

**AS 350 B2 VEMD**  
**SITUATION DES REVISIONS DU MANUEL DE VOL**  
**FLIGHT MANUAL REVISIONS STATUS**  
**CERTIFICATION EASA**  
**EASA CERTIFICATION**

Ce manuel doit contenir la révision normale (RN) et les révisions rapides (RR) référencées dans l'édition (EDIT) considérée.

This manual must contain the normal revision (RN) and rush revisions (RR) listed under the relevant issue (EDIT).

<b>PARTIE REGLEMENTAIRE PRESCRIBED SECTION Volume 1</b>		
SECT. / SUP.	.	.
	EDIT	.
	.	DATE
0 => 5.1	RN0	16-11
SUP.0	RN0	16-11
SUP.4	RN0	16-11
SUP.6	RN0	16-11
SUP.7	RN0	16-11
SUP.11	RN1	16-17
SUP.11.1	RN1	16-17
SUP.11.2	RN1	16-17
SUP.12	RN1	16-17
SUP.14	RN0	16-11
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SUP.17	RN0	16-11
SUP.18	RN0	16-11
SUP.20	RN0	16-11
SUP.21	RN0	16-11
SUP.22	RN0	16-11
SUP.23	RN0	16-11
SUP.24	RN0	16-11
SUP.25	RN0	16-11
SUP.26	RN0	16-11

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<b>PARTIE REGLEMENTAIRE PRESCRIBED SECTION Volume 1</b>		
SECT. / SUP.	.	.
	EDIT	.
	.	DATE
SUP.50	RN0	16-11
SUP.51	RN0	16-11
SUP.53	RN0	16-11
SUP.54	RN0	16-11
SUP.55	RN0	16-11
SUP.55.1	RN0	16-11
SUP.55.2	RN0	16-11
SUP.55.3	RN0	16-11
SUP.56	RN0	16-11

<b>PARTIE COMPLEMENTAIRE COMPLEMENTARY SECTION Volume 2</b>		
SECT.	EDIT	DATE
0, 5.2, 6, 7, 8, 9	RN0	16-11



**REVISION TO AIRCRAFT PUBLICATION : AS 350 B2 VEMD**
**PUBLICATION CONCERNED : Volume 1- SUPPLEMENTS**
**CUSTOMIZATION AIRCRAFT S/N : /**

<b>SUP.</b>	<b>11</b>	<b>REVISION No.:</b>	<b>1</b>	<b>DATE CODE:</b>	<b>16-17</b>	<b>CERTIFICATION CODE:</b>	<b>A</b>
<b>SUP.</b>	<b>11.1</b>	<b>REVISION No.:</b>	<b>1</b>	<b>DATE CODE:</b>	<b>16-17</b>	<b>CERTIFICATION CODE:</b>	<b>A</b>
<b>SUP.</b>	<b>11.2</b>	<b>REVISION No.:</b>	<b>1</b>	<b>DATE CODE:</b>	<b>16-17</b>	<b>CERTIFICATION CODE:</b>	<b>A</b>
<b>SUP.</b>	<b>12</b>	<b>REVISION No.:</b>	<b>1</b>	<b>DATE CODE:</b>	<b>16-17</b>	<b>CERTIFICATION CODE:</b>	<b>A</b>

- The outline of the revision is given below :
  - . Sections or supplements affected (added or modified),
  - . Major points of the revision.
- Check the pages in each section are those specified in the list of effective pages.
- Withdraw old and insert new pages affected by this revision.
- Return the acknowledgement card.
- This list of amended pages may be filed (apart from the manual).

	DELETED PAGES			INSERTED PAGES		
	Section, SUP or APP	Page	Revision	Section, SUP or APP	Page	Revision
<b>SRD</b>	-	-	22/03/2016	-	-	14/11/2016
<b>Normal Revision</b>				SUP.11.P1	1	16-11
	SUP.11.P5	1-2	16-11	SUP.11.P5	1-2	16-17
	SUP.11	All	16-11	SUP.11	All	16-17
				SUP.11.1.P1	1	16-11
	SUP.11.1.P5	1-2	16-11	SUP.11.1.P5	1-2	16-17
	SUP.11.1	All	16-11	SUP.11.1	All	16-17
				SUP.11.2.P1	1	16-11
	SUP.11.2.P5	1-2	16-11	SUP.11.2.P5	1-2	16-17
	SUP.11.2	All	16-11	SUP.11.2	All	16-17

	DELETED PAGES			INSERTED PAGES		
	Section, SUP or APP	Page	Revision	Section, SUP or APP	Page	Revision
<b>Normal Revision</b>				SUP.12.P1	1	16-11
	SUP.12.P5	1-2	16-11	SUP.12.P5	1-2	16-17
	SUP.12	All	16-11	SUP.12	All	16-17

DESCRIPTION OF REVISION	SECTION or SUPPLEMENT	PARAGRAPH
<b>SUP.11</b>		
Up-date of list of approved effective pages and log of approved normal revisions	SUP.11.P5	-
Modification of the operating limitations for cargo hook and deletion of placards "carrying of external loads"	SUP.11	2.4
Modification of the normal procedure for cargo hook: New §: "Operation with no or low load..." instead of the CAUTION	SUP.11	4
<b>SUP.11.1</b>		
Up-date of list of approved effective pages and log of approved normal revisions	SUP.11.1.P5	-
Modification of the operating limitations for cargo hook and deletion of placards "carrying of external loads"	SUP.11.1	2.4
Modification of the normal procedure for cargo hook: New §: "Operation with no or low load..." instead of the CAUTION	SUP.11.1	4
<b>SUP.11.2</b>		
Up-date of list of approved effective pages and log of approved normal revisions	SUP.11.2.P5	-
Modification of the operating limitations for cargo hook and deletion of placards "carrying of external loads"	SUP.11.2	2.4
Modification of the normal procedure for cargo hook: New §: "Operation with no or low load..." instead of the CAUTION	SUP.11.2	4

DESCRIPTION OF REVISION	SECTION or SUPPLEMENT	PARAGRAPH
<b>SUP.12</b>		
Up-date of list of approved effective pages and log of approved normal revisions	SUP.12.P5	-
Modification of the operating limitations for cargo hook and deletion of placards "carrying of external loads"	SUP.12	2.4
Modification of the normal procedure for cargo hook: New §: " <i>Operation with no or low load...</i> " instead of the CAUTION	SUP.12	4





# FLIGHT MANUAL

## AS 350 B2 VEMD

### SUPPLEMENT

#### TRANSPORT OF EXTERNAL LOADS

"CARGO SWING" 1160 kg (2557 lb)

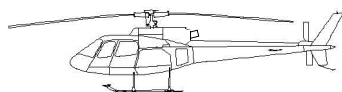
With "SIREN" release unit (P/N AS21-5-7)

#### IMPORTANT NOTE

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

The effectivity of the manual 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.



Airbus Helicopters Direction Technique Support  
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**LIST OF APPROVED EFFECTIVE PAGES - EASA CERTIFICATION**

(1) AIRWORTHINESS EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- A..... Specific to EASA

(2) VARIANT OF STANDARD DEFINITION EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- XXX..... Specific to aircraft equipped with XXX

SECTION or SUP.	PAGES	DATE CODE	(1)	(2)
SUP.11.P1	1 to 1	16-11		
SUP.11.P5	1 to 2	16-17	<span style="border: 1px solid black; padding: 0 2px;">A</span>	
SUP.11	1 to 7	16-17		

**LOG OF APPROVED NORMAL REVISIONS****BASIC RFM REVISIONS - EFFECTIVITY (1) (2) EASA**ISSUE 1: NR 0 to NR 2:

NORMAL REVISION 2 - DECEMBER 2012	EASA approval No. 10042628 on December 11, 2012
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ISSUE 2:

NORMAL REVISION 0 date code 16-11		Approved on March 17, 2016, under the authority of EASA DOA No. 21J056
Title	New issue	
Revised information	All	
Deleted information	None	
NORMAL REVISION 1 date code 16-17		EASA approval No. 10059860 on October 24, 2016
Title	Modification of the operating limitation and normal procedure for the cargo hook	
Revised information	SUP.11.P5 pages 1 and 2, SUP.11 pages 4 and 6	
Deleted information	None	

## 1 GENERAL

The “ CARGO SLING ” external load installation (Figure 1) is composed of :

- A suspended pyramid frame (5) equipped with a “SIREN” release unit (4)
  - the electrical cargo hook opening,
  - the mechanical cargo hook opening.
- A load indicator (1) with a zero setting control (2) and lighting (3) on the RH door pillar.

