

TRANSLATION OF ORIGINAL FRENCH MANUAL

INSTRUCTION, OPERATING, MAINTENANCE AND WARRANTY MANUAL

Designation : **SPLITTABLE LOW TOW BAR H160**

Reference : **BR-B160-05-000**

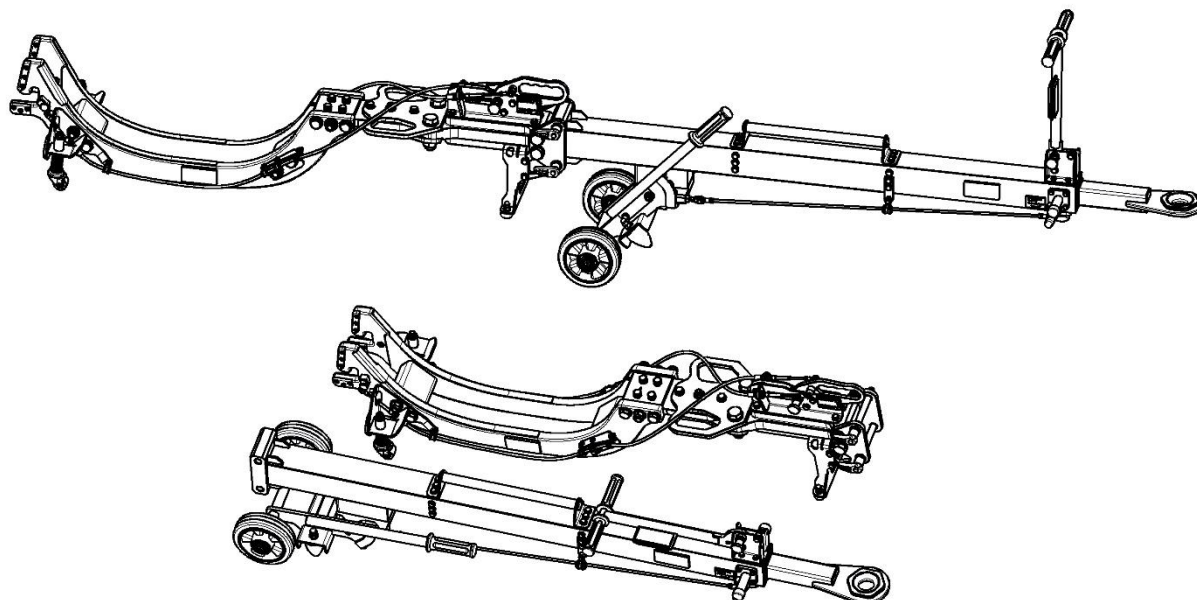
Fabricant : MPEB

Address : 9-11 Boulevard de la capelane
13170 LES PENNES MIRABEAU
FRANCE

WARNING

**MAKE SURE YOU HAVE READ AND FULLY UNDERSTAND THIS MANUAL
BEFORE FIRST USE**

The towing bar should be used by personnel authorised and competent, whether salaried or assimilated. It is necessary to comply with the applicable work regulations in the country of use of it.



® Patent FR2301011

MODIFICATIONS

IND.	PAGE(S) MODIF.	DATE	DESCRIPTION OF THE MODIFICATION	REDACT.	VISAS SERVICE MANAGER	OTHERS MANAGERS OF COMPANY
A	All	02/02/2022	NEW DOCUMENT	MPEB - SO	OK	OK
B	All	17/06/2022	UPDATE OF THE DOCUMENT FOLLOWING THE DEVELOPMENT OF THE TOOLING	MPEB - SO	OK	OK
C	-	15/03/2023	ADDITION OF COMMENTS ON THE CE CERTIFICATE	MPEB - SO	OK	OK
D	7, 8, 9	06/04/2023	UPDATE OF THE ALLOWABLE ATTACHMENT HEIGHT AND SLOPE ANGLE	MPEB - SO	OK	OK
E	24-25	30/08/2024	ADDITION OF WARRANTY CONDITION (§15)	MPEB - LP	OK	OK

SUMMARY

1	GENERAL DESCRIPTION.....	4
2	CHARACTERISTICS.....	5
3	TERMS OF USE.....	6
4	SECURITY MEASURE.....	6
5	SPECIAL SECURITY MEASURES.....	7
6	OPERATING CONTEXT	7
6.1	Conditions of use	7
6.2	Contraindications.....	8
6.3	Restriction of use for towing a helicopter equipped with a FLIR camera.	8
7	COMMISSIONING, CHECKING, ASSEMBLY/DISASSEMBLY, INSTALLATION AND USE 9	
7.1	Commissioning.....	9
7.2	Check before use.....	10
7.3	Tow bar assembly	10
7.4	Tow bar disassembly.....	11
7.5	Installation on the helicopter	11
7.6	Towing	15
7.7	Dismounting	15
8	WORK AREA	15
8.1	Description of the work area.....	15
8.2	Specific training of personnel for the use	15
8.3	Protection of personnel	15
8.4	Information on residual risks despite security.....	15
9	VARIOUS MAINTENANCE OPERATIONS.....	16
9.1	General maintenance.....	16
9.2	Specific maintenance	17
10	FAILURE DETECTION AND REPARATION	20
11	ASSEMBLY DIAGRAM	21
12	SPARE PARTS.....	23
13	IN CASE OF INCIDENT.....	23
14	LIMITATIONS OF LIABILITY	23
15	WARRANTY	24

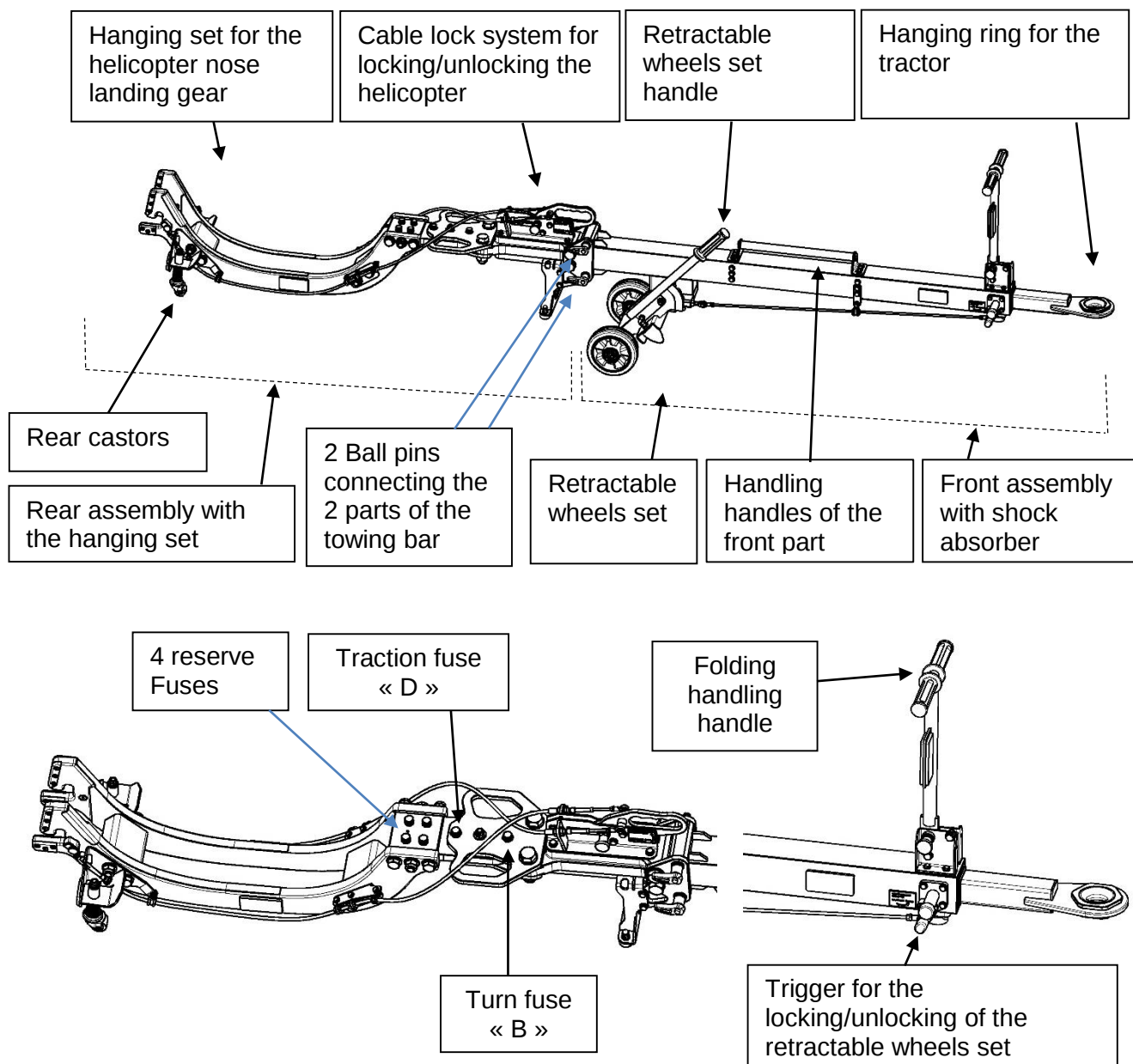
1 General description

The splittable low tow bar H160 is used only for towing the helicopters H160 of Airbus Helicopters. This tow bar is compatible with FLIR camera or cable cutter option.

For this type of operation, it is essential to know the rules of conduct and safety concerning helicopter towing.

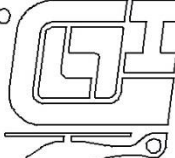
This towing bar is equipped with the splittable in 2 parts option. This option allows it to be easily loaded into the helicopter and stored in small area.

Figure 1: splittable low tow bar H160



2 Characteristics

The instructions for the working load applicable to the towing bar are given on the CE certification plate attached to the tooling:

 M.P.E.B. LLEDO AERO TOOLS 9-11 Bd DE LA CAPELANE 13170 LES PENNES MIRABEAU FRANCE contact@lledo-aerotools.com			
DESIGNATION		SPLITTABLE LOW TOW BAR H160	
Ref. OUTILLAGE <i>Part number</i>	BR-B160-05-000		
N° DE SERIE <i>Serial number</i>			CTRL
DATE FABRICATION <i>Manufacturing date</i>			
Charge Max. d'Utilisation <i>Maximum Working Load</i>		1720 daN	
Poids <i>Weight</i>	53	Kg	P_{MAX} XXX

General Characteristics	
Mass of tooling	53 Kg / 116,8 lbs
Mass of front assembly	24 Kg / 52,9 lbs
Mass of rear assembly	29 Kg / 63,9 lbs
Maximum working load (CMU)	
Maximum working load for traction	1720 daN
Maximum working load in turns	1865 Nm
Maximum helicopter weight qualified by	 5 T 850 Kg 12 900 lbs
Dimension (mm)	
Dimension of the towing bar	3125x400x380 mm 123,0x15,8x15,0 inch
Dimension of the towing bar in storage position	1730x600x380 mm 68,1x23,6x15,0 inch

3 Terms of use

This user manual contains the information to use this towing bar in the best conditions for towing the helicopter H160 of Airbus Helicopters. These instructions are in addition to the usual requirements for helicopter towing.

