



**USER'S MANUAL**  
**Mast climbing work platform**

**ACT 8**



**ACT-8 User's manual**

**ACT-8 – «MAST DISTANCE TABLE» CORRECTION**

Table 16, page 154 of manual 98030280 rev 14

Data in table 16 revision 14 are wrong regarding assemblies with 40'-0" and 60'-0" bridges. The dimensions displayed in the table below have been corrected and will be officialised in further revisions. For revision 14 and all previous manual revisions, consider the dimensions displayed in the document below.

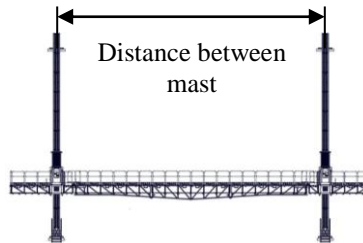


Tableau 16 - Distance between the masts

| Configuration   | Min distance         | Standard distance    | Max distance         |
|---|----------------------|----------------------|----------------------|
| 20'-0" (6,1 m) bridge section   | 24'-6"<br>(7,47 m)   | 24'-9"<br>(7,54 m)   | 25'-0"<br>(7,62 m)   |
| Bridge section 20'-0" (6,1 m) + one (1) 2'6" (0,75 m) extension section   | 27'-0"<br>(8,23 m)   | 27'-3"<br>(8,31 m)   | 27'-6"<br>(8,38 m)   |
| Bridge section 20'-0" (6,1 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section  | 29'-6"<br>(8,99 m)   | 29'-9"<br>(9,07 m)   | 30'-0"<br>(9,14 m)   |
| Bridge section 20'-0" (6,1 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section  | 32'-0"<br>(9,75 m)   | 32'-3"<br>(9,83 m)   | 32'-6"<br>(9,91 m)   |
| Bridge section 20'-0" (6,1 m) + two (2) 5'0" (1,50 m) extension sections  | 34'-6"<br>(10,52 m)  | 34'-9"<br>(10,59 m)  | 35'-0"<br>(10,67 m)  |
| 40'-0" (12,2 m) bridge section  | 44'-5"<br>(13,54 m)  | 44'-11"<br>(13,69 m) | 45'-5"<br>(13,84 m)  |
| Bridge section 40'-0" (12,2 m) + one (1) 2'6" (0,75 m) extension section  | 46'-11"<br>(14,30 m) | 47'-5"<br>(14,45 m)  | 47'-11"<br>(14,61 m) |
| Bridge section 40'-0" (12,2 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section | 49'-5"<br>(15,06 m)  | 49'-11"<br>(15,21 m) | 50'-5"<br>(15,37 m)  |
| Bridge section 40'-0" (12,2 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section | 51'-11"<br>(15,82m)  | 52'-5"<br>(15,98 m)  | 52'-11"<br>(16,13 m) |
| Bridge section 40'-0" (12,2 m) + two (2) 5'0" (1,50 m) extension sections   | 54'-5"<br>(16,59 m)  | 54'-11"<br>(16,74 m) | 55'-5"<br>(16,89 m)  |
| 60'-0" (18,3 m) bridge section  | 64'-5"<br>(19,63 m)  | 64'-11"<br>(19,79 m) | 65'-5"<br>(19,94 m)  |
| Bridge section 60'-0" (18,3 m) + one (1) 2'6" (0,75 m) extension section  | 66'-11"<br>(20,40 m) | 67'-5"<br>(20,55 m)  | 67'-11"<br>(20,70 m) |
| Bridge section 60'-0" (18,3 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section | 69'-5"<br>(21,16 m)  | 69'-11"<br>(21,31 m) | 70'-5"<br>(21,46 m)  |
| Bridge section 60'-0" (18,3 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section | 71'-11"<br>(21,92 m) | 72'-5"<br>(22,07 m)  | 72'-11"<br>(22,23 m) |
| Bridge section 60'-0" (18,3 m) + two (2) 5'0" (1,50 m) extension sections   | 74'-5"<br>(22,68 m)  | 74'-11"<br>(22,83 m) | 75'-5"<br>(22,99 m)  |

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# Chapter A - General Information and Operation

## Revision table

| Revision N° | Description      | Date (yyyy-mm-dd) |
|-------------|------------------|-------------------|
| 13          | General revision | 2017-01-10        |
| 14          | General revision | 2017-11-10        |
|             |                  |                   |
|             |                  |                   |
|             |                  |                   |
|             |                  |                   |

## Documentation and applied standards

Brand: FRACO

Model: ACT-8

Serial number: \_\_\_\_\_

- Machine Directive 2006/42/EC
- ANSI/SIA A92.9-2011 : Mast-Climbing Work Platforms
- CSA B354.5 : Mast-Climbing Work Platforms

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**NOTE:** The term « FRACO » in this document refers to the company « Les Produits FRACO Ltée » and its subsidiaries. All drawings and illustrations in this document are for information purposes only. The actual product may differ. Specifications and technical data are subject to change without notice. Be sure to always have the latest version of this document.

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## Warranties

### FRACO warranty program

**The warranty period:**

**A)** The warranty period begins on the initial date of retail purchase by an authorized FRACO dealer. Les Produits FRACO Ltée warrants that the products distributed by Les Produits FRACO Ltée, which have defaults in normal usage condition, when installed and handled in accordance with the instructions provided to the consumer, will be repaired free of charge for parts and labor costs. Parts supplied under this warranty may be new or refurbished as selected by FRACO Ltée.

**B)** The warranty period for retail customers leasing the products begins on the date the product is first commissioned: a) during the leasing period; b) at the date of the retail sale; as defined in **A**).

**The product:**

FRACO Unit (new)-----One year, parts and labor

FRACO Unit (used)-----3 months, parts and labor

Note: The warranty on used units is only applicable to used products sold directly by FRACO.

Said product warranty shall be applicable during its entire duration, whether the products are owned by the original owner or by a subsequent owner.

Parts: Les Produits FRACO Ltée must be notified in writing of any parts breakage within the warranty period. For parts to be replaced or repaired and for service requests, said broken parts or unit shall be delivered, at the owner's expenses, to an authorized FRACO dealer. Each part replaced within the warranty period is covered by a new 3-month warranty period for parts and labor.

**What is not covered:**

This warranty does not apply if the FRACO security seal is damaged, destroyed or missing.

This warranty does not cover changes not authorized in writing by Les Produits FRACO Ltée or parts that are not genuine FRACO parts.

This warranty does not apply if the serial numbers on the rack and identification plates are damaged, destroyed or missing.

**To get service and parts:**

FRACO Products Ltée has a number of retailers in Canada and the United States to assist you with repairs. To qualify for warranty coverage, you must complete a warranty claim form.

Date of commissioning: \_\_\_\_\_

Serial number: \_\_\_\_\_

### FRACO-Retailer warranty program

**Parts:**

Retailers who honor warranties on behalf of: FRACO Products Ltée will be required to identify and retain all replaced parts for a period of one year from the date of the claim.

**Labor:**

The work performed by an authorized FRACO dealer will be reimbursed based on the hours and authorized rate by Les Produits FRACO Ltée.

## Warnings

This manual is intended for anyone involved in the assembly, disassembly, use and/or maintenance of the platform.

**Before installing, dismantling, operating or maintaining** the platform, you must read and fully understand the instructions detailed in this manual. Failure to comply with these safety instructions may result in property damage, severe injury and even death. FRACO and/or its representative shall not under any circumstances be held responsible. Any local standards and regulations in force concerning safety and accident prevention, environmental protection and any other activities related to the assembly, dismantling, use and maintenance of this type of equipment are considered as a supplement to this manual and must be complied with. Example: the use of personal protective equipment (harness, helmet, boots, etc.).

**Safety is our priority!** For this reason, never remove or modify a part in order to adapt the platform to a particular condition. Contact FRACO for any assistance.

Only use genuine FRACO parts.

This manual is considered an integral part of the platform and is mandatory for communicating the necessary safety information to operators and users. A copy of this manual must always be included in the waterproof compartment provided for this purpose on the platform.

∞SEE DOCUMENTATION COMPARTMENT, ON PAGE 17.

Be sure to read and understand all the stickers, warnings and instructions displayed on the equipment, or to obtain an explanation from a qualified person.

**Remember that:**

- An **operator** must have successfully completed the **Level 1 (Safety and User)** training and hold a valid training card, be familiar with the contents of this manual and fully understand the applicable platform usage rules;
- An **installer** must have successfully completed the **Level 2A or 2B (Installation)** training and hold a valid training card, be familiar with the contents of this manual and fully understand the applicable platform usage rules;
- For security reasons, a **minimum of (2) two people** must be present at all times on each platform during assembly, disassembly, maintenance or use;
- Local regulations may require that the platform be permanently equipped with a fire extinguisher. Its position should be signaled on the platform in order to be readily located.

**IN CASE OF FIRE:** Stay calm and notify the people present on the platform. If available, use the fire extinguisher following the instructions provided. If the fire is out of control, evacuate the platform through the nearest access.


Local regulations may require adequate protection of the platform in the event of an electrical storm.

**IMPORTANT:** Refer to the section **OPERATION, USE OF THE LIFTING unit** for additional safety instructions concerning the use of the platform.

∞SEE, **OPERATION, USE OF THE LIFTING unit**, ON PAGE 25.

If, after consultation of this manual, you have any doubts about the assembly, dismantling, use or maintenance of the platform, contact FRACO.

In this manual, the following symbols and annotations are used:

| Symbol   | Description  |
|--|--|
| <br><b>Danger</b> | <b>Major</b> risks of personal and/or material damage to survival and safety |
| <b>Warning</b>   | Risks of personal injury and/or material damage                              |
| <b>Important!</b>  | Important points to monitor  |

**RESIDUAL hazards:**

Despite all the precautions taken, potential residual risks exist such as:

- Injuries resulting from uncoordinated tasks
- Malfunction of a control system
- Working with an electrical system
- Damage to transportation equipment
- Fall of badly secured objects
- Strong winds
- Entrance and exit
- Loud noises
- Dust
- Or any other work-related risk, etc.

## General view - Single mast

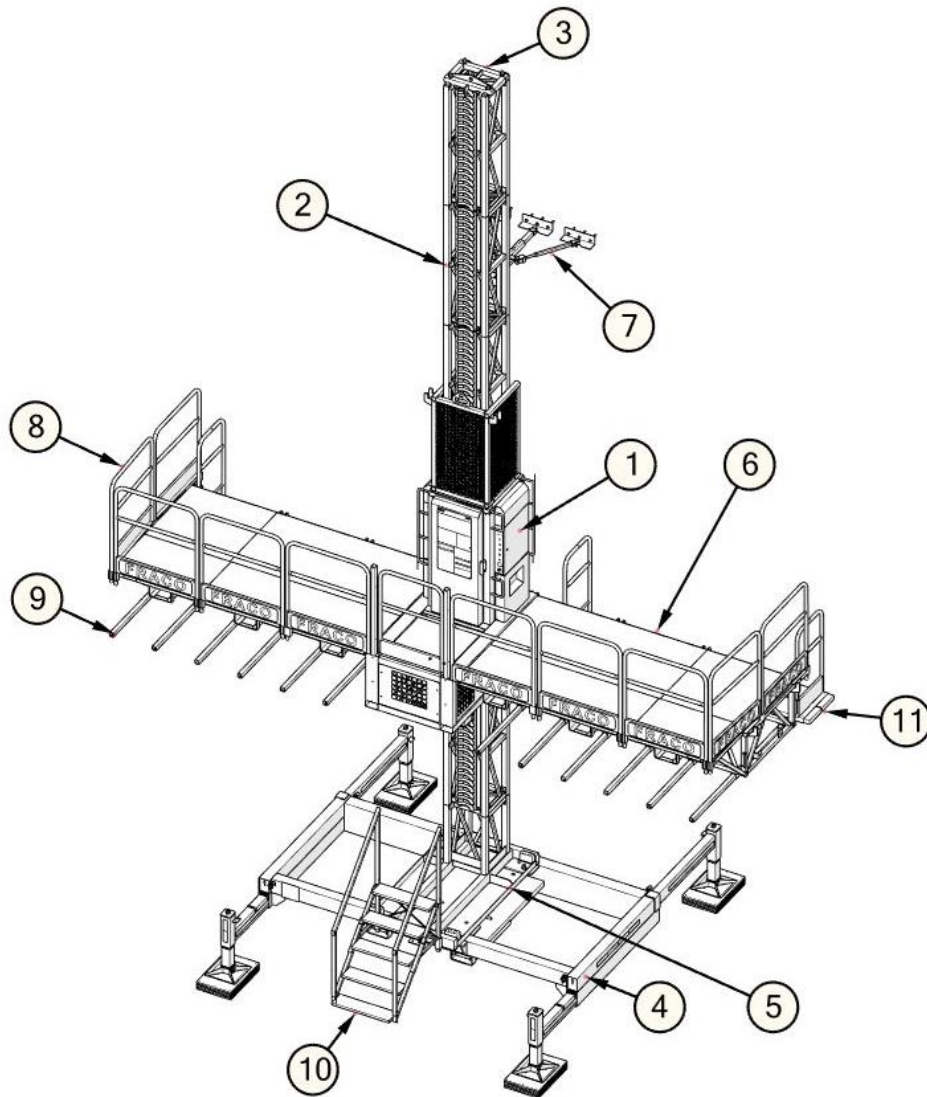


Figure 1 - ACT-8 single-mast with freestanding base

Figure 2 - ACT-8 single-mast with freestanding base

| No. | Item      | Description                                    | No. | Item      | Description                |
|-----|-----------|--|-----|-----------|----------------------------|
| 1   | 10030015  | ACT-8 Elevating unit (Gas)                     | 7   | XXXXXXXXX | Mast anchor                |
| 2   | 13030018  | Mast section 20" x 20" x 5'-0" with rail (ACT) | 8   | 17490023  | Guard-rail (3'-4" x 4'-2") |
| 3   | 13030029  | End mast section for 20" x 20" mast            | 9   | 190XXXXXX | Outriggers                 |
| 4   | 14030109  | Universal freestanding base                    | 10  | 204XXXXXX | Stairs                     |
| 5   | 14030019  | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 11* | XXXXXXXXX | Planking                   |
| 6   | 150XXXXXX | Extension section                              |     |           |                            |

\* The Planking is not supplied by FRACO.

## General view - Two-mast

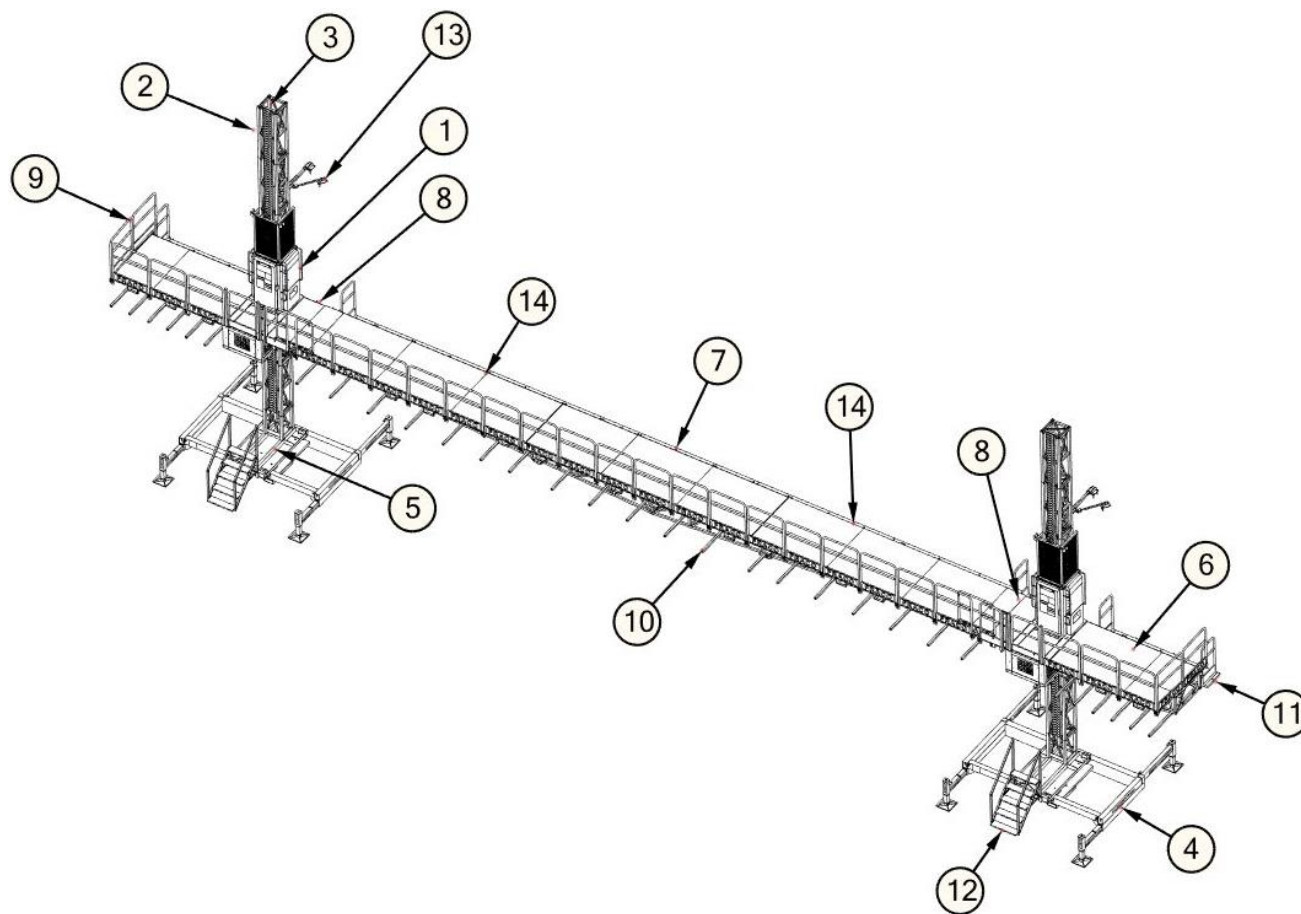


Figure 3 - ACT-8 two-mast with freestanding base

| No. | Item     | Description                                    | No. | Item     | Description                    |
|-----|----------|--|-----|----------|--------------------------------|
| 1   | 10030015 | ACT-8 Elevating unit (Gas)                     | 8   | 150XXXXX | Intermediate Extension section |
| 2   | 13030018 | Mast section 20" x 20" x 5'-0" with rail (ACT) | 9   | 17490023 | Guard-rail (3'-4" x 4'-2")     |
| 3   | 13030029 | End mast section for 20" x 20" mast            | 10  | 190XXXXX | Outriggers                     |
| 4   | 14030109 | Universal freestanding base                    | 11* | XXXXXXX  | Planking                       |
| 5   | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 12  | 204XXXXX | Stairs                         |
| 6   | 150XXXXX | Extension section                              | 13  | XXXXXXXX | Mast anchor                    |
| 7   | 150XXXXX | Central bridge section                         | 14  | 150XXXXX | Bridge section                 |

\* The planking is not supplied by FRACO.

## Regulatory attachment points

**Important! Wear your safety harness at all times when installing or dismantling mast sections, mast fasteners or when handling plankings in the work area.**

Workers exposed to fall hazards must wear a safety harness certified in accordance with local standards. The fall arrest device must be able to withstand a load of 5 000 lb (2 270 kg) and may be equipped with a shock absorber. The attachment points presented in [Figure 4](#) of this document comply with the standards in force. We remind you, however, that improper use of the fall protection device may increase the risk of injury. Therefore, we recommend that you follow the proper training on the use of said fall protection systems before executing any works at heights.

**Important!**

- 1 worker per individual attachment point.
- Visually inspect the condition of an attachment point before attaching the harness.
- Never use an attachment point showing a deformation.

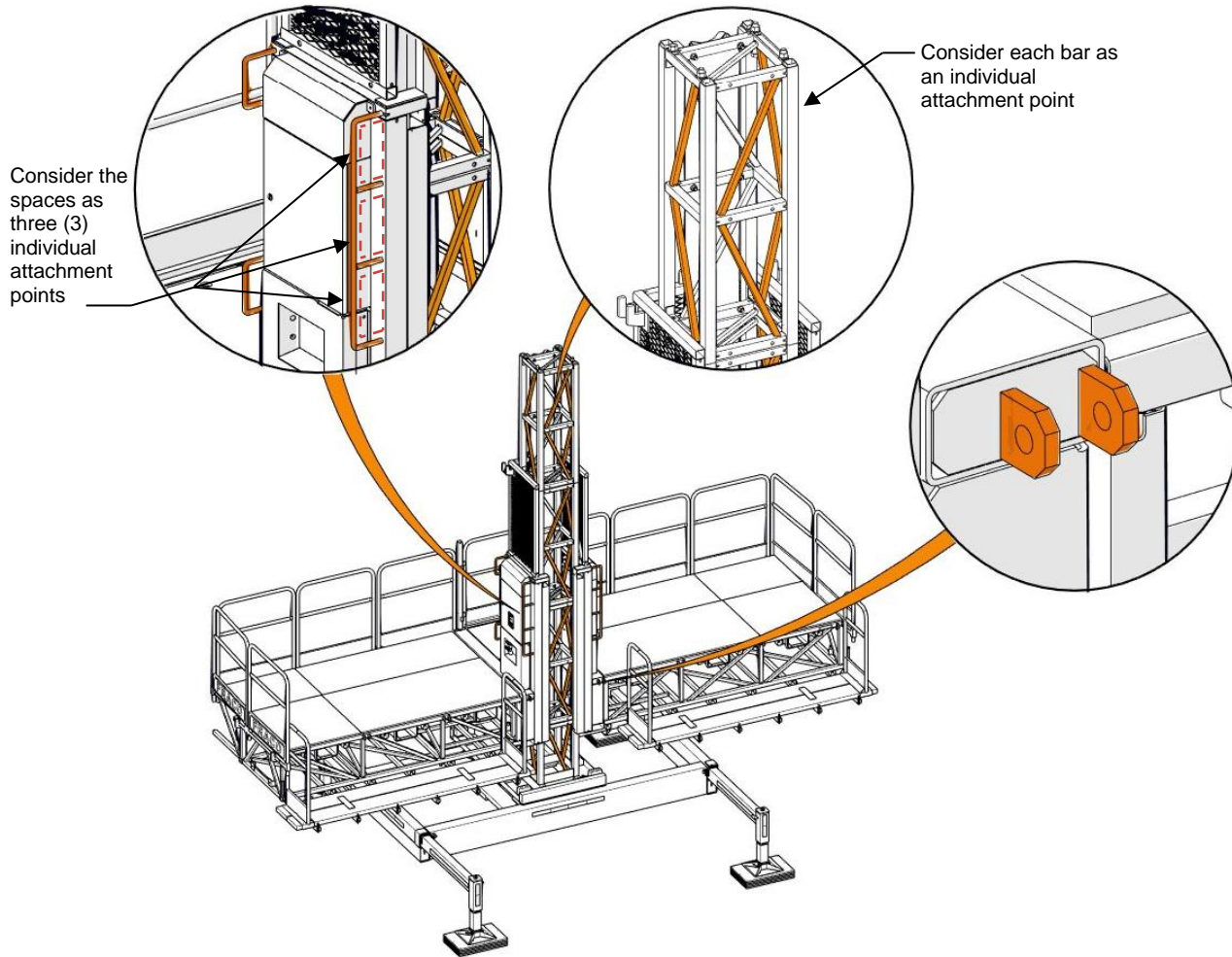


Figure 4 - Regulatory attachment points



## General dimensions

### Dimensions with ground base

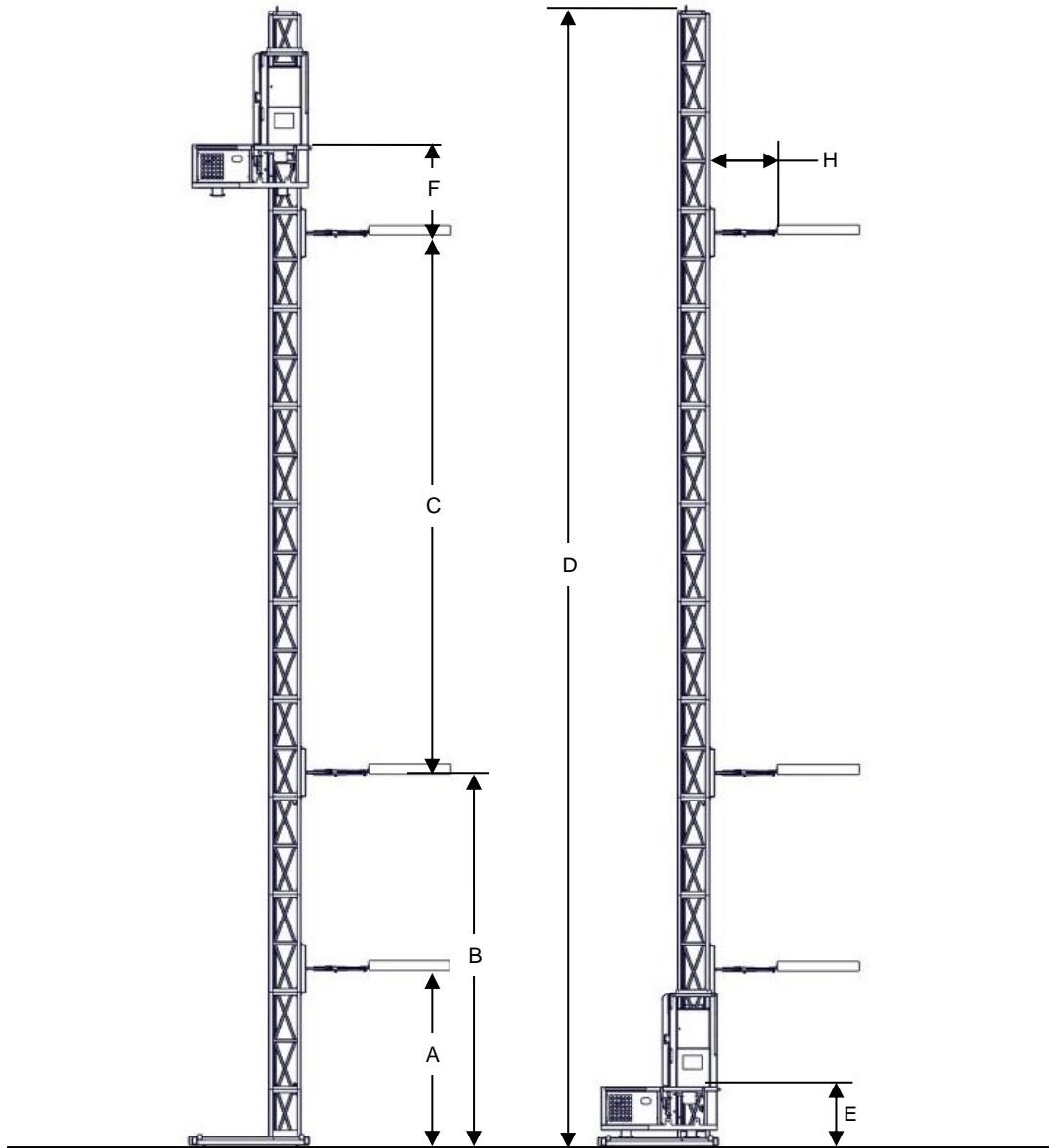


Figure 5 - Dimensions with ground base



### Dimensions with freestanding base (universal, ACT-8)

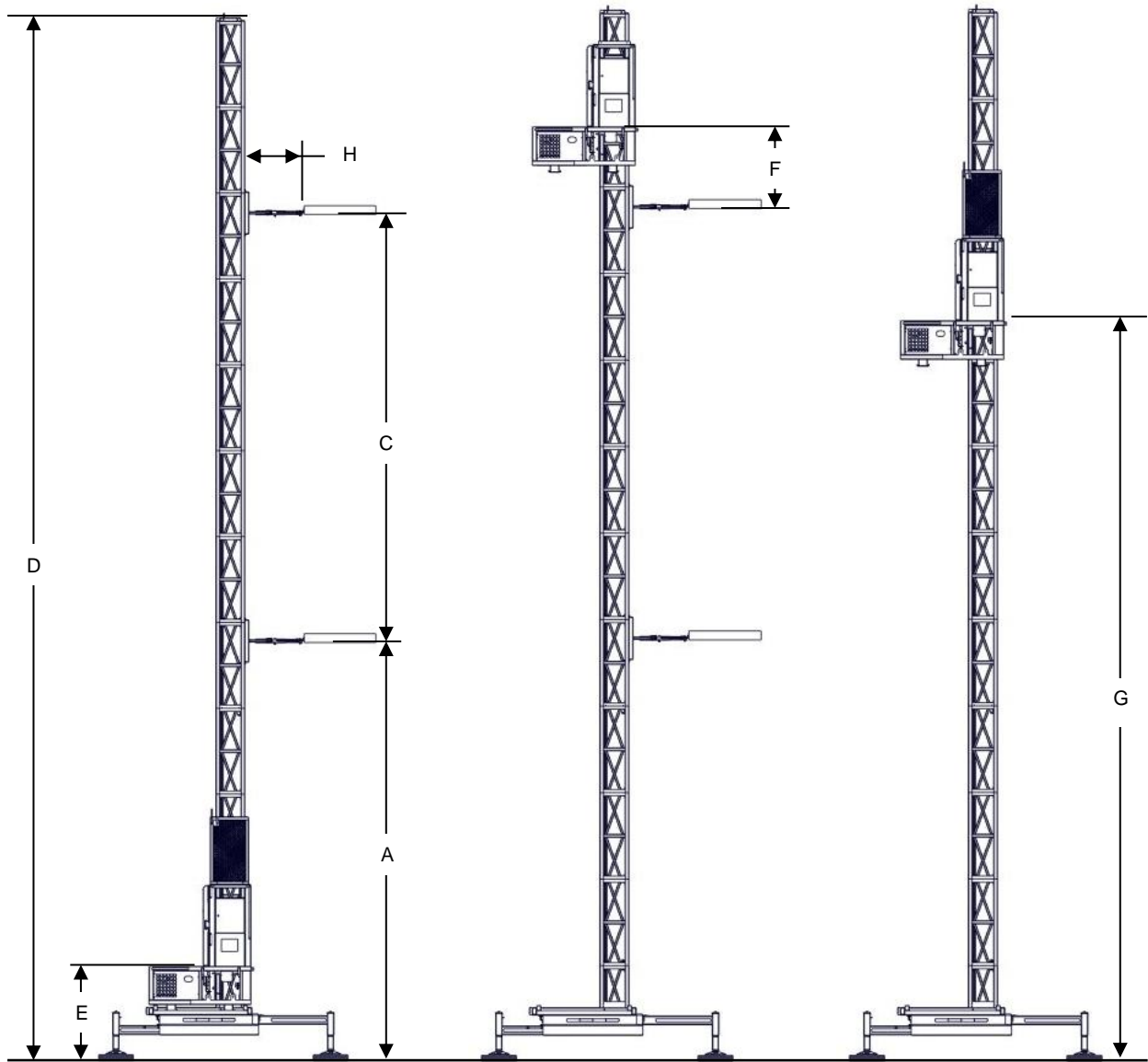


Figure 6 - Dimensions with freestanding base

### Minimum distances and clearances

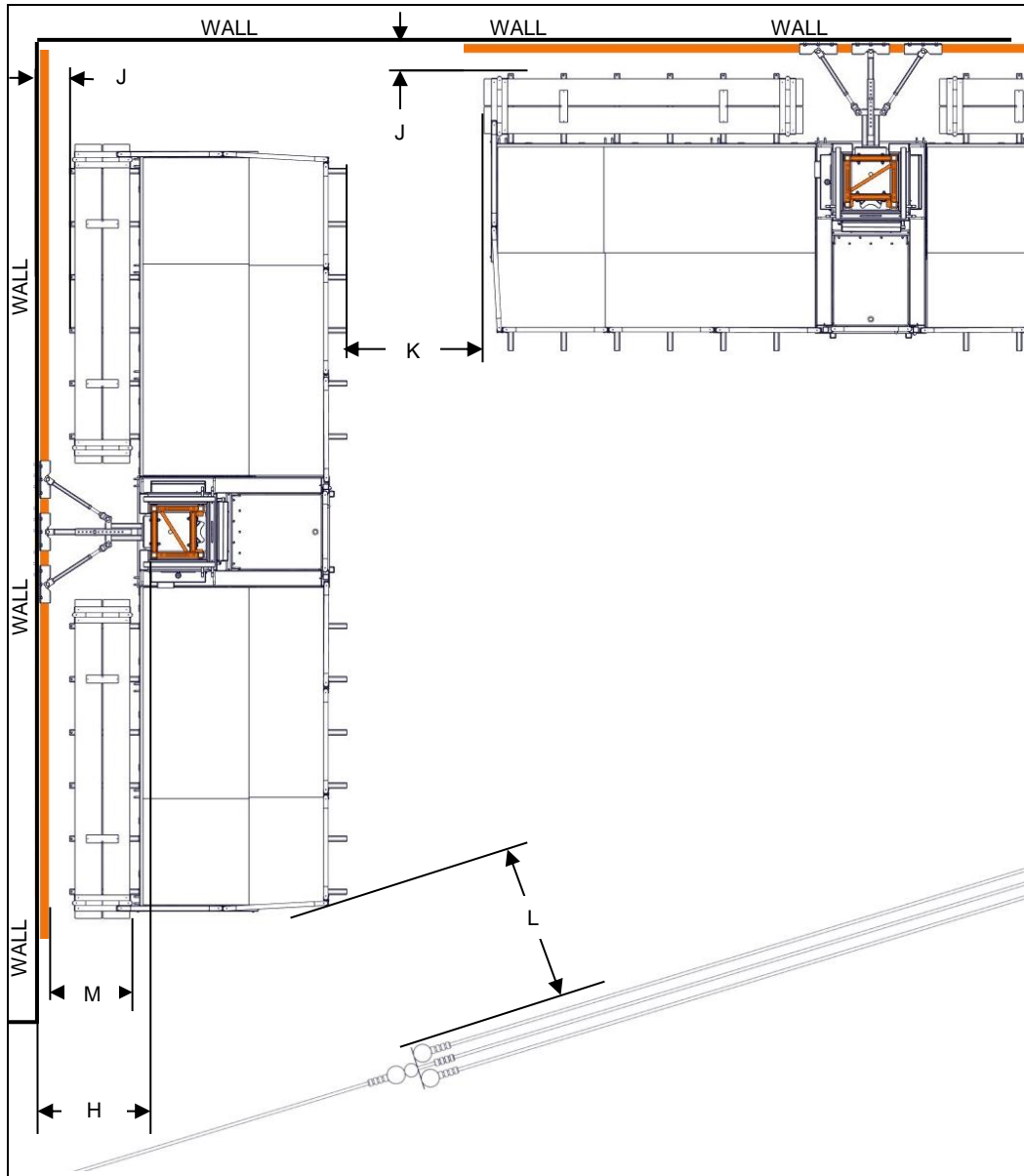


Figure 7 - Clearance to finished walls and around the units

**Table 1 - Dimensions and clearance**

|   | Description   | With ground base   | With freestanding base   |
|---|---|--|--|
| A | Height of first mast anchor   | Recommended 10'-0" (3 m)*  | 30'-0" (9 m)<br>45'-0" (13,7 m)**                                      |
| B | Height of second mast anchor  | Recommended 20'-0" (6,1 m)*<br>Maximum 30'-0" (9 m)  | N/A  |
| C | Distance between mast anchors   | 31'-0" (9,5 m) ± 5'-0" (1,5 m)   |  |
| D | Maximum total installation height   | 550'-0" (168 m)  | 550'-0" (168 m)<br>200'-0" (61 m)**                                    |
| E | Minimum floor height  | 33" (838 mm)<br>47-1/2" (1 206 mm)***  | 60" (1 524 mm)<br>74-1/2" (1 892 mm)***                                |
| F | Maximum height above last mast anchor during use  | 5'-0" (1,5 m) †  | 5'-0" (1,5 m) †  |
| G | Maximum freestanding height   | <b>Configuration not allowed</b>   | 45'-0" (13,7 m)<br>With universal base<br>With freestanding base ACT-8 |
| H | Distance between the front of the mast and the face of the anchor wall (mast anchor length) | <b>With 6" (152 mm) wall fixture</b> [Min 16" (406 mm) - Max 22" (559 mm)]<br><b>With 16" (406 mm) wall fixture</b> [Min 26" (660 mm) - Max 30" (762 mm)]<br><b>With 2'-3" (686 mm) wall fixture</b> [Min 34" (864 mm) - Max 72" (1,830 mm)]<br>Max 72" (1 830 mm) ‡ |  |
| J | Clearance between platform and wall / structure / obstacle                                  | Min 6" (152 mm)<br>14" (356 mm)****<br>[Min 14" (356 mm) - Max 18" (457 mm)]*****  |  |
| K | Clearance between adjacent platforms  | Min 14" (356 mm)   |  |
| L | Clearance between platform and power lines  | According to local regulations in force  |  |
| M | Distance between the front of the unit and the finished wall                                | Depends on the length of the anchors   |  |

Note: « freestanding » means any operational assembly of the unit on a mast without the use of any mast anchor device.

Note: The « front of the unit » is defined as the side of the unit facing the wall and the « rear of the unit » as the side with the area of circulation.

\* The first two (2) anchors may be installed up to a maximum of 30'-0" (9 m) provided that a minimum spacing of 10'-0" (3 m) is maintained between the first and the second anchor.

\*\* If the first mast anchor (A) is installed higher than 30'-0" (9 m), the maximum installation height (D) is 200'-0" (61 m). Therefore, for any installation height greater than 100'-0" (30,5 m), it is necessary to place wooden support blocks directly under the mast.

\*\*\* With tapered extension section.

\*\*\*\* From 14" (356 mm), guardrails must be used at the edge of the facade.

\*\*\*\*\* For facade plastering operations, the distance must be [Min 14" (356 mm) - Max 18" (457 mm)] and no guardrails should be used.

† No accessories (winter shelter, portable crane, monorail, etc.).

‡ For a distance (H) greater than 72" (1 830 mm), contact FRACO for special parts.

## Display plates and stickers

### Identification and serial number plate

These identification plates are located on the lifting unit and must be visible at all times. The serial number is both available on the identification plate and engraved on the steel frame above the plate.

#### Reading a serial number:

No. XX YY ZZZZ = XX (Model number) YY (Year of manufacture) ZZZZ (Number of the platform)

Be sure to read and fully understand all signs, warnings and instructions displayed on the platform. Ensure that this information is at all times visible, legible and in good condition.



Figure 8 - ACT-8 Identification Plate

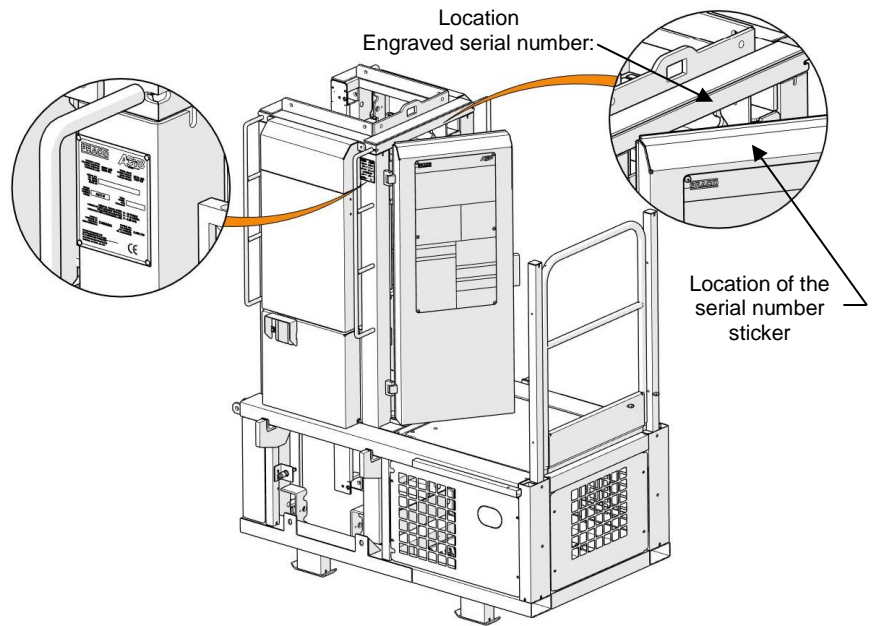
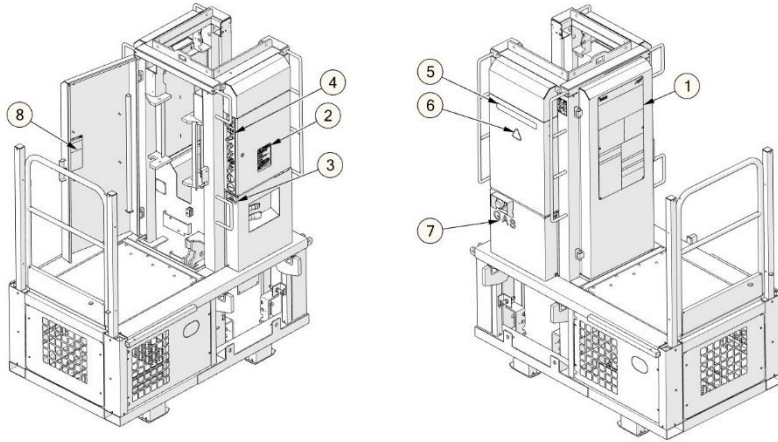


Figure 9 - Plate and Serial Number location

Stickers



**2**

**ACT8**  
**FRACO**

**CRANE DIRECTIONS**  
**UTILISATION DE LA GRUE**  
**UTILIZACION DEL GRUA**

Before using the crane, follow these steps:  
Avant d'utiliser la grue suivez ces étapes:  
Antes de utilizar la grúa siguen estas etapas:

- 1- Turn off the engine.  
Eteindre le moteur.  
Apagar el motor.
- 2- Install the hydraulics quick-connects.  
Assembler les accouplements hydrauliques rapides.  
Armar los conectores hidráulico rápido.
- 3- Start the engine.  
Démarrer le moteur.  
Empezar el motor.
- 4- Turn the accessory knob to the "ON" position.  
Tourner le bouton accessoire à la position "MARCHÉ".  
Volver al botón accesorio a la posición "MARCHA".

**WARNING! AVERTISSEMENT! ¡ADVERTENCIA!**

The platform cannot move while using the crane.  
La plateforme ne peut pas être déplacée lors de l'utilisation de la grue.  
La plataforma no puede ser desplazarse en la utilización de la grúa.