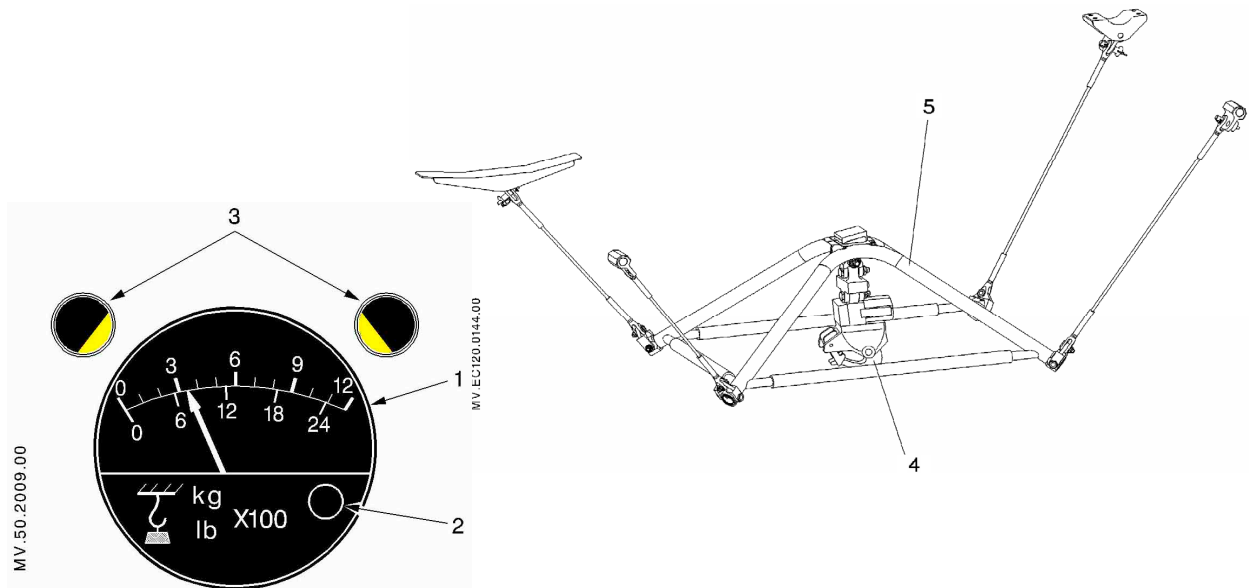


Figure 1: Cargo swing components

- Controls for the pilot (Figure 2), including:
  - a [SLING] pushbutton (4) located on the SCU (1), for powering on the installation,
  - an electrical release control (3) on the cyclic stick (electrical mode),
  - a mechanical release handle (2) located under the collective stick (mechanical mode).
- Electrical circuit protections:
  - one circuit breaker for the load indicator,
  - two circuit breakers for the load release unit.

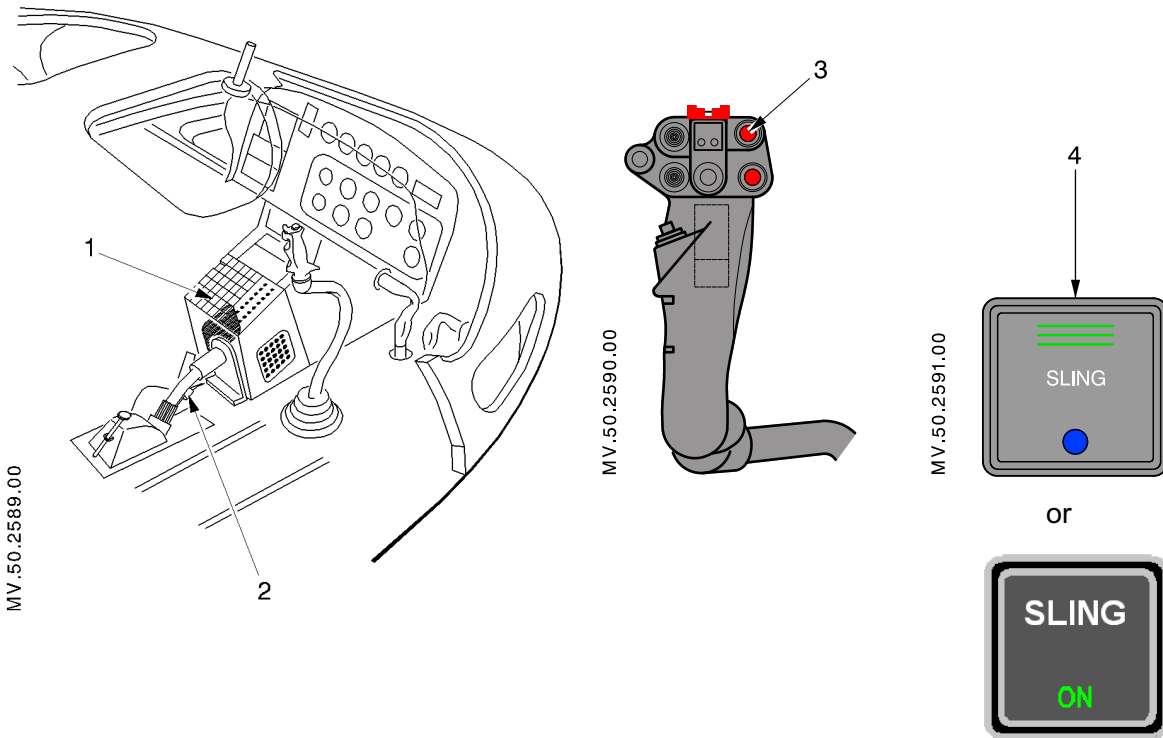


Figure 2: Cargo swing controls

## 2 LIMITATIONS

The limitations specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

### 2.1 WEIGHT LIMITATION

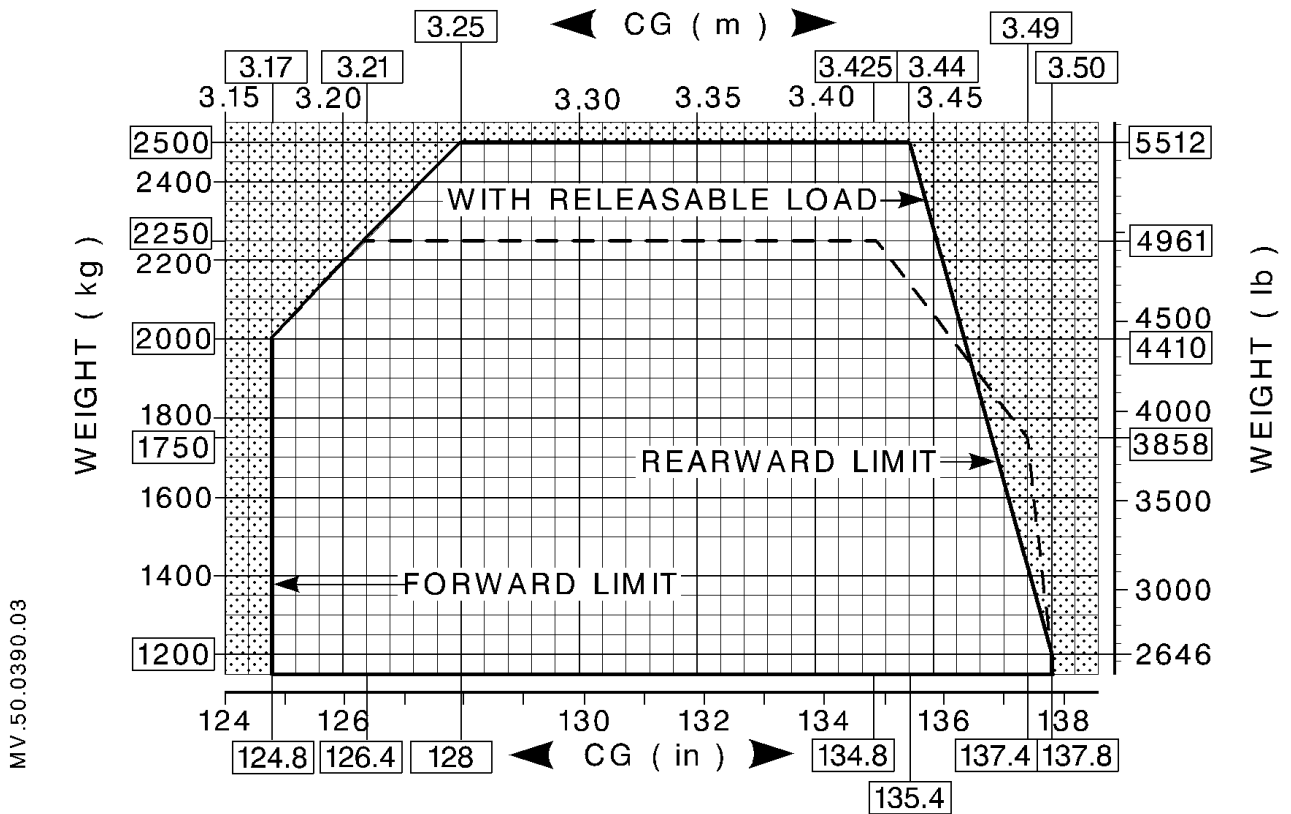
- Maximum authorized swing load weight: ..... 1160 kg (2557 lb).
- Maximum all up weight with an external load:..... 2500 kg (5512 lb)  
or maximum authorized all up weight allowing hovering flight out of ground effect (the lowest of the two values).

### CAUTION

The maximum weight without external load remains limited to the maximum weight specified in the limitations section of the basic flight manual.

## 2.2 LONGITUDINAL CG

With an external load, the longitudinal limits are defined according to the weight as per the graph below.



## 2.3 AIRSPEED LIMITATION

- Absolute maximum permissible indicated airspeed with external load ..... 80 kt (148 km/h)

### NOTE

The pilot is responsible for determining the limit speed according to the load and sling length. Particular care must be exercised when bulky loads are carried on the sling.

## 2.4 OPERATING LIMITATION

The cargo hook system is approved for lifting external load which is jettisonable and lifted free of land or water during rotorcraft operation.

