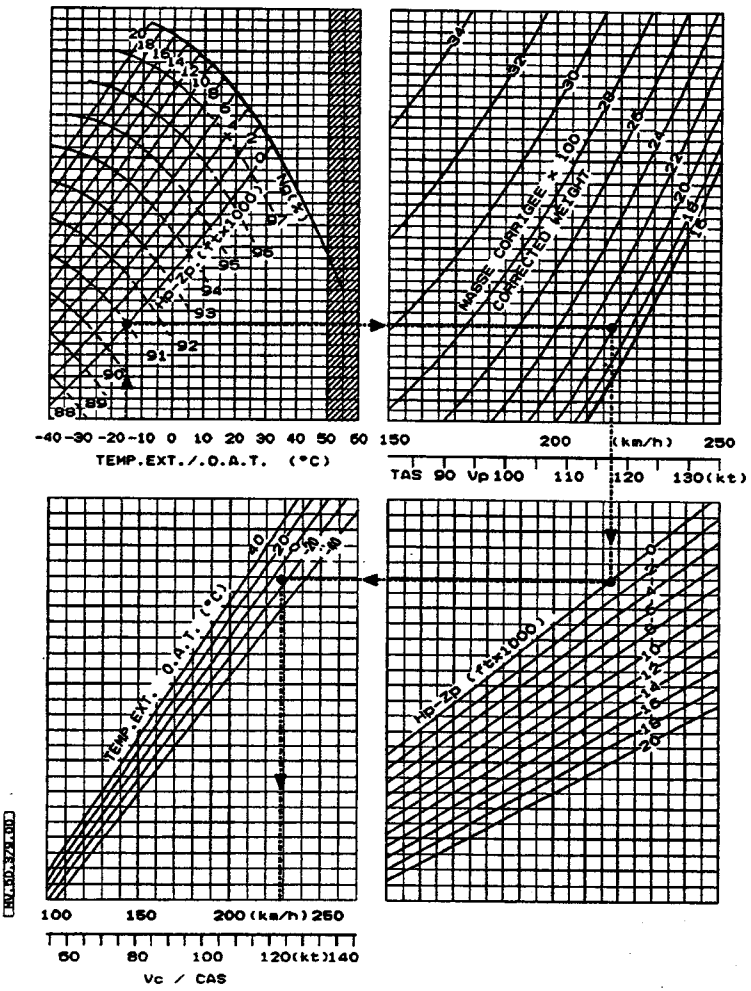


Figure 3

CONDITIONS
- Stabilized level flight
- TAS and CAS correspond to the Ng read on the upper LH pressure altitude curves

