

Attachment 16

AS350B2 Rotorcraft Flight Manual (RFM) Supplement 14



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# FLIGHT MANUAL

## AS 350 B2

### SUPPLEMENT

SAND FILTER

Reference : QB0390/QB0777

**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.



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LIST OF APPROVED EFFECTIVE PAGES  
FAA CERTIFICATION

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

SUPPLEMENT	PAGE	DATE	(1)	SUPPLEMENT	PAGE	DATE	(1)
SUP.14	P1	1	08-40	R			
SUP.14	P5	1/01	08-40	R			
SUP.14		1	08-40	R			
SUP.14		2	08-40	R			
SUP.14		3	08-40	R			
SUP.14		4	08-40	R			
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SUP.14		7	08-40	R			
SUP.14		8	08-40	R			
SUP.14		9	08-40	R			

LIST OF THE LATEST NORMAL APPROVED REVISIONS				NORMAL REVISION : 2			
No	Date	No	Date	EASA approval N° EASA.CSV.R.01495 on July 15th, 2009			
0	89-17						
1	92-44						
2	08-40						

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1 GENERAL

The sand filter installation is designed to protect the engine against ingestion of sand. 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.

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 :

- The flight envelope restrictions in case of falling snow are cancelled.
- Sand filter operating.
  - . the heating and demisting systems must be switched off,
  - . 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**

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

**CHECKS BEFORE STARTING THE ENGINE**

- Test the indicator light located on the instrument panel.