30650233-00

(30050233)  
Figure 11 - Crane operation sticker

**4**

**EMERGENCY STOP**  
**ARRÊT D'URGENCE**

STARTER SWITCH CONTACT

UP / HAUT  
100% 0% 100%

DOWN / BAS  
100% 0% 100%

**INCLINOMETER**  
**INCLINOMETRE**

**ACCESSORIES**  
**ACCESSOIRES**

3010699-00

(30010699)  
Figure 12 - Control button sticker

**3**

**CHOKE**  
**ÉTRANGLEUR**  
**ESTRANGULADOR**

(30050255)  
Figure 14 - Choke sticker

**6**

(30490028)  
Figure 16 - Hot surface warning sticker

**7**

**GAS**

Note: In the case of a diesel engine operated unit the sticker used will be (30490264) "Diesel"

(30490275)  
Figure 17 - Gas sticker

**1**

**FRACO** Standard load distribution and safety rules **ACT8**  
Distribution de charge équilibrée et consignes de sécurité

Standard load distribution and safety rules  
Distribution de charge équilibrée et consignes de sécurité

Refer to user's guide for specific load distribution  
Référer à l'utilisateur pour spécifics loads distribution  
Referencia al manual de utilización por consignes específicas distribución de carga

**WARNING / ADVERTENCIA**

(30020027)

Figure 10 - Warning and load sticker

**5**

**HYDRAULIC OIL ONLY**  
**HUILE HYDRAULIQUE SEULEMENT, ACÉTIDE HYDRAULICO SOLAMENTE**

(30040074)  
Figure 13 - Hydraulic oil only sticker

**8**

**FRACO** EMERGENCY DEVICE & MANUAL PUMP **ACT8**  
UTILISATION DE LA POMPE MANUELLE

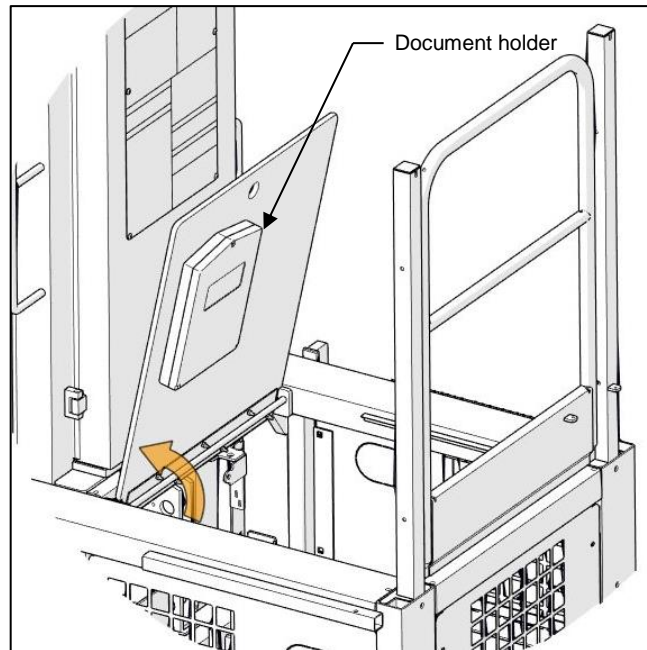
IN CASE OF BREAKDOWN WHEN YOU JUST USE THE EMERGENCY DESCENT FOLLOW THESE STEPS  
IL Y A UNE PANNE ET QU'IL VOUS DEVREZ VOUS DÉBARRASSER DE LA DESCENTE D'URGENCE, SUIVEZ CES ÉTAPES

View A  
View B  
View C

(30490264)  
Figure 15 - Emergency descent sticker

## Documentation compartment

The waterproof compartment on the lifting unit contains important documentation such as the (maintenance manuals), (user manual) and (engine manufacturer's manual). The document holder is located under the engine access panel.



**Figure 18 - Documentation compartment**

## General Technical Specifications

**Table 2 - Technical Specifications**

| FRACO ACT-8 – Specifications  | Data  |
|---|---|
| <ul style="list-style-type: none"> <li>Maximum load capacity:</li> <li>Reduced load capacity:</li> </ul>  | <ul style="list-style-type: none"> <li>8 000 lb (3 630 kg) / mast</li> <li>4 000 lb (1 815 kg) / mast</li> </ul>  |
| <ul style="list-style-type: none"> <li>Maximum load during installation and disassembly:</li> </ul>   | <ul style="list-style-type: none"> <li>4 500 lb (2 041 kg) / mast</li> </ul>  |
| <ul style="list-style-type: none"> <li>Lifting speed (electrical):</li> <li>Lifting speed (diesel):</li> <li>Lifting speed (gas) *:</li> </ul>  | <ul style="list-style-type: none"> <li>0-35 fpm (0-10,7 m/min)</li> <li>0-38 fpm (0-11,5 m/min)</li> <li>0-39 fpm (0-11,9 m/min)</li> </ul>   |
| <ul style="list-style-type: none"> <li>Engine type (electric) **:</li> <li>Engine type (diesel):</li> <li>Engine type (gas) *:</li> </ul>   | <ul style="list-style-type: none"> <li>20 CV, 400 AC, 60 Hz**, 20 A</li> <li>Kubota V1505</li> <li>Honda GX690</li> </ul>   |
| <ul style="list-style-type: none"> <li>Maximum platform length (single mast)</li> </ul>   | <ul style="list-style-type: none"> <li>Full load 56'-8" (17,3 m)</li> <li>Reduced load 63'-4" (19,3 m)</li> </ul>   |
| <ul style="list-style-type: none"> <li>Maximum platform length (Double mast)</li> </ul>   | <ul style="list-style-type: none"> <li>Full load 118'-8" (36,2 m)</li> <li>Reduced load 125'-4" (38,2 m)</li> </ul>   |
| <ul style="list-style-type: none"> <li>Maximum assembly height (without anchor)</li> <li>Maximum assembly height (with anchors)</li> </ul>  | <ul style="list-style-type: none"> <li>45 ft (13,7 m)</li> <li>550 ft (168 m)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Width of main platform</li> <li>Width of platform with supports</li> </ul>   | <ul style="list-style-type: none"> <li>3'-4" (1 m)</li> <li>5'-9" (1,8 m)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Maximum length of outriggers (standard)</li> <li>Maximum length of outriggers (with support)</li> </ul>  | <ul style="list-style-type: none"> <li>6'-0" (1,8 m)</li> <li>8'-0" (2,4 m)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Typical spacing between anchors</li> </ul>   | <ul style="list-style-type: none"> <li>30'-0" (9,1 m)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Maximum height above last anchor during operation of the unit</li> </ul>   | <ul style="list-style-type: none"> <li>5'-0" (1,5 m)</li> </ul>   |
| <ul style="list-style-type: none"> <li>Mast section bolts</li> </ul>  | <ul style="list-style-type: none"> <li>Ø1"-8unc x 6-½" gr8 zinc or A325</li> </ul>  |
| <ul style="list-style-type: none"> <li>Tightening torque of bolts on mast section</li> </ul>  | <ul style="list-style-type: none"> <li>265 lb-ft (360 Nm)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Maximum permissible wind speeds:</li> <li>During assembly</li> <li>During operation (without anchors)</li> <li>During operation (with anchors)</li> <li>Out of service (without anchors)</li> <li>Out of service (with anchors)</li> </ul> | <ul style="list-style-type: none"> <li>0 to 28 mph (45 km/h)</li> <li>0 to 22 mph (35 km/h)</li> <li>0 to 35 mph (55 km/h)</li> <li>22 to 100 mph (35 to 165 km/h)</li> <li>35 to 100 mph (55 to 165 km/h)</li> </ul> |
| <ul style="list-style-type: none"> <li>Lifting system</li> </ul>  | <ul style="list-style-type: none"> <li>Worm screw system with bearings</li> </ul>   |

\* Available in some countries only.

\*\* Operating frequency 60 Hz (North America) and 50 Hz (Europe)

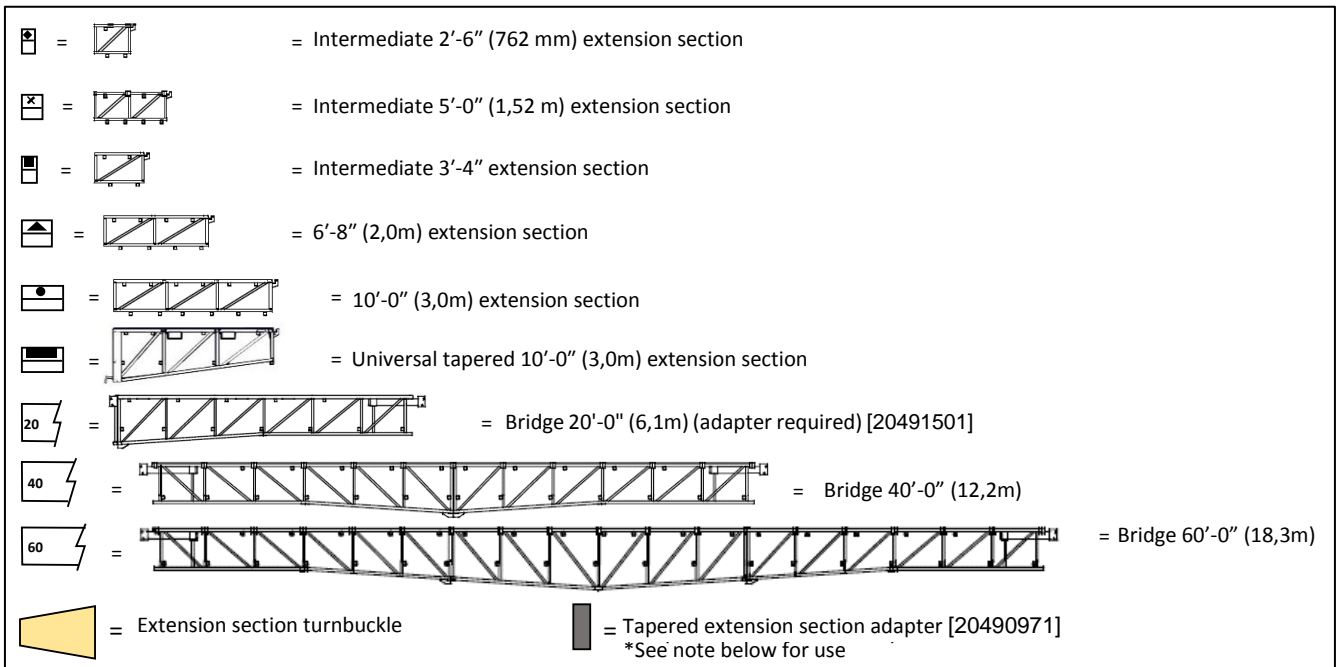


## Permitted configurations and load distribution

**Notes:**

- The combined weight of all accessories present on the platform must be deducted from the total allowable load.
  - ∞ SEE TABLE 17 - LOAD DEDUCTIONS, ON PAGE 160
  - ∞ SEE TECHNICAL DATA SHEETS, ON PAGE 147
- The load distribution must be observed at all times.
- The weight of the workers must be deducted from the total allowable load. Always consider a minimum of two (2) workers present in case of an emergency. Consider that a worker has an average weight of 175 lbs (80 kg) and his equipment approximately 88 lb (40 kg). Consider the weight of the equipment for a maximum of two (2) workers, thus 265 lb (120 kg).
- For extensions longer than 13'-4" (4 m), the first extension section must be supported by a turnbuckle or be a « tapered » section (universal or tapered with adapter).
- On the ACT-8, the intermediate extension section of 5'-0" (1,5 m) **may not** be replaced by two by two sections of 2'-6" (0,75 m).
- It is **forbidden** to load on work and circulation areas. These areas are reserved for workers and tools only.
- **Important!** The anti-pivot system wheels must be installed on both sides of the platform if one (1) or both (2) sides of the platform measure more than 23'-4" (7,10 m).
  - ∞ SEE INSTALLATION ANTI-PIVOT DEVICE, SMALL WHEEL (OPTIONAL), ON PAGE 100
  - ∞ SEE INSTALLATION ANTI-PIVOT DEVICE, LARGE WHEEL (OPTIONAL), ON PAGE 101

|     |   |
|-----|---|
| □   | Installation permitted  |
| A-B | Installation permitted with 50% load reduction on each mentioned side |
| X   | Installation prohibited   |



Legend 1 – Loads distribution

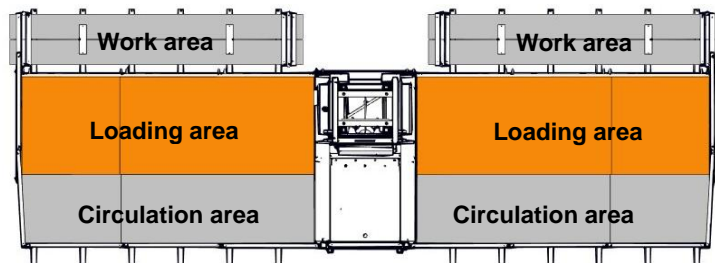
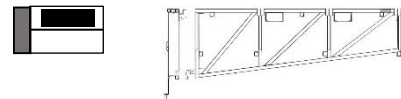


Figure 19 - Platform areas

**\* Note:**

The tapered extension adapter is only necessary when using a non-universal tapered extension section (former model) (15060013) and (15060024).



For details concerning the installation of the tapered extension section adapter.

∞SEE FIGURE 61 - MODULAR TAPERED EXTENSION SECTION, ON PAGE 53

However, the adapter is not necessary if a universal tapered extension section is used (15090184) and (1509095).

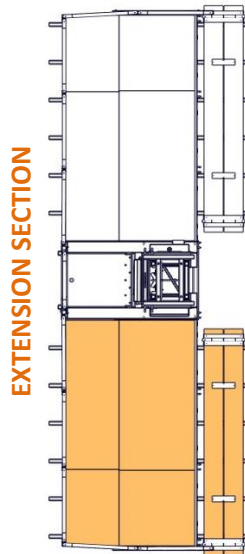
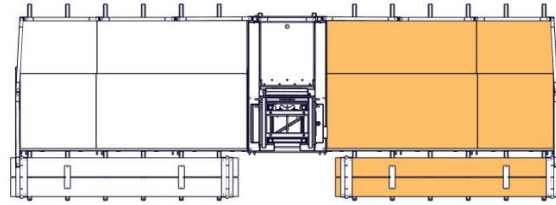


## Configuration - Single mast

Table 3 - Single mast, load distribution

|     |   |
|-----|---|
|     | Installation permitted  |
| A-B | Installation permitted with 50% load reduction on each mentioned side |
| X   | Installation prohibited   |

### EXTENSION SECTION



| Side<br><b>A</b>       | Side<br><b>B</b> | Side                   |   |   |   |   |   |   |   |   |     |     |
|------------------------|------------------|------------------------|---|---|---|---|---|---|---|---|-----|-----|
|                        |                  | (No extension section) |   |   |   |   |   |   |   |   |     |     |
| (No extension section) |                  |                        |   |   | X | X | X | X | X | X | X   | X   |
|                        |                  |                        |   |   | A | A | X | X | X | X | X   | X   |
|                        |                  |                        |   |   | A | A | X | X | X | X | X   | X   |
|                        |                  | X                      | B |   |   |   | A | A | X | X | X   | X   |
|                        |                  | X                      | B | B |   |   |   | A | X | X | X   | X   |
|                        |                  | X                      | X | B | B |   |   |   | A | X | X   | X   |
|                        |                  | X                      | X | X | B | B |   |   | A | A | X   | X   |
|                        |                  | X                      | X | X | X | X | B | B |   | A | X   | X   |
|                        |                  | X                      | X | X | X | X | X | B | B |   | A   | X   |
|                        |                  | X                      | X | X | X | X | X | X | X | B | A-B | A-B |

**Full load:**

- 4 000 lb (1 815 kg) MAX per platform side
- Total MAX load on platform 8 000 lb (3 630 kg)

**Reduced load:**

**CASE 1 - Reduced load on one (1) side**

- 2 000 lb (907 kg) MAX on the reduced load side
- 4 000 lb (1 815 kg) MAX on the full load side
- Total MAX load on platform 6 000 lb (2 725 kg)

**CASE 2 - Reduced load on both (2) sides**

- 2 000 lb (907 kg) MAX on the reduced load sides
- Total MAX load on platform 4 000 lb (1 815 kg)

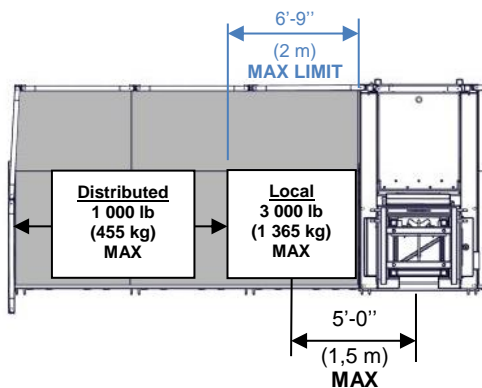


Figure 21 - Single-mast full load

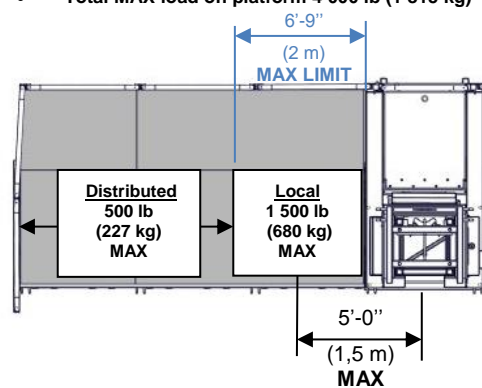


Figure 20 - Single-mast reduced load

### Configuration example (single-mast)

The following is an example to help you understand how to use the configuration tables. The example of the [Table 4](#) presents a unit with short extension sections. The [Table 5](#) example presents a unit with long extension sections.

**Short extensions configuration:**  
When the length of at least one (1) side of the unit is equal to or less than 13'-4" (4,0 m).

**Long extensions configuration:**  
When the length of the two (2) sides of the unit is greater than 13'-4" (4,0 m).

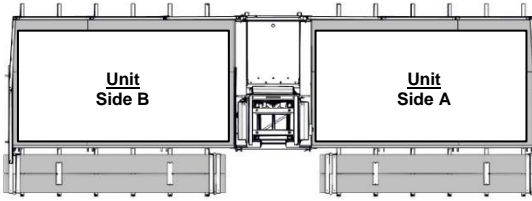
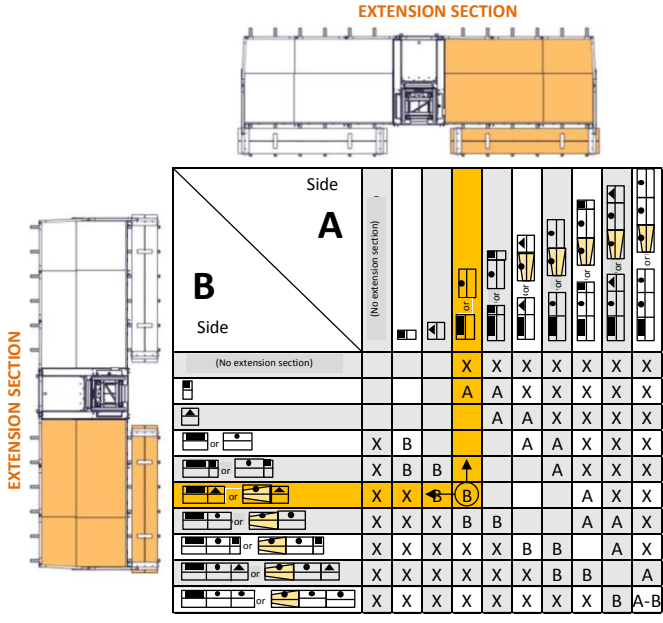


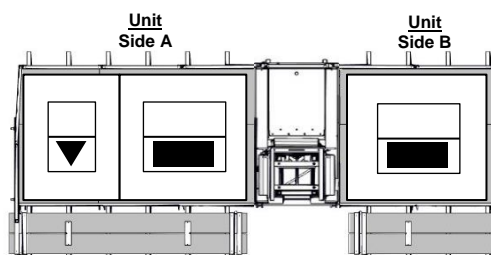
Figure 22 - Example, distribution zones per unit (single-mast)

Table 4 - Explained distribution example (single-mast, short extensions configuration)

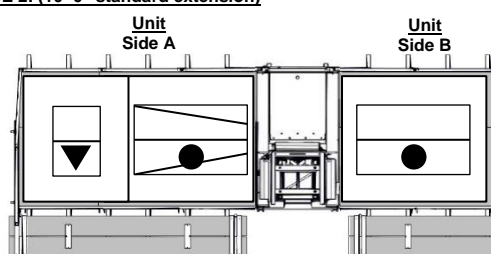


| Side   |                        | Side A                 |        |        |        |        |        |        |        |        |        |     |
|--------|------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
|        |                        | (No extension section) | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] |     |
| Side B | (No extension section) |                        |        | X      | X      | X      | X      | X      | X      | X      | X      | X   |
|        | [Icon]                 |                        |        | A      | A      | X      | X      | X      | X      | X      | X      | X   |
|        | [Icon]                 |                        |        | A      | A      | X      | X      | X      | X      | X      | X      | X   |
|        | [Icon]                 | X                      | B      | B      |        |        |        |        |        |        |        |     |
|        | [Icon]                 | X                      | X      | B      | B      |        |        |        |        | A      | X      | X   |
|        | [Icon]                 | X                      | X      | X      | X      | X      | B      | B      |        | A      | A      | X   |
|        | [Icon]                 | X                      | X      | X      | X      | X      | X      | B      | B      |        | A      | X   |
|        | [Icon]                 | X                      | X      | X      | X      | X      | X      | X      | B      | B      |        | A   |
|        | [Icon]                 | X                      | X      | X      | X      | X      | X      | X      | X      | B      | B      | A-B |
|        | [Icon]                 | X                      | X      | X      | X      | X      | X      | X      | X      | X      | B      | A-B |

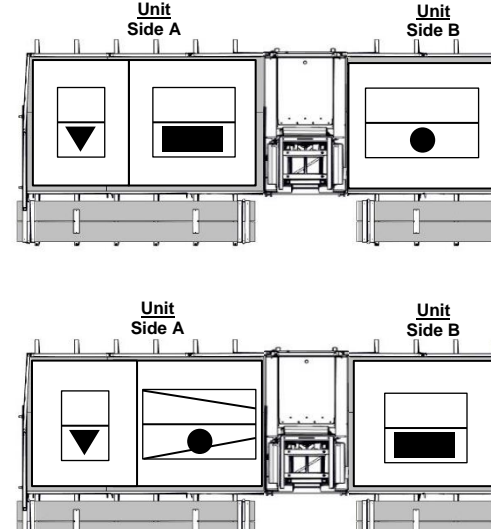
**CASE 1: (10'-0" Universal tapered extension)**



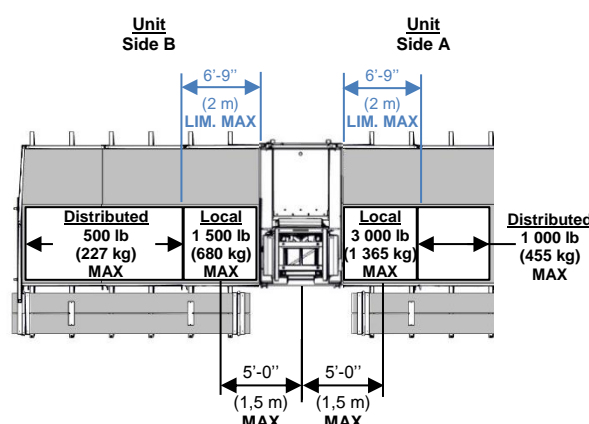
**CASE 2: (10'-0" standard extension)**



**CASE 3: (10'-0" mixed extension)**



**Note:** For any extension length greater than 13'-4" (4,0 m) consisting of a standard 10'-0" (3 m) extension, a turnbuckle must be used on the 10'-0" (3,0 m) extension.



**Unit Side B**                      **Unit Side A**

6'-9" (2 m) LIM. MAX                      6'-9" (2 m) LIM. MAX

Distributed 500 lb (227 kg) MAX      Local 1 500 lb (680 kg) MAX      Local 3 000 lb (1 365 kg) MAX      Distributed 1 000 lb (455 kg) MAX

5'-0" (1,5 m) MAX                      5'-0" (1,5 m) MAX

Figure 23 - Example of load distribution (single-mast, short extensions)

### Configuration example (single-mast) (CONTINUED)

**Short extensions configuration:**

When the length of at least one (1) side of the unit is equal to or less than 13'-4" (4,0 m).

**Long extensions configuration:**

When the length of the two (2) sides of the unit is greater than 13'-4" (4,0 m).

**Table 5 - Distribution example (single-mast, short extensions configuration)**

|                   |                  |                   |                        |   |   |   |   |   |   |     |   |   |   |
|-------------------|------------------|-------------------|------------------------|---|---|---|---|---|---|-----|---|---|---|
|                   |                  | EXTENSION SECTION |                        |   |   |   |   |   |   |     |   |   |   |
| EXTENSION SECTION | Side<br><b>B</b> | Side<br><b>A</b>  | (No extension section) |   |   |   |   |   |   |     |   |   |   |
|                   |                  |                   |                        |   | X | X | X | X | X | X   | X | X | X |
|                   |                  |                   |                        |   | A | A | X | X | X | X   | X | X | X |
|                   |                  |                   |                        |   | A | A | X | X | X | X   | X | X | X |
|                   |                  |                   |                        | X | B |   |   |   | A | A   | X | X | X |
|                   |                  |                   |                        | X | B | B |   |   | A | X   | X | X | X |
|                   |                  |                   |                        | X | X | B | B |   | A | X   | X | X | X |
|                   |                  |                   |                        | X | X | X | B | B |   | A   | X | X | X |
|                   |                  |                   |                        | X | X | X | X | X | B | B   |   | A | X |
|                   |                  |                   |                        | X | X | X | X | X | X | B   | B |   | A |
|                   | X                | X                 | X                      | X | X | X | X | X | B | A-B |   |   |   |

**CASE 1: (10'-0" tapered extension with adapter)**

**CASE 2: (10'-0" standard extension with turnbuckle)**

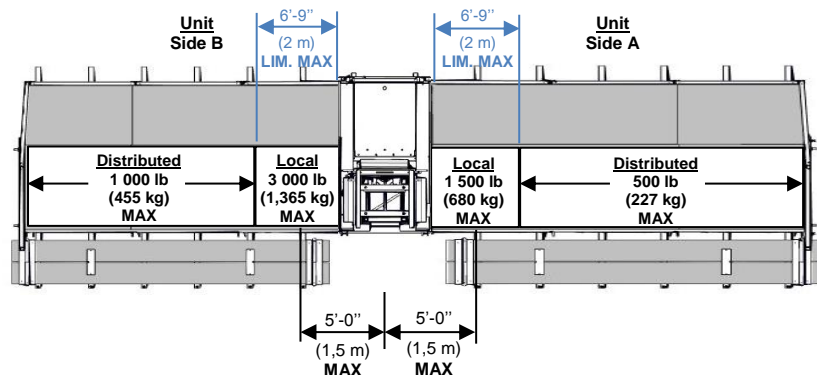
**CASE 3 forbidden! : (Mixed extensions)**

Note: When using an extension turnbuckle, the first extension section installed on the lifting unit must be a 10'-0" (3,0 m) standard extension section. Extension turnbuckles must be used if the assembled extension length is greater than 13'-4" (4 m).

Note: For any extension length greater than 13'-4" (4,0 m) of the two (2) sides, the same type of 10'-0" (3,0 m) extensions must be used. Either tapered extensions or standard extensions with turnbuckles as explained in the above case.

Note: For any extension length greater than or equal to 23'-4" (7,1 m) on one side of the unit, an anti-pivot device must be installed on both (2) sides of the unit.

∞ SEE INSTALLATION ANTI-PIVOT DEVICE, SMALL WHEEL (OPTIONAL) AND INSTALLATION ANTI-PIVOT DEVICE, LARGE WHEEL (OPTIONAL), ON PAGES 100 AND 101



**Figure 24 - Example of load distribution (single-mast, long extensions)**

## Configuration - Double mast

Table 6 - Double mast, load distribution

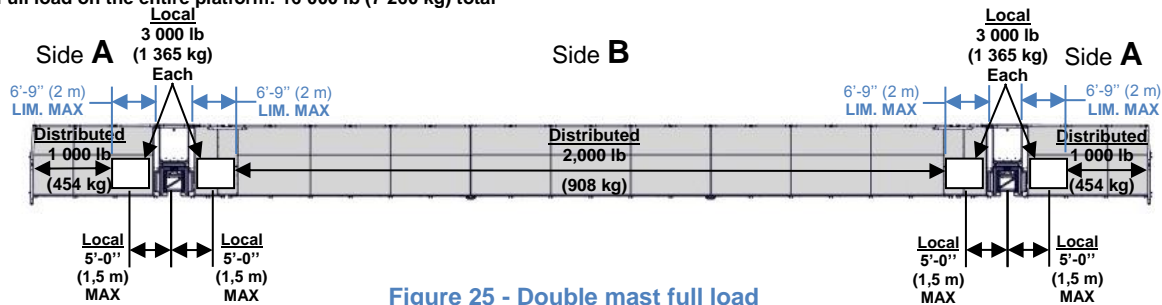
- Installation permitted
- A-B Installation permitted with 50% load reduction on each mentioned side
- X Installation prohibited

**EXTENSION SECTION**

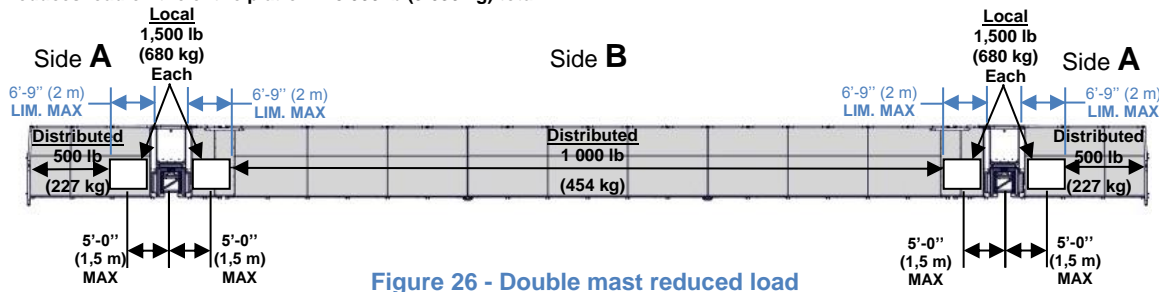
| Side | Side | Side                 |   |   |   |   |   |   |   |   |   |
|------|------|----------------------|---|---|---|---|---|---|---|---|---|
|      |      | A                    |   |   |   |   |   |   |   |   |   |
| B    | Side | No extension section |   |   |   |   |   |   |   |   |   |
|      |      | or                   |   |   |   |   |   |   |   |   |   |
| 20   | (*)  | X                    |   |   |   | A | X | X | X | X | X |
| 40   |      | X                    |   |   |   | A | X | X | X | X |   |
| 60   |      | X                    |   |   |   | A | X | X | X | X |   |
| 20   | (*)  | X                    |   |   |   | A | X | X | X | X |   |
| 40   |      | X                    |   |   |   | A | X | X | X | X |   |
| 60   |      | X                    | B | B |   |   | A | X | X | X |   |
| 20   | (*)  | X                    | B | B |   |   | A | X | X | X |   |
| 40   |      | X                    | B | B | B |   |   | A | X | X |   |
| 60   |      | X                    | X | X | B | B | B |   | A | X | X |

\* Adapter required [20491501]

Full load on the entire platform: 16 000 lb (7 260 kg) total



Reduces load on the entire platform: 8 000 lb (3 630 kg) total



### Configuration example (Double mast)

The following is an example to help you understand how to use the configuration tables. At first, in the two-mast configuration, each lifting unit is considered independently of the other within the table. In a second step, the load distributions are combined in order to obtain the total allowable distribution of the assembly. Thus, in the following example:

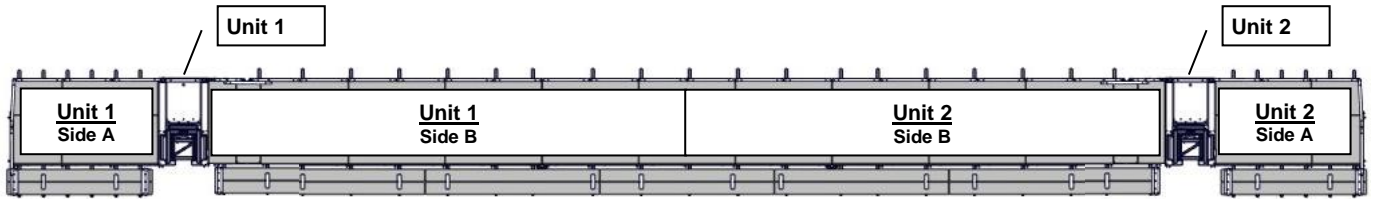


Figure 27 - Example, distribution zones per unit (double mast)

Table 7 - Example of double mast distribution

EXTENSION SECTION

EXTENSION SECTION

\* Adapter required

Note: For the bridge load distribution, always take the most restrictive configuration of the two platforms. Which is why the distribution on the central bridge is 1 000 lbs (454 kg) (Reduced load) and not 1 500 lbs. (Full load).

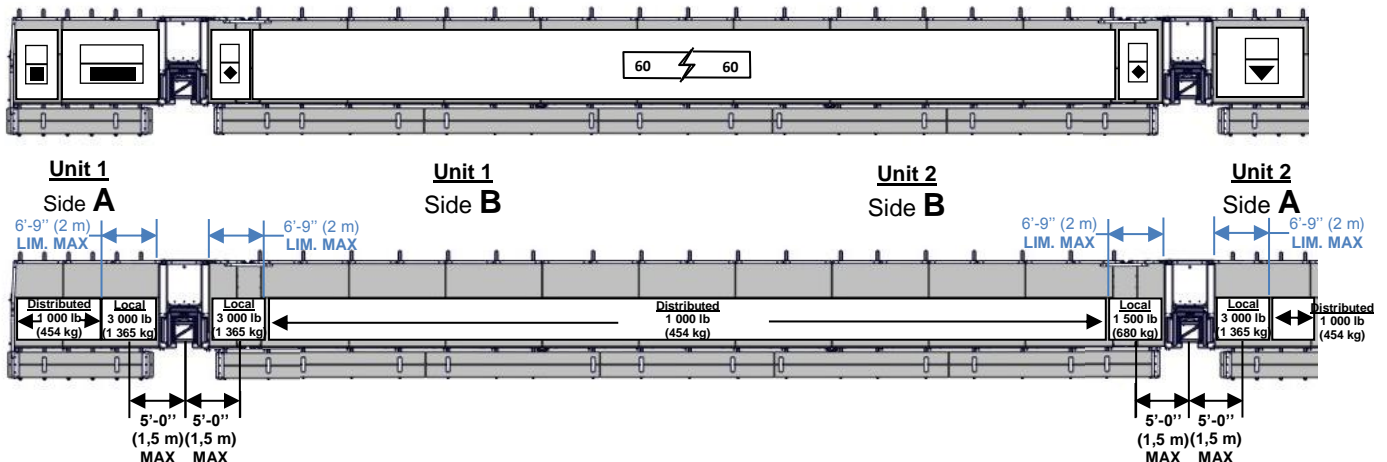


Figure 28 - Example of load distribution (Double mast)

## Operation, use of the lifting unit



The operator must hold a valid Level 1 card. This person must be familiar with the instructions for use, have sufficient experience and be aware of the risks involved in the use of the platform.

- **IMPORTANT!** Refer to the section **WARNINGS** for general safety instructions and additional warnings.  
∞SEE WARNINGS, ON PAGE 7
- **IMPORTANT!** Before use at the beginning of each shift, all points of the « **DAILY INSPECTION GRID** » must be checked, including a functional check. When using the platform, the operator must strictly follow all operating instructions.  
∞SEE DAILY INSPECTION GRID, ON PAGE 157
- Make sure no one is under the platform or within the security perimeter. Sufficient lighting must be available to ensure safe use. Notify all persons on the platform before performing any vertical movement of the platform. Beware of presence of unauthorized persons.
- Before and during use of the platform, the operator must check for wind and unfavorable weather conditions. The platform must not be used if the wind speed exceeds the authorized limits or in the event of an electrical storm. For unfavorable wind speeds, consult the **TABLE 2 - TECHNICAL SPECIFICATIONS**.  
∞SEE GENERAL TECHNICAL SPECIFICATIONS, ON PAGE 18
- Always use safety harnesses when handling plankings and/or guardrails when passing a mast anchor or obstacles.  
∞SEE REGULATORY, ON PAGE 10
- The outrigger areas must be composed of FRACO outriggers and wooden plankings in compliance with applicable local regulations. Any additions must be deducted from the allowable load. Any significant addition to the outriggers (steel plate, extra planking thickness, plywood or other ...) must be verified, approved and deducted from the allowable load by a competent person.  
∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19
- The operator must at all times ensure that load distributions and maximum number of people on the platform are respected. A maximum of two (2) persons per unit side must be considered, plus one (1) person operating the unit. This means a maximum of five (5) persons distributed over the entire platform surface for a single-mast assembly and ten (10) persons for a double mast assembly. Refer to the information signs present on the platform. For a distribution with a higher number of workers, contact the FRACO engineering department.  
∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19
- All loads likely to slip or fall from the platform must be secured. Keep the platform free of debris, rubbish, snow, etc. Make sure that no tools or other objects extend beyond the outer perimeter of the platform limited by the plankings and guardrails. At any time, you can stop operation by pressing the **EMERGENCY STOP** button (See [Figure 29](#) and [Figure 31](#)). In the event of breakage or malfunction, secure the platform.  
∞SEE ASSISTANCE, ON PAGE 164, and contact FRACO if the problem persists.
- When the platform is stopped after a vertical movement, make sure that it rests on the safety system. At the end of each shift or end of day, the platform must be placed in the « Out of service » position and secured to prevent any unauthorized use. The platform shall be deemed to be in the « Out of service » position when it is at an equal distance between two mast anchors and the loads on either side of the mast are balanced, or when the platform is lowered to the ground level.  
∞SEE EMERGENCY DESCENT PROCEDURE, ON PAGE 31
- Prevent any unauthorized access to the platform. At the end of each shift, or during breaks, remove the key from the control panel. If required, padlock the access (refer to the applicable local regulations).
- If available, read the evacuation plan and its location before using the lifting unit.



## Using the lifting unit (diesel-gas model)

### Step 1 (Before engine start)

- 1- Make sure you have completed your daily inspection before starting the engine.  
∞SEE DAILY INSPECTION GRID, ON PAGE 157
- 2- Make sure that the platform path is clear of obstacles.
- 3- Make sure the « emergency stop button » (see [Figure 29](#)) is released.
- 4- Make sure that the accessory selector is in the « OFF » position before using the lifting unit.

### Check general engine condition

- 5- Remove any excessive dirt or debris, especially around the muffler.
- 6- Visually inspect for damage.
- 7- Make sure all guards and covers are in place and in good condition. Also check that all nuts, bolts and screws are tight.
- 8- Check the air filter element. A dirty air filter element limits the air flow to the carburetor, which reduces engine performance.

### Step 2 (Ignition)

- 9- Make sure that the « Fuel valve lever » is in the « MARCHE/ON » position.
- 10- Make sure that the « Throttle lever » is in the « MAX » position.
- 11- Pull the « Choke knob » located above the control box on the right of the unit (see [Figure 30](#)).
- 12- Turn the « CONTACT » key (see [Figure 29](#)) to the « START » position.
- 13- When the engine is started, let the key return to the « MARCHE/ON » position. Push the « Choke knob ». The « MARCHE/ON » indicator light must be on.
- 14- After starting, the two (2) « Check engine » and « Low battery » indicator lights must go out. If they remain on, stop the engine immediately. If the problem persists, contact a FRACO representative.

### Step 3 (Moving the platform)

- 15- To raise the platform, hold the « UP » selector in the « SLOW » or « FAST » position for the desired speed.
- 16- To lower the platform, hold the « DOWN » selector switch in the « SLOW » or « FAST » position for the desired speed.
- 17- To stop the movement of the platform, simply release the « UP » or « DOWN » selector.
- 18- For an emergency stop, press the « EMERGENCY STOP » pushbutton.
- 19- Once you have reached the desired height, turn off the engine power by turning the start key from the « CONTACT » position to the « OFF » position.

## Control panel (diesel - gas)

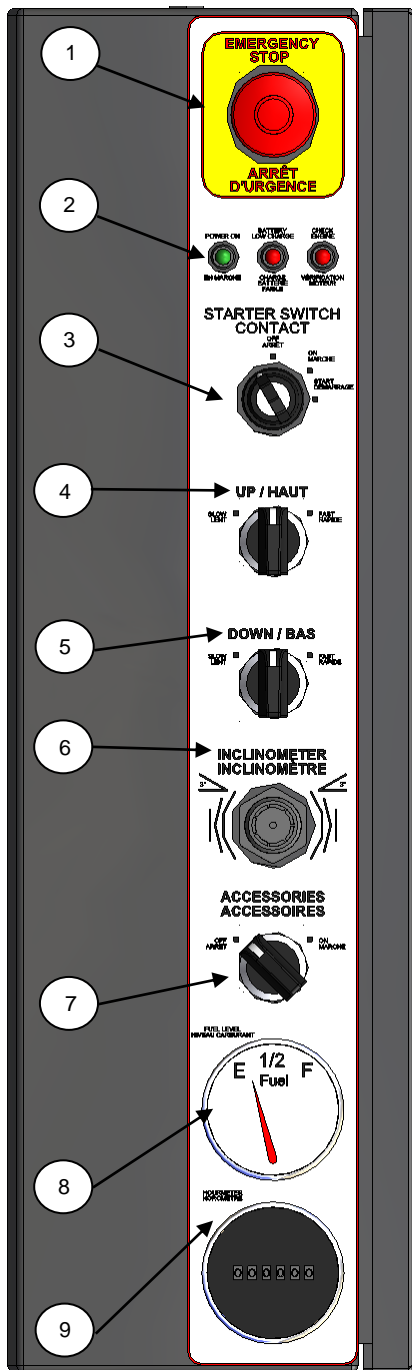
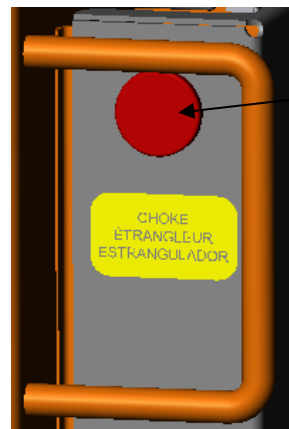
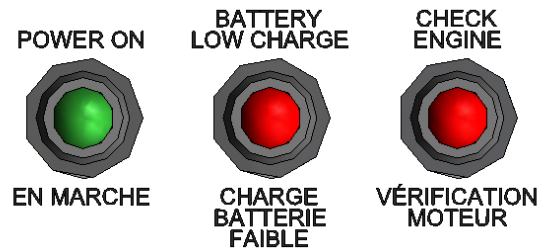


Figure 29 - ACT-8 Control panel (diesel - gas)



The choke knob is located on the side of the accessory hydraulic connection panel under the control box.

Figure 30 - Choke knob

Valid control box for ACT-8 (diesel and gas) lifting unit models

1. **Emergency stop button**
2. Indicator light (green MARCHE/ON), (center red « BATTERY LOW/BATTERIE FAIBLE ») and (right red « CHECK ENGINE/VÉRIFICATION MOTEUR »)
3. Key starter
4. « UP/HAUT » travel selector \*  
(●LENT/SLOW – RAPIDE/FAST●)
5. " DOWN/BAS » travel selector \*  
(●LENT/SLOW – RAPIDE/FAST●)
6. Inclinator alarm
7. Accessories selector
8. Fuel level indicator
9. Hour meter

\* Note: The RAPIDE/FAST operating speed is available for small assembly configurations and reduced loads only. In case of full load, it is likely that the RAPIDE/FAST speed will not engage. In that case, use the LENT/SLOW speed or reduce the loads.



## Using the Lifting unit (electric)

### Step 1 (Before engine start)

- 1- Make sure you have completed your daily inspection before starting the engine.  
∞SEE DAILY INSPECTION GRID, ON PAGE 157
- 2- Make sure that the platform path is clear of obstacles.
- 3- Make sure the « emergency stop button » (see [Figure 31](#)) is released.
- 4- Make sure that the accessory selector is in the « OFF » position before using the lifting unit.

### Check general engine condition

- 5- Visually inspect the engine for damage.
- 6- Make sure all guards and covers are in place and in good condition. Also check that all nuts, bolts and screws are tight.
- 7- Turn the circuit breaker selector switch to the « ON » position. Make sure the « ON » indicator light turns on, confirming a normal operating condition.

### Step 2 (Ignition)

- 8- Turn the « CONTACT » key (see [Figure 31](#)) to the « START » position. If the engine does not start and the « PHASE FAULT » indicator light is lit, turn the phase shift selector to another position « 0" or « 1" or « 2". This should turn off the « PHASE FAULT » indicator light. If the problem persists, contact a FRACO representative.