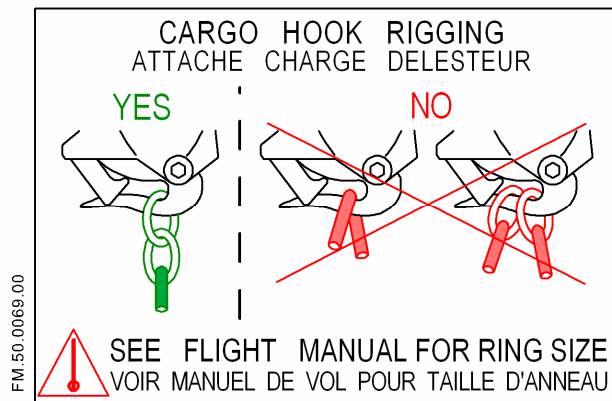
Operation with an external load which remains in contact with land, water or any fixed structure is not demonstrated by the manufacturer. These operations shall not be conducted without approval from the responsible authority in accordance with the applicable operational regulations.

The external loads are limited to Non Human External Cargo (NHEC) only.

Flight with an empty net or unballasted sling as an external load is prohibited unless approved operational limits and procedures provided by the operator allow for such an operation.

Two placards visible to the ground operator and located on the lower fairing near to the hook indicate:

- The maximum sling load
- The cargo hook rigging



**Figure 3: Cargo hook rigging placard**

### 3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

#### 3.1 ENGINE FAILURE WITH EXTERNAL LOAD

- IN CRUISE FLIGHT
  1. Autorotation procedure: ..... APPLY.
  2. External load..... RELEASE as soon as possible.
- IN HOVER
  1. Collective pitch..... LOWER according to the height.
  2. External load..... RELEASE as soon as possible.
  3. Pedals..... CONTROL yaw.
  4. Cyclic ..... FORWARD to gain forward speed according to the height.
  5. Collective pitch..... INCREASE as needed to cushion touch-down.

#### NOTE

**In case of a failure during the hooking phase, the pilot shall move the aircraft away to the right. Ground personnel are to be forewarned that in the event of an engine failure they have to move away to the left of the helicopter.**

#### 3.2 ELECTRICAL LOAD JETTISONING FAILURE

Collective pitch mechanical release ..... ACTUATE

## 4 NORMAL PROCEDURES

The normal procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

- Carrying heavy loads is a delicate operation due to the possible effects of a swinging load on the flight behavior of the helicopter. Consequently, pilots are advised to train with gradually increasing sling loads before undertaking heavy or bulky load carrying operations.
- The length of the sling cable must be determined in accordance with the type of mission. To carry a compact load, it is recommended to use the shortest possible cable.
- Operation with no or low load on a sling cable or in a net must be performed in such a way as to ensure that the trailing sling cable or net does not come close to the tail rotor.
- For permissible load attachment ring size refer to SECTION 9 of this Flight Manual.

### WARNING

- 1- THE USE OF A LOAD ATTACHMENT RING WITH INCORRECT DIMENSIONS MAY LEAD TO LOSS OR JAMMING OF THE LOAD.**
- 2- IN WET WEATHER, THE OPERATORS HANDLING THE HOOK AND LOADS SHOULD WEAR THICK RUBBER GLOVES. DISCHARGE STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (HOOK).**

### 4.1 CHECK OF THE INSTALLATION

- [SLING] ..... ON.
- Load indicator ..... ZERO.
- Correct opening of the hook (both in electrical and mechanical control modes) ..... CHECK.
- Rotation of the retaining latch ..... FREE.
- Return spring operation of the retaining latch ..... CHECK.



## 4.2 TAKEOFF CHECK AND PROCEDURE WITH EXTERNAL LOAD

1. External load .....HOOK and SECURE
2. Collective .....INCREASE very smoothly while maintaining the aircraft vertically above the load
3. Cables tightened .....Dwell briefly before raising the load
4. Lift off the load .....Vertically
5. Load indication.....CHECK
6. Take-off path.....ADJUST to immediately adopt a forward climb attitude
7. All parameters.....CHECK

## 4.3 MANEUVERS

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

## 4.4 APPROACH AND LANDING WITH EXTERNAL LOAD

- Perform approach at minimum rate of descent
- 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 set on the ground
- Load .....RELEASE
- Effective load release.....CHECK
- All parameters.....CHECK

### NOTE

**If the load is not released, actuate the mechanical release handle.**

## 5 PERFORMANCE DATA

When no external load is carried on the hook, the performance data specified in the basic flight manual and in the flight manual supplements remain applicable.

- Hover out of ground effect performance is shown in Figures 6 and 7 of SECTION 5.1 § 7 of the basic flight manual.
- Hover and climb performance may be affected when carrying bulky loads.





# FLIGHT MANUAL

## AS 350 B2 VEMD

### SUPPLEMENT

#### TRANSPORT OF EXTERNAL LOADS

"CARGO SWING" 1160 kg (2557 lb)

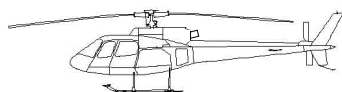
With "SIREN" fixed release unit (P/N S 1609)

#### IMPORTANT NOTE

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

The effectivity of the manual 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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350 B2 VEMD

# SUP.11.1.P1



## LIST OF APPROVED EFFECTIVE PAGES - EASA CERTIFICATION

(1) AIRWORTHINESS EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- **A**..... Specific to EASA

(2) VARIANT OF STANDARD DEFINITION EFFECTIVITY:

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SECTION or SUP.	PAGES	DATE CODE	(1)	(2)
SUP.11.1.P1	1 to 1	16-11		
SUP.11.1.P5	1 to 2	16-17	<b>A</b>	
SUP.11.1	1 to 8	16-17		

## LOG OF APPROVED NORMAL REVISIONS

### BASIC RFM REVISIONS - EFFECTIVITY (1) (2) EASA

ISSUE 1: NR 0 to NR 2:

NORMAL REVISION 2 - DECEMBER 2012	EASA approval No. 10042628 on December 11, 2012
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ISSUE 2:

NORMAL REVISION 0 date code 16-11		Approved on March 17, 2016, under the authority of EASA DOA No. 21J056
Title	New issue	
Revised information	All	
Deleted information	None	
NORMAL REVISION 1 date code 16-17		EASA approval No. 10059860 on October 24, 2016
Title	Modification of the operating limitation and normal procedure for the cargo hook	
Revised information	SUP.11.1.P5 pages 1 and 2, SUP.11.1 pages 4 and 6	
Deleted information	None	

APPROVED

350 B2 VEMD

# SUP.11.1.P5

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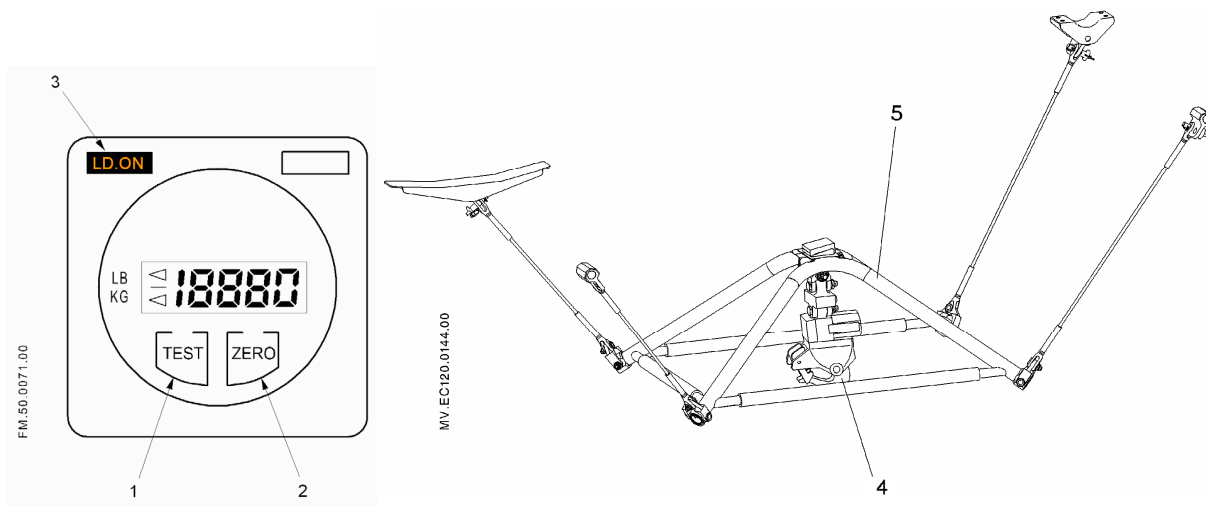
16-17

Page 2

# 1 GENERAL

The “ CARGO SLING ” external load installation (Figure 1) is composed of:

- A suspended pyramid frame (5) equipped with a fixed rotation hook “SIREN” release unit (4) (P/N S1609) allowing:
  - the electrical cargo hook opening,
  - the mechanical cargo hook opening.
- A load indicator, on the RH door pillar, with an indicator test pushbutton (1), a zero setting control (2) and a load-on indicator (3).