All other uses than those detailed in this manual will not be able to hold the manufacturer accountable.

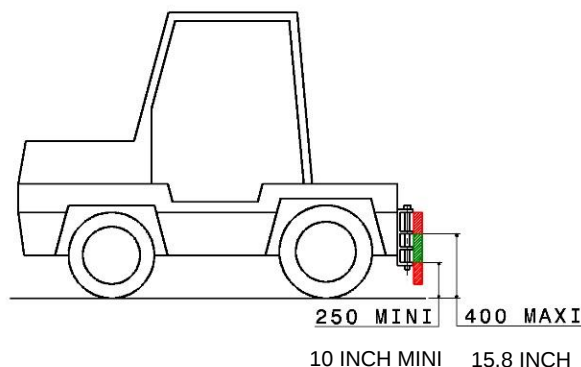
4 Security measure

- ✓ Read this manual carefully.
- ✓ Make sure always to inspect the good appearance of the equipment before use.
- ✓ Only authorized personnel are allowed to use the equipment.
- ✓ Use the adapted individual protection equipment (IPE)
- ✓ Do not use the equipment after having absorbed alcohol, drugs, medication or any substances that could affect safety and the concentration of the operator.
- ✓ Never make any changes on the equipment without the agreement of the manufacturer.
- ✓ Ensure that no foreign element does not prevent the good functioning of the equipment.
- ✓ Ensure that the environment is well lit.
- ✓ Adopt a stable and comfortable position for optimal use.
- ✓ Make sure that not authorized persons are not in the work area.
- ✓ Never apply a load or an effort higher than the maximum load authorized on the equipment (cf. CE certification plate)
- ✓ Regular maintenance will prevent any premature damages.
- ✓ Always replace worn or damaged parts by original parts.
- ✓ Make sure to never have apparent deformation.
- ✓ In the event of a fall or significant impact, the bar must be returned for inspection and a thorough revision to the manufacturer.
- ✓ Avoid unnecessarily exposing tools to atmospheric agents and the sun, which could eventually erase identification tags and markings.
- ✓ The storage will be done in a dry and clean place protected from the elements.
- ✓ Any transport of the bar should preferably take place in the original crate with the appropriate precautionary measures.
- ✓ The transport or handling of the tow bar is carried out under the responsibility of the user or the transporter.

ATTENTION: All these security measures are added to the rules of procedure of the place where this equipment is used. Failure to comply these measures will hold the operator(s) liable.

5 Special security measures

- ✓ Inspect the cable lock system for serviceability before use.
- ✓ Check that the fuses are in good condition due to the lack of movement between the hanging set and the bar set (See §10)
- ✓ Be careful that the towing bar never touch the fuselage when hanging the helicopter.
- ✓ When towing the towing bar without helicopter, never exceed 25 km/h. If necessary, adjust the speed to the state of the ground.
- ✓ Do not tow on public road.
- ✓ To attach the tow bar to the helicopter, it must be unhooked from the tractor
- ✓ To attach the tow bar to the helicopter, the helicopter must be stopped with the brakes locked
- ✓ The attachment of the tow bar to the helicopter can be carried out by only one person
- ✓ The attachment to the tractor must be made at a minimum height of 250 mm (10 inch) and a maximum height of 400 mm (15.8 inch)
Be careful, however, to adapt the height of attachment to the towing conditions:
 - See usage restrictions §6.3.
 - See the procedure defined in §7.1



- ✓ Towing must be done with at least two authorized persons. An operator will be at the controls of the tractor. Another operator will be at the controls of the helicopter and will be ready to brake if there is a problem like a fuse break. Other operators may be required to secure the move of the helicopter.
- ✓ When towing the helicopter never exceed 10 km/h when moving forward.
- ✓ When towing the helicopter never exceed 5 km/h when moving back.
- ✓ When breaking a fuse, stop towing operations and lock the brake of the helicopter. Detach the tow bar from the tractor and the helicopter and replace the broken fuse.
- ✓ Before using the tow bar, it is necessary to perform the "setting into operation" procedure §7.1

6 Operating context

6.1 Conditions of use

- ✓ The splittable low tow bar H160 is designed for towing only H160 AIRBUS Helicopters. This tow bar is compatible with helicopters equipped with FLIR camera or cable cutter.
- ✓ Only trained personnel who are familiar with the safety requirements of tow bar operations could handle the tow bar.

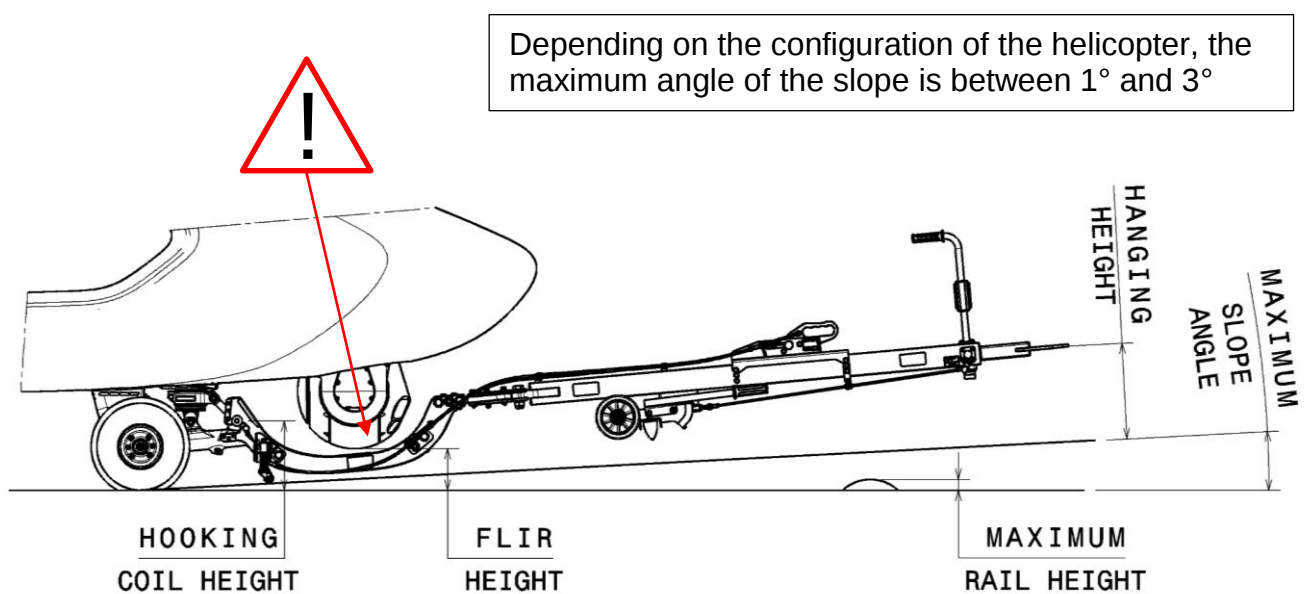
- ✓ The maximum working load (CMU) is given directly on the CE certification plate attached to the towing bar
 - Maximum workload for traction **1720 daN**
 - Maximum workload in turns **1865 Nm**

NOTE: This maximum workload are intend to protect the tow bar or the helicopter during towing (nose landing gear ...). The shock absorber and the fuses present on the tow bar therefore provide protection for the helicopter so as not to exceed these maximum working loads.

6.2 Contraindications

- ✓ This equipment must not be used for any purpose other than that which is dedicated to it, in particular it must not be used for other types of towing
- ✓ Never apply to the tow bar a load greater than the maximum working load (CE certification plate). If this happens, a fuse will break to protect the helicopter.
- ✓ Never use a tow bar that is not in good apparent condition.
- ✓ Never attach to other points of attachment than those provided on the nose landing gear and on the tow bar.
- ✓ Never replace fuses with elements not supplied by the manufacturer
- ✓ The tow bar should never operate without at least one reserve Traction fuse « D » and one reserve Turn fuse « B » on the bar.
- ✓ When the tow bar is locked to the helicopter, do not use the folding handling handle to rotate the helicopter landing nose gear.

6.3 Restriction of use for towing a helicopter equipped with a FLIR camera.

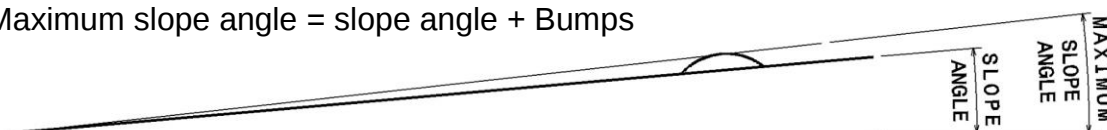


Depending on the configuration of the helicopter and the configuration of the track, it is essential to adapt the height of the attachment on the tractor. The values given in the table below are indicative values and must be confirmed by the commissioning procedure (§7.1).

FLIR height	Hooking coil height	Hanging height	Maximum slope angle	Maximum height rail with 0° slope
153 mm	255 mm	400 mm	2,4 °	45 mm
153 mm	255 mm	350 mm	3,0 °	40 mm
153 mm	255 mm	300 mm	3,0 °	35 mm
214 mm	308 mm	400 mm	3,0 °	+ de 50 mm
320 mm	395 mm	400 mm	3,0 °	+ de 50 mm

Be careful ! Maximum slope angle is a theoretical angle, if there are bumps in the slope:

Maximum slope angle = slope angle + Bumps



NOTA :

The use of the tow bar remains the responsibility of the user. The manufacturer is not responsible and therefore does not guarantee misuse or poor conditions of use of the tow bar.

7 Commissioning, checking, assembly/disassembly, installation and use

7.1 Commissioning

When using the towing bar at the first time, it is imperative to validate the use of the tow bar with the configuration of the helicopter as well as with the environment of use:

- When hooking and unhooking the bar on the helicopter, check that there is no risk of damaging any equipment on the front of the helicopter.
- Then carry out a towing representative of the future use of the bar (helicopter load, route, etc.) in order to validate the bar for this type of conditions. This validation requires one or more external observers who will be careful to ensure that the bar does not catch either the ground or the helicopter during the entire maneuver.

In case of risk or problem, take appropriate measures:

- hooking up at a different height on the tractor
- land levelling work
- ...

Inform users of potential risks in order to avoid these terms of use.