### Step 3 (Moving the platform)

- 9- To raise the platform, hold the « UP » switch in the « SLOW » or « FAST » position for the desired speed.
- 10- To lower the platform, hold the « DOWN » selector switch in the « SLOW » or « FAST » position for the desired speed.
- 11- To stop the movement of the platform, simply release the « UP » or « DOWN » selector.
- 12- For an **emergency stop**, press the « EMERGENCY STOP » pushbutton.
- 13- Once you have reached the desired height, turn off the engine power by turning the start key from the « CONTACT » position to the « OFF » position and allow the lifting unit to descend slowly on its support elements.

### Control panel (electric)

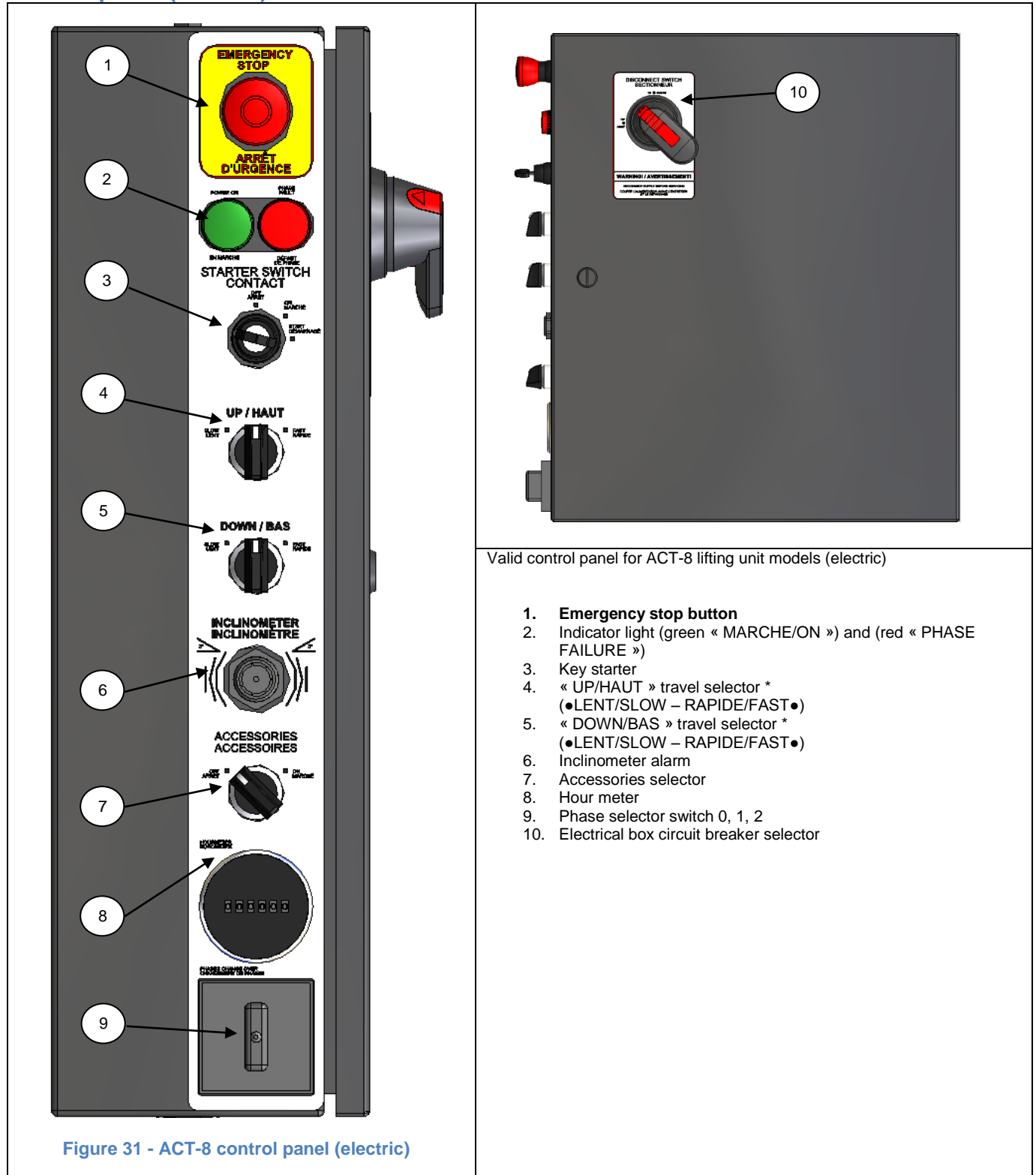


Figure 31 - ACT-8 control panel (electric)

Valid control panel for ACT-8 lifting unit models (electric)

1. **Emergency stop button**
2. Indicator light (green « MARCHE/ON ») and (red « PHASE FAILURE »)
3. Key starter
4. « UP/HAUT » travel selector \*  
(●LENT/SLOW – RAPIDE/FAST●)
5. « DOWN/BAS » travel selector \*  
(●LENT/SLOW – RAPIDE/FAST●)
6. Inclination meter
7. Accessories selector
8. Hour meter
9. Phase selector switch 0, 1, 2
10. Electrical box circuit breaker selector

\* Note: The RAPIDE/FAST operating speed is available for small assembly configurations and reduced loads only. In case of full load, it is likely that the RAPIDE/FAST speed will not engage. In that case, use the LENT/SLOW speed or reduce the loads.

## Using the inclinometer (if applicable\*)

### Inclinometer alarm (See Figure 29 and Figure 31):

In the Double mast configuration, when bridge inclination between the two units exceeds the permitted safety value of  $\pm 3^\circ$ , the alarm is triggered. In that case, you must stop using the unit and reduce said level difference by lowering or raising one of the lifting units. When the inclination exceeds  $5^\circ$ , the platform stops. **You are then in an emergency situation!**

Use the emergency descent to lower the highest lifting unit.

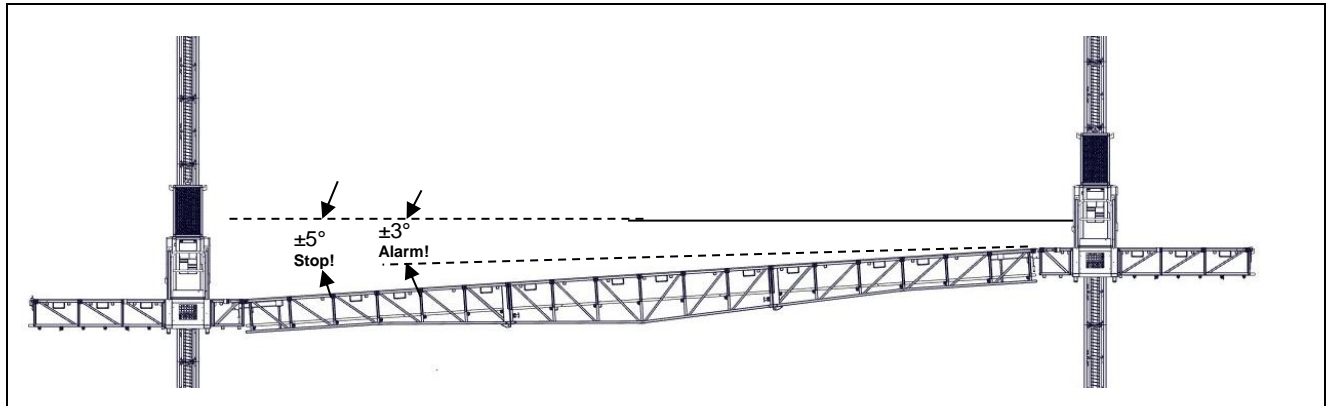
∞ SEE EMERGENCY DESCENT PROCEDURE, ON PAGE 31, AND EMERGENCY DESCENT PROCEDURE (OLDER GENERATION), ON PAGE 32

Once the angle of the platform is again within the admissible  $\pm 3^\circ$  limits, normal operation is again possible.

∞ SEE EMERGENCY DESCENT PROCEDURE, ON PAGE 31

For older generations machines, make sure that the emergency descent release lever is returned to its initial position (facing down) after the platforms have been leveled.

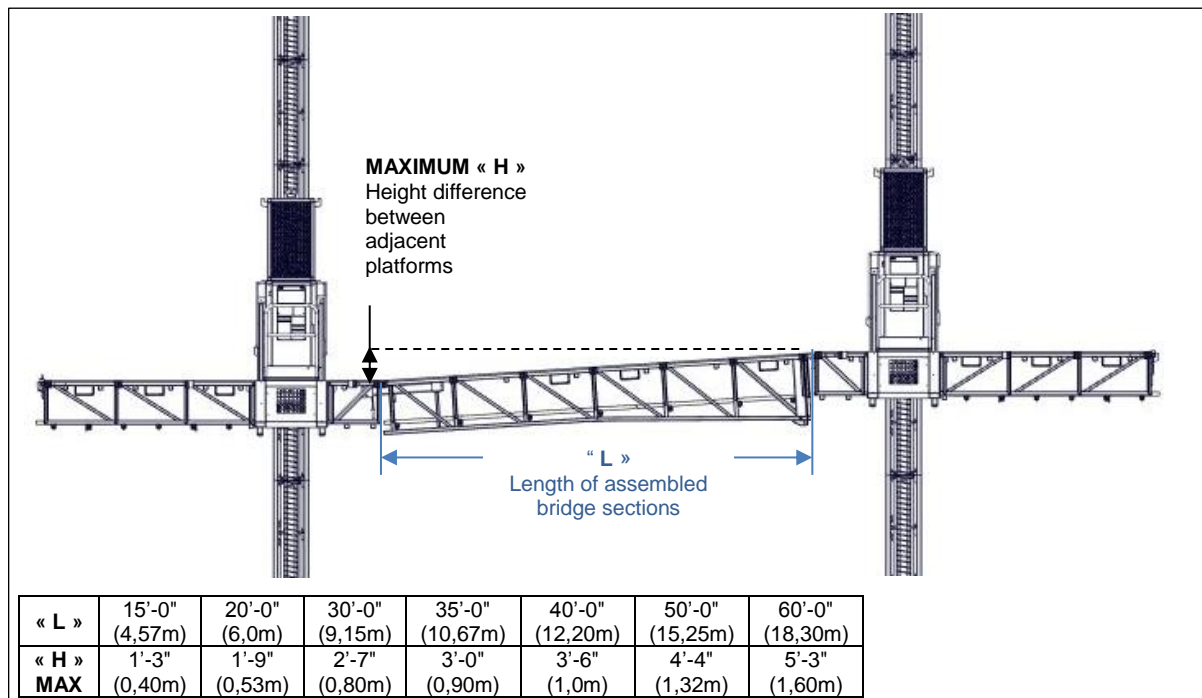
∞ SEE EMERGENCY DESCENT PROCEDURE (OLDER GENERATION), ON PAGE 32



\* Note: The use of the inclinometer is mandatory in Europe. Elsewhere, comply with the applicable local regulations.

Figure 32 - Inclinometer

### Maximum heights between platforms at a maximum inclination of $5^\circ$



## Emergency descent procedure

In the event of a malfunction or when using the « **Emergency Stop Button** » (See [Figure 29](#) and [Figure 31](#)), or a stop caused by the inclinometer (SEE USING THE INCLINOMETER, ON PAGE 30), the emergency descend system can be used to position the platform at a lower level, allowing safe evacuation or restarting of the machine.

- 1- Open the access door to the worm screw. Take the pump arm (*item 2*) located in the door and place it on the hand pump lever (*item 1*).
- 2- Operate the pump from front to rear to raise the platform approximately 5-7/8" (150 mm) until the safety system can be released.
- 3- Press the safety release pedal to activate the release lever (*item 4*).
- 4- Use the pump arm (*item 2*) to turn the hydraulic block release valve (*item 5*). Turn slightly clockwise.
- 5- Let the platform descend by gravity.
- 6- Close the release valve. Turn fully counterclockwise.
- 7- Store the pump arm (*item 2*) in the worm screw access door (*item 3*) and close the door.

**Important!** Any defect must be reported and repaired by a FRACO certified technician.

**Important!** To return to a normal operating mode, be sure to release the emergency button and check that the safety release pedal has returned to its initial position.

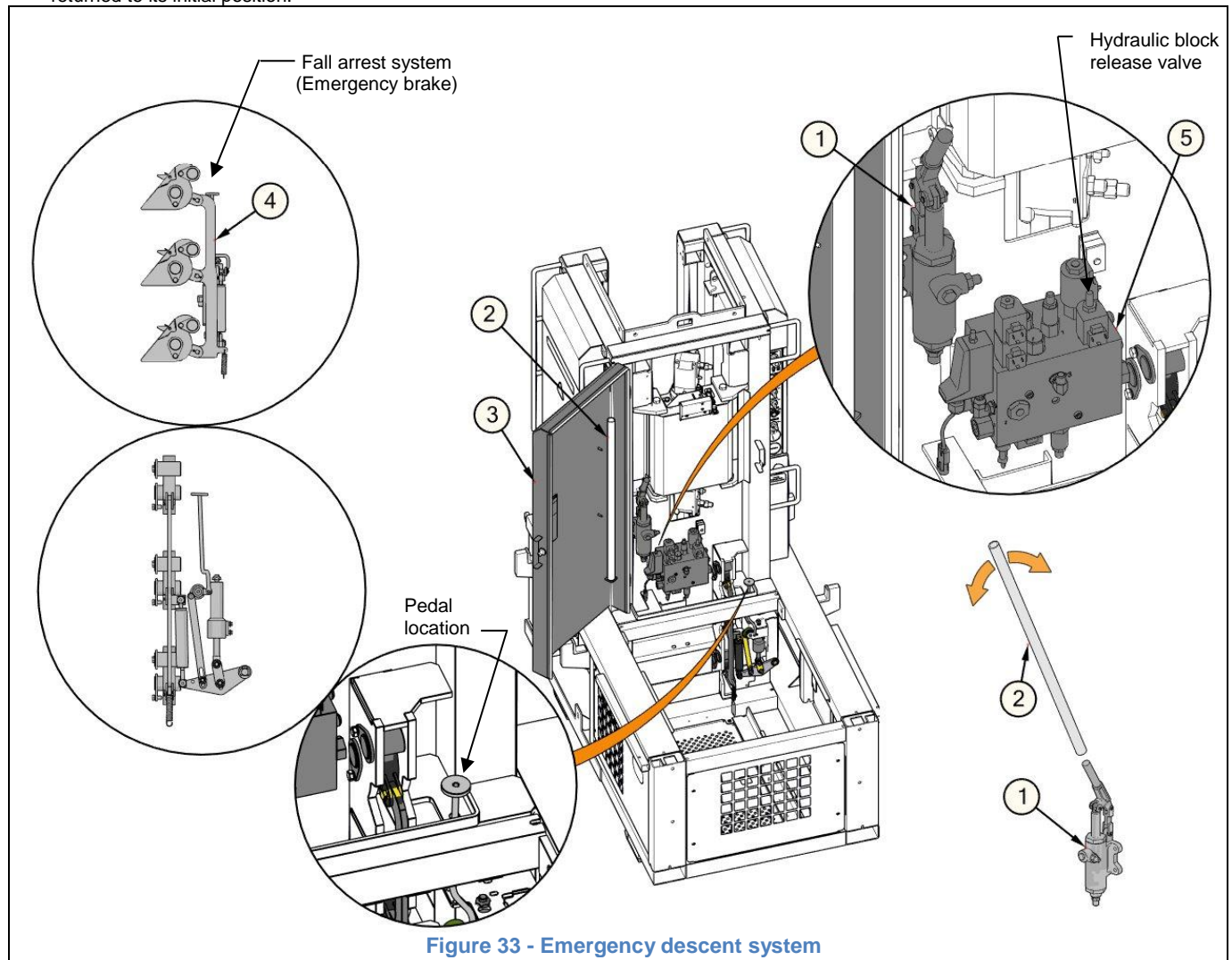


Figure 33 - Emergency descent system

| No. | Item     | Description                       | No. | Item     | Description                 |
|-----|----------|-----------------------------------|-----|----------|-----------------------------|
| 01  | 32030198 | Assembled manual pump             | 04  | 32030323 | Security assembly           |
| 02  | 28050038 | Pump lever                        | 05  | 32030356 | Hydraulic manifold assembly |
| 03  | 32030389 | Control door assembly (ACT-8 Gas) |     |          |                             |

## Emergency descent procedure (older generation)

### FORMER MACHINE GENERATION

The less recent ACT-8 models have a different emergency descent system.

- The access door to the worm screw opens from left to right.
- The hand pump system is centrally located under the worm screw.
- The safety system has a manual release lever instead of the pedal.

In the event of a malfunction or when using the « **Emergency Stop Button** » (See [Figure 29](#) and [Figure 31](#)), or a stop caused by the inclinometer (SEE USING THE INCLINOMETER, ON PAGE 30), the emergency descend system can be used to position the platform at a lower level, allowing safe evacuation or restarting of the machine.

- 1- Open the access door to the worm screw. Take the pump arm located in the door and place it on the manual pump lever.
- 2- Operate the pump from front to rear to raise the platform approximately 5-7/8" (150 mm) until the safety system is released.
- 3- Open the floor panel to access the security system. Turn the release lever up to release the safety system.
- 4- Use the pump arm to turn the hydraulic block release valve. Turn clockwise.
- 5- Let the platform descend by gravity.
- 6- Close the hydraulic block release valve Turn counterclockwise.
- 7- Lower the manual release lever and close the floor panel.
- 8- Store the pump arm in the worm screw access door (*item 3*) and close the door.

**Important!** Any defect must be reported and repaired by a FRACO certified technician.

**Important!** To return to a normal operating mode, be sure to release the emergency button and check that the safety release pedal has returned to its initial position, as defined in step 7.

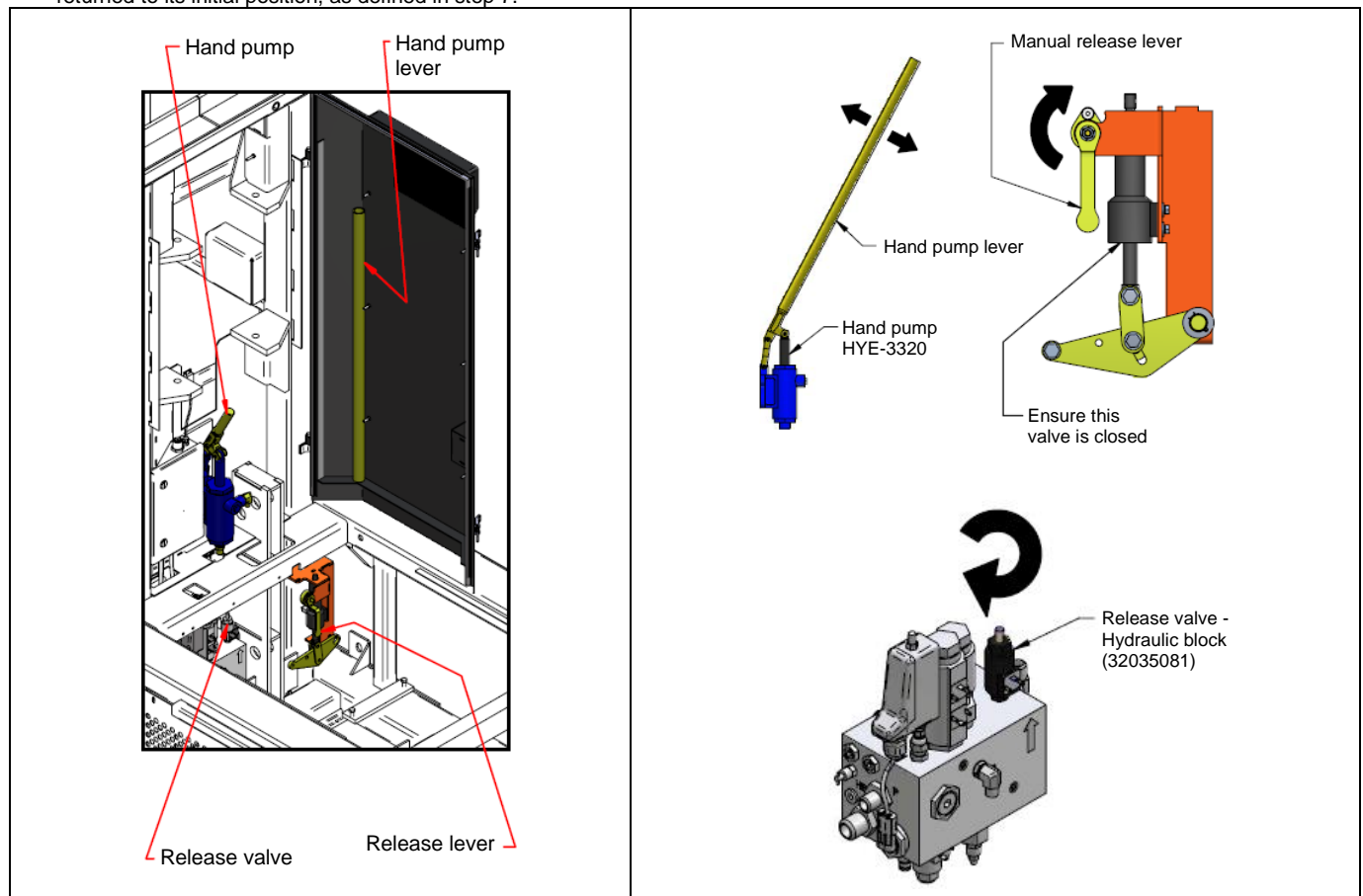


Figure 34 - Emergency descent system (Former generation)

## Safety system periodic verification (DAILY)

- 1- Verify that spring pivots work well on each of the three (3) safety BLOCS. These must not clog, nor jam and the springs must work well.  
 Note: This verification must be carried on daily by the operator of the platform.

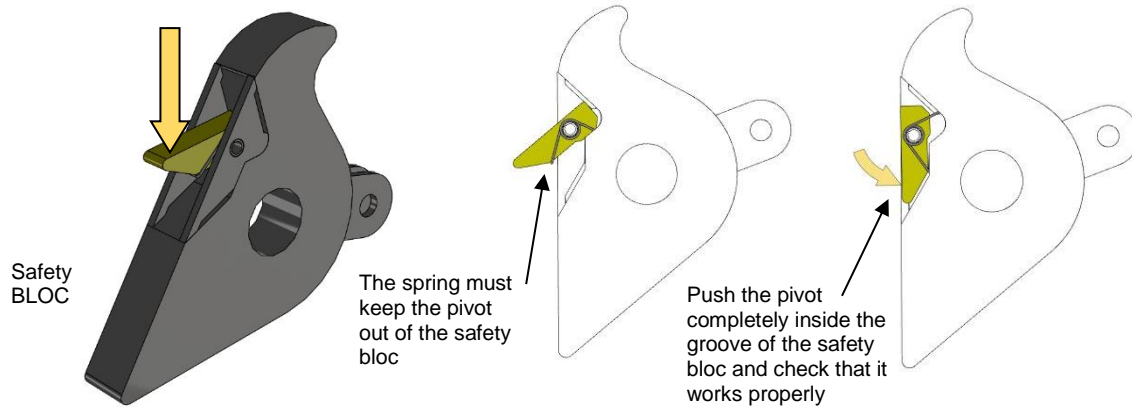
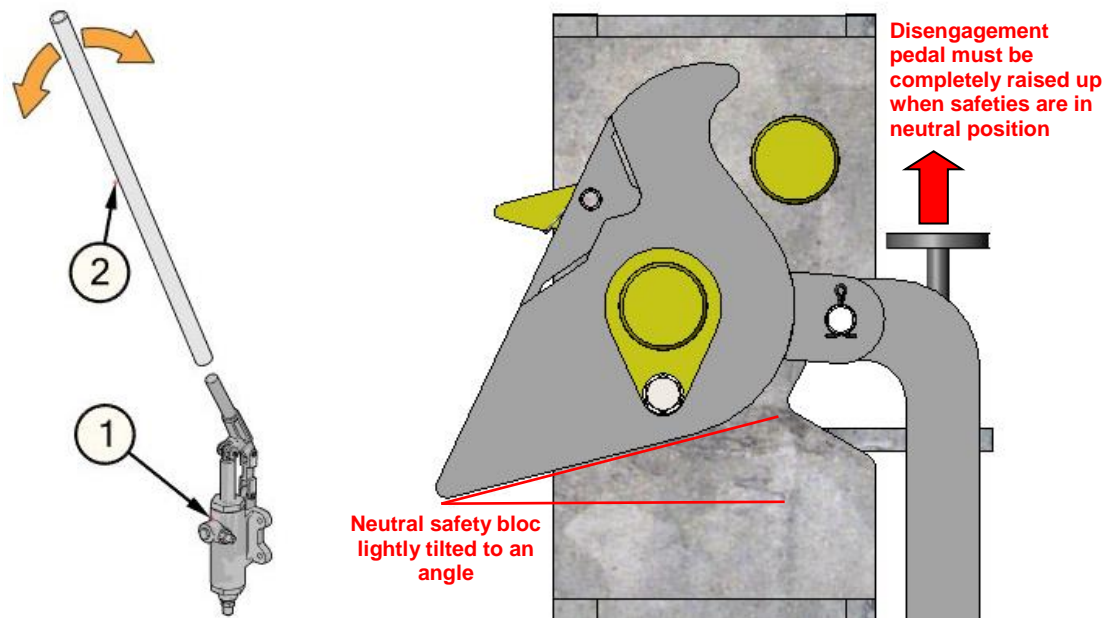


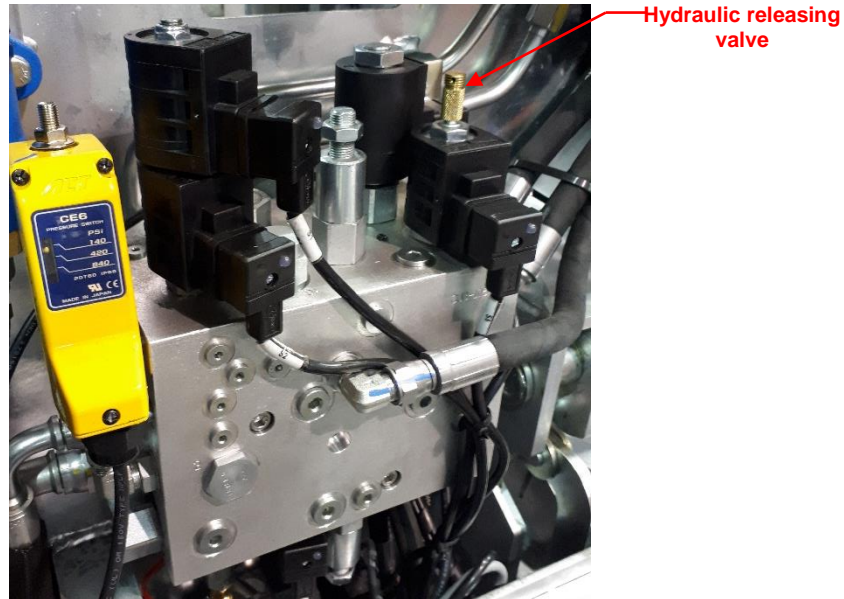
Figure 35 – Safety bloc verification

- 2- Raise the platform of approximately 3" (76 mm) and more by using the manual pump arm (items 1 and 2), until complete disengagement of the safeties.  
 Safety BLOCS drop to **NEUTRAL POSITION**. In this position, safety BLOCS need to be lightly tilted.

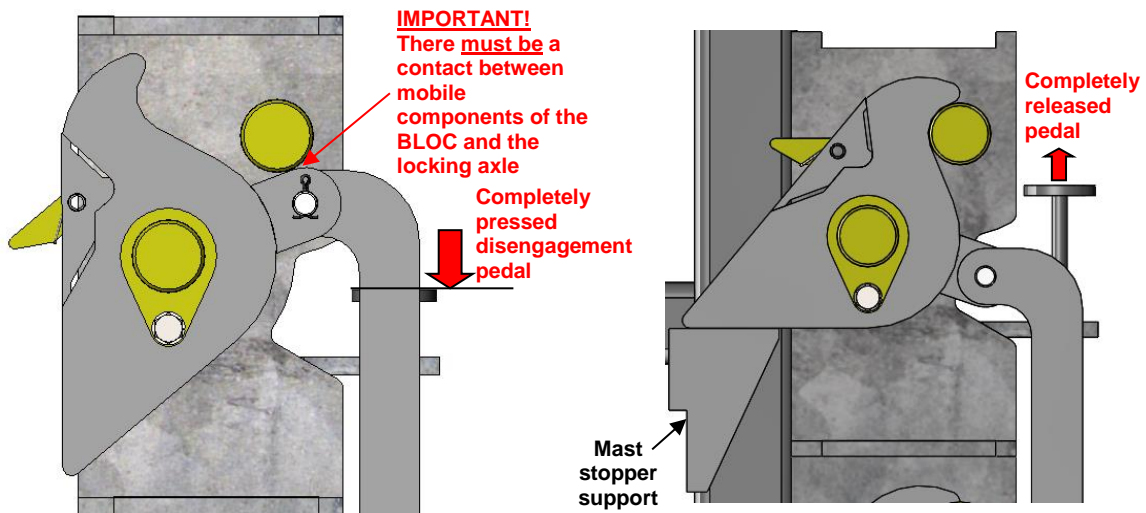




- 3- Raise the platform of approximately 60" (1,50 m) and more.
- 4- Disengage the safeties by pressing on the disengagement pedal and use the manual descent to lower the platform of at least 60" (1,50 m). Use the hydraulic release valve to slowly lower the platform.  
**Important!** Press on the disengagement pedal at all time while lowering the platform.



- 5- After having tested the manual descent on a distance of at least 60" (1,50 m), release the disengagement pedal. The pedal must raise back to its original position automatically (**neutral position**).
- 6- Again, raise up the platform of approximately 20" (0,50 m) and more.  
**Important!** Use the manual descent again (hydraulic release valve) to lower the platform until the safety end up resting on the next mast stopper. To approve that the safety properly works, these must rest completely on the stopper and must support the platform.



## Chapter B – Lifting Unit and Base

### Ground load and Load distribution

The total load of the equipment is transmitted to the ground by the base. Ensure that the floor is stable and has the necessary carrying capacity for the installation.

∞SEE TABLE 8 ON PAGE 33, TABLE 9 ON PAGE 34, TABLE 10 ON PAGE 35

The entire surface base or shims must be in contact with the foundation. The floor must be free of holes or trenches, well drained or raised to avoid any water buildup.

Ensure that no excavation work is planned during installation or use of the platform.

For a **ground base**, level the ground with 4" to 6" (100 mm to 150 mm) of 0-3/4" crushed stones as foundation and exceeding the ground base dimensions by 4" (100 mm).

∞SEE TABLE 8 - GROUND LOAD, GROUND BASE, ON PAGE 33

For freestanding bases, install shims that exceed the dimensions of the base feet to prevent the feet from sinking into the ground.

∞SEE FIGURE 36 - LOAD DISTRIBUTION, UNIVERSAL FREESTANDING BASE, ON PAGE 34

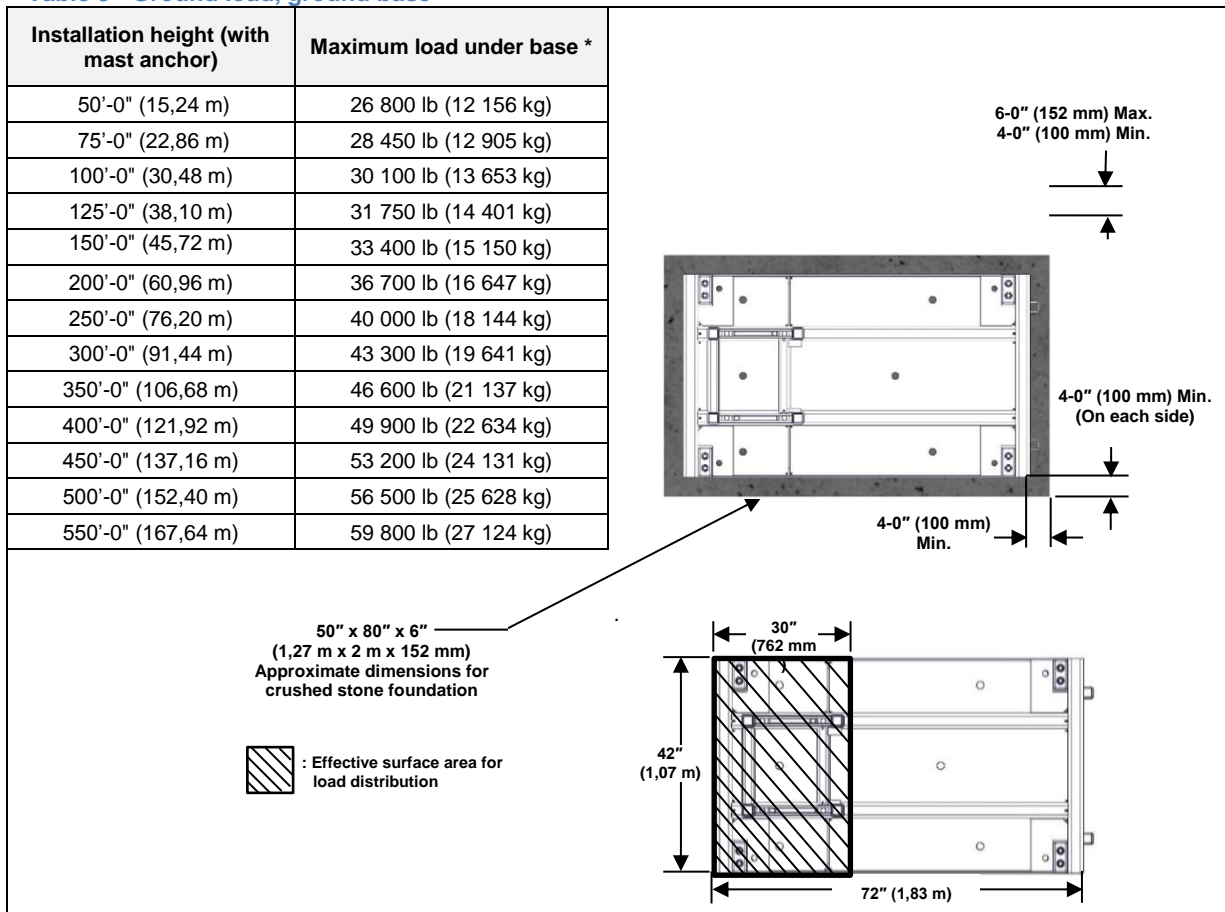
∞SEE FIGURE 37 - LOAD DISTRIBUTION, ACT-8 FREESTANDING BASE, ON PAGE 35

### Ground load and maximum height

The following tables show the loads transmitted from the base to the ground. These charges include the dynamic coefficients but do not include the safety factors that must be taken into account in accordance with local regulations.

### Ground load - Ground base (14030019)

Table 8 - Ground load, ground base



\* The maximum loads under the base are not factored.



### Ground Load - Universal freestanding base (14030109)

Note: The universal freestanding base must be combined with a ground base (14030019) or a bolted base for mast (14030110) assembled on top of the freestanding base.

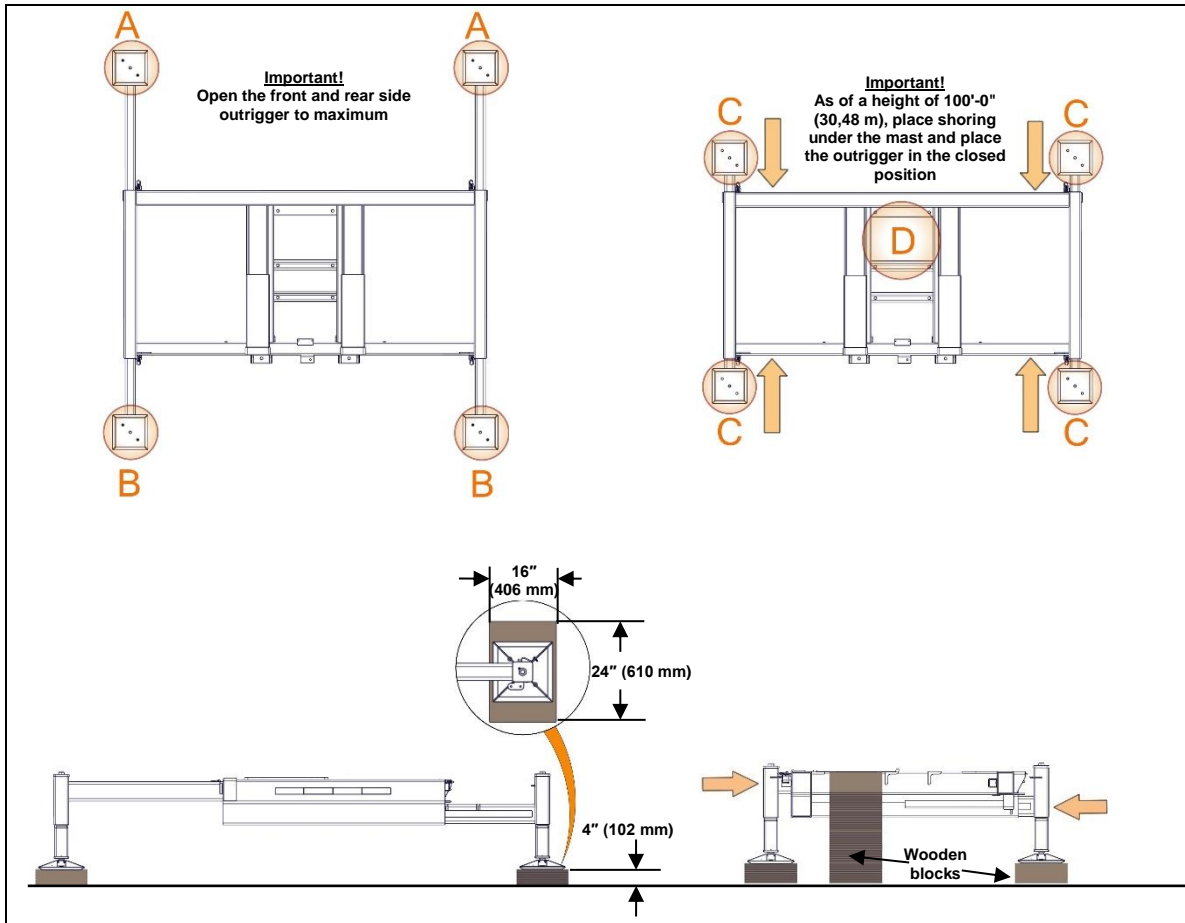


Figure 36 - Load distribution, universal freestanding base

Table 9 - Ground load, universal freestanding base

| Freestanding installation height | Maximum load under base (at targeted locations) ** |  |
|----------------------------------|--|--|
| 45'-0" (13,72 m)                 | A = 12 250 lb (5 568 kg) per stand                 | B = 10 000 lb. (4 545 kg) per stand      |
| Installation height              | Maximum load under base**                          |  |
| 50'-0" (15,24 m)                 | A = 10 350 lb (4 705 kg) per stand                 | B = 8 100 lb (3 680 kg) per stand        |
| 75'-0" (22,86 m)                 | A = 10 900 lb (4 955 kg) per stand                 | B = 8 500 lb (3 865 kg) per stand        |
| 100'-0" (30,48 m)                | A = 11 400 lb (5 180 kg) per stand                 | B = 8 900 lb (4 045 kg) per stand        |
| Installation height              | Maximum load under base**                          |  |
| 100'-0" (30,48 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 30 100 lb (13 675 kg) under the mast |
| 125'-0" (38,10 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 31 750 lb (14 425 kg) under the mast |
| 150'-0" (45,72 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 33 400 lb (15 175 kg) under the mast |
| 200'-0" (60,96 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 36 700 lb (16 675 kg) under the mast |
| Over 200'-0" (60,96 m)           | NOT ALLOWED  |  |

\* For an installation over 100'-0" (30,48 m), it is necessary to place shoring directly under the mast and drive the outriggers back in up to the closed position.

\*\* The following loads are not factored.

∞REFER TO SECTION DIMENSIONS WITH FREESTANDING BASE (UNIVERSAL, ACT-8), ON PAGE 12

### Ground Load - ACT-8 freestanding base (14030020) Former generation

Note: The ACT-8 freestanding base is a model belonging to an older generation and must be combined with a Ground base (14030019).

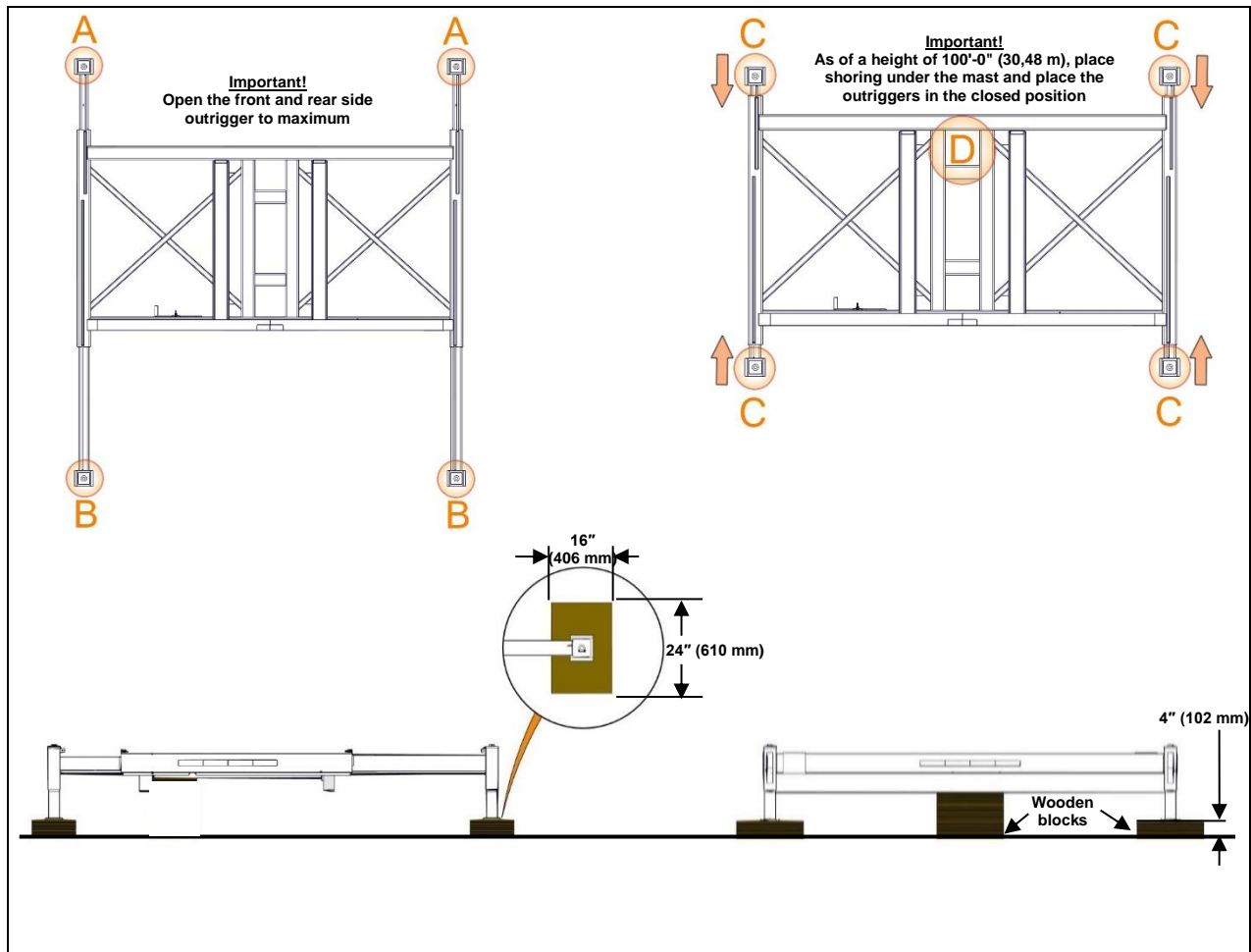


Figure 37 - Load distribution, ACT-8 freestanding base

Table 10 - Ground load, ACT-8 freestanding base

| Freestanding installation height | Maximum load under base (at targeted locations) ** |  |
|----------------------------------|--|--|
| 45'-0" (13,72 m)                 | A = 13 850 lb. (6 283 kg) per stand                | B = 6 450 lb (2 926 kg) per stand        |
| Installation height              | Maximum load under base**                          |  |
| 50'-0" (15,24 m)                 | A = 12 350 lb (5 602 kg) per stand                 | B = 4 850 lb (2 200 kg) per stand        |
| 75'-0" (22,86 m)                 | A = 13 050 lb (5 920 kg) per stand                 | B = 5 100 lb (2 315 kg) per stand        |
| 100'-0" (30,48 m)                | A = 13 750 lb (6 237 kg) per stand                 | B = 5 300 lb (2 404 kg) per stand        |
| Installation height*             | Maximum load under base**                          |  |
| 100'-0" (30,48 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 30 100 lb (13 675 kg) under the mast |
| 125'-0" (38,10 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 31 750 lb (14 402 kg) under the mast |
| 150'-0" (45,72 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 33 400 lb (15 150 kg) under the mast |
| 200'-0" (60,96 m)*               | C = 3 500 lb (1 590 kg) per stand                  | D = 36 700 lb (16 647 kg) under the mast |
| Over 200'-0" (60,96 m)           | NOT ALLOWED  |  |

\* For an installation over 100'-0" (30,48 m), it is necessary to place shoring directly under the mast and drive the outriggers back in up to the closed position.