**Figure 1: Cargo swing components**

- Controls for the pilot (Figure 2), including:
  - a [SLING] pushbutton (4) located on the SCU (1), for powering on the installation,
  - an electrical release control (3) on the cyclic stick (electrical mode),
  - a mechanical release handle (2) located under the collective stick (mechanical mode).
- Electrical circuit protections:
  - one circuit breaker for the load indicator,
  - two circuit breakers for the load release unit.

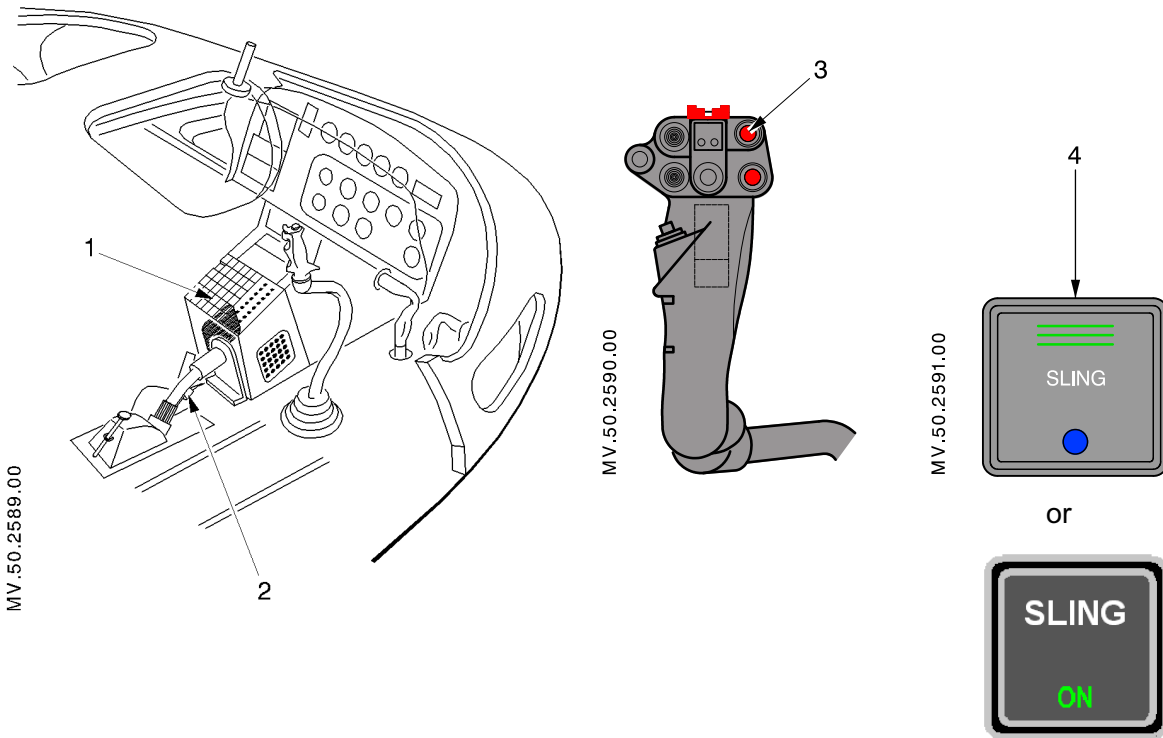


Figure 2: Cargo swing controls

## 2 LIMITATIONS

The limitations specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

### 2.1 WEIGHT LIMITATION

- Maximum authorized swing load weight: ..... 1160 kg (2557 lb).
- Maximum all up weight with an external load:..... 2500 kg (5512 lb)  
or maximum authorized all up weight allowing hovering flight out of ground effect (the lowest of the two values).

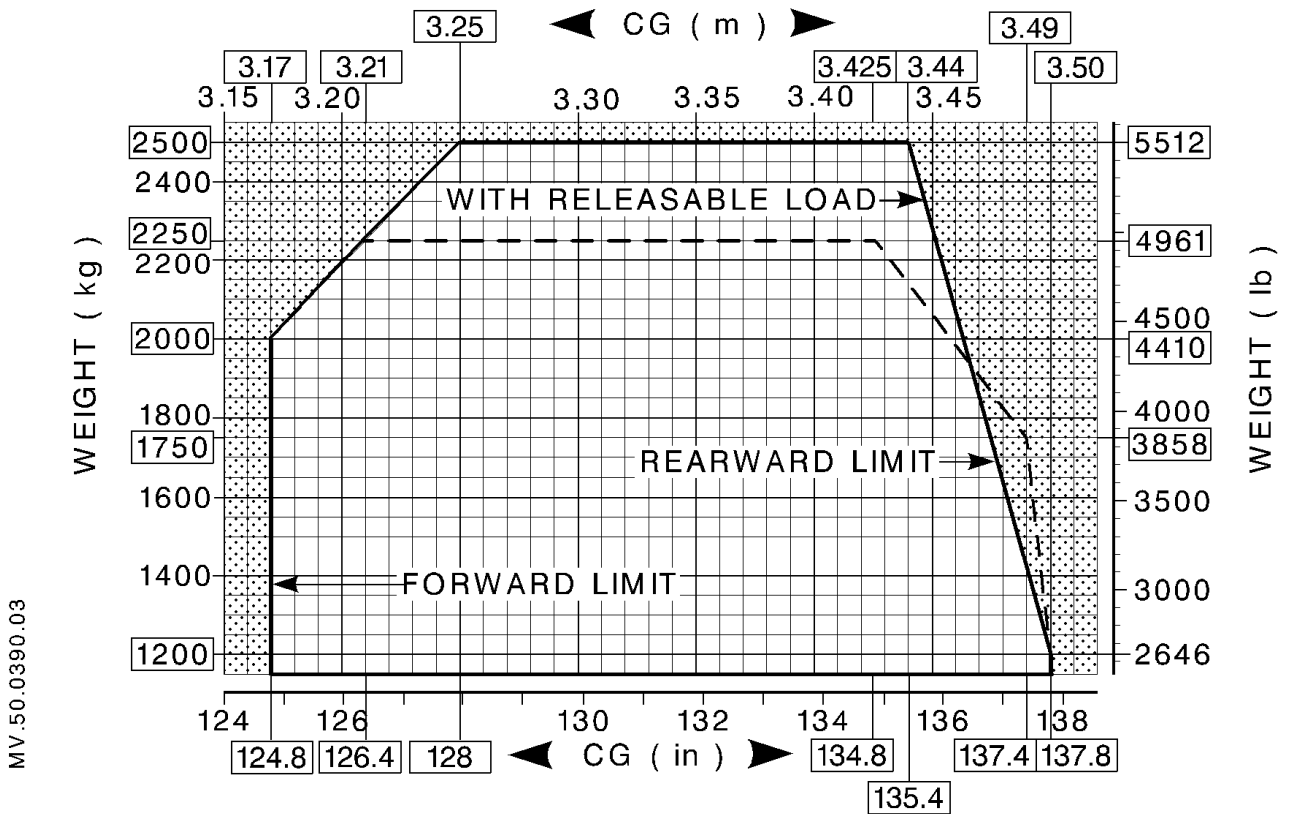
### CAUTION

The maximum weight without external load remains limited to the maximum weight specified in the limitations section of the basic flight manual.



## 2.2 LONGITUDINAL CG

With an external load, the longitudinal limits are defined according to the weight as per the graph below.



## 2.3 AIRSPEED LIMITATION

- Absolute maximum permissible indicated airspeed with external load ..... 80 kt (148 km/h).

### NOTE

The pilot is responsible for determining the limit speed according to the load and sling length. Particular care must be exercised when bulky loads are carried on the sling.

## 2.4 OPERATING LIMITATION

The cargo hook system is approved for lifting external load which is jettisonable and lifted free of land or water during rotorcraft operation.

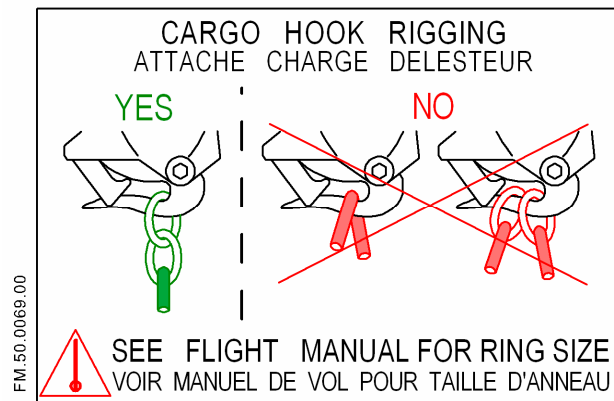
Operation with an external load which remains in contact with land, water or any fixed structure is not demonstrated by the manufacturer. These operations shall not be conducted without approval from the responsible authority in accordance with the applicable operational regulations.

The external loads are limited to Non Human External Cargo (NHEC) only.

Flight with an empty net or unballasted sling as an external load is prohibited unless approved operational limits and procedures provided by the operator allow for such an operation.

Two placards visible to the ground operator and located on the lower fairing near to the hook indicate:

- The maximum sling load,
- The cargo hook rigging.



**Figure 3: Cargo hook rigging placard**

### 3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

#### 3.1 ENGINE FAILURE WITH EXTERNAL LOAD

- IN CRUISE FLIGHT
  1. Autorotation procedure: ..... APPLY.
  2. External load..... RELEASE as soon as possible.
- IN HOVER
  1. Collective pitch..... LOWER according to the height.
  2. External load..... RELEASE as soon as possible.
  3. Pedals..... CONTROL yaw.
  4. Cyclic ..... FORWARD to gain forward speed according to the height.
  5. Collective pitch..... INCREASE as needed to cushion touch-down.