RECOMMENDED CRUISE DATA

N

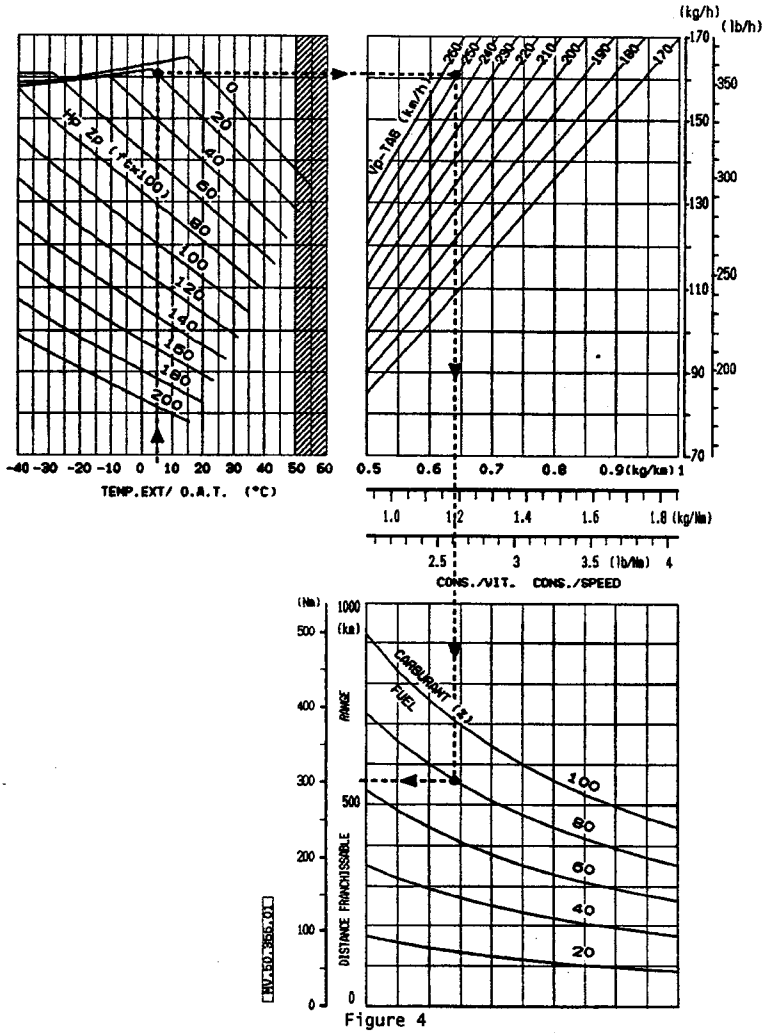


Figure 4

CONDITION

- Stabilized level flight

FUEL CONSUMPTION – RANGE IN FAST CRUISE

N

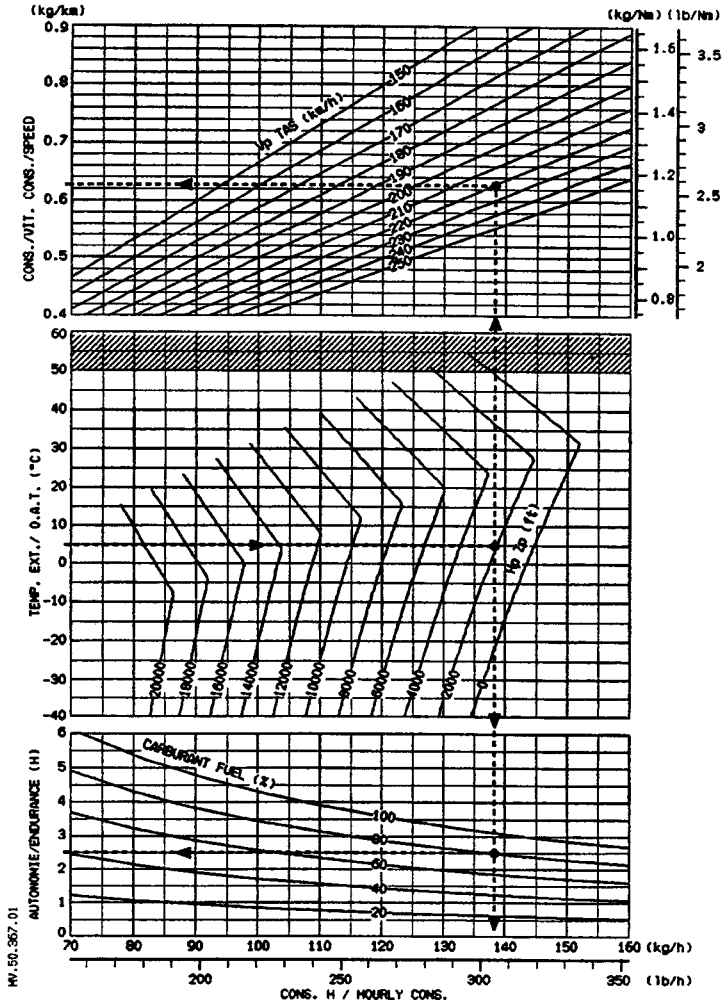


Figure 5

CONDITION

- Stabilized level flight

FUEL CONSUMPTION - ENDURANCE IN RECOMMENDED CRUISE

N

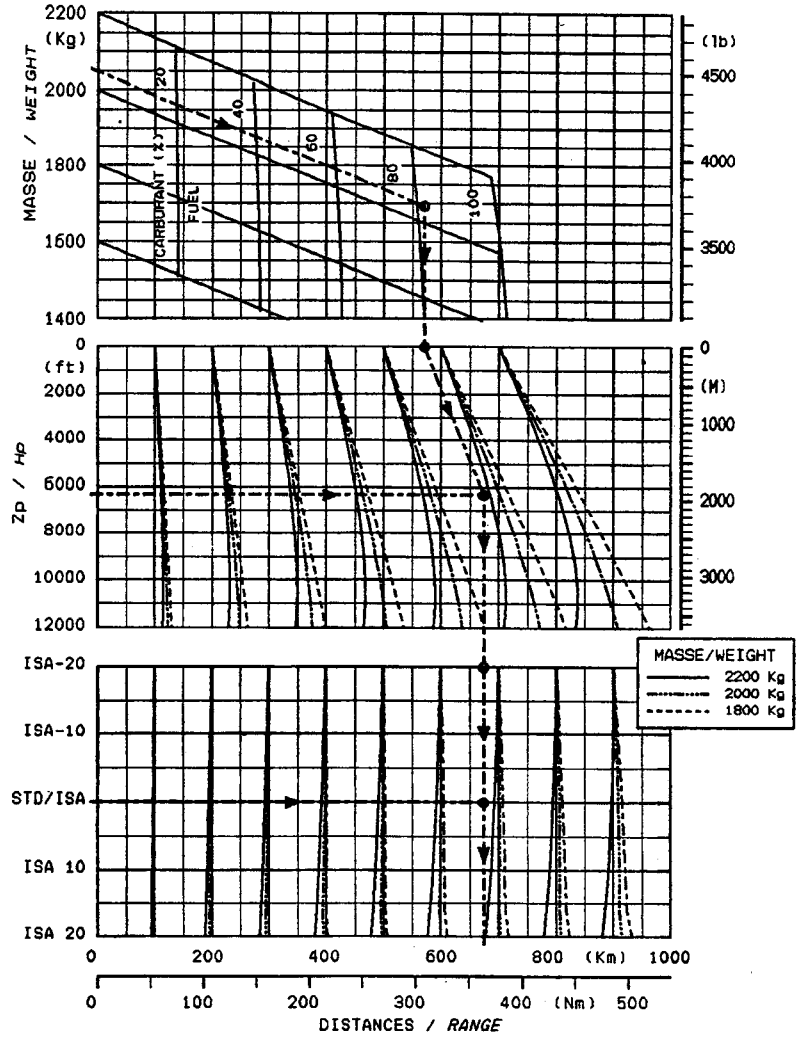


Figure 6

CONDITION

- Stabilized level flight

RANGE IN
RECOMMENDED CRUISE

N

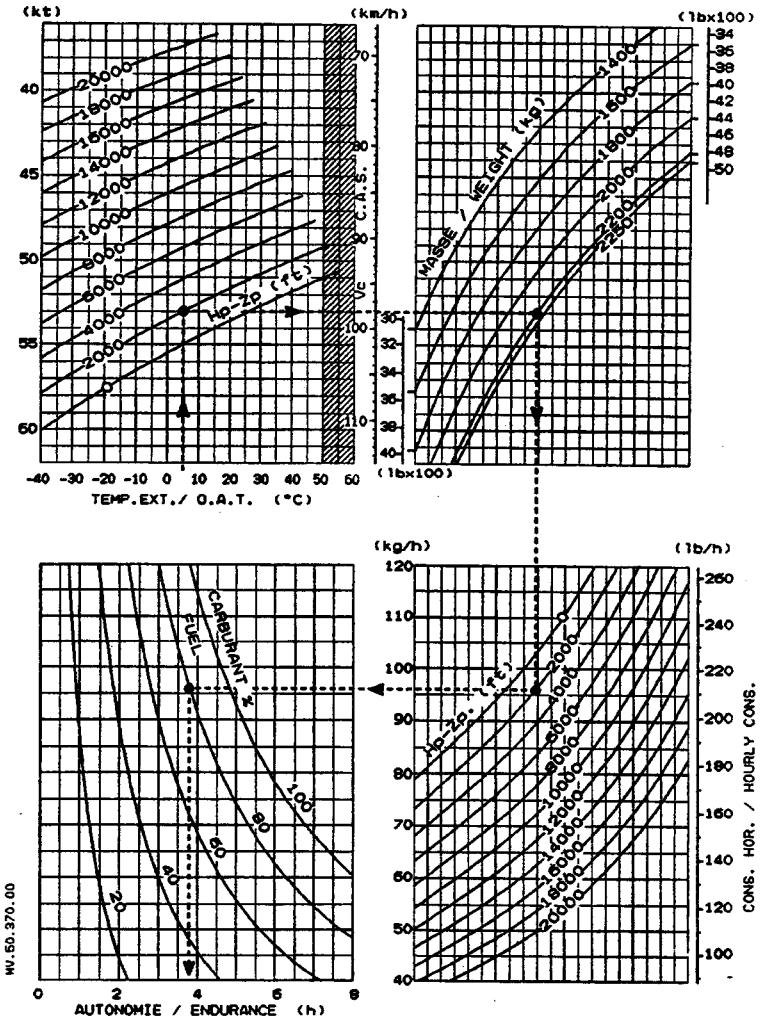


Figure 7

CONDITION

- Stabilized level flight

- FUEL CONSUMPTION- ENDURANCE IN CRUISE AT MINIMUM HOURLY FUEL CONSUMPTION

N

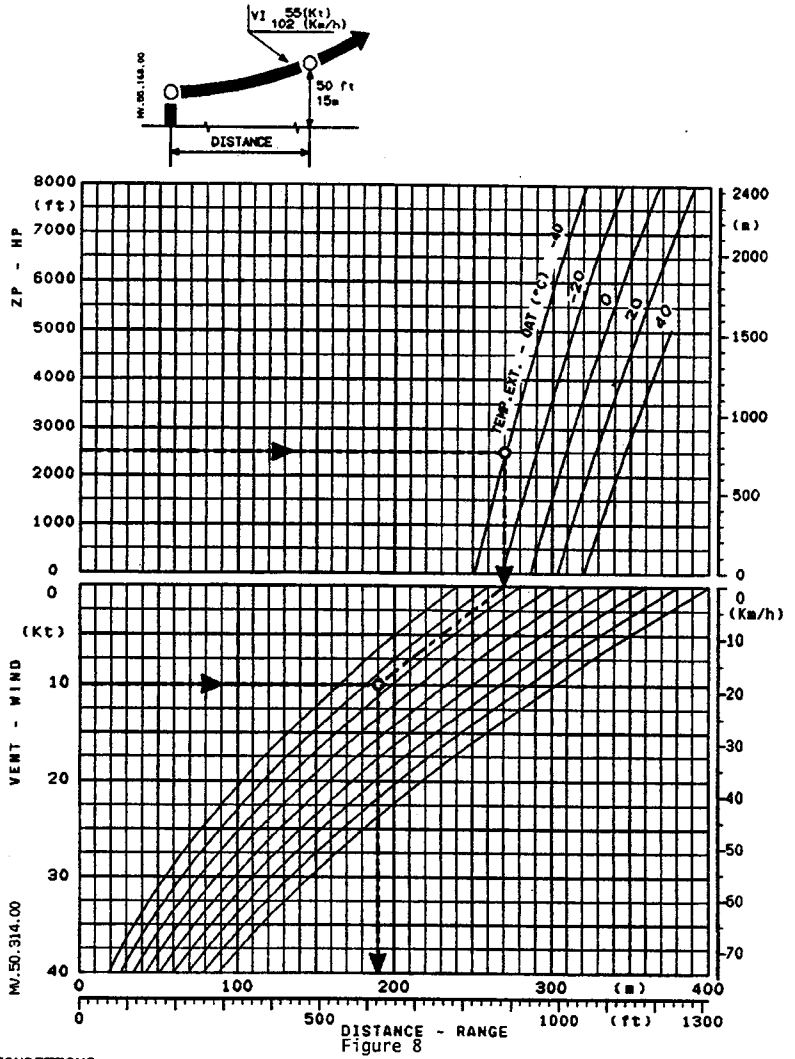


Figure 8

CONDITIONS

- Normal takeoff 55 kts I.A.S.
- True wind
- Applicable to all weight requirements

DISTANCE TO CLEAR A 50-FOOT OBSTACLE ON TAKEOFF

N

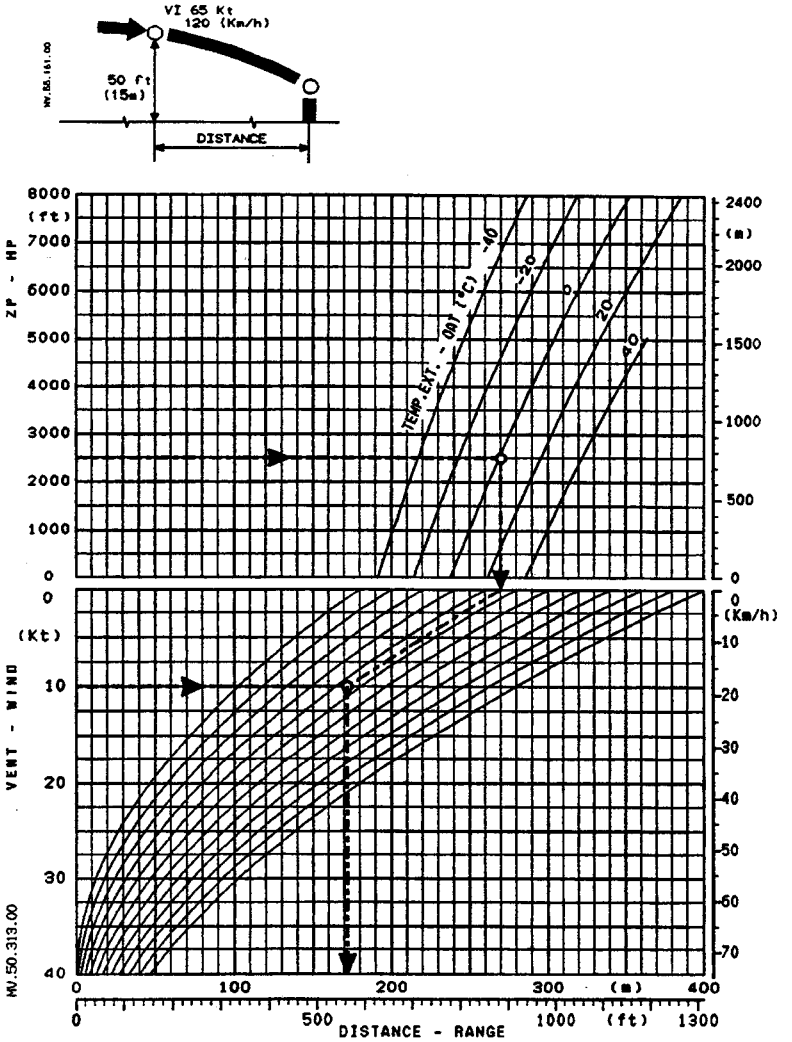


Figure 9

CONDITIONS

- Approach 65 kts I.A.S
- True wind
- Applicable to all weight requirements

DISTANCE TO CLEAR
A 50-FOOT OBSTACLE