\*\* The following loads are not factored.

∞REFER TO SECTION DIMENSIONS WITH FREESTANDING BASE (UNIVERSAL, ACT-8), ON PAGE 12

## Chapter C – Installation and Dismantling

### Installation

The required equipment is determined according to the specific needs of the work to be carried out (surfaces to be covered, working methods, building relevant architectural details, presence of balconies, roofing, number of planking used, etc.) and the allowed configurations.

Said information is gathered during the identification of the installation site and must be the subject of a site plan and/or quote established by an engineer. Please refer to this page for specific details, if any.

To be performed upon receipt of the equipment and after on-site equipment unloading ensure you have all the components required to carry out the installation and that the equipment received corresponds to the packing slip. Notify the transport provider of any damage found during the receipt verification and notify your supervisor.

**Important!** Refer to the section **OPERATION, USE OF THE LIFTING** unit for instructions on using the platform before you begin.

∞SEE **OPERATION, USE OF THE LIFTING** unit, ON PAGE 25

**Important!** Tightening the bolts when assembling the various components must be done using a pneumatic or electric shock wrench. Regardless of the method used, it is imperative to **respect the tightening torques defined** at each step.

**Important!** Any installation, disassembly and displacement operation must be carried out by a certified installer (Level 2A or 2B).

**Important!:** Always use a safety harness that is properly secured to a regulatory attachment point on the platform when assembling and dismantling the platform.

∞SEE **REGULATORY ATTACHMENT POINTS**, ON PAGE 10

### Locating the installation site and taking measurements

Identify the building facade on which the platform will be installed.

#### Security perimeter

Determine a sufficient security perimeter and prohibit access around the base, platform and any areas at risk around said area. This must be done in accordance with applicable local safety standards and regulations. No objects or debris should be stored in this perimeter.

#### Taking measurements and identifying the location of the lifting unit

**NOTE:** The distance to the building shall be determined based on the distance from the finished wall, the most distant point (balconies, window edges, gutters, roofs, etc.) and the number of plankings placed on the outriggers used to perform the works.

Mark the exact location of the base of the unit on the ground. In case of a bridge configuration (Double mast or more), determine the exact position of each unit taking into account the distance between the masts.

∞SEE **FIGURE 7 - CLEARANCE TO FINISHED WALLS AND AROUND THE UNITS**, ON PAGE 13

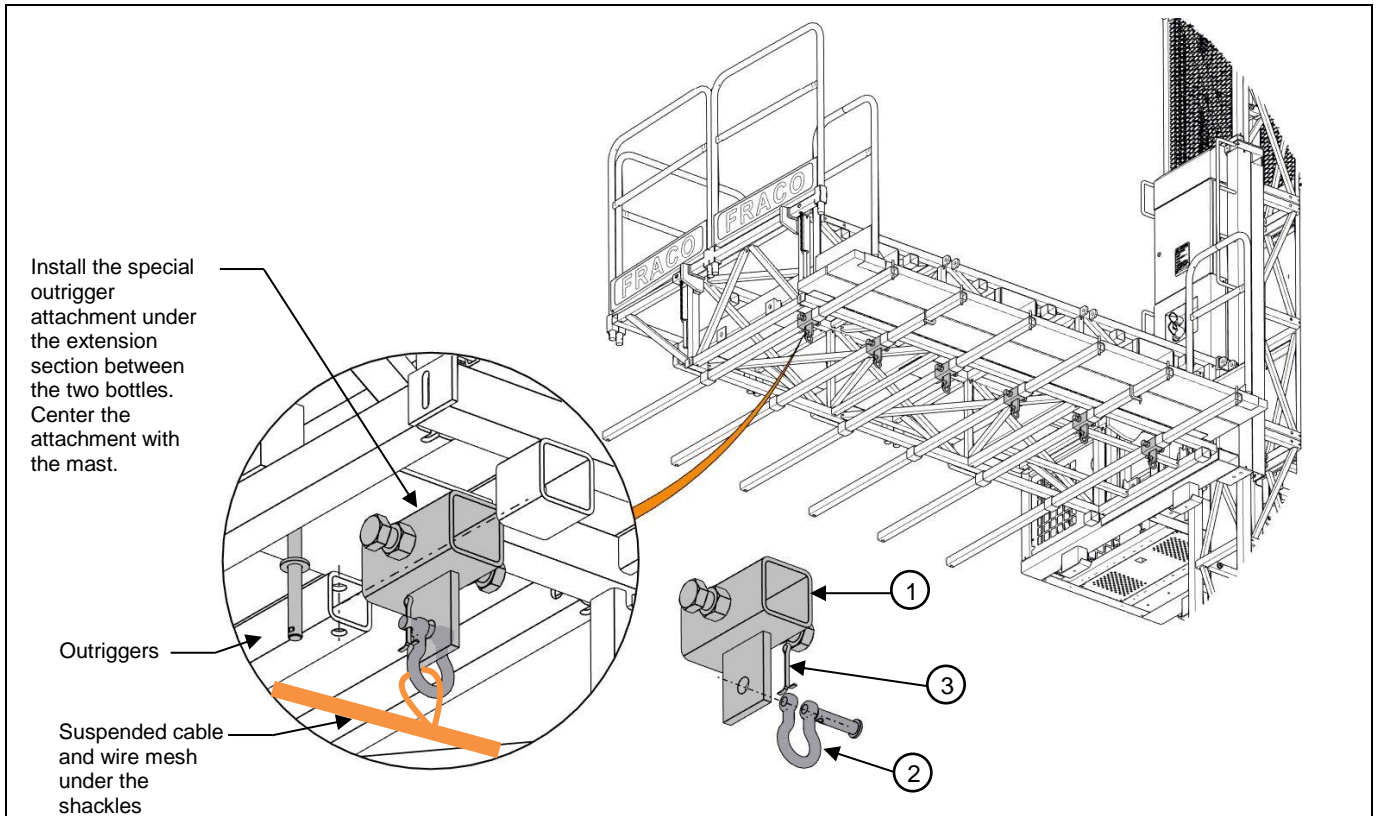
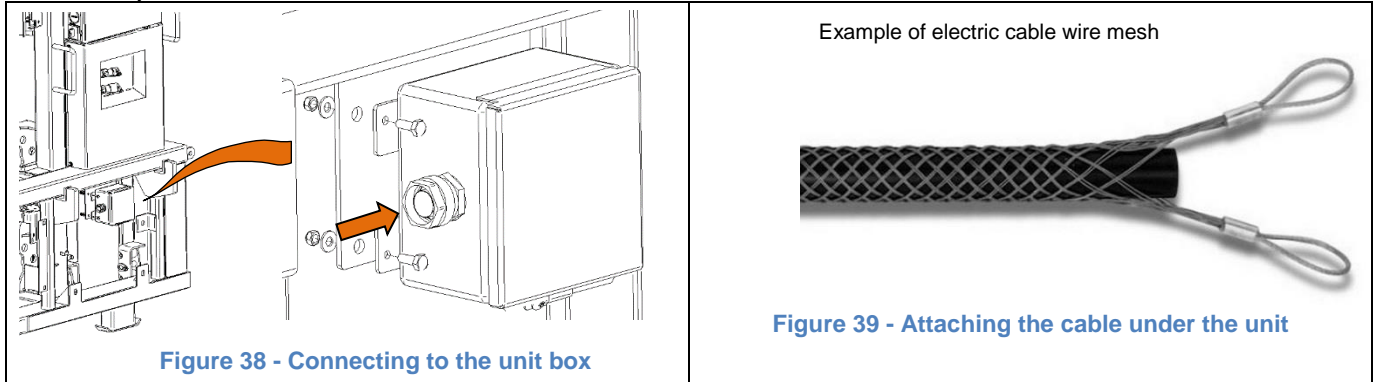
∞SEE **TABLE 1 - DIMENSIONS AND CLEARANCE**, ON PAGE 14

∞SEE **SCHEDULE TABLE 16 - DISTANCE BETWEEN THE MASTS**, ON PAGE 152

## Electrical connection required (Electric model only)

|  |  |
|--|--|
| <p><b>Electric motor WEG (USA) - MEM-2022</b><br/>20 CV, 460 AC, 60 Hz, 60 A</p> <p>ELF-5427 4-Wire power cable 8AWG<br/>Linear weight: 605 lb/mft (0,91 kg/m)<br/>Secure with ELE-1832 wire mesh Øfrom 0,75" to 0,99"</p> | <p><b>Electric motor WEG (EUROPEAN) - MEM-2022</b><br/>20 CV, 380 AC, 50 Hz, 60 A</p> <p>ELF-5436 5-Wire power cable 8AWG<br/>Linear weight: 781 lb/mft (1,18 kg/m)<br/>Secure with ELE-1832 wire mesh Øfrom 1,0" to 1,25"</p> |
|--|--|

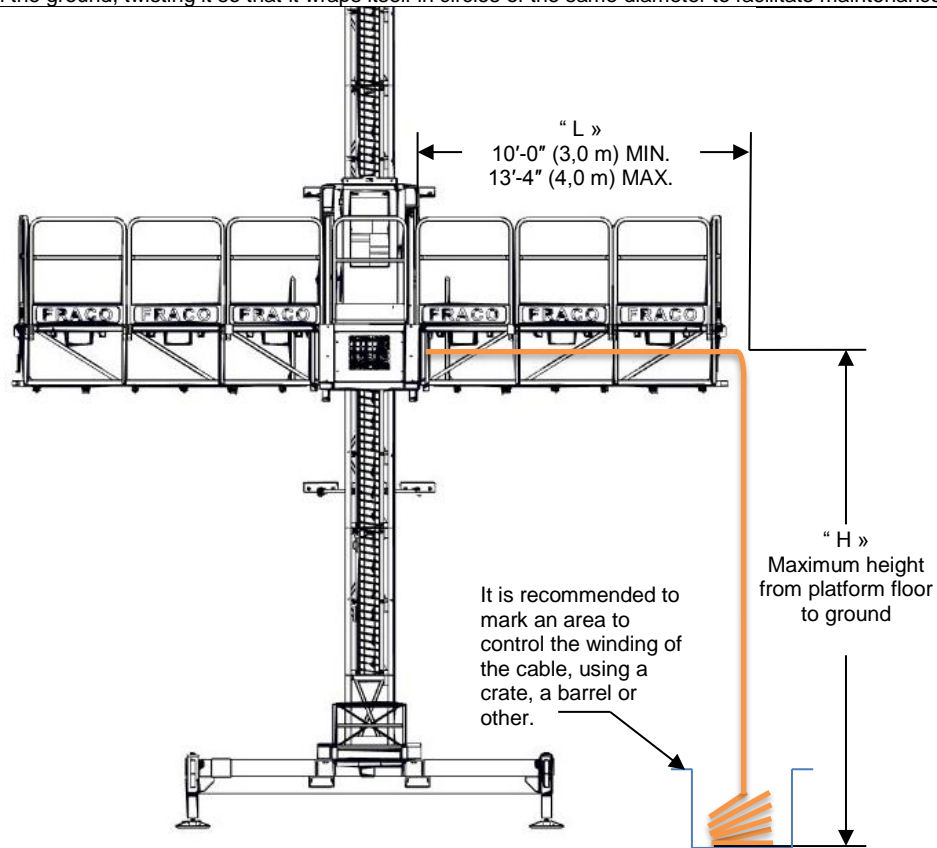
A connection box with a 60A GFCI circuit breaker must be available near the base to allow electrical connection. Ensure electrical connections are made in a safe manner and in accordance with applicable local safety standards and regulations. Secure the cable with the wire mesh under the platform. Install the cable as far as possible from the mast and the freestanding base. Plug the cable into the junction box of the unit.



| No. | Item     | Description             | No. | Item     | Description          |
|-----|----------|-------------------------|-----|----------|----------------------|
| 01  | 20490544 | Special outrigger tie   | 03  | GOU-1125 | Split Pin 3/16" x 2" |
| 02  | FOD-1086 | Straight shackle 2 tons |     |          |                      |

### Electrical connection required (Electric model only)

Place the cable on the ground, twisting it so that it wraps itself in circles of the same diameter to facilitate maintenance and site safety.



**Important!** The weight of the cables must be deducted from the total admissible load.  
 ∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

**Platform using an ELF-5427 4-wire 8AWG cable**

**Platform using an ELF-5436 5-wire 8AWG cable**

Load to be deducted at the end of the platform based on « L » distance

Load to be deducted at the end of the platform based on « L » distance

| Total installation height     | Load to be deducted at the end of the platform based on « L » distance |                        |
|-------------------------------|--|------------------------|
|                               | 10'-0" (3,0 m) MINIMUM   | 13'-4" (4,0 m) MAXIMUM |
| 50'-0" (15,25 m)              | 30 lb (13,60 kg)   | 90 lb (40,82 kg)       |
| 100'-0" (30,50 m)             | 60 lb (27,22 kg)   | 180 lb (81,65 kg)      |
| 150'-0" (45,75 m)             | 90 lb (40,82 kg)   | 270 lb (122,50 kg)     |
| 200'-0" (61 m) <b>MAXIMUM</b> | 121 lb (54,88 kg)  | 363 lb (164,65 kg)     |

| Total installation height     | Load to be deducted at the end of the platform based on « L » distance |                        |
|-------------------------------|--|------------------------|
|                               | 10'-0" (3,0 m) MINIMUM   | 13'-4" (4,0 m) MAXIMUM |
| 50'-0" (15,25 m)              | 40 lb (18,15 kg)   | 120 lb (54,45 kg)      |
| 100'-0" (30,50 m)             | 78 lb (35,38 kg)   | 234 lb (106,15 kg)     |
| 150'-0" (45,75 m)             | 118 lb (53,52 kg)  | 354 lb (160,57 kg)     |
| 200'-0" (61 m) <b>MAXIMUM</b> | 156 lb (70,76 kg)  | 470 lb (213,20 kg)     |

**Note:** For installation heights above 200'-0" (61 m), consult the FRACO engineering department.

Figure 40 - Passage of the electrical cable under the platform

## Handling and lifting operation

### Lifting points

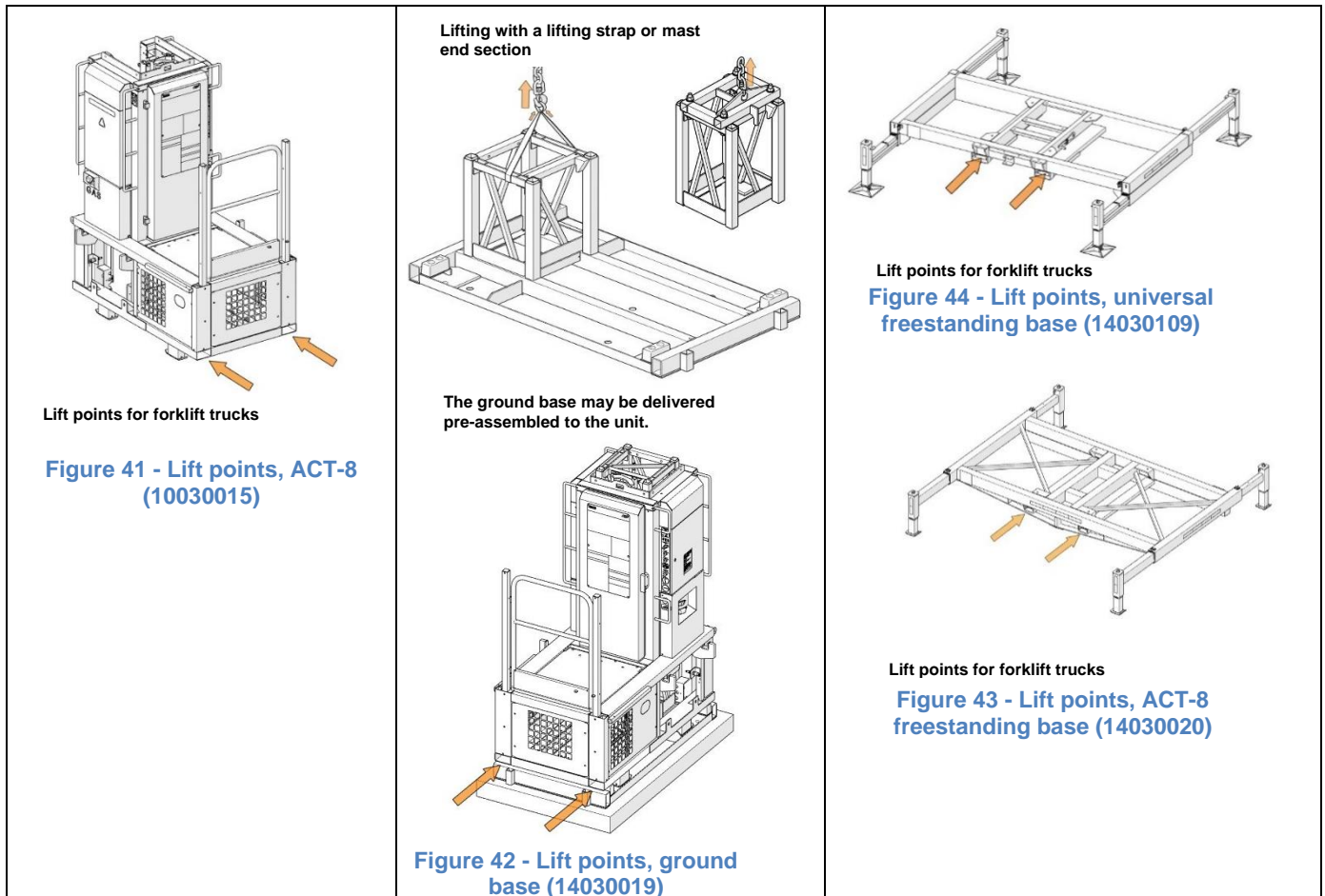
The various components of the platform can be loaded and unloaded using a forklift truck, crane truck or mobile crane, or a tower crane with sufficient capacity.

Some components such as the lifting unit, the bases or the bridge and **extension** sections have specific lifting points designed for the insertion of forklift forks.

Lifting straps can also be used to move the components.

The choice of lifting straps, their load capacity, layout, number and manner in which they are used to lift components is the responsibility of the operator of the lifting equipment. Said person must also take into account the combined total weight of the handled components.

The operator must be adequately trained in the use of lifting equipment as defined in the applicable local regulations.





### Lifting, use of the mast end section

During lifting operations using the mast end section (13030029) and the mast sections (13030018) may only be moved as an assembly of 40'-0" (12,2 m) sections **MAXIMUM**. This limit eliminates the risk of bending of masts during lifting and placement of equipment. The mast end section can lift a maximum load of 6 500 lb (2 950 kg) (*Figure 45*).

Bolt each section with applying a torque of 265 ft\*lb (360 N\*m).

Note: For all of the following explanations, the term « **mast sections** » means an individual part (13030018) and « **mast** » means an assembly of two (2) or more mast sections. The masts may be pre-assembled on the ground or erected one section at a time.

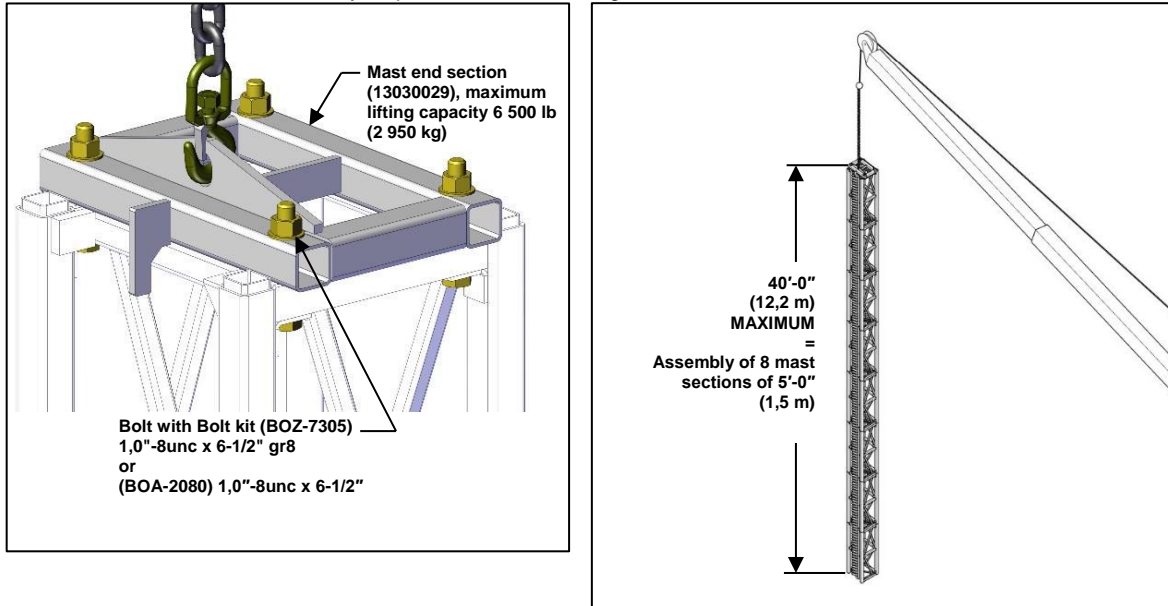


Figure 45 - Mast end section

### Use of lifting slings

- Mast end sections must be removed before positioning the lifting slings or belts (*Erreur ! Source du renvoi introuvable.*).
- Lifting operations of up to **MAXIMUM** 15 000 lb (6 804 kg) may be carried out using lifting slings (*Figure 47*).
- The assemblies shall have an equivalent load distribution on both (2) sides of the mast's center of gravity.
- The responsibility for checking the weights of the assembled elements belongs to the person in charge of the lifting operations.
- Only a FRACO certified installer (Level 2A and 2B) may handle, assemble or dismantle a FRACO equipment.
- Ensure that the lifting equipment used (cranes, slings, chains, belts, etc.) have the required lifting capacity.
- Ensure that the working methods used comply with all applicable local laws and regulations.

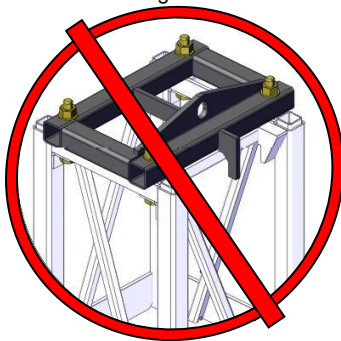


Figure 46 - Incompatibility between mast end section and lifting slings

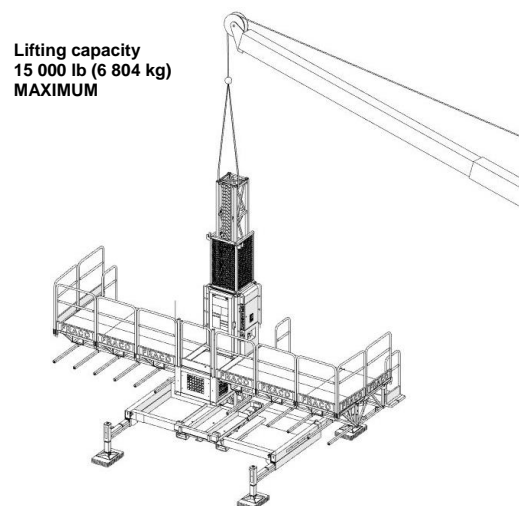


Figure 47 - Assembly lifting capacity



## Use of lifting slings (CONTINUED)

- Lifting belts and slings must be positioned on the side of the worm screw rails, in the corners marked by the bolt insertion holes (*Figure 48*).
- A minimum distance of 8'-0" (2,44 m) between the end of the mast and the lifting hook must be observed (*Figure 48*).

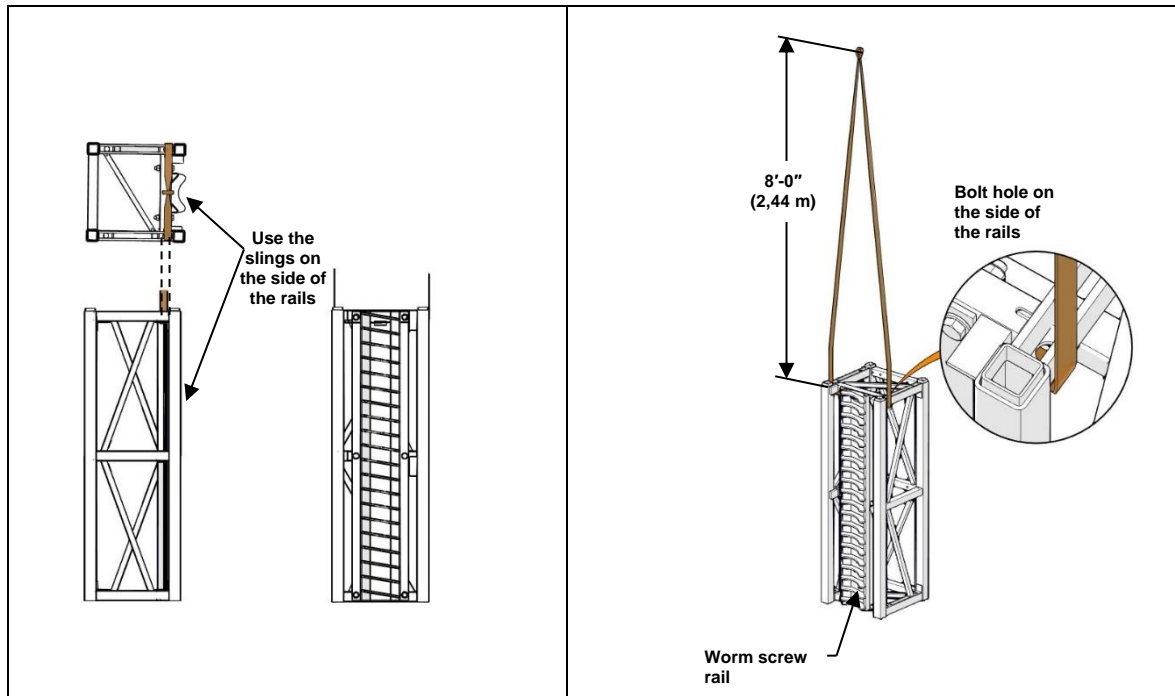


Figure 48 - Use of lifting lings and belts

## Installing the base unit and lifting unit

### Installation with ground base (14030019)

**Figure 49 - Crushed stone foundation**

**Step 1** – Level the floor under the base with 4,0" (100 mm) to 6" (150 mm) of 0-3/4" crushed stone, respecting the dimensions defined in [Table 8](#), ON PAGE 33.

**Step 2** – Accurately mark the dimensions of the ground base on the crushed stone foundation with a minimum clearance of 4,0" (100 mm) all around it. Mark the center in front of the foundation facing the wall.

**Step 3** – Check the leveling of the stone foundation using a spirit level and check its perpendicularity to the wall.

**Step 4** – Accurately measure the « N » distance between the center mark and the finished wall. « N » = 21" (553 mm) min for a unit with two plankings installed on its outriggers. « N » = 67" (1,702 mm) MAX.

∞SEE FIGURE 7 - CLEARANCE TO FINISHED WALLS AND AROUND THE UNITS, ON PAGE 13

∞SEE TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14

**Step 5** – Position the unit perpendicular to the wall using a lifting device.

∞SEE INSTALLATION/DISMANTLING OF MAST SECTIONS , ON PAGE 77

**Step 6** – Check the vertical and horizontal leveling of the unit. It is important that the mast be perfectly perpendicular to the ground.

**Figure 50 - Unit installation on ground base**

### Installation with universal freestanding base (14030109)

**Step 1** – Pull the front and rear stabilizers of the base as far as possible and lower the legs of the stabilizers onto wooden blocks. It is important to respect the **MINIMUM** and **MAXIMUM** limits of opening stickers as shown in the *Figure 140*. For installations over 100'-0" (30 m) in height, retract the stabilizers in the closed position as shown in *Figure 36* and install shoring pads directly under the mast.

**Step 2** – Accurately measure the « H » distance between the mast and the anchor wall and check perpendicularity to the wall.

∞ SEE FIGURE 7 - CLEARANCE TO FINISHED WALLS AND AROUND THE UNITS, ON PAGE 13

∞ SEE TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14

**Step 3** – Check that the mast is perfectly vertical using a spirit level. Check that the base (not the platform) is perfectly horizontal using a level. Ensure that the stabilizers are centered in the middle of the shoring pads. To level the base, use the hex wrench to adjust the stabilizer jacks.

**Step 4** – Install the bolted base (14030110) or the ground base (14030019) directly onto the universal freestanding base (14030109) as shown in *Figure 51*. Then, bolt the first mast section of the lifting unit (13030018) to the bolted base (14030110) or the ground base (14030019).

**Step 5** – Bolt a mast section (13030018) above the one already presents in the unit. Lift the unit approximately 18" (460 mm) and bolt all the mast bolts with an impact wrench.

**Step 6** – Lower the unit to its lowest position and recheck general leveling.

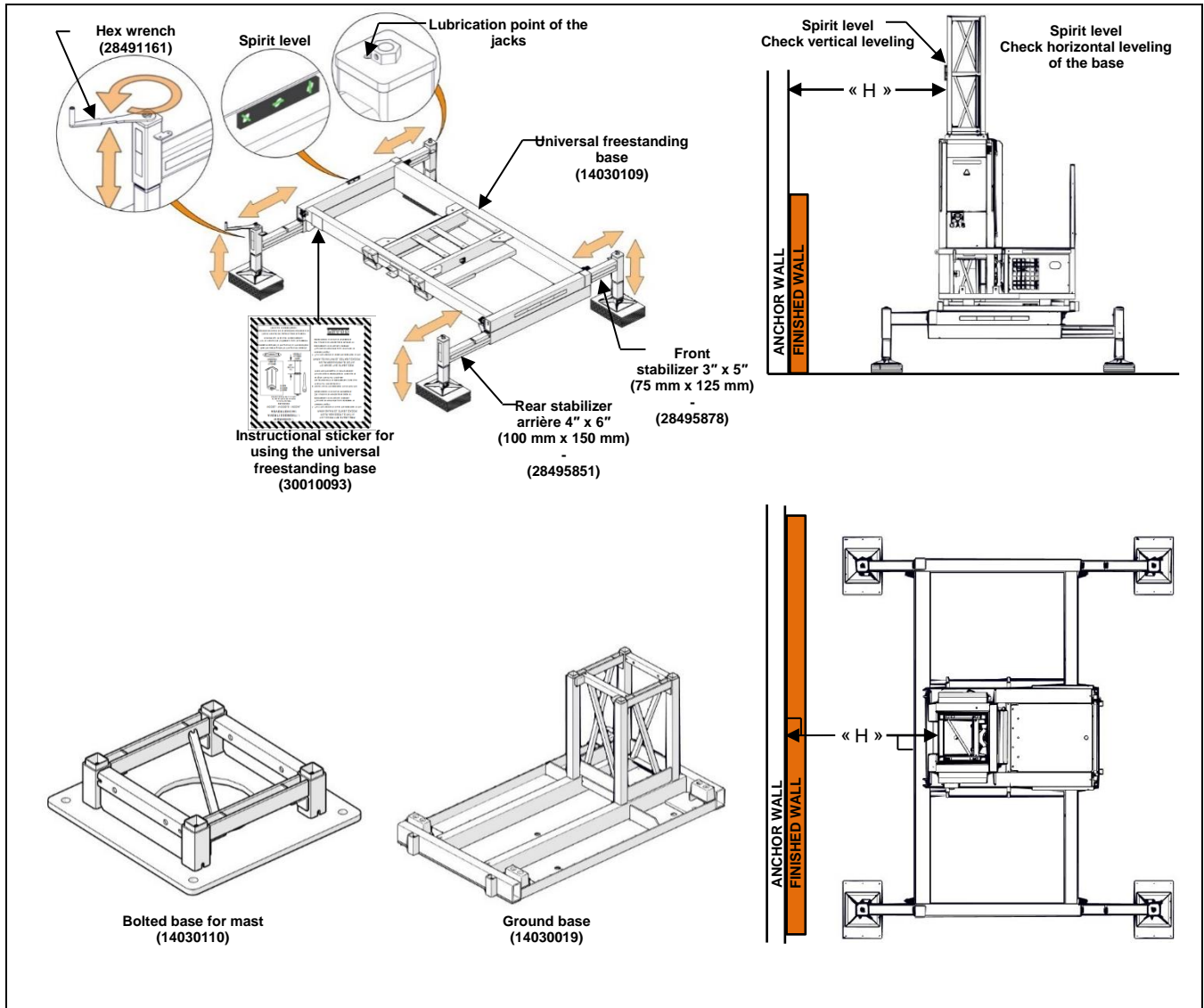
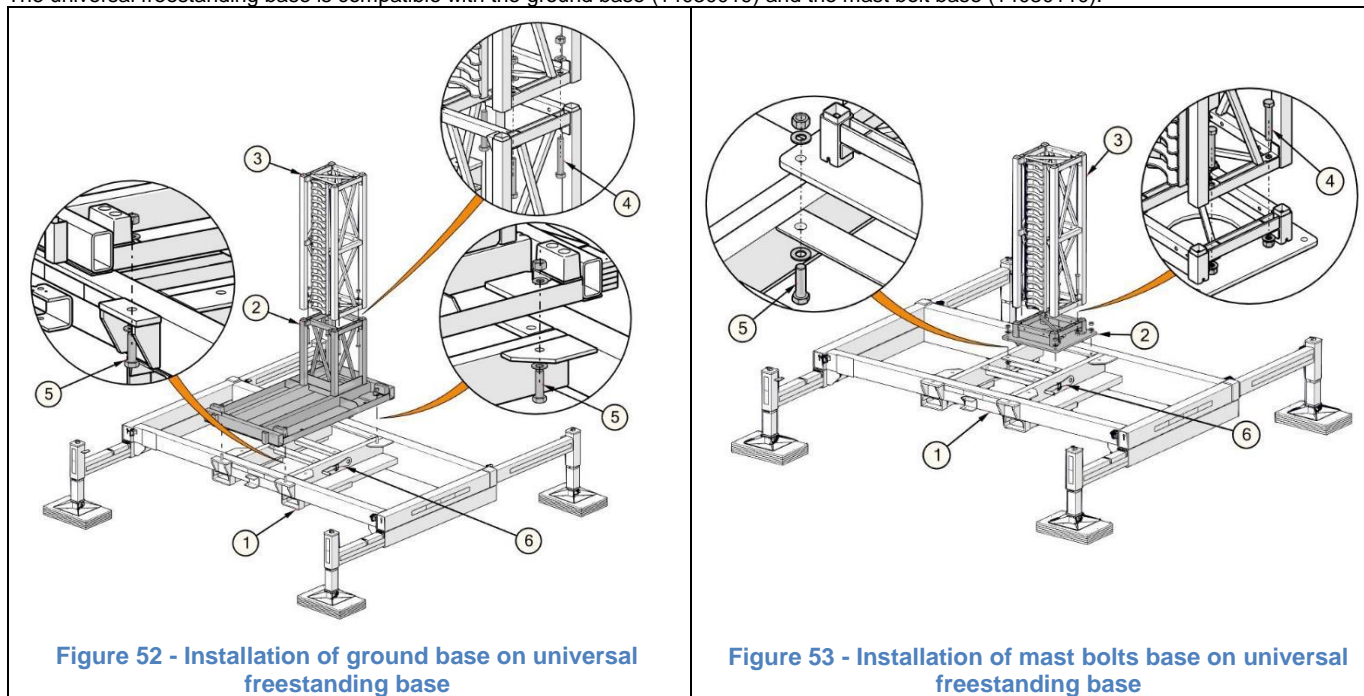


Figure 51 - Installation of universal freestanding base

## Installation with universal freestanding base (14030109) (CONTINUED)

The universal freestanding base is compatible with the ground base (14030019) and the mast bolt base (14030110).



**Figure 52 - Installation of ground base on universal freestanding base**

**Figure 53 - Installation of mast bolts base on universal freestanding base**

| No. | Item                 | Description  | No. | Item                 | Description  |
|-----|----------------------|--|-----|----------------------|--|
| 01  | 14030109             | Universal freestanding base  | 01  | 14030109             | Universal freestanding base  |
| 02  | 14030019             | Ground base for 20" x 20" mast (3'-6" x 6'-0")                         | 02  | 14030110             | Bolted base for 20" x 20" mast (6'-1/2")                               |
| 03  | 13030018             | Mast section 20" x 20" x 5'-0" with rail (ACT)                         | 03  | 13030018             | Mast section 20" x 20" x 5'-0" with rail (ACT)                         |
| 04  | BOZ-7305 or BOA-2080 | Bolt kit 1"-8unc x 6-1/2", gr8 zinc or Bolt kit 1"-8unc x 6-1/2", A325 | 04  | BOZ-7305 or BOA-2080 | Bolt kit 1"-8unc x 6-1/2", gr8 zinc or Bolt kit 1"-8unc x 6-1/2", A325 |
| 05  | BOA-2072             | Bolt kit 1"-8unc x 3-1/2", A325  | 05  | BOA-2072             | Bolt kit 1"-8unc x 3-1/2", A325  |
| 06  | 28491161             | Hex wrench 1-5/8"  | 06  | 28491161             | Hex wrench 1-5/8"  |

### Installation with ATC-8 freestanding base (14030020)

**Step 1** – Pull the front and rear stabilizers of the base as far as possible and lower the legs of the stabilizers onto wooden blocks. It is important to respect the stickers' **MINIMUM** limits as shown in the *Figure 142*. For installations over 100'-0" (30 m) in height, retract the stabilizers in the closed position as shown in *Figure 36* and install shoring pads directly under the mast.

**Step 2** – Accurately measure the « H » distance between the mast and the finished wall and check perpendicularity to the wall.

∞ SEE FIGURE 7 - CLEARANCE TO FINISHED WALLS AND AROUND THE UNITS, ON PAGE 13

∞ SEE TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14

**Step 3** – Check that the mast is perfectly vertical using a level. Check that the base (not the platform) is perfectly horizontal using a level. Ensure that the stabilizers are centered in the middle of the shoring pads. To level the base, use the hex wrench to adjust the stabilizer jacks.

**Step 4** – Install the ground base (14030019) directly onto the ACT-8 freestanding base (14030020) as shown in *Figure 54*. Then, bolt the first mast section of the lifting unit (13030018) to the ground base (14030019).

**Step 5** – Bolt a mast section (13030018) above the one already presents in the unit. Lift the unit approximately 18" (460 mm) and bolt all the mast bolts with an impact wrench.