NOTE: The use of the tow bar remains the responsibility of the user. The manufacturer is not responsible and therefore does not guarantee improper use or improper conditions of use of the tow bar

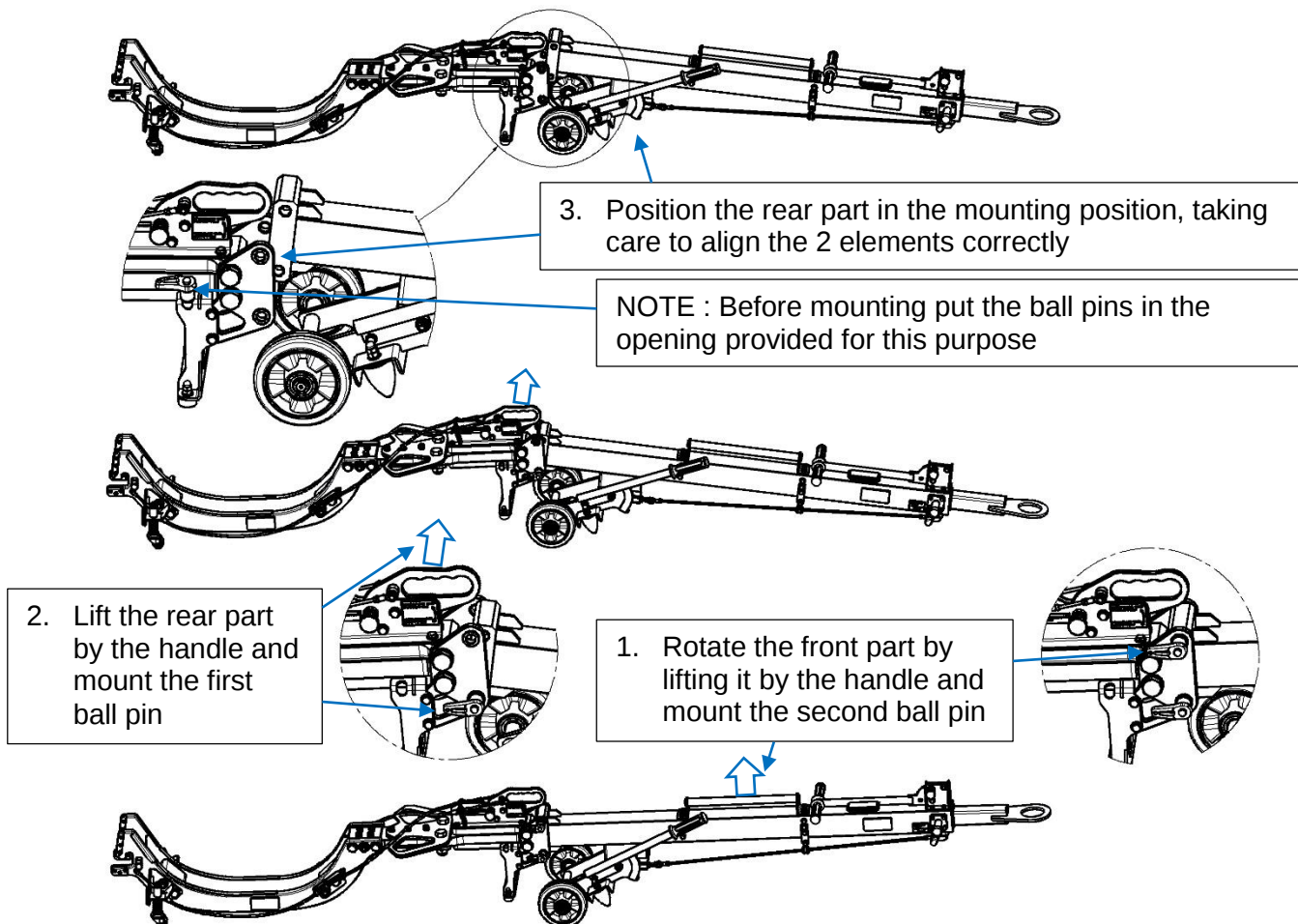
7.2 Check before use

- ✓ Refer to maintenance tasks associated with towing operation
- ✓ Refer to pre-use verification (See §9 et §10)
- ✓ Always inspect the good appearance of the tow bar before and after use.
- ✓ The tow bar must carry its original labelling. If this labelling is no longer visible, the bar must be discarded.
- ✓ Pay special attention when using and handling the tow bar under certain weather conditions: extreme temperatures, rain and humidity. The tow bar can then be slippery or burning and require the use of gloves for handling.
- ✓ Pay particular attention to checking the condition of the tow bar before and after transport, prolonged storage or impact.

Process immediately and in accordance with the regulations in force in the country of use, defects or damages detected and that may affect the safety or the correct functioning of this towing bar.

The manufacturer will not be held responsible in the case of misuse.

7.3 Tow bar assembly

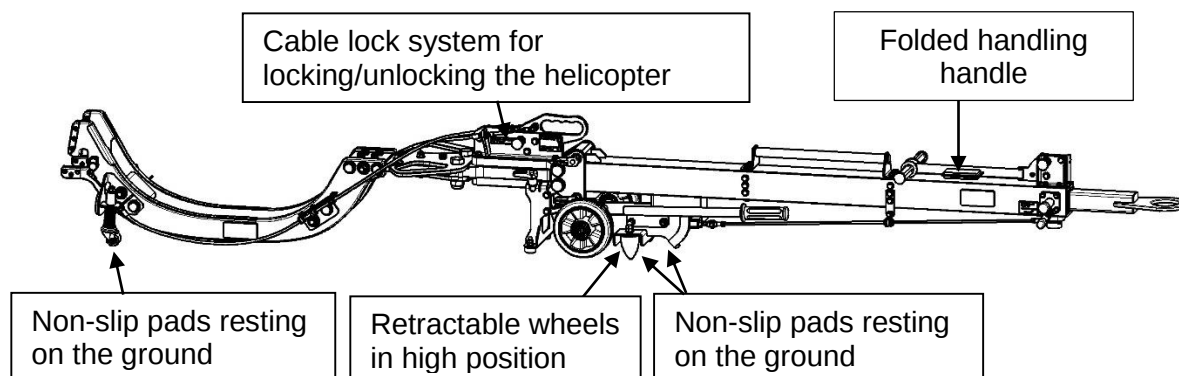


7.4 Tow bar disassembly

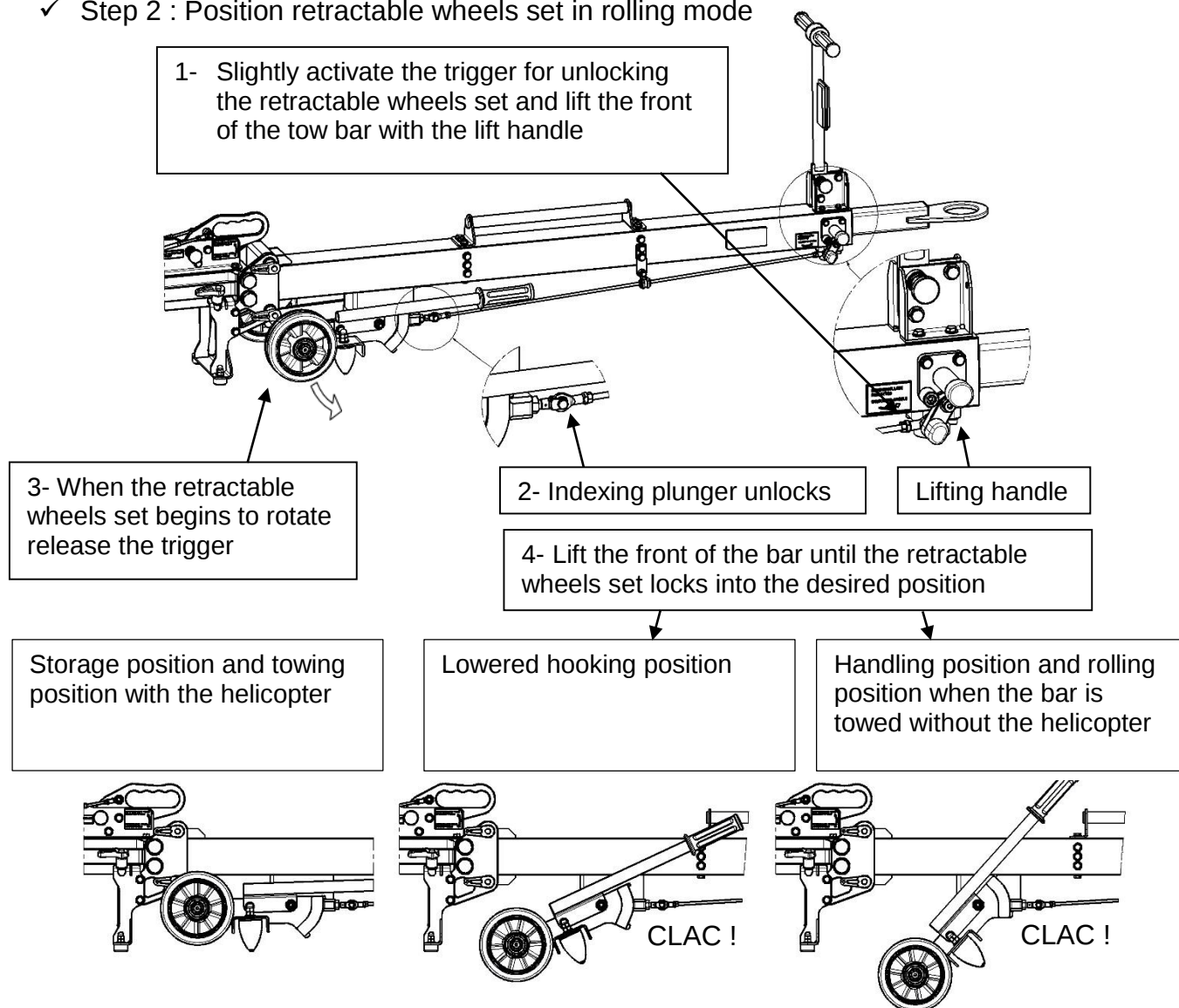
Proceed in reverse order of assembly §7.3

7.5 Installation on the helicopter

✓ Step 1 : The tow bar is in the rest position



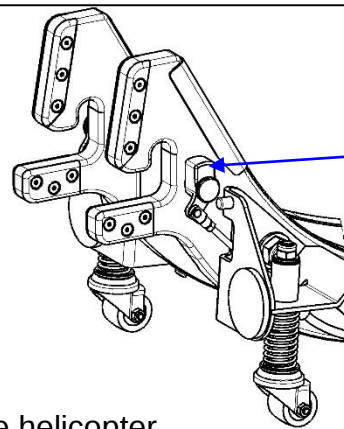
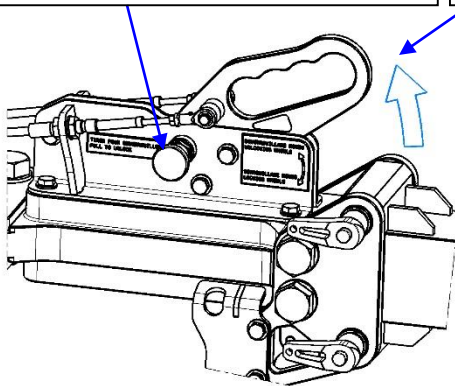
✓ Step 2 : Position retractable wheels set in rolling mode