**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.

**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.

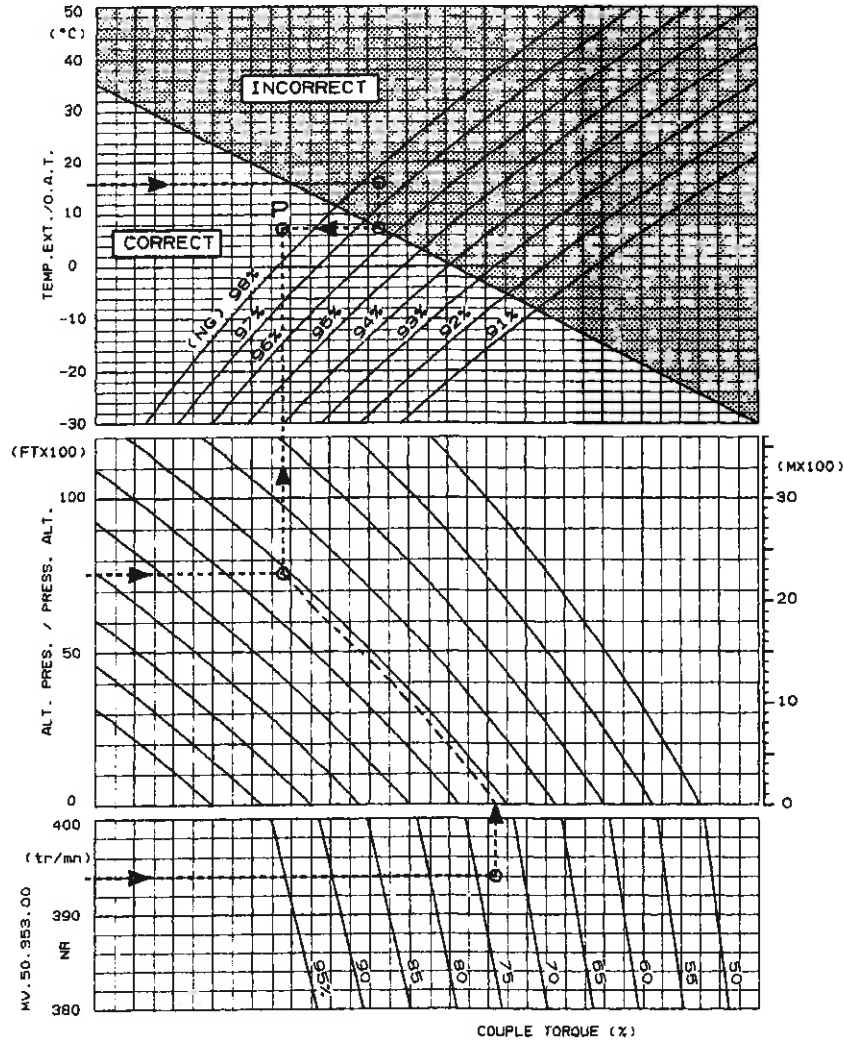


Figure 1 Power Assurance Check - Sand Filter Not Operating

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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)

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

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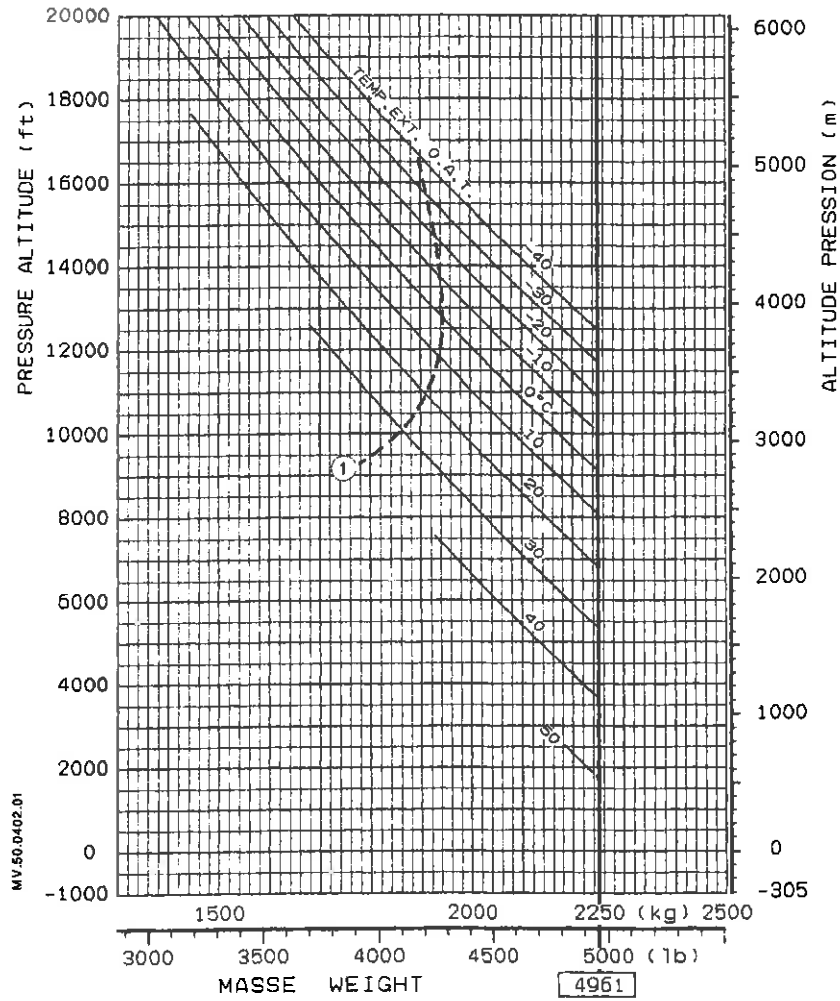


Figure 2

**CONDITIONS**

- Height : 5 ft - 1.5 m
- Heating and demisting systems off
- Line 1 : Maximum substantiated density-altitude on takeoff and landing - 1400 ft.