**Step 6** – Lower the unit to its lowest position and recheck general leveling.

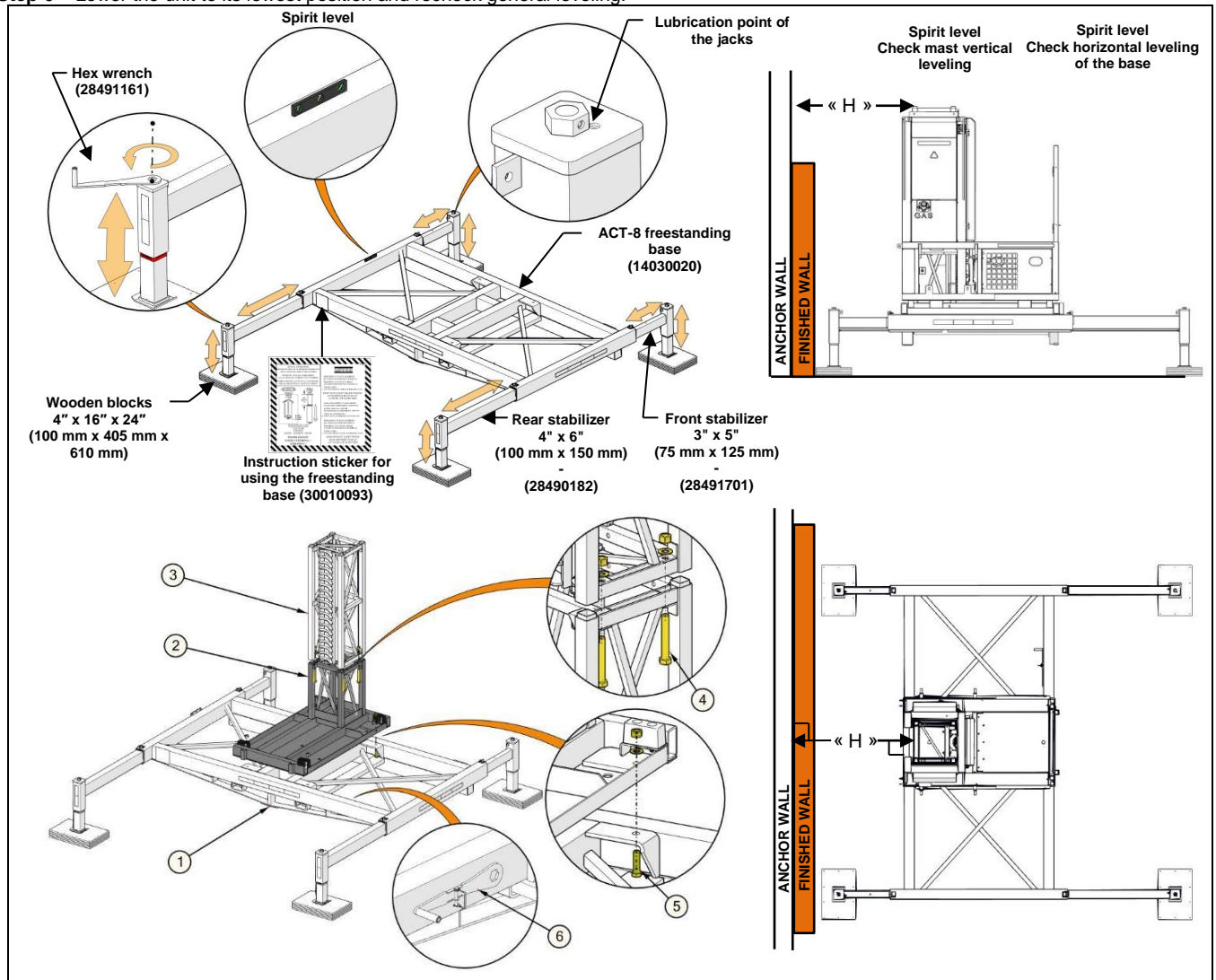


Figure 54 - Installation of ACT-8 freestanding base

| No. | Item     | Description   | No. | Item                 | Description  |
|-----|----------|---|-----|----------------------|--|
| 01  | 14030020 | Freestanding base for 20" x 20" mast overall length 13' (ACT-8) | 04  | BOZ-7305 or BOA-2080 | Bolt kit 1"-8unc x 6-1/2", gr8 zinc or Bolt kit 1"-8unc x 6-1/2", A325 |
| 02  | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0")                  | 05  | BOZ-8576 or BOA-2072 | Bolt kit 1"-8unc x 3-1/2", gr8 zinc or Bolt kit 1"-8unc x 3-1/2", A325 |
| 03  | 13030018 | Mast section 20" x 20" x 5'-0" with rail (ACT)                  | 06  | 28491161             | Hex wrench 1-5/8"  |



### Installation of stairs on the ground base (3 steps)

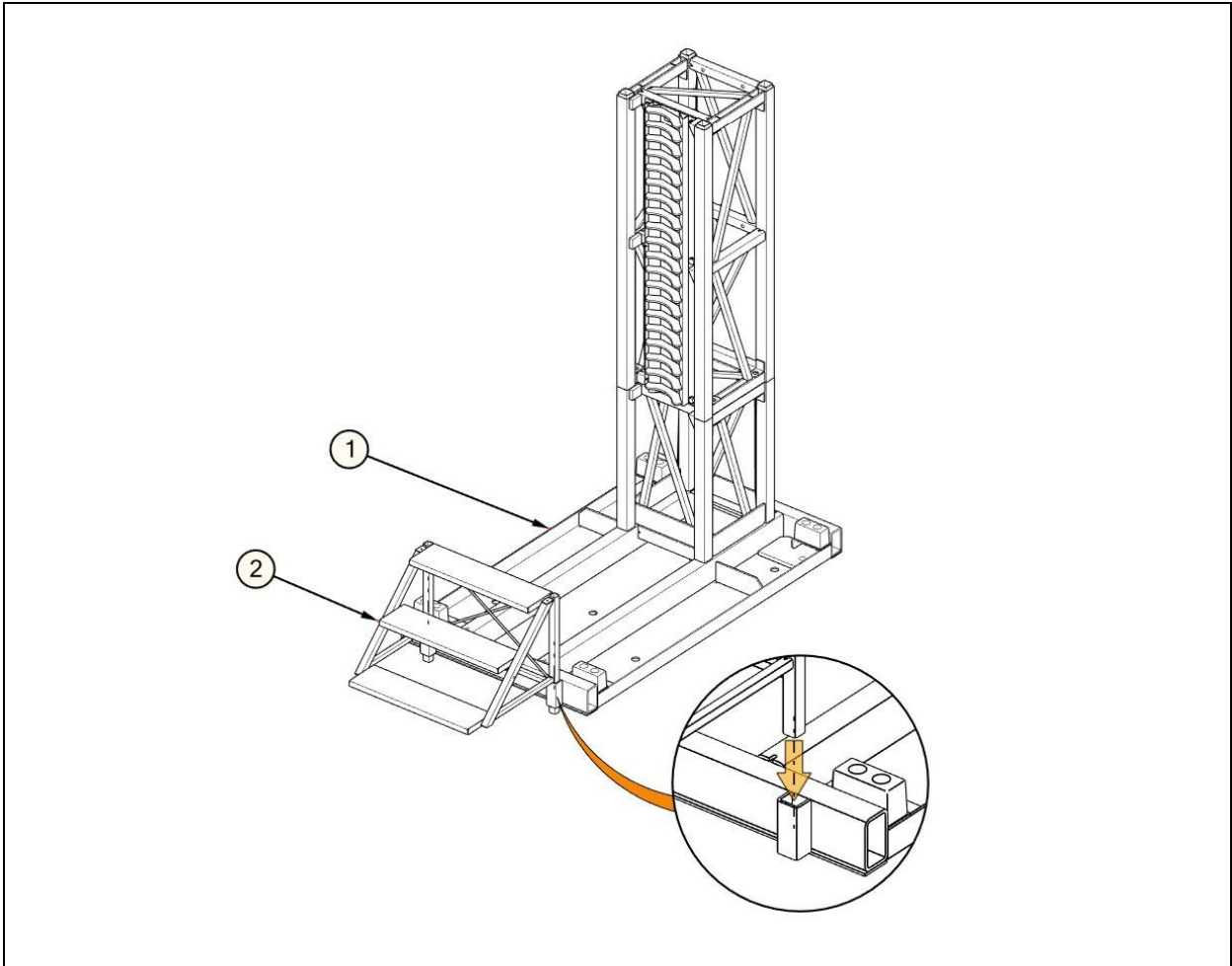


Figure 55 - Installation of stairs (3 steps) on the ground base

| No. | Item     | Description                                    | No. | Item     | Description                  |
|-----|----------|--|-----|----------|------------------------------|
| 01  | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 02  | 20490106 | Stairs with 3 steps of 2'-3" |

### Installation of stairs on the ground base (5 steps)

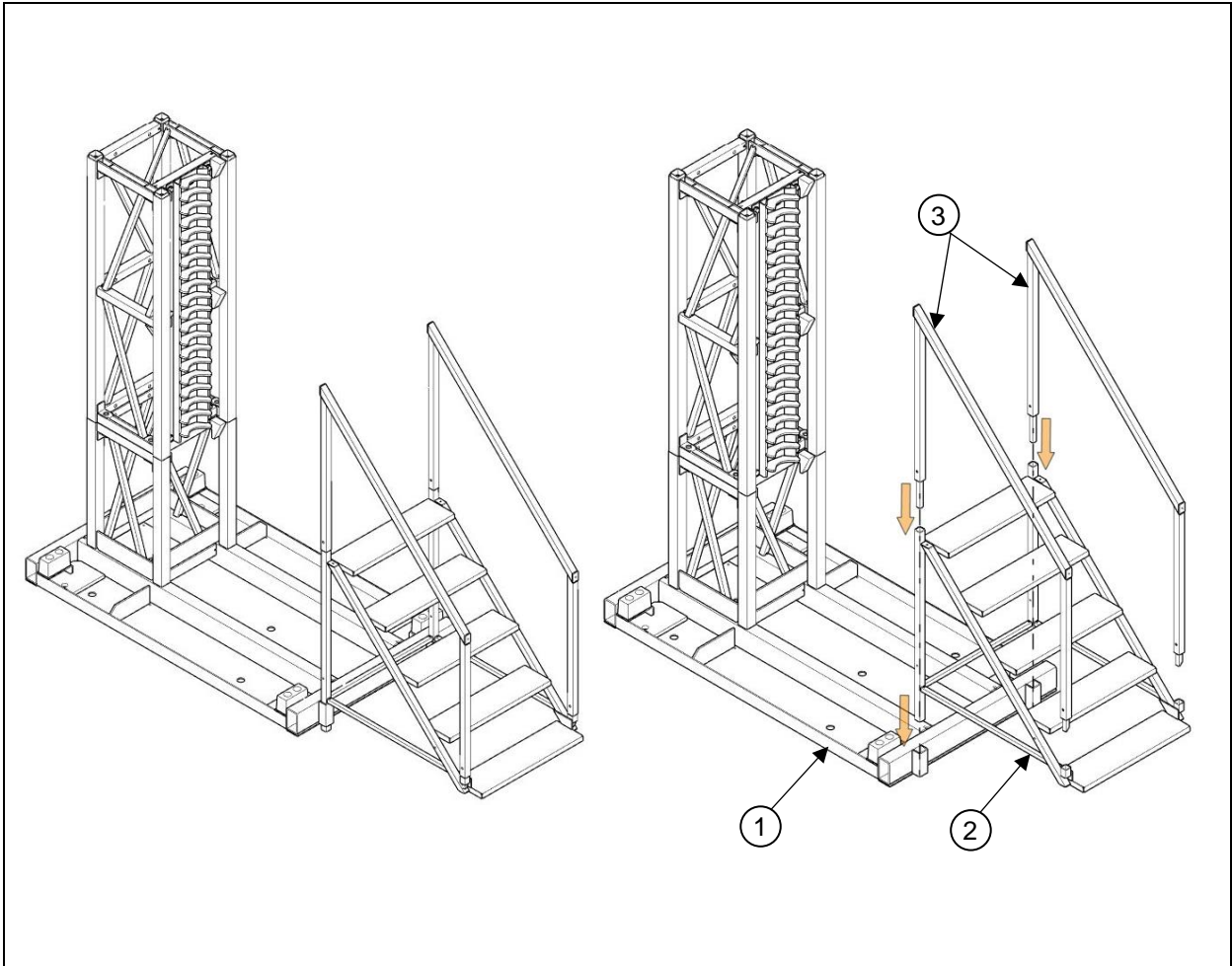


Figure 56 - Installation of stairs (5 steps) on the ground base

| No. | Item     | Description                                    | No. | Item     | Description                |
|-----|----------|--|-----|----------|----------------------------|
| 01  | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 03  | 20490252 | Stair rail (3'-2" x 3'-7") |
| 02  | 20491310 | 5 steps stair (3' 4")                          |     |          |                            |



### Installation of stairs on the freestanding base (5 steps)

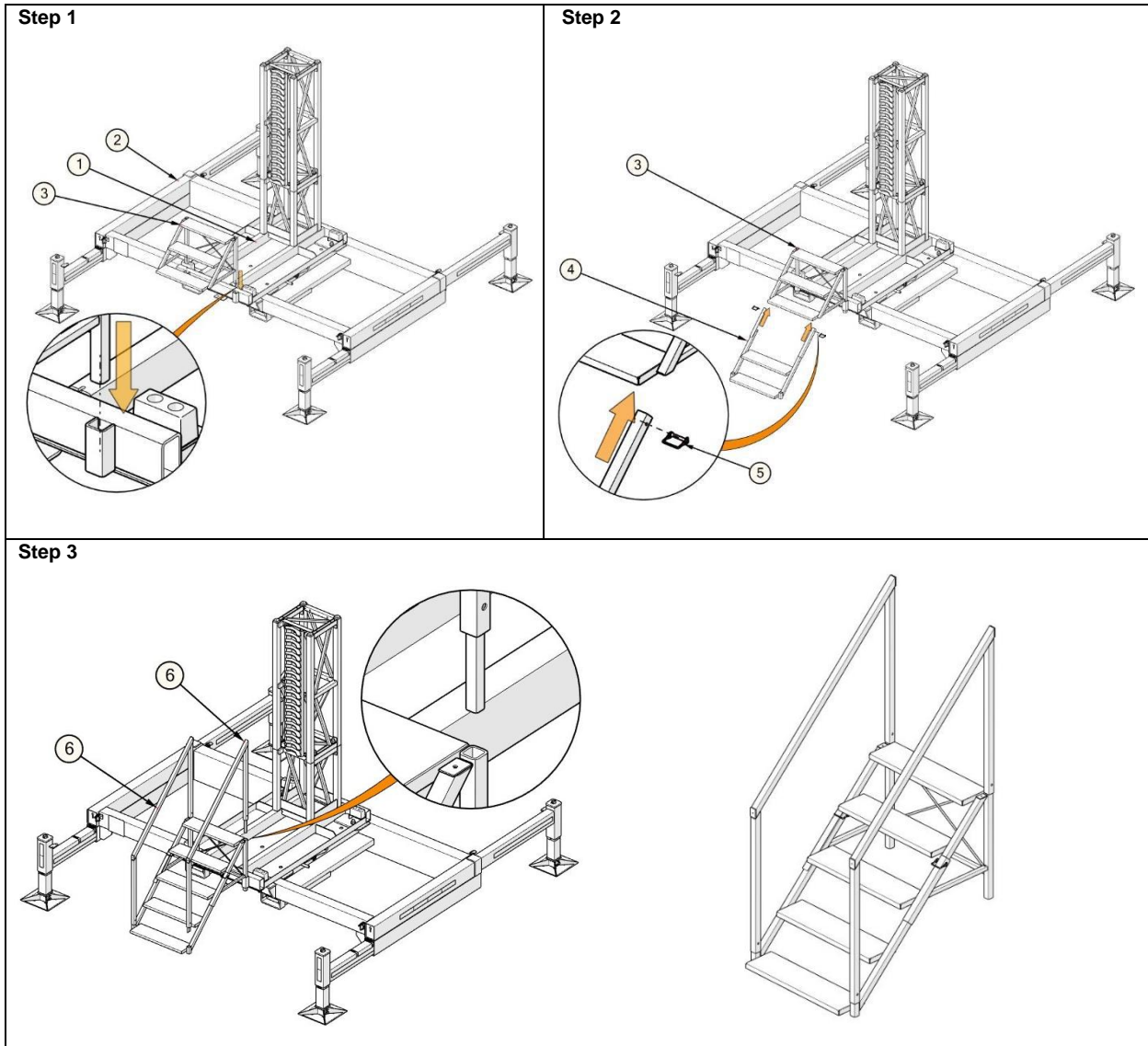


Figure 57 - Installation of stairs (5 steps) on the freestanding base

| No. | Item     | Description                                    | No. | Item     | Description                          |
|-----|----------|--|-----|----------|--------------------------------------|
| 01  | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 04  | 20490229 | Stair extension with 2 steps (2'-3") |
| 02  | 14030109 | Universal freestanding base                    | 05  | GOU-5040 | Locking pin 3/8" x 2-1/2" x 1-1/2"   |
| 03  | 20490106 | Stair with 3 steps (2'-3")                     | 06  | 20490252 | Stair rail (3'-2" x 3'-7")           |

### Installation of stairs on the freestanding base (7 steps)

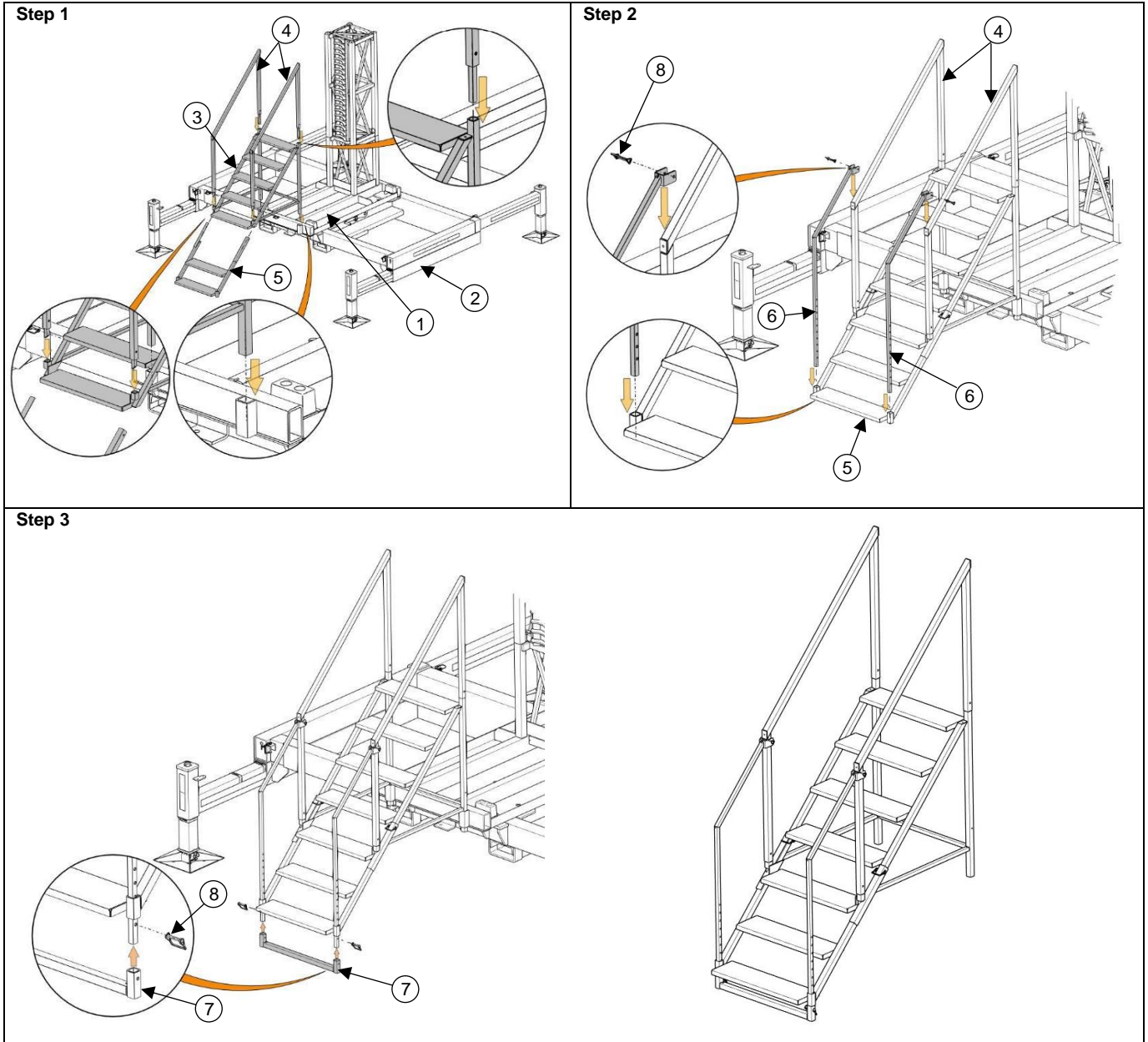


Figure 58 - Installation of stairs (7 steps) on the freestanding base

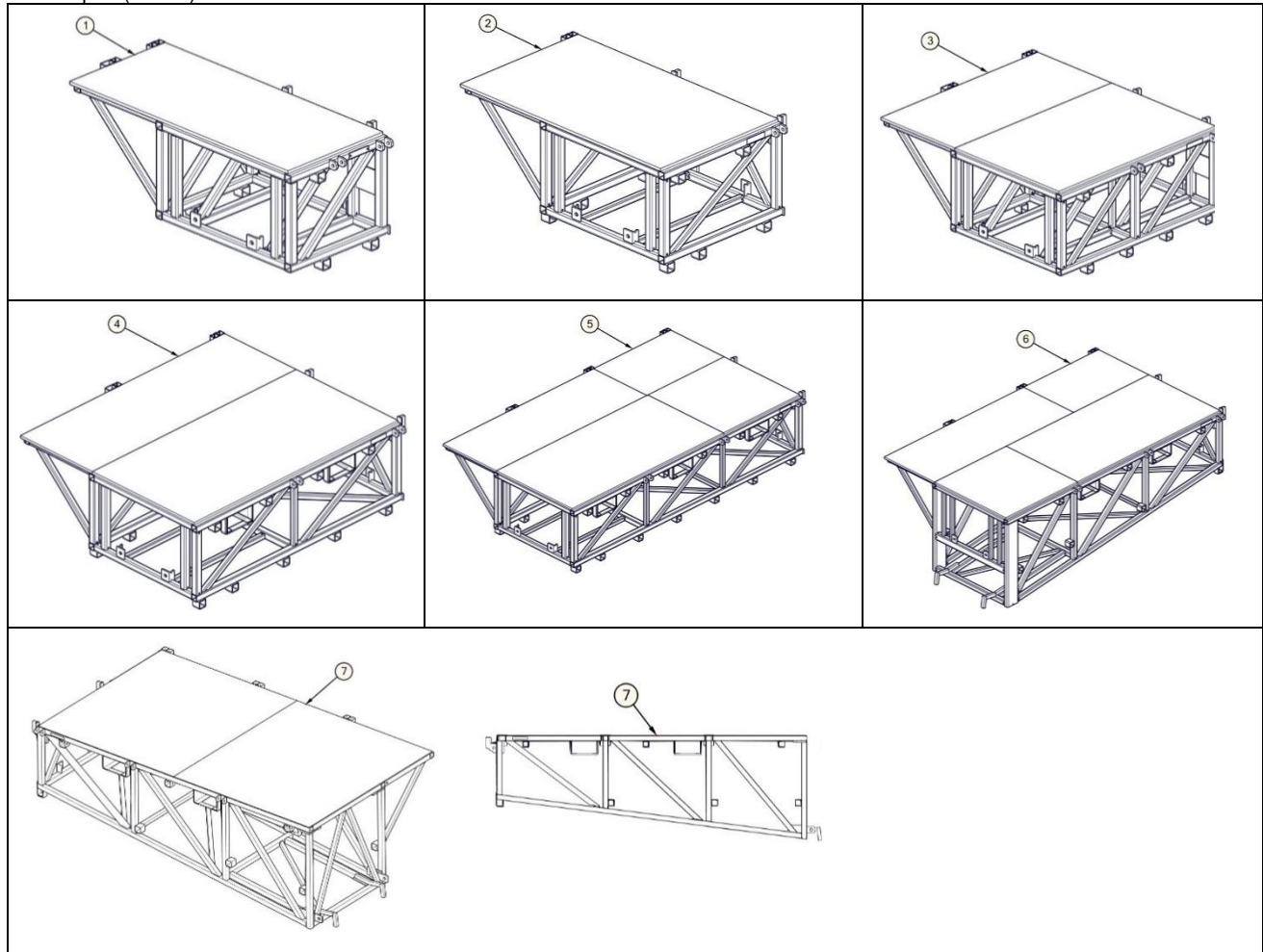
| No. | Item     | Description                                    | No. | Item     | Description                            |
|-----|----------|--|-----|----------|--|
| 01  | 14030019 | Ground base for 20" x 20" mast (3'-6" x 6'-0") | 05  | 20490229 | Stair extension with 2 steps (2'-3")   |
| 02  | 14030109 | Universal freestanding base                    | 06  | 20491321 | Stair rail extension (18-3/4" x 4'-9") |
| 03  | 20491310 | 5 steps stair (3'-4")                          | 07  | 20491400 | Ground foot support (1-1/2" x 2'-6")   |
| 04  | 20490252 | Stair rail (3'-2" x 3'-7")                     | 08  | GOU-5040 | Locking pin 3/8" x 2-1/2" x 1-1/2"     |

## Extension section

### MODULAR extension section

The extension sections serve to extend the platform part of the lifting unit.  
The « **MODULAR** » sections do not include any removable components.

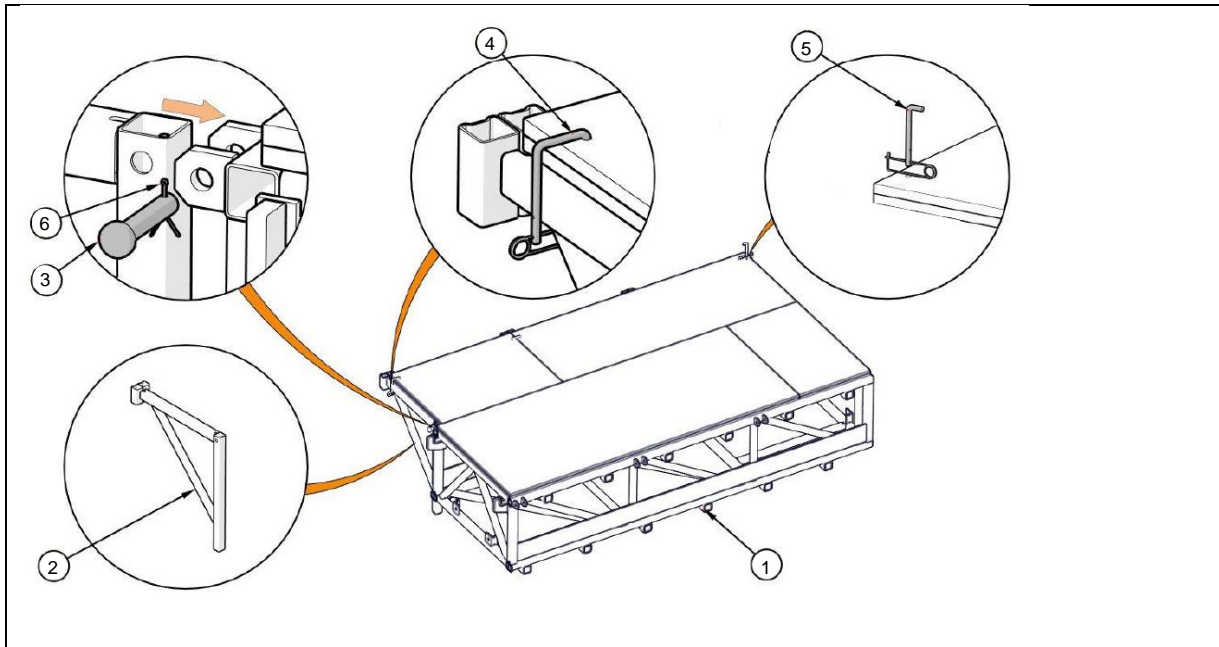
Note: The « universal » tapered extension section (**item 6**) has reinforcements and installs directly on the unit.  
The tapered extension section is also available in a « regular » version (**item 7**) without reinforcements and requires the use of a tapered extension section adapter (**item 8**) between the section and the unit.



| N° | FRACO code                          | Description  |
|----|-------------------------------------|--|
| 1  | 15090016 (Left)<br>15090094 (Right) | Intermediate extension section 2'-6" x 5'-9" (762 mm x 1,75 m) left (green)<br>Intermediate extension section 2'-6" x 5'-9" (762 mm x 1,75 m) right (blue)     |
| 2  | 15090027 (Left)<br>15090106 (Right) | Extension section 3'-4" x 5'-9" (1 m x 1,75 m) left (green)<br>Extension section 3'-4" x 5'-9" (1 m x 1,75 m) right (blue)                                     |
| 3  | 15090038 (Left)<br>15090117 (Right) | Intermediate extension section 5'-0" x 5'-9" (1,52 m x 1,75 m) left (green)<br>Intermediate extension section 5'-0" x 5'-9" (1,52 m x 1,75 m) right (blue)     |
| 4  | 15090049 (Left)<br>15090128 (Right) | Extension section 6'-8" x 5'-9" (2 m x 1,75 m) left (green)<br>Extension section 6'-8" x 5'-9" (2 m x 1,75 m) right (blue)                                     |
| 5  | 15090050 (Left)<br>15090139 (Right) | Extension section 10'-0" x 5'-9" (3 m x 1,75 m) left (green)<br>Extension section 10'-0" x 5'-9" (3 m x 1,75 m) right (blue)                                   |
| 6  | 15090184 (Left)<br>15090195 (Right) | Universal taper extension section 10'-0" x 5'-9" (3 m x 1,75 m) left (orange)<br>Universal taper extension section 10'-0" x 5'-9" (3 m x 1,75 m) right (white) |
| 7  | 15060013 (Left)<br>15060024 (Right) | Tapered extension section of 10'-0" x 5'-9" (3 m x 1,75 m) left (green)<br>Tapered extension section of 10'-0" x 5'-9" (3 m x 1,75 m) right (blue)             |
| 8  | 20490926                            | Taper extension section adapter (MODULAR)  |

## NON-MODULAR extension section

The « **NON MODULAR** » sections have removable and reversible brackets as illustrated below.



| N°   | FRACO code | Description   |
|------|------------|---|
| 1    | 150200XX   | Non-modular extension section (Example)               |
| 2    | 18490046   | Side bracket with 3/4" hole x 2'-4"                   |
| 3    | 25490055   | Pin Ø 3/4" x 4-3/16"                                  |
| 4    | 25490088   | U-lock pin Ø 3/8" x 2-7/8" x 4-3/4" assembled         |
| 5    | 25490099   | Half-U-lock pin Ø 3/8" x 4-3/4" assembled             |
| 6    | GOU-1120   | Split Pin 1/8" x 2" zinc                              |
| «7»  | 15020019   | Extension section 2'-6" x 3'-6" (762 mm x 1,07 m)     |
| «8»  | 15020020   | Extension section 3'-4" x 3'-6" (1 m x 1,07 m)        |
| «9»  | 15020031   | Extension section 6'-8" x 3'-6" (2 m x 1,07 m)        |
| «10» | 15020042   | Extension section 10'-0" x 3'-6" (3 m x 1,07 m)       |
| «11» | 15020086   | Taper extension section 10'-0" x 3'-6" (3 m x 1,07 m) |
| «12» | 20490971   | Taper extension section adaptor (NON-MODULAR)         |

Note: Items numbered between « » are not shown in the illustration.



## Installation of an extension section

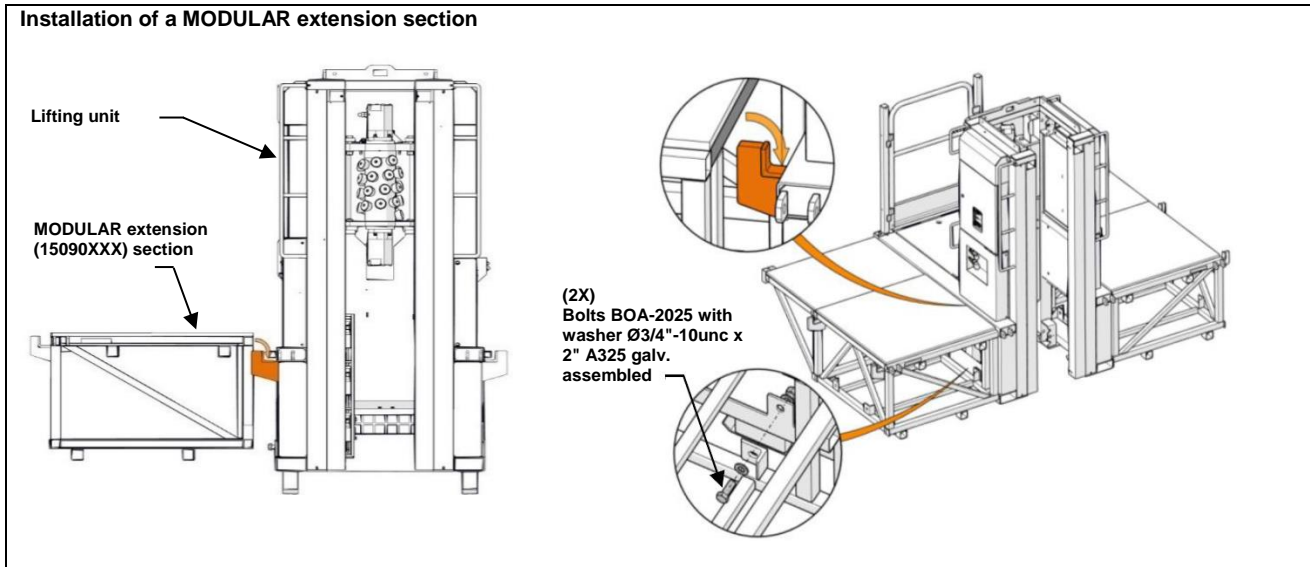


Figure 59 - MODULAR extension section

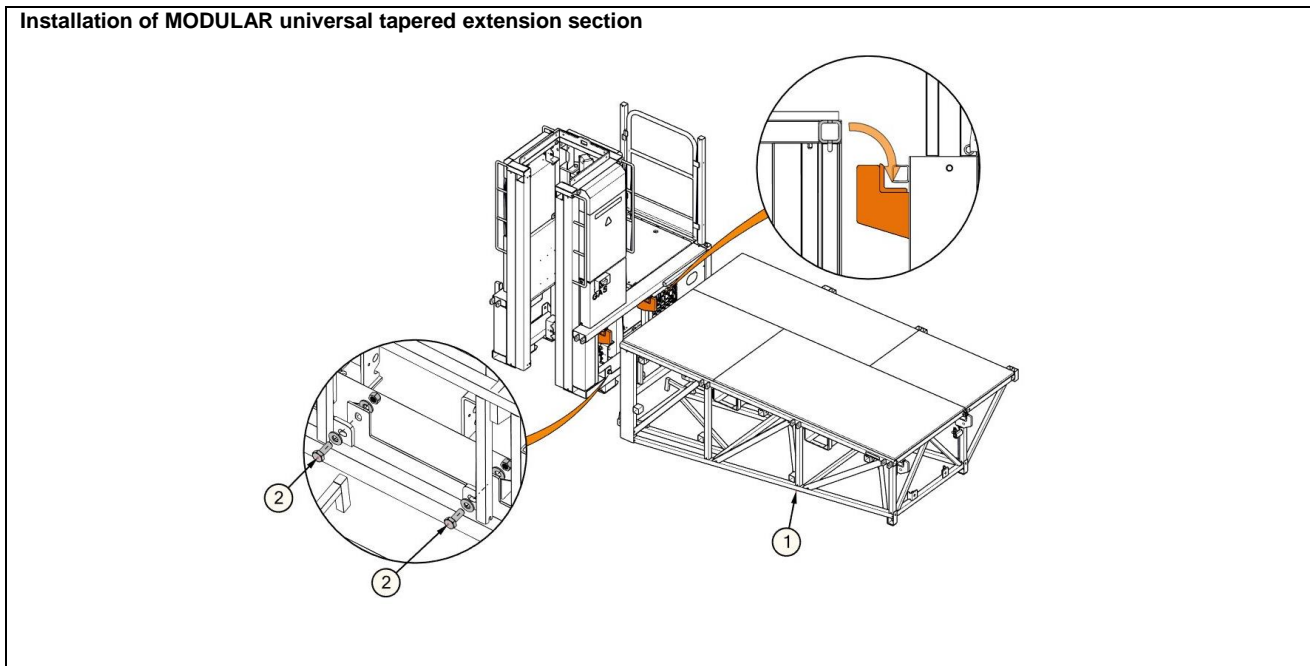


Figure 60 - MODULAR universal tapered extension section

| No. | Item             | Description  | No. | Item     | Description   |
|-----|------------------|--|-----|----------|---|
| 01  | 15090184 (Left)  | Universal taper extension section (MODULAR) 5'-9" x 10'-0" left (orange) | 02  | BOA-2025 | Bolts kit (BOA-2025) Ø3/4"-10unc x 2" A325 galv. with washers and nut |
|     | 15090195 (Right) | Universal taper extension section (MODULAR) 5'-9" x 10'-0" right (white) |     |          |   |

## Installation of an extension section (CONTINUED)

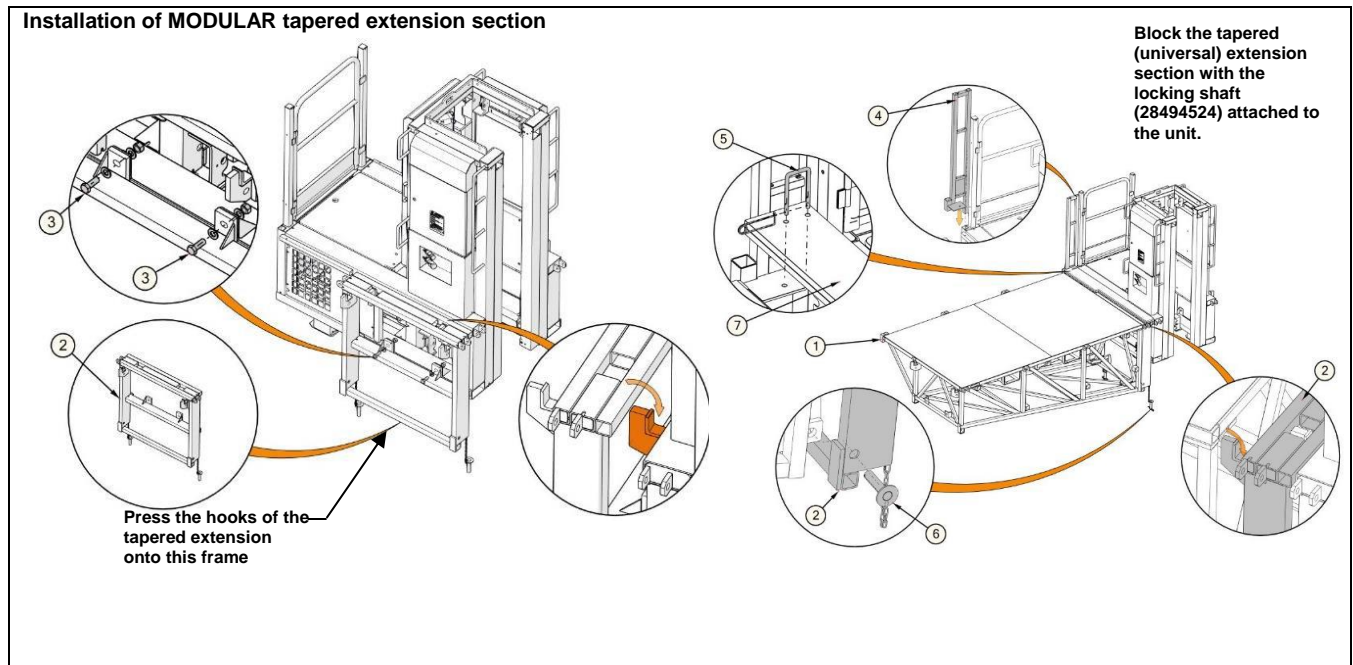


Figure 61 - MODULAR tapered extension section

| No. | Item                | Description   | No. | Item                     | Description  |
|-----|---------------------|---|-----|--------------------------|--|
| 01  | 15060013<br>(Left)  | Tapered extension section (MODULAR)<br>5'-9" x 10'-0" left (green)    | 05  | 25490088                 | U-lock pin dia. 3/8" (2-7/8" x 4-3/4") assembled                       |
|     | 15060024<br>(Right) | Tapered extension section (MODULAR)<br>5'-9" x 10'-0" right (blue)    |     |                          |  |
| 02  | 20490926            | Taper extension section adaptor                                       | 06  | 28494524 and<br>GOU-1120 | Locking shaft Ø 1" x 4-5/8" with 8" chain and 1/8" x 2" zinc split pin |
| 03  | BOA-2025            | Bolts kit (BOA-2025) Ø3/4"-10unc x 2" A325 galv. with washers and nut | 07  | 16030303                 | Flooring 1-1/2" x 7" x 5' 9" (with 42" notch)                          |
| 04  | 17490337<br>(Right) | Guard-rail with plywood support 7" x 4'-2" (right)                    |     |                          |  |
|     | 17490348<br>(Left)  | Guard-rail with plywood support 7" x 4'-2" (left)                     |     |                          |  |

### Installation of an extension section (CONTINUED)

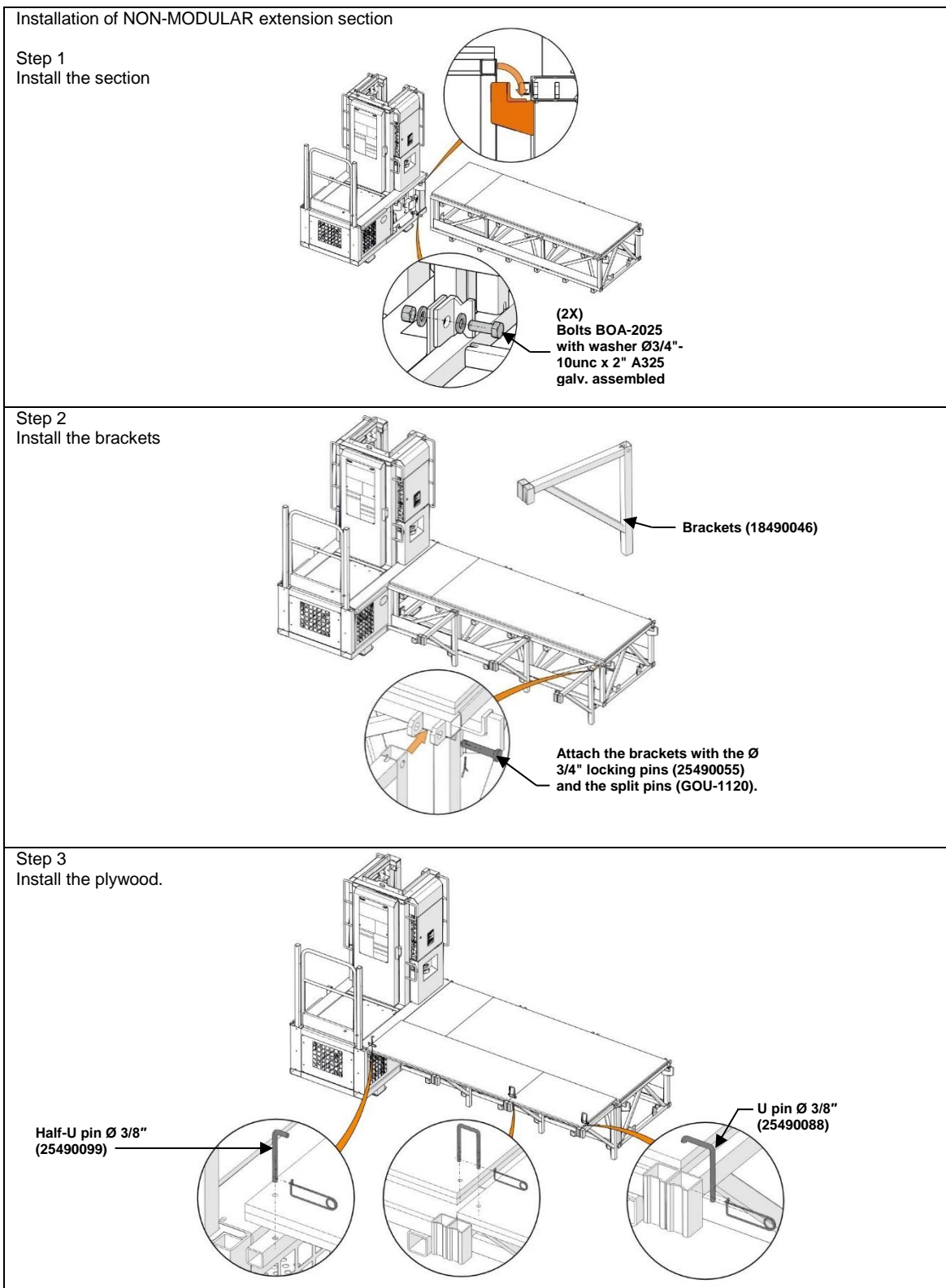


Figure 62 - NON-MODULAR extension section



### Installation of an extension section joints (20490566)

Extension section joints are required to join a **MODULAR** extension section to a **NON MODULAR** section.

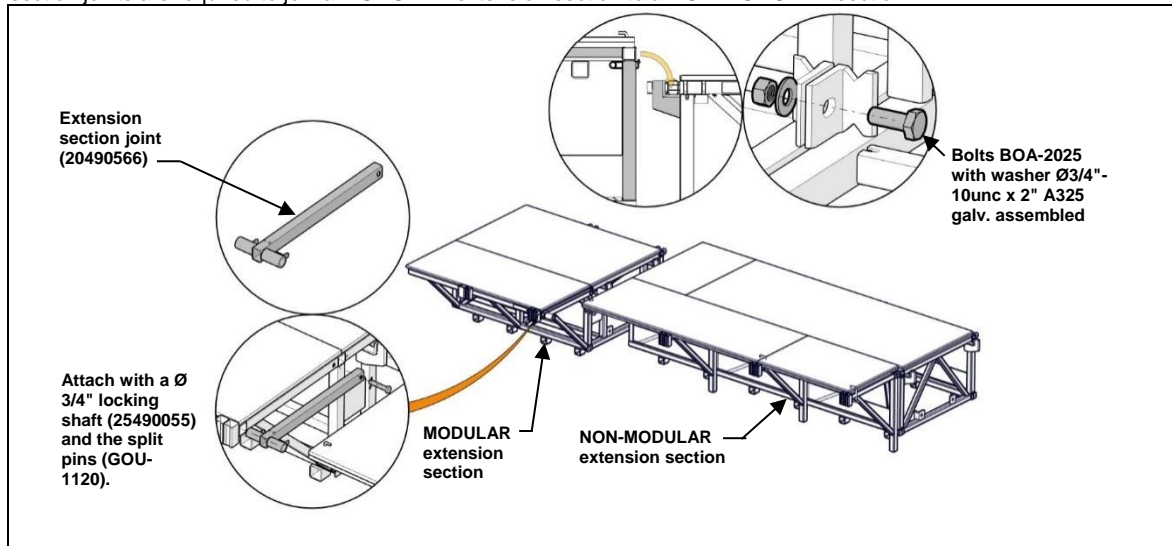


Figure 63 - MODULAR Extension joint

### Installation of extension turnbuckles

Extension turnbuckles must be used for any extension section assembly greater than 13'-4" (4,0 m) composed of standard 10'-0" (3,0 m) extension sections. Turnbuckles are thus not necessary if 10'-0" (3,0 m) tapered extension sections are used. It is prohibited to use a 3'-4" (1,0 m) and 6'-8" (2,0 m) extension assembly instead of a 10'-0" (3,0 m) section.