#### NOTE

**In case of a failure during the hooking phase, the pilot shall move the aircraft away to the right. Ground personnel are to be forewarned that in the event of an engine failure they have to move away to the left of the helicopter.**

#### 3.2 ELECTRICAL LOAD JETTISONING FAILURE

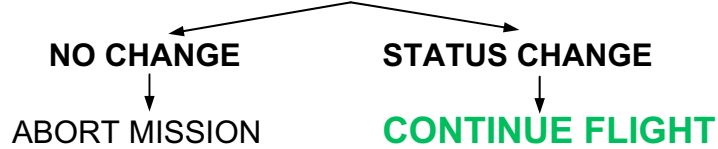
Collective pitch mechanical release ..... ACTUATE.

### 3.3 LOAD INDICATOR FAILURE

Abnormal ignition or extinction of the **LD ON** light:

- IN HOVER, during hooking or unhooking phase:

- Load .....RELEASE.
- **LD ON** .....CHECK light status.



- IN CRUISE FLIGHT

Perform a precautionary approach on the nearest helipad, then apply previous "IN HOVER" procedure.

## 4 NORMAL PROCEDURES


The normal procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

- Carrying heavy loads is a delicate operation due to the possible effects of a swinging load on the flight behavior of the helicopter. Consequently, pilots are advised to train with gradually increasing sling loads before undertaking heavy or bulky load carrying operations.
- The length of the sling cable must be determined in accordance with the type of mission. To carry a compact load, it is recommended to use the shortest possible cable.
- Operation with no or low load on a sling cable or in a net must be performed in such a way as to ensure that the trailing sling cable or net does not come close to the tail rotor.
- For permissible load attachment ring size refer to SECTION 9 of this Flight Manual.

**WARNING**

- 1- THE USE OF A LOAD ATTACHMENT RING WITH INCORRECT DIMENSIONS MAY LEAD TO LOSS OR JAMMING OF THE LOAD.**
- 2- IN WET WEATHER, THE OPERATORS HANDLING THE HOOK AND LOADS SHOULD WEAR THICK RUBBER GLOVES. DISCHARGE STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (HOOK).**

## 4.1 CHECK OF THE INSTALLATION

- On the load indicator:
  - **LD ON** ..... CHECK **LD ON**
  - **[ZERO]**..... PRESS, 0 is displayed.
  - **[TEST]** ..... PRESS and CHECK.  
 The test sequence is started; each display lasts for about 3 sec., followed by an extinction period of approx. 3sec.
  - Display of: 
    - Display of the "calibration" value. This value should be the same as the one engraved on the transmitter fitted between the helicopter and the hook.
    - Display of ZERO offset (this value is the total offset which has been previously tared out by use of **[ZERO]**).
    - Display of two values separated by a dash: the first value, between 0 and 3, shows the filter selected and the second value shows the logic programmed in the computer.
  
- Cargo swing check:
  - **[SLING]**..... PRESS IN.
  - Correct opening of the hook (both in electrical and mechanical control modes) ..... CHECK.
  - Rotation of the retaining latch ..... FREE.
  - Return spring operation of the retaining latch ..... CHECK.

## 4.2 TAKEOFF CHECK AND PROCEDURE WITH EXTERNAL LOAD

1. External load ..... HOOK and SECURE.
2. Collective ..... INCREASE very smoothly while maintaining the aircraft vertically above the load.
3. Cables tightened ..... Dwell briefly before raising the load.
4. Lift off the load ..... Vertically.
5. Load indication ..... CHECK **LD ON**.
6. Take-off path ..... ADJUST to adopt an immediate forward climb attitude.
7. All parameters ..... CHECK.

## 4.3 MANEUVERS

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

#### 4.4 APPROACH AND LANDING WITH EXTERNAL LOAD

- Perform approach at minimum rate of descent.
- 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 set on the ground.
- Load.....RELEASE.
- Effective load release.....CHECK **LD ON**.
- All parameters.....CHECK.

#### NOTE

**If the load is not released, actuate the mechanical release handle.**

### 5 PERFORMANCE DATA

When no external load is carried on the hook, the performance data specified in the basic flight manual and in the flight manual supplements remain applicable.

- Hover out of ground effect performance is shown in Figures 6 and 7 of SECTION 5.1 § 7 of the basic flight manual.
- Hover and climb performance may be affected when carrying bulky loads.



# FLIGHT MANUAL

## AS 350 B2 VEMD

### SUPPLEMENT

#### TRANSPORT OF EXTERNAL LOADS

"CARGO SWING" 1160 kg (2557 lb)

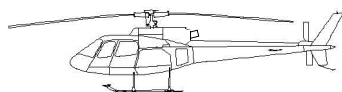
With "ON-BOARD" release unit (P/N 528-023-51)

#### IMPORTANT NOTE

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

The effectivity of the manual 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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**SUP.11.2.P1**





## LIST OF APPROVED EFFECTIVE PAGES - EASA CERTIFICATION

(1) AIRWORTHINESS EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- **A**..... Specific to EASA

(2) VARIANT OF STANDARD DEFINITION EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- XXX..... Specific to aircraft equipped with XXX

SECTION or SUP.	PAGES	DATE CODE	(1)	(2)
SUP.11.2.P1	1 to 1	16-11		
SUP.11.2.P5	1 to 2	16-17	<b>A</b>	
SUP.11.2	1 to 8	16-17		

## LOG OF APPROVED NORMAL REVISIONS

### BASIC RFM REVISIONS - EFFECTIVITY (1) (2) EASA

ISSUE 1: NR 0 to NR 3:

NORMAL REVISION 3 - NOVEMBER 2013	EASA D.O.A approval No. 21J056 on November 19, 2013
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ISSUE 2:

NORMAL REVISION 0 date code 16-11		Approved on March 17, 2016, under the authority of EASA DOA No. 21J056
Title	New issue	
Revised information	All	
Deleted information	None	
NORMAL REVISION 1 date code 16-17		EASA approval No. 10059860 on October 24, 2016
Title	Modification of the operating limitation and normal procedure for the cargo hook	
Revised information	SUP.11.2.P5 pages 1 and 2, SUP.11.2 pages 4 and 6	
Deleted information	None	

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# SUP.11.2.P5

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16-17

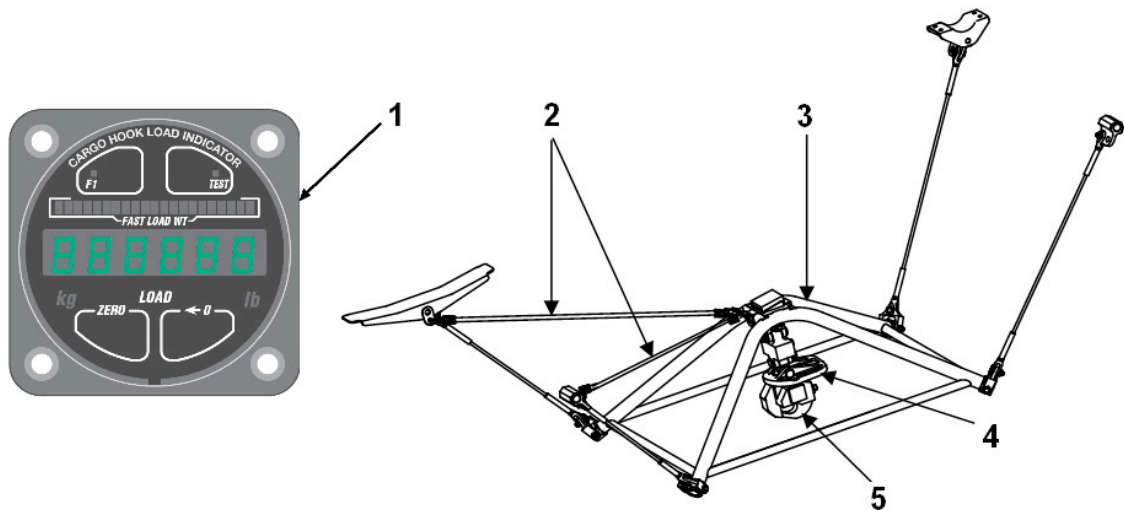
Page 2

# 1 GENERAL

For detailed description of the load indicator and the “ON-BOARD” release unit, refer to their vendor manuals.

The “CARGO SWING” external load installation (Figure 1) is composed of:

- A suspended pyramid frame (3) held by two elastic straps (2) equipped with a bumper ring (P/N: 232-155-00) (4) and a “ON-BOARD” release unit (P/N 528-023-51) (5) allowing:
  - the electrical cargo hook opening,
  - the mechanical cargo hook opening.
- A load indicator (1), on the RH door pillar.



**Figure 1: Cargo swing components**

- Controls for the pilot (Figure 2), including:
  - a **[SLING]** pushbutton (4) located on the SCU (1), for powering-on the installation,
  - a release control (3) on the cyclic stick (electrical mode),
  - a release handle (2) located under the collective stick (mechanical mode).
- Electrical circuit protections:
  - one circuit breaker for the load indicator,
  - two circuit breakers for the load release unit.