IGE HOVER PERFORMANCE

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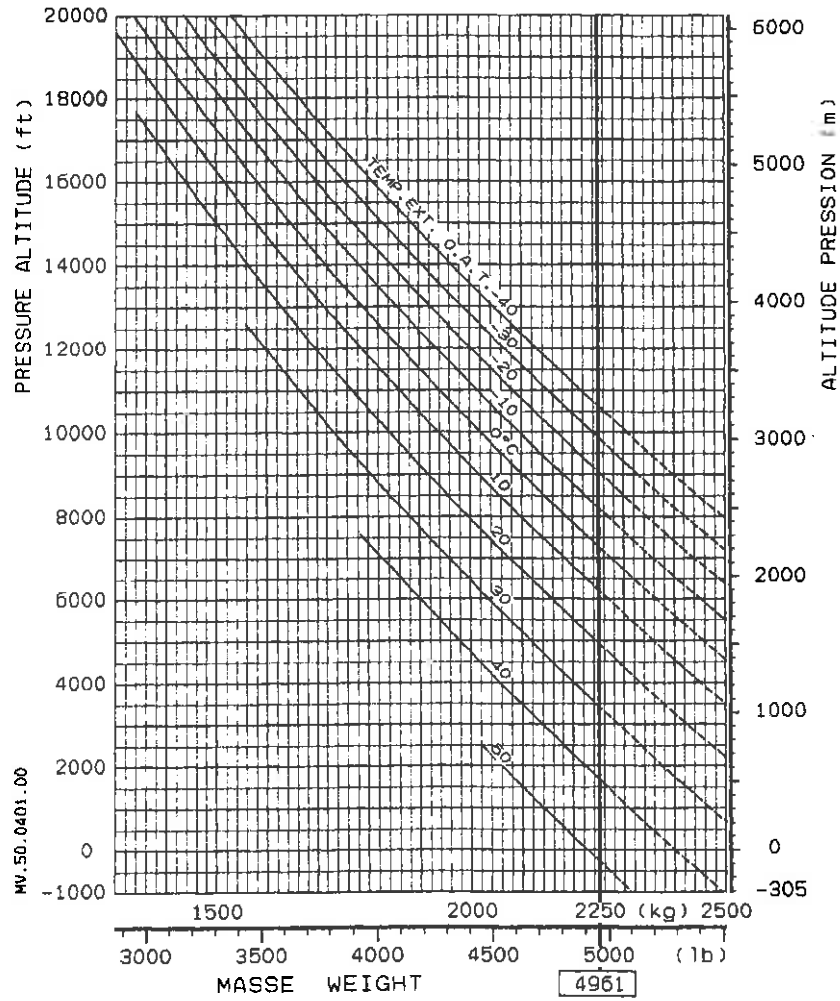


Figure 3

**CONDITIONS**

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

OGE HOVER PERFORMANCE

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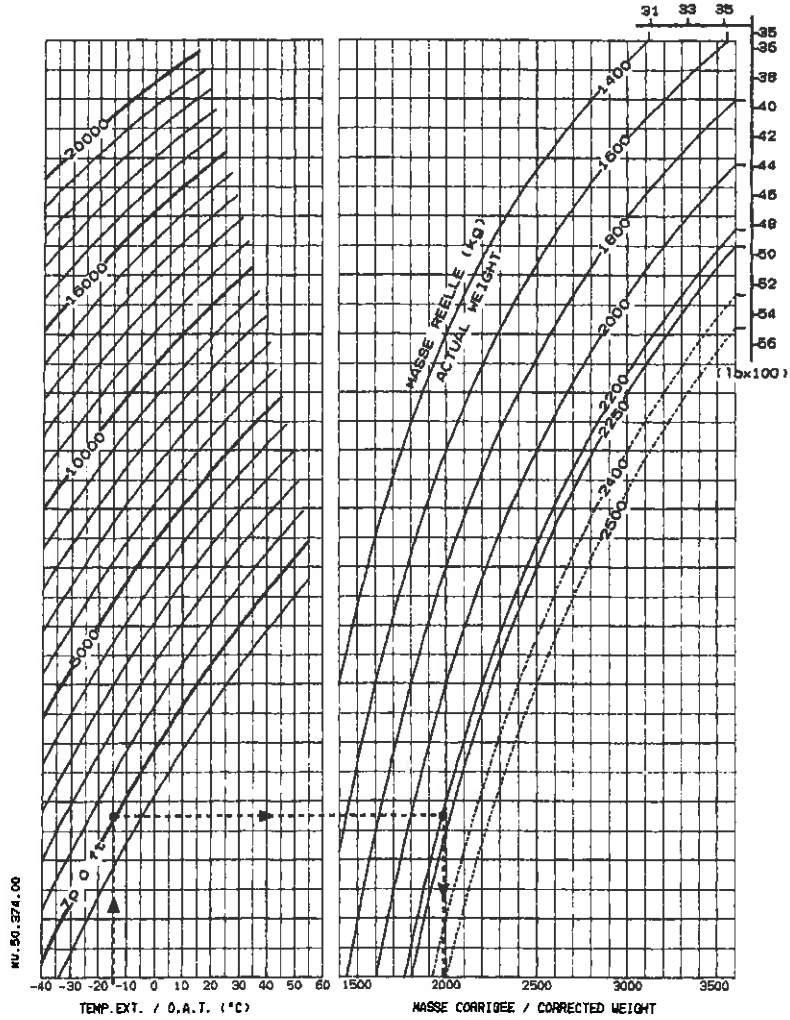