ON LANDING

N

SECTION 10.3

EFFECT OF EQUIPMENT ITEMS ON PERFORMANCE DATA

Equipment installed	Fast cruise				Recommended cruise			
	Airspeed km/h	Airspeed kt	Hourly fuel consumption	Range	Airspeed km/h	Airspeed kt	Hourly fuel consumption	Range
Heating and demisting systems *	- 4	- 2	+ 4 %	- 5 %	- 4	-2	+ 4 %	- 5 %
Sand filter *	Refer to SECTION 10.4							
High landing gear	- 4	- 2		- 1.5 %	- 4	-2		- 1.5 %
Skis	- 2	- 1		- 1 %	- 2	-1		- 1 %
Electric hoist	- 6	- 3		- 2 %	- 6	-3		- 2 %
Emergency flotation gear	- 4	- 2		- 1.5 %	- 4	-2		- 1.5 %
Protection of the air intake against induction of snow *	Refer to SECTION 10.4							
Float type undercarriage	- 10 %			- 10 %	- 10 %			- 10 %

R R R

R R

* Reduction in fast or recommended cruise performance is not to be taken into account when engine is running at max. torque
- Increase in hourly fuel consumption and decrease in range are to be taken into account in all cases.

SECTION 10.4

PERFORMANCE DATA WITH :