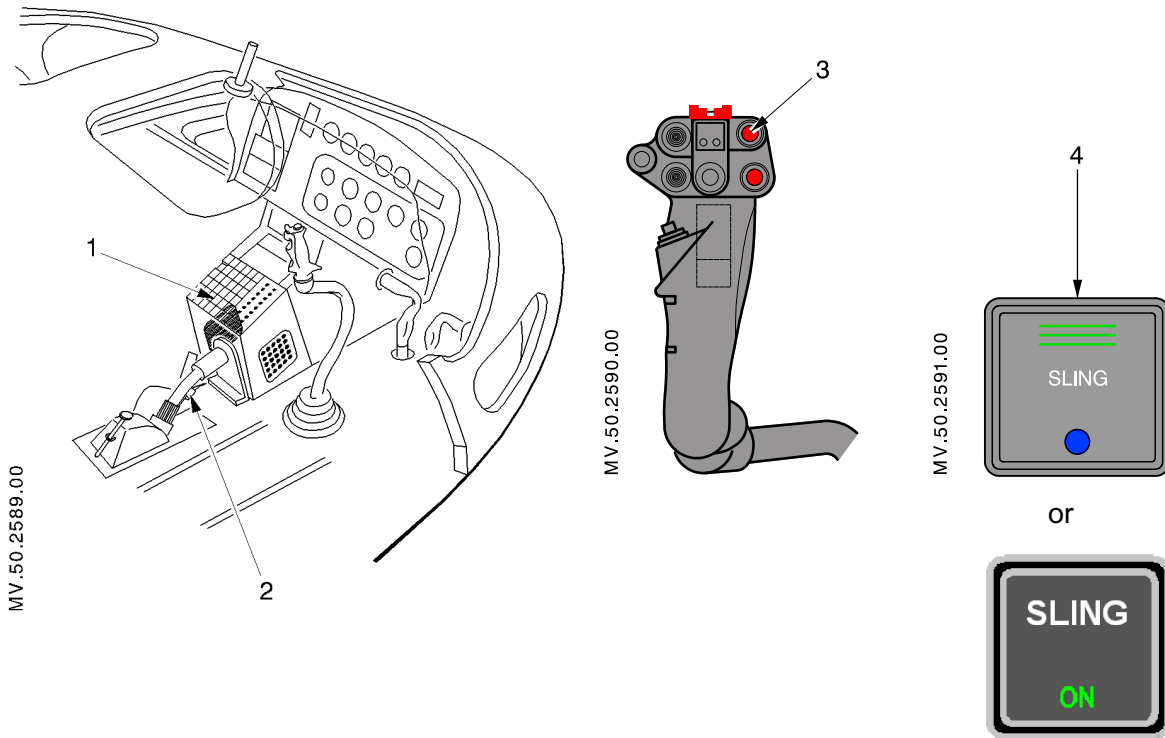


Figure 2: Cargo swing controls

## 2 LIMITATIONS

The limitations specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

### 2.1 WEIGHT LIMITATION

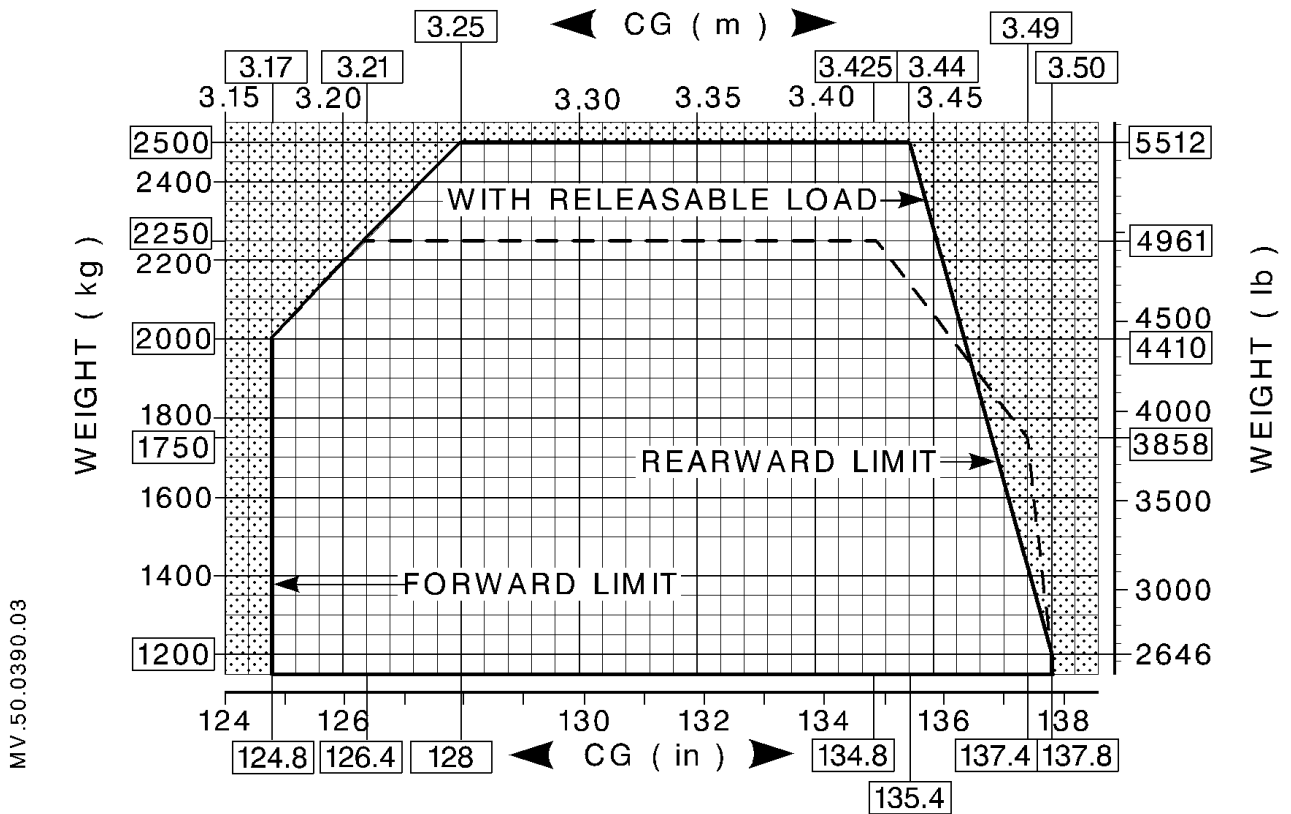
- Maximum authorized swing load weight: ..... 1160 kg (2557 lb).
- Maximum all up weight with an external load:..... 2500 kg (5512 lb)  
or maximum authorized all up weight allowing hovering flight out of ground effect (the lowest of the two values).

### CAUTION

The maximum weight without external load remains limited to the maximum weight specified in the limitations section of the basic flight manual.

## 2.2 LONGITUDINAL CG

With an external load, the longitudinal limits are defined according to the weight as per the graph below.



## 2.3 AIRSPEED LIMITATION

- Absolute maximum permissible indicated airspeed with external load ..... 80 kt (148 km/h).

### NOTE

The pilot is responsible for determining the limit speed according to the load and sling length. Particular care must be exercised when bulky loads are carried on the sling.

## 2.4 OPERATING LIMITATION

The cargo hook system is approved for lifting external load which is jettisonable and lifted free of land or water during rotorcraft operation.

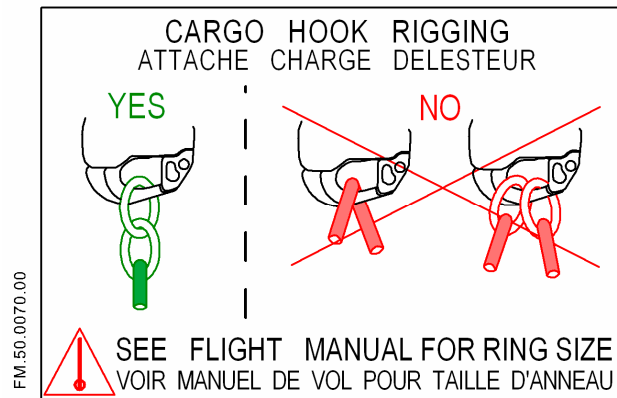
Operation with an external load which remains in contact with land, water or any fixed structure is not demonstrated by the manufacturer. These operations shall not be conducted without approval from the responsible authority in accordance with the applicable operational regulations.

The external loads are limited to Non Human External Cargo (NHEC) only.

Flight with an empty net or unballasted sling as an external load is prohibited unless approved operational limits and procedures provided by the operator allow for such an operation.

Two placards visible to the ground operator and located on the lower fairing near to the hook indicate:

- The maximum sling load,
- The cargo hook rigging.



**Figure 3: Cargo hook rigging placard**

### 3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

#### 3.1 ENGINE FAILURE WITH EXTERNAL LOAD

- IN CRUISE FLIGHT
  1. Autorotation procedure: .....APPLY.
  2. External load..... RELEASE as soon as possible.
- IN HOVER
  1. Collective pitch..... LOWER according to the height.
  2. External load..... RELEASE as soon as possible.
  3. Pedals..... CONTROL yaw.
  4. Cyclic ..... FORWARD to gain forward speed according to the height.
  5. Collective pitch..... INCREASE as needed to cushion touch-down.