- ✓ Step 3 : Check that the locking handle is raised

1 - To unlock the handle, pull on the indexing plunger

2 - Lift the locking handle and release the indexing plunger



Locking latches must be in the open position as seen on the view

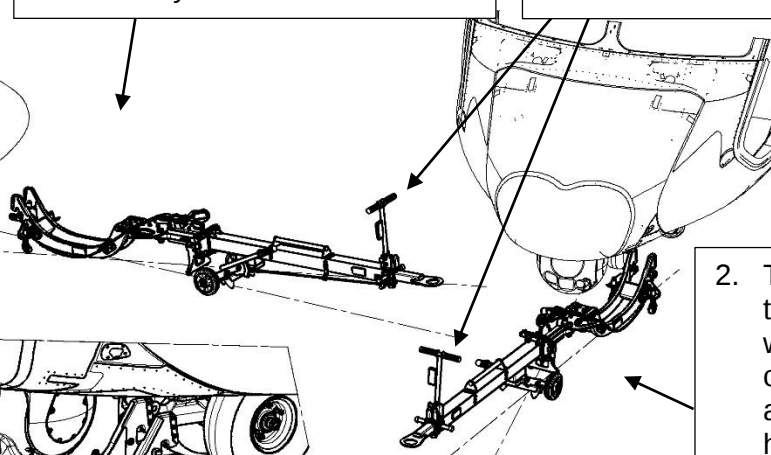
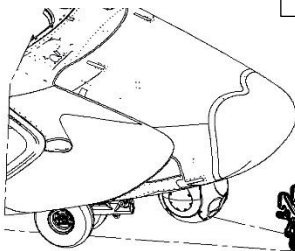
- ✓ Step 4 : Position the tow bar in front of the helicopter

ATTENTION:
Be careful that the tow bar does not touch the fuselage of the helicopter during its installation.

The correct positioning of the towing bar front of the helicopter is very important.
At best the bar is positioned, the easiest is the hanging of the helicopter.

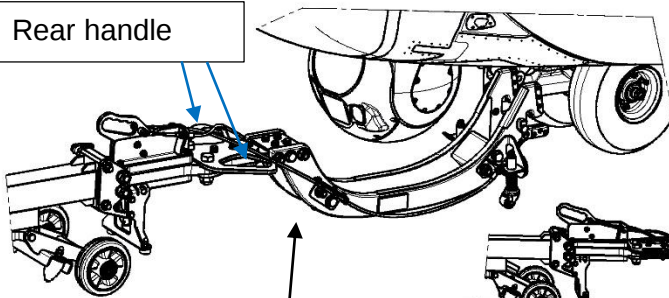
1. Approach the helicopter sideways from its axis

Handling with the handling handle



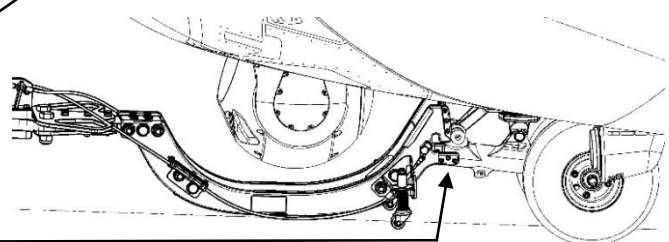
2. The objective is to have the main wheels of the bar centered on the axis of the helicopter to rotate the tow bar

Rear handle

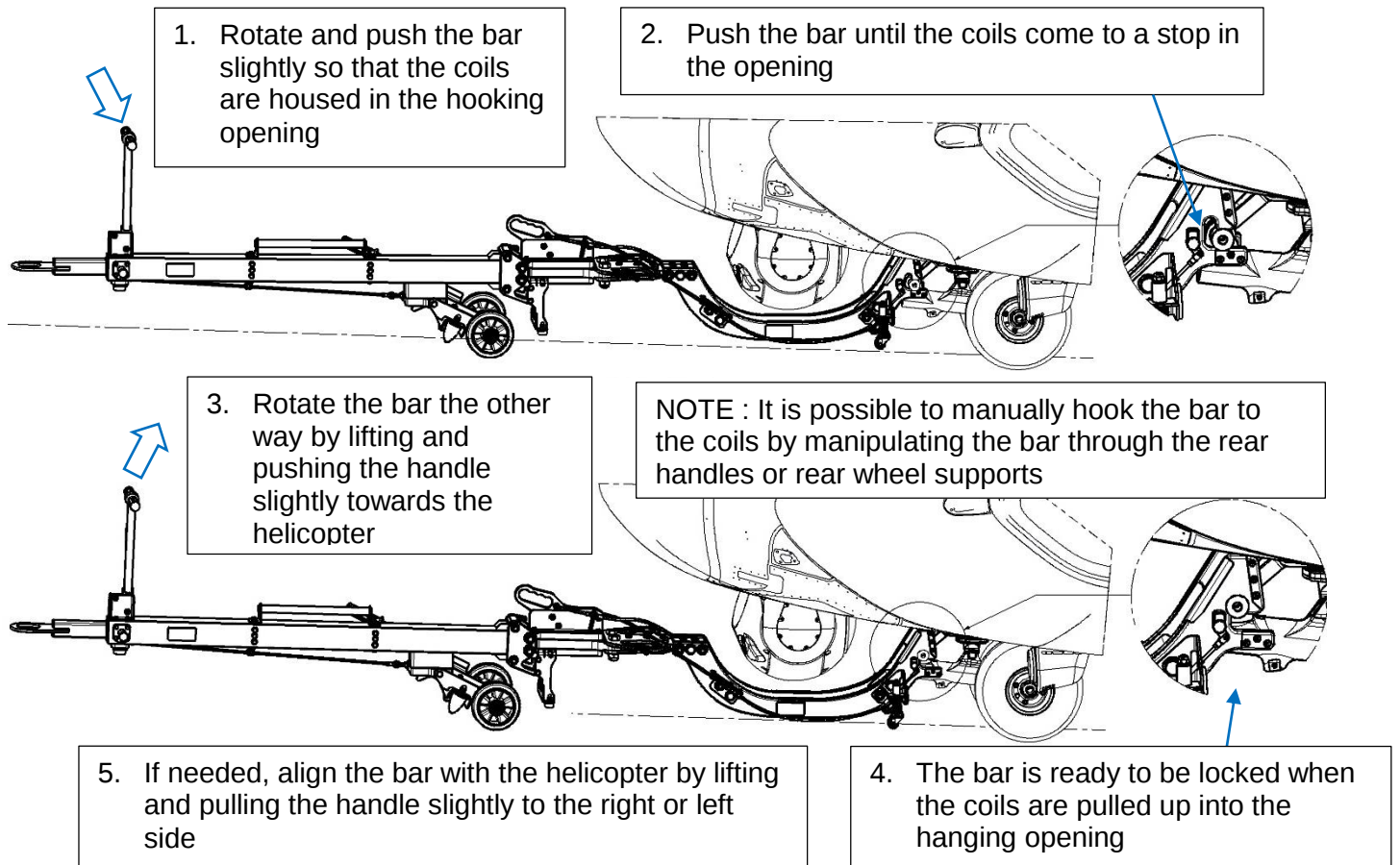


3. Rotate the tow bar using the rear handle to position the hanging set between the FLIR camera and the nose landing gear

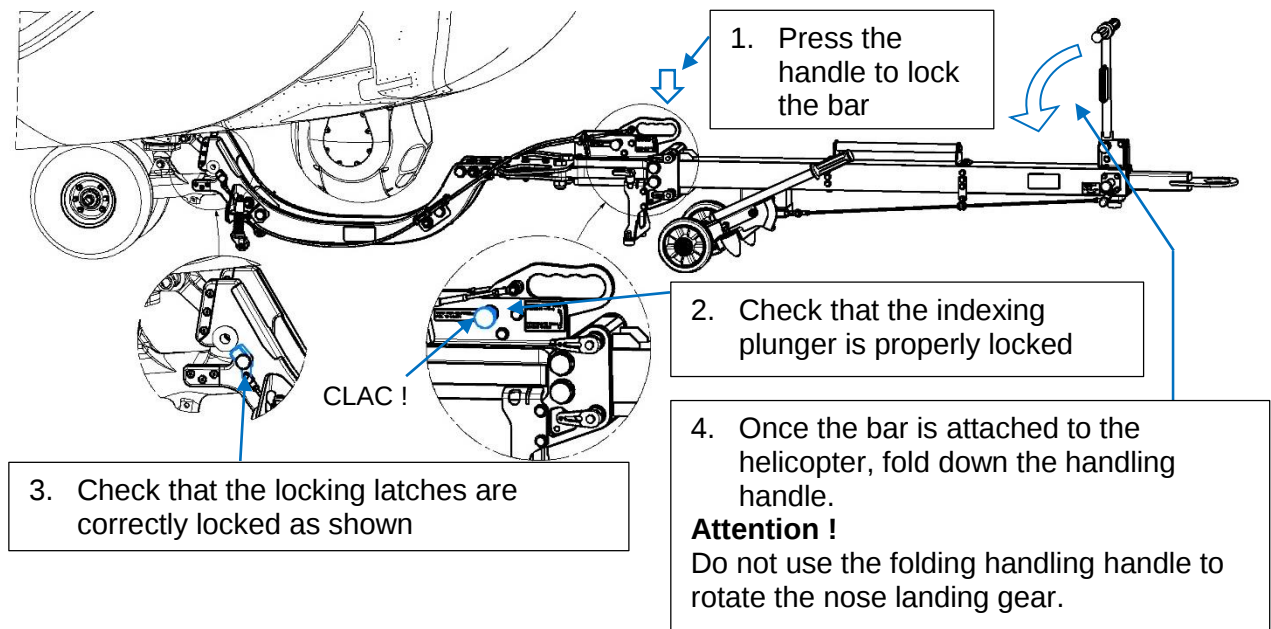
4. Then advance the tow bar until it come into contact with the helicopter coils.