SAND FILTER INSTALLED AND PROTECTION OF THE AIR INTAKE AGAINST INDUCTION OF SNOW R

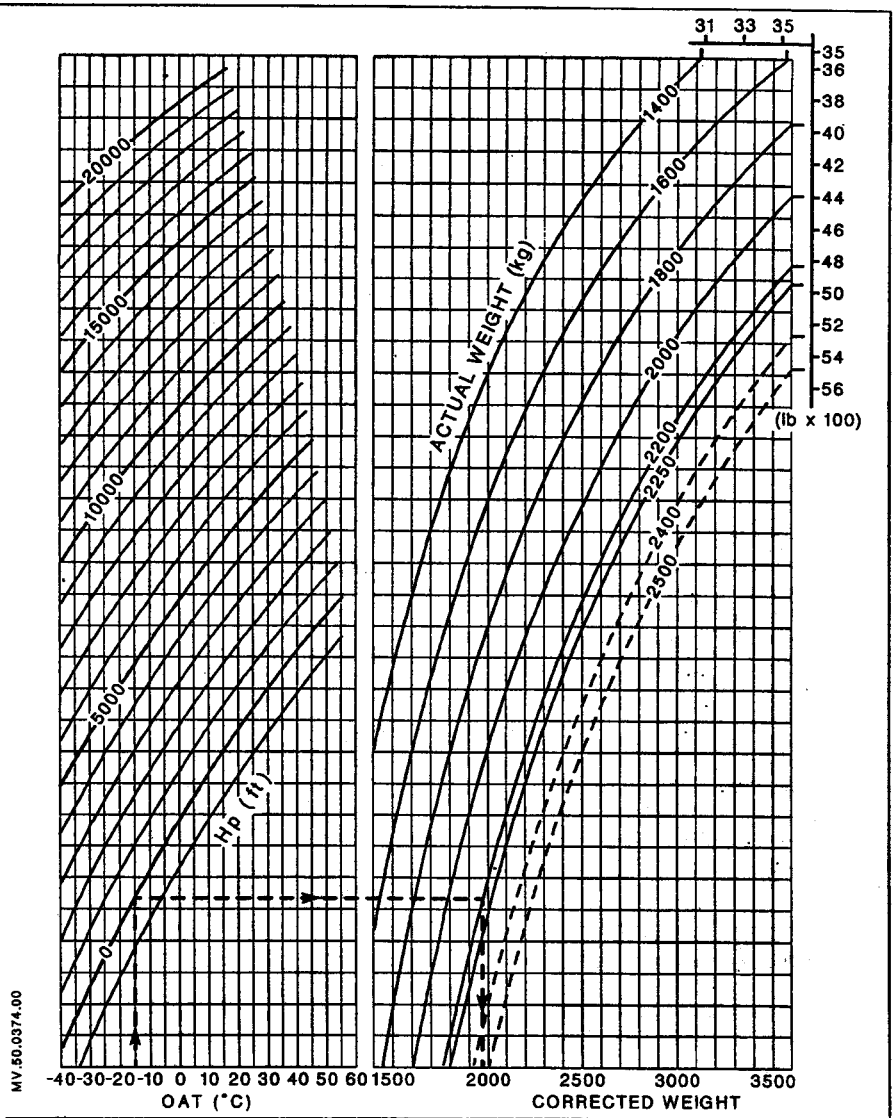
1 SAND FILTER NOT OPERATING R

Protection against induction of snow R

2 SAND FILTER OPERATING R

The performance data are to be calculated from the values of figures 2 to 6, as indicated in the table below :

	OUTSIDE AIR TEMPERATURE		
	Lower than +5°C	Between +5°C and +35°C	Higher than +35°C
TAS/CAS in fast cruise	Fig.2	Fig.2 minus 2 km/h (1 Kt)	Fig.6 minus 10 km/h (5.5 Kt) R
TAS/CAS in recommended cruise	Fig.3	Fig.3 minus 2 km/h (1 Kt)	Fig.3 minus 10 km/h (5.5 Kt) R
Fuel consumption in fast cruise	Fig.4 plus 2.5%	Fig.4	Fig.4 minus 3%
Fuel consumption in recommended cruise	Fig.5 plus 2.5%	Fig.5	Fig 5 minus 3%
Range in recommended cruise	Fig.6 minus 2.5%	Fig.6 minus 3%	Fig.6 minus 5%

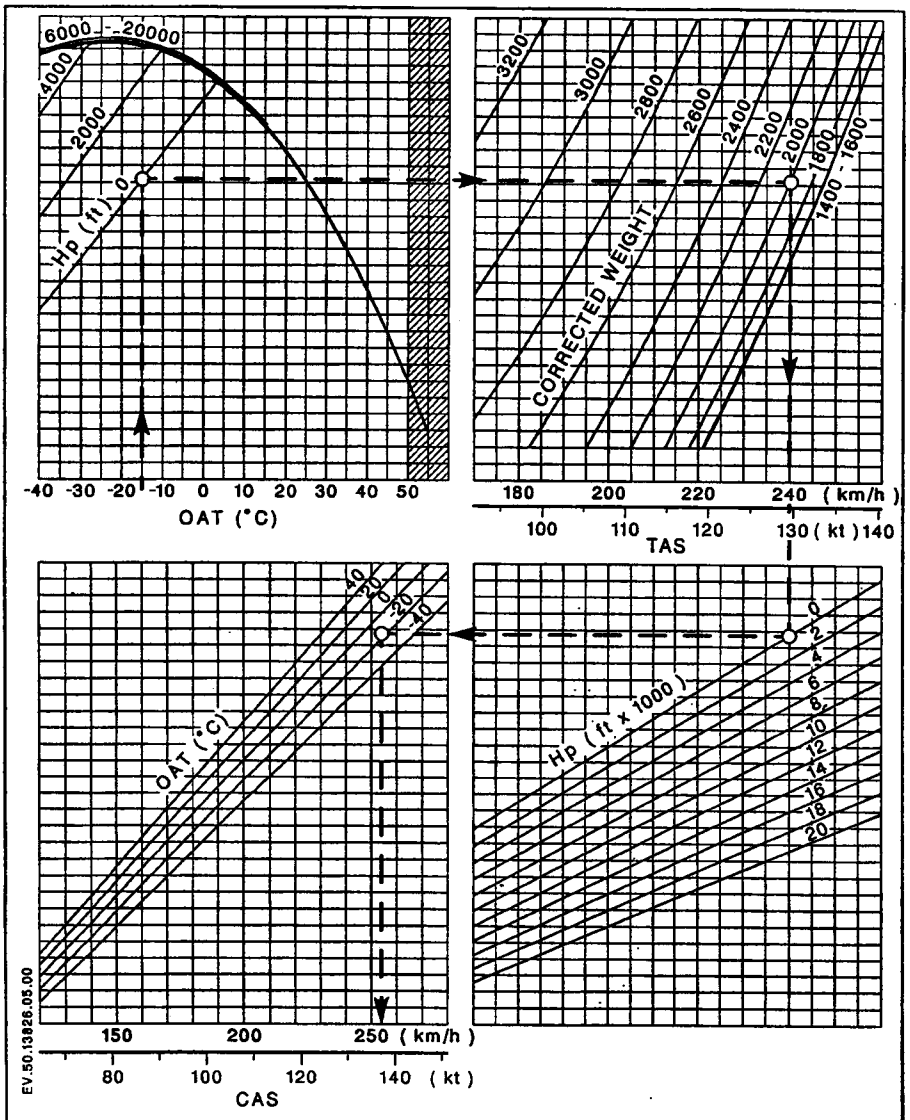


CONDITIONS

- ALL UP WEIGHT LIMITATION WITH INTERNAL LOAD : 2250 kg (4961 lb)

CORRECTED WEIGHT FOR DETERMINE RATE OF CLIMB
(on facing page)