**NOTE**

**In case of a failure during the hooking phase, the pilot shall move the aircraft away to the right. Ground personnel are to be forewarned that in the event of an engine failure they have to move away to the left of the helicopter.**

#### 3.2 ELECTRICAL LOAD JETTISONING FAILURE

Collective pitch mechanical release .....ACTUATE

## 4 NORMAL PROCEDURES

The normal procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

- Carrying heavy loads is a delicate operation due to the possible effects of a swinging load on the flight behavior of the helicopter. Consequently, pilots are advised to train with gradually increasing sling loads before undertaking heavy or bulky load carrying operations.
- The length of the sling cable must be determined in accordance with the type of mission. To carry a compact load, it is recommended to use the shortest possible cable.
- Operation with no or low load on a sling cable or in a net must be performed in such a way as to ensure that the trailing sling cable or net does not come close to the tail rotor.
- For permissible load attachment ring size refer to SECTION 9 of this Flight Manual.

### **WARNING**

- 1- THE USE OF A LOAD ATTACHMENT RING WITH INCORRECT DIMENSIONS MAY LEAD TO LOSS OR JAMMING OF THE LOAD.**
- 2- IN WET WEATHER, THE OPERATORS HANDLING THE HOOK AND LOADS SHOULD WEAR THICK RUBBER GLOVES. DISCHARGE STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (HOOK).**



## 4.1 CHECK OF THE INSTALLATION

- On the load indicator:
  - [ZERO].....PRESS, 0 is displayed.
  - [TEST] .....PRESS

The test sequence is started; each display lasts for about 1 sec.

- display of all digits and LEDs.
- display of the active software filter.
- display of the calibration value.

If a failure is detected, an error code will appear on the digital display.

### NOTE

**It is recommended to use the software filter "Hi-2" (very high filter) which presents the best indication stability.**

- Cargo swing check:
  - [SLING].....PRESS IN.
  - Correct opening of the hook  
(both in electrical and mechanical  
control modes).....CHECK.

## 4.2 TAKEOFF CHECK AND PROCEDURE WITH EXTERNAL LOAD

1. External load .....HOOK and SECURE.
2. Collective .....INCREASE very smoothly while  
maintaining the aircraft vertically  
above the load.
3. Cables tightened .....Dwell briefly before raising the load.
4. Lift off the load .....Vertically.
5. Load indication.....CHECK.
6. Take-off path.....ADJUST to adopt an immediate  
forward climb attitude.
7. All parameters.....CHECK.

## 4.3 MANEUVERS

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

#### 4.4 APPROACH AND LANDING WITH EXTERNAL LOAD

- Perform approach at minimum rate of descent.
- 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 set on the ground.
- Load.....RELEASE.
- Effective load release.....CHECK.
- All parameters.....CHECK.

#### NOTE

**If the load is not released, actuate the mechanical release handle.**

### 5 PERFORMANCE DATA

When no external load is carried on the hook, the performance data specified in the basic flight manual and in the flight manual supplements remain applicable.

- Hover out of ground effect performance is shown in Figures 6 and 7 of SECTION 5.1 § 7 of the basic flight manual.
- Hover and climb performance may be affected when carrying bulky loads.



# FLIGHT MANUAL

## AS 350 B2 VEMD

### SUPPLEMENT

#### TRANSPORT OF EXTERNAL LOADS

"CARGO SLING" 750 kg (1660 lb) "BREEZE EASTERN" (P/N 17149-1)

#### **IMPORTANT NOTE**

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

The effectivity of the manual 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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350 B2 VEMD

**SUP.12.P1**



## LIST OF APPROVED EFFECTIVE PAGES - EASA CERTIFICATION

(1) AIRWORTHINESS EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- **A**..... Specific to EASA

(2) VARIANT OF STANDARD DEFINITION EFFECTIVITY:

- Without indication..... Applicable to all aircraft
- XXX..... Specific to aircraft equipped with XXX

SECTION or SUP.	PAGES	DATE CODE	(1)	(2)
SUP.12.P1	1 to 1	16-11		
SUP.12.P5	1 to 2	16-17	<b>A</b>	
SUP.12	1 to 7	16-17		

## LOG OF APPROVED NORMAL REVISIONS

### BASIC RFM REVISIONS - EFFECTIVITY (1) (2) EASA

ISSUE 1: NR 0 to NR 2:

NORMAL REVISION 2 - DECEMBER 2012	EASA approval No. 10042628 on December 11, 2012
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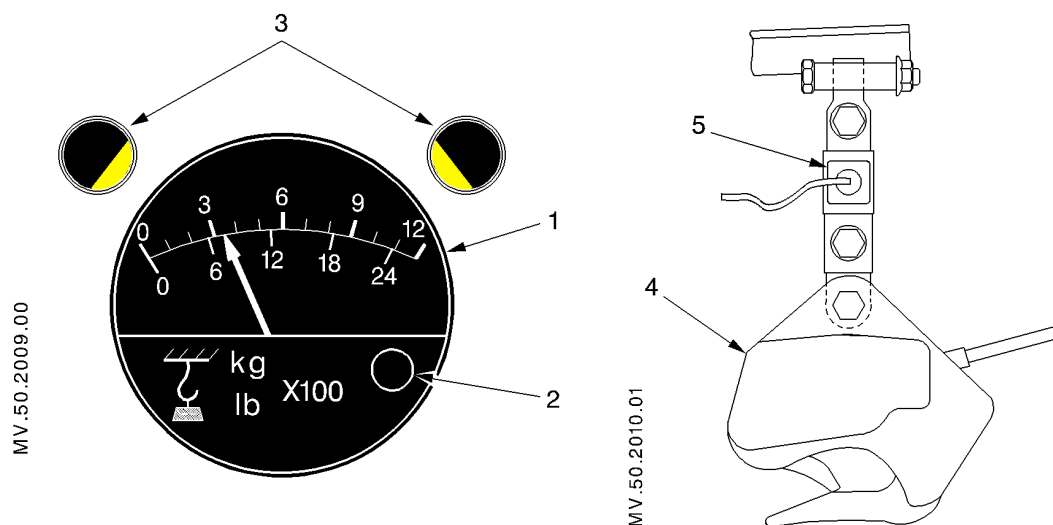
ISSUE 2:

NORMAL REVISION 0 date code 16-11		Approved on March 17, 2016, under the authority of EASA DOA No. 21J056
Title	New issue	
Revised information	All	
Deleted information	None	
NORMAL REVISION 1 date code 16-17		EASA approval No. 10059860 on October 24, 2016
Title	Modification of the operating limitation and normal procedure for the cargo hook	
Revised information	SUP.12.P5 pages 1 and 2, SUP.12 pages 4 and 6	
Deleted information	None	

# 1 GENERAL

The "CARGO SLING" external load installation (Figure 1) is composed of:

- A "BREEZE EASTERN" release unit and hook assembly (4) (P/N 17149-1) equipped with a load sensor unit (5) allowing:
  - electrical hook opening,
  - mechanical hook opening.
- A load indicator (1) with lighting (3), on the RH door pillar, with a zero setting control (2).



**Figure 1: Cargo sling components**

- A control system for the pilot (Figure 2), including:
  - a [SLING] pushbutton (4) located on the SCU (1), for powering-on the installation,
  - a release control (3) on the cyclic stick (electrical mode),
  - a release handle (2) located under the collective lever (mechanical mode).
- Electrical circuit protections:
  - one circuit breaker for the load indicator,
  - two circuit breakers for the load release unit.

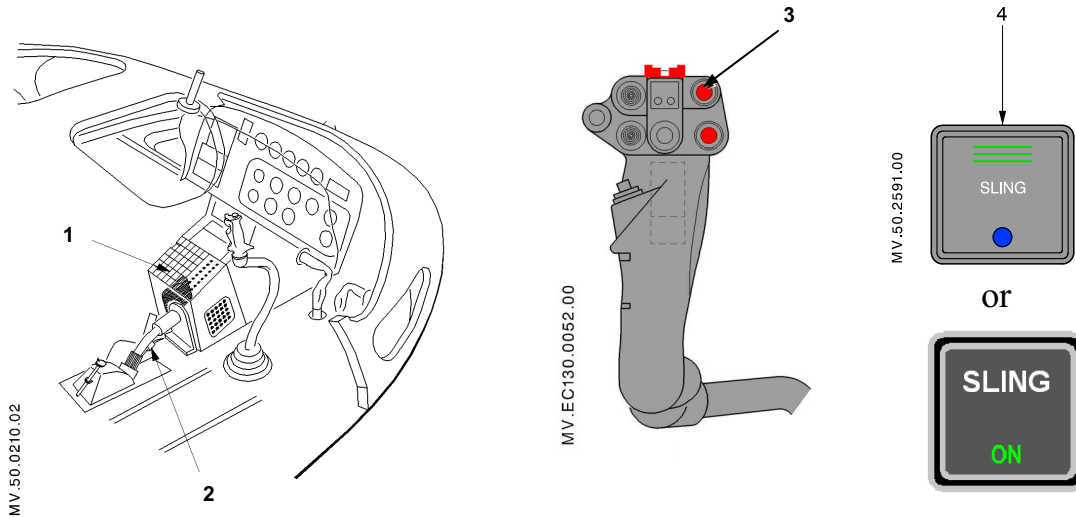


Figure 2: Cargo sling controls

## 2 LIMITATIONS

The limitations specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

### 2.1 WEIGHT LIMITATION

- Maximum authorized sling load weight: ..... 750 kg (1660 lb).
- Maximum all up weight with an external load:..... 2500 kg (5512 lb)  
or maximum authorized all up weight allowing hovering flight out of ground effect (the lowest of the two values).