For more information on configurations requiring the use of turnbuckles:

∞SEE TABLE 3 - SINGLE MAST, LOAD DISTRIBUTION, ON PAGE 20

∞SEE TABLE 6 - DOUBLE MAST, LOAD DISTRIBUTION, ON PAGE 23

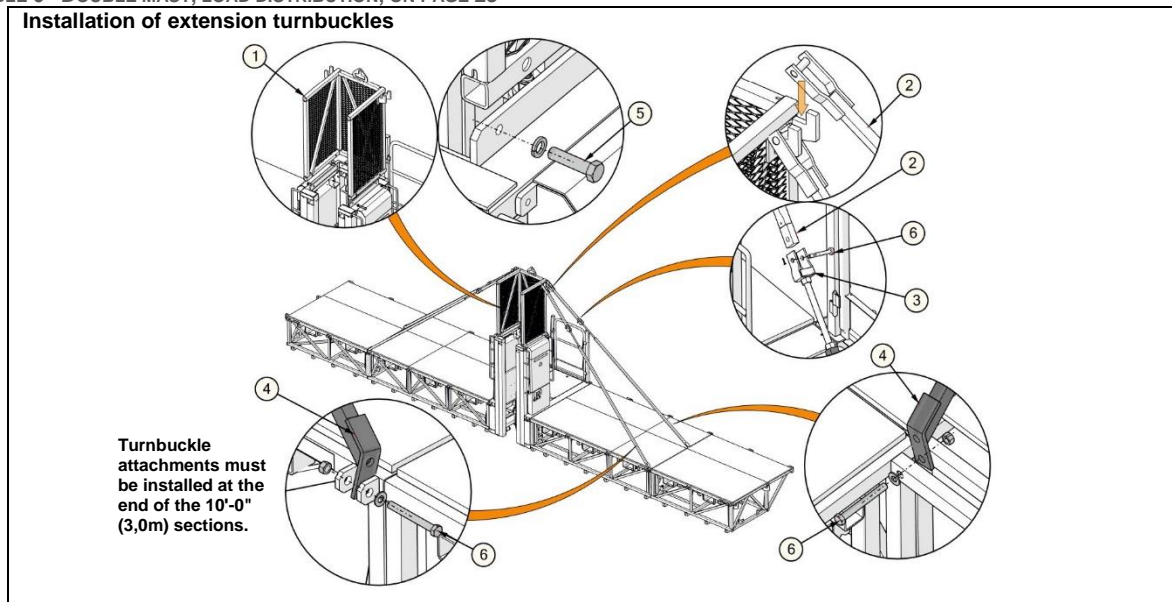


Figure 64 - Installation of extension turnbuckles

| No. | Item     | Description                                    | No. | Item               | Description                                    |
|-----|----------|--|-----|--------------------|--|
| 01  | 20490117 | Protection screen 2'-3" x 2'-3" x 3'-11" (ACT) | 04  | 23050044           | Extension turnbuckle (1-1/2" x 1-1/2" x 9'-3") |
| 02  | 23050033 | Extension turnbuckle 1-1/2" x 1-1/2" x 3' 5"   | 05  | BOA-2029           | Bolts kit 3/4"-10unc x 3" A325 galv. assembled |
| 03  | 23030020 | Turnbuckle hand 16"                            | 06  | 25490022, GOU-1115 | Pin dia. 1/2" x 4-1/8" and 1/8" x 3" split pin |

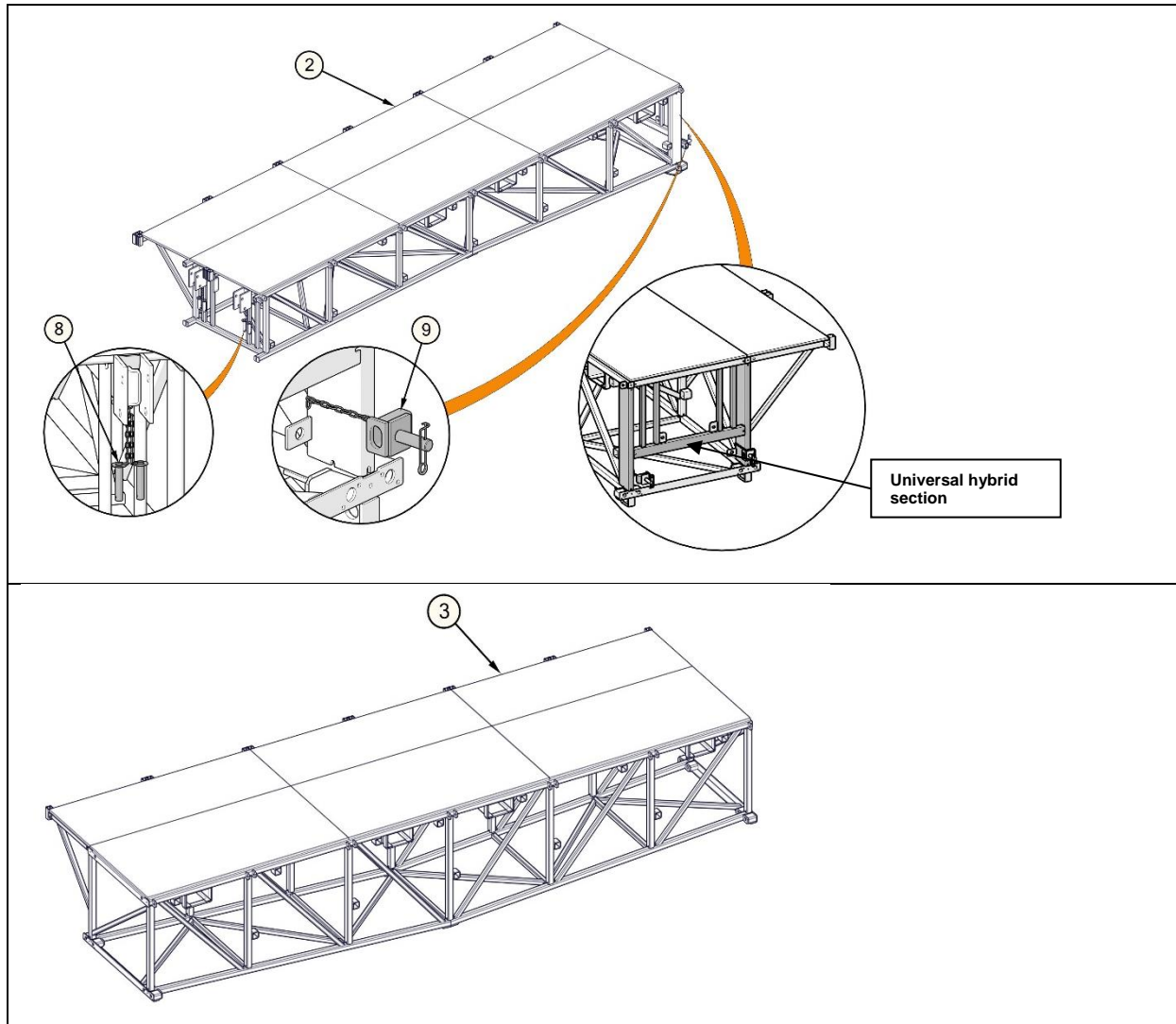
## Bridge section

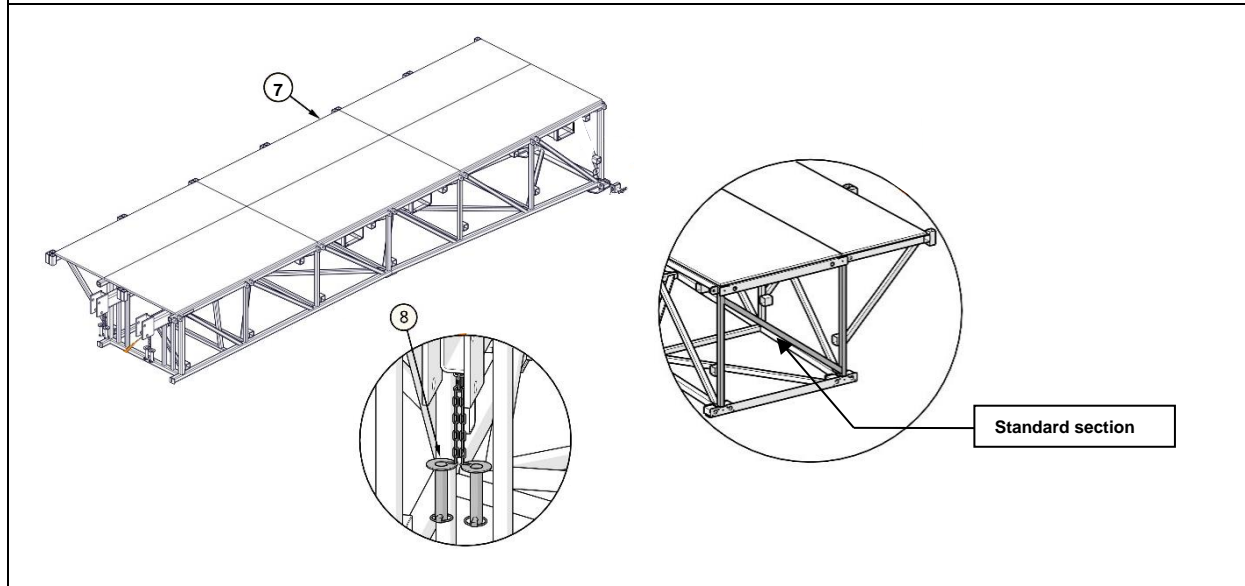
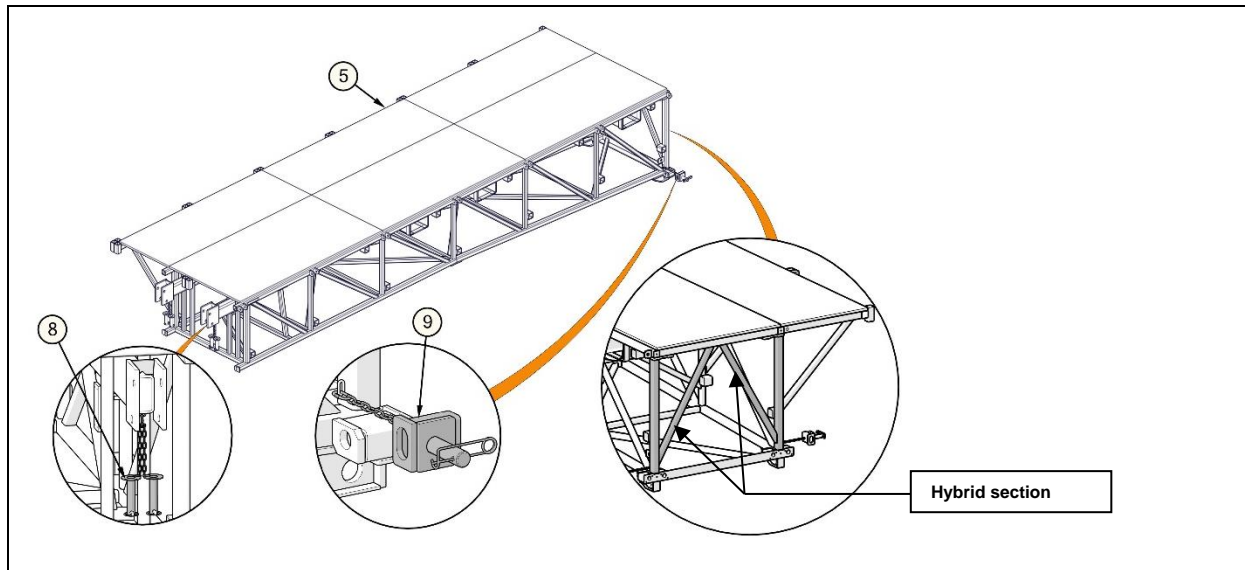
### MODULAR bridge section

The bridge sections serve as a link between two units installed on independent masts.

There are 3 types of **MODULAR** bridge sections: « universal hybrid », « hybrid », « standard ».

- The « universal hybrid » bridges can serve as a bridge and can serve as extension on the **ACT-8 units**.
- The « hybrid » bridges may serve as a bridge on the **ACT-8 units**.
- The « hybrid » bridges may serve as extension on the **ACT-8 units**, provided a **MODULAR tapered extension adapter (20490926)** is used.
- The « standard » bridges may only serve as a bridge on the **ACT-8 units**.
- The « standard » bridges **may not** be used as extensions.



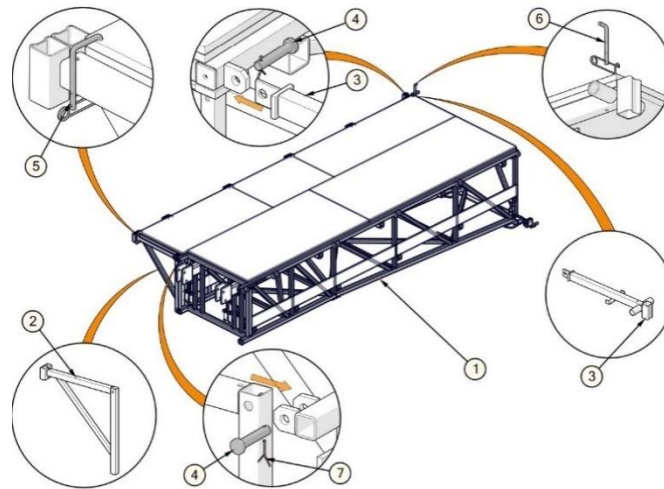


| No   | FRACO Code                          | Description  |
|------|-------------------------------------|--|
| «1»  | 15090229 (Left)<br>15090230 (Right) | (Hybrid – Universal) bridge section (MODULAR) 5'-9" x 15'-0" (1,75 m x 4,57 m) left (orange)<br>(Hybrid – Universal) bridge section (MODULAR) 5'-9" x 15'-0" (1,75 m x 4,57 m) right (white) |
| 2    | 15090207 (Left)<br>15090218 (Right) | (Hybrid – Universal) bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) left (orange)<br>(Hybrid – Universal) bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) Right (White) |
| 3    | 15090083 (Center)                   | Central bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m)  |
| «4»  | 15090061 (Left)<br>15090140 (Right) | (Hybrid) bridge section (MODULAR) 5' 9" x 15' 0" (1,75 m x 4,57 m) left (orange)<br>(Hybrid) bridge section (MODULAR) 5' 9" x 15' 0" (1,75 m x 4,57 m) right (white)                         |
| 5    | 15090072 (Left)<br>15090151 (Right) | (Hybrid) bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) left (orange)<br>(Hybrid) bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) right (white)                         |
| «6»  | 15030054 (Left)<br>15030133 (Right) | Bridge section (MODULAR) 5'-9" x 15'-0" (1,75 m x 4,57 m) left (green)<br>Bridge section (MODULAR) 5'-9" x 15'-0" (1,75 m x 4,57 m) right (blue)   |
| 7    | 15090205 (Left)<br>15090206 (Right) | Bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) left (green)<br>Bridge section (MODULAR) 5'-9" x 20'-0" (1,75 m x 6,10 m) right (blue)   |
| 8    | 28493938 + GOU-6040 + FOD-5325      | Double bridge arm chain  |
| 9    | 28494906                            | Locking shaft Ø 1,000" x 3,188" with 9,500" chain  |
| «10» | 20490926                            | Taper extension section adapter (MODULAR)  |

Note: Items numbered between « » are not shown in the illustration.

### NON-MODULAR bridge section

The « **NON MODULAR** » sections have removable and reversible brackets as illustrated below.



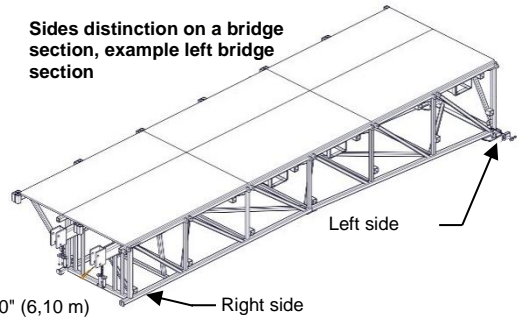
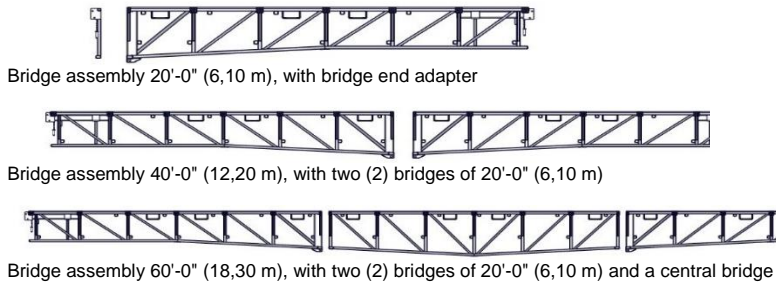
| No   | FRACO Code | Description   |
|------|------------|---|
| 1    | 150200XX   | (NON-MODULAR) bridge section (Example)  |
| 2    | 18490046   | Side bracket with 3/4" hole 2'-4"   |
| 3    | 20490577   | (MODULAR) bridge joint with bottle  |
| 4    | 25490055   | Locking pin Ø 3/4" x 4-3/16"  |
| 5    | 25490088   | U-lock pin Ø 3/8" x 2-7/8" x 4-3/4" assembled                                     |
| 6    | 25490099   | Half-U-lock pin Ø 3/8" x 4-3/4" assembled   |
| 7    | GOU-1120   | Split Pin 1/8" x 2" zinc  |
| «8»  | 15020097   | (Hybrid) bridge section (MODULAR) 3'-6" x 15'-0" (1,07 m x 4,57 m) (orange white) |
| «9»  | 15020109   | (Hybrid) bridge section (MODULAR) 3'-6" x 20'-0" (1,07 m x 6,10 m) (orange-white) |
| «10» | 15020075   | Central bridge section 3'-6" x 20'-0" (1,07 m x 6,10 m)                           |
| «11» | 20490971   | Taper extension section adapter (NON-MODULAR)                                     |

Note: Items numbered between « » are not shown in the illustration.



## Installation of bridge sections

### Examples of bridge section combinations



### List of all possible bridge combinations

Note: Only the MODULAR « Universal hybrid » bridge sections are shown in the components list in the table below, but all combinations can also be made using « Hybrid » and « Standard » bridge sections.

| Result                  | Components list  |  |
|-------------------------|--|--|
| Bridge 15'-0" (4,57 m)  | Bridge section 15'-0" (4,57 m)   | (15090229-left) or (15090230-right) + bridge end adapter (20491501)                          |
| Bridge 20'-0" (6,10 m)  | Bridge section 20'-0" (6,10 m)   | (15090207-left) or (15090218-right) + bridge end adapter (20491501)                          |
| Bridge 30'-0" (9,15 m)  | Bridge section 15'-0" (4,57 m)<br>Bridge section 15'-0" (4,57 m)   | (15090229-left) or (15090230-right) +<br>(15090229-left) or (15090230-right)                 |
| Bridge 35'-0" (10,67 m) | Bridge section 15'-0" (4,57 m)<br>Bridge section 20'-0" (6,10 m)   | (15090229-left) or (15090230-right) +<br>(15090207-left) or (15090218-right)                 |
| Bridge 40'-0" (12,20 m) | Bridge section 20'-0" (6,10 m)<br>Bridge section 20'-0" (6,10 m)   | (15090207-left) or (15090218-right) +<br>(15090207-left) or (15090218-right)                 |
| Bridge 50'-0" (15,25 m) | Bridge section 15'-0" (4,57 m)<br>Central bridge section 20'-0" (6,10 m)<br>Bridge section 15'-0" (4,57 m) | (15090229-left) or (15090230-right) +<br>(15090083) +<br>(15090229-left) or (15090230-right) |
| Bridge 55'-0" (16,75 m) | Bridge section 15'-0" (4,57 m)<br>Central bridge section 20'-0" (6,10 m)<br>Bridge section 20'-0" (6,10 m) | (15090229-left) or (15090230-right) +<br>(15090083) +<br>(15090207-left) or (15090218-right) |
| Bridge 60'-0" (18,30 m) | Bridge section 20'-0" (6,10 m)<br>Central bridge section 20'-0" (6,10 m)<br>Bridge section 20'-0" (6,10 m) | (15090207-left) or (15090218-right) +<br>(15090083) +<br>(15090207-left) or (15090218-right) |

For any questions about bridge section combinations, contact the FRACO engineering department.

### Example of assembly between bridge sections

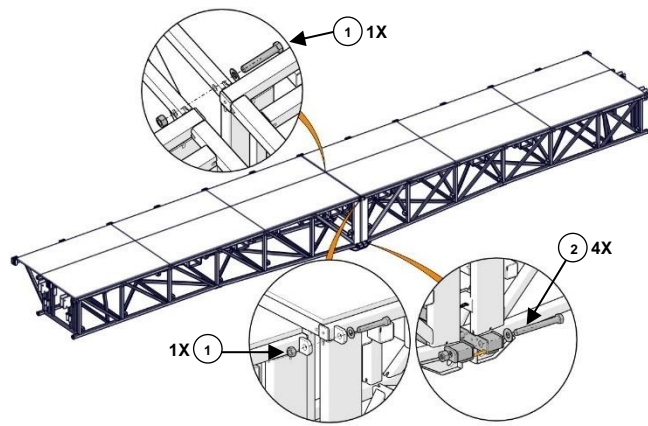


Figure 65 - Combination 20'-0" to 20'-0"

### Example of assembly between bridge section and central section

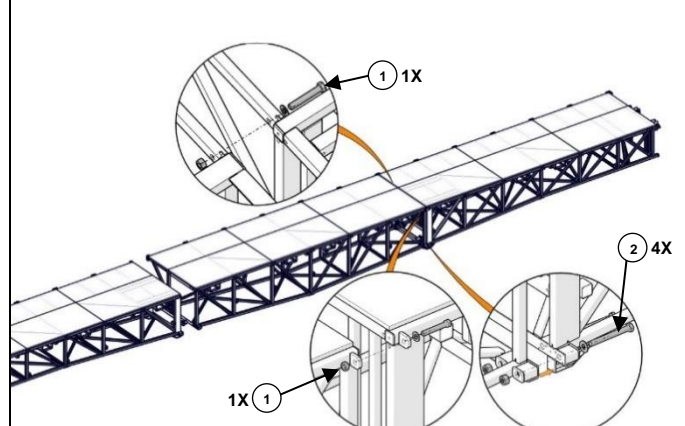


Figure 66 - Combination 20'-0" to center

| No. | Item     | Description  | No. | Item     | Description   |
|-----|----------|--|-----|----------|---|
| 01  | BOA-2090 | Bolt kit with washer and nut Ø 3/4"-10unc x 4-1/2" A325, galv. | 02  | BOA-2085 | Bolt kit with washer and nut Ø 1"-8unc x 9" A325, galv. |

### Installation of bridge joint with bottle (20490577)

Bridge joints are required to join a **MODULAR** bridge section to a **NON MODULAR** bridge section.

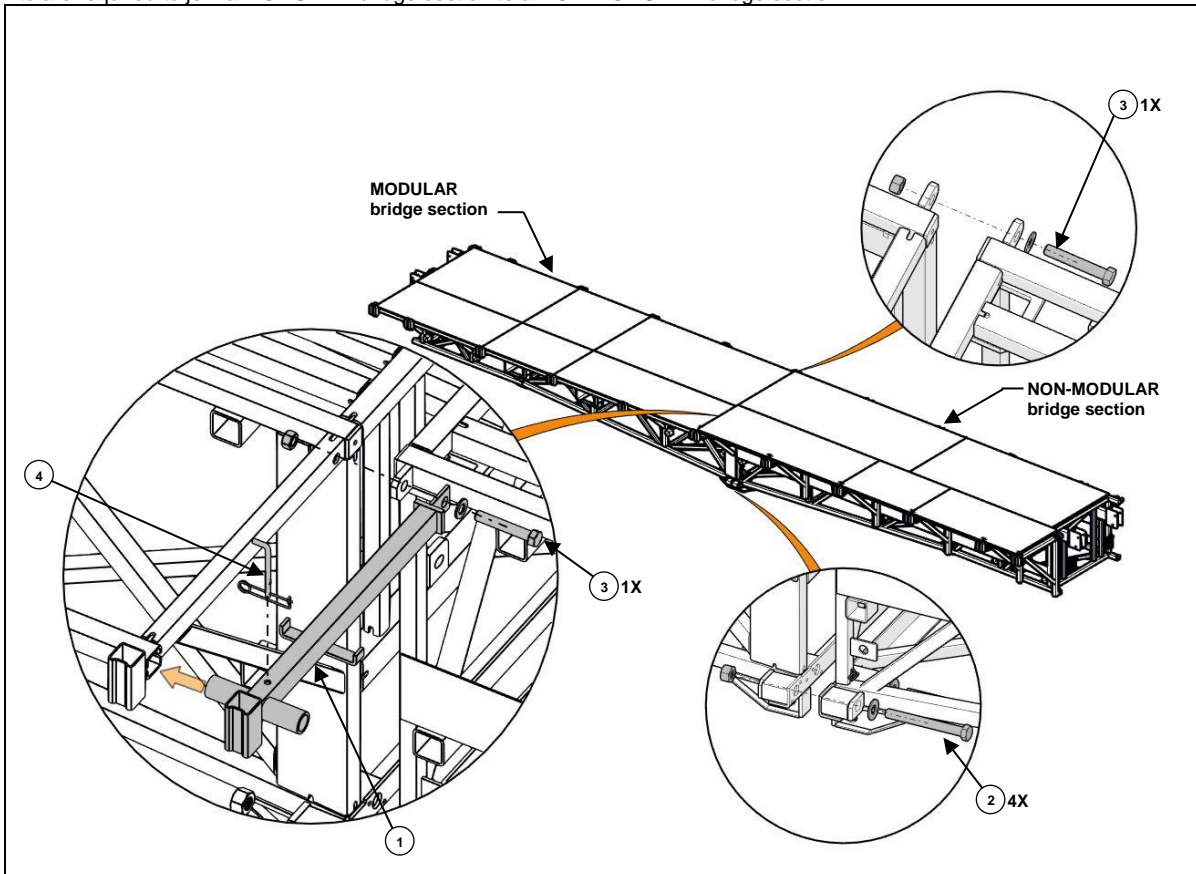


Figure 67 - Bridge joint with bottle

| No. | Item     | Description   | No. | Item     | Description  |
|-----|----------|---|-----|----------|--|
| 01  | 20490577 | Bridge joint with bottle                                | 03  | BOA-2090 | Bolt kit with washer and nut Ø 3/4"-10unc x 4-1/2" A325, galv. |
| 02  | BOA-2085 | Bolt kit with washer and nut Ø 1"-8unc x 9" A325, galv. | 04  | 25490099 | Half-U-lock pin (dia. 3/8" x 4-3/4") assy                      |

### Installation of individual 15'-0" or 20'-0" bridge section between two units

Install a 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section directly between two (2) lifting units.

Note: When installing **only one** 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section, it is **mandatory** to use a bridge end adapter (20491501).

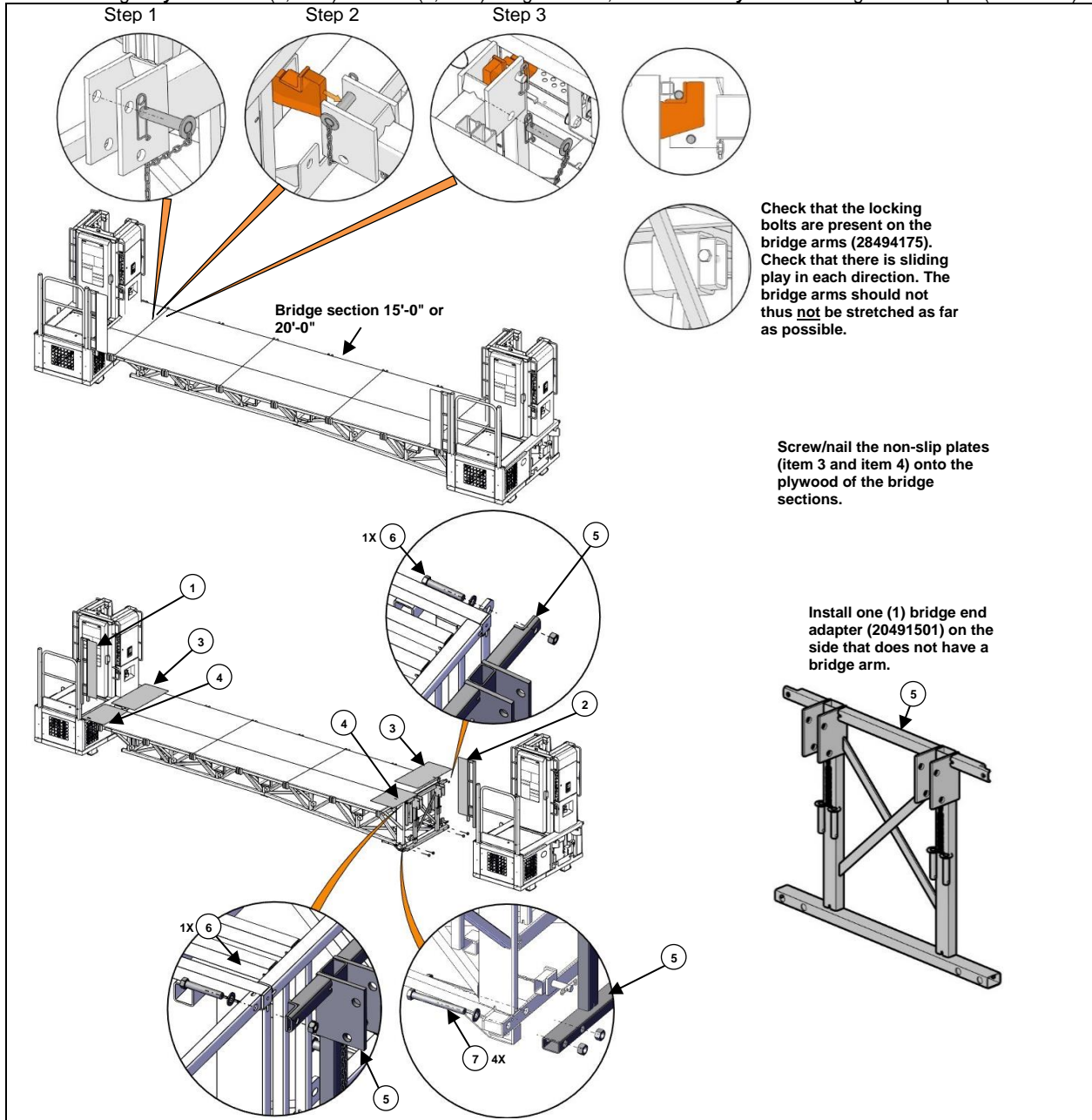


Figure 68 - Installation of 15'-0" or 20'-0" bridge section between lifting units

| No. | Item     | Description  | No. | Item     | Description  |
|-----|----------|--|-----|----------|--|
| 01  | 17490427 | Covering guard-rail 13-15/16" x 4'-2" right (blue) | 05  | 20491501 | Bridge end adapter 3'-0" x 4'-0"                               |
| 02  | 17490416 | Covering guard-rail 13-15/16" x 4'-2" left (green) | 06  | BOA-2090 | Bolt kit with washer and nut Ø 3/4"-10unc x 4-1/2" A325, galv. |
| 03  | 20490320 | Anti skid steel plate 1/8" x 20" x 39-1/2"         | 07  | BOA-2085 | Bolt kit with washer and nut Ø 1"-8unc x 9" A325, galv.        |
| 04  | 20490319 | Anti skid steel plate 1/8" x 20" x 2'-4"           |     |          |  |



## Installation of individual 15'-0" or 20'-0" bridge section on intermediate units and/or extensions

Install a 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section directly between two (2) lifting units and/or intermediate extensions.

Note: When installing **only one** 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section, it is **mandatory** to use a bridge end adapter (20491501).

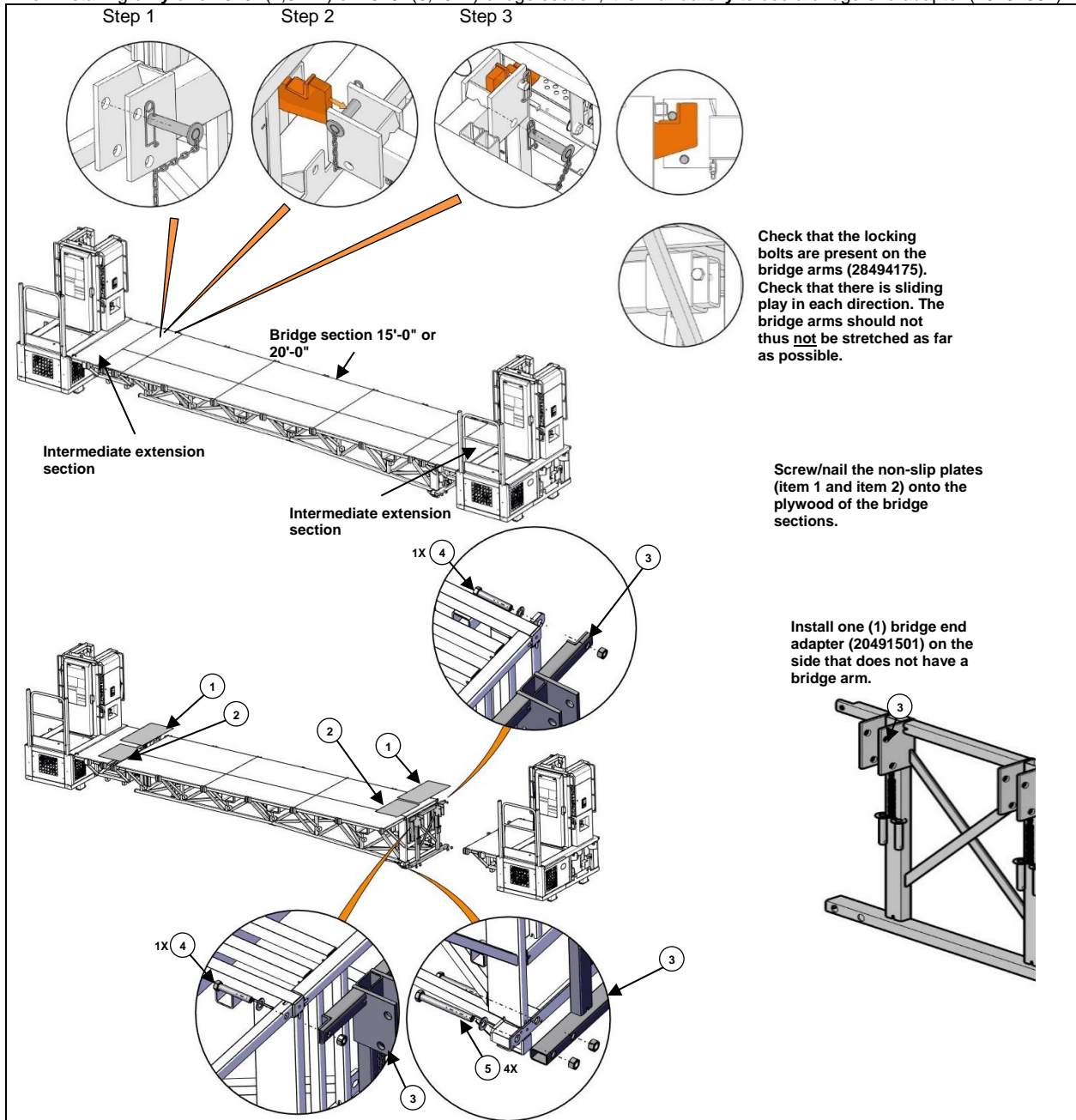


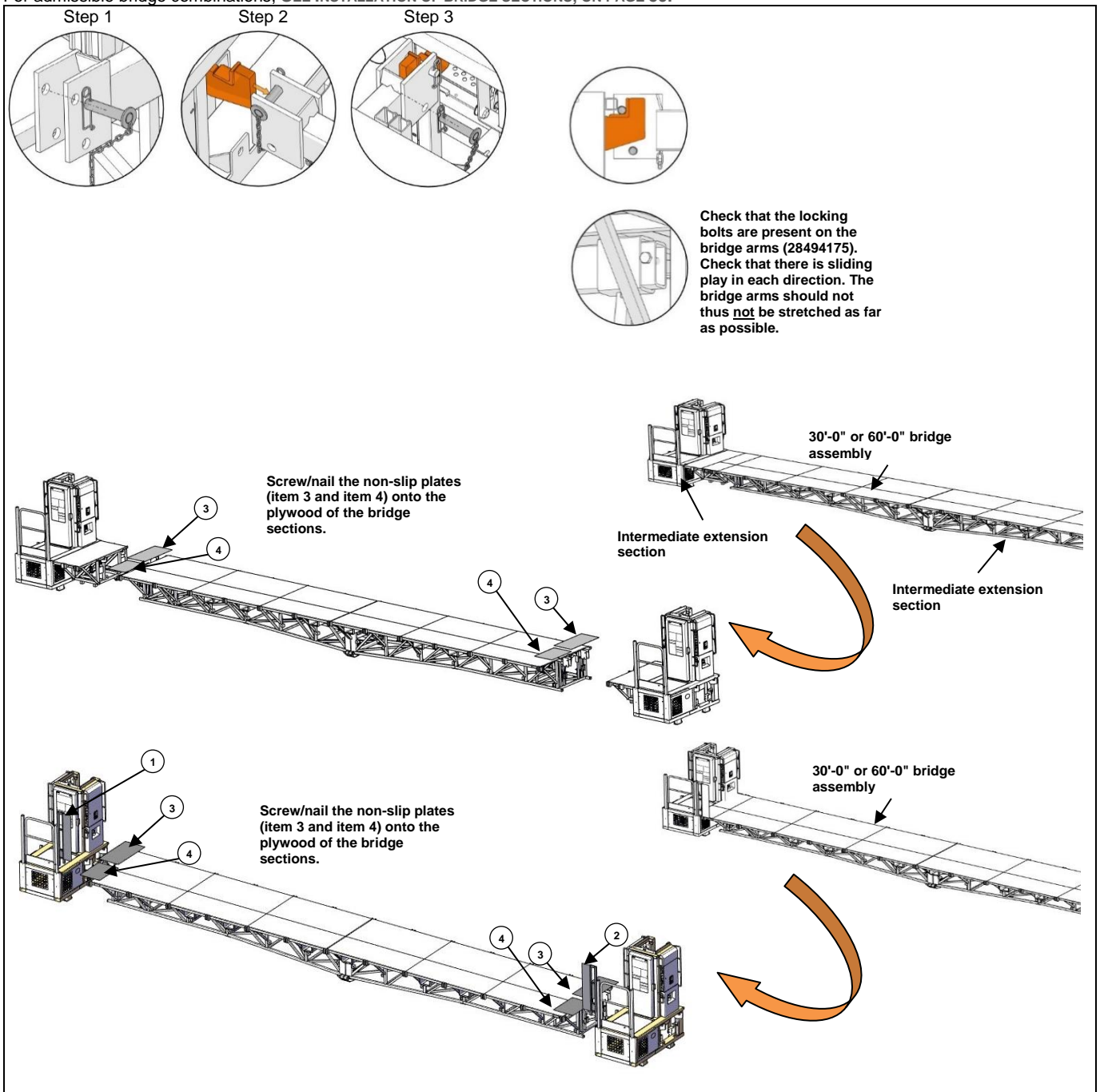
Figure 69 - Installation of 15'-0" or 20'-0" bridge section between lifting units and/or intermediate extensions

| No. | Item     | Description                                | No. | Item     | Description  |
|-----|----------|--|-----|----------|--|
| 01  | 20490320 | Anti skid steel plate 1/8" x 20" x 39-1/2" | 04  | BOA-2090 | Bolt kit with washer and nut Ø 3/4"-10unc x 4-1/2" A325, galv. |
| 02  | 20490319 | Anti skid steel plate 1/8" x 20" x 2'-4"   | 05  | BOA-2085 | Bolt kit with washer and nut Ø 1"-8unc x 9" A325, galv.        |
| 03  | 20491501 | Bridge end adapter 3'-0" x 4'-0"           |     |          |  |

## Installation of 30'-0" to 60'-0" bridge assembly between two units and/or intermediate extensions

Assemble 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge sections and install the bridge assembly between two (2) lifting units and/ intermediate extensions.

For admissible bridge combinations, **SEE INSTALLATION OF BRIDGE SECTIONS, ON PAGE 59.**



**Figure 70 - Installation of 30'-0" to 60'-0" bridge assembly on the lifting unit and/or intermediate extension**

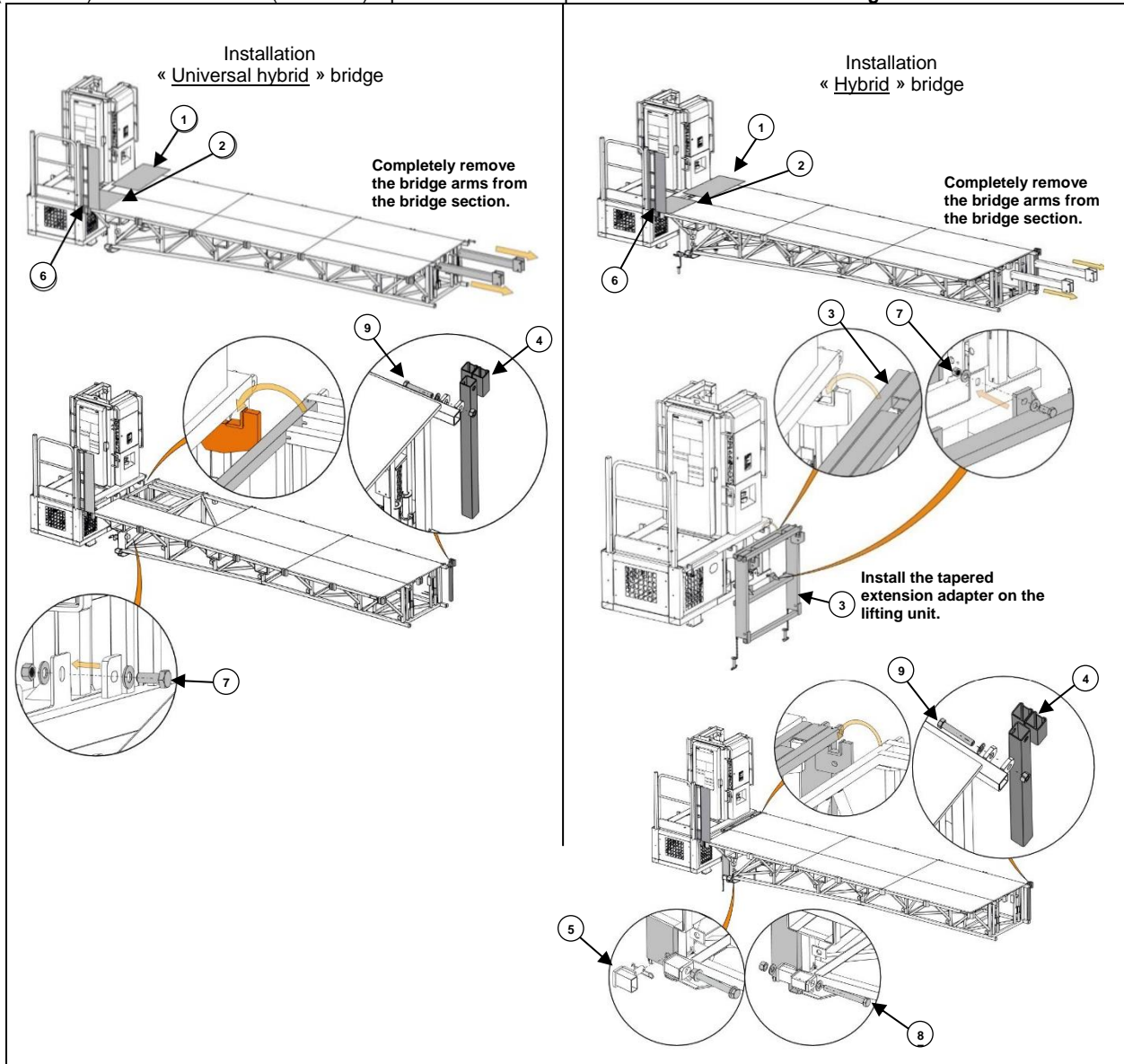
| No. | Item     | Description  | No. | Item     | Description                                |
|-----|----------|--|-----|----------|--|
| 01  | 17490427 | Covering guard-rail 13-15/16" x 4'-2" right (blue) | 03  | 20490320 | Anti skid steel plate 1/8" x 20" x 39-1/2" |
| 02  | 17490416 | Covering guard-rail 13-15/16" x 4'-2" left (green) | 04  | 20490319 | Anti skid steel plate 1/8" x 20" x 2'-4"   |

## Installation of an extension bridge section

**Important!** This is a **special installation** and thus requires special attention.

For conditions of use, **SEE BRIDGE SECTION, ON PAGE 56.**

- It is possible to use a « **Universal hybrid** » 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section as an extension, directly on the lifting unit. **Excludes central bridge sections.**
- It is possible to use a « **Hybrid** » 15'-0" (4,57 m) or 20'-0" (6,10 m) bridge section as an extension on a lifting unit, provided a MODULAR (20490926) or NON-MODULAR (20490971) tapered extension adapter is used. **Excludes central bridge sections.**



**Figure 71 - Installation of an extension bridge section**

| No. | Item     | Description                                  | No. | Item                 | Description  |
|-----|----------|--|-----|----------------------|--|
| 01  | 20490320 | Anti skid steel plate 1/8" x 20" x 39-1/2"   | 06  | 17490427<br>17490416 | Covering guard-rail 13-15/16" x 4'-2" right (blue)<br>Covering guard-rail 13-15/16" x 4'-2" left (green) |
| 02  | 20490319 | Anti skid steel plate 1/8" x 20" x 2'-4"     | 07  | BOA-2025             | Bolt kit 3/4"-10unc x 2" A325 galv.  |
| 03  | 20490926 | Taper extension section adaptor (MODULAR)    | 08  | BOA-2085             | Bolt kit with washers and nut Ø 1"-8unc x 9" A325, galv.   |
| 04  | 20490184 | Guardrail pockets with 3/4" hole             | 09  | BOA-2090             | Bolt kit with washer and nut Ø 3/4"-10unc x 4-1/2" A325, galv.   |
| 05  | 28494906 | Locking pin Ø 1,000" x 3,188" with 11" chain |     |                      |  |

## Bolting of mast sections and mast end section

Assemble the mast sections by joining the male and female ends with the (4) four bolts (BOZ-7305 or BOA-2080). Tighten the bolts according to the prescribed tightening torque in **TABLE 15 - TECHNICAL DATA SHEET ACT-8 MAST section, ON PAGE 151.**

Note: For all of the following explanations, the term « mast sections » means an individual part (13030018) and « mast » means an assembly of two (2) or more mast sections. The masts may be pre-assembled on the ground or erected one section at a time.