Figure 1

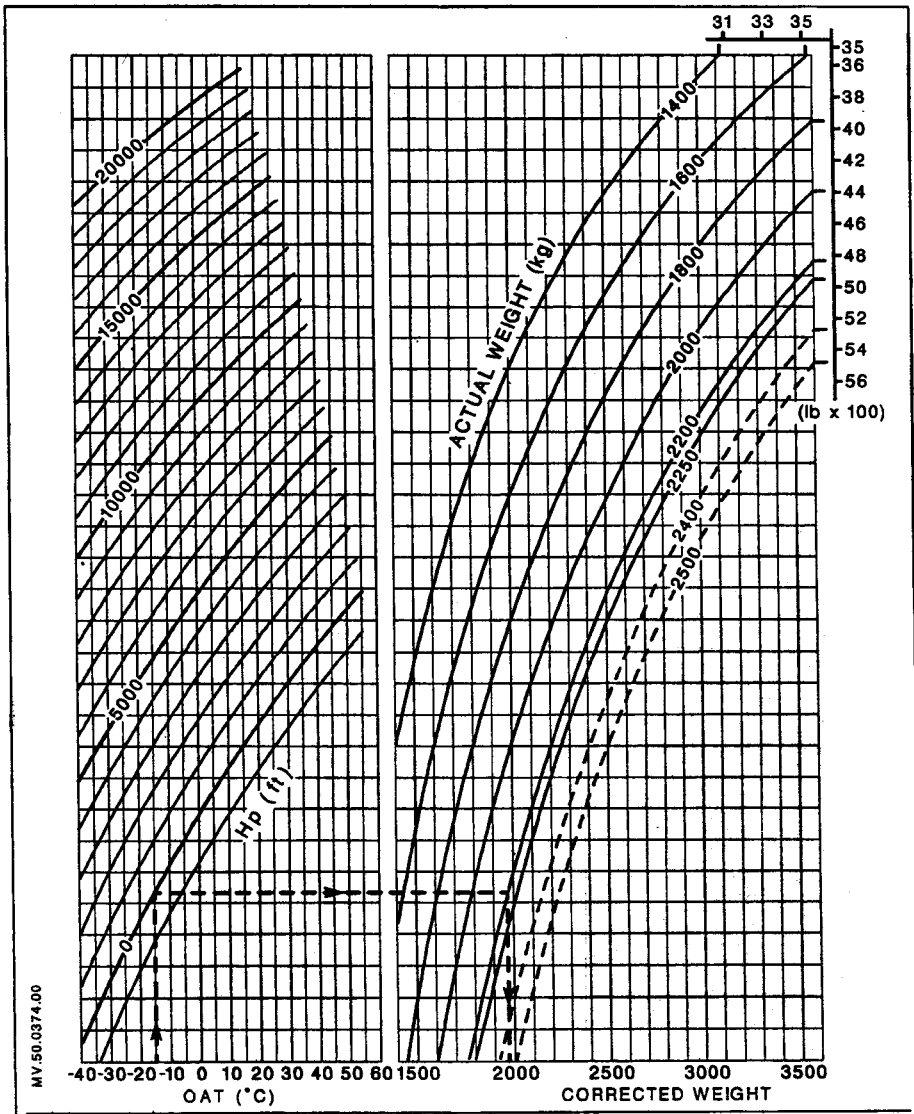


CONDITIONS

- STABILIZED LEVEL FLIGHT
- SAND FILTER NOT OPERATING OR PROTECTION AGAINST INDUCTION OF SNOW

TAS - CAS IN FAST CRUISE

Figure 2

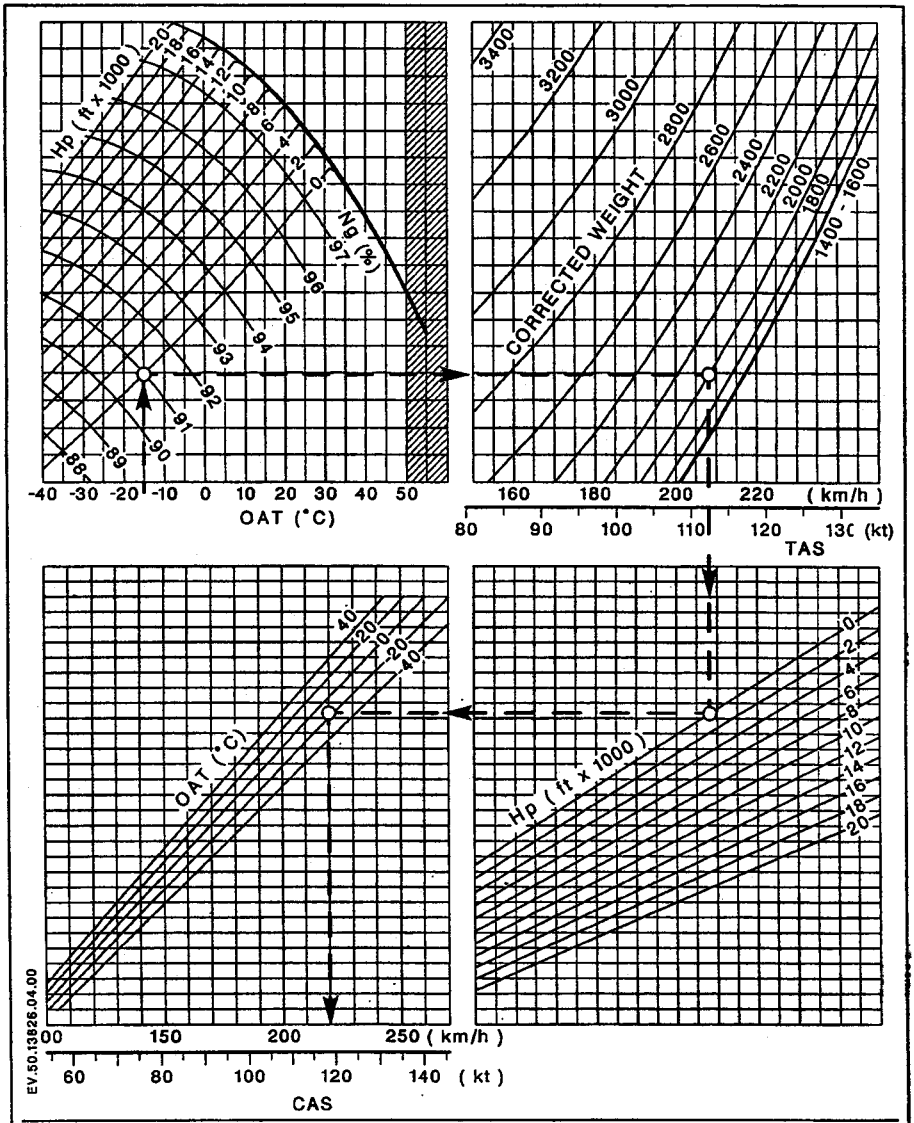


CONDITIONS

- ALL UP WEIGHT LIMITATION WITH INTERNAL LOAD : 2250 kg (4961 lb)

CORRECTED WEIGHT FOR DETERMINE RATE OF CLIMB
(on facing page)