Figure 4

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

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

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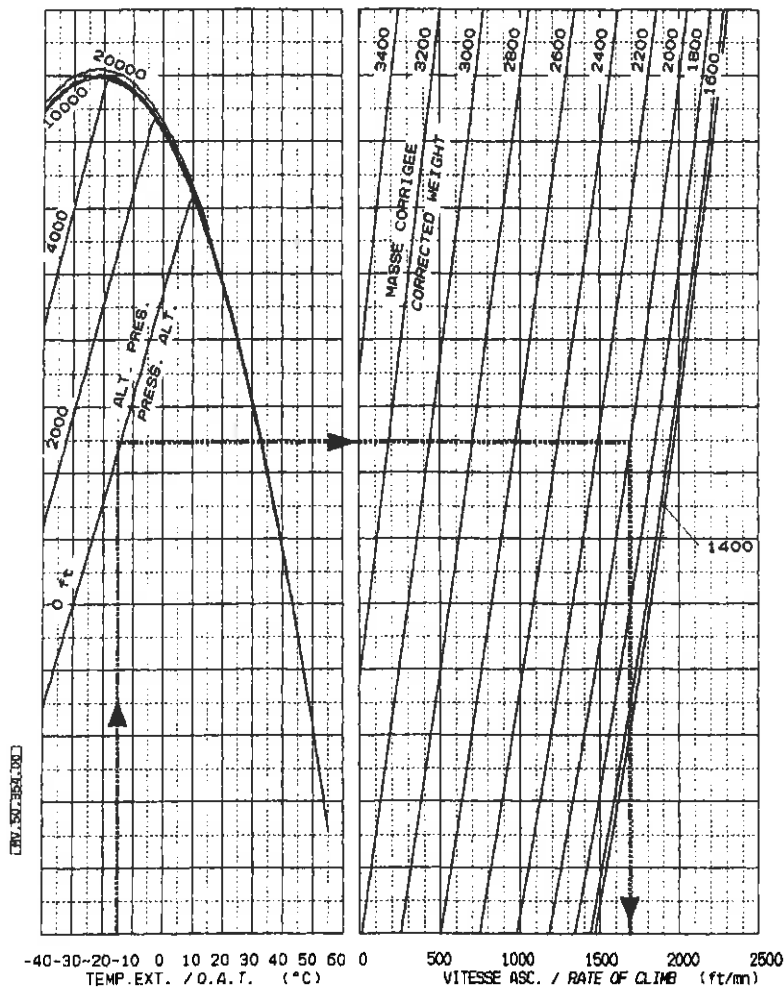


Figure 5

CONDITIONS

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

RATE OF CLIMB

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