✓ Step 5 : Hook the tow bar to the nose landing gear



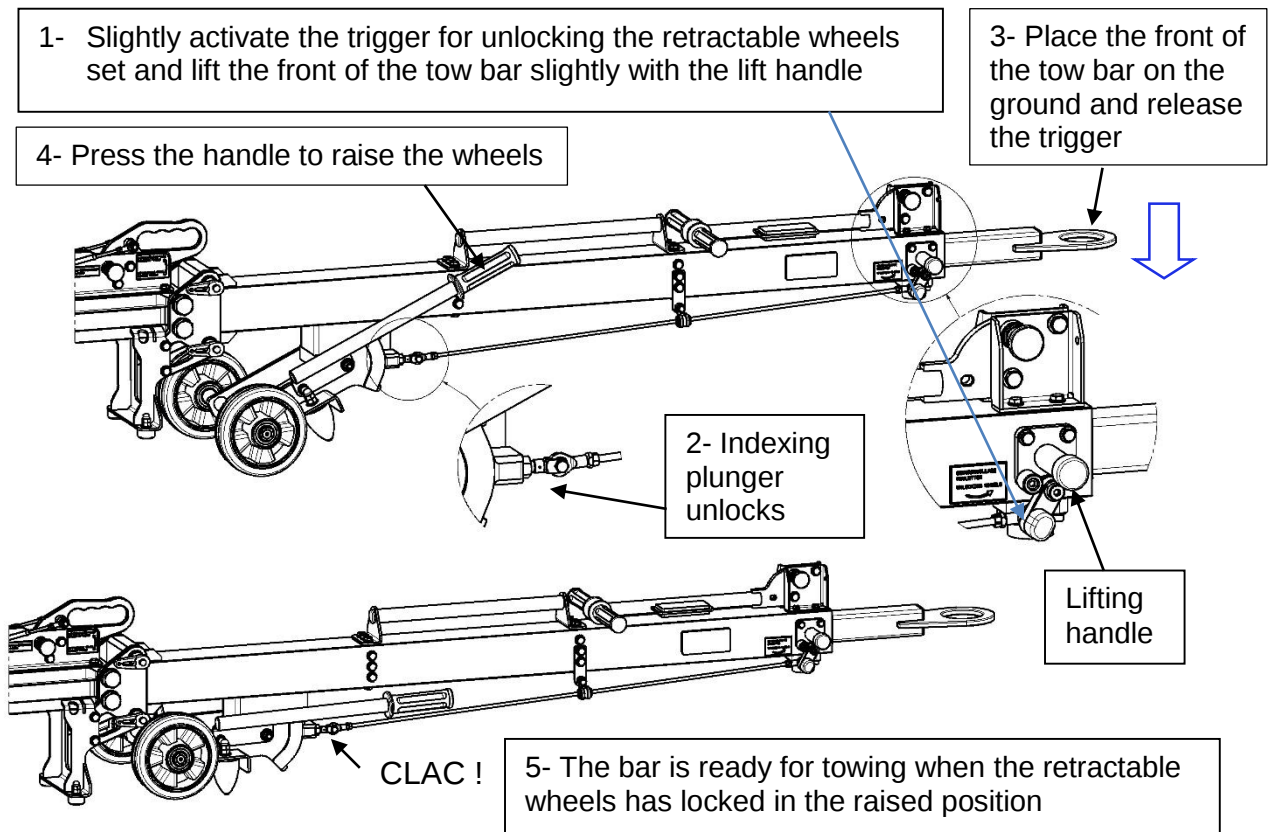
✓ Step 6 : Locked the tow bar to the nose landing gear



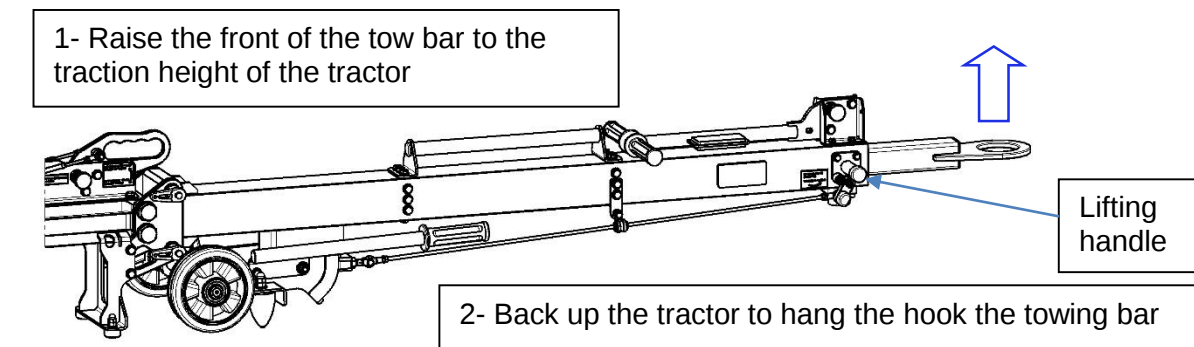
Attention!

Before any other handling, check that the tow bar is correctly locked on the helicopter. If it is not properly locked, you will have to perform the previous steps again.

✓ Step 7 : Fold the retractable wheels together before towing



✓ Step 8 : Hooking the tow bar on the tractor



Attention !

- Hook the bar to the tractor at a height validated during the tow bar commissioning procedure (§7.1).
- If the retractable wheels go down, it is because there was a locking problem. Fix the problem before using the bar.

✓ Step 9 : the helicopter is ready to be towed

7.6 Towing

- ✓ Towing must be done with at least 2 authorized persons. An operator will be at the controls of the tractor. Another operator will be at the controls of the helicopter
- ✓ Do not go faster than 10 km / h in progress
- ✓ Do not go faster than 5 km / h backwards
- ✓ Operators must be alert to any fuse breakage to stop the towing and secure the helicopter
- ✓ Pay attention to any possible attachment of the helicopter in its environment (main rotor blade, tail boom...). Towing in a restricted environment may require the intervention of several additional operators to secure the move of the helicopter.
- ✓ Attention, when towing the height of the tow bar will vary depending on the configuration of the towing area (bumps, holes, mounted, descents ...):
 - ✓ Take care that the tow bar does not come touching equipment under the nose of the aircraft (risk of damaging the helicopter)
 - ✓ Be careful that the tow bar does not touch on the ground (risk of breakage).

7.7 Dismounting

- ✓ Proceed in the opposite direction of installation at §7.5

8 Work area

8.1 Description of the work area

Means work area, the area covered by the displacement of the towing bar with or without the helicopter.

8.2 Specific training of personnel for the use

- ✓ Only authorized and competent personnel must use the tow bar. These personnel must have completed training. They must have read and understood this manual.
- ✓ Staff must be able to meet the security requirements that include the maintenance operations with the tow bar.

8.3 Protection of personnel

To ensure the safety of staff during use and maintenance tools, use appropriate personal protective equipment.

8.4 Information on residual risks despite security

Refer to the regulations in force in the country of use.

Refer to the regulations in force at the place of use (airport, heliport...)

9 Various maintenance operations

9.1 General maintenance

The manufacturer provides the table below for example. Other remarks could be added.

PERIODICITY	TASKS	OBSERVATIONS	RISK	REQUIRED ACTIONS
BEFORE USE	Visual inspection of good condition	- Deformation, breaks, scratches, corrosion, - Traces of heating and wear - Presence of abnormal play	Mechanical failure Corrosion	- Replace the failed component or do a repair at the manufacturer - Protection anticorrosion, greasing - appropriate storage
BEFORE USE	Visual inspection of good condition	Check the correct operation of the locking system and the retractable wheels set (See §9.2 and §10)	Mechanical failure	- Replace the failed component or do a repair at the manufacturer - Protection anticorrosion, greasing
BEFORE USE	Visual inspection of good condition	Check the presence of reserve fuse on the towing bar	Be on the runway without reserve fuse when a fuse has broken	Always have reserve fuse
DURING USE	Fuse replacement	Breakage of a fuse when towing	Towing impossible	Replace the broken fuse
AFTER USE	Maintenance	- Deformation, breaks, scratches, corrosion ... - Replacement of broken fuses if necessary	Mechanical failure Corrosion	Protection Anticorrosion Appropriate storage
MONTHLY	Maintenance	Check the wear of the fuses	Jolts Mechanical failure	Adjustment Replacement if necessary
	Maintenance	Check the locking system	Failure of cables Abnormal clearance of the axes Indexing plunger does not lock the handle	Adjustment Greasing Replace the failed component if necessary
	Maintenance	Check the retractable wheels set	Failure of the trigger system Abnormal clearance wheel lock	Adjustment Greasing Replace the failed component if necessary
	Maintenance	Check the shock absorber	Abnormal clearance Mechanical failure	Replace the failed component if necessary
18 to 36 months	Major maintenance	Shock absorber replacement and general check	Mechanical failure	Replacement of components if necessary

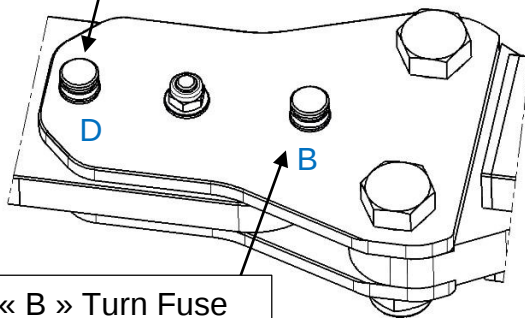
Comply with the legislation in force in the country of use of the equipment as well as with the user's own rules of procedure regarding maintenance operations.

9.2 Specific maintenance

- ✓ Before carrying out maintenance, refer to the assembly diagrams and the general nomenclature §11.

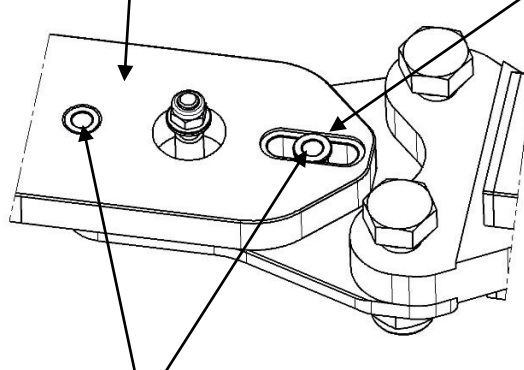
- ✓ Replacement of the fuses

« D » Traction/Braking Fuse



« B » Turn Fuse

View without upper plate



Take care to align the fuse socket correctly before fitting a new fuse

Attention, when a fuse breaks, the 3 broken pieces must be recovered

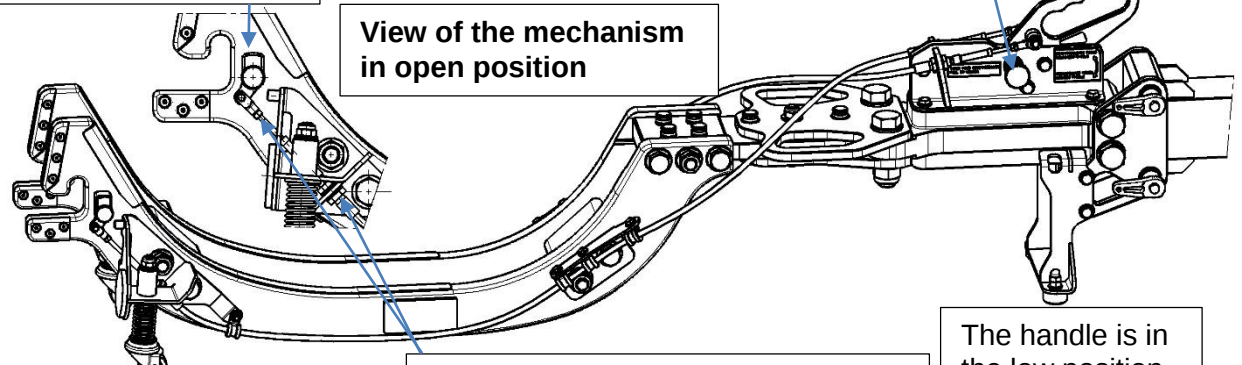
When a fuse breaks, check that the 3rd piece of fuse does not remain in the sockets