Figure 1



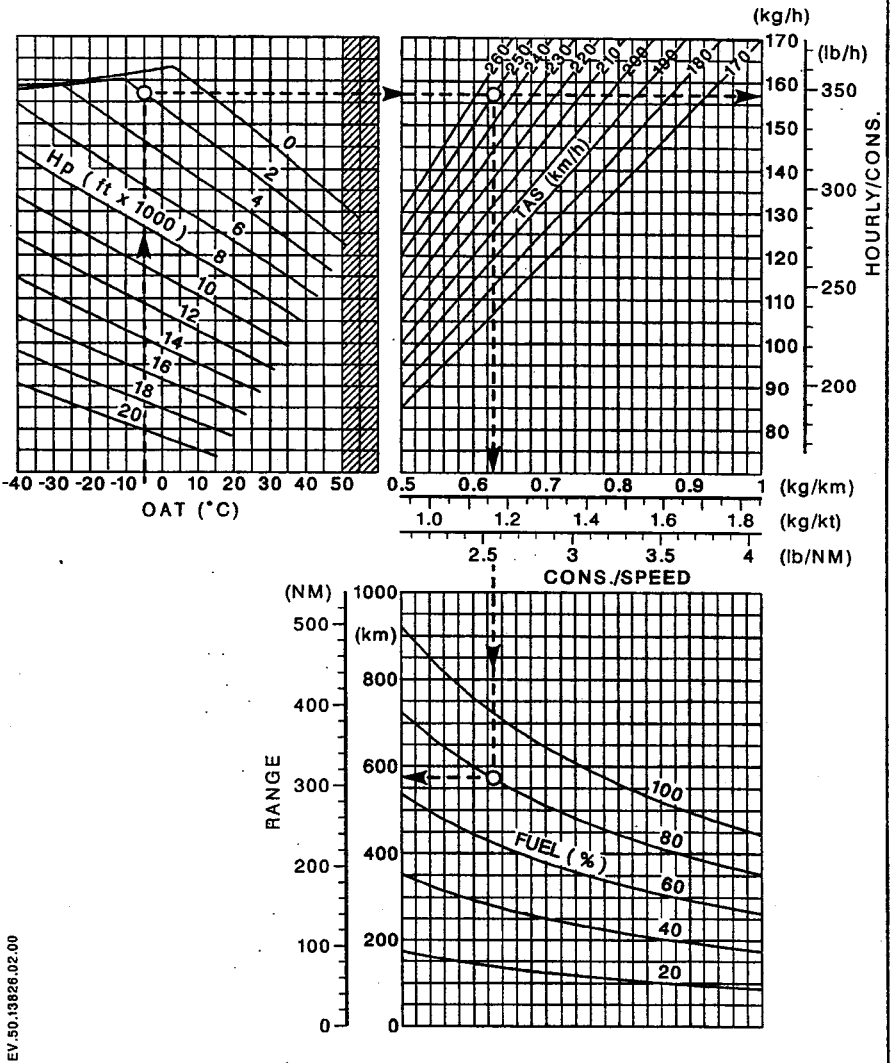
CONDITIONS

- STABILIZED LEVEL FLIGHT
- SAND FILTER NOT OPERATING OR PROTECTION AGAINST INDUCTION OF SNOW
-
-
-

RECOMMENDED CRUISE DATA

Figure 3

R

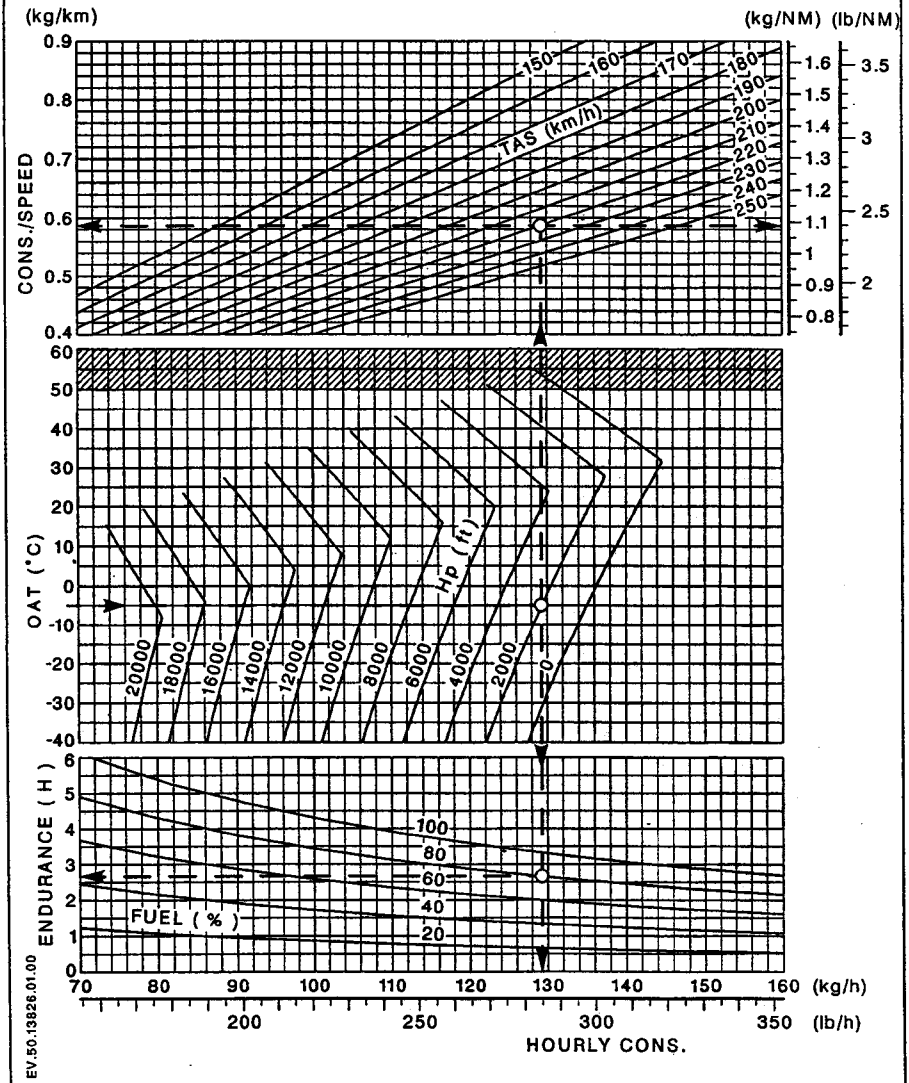


CONDITIONS

- STABILIZED LEVEL FLIGHT
- SAND FILTER NOT OPERATING OR PROTECTION AGAINST INDUCTION OF SNOW
-
-
-

FUEL CONSUMPTION-RANGE IN FAST CRUISE

Figure 4

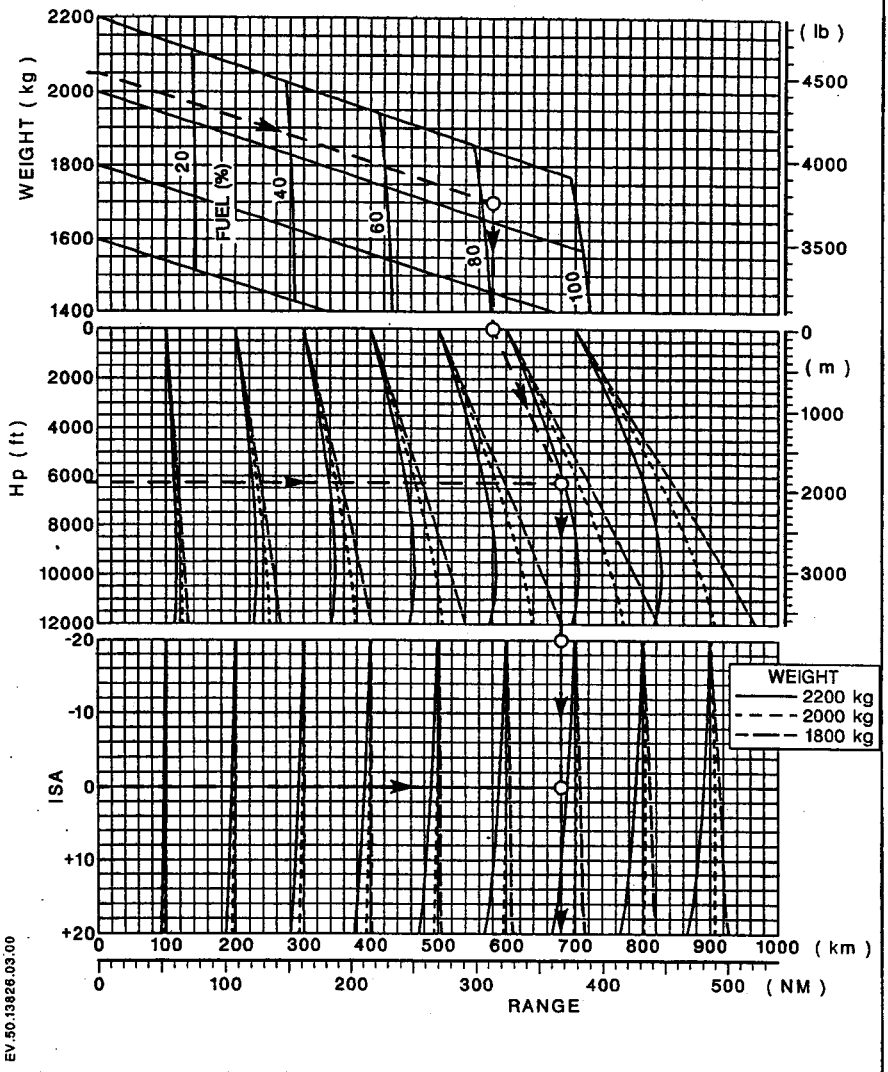


CONDITIONS

- STABILIZED LEVEL FLIGHT
- SAND FILTER NOT OPERATING OR PROTECTION AGAINST INDUCTION OF SNOW

FUEL CONSUMPTION-ENDURANCE IN RECOMMENDED CRUISE

Figure 5



CONDITIONS

- STABILIZED LEVEL FLIGHT
- SAND FILTER NOT OPERATING OR PROTECTION AGAINST INDUCTION OF SNOW

RANGE IN RECOMMENDED CRUISE

Figure 6

AMERICAN EUROCOPTER CORPORATION
2701 Forum Drive
Grand Prairie, Texas 75053

FLIGHT MANUAL SUPPLEMENT FOR AEROSPATIALE MODELS AS350B, B1, B2, BA, C, D, D1 HELICOPTERS EQUIPPED WITH AIR CRUISERS EMERGENCY FLOATS

Registration: _____
Serial No.: _____

Sections 1, 2, 3 and 4 of this document comprise the Approved Flight Manual Supplement. Compliance with Section 1, Limitations, is mandatory. Section O, General, contains additional information and is not DOT Approved.

This supplement must be attached to the DGAC Approved Rotorcraft Flight Manual, Code C, when the helicopter is modified by the installation of the Air Cruisers Emergency Floats in accordance with Aerospatiale Helicopter Corporation Drawing List No. 350A-82-1157, Revision AL, or later FAA approved revisions and Supplemental Type Approval (STA) Number SH88-18.

The information and data contained in this document supersedes or supplements that contained in the basic Approved Flight Manual Supplement in those areas listed herein. For Limitations, Procedures, and Performance not contained in this document, refer to the Approved Flight Manual and other applicable Approved Flight Manual Supplements.

Department of Transport (Canada) Approved:

CANADA
DEPARTMENT OF TRANSPORT
AERONAUTICAL ENGINEERING
DIVISION
JAN 5 1994
APPROVED
BY
APPROVAL No. STA SH88-18

J. Diamant Boustead
Regional Airworthiness Engineer - Rotorcraft
Ontario Region

AMENDMENT RECORD SHEET

Amendment No.	Date	AMENDED Affected Pages	Signature
1	94/01/05	Pg. 1, Company name change, add models AS350B1, B2, BA, Dwg. List Ref. Change Pg. 2, Change Format Pg. 4, (Sect. 1.7) remove c.g. graph Pgs. all, Change numbering, Pg. 6 deleted.	

0.0 GENERAL (UNAPPROVED)

This supplement is applicable when the Air Cruisers Emergency Flotation Gear is installed on low or high skid gear.