**IMPORTANT!** The bolts must always be installed from below, with nut and washer on top.

Install the mast end section to the last installed mast section using four (4) bolt kits (BOZ-7305 or BOA-2080). Tighten the bolts according to the prescribed tightening torque.

The tightening torque of the mast section bolts should be close to **265 lb-ft (360 Nm).**

**Do not exceed the following vertical tolerances:**

- 1/2" (13 mm) for a 10'-0" mast (3 m).
- 3/4" (19 mm) for a 20'-0" mast (6,1 m).
- 1" (25 mm) for the maximum mast height.

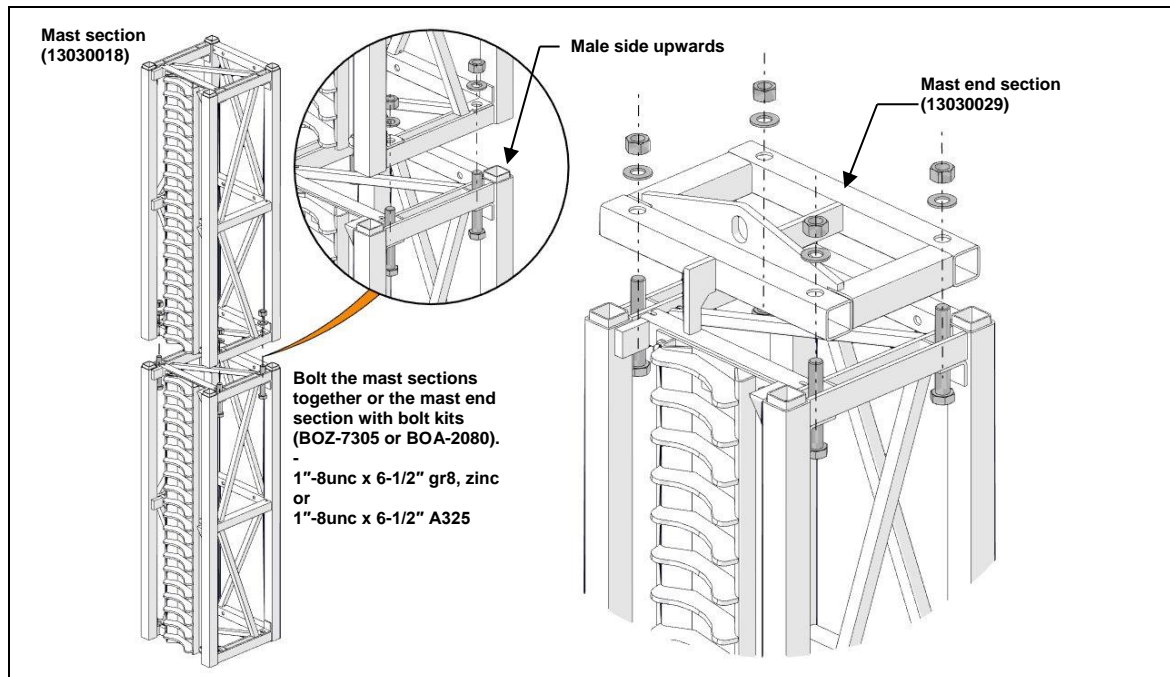


Figure 72 - Bolting of mast and mast end sections



## Mast anchor

For information on detailed parts, **FRACO** part numbers and engineering data specific to the various mast anchors devices, refer to the most recent « **MAST ANCHOR SPECIFICATIONS** » documents available with the project quotation. You can also contact your **FRACO** for a copy of these documents.

## Mast anchor specifications

### Transmitted efforts

The following figures show the loads transmitted by the mast anchor to the building for the different types of mast anchors available. These loads **do not include** the safety factors that must be taken into account in accordance with the applicable local regulations. Refer to the anchor details of the specific installation quote for installation requirements. These loads include the dynamic coefficients.

The maximum horizontal load considered for a man's thrust is 45 lbf (200 N). If tools (such as a hydrodemolition system, a remote-controlled jackhammer, etc.) create a greater thrust, said thrust must be evaluated and approved by Fraco's engineering department.

Note: Refer to the tables of the opening angles and anchor details of **PAGES 69 TO 74**.

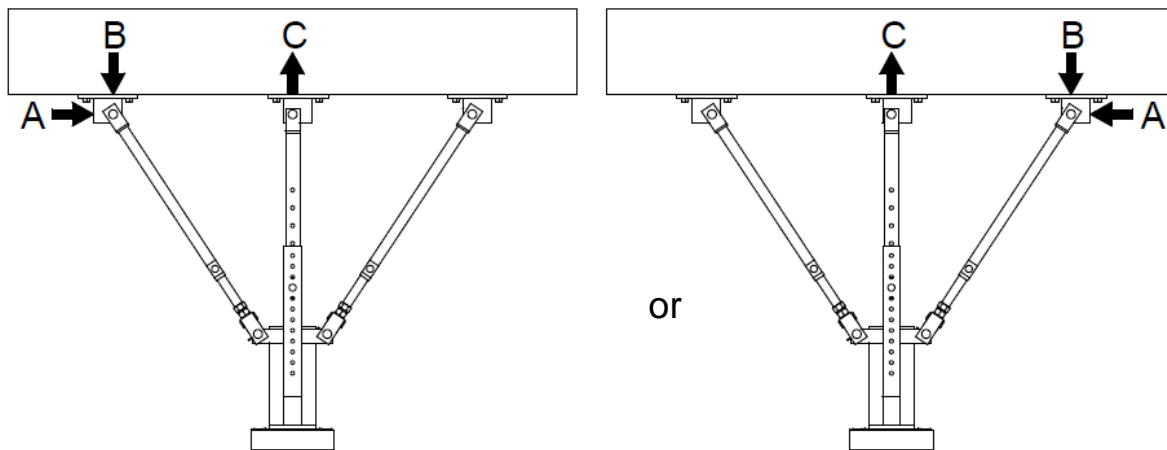
**IMPORTANT:** An engineer must confirm that the building will be able to withstand the efforts transmitted.

A = 2 500 lb (1 136 kg)

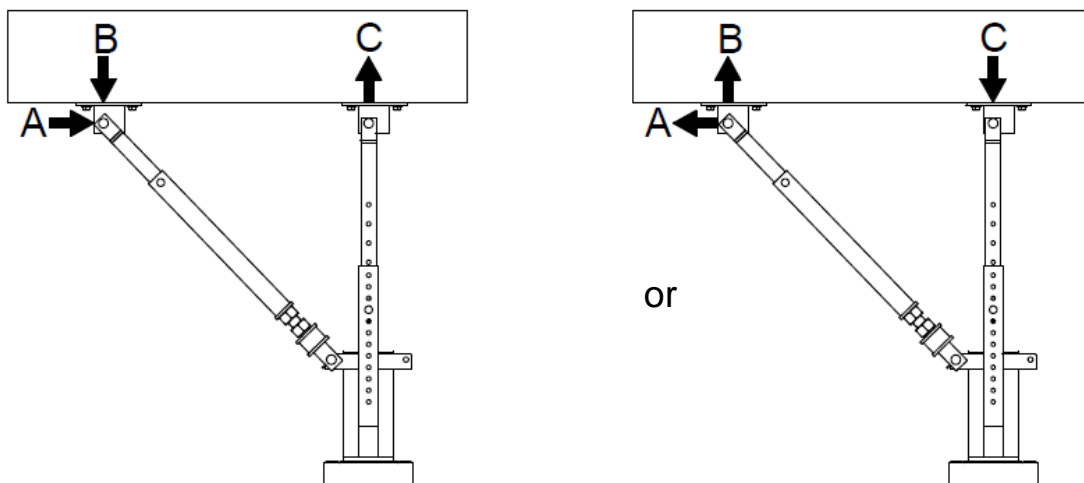
B = 4 500 lb (2 045 kg)

C = 5 500 lb (2 500 kg)

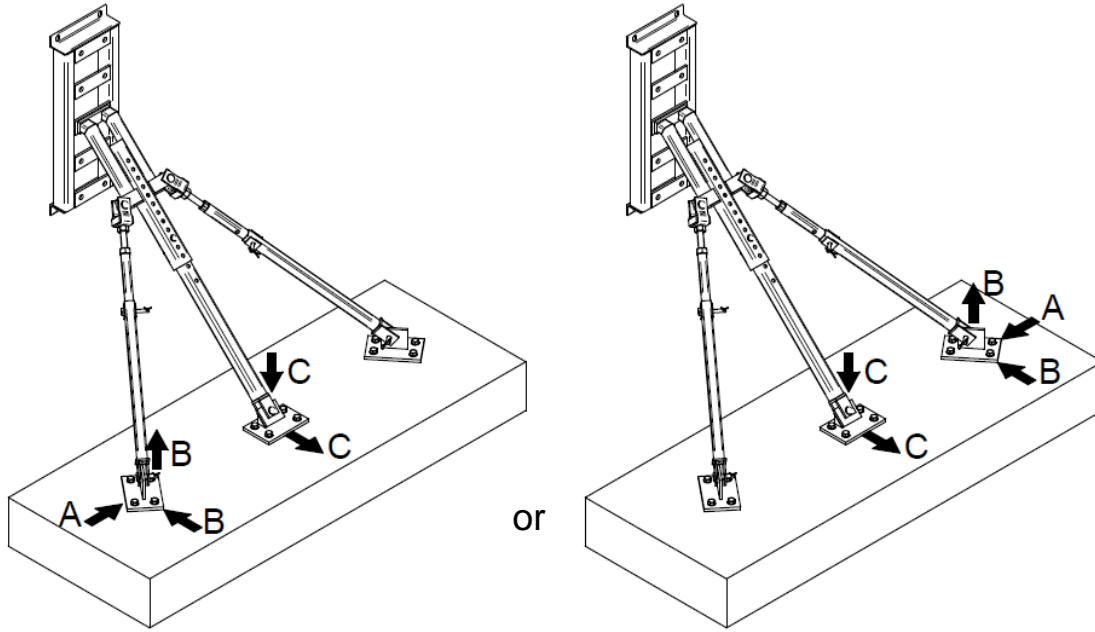
### 3-point mast attach system - vertical anchor surface



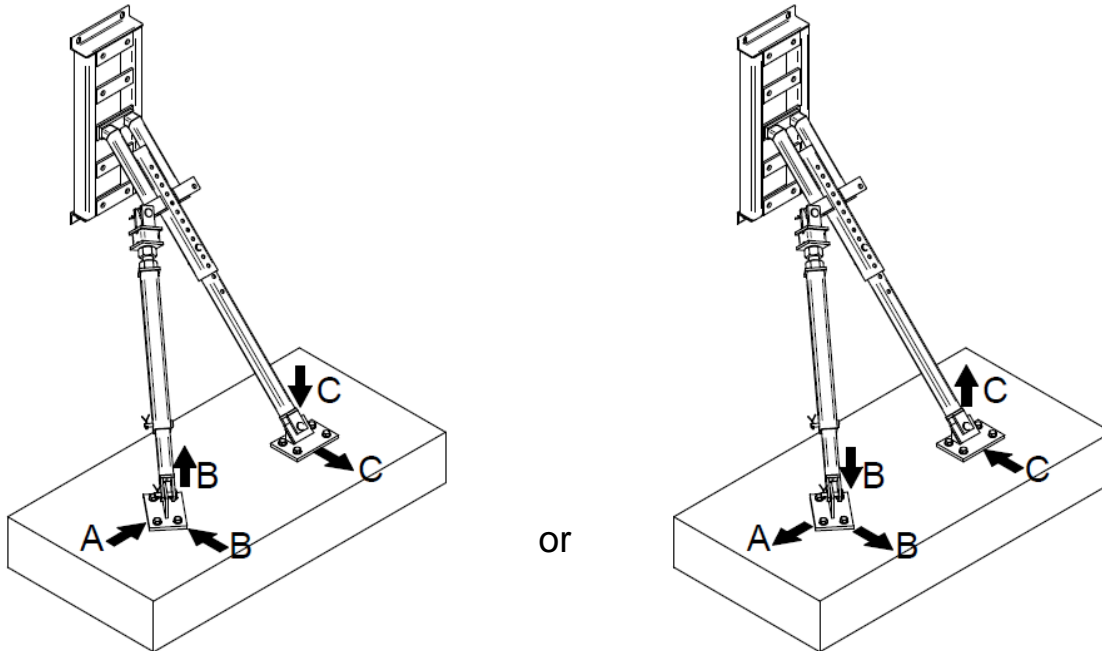
### 2-point mast attach system - vertical anchor surface



*3-point mast attach system - horizontal anchor surface*



*2-point mast attach system - horizontal anchor surface*

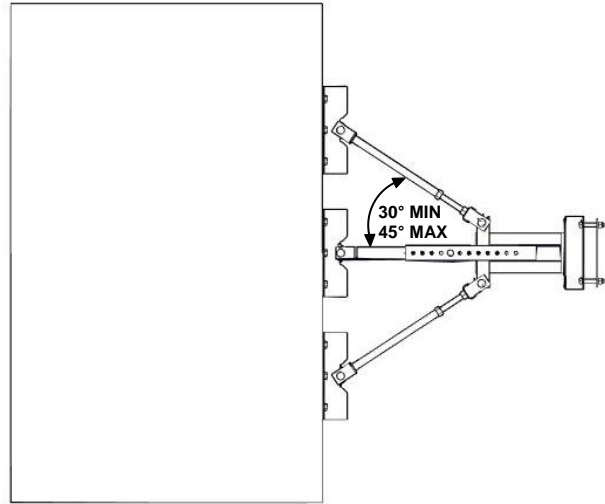
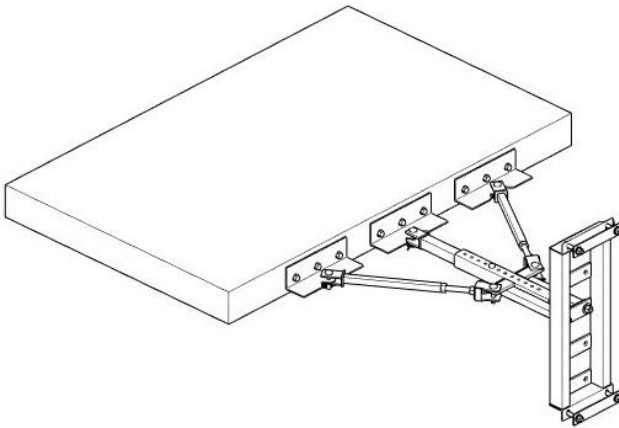




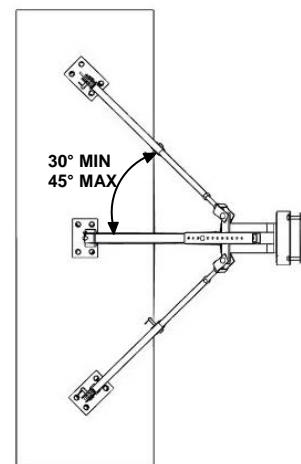
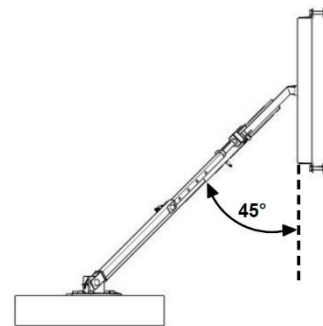
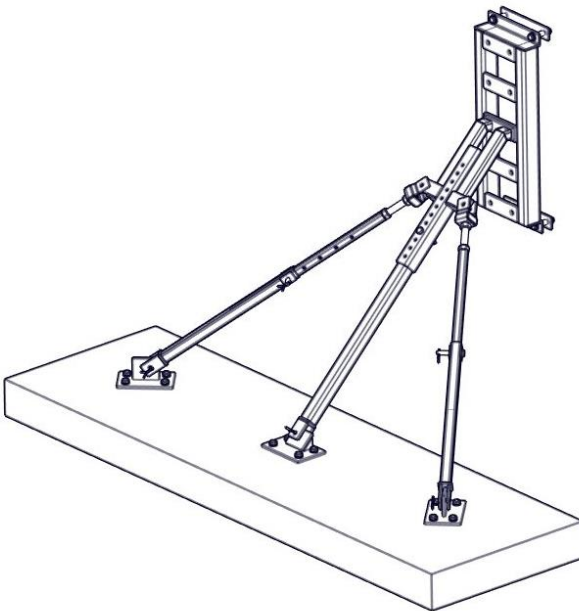
### Mast attach system opening constraints

The installation distance « **D** » between the anchor centers is calculated based on the opening angle and the distance between the anchor wall and the « **H** » mast.

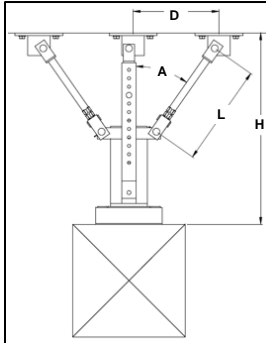
#### Horizontal attach system - Vertical anchor surface



#### 45° inclined attach system - Horizontal anchor surface



Three-point (3) horizontal anchors - Composition of the mast attach



- A: Turnbuckle' opening angle
- H: Distance from wall face
- D: Distance between the anchor plates
- L: Length of assembled turnbuckle

All anchors are composed of a wall attachment, a central tube and two (2) turnbuckle assemblies. The tables show the MIN/MAX dimensions for the different turnbuckle options.

Example:

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

Turnbuckle option (0)

Turnbuckle option (1)

Turnbuckle option (2)

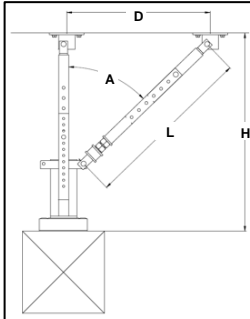
Note: For higher H dimensions, consult the FRACO Engineering Department.

Note: ext. stands for extension

|                                |     | COMPONENTS COMPOSITION   | Item No.               | Qty                      |                 |                  |
|--------------------------------|-----|--------------------------|------------------------|--------------------------|-----------------|------------------|
| Wall attachment 6" (21490118)  | (0) | 6" central tube          | 22020039               | 1                        |                 |                  |
|                                |     | 14" assembled turnbuckle | 23070114               | 2                        |                 |                  |
|                                |     |                          | H                      | D                        | L               |                  |
|                                | (0) | A=30°                    | MIN/ MAX               | N/A                      | N/A             | N/A              |
|                                |     | A=45°                    | MIN/ MAX               | 19" (482 mm)             | 13" (330 mm)    | 14-1/4" (362 mm) |
|                                |     |                          | COMPONENTS COMPOSITION | Item No.                 | Qty             |                  |
|                                | (0) |                          |                        | 15" central tube         | 22020028        | 1                |
|                                |     |                          |                        | 14" assembled turnbuckle | 23070114        | 2                |
|                                |     |                          | H                      | D                        | L               |                  |
|                                | (0) | A=30°                    | MIN/ MAX               | 22" (560 mm)             | 10,54" (268 mm) | 15,08" (383 mm)  |
| A=45°                          |     | MIN                      | 21" (535 mm)           | 15,06" (382 mm)          | 17,06" (433 mm) |                  |
|                                | MAX | 22" (560 mm)             | 16,06" (408 mm)        | 18,47" (470 mm)          |                 |                  |
| Wall attachment 16" (21490028) | (0) |                          |                        | 15" central tube         | 22020028        | 1                |
|                                |     |                          |                        | 14" assembled turnbuckle | 23070114        | 2                |
|                                | (1) |                          |                        | 18" assembled turnbuckle | 23070147        | 2                |
|                                |     |                          |                        | H                        | D               | L                |
|                                | (0) | A=30°                    | MIN                    | 29" (736 mm)             | 12,17" (310 mm) | 15,08" (383 mm)  |
|                                |     | A=45°                    | MAX                    | 30" (762 mm)             | 12,75" (324 mm) | 16,25" (310 mm)  |
|                                | (0) |                          | A=45°                  | MIN                      | 26" (660 mm)    | 14,70" (375 mm)  |
|                                |     | (1)                      | MAX                    | 29" (736 mm)             | 17,70" (450 mm) | 18,50" (470 mm)  |
|                                | (1) |                          | A=45°                  | MIN/ MAX                 | 30" (762 mm)    | 18,70" (475 mm)  |

|                                  |       | COMPONENTS COMPOSITION   | Item No.                 | Qty                      |                 |                 |
|----------------------------------|-------|--------------------------|--------------------------|--------------------------|-----------------|-----------------|
| Wall attachment 2'-3" (21490017) | (0)   | 2'-0" central tube       | 22010027                 | 1                        |                 |                 |
|                                  |       | 14" assembled turnbuckle | 23070114                 | 2                        |                 |                 |
|                                  | (1)   |                          |                          | 18" assembled turnbuckle | 23070147        | 2               |
|                                  |       |                          |                          | 24" assembled turnbuckle | 23070147        | 2               |
|                                  |       |                          | H                        | D                        | L               |                 |
|                                  | (0)   | A=30°                    | MIN                      | 34" (864 mm)             | 13,5" (343 mm)  | 17,10" (435 mm) |
|                                  |       | A=30°                    | MAX                      | 35" (890 mm)             | 14" (355 mm)    | 18,25" (465 mm) |
|                                  | (1)   |                          | A=30°                    | MIN                      | 36" (915 mm)    | 14,58" (370 mm) |
|                                  |       | (1)                      | MAX                      | 39" (990 mm)             | 16,30" (414 mm) | 22,88" (580 mm) |
|                                  | (1)   |                          | A=45°                    | MIN                      | 34" (864 mm)    | 19,70" (500 mm) |
| (1)                              |       | MAX                      | 35" (890 mm)             | 20,70" (526 mm)          | 22,36" (568 mm) |                 |
|                                  | (2)   | A=30°                    | MIN                      | 40" (1,02 m)             | 16,90" (430 mm) | 24" (610 mm)    |
| (2)                              |       | MAX                      | 50" (1,27 m)             | 22,66" (575 mm)          | 35,58" (904 mm) |                 |
|                                  | (2)   | A=45°                    | MIN                      | 36" (915 mm)             | 21,70" (551 mm) | 23,78" (604 mm) |
| (2)                              |       | MAX                      | 44" (1,12 m)             | 29,70" (755 mm)          | 35" (890 mm)    |                 |
|                                  |       |                          | COMPONENTS COMPOSITION   | Item No.                 | Qty             |                 |
| (0)                              |       |                          | 3'-0" central tube       | 22010049                 | 1               |                 |
|                                  |       |                          | 24" assembled turnbuckle | 23070125                 | 2               |                 |
| (1)                              |       |                          | 37" assembled turnbuckle | 23070013                 | 2               |                 |
|                                  |       |                          | H                        | D                        | L               |                 |
| (0)                              | A=30° | MIN                      | 46" (1,17 m)             | 20,35" (517 mm)          | 40" (1,02 m)    |                 |
|                                  | (0)   | MAX                      | 50" (1,27 m)             | 22,66" (575 mm)          | 35,58" (904 mm) |                 |
| (1)                              |       | A=30°                    | MIN                      | 52" (1,32 m)             | 23,82" (605 mm) | 37,90" (962 mm) |
|                                  | (1)   | MAX                      | 62" (1,57 m)             | 29,60" (752 mm)          | 49,50" (1,25 m) |                 |
| (1)                              |       | A=45°                    | MIN                      | 46" (1,17 m)             | 31,70" (805 mm) | 37,92" (963 mm) |
|                                  | (1)   | MAX                      | 62" (1,57 m)             | 47,70" (1,21 m)          | 60,55" (1,55 m) |                 |
|                                  |       | COMPONENTS COMPOSITION   | Item No.                 | Qty                      |                 |                 |
| (0)                              |       |                          | 4'-0" central tube       | 22010050                 | 1               |                 |
|                                  |       |                          | 37" assembled turnbuckle | 23070013                 | 2               |                 |
|                                  |       | H                        | D                        | L                        |                 |                 |
| (0)                              | A=30° | MIN                      | 63" (1,60 m)             | 30,17" (766 mm)          | 50,60" (1,30 m) |                 |
|                                  | (0)   | MAX                      | 73" (1,85 m)             | 36" (915 mm)             | 62,15" (1,60 m) |                 |
| (0)                              |       | A=45°                    | MIN                      | 58" (1,50 m)             | 43,70" (1,11 m) | 54,90" (1,40 m) |
|                                  | (0)   | MAX                      | 63" (1,60 m)             | 48,70" (1,25 m)          | 62" (1,57 m)    |                 |

Two-point (2) horizontal anchors - Composition of the mast attach



- A: Turnbuckle opening angle
- H: Distance from wall face
- D: Distance between the anchor plates
- L: Length of assembled turnbuckle

All anchors are composed of a wall attachment, a central tube and one (1) turnbuckle assembly. The tables show the MIN/MAX dimensions for the different turnbuckle options.

Example:

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

Note: For higher H dimensions, consult the FRACO Engineering Department.  
 Note: ext. stands for extension

| COMPONENTS COMPOSITION |                               | Item No. | Qty          |                 |                 |
|------------------------|-------------------------------|----------|--------------|-----------------|-----------------|
| (0)                    | 2'-0" central tube            | 22010027 | 1            |                 |                 |
|                        | 2'-7" reinforced turnbuckle + | 23070103 | 1            |                 |                 |
|                        | 2'-0" central tube            | 22010027 | 1            |                 |                 |
| H                      |                               | D        | L            |                 |                 |
| (0)                    | A=30°                         | MIN      | 49" (1,25 m) | 34,70" (880 mm) | 42,16" (1,07 m) |
|                        | A=45°                         | MIN      | 50" (1,27 m) | 35,70" (907 mm) | 43,57" (1,10 m) |
| MAX                    |                               |          |              |                 |                 |
|                        | COMPONENTS COMPOSITION        |          | Item No.     | Qty             |                 |
| (0)                    | 3'-0" central tube            | 22010049 | 1            |                 |                 |
|                        | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 2'-0" central tube            | 22010027 | 1            |                 |                 |
| (1)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 3'-0" central tube            | 22010049 | 1            |                 |                 |
| H                      |                               | D        | L            |                 |                 |
| (0)                    | A=30°                         | MIN      | 56" (1,42 m) | 26,13" (664 mm) | 42,50" (1,08 m) |
|                        | MAX                           |          |              |                 |                 |
| A=45°                  |                               | MIN      | 49" (1,25 m) | 34,70" (880 mm) | 42,16" (1,07 m) |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=45°    | MIN          | 58" (1,47 m)    | 43,70" (1,11 m) |
|                        | MAX                           |          |              |                 |                 |
| COMPONENTS COMPOSITION |                               | Item No. | Qty          |                 |                 |
| (0)                    | 4'-0" central tube            | 22010050 | 1            |                 |                 |
|                        | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 2'-0" central tube            | 22010027 | 1            |                 |                 |
| (1)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 3'-0" central tube            | 22010049 | 1            |                 |                 |
| (2)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 4'-0" central tube            | 22010050 | 1            |                 |                 |
| H                      |                               | D        | L            |                 |                 |
| (0)                    | A=30°                         | MIN      | 58" (1,47 m) | 27,28" (693 mm) | 44,82" (1,14 m) |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=30°    | MIN          | 66" (1,68 m)    | 31,90" (810 mm) |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=45°    | MIN          | 58" (1,47 m)    | 43,70" (1,11 m) |
|                        | MAX                           |          |              |                 |                 |
| (2)                    |                               | A=45°    | MIN          | 65" (1,65 m)    | 50,70" (1,29 m) |
|                        | MAX                           |          |              |                 |                 |

Wall attachment 2'-3" (21490017)

| COMPONENTS COMPOSITION |                               | Item No. | Qty          |                 |                 |
|------------------------|-------------------------------|----------|--------------|-----------------|-----------------|
| (0)                    | 5'-0" central tube            | 22010061 | 1            |                 |                 |
|                        | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 3'-0" central tube            | 22010049 | 1            |                 |                 |
| (1)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 4'-0" central tube            | 22010050 | 1            |                 |                 |
| (2)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 5'-0" central tube            | 22010061 | 1            |                 |                 |
| (3)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 6'-0" reinforced central tube | 22030074 | 1            |                 |                 |
| H                      |                               | D        | L            |                 |                 |
| (0)                    | A=30°                         | MIN      | 70" (1,78 m) | 34,20" (869 mm) | 58,67" (1,50 m) |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=30°    | MIN          | 77" (1,96 m)    | 38,25" (972 mm) |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=45°    | MIN          | 70" (1,78 m)    | 55,70" (1,40 m) |
|                        | MAX                           |          |              |                 |                 |
| (2)                    |                               | A=45°    | MIN          | 75" (1,90 m)    | 60,70" (1,55 m) |
|                        | MAX                           |          |              |                 |                 |
| (3)                    |                               | A=45°    | MIN          | 83" (2,10 m)    | 68,70" (1,75 m) |
|                        | MAX                           |          |              |                 |                 |
| COMPONENTS COMPOSITION |                               | Item No. | Qty          |                 |                 |
| (0)                    | 5'-0" central tube            | 22010061 | 1            |                 |                 |
|                        | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 4'-0" central tube            | 22010050 | 1            |                 |                 |
| (1)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 5'-0" central tube            | 22010061 | 1            |                 |                 |
| (2)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 6'-0" reinforced central tube | 22030074 | 1            |                 |                 |
| (3)                    | 2'-7" turnbuckle +            | 23070103 | 1            |                 |                 |
|                        | 7'-0" reinforced central tube | 22030085 | 1            |                 |                 |
| H                      |                               | D        | L            |                 |                 |
| (0)                    | A=30°                         | MIN      | 85" (2,16 m) | 42,87" (1,09 m) | 76" (1,93 m)    |
|                        | MAX                           |          |              |                 |                 |
| (1)                    |                               | A=30°    | MIN          | 87" (2,21 m)    | 44,03" (1,12 m) |
|                        | MAX                           |          |              |                 |                 |
| (2)                    |                               | A=45°    | MIN          | 97" (2,46 m)    | 49,80" (1,25 m) |
|                        | MAX                           |          |              |                 |                 |
| (3)                    |                               | A=45°    | MIN          | 92" (2,34 m)    | 77,70" (1,97 m) |
|                        | MAX                           |          |              |                 |                 |

Wall attachment 2'-3" (21490017)

45° inclined three-point (3) anchors - Composition of the mast attach

- **A:** Turnbuckle' opening angle
- **H:** Distance from wall face
- **D:** Distance between the anchor plates
- **L:** Length of assembled turnbuckle
- **B:** Attachment height

**Note:** For higher H dimensions, consult the FRACO Engineering Department.  
**Note:** ext. stands for extension

**All anchors are composed of a wall attachment, a central tube and two (2) turnbuckle assemblies. The tables show the MIN/MAX dimensions for the different turnbuckle options.**

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

**Example:**  
Turnbuckle option (0)  
Turnbuckle option (1)  
Turnbuckle option (2)

|                                   |     | COMPONENTS COMPOSITION  |                 | Item No.               | Qty                |                    |                    |
|-----------------------------------|-----|-------------------------|-----------------|------------------------|--------------------|--------------------|--------------------|
| Angled wall attachment (21490051) | (0) | 2'-0" central tube      |                 | 22010027               | 1                  |                    |                    |
|                                   |     | 14" turnbuckle          |                 | 23070114               | 2                  |                    |                    |
|                                   | (1) | 18" turnbuckle          |                 | 23070147               | 2                  |                    |                    |
|                                   |     | 2'-0" turnbuckle        |                 | 23070125               | 2                  |                    |                    |
|                                   | (2) | 3'-1" turnbuckle        |                 | 23070013               | 2                  |                    |                    |
|                                   |     |                         |                 |                        |                    |                    |                    |
|                                   | (3) | A=30°                   | MIN             | H: 24" (610 mm)        | D: 13,31" (338 mm) | L: 16,87" (428 mm) | B: 21,95" (558 mm) |
|                                   |     |                         | MAX             | H: 25" (635 mm)        | D: 14,13" (360 mm) | L: 18,50" (470 mm) | B: 22,95" (583 mm) |
|                                   |     | A=30°                   | MIN             | H: 26" (660 mm)        | D: 14,95" (380 mm) | L: 20,13" (511 mm) | B: 23,95" (608 mm) |
|                                   |     |                         | MAX             | H: 27" (686 mm)        | D: 15,75" (400 mm) | L: 21,77" (553 mm) | B: 24,95" (634 mm) |
| A=30°                             |     | MIN                     | H: 29" (737 mm) | D: 17,40" (442 mm)     | L: 25" (635 mm)    | B: 26,95" (685 mm) |                    |
|                                   |     | MAX                     | H: 34" (864 mm) | D: 21,50" (546 mm)     | L: 33,20" (843 mm) | B: 31,95" (812 mm) |                    |
| A=45°                             |     | MIN                     | H: 24" (610 mm) | D: 19,50" (495 mm)     | L: 20,66" (525 mm) | B: 21,95" (558 mm) |                    |
|                                   |     | MAX                     | H: 25" (635 mm) | D: 20,90" (531 mm)     | L: 22,66" (575 mm) | B: 22,95" (583 mm) |                    |
| A=45°                             |     | MIN                     | H: 26" (660 mm) | D: 22,32" (567 mm)     | L: 24,66" (626 mm) | B: 23,95" (608 mm) |                    |
|                                   |     | MAX                     | H: 31" (787 mm) | D: 29,40" (747 mm)     | L: 34,66" (880 mm) | B: 28,95" (735 mm) |                    |
| A=45°                             |     | MIN/MAX                 | H: 34" (864 mm) | D: 33,63" (854 mm)     | L: 40,66" (1,03 m) | B: 91,95" (812 mm) |                    |
|                                   |     |                         |                 |                        |                    |                    |                    |
|                                   |     | COMPONENTS COMPOSITION  |                 | Item No.               | Qty                |                    |                    |
| (0)                               |     | 3'-0" central tube      |                 | 22010049               | 1                  |                    |                    |
|                                   |     | 2'-0" turnbuckle        |                 | 23070125               | 2                  |                    |                    |
| (1)                               |     | 3'-1" turnbuckle        |                 | 23070013               | 2                  |                    |                    |
|                                   |     |                         |                 |                        |                    |                    |                    |
| (3)                               |     | A=30°                   | MIN             | H: 34" (864 mm)        | D: 21,50" (546 mm) | L: 33,20" (843 mm) | B: 31,95" (812 mm) |
|                                   |     |                         | MAX             | H: 35" (889 mm)        | D: 22,30" (566 mm) | L: 34,83" (885 mm) | B: 32,95" (837 mm) |
|                                   |     | A=30°                   | MIN             | H: 37" (840 mm)        | D: 23,93" (608 mm) | L: 38,10" (968 mm) | B: 34,95" (888 mm) |
|                                   |     |                         | MAX             | H: 43" (1,09 m)        | D: 28,83" (732 mm) | L: 47,90" (1,22 m) | B: 40,95" (1,04 m) |
|                                   |     | A=45°                   | MIN             | H: 34" (864 mm)        | D: 33,63" (854 mm) | L: 40,66" (1,03 m) | B: 91,95" (812 mm) |
|                                   |     |                         | MAX             | H: 43" (1,09 m)        | D: 46,36" (1,18 m) | L: 58,66" (1,50 m) | B: 40,95" (1,04 m) |
|                                   |     |                         |                 | COMPONENTS COMPOSITION |                    | Item No.           | Qty                |
|                                   | (0) | 4'-0" central tube      |                 | 22010050               | 1                  |                    |                    |
|                                   |     | 3'-1" turnbuckle        |                 | 23070013               | 2                  |                    |                    |
|                                   | (1) | 3'-1" turnbuckle        |                 | 23070013               | 2                  |                    |                    |
|                                   |     | 15-1/8" turnbuckle ext. |                 | 23040010               | 2                  |                    |                    |
|                                   | (3) | A=30°                   | MIN             | H: 40" (1,02 m)        | D: 26,38" (670 mm) | L: 43" (1,09 m)    | B: 37,95" (964 mm) |
|                                   |     |                         | MAX             | H: 51" (1,30 m)        | D: 35,36" (898 mm) | L: 60,96" (1,55 m) | B: 48,95" (1,24 m) |
|                                   |     | A=45°                   | MIN             | H: 40" (1,02 m)        | D: 42,12" (1,07 m) | L: 52,66" (1,34 m) | B: 37,95" (964 mm) |
|                                   |     |                         | MAX             | H: 45" (1,14 m)        | D: 49,20" (1,25 m) | L: 62,66" (1,60 m) | B: 42,95" (1,09 m) |
|                                   |     | A=45°                   | MIN             | H: 46" (1,17 m)        | D: 50,60" (1,28 m) | L: 64,66" (1,64 m) | B: 43,95" (1,12 m) |
|                                   |     |                         | MAX             | H: 51" (1,30 m)        | D: 57,67" (1,46 m) | L: 74,66" (1,90 m) | B: 48,95" (1,24 m) |

|                                   |       | COMPONENTS COMPOSITION  |                 | Item No.           | Qty                 |                    |
|-----------------------------------|-------|-------------------------|-----------------|--------------------|---------------------|--------------------|
| Angled wall attachment (21490051) | (0)   | 5'-0" central tube      |                 | 22010061           | 1                   |                    |
|                                   |       | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
|                                   | (1)   | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
|                                   |       | 15-1/8" turnbuckle ext. |                 | 23040010           | 2                   |                    |
|                                   | (2)   | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
|                                   |       | 2'-3" turnbuckle ext.   |                 | 23040032           | 2                   |                    |
|                                   | (3)   | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
|                                   |       | 3'-3" turnbuckle ext.   |                 | 23040021           | 2                   |                    |
|                                   |       |                         |                 |                    |                     |                    |
|                                   | (3)   | A=30°                   | MIN             | H: 48" (1,22 m)    | D: 32,91" (836 mm)  | L: 56,06" (1,42 m) |
| MAX                               |       |                         | H: 52" (1,32 m) | D: 36,18" (919 mm) | L: 62,59" (1,59 m)  | B: 49,95" (1,27 m) |
| A=30°                             |       | MIN                     | H: 53" (1,35 m) | D: 37" (940 mm)    | L: 64,22" (1,63 m)  | B: 50,95" (1,30 m) |
|                                   |       | MAX                     | H: 59" (1,50 m) | D: 41,89" (1,06 m) | L: 74,02" (1,88 m)  | B: 56,95" (1,45 m) |
| A=30°                             |       | MIN/MAX                 | H: 60" (1,52 m) | D: 42,71" (1,08 m) | L: 75,66" (1,92 m)  | B: 57,95" (1,47 m) |
|                                   |       |                         |                 |                    |                     |                    |
| A=45°                             |       | MIN                     | H: 48" (1,22 m) | D: 53,43" (1,36 m) | L: 68,66" (1,74 m)  | B: 45,95" (1,17 m) |
|                                   |       | MAX                     | H: 51" (1,30 m) | D: 57,67" (1,46 m) | L: 74,66" (1,90 m)  | B: 48,95" (1,24 m) |
| A=45°                             |       | MIN                     | H: 52" (1,32 m) | D: 59,09" (1,50 m) | L: 76,66" (1,95 m)  | B: 49,95" (1,27 m) |
|                                   |       | MAX                     | H: 57" (1,45 m) | D: 66,16" (1,68 m) | L: 86,66" (2,20 m)  | B: 54,95" (1,40 m) |
| A=45°                             |       | MIN                     | H: 58" (1,47 m) | D: 67,57" (1,72 m) | L: 88,66" (2,25 m)  | B: 55,95" (1,42 m) |
|                                   |       | MAX                     | H: 60" (1,52 m) | D: 70,40" (1,79 m) | L: 92,66" (2,35 m)  | B: 57,95" (1,47 m) |
|                                   |       | COMPONENTS COMPOSITION  |                 | Item No.           | Qty                 |                    |
| (0)                               |       | 6'-0" central tube      |                 | 22030074           | 1                   |                    |
|                                   |       | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
| (1)                               |       | 15-1/8" turnbuckle ext. |                 | 23040010           | 2                   |                    |
|                                   |       | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
| (2)                               |       | 2'-3" turnbuckle ext.   |                 | 23040032           | 2                   |                    |
|                                   |       | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
| (3)                               |       | 3'-3" turnbuckle ext.   |                 | 23040021           | 2                   |                    |
|                                   |       | 3'-1" turnbuckle        |                 | 23070013           | 2                   |                    |
| (3)                               |       | 15-1/8" turnbuckle ext. |                 | 23040010           | 2                   |                    |
|                                   |       | 3'-3" turnbuckle ext.   |                 | 23040021           | 2                   |                    |
|                                   |       |                         |                 |                    |                     |                    |
| (3)                               | A=30° | MIN/MAX                 | H: 59" (1,50 m) | D: 41,89" (1,06 m) | L: 74,02" (1,88 m)  | B: 56,95" (1,45 m) |
|                                   |       |                         |                 |                    |                     |                    |
|                                   | A=30° | MIN                     | H: 60" (1,52 m) | D: 42,71" (1,08 m) | L: 75,66" (1,92 m)  | B: 57,95" (1,47 m) |
|                                   |       | MAX                     | H: 67" (1,70 m) | D: 48,42" (1,23 m) | L: 87,09" (2,21 m)  | B: 64,95" (1,65 m) |
|                                   | A=30° | MIN/MAX                 | H: 68" (1,73 m) | D: 49,25" (1,25 m) | L: 88,72" (2,25 m)  | B: 65,95" (1,67 m) |
|                                   |       |                         |                 |                    |                     |                    |
|                                   | A=45° | MIN                     | H: 59" (1,50 m) | D: 67" (1,70 m)    | L: 90,66" (2,30 m)  | B: 56,95" (1,45 m) |
|                                   |       | MAX                     | H: 63" (1,60 m) | D: 74,65" (1,90 m) | L: 98,66" (2,50 m)  | B: 60,95" (1,55 m) |
|                                   | A=45° | MIN                     | H: 64" (1,62 m) | D: 76,06" (1,93 m) | L: 100,66" (2,56 m) | B: 61,95" (1,57 m) |
|                                   |       | MAX                     | H: 68" (1,73 m) | D: 81,71" (2,07 m) | L: 108,66" (2,76 m) | B: 65,95" (1,67 m) |