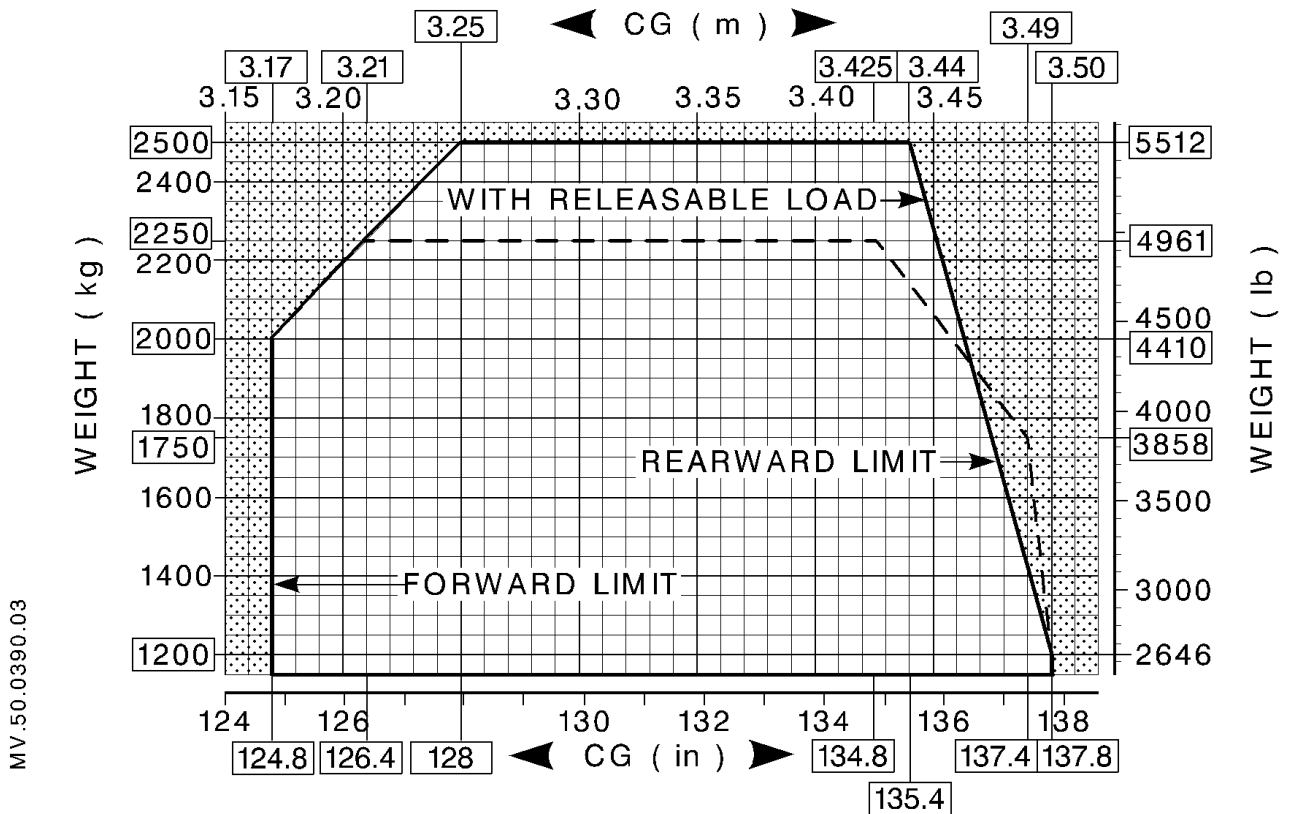
### CAUTION

**The maximum weight without external load remains limited to the maximum weight specified in the limitations section of the basic flight manual.**



## 2.2 LONGITUDINAL CG

With an external load, the longitudinal limits are defined according to the weight as per the graph below.



## 2.3 AIRSPEED LIMITATION

- Absolute maximum permissible indicated airspeed with external load .....80 kt (148 km/h).

### NOTE

The pilot is responsible for determining the limit speed according to the load and sling length. Particular care must be exercised when bulky loads are carried on the sling.

## 2.4 OPERATING LIMITATION

The cargo hook system is approved for lifting external load which is jettisonable and lifted free of land or water during rotorcraft operation.

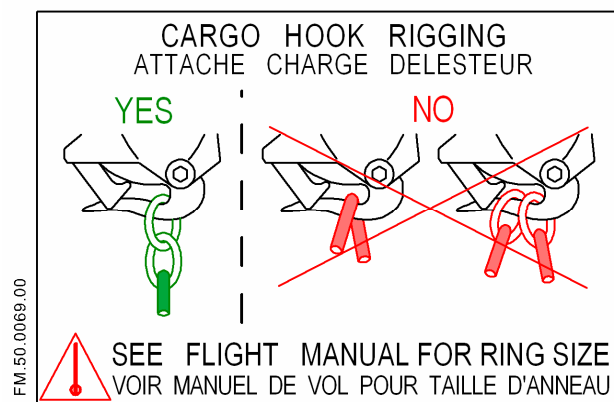
Operation with an external load which remains in contact with land, water or any fixed structure is not demonstrated by the manufacturer. These operations shall not be conducted without approval from the responsible authority in accordance with the applicable operational regulations.

The external loads are limited to Non Human External Cargo (NHEC) only.

Flight with an empty net or unballasted sling as an external load is prohibited unless approved operational limits and procedures provided by the operator allow for such an operation.

Two placards visible to the ground operator and located on the lower fairing near to the hook indicate:

- The maximum sling load,
- The cargo hook rigging.



**Figure 3: Cargo hook rigging placard**

### 3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

#### 3.1 ENGINE FAILURE WITH EXTERNAL LOAD

- IN CRUISE FLIGHT
  1. Autorotation procedure: .....APPLY.
  2. External load..... RELEASE as soon as possible.
- IN HOVER
  1. Collective pitch..... REDUCE according to the height.
  2. External load..... RELEASE as soon as possible.
  3. Pedals..... Control yaw.
  4. Cyclic ..... Forward to gain forward speed according to the height.
  5. Collective pitch..... INCREASE as needed to cushion touch-down.

#### NOTE

**In case of a failure during the hooking phase, the pilot shall move the aircraft away to the right. Ground personnel are to be forewarned that in the event of an engine failure they have to move away to the left of the helicopter.**

#### 3.2 ELECTRICAL LOAD JETTISONING FAILURE

Collective pitch mechanical release .....ACTUATE

## 4 NORMAL PROCEDURES

The normal procedures specified in the basic flight manual and in the flight manual supplements remain applicable and are supplemented or modified by the following:

- Carrying heavy loads is a delicate operation due to the possible effects of a swinging load on the flight behavior of the helicopter. Consequently, pilots are advised to train with gradually increasing sling loads before undertaking heavy or bulky load carrying operations.
- The length of the sling cable must be determined in accordance with the type of mission. To carry a compact load, it is recommended to use the shortest possible cable.
- Operation with no or low load on a sling cable or in a net must be performed in such a way as to ensure that the trailing sling cable or net does not come close to the tail rotor.
- For permissible load attachment ring size refer to SECTION 9 of this Flight Manual.

### WARNING

- 1- THE USE OF A LOAD ATTACHMENT RING WITH INCORRECT DIMENSIONS MAY LEAD TO LOSS OR JAMMING OF THE LOAD.
- 2- IN WET WEATHER, THE OPERATORS HANDLING THE HOOK AND LOADS SHOULD WEAR THICK RUBBER GLOVES. DISCHARGE STATIC ELECTRICITY BY PLACING AN ELECTRICAL CONDUCTOR CABLE OR TUBE BETWEEN THE GROUND AND THE CARGO RELEASE UNIT (HOOK).

### 4.1 CHECK OF THE INSTALLATION

- [SLING] .....ON.
- Load indicator .....ZERO.
- Correct opening of the hook (both in electrical and mechanical control modes) .....CHECK.
- Rotation of the retaining latch .....FREE.
- Operation of the retaining latch return spring .....CHECK.

## 4.2 TAKEOFF CHECK AND PROCEDURE WITH EXTERNAL LOAD

1. External load .....HOOK and SECURE.
2. Collective .....Increase very smoothly while maintaining the aircraft vertically above the load.
3. Cables tightened .....Dwell briefly before raising the load.
4. Lift the load .....Vertically.
5. Load indication.....CHECK.
6. Take-off path.....ADJUST to adopt an immediate forward climb attitude.
7. All parameters.....CHECK.

## 4.3 MANEUVERS

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

## 4.4 APPROACH AND LANDING WITH EXTERNAL LOAD

Perform approach at minimum rate of descent.

- 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 set on the ground.
- Load.....RELEASE.
- Load release .....CHECK.
- All parameters.....CHECK.

### NOTE

**If the load is not released, actuate the mechanical release handle.**

## 5 PERFORMANCE DATA

When no external load is carried on the hook, the performance data specified in the basic flight manual and in the flight manual supplements remain applicable.

- Hover out of ground effect performance is shown in Figures 6 and 7 of SECTION 5.1 § 7 of the basic flight manual.
- Hover and climb performance may be affected when carrying bulky loads.