- ✓ Control, care and adjustment of the tow bar locking mechanism:

The locking latches should stand upright

The handle is in the up position at the stop, the indexing finger is out

View of the mechanism in open position

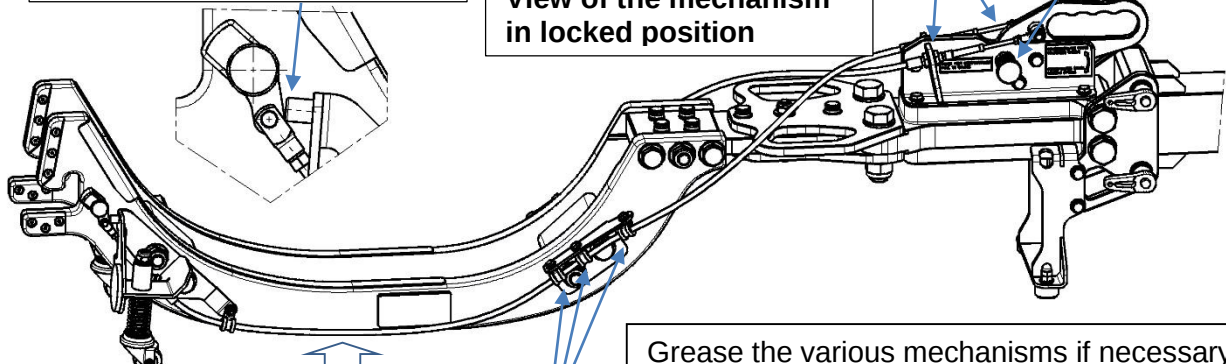


The latches must be almost in contact on the caster support with 0/+0.5 clearance

Adjust the mechanism at the cable settings if necessary.

The handle is in the low position with the indexing finger locked

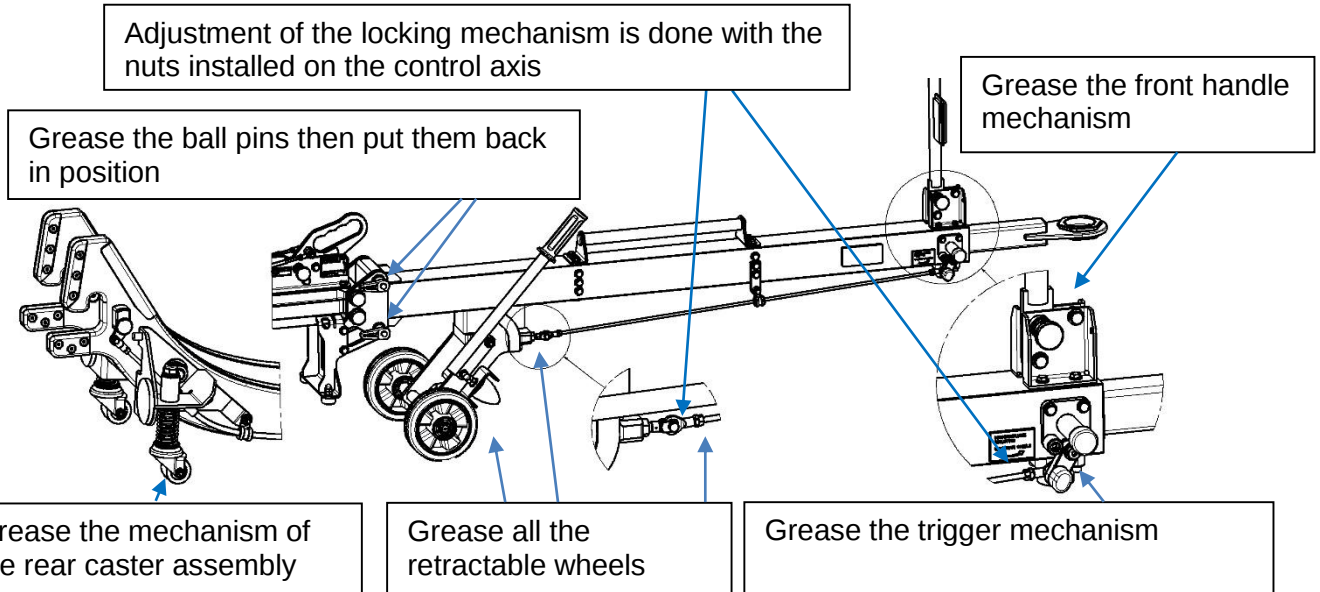
View of the mechanism in locked position



Tighten the cable sheath if it protrudes below the bar and rubs on the floor

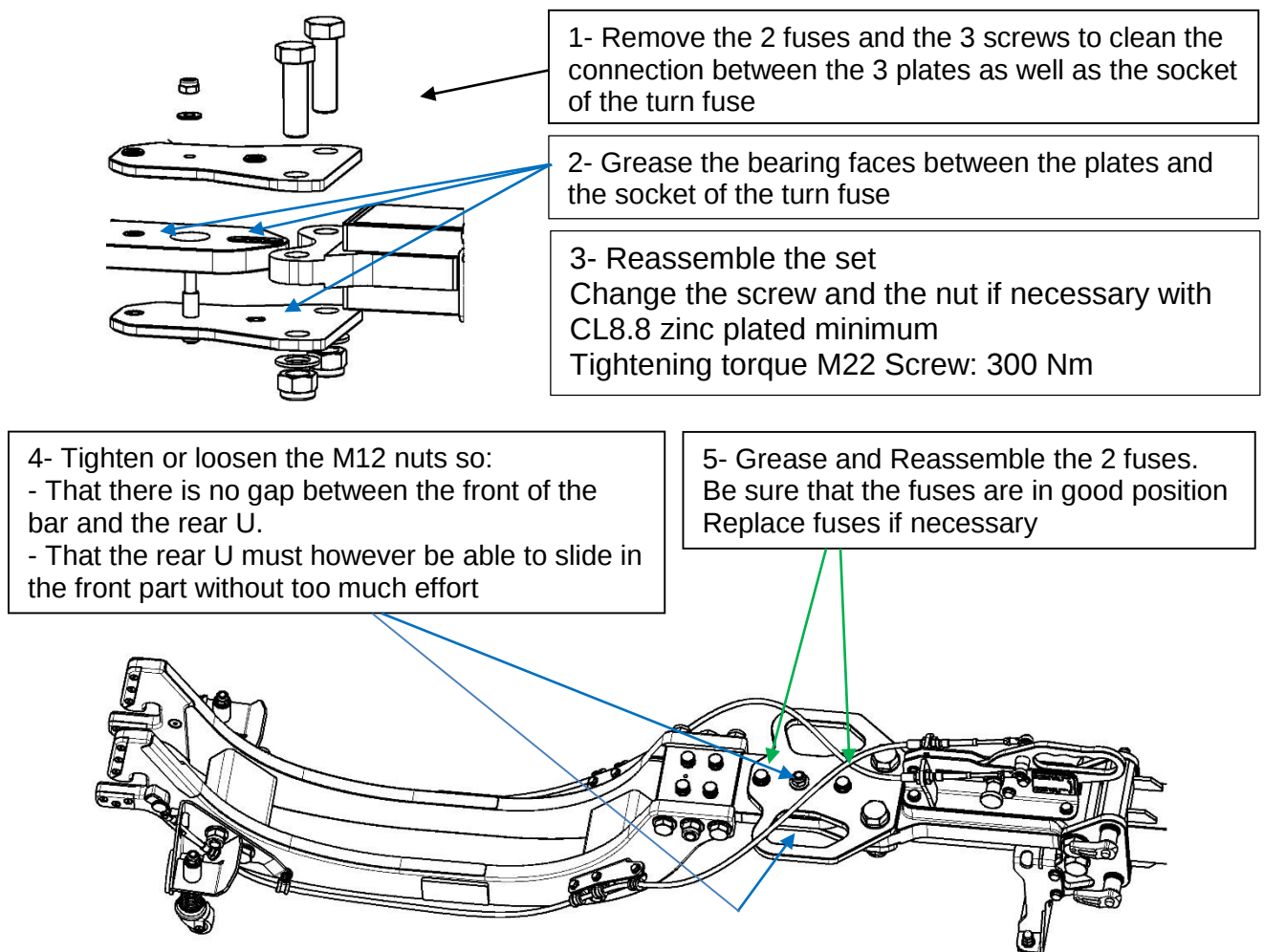
Grease the various mechanisms if necessary. Operate the mechanism several times and clean the excess grease.