0.1 This equipment consists essentially of:

- Two (2) float modules, including inflation bottles located on each side of the aircraft, secured to the skid tubes
- An electrical float inflation system
- A manual float inflation system

1.0 LIMITATIONS

In addition to the specific limitations indicated below, the limitations specified in the Basic Manual remain applicable.

1.1 Floats Folded - System Not Armed

No specific limitations

1.2 Float Stowed - System Armed

Never exceed speed in this case is 169 km/h (105 mph, 91 kts) I.A.S.

1.3 Inflation of Floats

Maximum speed for inflation is 136 km/h (85 mph, 74 kts) I.A.S.

1.4 Flotation Gear Inflated

Never exceed speed:

- Low Skid Gear - 225 km/h (140 mph, 122 kts) I.A.S.
- High Skid Gear - 169 km/h (105 mph, 91 kts) I.A.S.

1.5 Maximum Inflation Altitude

The maximum altitude for float inflation is 3048 meters (10,000 feet) P.A. Inflation above this altitude may result in insufficient buoyancy to insure flotation.

1.6 Take-off Following Water Landing

A take-off is prohibited following a water landing.

1.7 Center of Gravity Limits

The aft center of gravity limit is reduced to 3.505m (138.0 inches) with low skid gear, and 3.472m (136.7 inches) with high skid gear.

1.8 Lateral Center of Gravity Limits (350B1 and B2 only)

1.8.1 Low Skid Gear

Weight $\leq$ 4,700 lb	No Change
Weight > 4,700 lb	$\pm$ 5.20 in.

1.8.2 High Skid Gear

Weight $\leq$ 4,700 lb	No Change
Weight > 4,700 lb	$\pm$ 3.90 in.

2.0 NORMAL PROCEDURES

In addition to the procedures indicated below, the normal procedure specified in the basic manual remains applicable.

2.1 External Checks

- The float closure fabric is correctly secured
- The bottle inflation pressure is correct, 3140 $\pm$ 240 psi at $\pm$ 15 degrees celsius with a correction of approximately $\pm$ 100 psi per $\pm$ 10 degrees celsius.

2.2 Flight Over Water

- Take-off - before take-off over water, arm the electrical actuation system. After achieving a safe combination of airspeed and altitude, but in no case later than 169 km/h (105 mph, 91 kts), disarm the electrical actuation system.

  NOTE: Whenever the float electrical actuation system is armed, the "Float Armed" segment in the annunciator panel should be illuminated.

- Cruise - If an airspeed greater than 169 km/h (105 mph, 91 kts) is desired enroute, the float armed system must be off.
- Approach - In preparation for a landing, the electrical actuation system should be armed between 169 km/h and 121 hm/h (75-105 mph, 65-91 kts).

2.3 Flight Over Land

- Set the float armed switch to off.