- ✓ Clean and grease the different sets of the tow bar and adjustment of the locking mechanism of retractable wheels if necessary



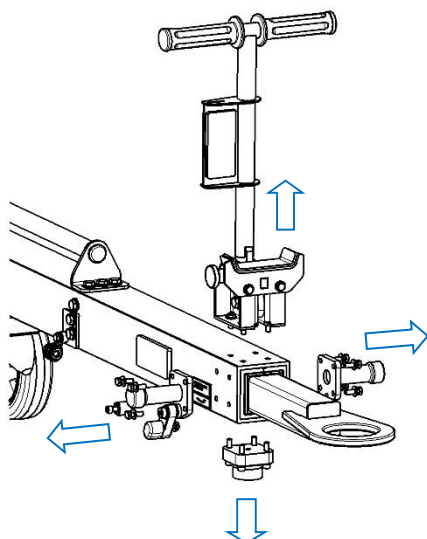
NOTE : After operating the mechanism several times, clean the excess grease

- ✓ Adjusting and grease the fuse system (to be done at least once a year)



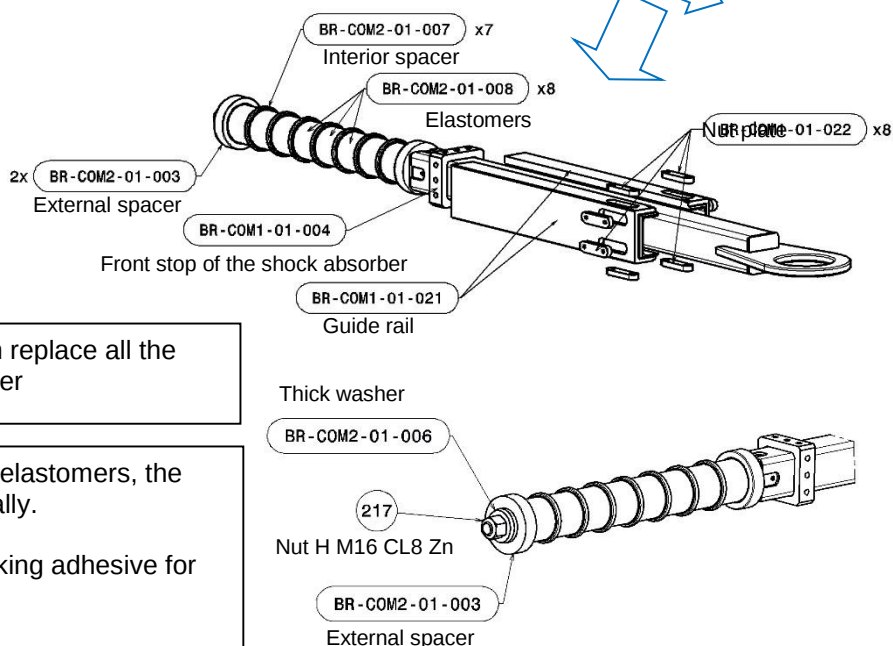
✓ Repair of the shock absorber and guide rails (major maintenance):

1. Remove the 2 side handles, the handling handle and the protective rubber



2. Remove the 12 screws from the front stop of the shock absorber
Attention !
Identify the screws and their position (different lengths)

3. Take out the shock absorber



4. Remove the nut Item.217 then replace all the components of the shock absorber

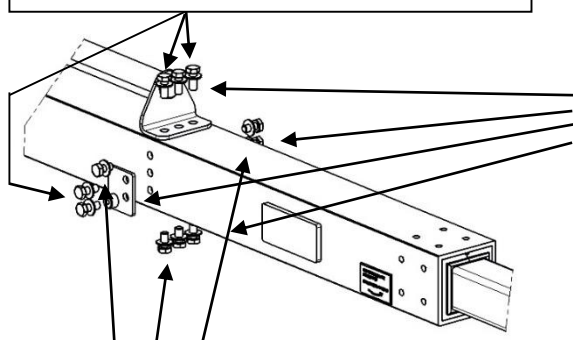
5. Reassemble the spacers, the elastomers, the thick washer and the nut identically.
Attention !
Use medium strength thread locking adhesive for the nut Item.217 (LOCTITE 243)
Tightening torque: 150 Nm

6. Reassemble the shock absorber in the main tube with the guide rail BR-COM1-01-021 and the nut plate BR-COM1-01-022

Note:

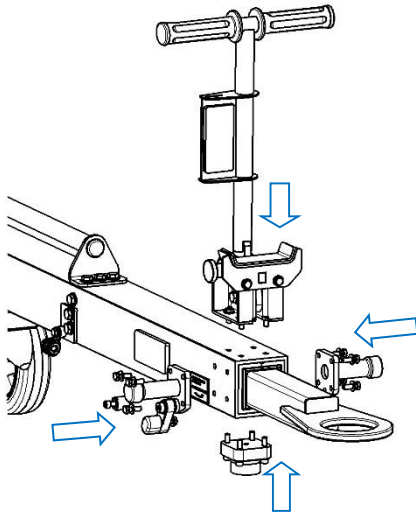
Use one or more M8 L8 grub screws to hold in position the front stop of the shock absorber (BR-COM1-01-004) in its mounting position for the step 7. Once in position remove the grub screw(s).

5 Screws H M8 20 CL8.8 Zn + washers



7 Screws H M8 16 CL8.8 Zn + Washers

7. Reassemble the 12 screws of the front stop of the shock absorber
Attention !
Screws have different lengths
The position marked during disassembly must be observed. Poor positioning can cause serious damage.
Attention !
Do not forget the washers. Forgetting a washer can cause serious damage.
Attention !
Use medium strength thread locking adhesive for the screws (LOCTITE 243)
Tightening torque: 23 Nm



8. Reassemble the 2 side handles, the handling handle and the protective rubber

Attention !

Screws have different lengths. The position marked during disassembly must be observed. Do not forget the washers. A mounting error can cause serious damage.

Attention !

Use medium strength thread locking adhesive for the screws (LOCTITE 243)

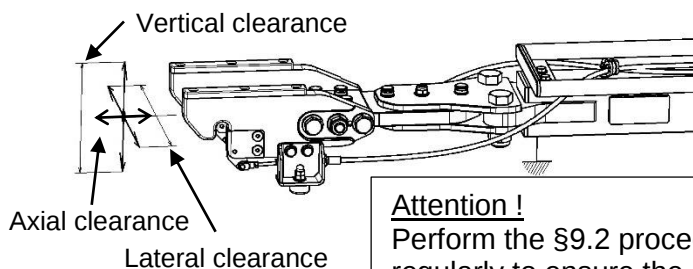
Tightening torque: 9 Nm

- ✓ Imperatively rinse tooling after use in saline atmospheric environment (use on ship).
- ✓ After use in a sandy environment clean the tow bar by blowing

10 Failure detection and reparation

- ✓ The towing bar must be rejected if it presents :
 - Breakthrough primers
 - Excessive corrosion
 - An elongation or a deformation compared to the original dimensions.
 - One of the components is damaged.
- ✓ The client will draw up a logbook mentioning :
 - The detail of the inspection results and the reparation
 - The name and function of the interveners
 - The dates of the interventions
- ✓ This logbook will use the data in the "9 - Various operations maintenance" section of this manual.

- ✓ Checking the fuse system



Attention !

The measurement is carried out by blocking the main body of the bar and manually actuating the rear fitting ($F = 5$ à 10 daN) in one direction then in the other.

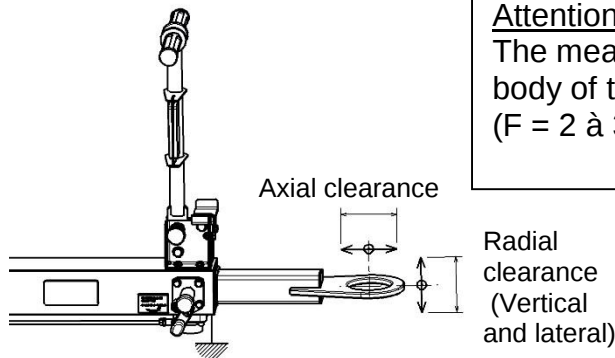
Attention !

Perform the §9.2 procedure "Adjusting and grease the fuse system" regularly to ensure the proper functioning of the assembly.

- If there is a vertical clearance, adjust the operating clearance on the fuse system (§9.2)
- If there is axial or lateral clearance, check that the fuses are in good condition and replace them if necessary.
- If abnormal clearance persists after adjustment, send the tow bar to the manufacturer for an inspection.

✓ Checking the shock absorber :

- Measure the axial clearance of the shock absorber, when the clearance exceeds 10 mm, it is necessary to repair the shock absorber (Ref.BR-COM2-02-K02).
- Measure the radial clearance (vertical and lateral) of the shock absorber, when the clearance exceeds 3 mm, it is necessary to replace the 2 guide rails (Ref.BR-COM2-03-K03).



Attention !

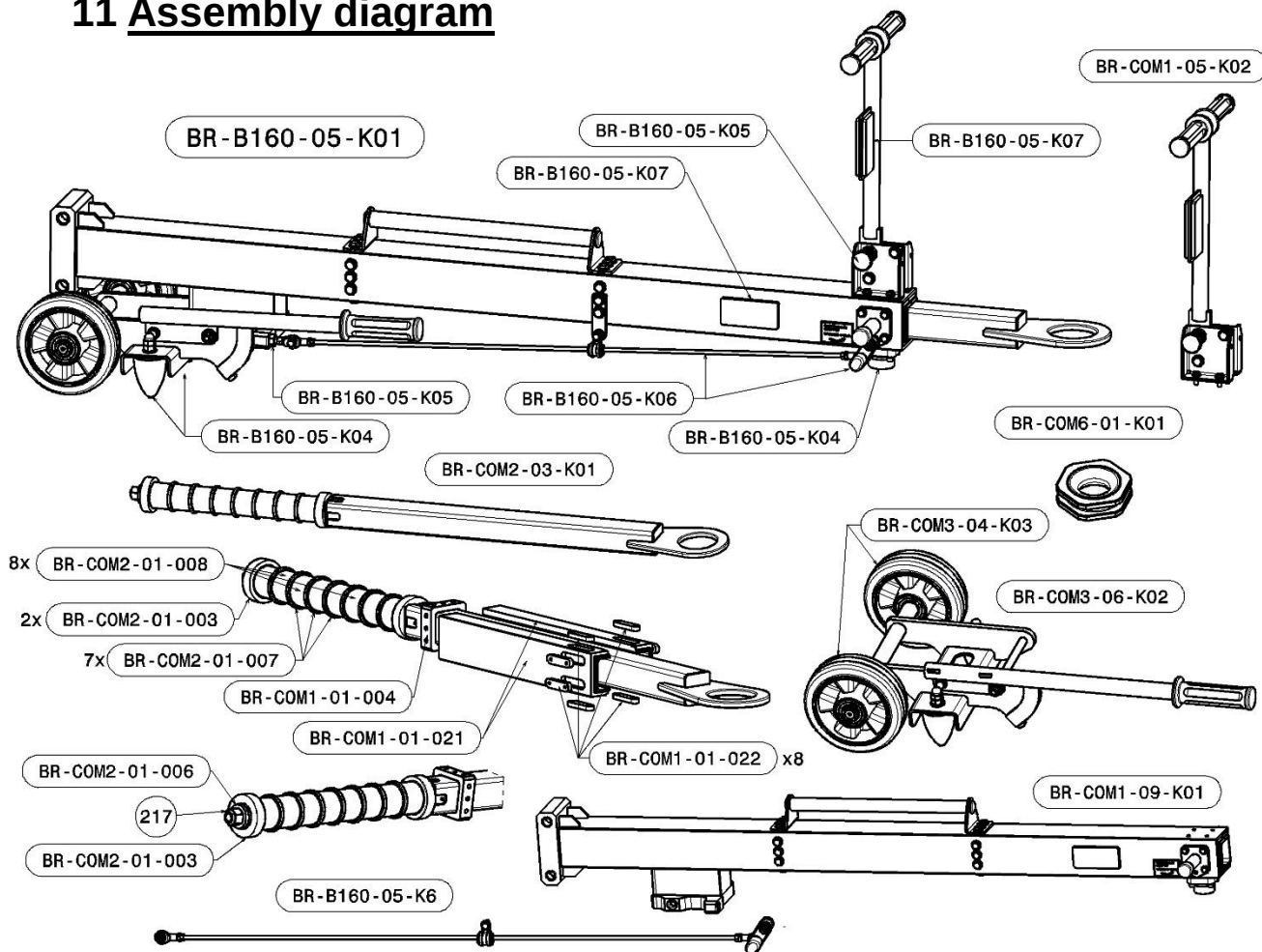
The measurement is carried out by blocking the main body of the bar and manually actuating the towing ring (F = 2 à 3 daN) in one direction then the other.