3.0 EMERGENCY PROCEDURES

In the event of an emergency necessitating ditching of the aircraft, carry out the emergency procedure outlined in the basic manual as well as that detailed below:

- Below 169 km/h (105 mph, 91 kts), arm float electrical inflation system
- Reduce airspeed to 121 km/h (75 mph, 65 kts)
- Inflate the floats by actuating the firing switch on the cyclic stick (inflation time - approximately 3 seconds from actuation of switch)
- If the electrical actuation system fails, or float inflation cannot be visually verified, the floats may be inflated by pulling the manual actuation handle

  NOTE: The handle must travel approximately 10.16 cm (4 inches) before actuation will occur.

- Avoid ramming of the water at the front of floats on touchdown. Jettison the doors by normal jettison procedure after touchdown.

4.0 PERFORMANCE - No Change.

GREAT SLAVE HELICOPTERS LTD.

Group of Companies

Denendeh Helicopters Ltd. Hudson Bay Helicopters Sahtu Helicopters

AS350 Series Repetitive
Airworthiness Directives and Service Bulletins

A/C Reg.:_____ A/C W.O. No.:_____

A/C T.A.T.:_____ Date:_____

* Denotes certification by approved pilots is acceptable

AD or SB Number	Subject Description	Compliance Due At	Initial
*AD T2000-340-080 (A) R2	Inspection of T/R drive shaft fwd fairing IAW Alert Service Bulletin # 05.00.35. (Applicable to AVO only)	Daily & 100 hrs	
*AD 92-078(B) R2	MO5 chip plug inspection IAW SB 292-72-0157 (Applicable to IUX)	Daily or 8 hrs	
*AD 84-064-037(B) R3	Insp. of T/R spar without disassembly IAW SB 05-11R5	30 hrs	
SB 65-00-38	T/R spider bearing/plate assembly inspection	100 hrs	
AD 84-064-037(B) R3	Insp. of T/R spar without disassembly IAW SB 05-11R5	100 hrs	
*AD T2001-640-089 (A)	Insp. of T/R Blade trailing edge IAW Alert Telex 05.00.40 Paragraph 2.A **NOT TO EXCEED 10 HOURS**	**Daily or 10hrs**	
AD 89-155-054(B)R4	Greasing of M/R swash plate bearing with Aeroshell #7 IAW SB 62-12R2 (N/A to HMZ, HAF, IUX, GSC, AVO, GSW, GSP, FHN, RTM, RTL)	100 hrs	
AD 93-090-067	Insp. of sliding windows IAW SB 05-25R1 (N/A to GSC, AVO, GSP, FHN)	100 hrs	
AD 98-173-073(a)	Insp. of mounting and greasing of T/R drive shaft bearings with Aeroshell #22 IAW SB 05-00-08R5	100 hrs	
AD 2002-044(A)	Insp. of Siren Cargo Hook for corrosion on the lock catch. IAW SB 05-00-41 (Applicable to AVO only)	**Daily with underslung load**	
AD2002-344-093(A)	Insp. Of Sliding Door Aft Guide Roller and Middle Rail. IAW Alert Telex 05.00.41 (Applicable to HMZ, GSW, AVO, & FHN)	100 hrs	

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A/C T.A.T.:_____ Date:_____

***** Denotes certification by approved pilots is acceptable

AD1990-064 (A) R1	Engine compressor erosion check IAW maintenance manual Chapter 71-00-08 SB A292-72-230 issue 1 (N/A to AVO)	400 hrs	
AD 84-064-037(B) R3	Insp of T/R spar with disassembly IAW SB 05-11R5	500 hrs	
AD 85-135-042(B)	Check that "FUEL" is engraved on A/F fuel filter every time the filter is replaced IAW SB 01-14 (N/A to AVO)	500 hrs	
AD 86-097-047(B)	A/F fuel filter bowl tightening procedure IAW SB 28-08 (N/A to AVO)	500 hrs	
AD 86-125-48(B) R1	Behavior of helicopter on the ground with rotors turning IAW SB 01-17A	500 hrs or at each occurrence	
AD 90-198-056(B)	Check presence of shunt on the battery temp probe IAW SB 01-29R1 (N/A to AVO OR ANY WIRING HARNESS WITH 3 WIRES ON THE BATTERY PROBE)	500 hrs or at each battery installation	
AD 2001-580-085(A)R1	Tail Servo control- Eye end fitting for proper locking IAW Alert Telex No. 05.00.37	550 hrs	

OPERATIONAL TIPS FOR A STAR OPERATORS

Here is a quick review of how to count cycles on the Arriel engines. The pilot should record both power turbine and gas turbine cycles with each entry made in the flight log book.

1. **Power Turbine (Np)**

   Power turbine cycles are straightforward: **1 FLIGHT = 1 CYCLE**

   where a flight is : One start followed by
   One engine acceleration to take off power followed by
   One shutdown.

2. **Gas Turbine (Ng)**

   Gas turbine cycles are calculated using the following formula: **Ng Cycles = K1 + K2 calculations**

   where K1 is the coefficient from table 1 corresponding to the maximum Ng reached during the flight and K2 is the coefficient from table 2 corresponding to the Minimum Ng reached at or below 85% during the flight.

TABLE 1

Max Ng during flight	K1 Coefficient
100	1.0
99	0.9
98	0.8
97	0.7
96	0.65
95	0.6
94	0.55
93 or lower	0.5

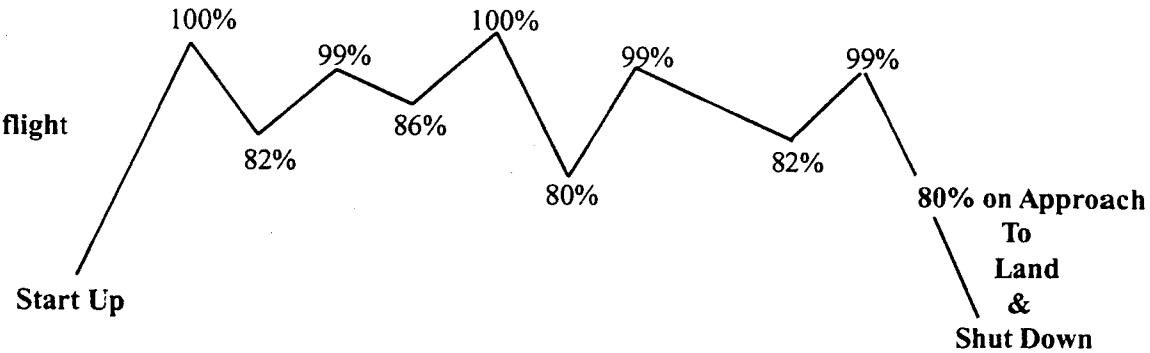
TABLE 2

Min Ng at or below 85%	K2 Coefficient
81-85	.05
76-80	.10
75 & lower	.15

Notes:
1. Do not include the Ng reached as part of the normal shut down
2. Do not count any cycles for ground runs (Np orNg).

Example:

Ng noted during flight



Max Ng during flight = 100% K1 = 1.0 **Ng cycles = 1.0 + (2 x 0.05) + .10 = 1.20**
Min Ng during flight = **two** times at 82% K2 = 2 x 0.05
one time at 80% K2 = .10 **Np cycles = 1.0**