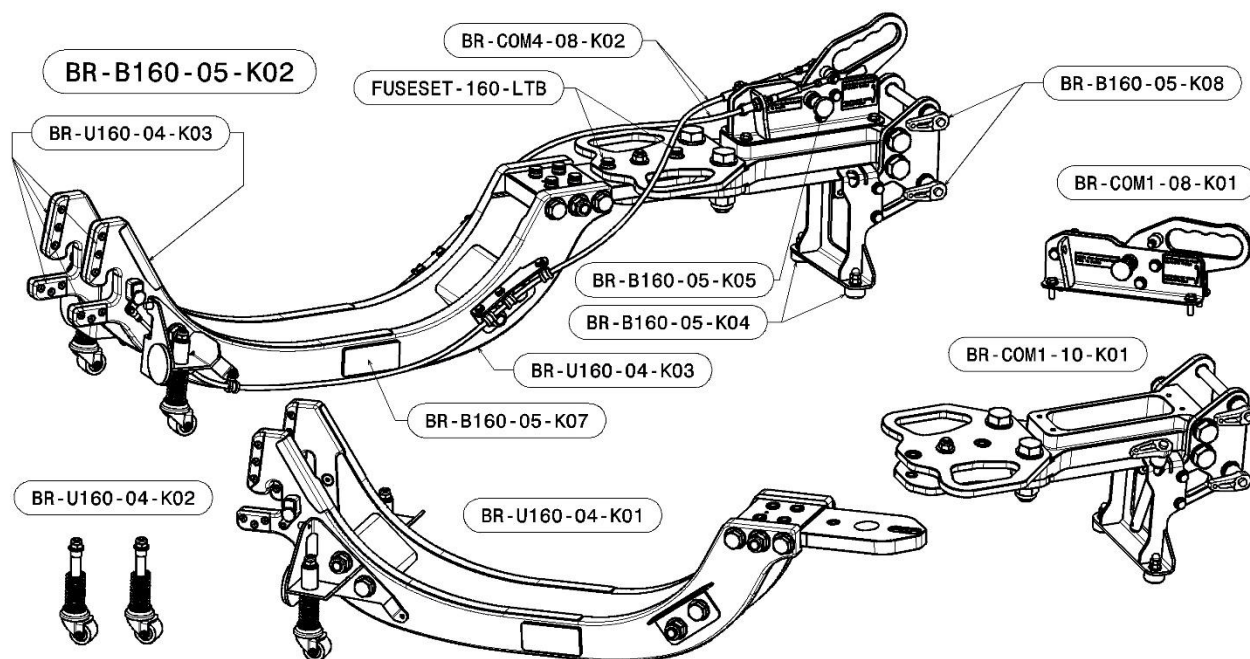
Attention !

After using the tow bar, wait one hour before carrying out a clearance measurement.

- ✓ Checking the tow bar locking mechanism according to the §9.2 procedure « Control, care and adjustment of the tow bar locking mechanism ».

11 Assembly diagram





Référence	Désignation
BR-B160-05-K01	Complete front assembly
BR-B160-05-K02	Complete rear assembly
FUSESET-160-LTB	Fuse Kit (10 tractions D + 10 turns B)
BR-B160-05-K04	Rubber Kit (5 pieces)
BR-B160-05-K05	3 indexing plungers
BR-B160-05-K06	Castor linkage kit
BR-B160-05-K07	Visibility Kit (6 reflex reflectors)
BR-B160-05-K08	2 ball lock pins
BR-COM1-09-K01	Front structure assembly
BR-COM1-05-K02	Folding front handle assembly
BR-COM6-01-K01	Hanging ring reduction bush Ø76mm → Ø42mm
BR-COM2-03-K01	Drawbar assembly with shock absorber
BR-COM2-03-K02	Shock absorber Kit (8x BR-COM2-01-008 + 2x BR-COM2-01-003 + 7x BR-COM2-01-007 + BR-COM2-01-006 + 217)
BR-COM2-03-K03	Guide rails Kit (2x BR-COM1-01-021)
BR-COM3-06-K02	Roller assembly with intermediate position
BR-COM3-04-K03	Wheels kit (2 wheels)
BR-COM1-10-K01	Rear structure assembly
BR-COM4-08-K01	Locking handle assembly
BR-COM4-08-K02	Locking cables kit (2 cables with end caps)
BR-U160-04-K01	Hanging assembly
BR-U160-04-K02	Back wheels kit (2 complete sets with spring)
BR-U160-04-K03	Plastic protection kit (8 pieces), rubber (2 pieces) and stainless steel slide (2 pieces)

12 Spare parts

- ✓ Each spare parts must be ordered from the manufacturer or with the agreement of the manufacturer.
- ✓ Before any dismantling of spare parts, refer to the maintenance chapter §9.2.
- ✓ Refer to the assembly diagram (§11) to find the denomination of the parts.
- ✓ Fuses must be changed as soon as they are damaged. The tow bar should never operate without at least one reserve fuse on the bar.
- ✓ Do not reverse D and B fuses
- ✓ Always use original fuses
- ✓ Always have a low clearance in the shock absorber (see §10). If the clearance becomes too great, initiate major maintenance to replace the guide rails or repair the shock absorber.
- ✓ Always have a lack of clearance and a good condition of the bushings.
- ✓ Always have a lack of clearance and a good condition of the cables. Replaced them if necessary.
- ✓ The tow bar must carry its original labelling. If this labelling is no longer visible, it must be changed by new original labels. Contact the manufacturer.
- ✓ Always have a lack of clearance and a good condition of the screws. Replaced them if necessary. Use medium strength thread locking adhesive (LOCTITE 243) to secure and seal screws and nuts. Tighten the screws to the torque indicated on this manual.
- ✓ Any repair of the tow bar, whatever the method is strongly discouraged. Return the tow bar for repair to the manufacturer.

13 In case of incident

In the event of an incident, it is necessary to refer to the competent rescue organizations of the country of use.

14 Limitations of liability

The liability, both civil and criminal of the company MPEB, can in no way be sought by the user, following any bodily injury or material damage that may occur due to:

- A problem with missing maintenance, poor maintenance or major maintenance that is not carried out by MPEB or a person authorized by MPEB.
- Improper use or use not in accordance with the intended use of the product.
- Use that does not comply with this manual
- A problem that arose while transporting the tow bar.
- Loss of control or improper maneuvering when moving the helicopter.
- Use that does not comply with the regulations in force in the country of use.

15 Warranty

We take a particular care to select high-quality materials and to use manufacturing techniques that allow us to create and manufacture products that are ergonomic, robust and durable over time.

LLEDO AERO-TOOLS tow bar benefit from a 1-year manufacturer's warranty on parts and labor covering manufacturing defects from the date of purchase or the date of delivery for use in accordance with these instructions, operating and maintenance manual.

If the tow bar is defective, we undertake to repair or replace it within a reasonable time.

To file a claim under this warranty, you must provide proof of purchase of the new tow bar from an authorized reseller or delivery as an on-board package with your helicopter. The warranty does not apply to use products.

Any replacement product provided under this warranty will only be warranted until the expiration of the original warranty period.

This guarantee covers failures and malfunctions of the tow bar, provided that the tow bar has been used in accordance with these instructions, operating and maintenance manual.

This 1 year warranty does not cover defects and damage caused by:

- Normal wear and tear,
- Damage that may result from improper use,
- Negligence, accident or misuse,
- A modification of the tow bar unless otherwise indicated by the manufacturer.

This warranty does not cover defects or damage caused by or resulting from:

- Cut antiskid rubber pad or wheel elastomer,
- Tire antiskid rubber pad or wheel elastomer,
- Repair attempted by someone other than an authorized service provider,
- Replacement of original parts with parts that do not come from the manufacturer,
- Accidental damage or modifications,
- Failure to follow the manufacturer's instructions.

For shipping Aero-tools products back, safety and regulatory standards must be followed by the customer when shipping products to LLEDO AEROTOOLS. Damage to products resulting from inappropriate packaging or identification is the responsibility of the customer.

Returns must be clearly identified on the outside of the package with:

- The Return Material Authorization (RMA) number
- The content of the shipment
- The serial number of the tow bar

Upon receipt, LLEDO AEROTOOLS will evaluate the product and inform the customer of the final disposition of the product with regard to warranty.

The following different cases may result in costs payable by the customer:

- Tow bar assessed in good condition after inspection and tests.
- Replacement of worn or damaged parts not covered by this warranty.

As part of the warranty, return costs are the responsibility of LLEDO AEROTOOLS. Shipping costs to the manufacturer will remain the responsibility of the customer.

Return details:

MPEB - LLEDO AEROTOOLS
9 – 11, Boulevard de la Capelane
13170 Les Pennes Mirabeau
France

Phone : 00 33 4 42 02 96 74

Mail : contact@lledo-aerotools.com



MPEB

9-11 Boulevard de la capelane
13170 Les Pennes Mirabeau
France

**DECLARE QUE LA MACHINE DESIGNEE CI-DESSOUS
DECLARES THAT THE MACHINE DESCRIBED BELOW**

Désignation : **BARRE DE REMORQUAGE DEMONTABLE H160**
Designation : **SPLITABLE TOW BAR H160**
Référence : **BR-B160-05-000**
Part Number :

Numéro de série :
Serial Number :

Date de fabrication :
Manufacture date :

CMU Traction / Virage: **1720 daN / 1865 Nm**
Max. Working load
Traction / Turning:

EST CONFORME AUX DISPOSITIONS DE LA (DES) DIRECTIVE (S) :
CONFORMS TO THE REQUIREMENTS OF THE:
DIRECTIVE 2006/42/CE



EST CONFORME AUX DISPOSITIONS DE LA (DES) NORMES (S)
CONFORMS TO THE REQUIREMENTS OF THE SPECIFICATION (S):
ISO 9667:2016

A ETE EPROUVE PAR UN ESSAI EN CHARGE DE TYPE A 1,5x CMU PENDANT 15 MINUTES ET N'A SUBIT
AUCUNE DEFORMATION PERMANENTE
HAS BEEN TESTED BY A TYPE LOAD TEST AT 1,5x MAXIMUM WORKING LOAD FOR 15 MINUTES AND
HAS NOT UNDERGONE ANY PERMANENT DEFORMATION

Fait à (lieu) : **LES PENNES MIRABEAU - FRANCE**

Le (date) : 07/02/2022

Nom et fonction du signataire : G. LLEDO, *General Director*

Signature :