45° inclined three-point (3) anchors - Composition of the mast attach (CONTINUED)

- A: Turnbuckle' opening angle
- H: Distance from wall face
- D: Distance between the anchor plates
- L: Length of assembled turnbuckle
- B: Attachment height

**Note:** For higher H dimensions, consult the FRACO Engineering Department.  
**Note:** ext. stands for extension

**All anchors are composed of a wall attachment, a central tube and two (2) turnbuckle assemblies. The tables show the MIN/MAX dimensions for the different turnbuckle options. Example:**

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

**Example:**  
 Turnbuckle option (0)  
 Turnbuckle option (1)  
 Turnbuckle option (2)

|                                   |   | COMPONENTS COMPOSITION   | Item No.                         | Qty                |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|-----------------------------------|---|--|----------------------------------|--------------------|---------------------|---------------------|--------------------|---|---|---|---|-----|-------|---------|-----------------|--------------------|--------------------|--------------------|-----|-----------------|--------------------|--------------------|--------------------|-----|-------|-----|-----------------|--------------------|--------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|
| Angled wall attachment (21490051) | (0)   | 7'-0" central tube   | 22030085                         | 1                  |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   | 3'-1" turnbuckle + 2'-3" turnbuckle ext.                           | 23070013<br>23040032             | 2<br>2             |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (1)   | 3'-1" turnbuckle + 3'-3" turnbuckle ext.                           | 23070013<br>23040021             | 2<br>2             |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   | 3'-1" turnbuckle + 15-1/8" turnbuckle ext. + 3'-3" turnbuckle ext. | 23070013<br>23040010<br>23040021 | 2<br>2<br>2        |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (2)   | 3'-1" turnbuckle + 2'-3" turnbuckle ext. + 3'-3" turnbuckle ext.   | 23070013<br>23040032<br>23040021 | 2<br>2<br>2        |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   | 3'-1" turnbuckle + 3'-3" turnbuckle ext.                           | 23070013<br>23040021             | 2<br>4             |                     |                     |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | <table border="1"> <thead> <tr> <th colspan="2"></th> <th>H</th> <th>D</th> <th>L</th> <th>B</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(0)</td> <td rowspan="2">A=30°</td> <td>MIN/MAX</td> <td>67"<br/>(1,70 m)</td> <td>48,42"<br/>(1,23 m)</td> <td>87,09"<br/>(2,21 m)</td> <td>64,95"<br/>(1,65 m)</td> </tr> <tr> <td>MIN</td> <td>68"<br/>(1,73 m)</td> <td>49,25"<br/>(1,25 m)</td> <td>88,72"<br/>(2,25 m)</td> <td>65,95"<br/>(1,67 m)</td> </tr> <tr> <td rowspan="2">(1)</td> <td rowspan="2">A=30°</td> <td>MAX</td> <td>74"<br/>(1,88 m)</td> <td>54,15"<br/>(1,37 m)</td> <td>98,52"<br/>(2,50 m)</td> <td>71,95"<br/>(1,83 m)</td> </tr> <tr> <td>MIN</td> <td>75"<br/>(1,90 m)</td> <td>54,96"<br/>(1,40 m)</td> <td>100,15"<br/>(2,54 m)</td> <td>72,95"<br/>(1,85 m)</td> </tr> <tr> <td rowspan="2">(2)</td> <td rowspan="2">A=30°</td> <td>MAX</td> <td>77"<br/>(1,96 m)</td> <td>56,60"<br/>(1,44 m)</td> <td>103,42"<br/>(2,63 m)</td> <td>74,95"<br/>(1,90 m)</td> </tr> <tr> <td>MIN</td> <td>67"<br/>(1,70 m)</td> <td>80,30"<br/>(2,04 m)</td> <td>106,66"<br/>(2,71 m)</td> <td>64,95"<br/>(1,65 m)</td> </tr> <tr> <td rowspan="2">(2)</td> <td rowspan="2">A=45°</td> <td>MAX</td> <td>69"<br/>(1,75 m)</td> <td>83,13"<br/>(2,11 m)</td> <td>110,66"<br/>(2,81 m)</td> <td>66,95"<br/>(1,70 m)</td> </tr> <tr> <td>MIN</td> <td>70"<br/>(1,78 m)</td> <td>84,54"<br/>(2,15 m)</td> <td>112,66"<br/>(2,86 m)</td> <td>67,95"<br/>(1,73 m)</td> </tr> <tr> <td rowspan="2">(3)</td> <td rowspan="2">A=45°</td> <td>MAX</td> <td>75"<br/>(1,90 m)</td> <td>91,61"<br/>(2,33 m)</td> <td>122,66"<br/>(3,12 m)</td> <td>72,95"<br/>(1,85 m)</td> </tr> <tr> <td>MIN</td> <td>76"<br/>(1,93 m)</td> <td>93,03"<br/>(2,36 m)</td> <td>124,66"<br/>(3,17 m)</td> <td>73,95"<br/>(1,88 m)</td> </tr> <tr> <td rowspan="2">(4)</td> <td rowspan="2">A=45°</td> <td>MAX</td> <td>77"<br/>(1,96 m)</td> <td>94,44"<br/>(2,40 m)</td> <td>126,66"<br/>(3,22 m)</td> <td>74,95"<br/>(1,90 m)</td> </tr> </tbody> </table> |  |                                  |                    |                     |                     |                    | H | D | L | B | (0) | A=30° | MIN/MAX | 67"<br>(1,70 m) | 48,42"<br>(1,23 m) | 87,09"<br>(2,21 m) | 64,95"<br>(1,65 m) | MIN | 68"<br>(1,73 m) | 49,25"<br>(1,25 m) | 88,72"<br>(2,25 m) | 65,95"<br>(1,67 m) | (1) | A=30° | MAX | 74"<br>(1,88 m) | 54,15"<br>(1,37 m) | 98,52"<br>(2,50 m) | 71,95"<br>(1,83 m) | MIN | 75"<br>(1,90 m) | 54,96"<br>(1,40 m) | 100,15"<br>(2,54 m) | 72,95"<br>(1,85 m) | (2) | A=30° | MAX | 77"<br>(1,96 m) | 56,60"<br>(1,44 m) | 103,42"<br>(2,63 m) | 74,95"<br>(1,90 m) | MIN | 67"<br>(1,70 m) | 80,30"<br>(2,04 m) | 106,66"<br>(2,71 m) | 64,95"<br>(1,65 m) | (2) | A=45° | MAX | 69"<br>(1,75 m) | 83,13"<br>(2,11 m) | 110,66"<br>(2,81 m) | 66,95"<br>(1,70 m) | MIN | 70"<br>(1,78 m) | 84,54"<br>(2,15 m) | 112,66"<br>(2,86 m) | 67,95"<br>(1,73 m) | (3) | A=45° | MAX | 75"<br>(1,90 m) | 91,61"<br>(2,33 m) | 122,66"<br>(3,12 m) | 72,95"<br>(1,85 m) | MIN | 76"<br>(1,93 m) | 93,03"<br>(2,36 m) | 124,66"<br>(3,17 m) | 73,95"<br>(1,88 m) | (4) | A=45° | MAX | 77"<br>(1,96 m) | 94,44"<br>(2,40 m) | 126,66"<br>(3,22 m) | 74,95"<br>(1,90 m) |
|                                   |   |  | H                                | D                  | L                   | B                   |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (0)   | A=30°  | MIN/MAX                          | 67"<br>(1,70 m)    | 48,42"<br>(1,23 m)  | 87,09"<br>(2,21 m)  | 64,95"<br>(1,65 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   |  | MIN                              | 68"<br>(1,73 m)    | 49,25"<br>(1,25 m)  | 88,72"<br>(2,25 m)  | 65,95"<br>(1,67 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (1)   | A=30°  | MAX                              | 74"<br>(1,88 m)    | 54,15"<br>(1,37 m)  | 98,52"<br>(2,50 m)  | 71,95"<br>(1,83 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   |  | MIN                              | 75"<br>(1,90 m)    | 54,96"<br>(1,40 m)  | 100,15"<br>(2,54 m) | 72,95"<br>(1,85 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (2)   | A=30°  | MAX                              | 77"<br>(1,96 m)    | 56,60"<br>(1,44 m)  | 103,42"<br>(2,63 m) | 74,95"<br>(1,90 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   |  | MIN                              | 67"<br>(1,70 m)    | 80,30"<br>(2,04 m)  | 106,66"<br>(2,71 m) | 64,95"<br>(1,65 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   | (2)   | A=45°  | MAX                              | 69"<br>(1,75 m)    | 83,13"<br>(2,11 m)  | 110,66"<br>(2,81 m) | 66,95"<br>(1,70 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   |  | MIN                              | 70"<br>(1,78 m)    | 84,54"<br>(2,15 m)  | 112,66"<br>(2,86 m) | 67,95"<br>(1,73 m) |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
| (3)                               | A=45°   | MAX  | 75"<br>(1,90 m)                  | 91,61"<br>(2,33 m) | 122,66"<br>(3,12 m) | 72,95"<br>(1,85 m)  |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
|                                   |   | MIN  | 76"<br>(1,93 m)                  | 93,03"<br>(2,36 m) | 124,66"<br>(3,17 m) | 73,95"<br>(1,88 m)  |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |
| (4)                               | A=45°   | MAX  | 77"<br>(1,96 m)                  | 94,44"<br>(2,40 m) | 126,66"<br>(3,22 m) | 74,95"<br>(1,90 m)  |                    |   |   |   |   |     |       |         |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |

45° inclined two-point (2) anchors - Composition of the mast attach

- A: Turnbuckles' opening angle
- H: Distance from wall face
- D: Distance between the anchor plates
- L: Length of assembled turnbuckle
- B: Attachment height

**Note:** For higher H dimensions, consult the FRACO Engineering Department.  
**Note:** ext. stands for extension

**All anchors are composed of a wall attachment, a central tube and one (1) turnbuckle assembly. The tables show the MIN/MAX dimensions for the different turnbuckle options. Example:**

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

**Example:**

|                       |          |   |
|-----------------------|----------|---|
| Turnbuckle option (0) | 23070114 | 2 |
| Turnbuckle option (1) | 23070147 | 2 |
| Turnbuckle option (2) | 23070147 | 2 |

|                                   |       | COMPONENTS COMPOSITION                           |                 | Item No.           | Qty                |                    |                    |
|-----------------------------------|-------|--|-----------------|--------------------|--------------------|--------------------|--------------------|
| Angled wall attachment (21490051) | (0)   | 3'-0" central tube                               |                 | 22010049           | 1                  |                    |                    |
|                                   |       | 2'-7" reinforced turnbuckle + 2'-0" central tube |                 | 23070103           | 1                  |                    |                    |
|                                   | (1)   | 2'-7" reinforced turnbuckle + 3'-0" central tube |                 | 23070103           | 1                  |                    |                    |
|                                   |       |  |                 | 22010049           | 1                  |                    |                    |
|                                   |       |  | H               | D                  | L                  | B                  |                    |
|                                   | (0)   | A=30°  | MIN             | 40"<br>(1,02 m)    | 26,38"<br>(670 mm) | 43"<br>(1,09 m)    | 37,95"<br>(964 mm) |
|                                   |       |  | MAX             | 43"<br>(1,09 m)    | 28,83"<br>(732 mm) | 47,89"<br>(1,22 m) | 40,95"<br>(1,04 m) |
|                                   | (0)   | A=45°  | MIN             | 35"<br>(889 mm)    | 35,04"<br>(1,04 m) | 42,66"<br>(1,08 m) | 32,95"<br>(837 mm) |
|                                   |       |  | MAX             | 40"<br>(1,02 m)    | 42,12"<br>(1,07 m) | 52,66"<br>(1,34 m) | 37,95"<br>(964 mm) |
|                                   | (1)   | A=45°  | MIN             | 41"<br>(1,04 m)    | 43,53"<br>(1,10 m) | 54,66"<br>(1,39 m) | 38,95"<br>(989 mm) |
| MAX                               |       |  | 43"<br>(1,09 m) | 46,36"<br>(1,18 m) | 58,66"<br>(1,50 m) | 40,95"<br>(1,04 m) |                    |
|                                   |       | COMPONENTS COMPOSITION                           |                 | Item No.           | Qty                |                    |                    |
| Angled wall attachment (21490051) | (0)   | 4'-0" central tube                               |                 | 22010050           | 1                  |                    |                    |
|                                   |       | 2'-7" reinforced turnbuckle + 2'-0" central tube |                 | 23070103           | 1                  |                    |                    |
|                                   | (1)   | 2'-7" reinforced turnbuckle + 3'-0" central tube |                 | 23070103           | 1                  |                    |                    |
|                                   |       |  |                 | 22010049           | 1                  |                    |                    |
|                                   | (2)   | 2'-7" reinforced turnbuckle + 4'-0" central tube |                 | 23070103           | 1                  |                    |                    |
|                                   |       |  |                 | 22010050           | 1                  |                    |                    |
|                                   |       |  | H               | D                  | L                  | B                  |                    |
|                                   | (0)   | A=30°  | MIN             | 40"<br>(1,02 m)    | 26,38"<br>(670 mm) | 43"<br>(1,09 m)    | 37,95"<br>(964 mm) |
|                                   |       |  | MAX             | 46"<br>(1,17 m)    | 31,28"<br>(795 mm) | 52,79"<br>(1,34 m) | 43,95"<br>(1,12 m) |
|                                   | (1)   | A=30°  | MIN             | 47"<br>(1,20 m)    | 32,09"<br>(815 mm) | 54,43"<br>(1,38 m) | 44,95"<br>(1,14 m) |
| MAX                               |       |  | 51"<br>(1,30 m) | 35,36"<br>(898 mm) | 60,96"<br>(1,55 m) | 48,95"<br>(1,25 m) |                    |
| (1)                               | A=45° | MIN/MAX  | 40"<br>(1,02 m) | 42,12"<br>(1,07 m) | 52,66"<br>(1,34 m) | 37,95"<br>(964 mm) |                    |
|                                   |       | MIN  | 41"<br>(1,04 m) | 43,53"<br>(1,10 m) | 54,66"<br>(1,39 m) | 38,95"<br>(989 mm) |                    |
| (1)                               | A=45° | MAX  | 46"<br>(1,17 m) | 50,60"<br>(1,27 m) | 64,66"<br>(1,64 m) | 43,95"<br>(1,12 m) |                    |
|                                   |       | MIN  | 47"<br>(1,20 m) | 52"<br>(1,32 m)    | 66,66"<br>(1,70 m) | 44,95"<br>(1,14 m) |                    |
| (2)                               | A=45° | MAX  | 51"<br>(1,30 m) | 57,67"<br>(1,46 m) | 74,66"<br>(1,90 m) | 48,95"<br>(1,25 m) |                    |

|                                   |       | COMPONENTS COMPOSITION                           |                 | Item No.           | Qty                 |                    |
|-----------------------------------|-------|--|-----------------|--------------------|---------------------|--------------------|
| Angled wall attachment (21490051) | (0)   | 5'-0" central tube                               |                 | 22010061           | 1                   |                    |
|                                   |       | 2'-7" reinforced turnbuckle + 3'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   | (1)   | 2'-7" reinforced turnbuckle + 4'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22010050           | 1                   |                    |
|                                   | (2)   | 2'-7" reinforced turnbuckle + 5'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22010061           | 1                   |                    |
|                                   | (3)   | 2'-7" reinforced turnbuckle + 6'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22030074           | 1                   |                    |
|                                   |       |  | H               | D                  | L                   | B                  |
|                                   | (0)   | A=30°  | MIN             | 48"<br>(1,22 m)    | 32,91"<br>(836 mm)  | 56,06"<br>(1,42 m) |
| MAX                               |       |  | 54"<br>(1,37 m) | 37,81"<br>(960 mm) | 65,86"<br>(1,67 m)  | 51,95"<br>(1,32 m) |
| (1)                               | A=30° | MIN  | 55"<br>(1,40 m) | 38,63"<br>(981 mm) | 67,50"<br>(1,71 m)  | 52,95"<br>(1,34 m) |
|                                   |       | MAX  | 60"<br>(1,52 m) | 42,71"<br>(1,08 m) | 75,66"<br>(1,92 m)  | 57,95"<br>(1,47 m) |
| (1)                               | A=45° | MIN  | 48"<br>(1,22 m) | 53,43"<br>(1,36 m) | 68,66"<br>(1,74 m)  | 45,95"<br>(1,17 m) |
|                                   |       | MAX  | 52"<br>(1,32 m) | 59,09"<br>(1,50 m) | 76,66"<br>(1,95 m)  | 49,95"<br>(1,27 m) |
| (2)                               | A=45° | MIN  | 53"<br>(1,35 m) | 60,50"<br>(1,54 m) | 78,66"<br>(2 m)     | 50,95"<br>(1,30 m) |
|                                   |       | MAX  | 58"<br>(1,47 m) | 67,57"<br>(1,72 m) | 88,66"<br>(2,25 m)  | 55,95"<br>(1,42 m) |
| (3)                               | A=45° | MIN  | 59"<br>(1,50 m) | 69"<br>(1,75 m)    | 90,66"<br>(2,30 m)  | 56,95"<br>(1,45 m) |
|                                   |       | MAX  | 60"<br>(1,52 m) | 70,40"<br>(1,79 m) | 92,66"<br>(2,35 m)  | 57,95"<br>(1,47 m) |
|                                   |       | COMPONENTS COMPOSITION                           |                 | Item No.           | Qty                 |                    |
| Angled wall attachment (21490051) | (0)   | 6'-0" central tube                               |                 | 22030074           | 1                   |                    |
|                                   |       | 2'-7" reinforced turnbuckle + 4'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   | (1)   | 2'-7" reinforced turnbuckle + 5'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22010061           | 1                   |                    |
|                                   | (2)   | 2'-7" reinforced turnbuckle + 6'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22030074           | 1                   |                    |
|                                   | (3)   | 2'-7" reinforced turnbuckle + 7'-0" central tube |                 | 23070103           | 1                   |                    |
|                                   |       |  |                 | 22030085           | 1                   |                    |
|                                   |       |  | H               | D                  | L                   | B                  |
|                                   | (0)   | A=30°  | MIN             | 59"<br>(1,50 m)    | 41,89"<br>(1,06 m)  | 74,02"<br>(1,88 m) |
| MAX                               |       |  | 61"<br>(1,55 m) | 43,52"<br>(1,11 m) | 77,29"<br>(1,96 m)  | 58,95"<br>(1,50 m) |
| (1)                               | A=30° | MIN  | 62"<br>(1,57 m) | 44,34"<br>(1,13 m) | 78,92"<br>(2 m)     | 59,95"<br>(1,52 m) |
|                                   |       | MAX  | 68"<br>(1,73 m) | 49,25"<br>(1,25 m) | 88,72"<br>(2,25 m)  | 65,95"<br>(1,67 m) |
| (2)                               | A=45° | MIN  | 59"<br>(1,50 m) | 69"<br>(1,75 m)    | 90,66"<br>(2,30 m)  | 56,95"<br>(1,45 m) |
|                                   |       | MAX  | 64"<br>(1,62 m) | 76,06"<br>(1,93 m) | 100,66"<br>(2,56 m) | 61,95"<br>(1,57 m) |
| (3)                               | A=45° | MIN  | 65"<br>(1,65 m) | 77,47"<br>(1,97 m) | 102,66"<br>(2,61 m) | 62,95"<br>(1,60 m) |
|                                   |       | MAX  | 68"<br>(1,73 m) | 81,71"<br>(2,06 m) | 108,66"<br>(2,76 m) | 65,95"<br>(1,67 m) |



45° inclined two-point (2) anchors - Composition of the mast attach (CONTINUED)

- A: Turnbuckles' opening angle
- H: Distance from wall face
- D: Distance between the anchor plates
- L: Length of assembled turnbuckle
- B: Attachment height

**Note:** For higher H dimensions, consult the FRACO Engineering Department.  
**Note:** ext. stands for extension

**All anchors are composed of a wall attachment, a central tube and one (1) turnbuckle assembly. The tables show the MIN/MAX dimensions for the different turnbuckle options. Example:**

| COMPONENTS COMPOSITION   | Item No. | Qty |
|--------------------------|----------|-----|
| 2'-0" central tube       | 22010027 | 1   |
| 14" assembled turnbuckle | 23070114 | 2   |
| 18" assembled turnbuckle | 23070147 | 2   |
| 24" assembled turnbuckle | 23070147 | 2   |

**Example:**  
 Turnbuckle option (0)  
 Turnbuckle option (1)  
 Turnbuckle option (2)

|                                   |       | COMPONENTS ACCEPTANCE   | Item No.             | Qty                |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|-----------------------------------|-------|---|----------------------|--------------------|---------------------|---------------------|--------------------|---|---|---|---|-----|-------|-----|-----------------|--------------------|--------------------|--------------------|-----|-----------------|--------------------|--------------------|--------------------|-----|-------|-----|-----------------|--------------------|--------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|---------|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|-----|-----------------|--------------------|---------------------|--------------------|-----|-------|-----|-----------------|--------------------|---------------------|--------------------|-----|-----------------|--------------------|---------------------|
| Angled wall attachment (21490051) | (0)   | 7'-0" central tube  | 22030085             | 1                  |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       | 2'-7" reinforced turnbuckle + 5'-0" central tube  | 23070103<br>22010061 | 1<br>1             |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (1)   | 2'-7" reinforced turnbuckle + 6'-0" central tube  | 23070103<br>22030074 | 1<br>1             |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       | 2'-7" reinforced turnbuckle + 7'-0" central tube  | 23070103<br>22030085 | 1<br>1             |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (3)   | 2'-7" reinforced turnbuckle + 8'-0" central tube  | 23070103<br>22030096 | 1<br>1             |                     |                     |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       | <table border="1"> <thead> <tr> <th></th> <th></th> <th>H</th> <th>D</th> <th>L</th> <th>B</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(0)</td> <td rowspan="2">A=30°</td> <td>MIN</td> <td>67"<br/>(1,70 m)</td> <td>48,42"<br/>(1,23 m)</td> <td>87,09"<br/>(2,21 m)</td> <td>64,95"<br/>(1,65 m)</td> </tr> <tr> <td>MAX</td> <td>68"<br/>(1,73 m)</td> <td>49,25"<br/>(1,25 m)</td> <td>88,72"<br/>(2,25 m)</td> <td>65,95"<br/>(1,67 m)</td> </tr> <tr> <td rowspan="2">(1)</td> <td rowspan="2">A=30°</td> <td>MIN</td> <td>69"<br/>(1,75 m)</td> <td>50,06"<br/>(1,27 m)</td> <td>90,35"<br/>(2,30 m)</td> <td>66,95"<br/>(1,70 m)</td> </tr> <tr> <td>MAX</td> <td>76"<br/>(1,93 m)</td> <td>55,77"<br/>(1,42 m)</td> <td>101,78"<br/>(1,59 m)</td> <td>73,95"<br/>(1,88 m)</td> </tr> <tr> <td>(2)</td> <td>A=30°</td> <td>MIN/MAX</td> <td>77"<br/>(1,96 m)</td> <td>56,59"<br/>(1,44 m)</td> <td>103,42"<br/>(2,63 m)</td> <td>74,95"<br/>(1,90 m)</td> </tr> <tr> <td rowspan="2">(2)</td> <td rowspan="2">A=45°</td> <td>MIN</td> <td>67"<br/>(1,70 m)</td> <td>80,30"<br/>(2,04 m)</td> <td>106,66"<br/>(2,71 m)</td> <td>64,95"<br/>(1,65 m)</td> </tr> <tr> <td>MAX</td> <td>70"<br/>(1,78 m)</td> <td>84,54"<br/>(2,15 m)</td> <td>112,66"<br/>(2,86 m)</td> <td>67,95"<br/>(1,73 m)</td> </tr> <tr> <td rowspan="2">(3)</td> <td rowspan="2">A=45°</td> <td>MIN</td> <td>71"<br/>(1,80 m)</td> <td>85,96"<br/>(2,18 m)</td> <td>114,66"<br/>(2,91 m)</td> <td>68,95"<br/>(1,75 m)</td> </tr> <tr> <td>MAX</td> <td>76"<br/>(1,93 m)</td> <td>93,03"<br/>(2,36 m)</td> <td>124,66"<br/>(3,17 m)</td> <td>73,95"<br/>(1,88 m)</td> </tr> </tbody> </table> |                      |                    |                     |                     |                    | H | D | L | B | (0) | A=30° | MIN | 67"<br>(1,70 m) | 48,42"<br>(1,23 m) | 87,09"<br>(2,21 m) | 64,95"<br>(1,65 m) | MAX | 68"<br>(1,73 m) | 49,25"<br>(1,25 m) | 88,72"<br>(2,25 m) | 65,95"<br>(1,67 m) | (1) | A=30° | MIN | 69"<br>(1,75 m) | 50,06"<br>(1,27 m) | 90,35"<br>(2,30 m) | 66,95"<br>(1,70 m) | MAX | 76"<br>(1,93 m) | 55,77"<br>(1,42 m) | 101,78"<br>(1,59 m) | 73,95"<br>(1,88 m) | (2) | A=30° | MIN/MAX | 77"<br>(1,96 m) | 56,59"<br>(1,44 m) | 103,42"<br>(2,63 m) | 74,95"<br>(1,90 m) | (2) | A=45° | MIN | 67"<br>(1,70 m) | 80,30"<br>(2,04 m) | 106,66"<br>(2,71 m) | 64,95"<br>(1,65 m) | MAX | 70"<br>(1,78 m) | 84,54"<br>(2,15 m) | 112,66"<br>(2,86 m) | 67,95"<br>(1,73 m) | (3) | A=45° | MIN | 71"<br>(1,80 m) | 85,96"<br>(2,18 m) | 114,66"<br>(2,91 m) | 68,95"<br>(1,75 m) | MAX | 76"<br>(1,93 m) | 93,03"<br>(2,36 m) | 124,66"<br>(3,17 m) |
|                                   |       |   | H                    | D                  | L                   | B                   |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (0)   | A=30°   | MIN                  | 67"<br>(1,70 m)    | 48,42"<br>(1,23 m)  | 87,09"<br>(2,21 m)  | 64,95"<br>(1,65 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       |   | MAX                  | 68"<br>(1,73 m)    | 49,25"<br>(1,25 m)  | 88,72"<br>(2,25 m)  | 65,95"<br>(1,67 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (1)   | A=30°   | MIN                  | 69"<br>(1,75 m)    | 50,06"<br>(1,27 m)  | 90,35"<br>(2,30 m)  | 66,95"<br>(1,70 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       |   | MAX                  | 76"<br>(1,93 m)    | 55,77"<br>(1,42 m)  | 101,78"<br>(1,59 m) | 73,95"<br>(1,88 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (2)   | A=30°   | MIN/MAX              | 77"<br>(1,96 m)    | 56,59"<br>(1,44 m)  | 103,42"<br>(2,63 m) | 74,95"<br>(1,90 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   | (2)   | A=45°   | MIN                  | 67"<br>(1,70 m)    | 80,30"<br>(2,04 m)  | 106,66"<br>(2,71 m) | 64,95"<br>(1,65 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       |   | MAX                  | 70"<br>(1,78 m)    | 84,54"<br>(2,15 m)  | 112,66"<br>(2,86 m) | 67,95"<br>(1,73 m) |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
| (3)                               | A=45° | MIN   | 71"<br>(1,80 m)      | 85,96"<br>(2,18 m) | 114,66"<br>(2,91 m) | 68,95"<br>(1,75 m)  |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |
|                                   |       | MAX   | 76"<br>(1,93 m)      | 93,03"<br>(2,36 m) | 124,66"<br>(3,17 m) | 73,95"<br>(1,88 m)  |                    |   |   |   |   |     |       |     |                 |                    |                    |                    |     |                 |                    |                    |                    |     |       |     |                 |                    |                    |                    |     |                 |                    |                     |                    |     |       |         |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |                    |     |       |     |                 |                    |                     |                    |     |                 |                    |                     |

## Installation of the mast attach device (typical)

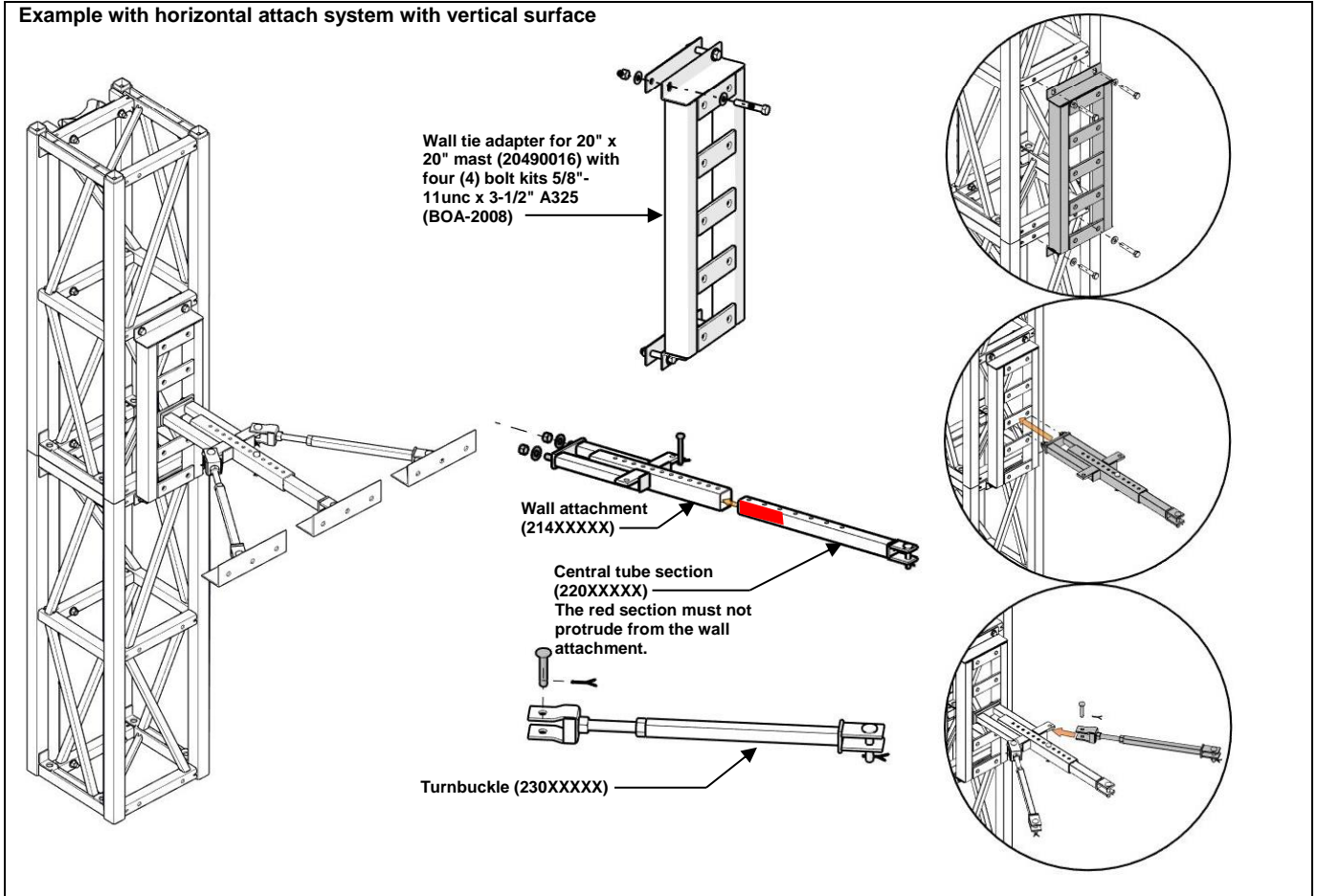


Figure 73 - Installation of mast anchors





## Lifting unit operation specifications

### IMPORTANT! Reminders - Operation specifications

- In the « Out of service » condition, the platform, with its balanced load on each side, must always be located between two (2) levels, at equal distance from the mast anchors, and lowered to ground level.
- The typical distance between each mast anchor is 31'-0" (9,5 m) ± 5'-0" (1,5 m). This distance must be respected from the first or second anchor depending on the type of base used. Refer to section **INSTALLATION/DISMANTLING OF MAST SECTIONS**, ON PAGE 77.
- Positioning of the unit in relation to the highest anchor:
  - It is admissible to exceed the level of the highest anchorage by a height of 5'-0" in normal use of the unit. This permission is valid for a unit equipped with a portable crane system, or a monorail system, provided that these systems are not in operation (not loaded).
  - It is **forbidden** to exceed the level of the highest anchorage when the lifting unit is loaded, or equipped with a portable crane in operation (loaded) or monorail system in operation (loaded), or with a winter shelter accessory or a rigid roof.
- It is **forbidden** to cover guardrails and platforms with plywood (vertical faces) or to extend the guardrails without the consent of FRACO.
- Observe the maximum wind conditions:
  - [0 to 28 mph] (0 to 45 km/h) Installation wind conditions
  - [0 to 34 mph] (0 to 55 km/h) In use wind conditions
  - [34 to 102 mph] (55 to 165 km/h) Out of service wind conditions
  - [102 mph and +] (165 km/h and +): The structure requires additional reinforcement. Contact your FRACO representative.
- For use without anchorage and associated load distributions:
  - ∞ **SEE GROUND LOAD - UNIVERSAL FREESTANDING BASE (14030109), ON PAGE 34**
  - ∞ **SEE GROUND LOAD - ACT-8 FREESTANDING BASE (14030020) FORMER GENERATION, ON PAGE 35**
- The minimum penetration into the concrete wall/slab depends on the type of mast anchor and its use. FRACO shall not be held responsible for the use and choice of anchors other than those proposed in the project quote.
  - ∞ **SEE MAST ANCHOR, ON PAGE 66**

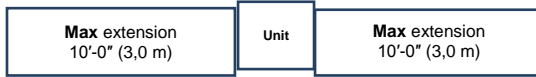
For more information on the various mast anchors devices, refer to the most recent « **MAST ANCHOR SPECIFICATIONS** » documents available with the project quotation. You can also contact your FRACO for a copy of these documents.


## Installation/dismantling of mast sections

-  **IMPORTANT!** At all times during the installation and dismantling of masts and anchors, the floor of the unit shall not be more than 30'-0" (9,1 m) above the last Installed anchor (highest).
-  **IMPORTANT!** During the installation of the first two (2) anchors, on a ground base assembly only, **it is mandatory** to support the mast with independent lifting equipment (crane, crane truck or forklift truck).
-  **IMPORTANT!** In the case of a ground base installation, the platform **MUST NEVER** be elevated and/or loaded with equipment before the installation of the (2) first mast anchors has been completed. This applies to assembly as well as the disassembly operations.
-  **IMPORTANT!** Wear a safety harness attached at all times to a regulatory attachment point during the installation and disassembly of the platform.  
∞SEE FIGURE 4 - REGULATORY , ON PAGE 10

In all cases, when a mast anchor is installed or dismantled, an extension of **maximum** 10'-0" (3,0 m) may be installed on either side of the lifting unit.

- Complete the 10'-0" (3,0 m) extension platforms, including plankings, guardrails and accessories, before installing the mast sections and anchors.
- During the installation of the first two mast anchors, on a ground base assembly, it is **forbidden** to load the platform.



-  **IMPORTANT!** Failure to follow these instructions may result in serious property damage, personal injury, and eventually death. If a situation not mentioned in this manual occurs, contact your FRACO representative.



## Installation of mast sections and anchor devices / ACT-8 platform with ground base

### Step 1

- You may install up to a **MAXIMUM 10'-0"** (3,0 m) extension on each side of the unit during installation of the mast sections and mast anchors. Consider this as the « **Setup configuration** ».
- Install the outriggers, plankings guardrails, planking attachments, guardrails, guardrail pocket holders and plankings on the lifting unit.
- Place the plankings under the location of the anchors to be installed. Install the first mast anchor at 10'-0" (3,0 m) from the ground. This height is a recommendation. For more information on the permitted installation heights for the first anchor,  
∞ SEE TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14

### Step 2

- Assemble up to five (5) mast sections on the ground.  
∞SEE **BOLTING OF MAST SECTIONS AND MAST END SECTION**, ON PAGE 65
- Lift the assembled mast sections with an independent lifting equipment (crane, crane truck or forklift truck) and position the masts opposite those of the lifting unit. Worm screw rails must be on the right side.
- Install and bolt the mast sections on those of the lifting unit. Keep the assembly secure with the independent lifting system (crane, crane truck or forklift truck).

### Step 3

- Remove the plankings and planking attachments under the location of the mast anchors **before** raising the lifting unit to the height of the next mast anchor.
- Raise the unit up to the location for the second mast anchor.
- Replace the plankings and planking attachments under the location of the mast anchors to be installed.
- Install the second mast anchor at 20'-0" (6,0 m) from the ground. This height is a recommendation. For more information on the permitted installation heights for the second anchor,  
∞ SEE TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14

Once the two (2) first anchor devices are installed, you may continue the installation without needing to support the mast with the independent lifting system (crane, crane truck or forklift).

- You may now continue installing the mast sections and subsequent mast anchors. You can preassemble up to 40'-0" (12,2 m) [8 mast sections] of mast sections and lift the assembly to bolt it to the mast (See [Figure 45](#)).
- Continue with the installation respecting the a above description.
- If you are using a self-erecting system (**optional - self-erecting system**), go to **Step 4**, (See [Figure 75](#)).
- Raise the platform and complete the installation of the mast sections and anchors up to the desired height. Please observe the maximum distance of 31'-0" (9,5 m) ± 5'-0" (1,5 m) between the subsequent anchors. Also, please observe the maximum installation distance specific to the dimensions of ground base units – **Chapter A** (TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14).
- Once the last mast section is installed, bolt the mast end section.  
∞SEE [Figure 72 - BOLTING OF MAST AND MAST END SECTIONS](#), ON PAGE 65
- Finally lower the platform to the ground and install your bridge and extension sections in accordance with the installation instructions defined in **Chapter D**. Complete the platform installation (add fittings, guardrails and other remaining accessories...) and install the protective mesh on the lifting unit (See [Figure 80](#)).

**!** Installation of mast sections and anchor devices / ACT-8 platform with ground base (CONTINUED)

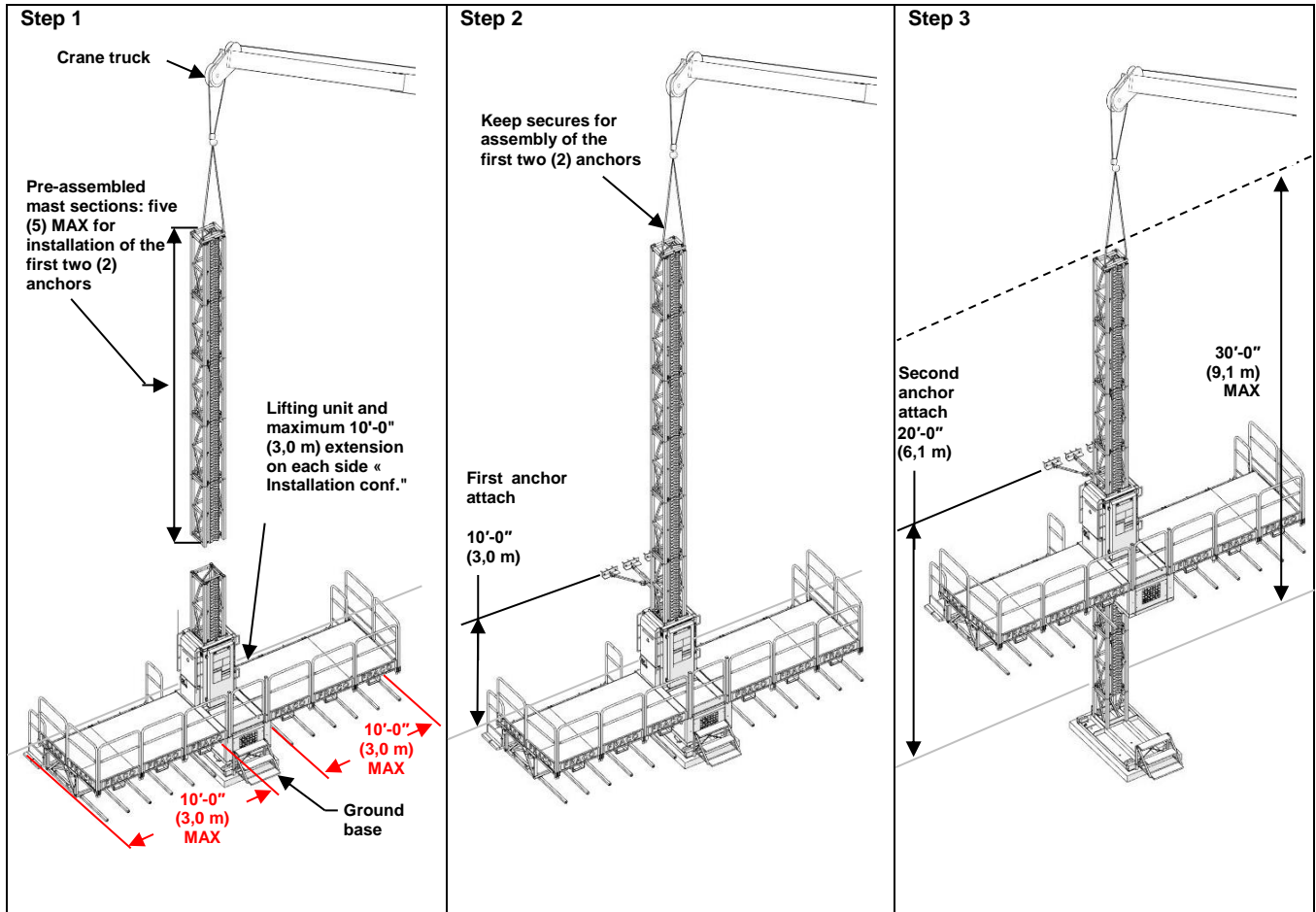


Figure 74 - Installation of masts and anchors, ground base



## Installation of mast sections and anchor devices / ACT-8 platform with ground base (CONTINUED)

### Step 4 (Optional - self-erecting system)

Once the first two (2) anchors have been installed, you may continue the installation using the self-erecting system.

- Lower the unit to the ground and install the self-erecting system. For more details, see [Figure 78](#).
- Load up to **MAXIMUM** six (6) mast sections on each side of the platform. Attention, it is important to always load the platform from both sides during the installation.
- Raise the platform and complete the installation of the mast sections and anchors up to the desired height. Please observe the maximum distance of 31'-0" (9,5 m) ± 5'-0" (1,5 m) between the subsequent anchors. Also, please observe the maximum installation distance specific to the dimensions of ground base units – **Chapter A (TABLE 1 - DIMENSIONS AND CLEARANCE, EN PAGE 14)**.
- Once the last mast section is installed, bolt the mast end section.  
∞ SEE [Figure 72 - BOLTING OF MAST AND MAST END SECTIONS, ON PAGE 65](#)
- Then lower the platform to the floor and remove the self-erecting system.
- With the platform still at ground level, install your bridge and extension sections in accordance with the installation instructions in **Chapter D**. Complete the platform installation (add fittings, guardrails and other remaining accessories...) and install the protective mesh on the lifting unit (See [Figure 80](#)).
- Make sure that all locks of the self-erecting system are present before using the self-erecting system.

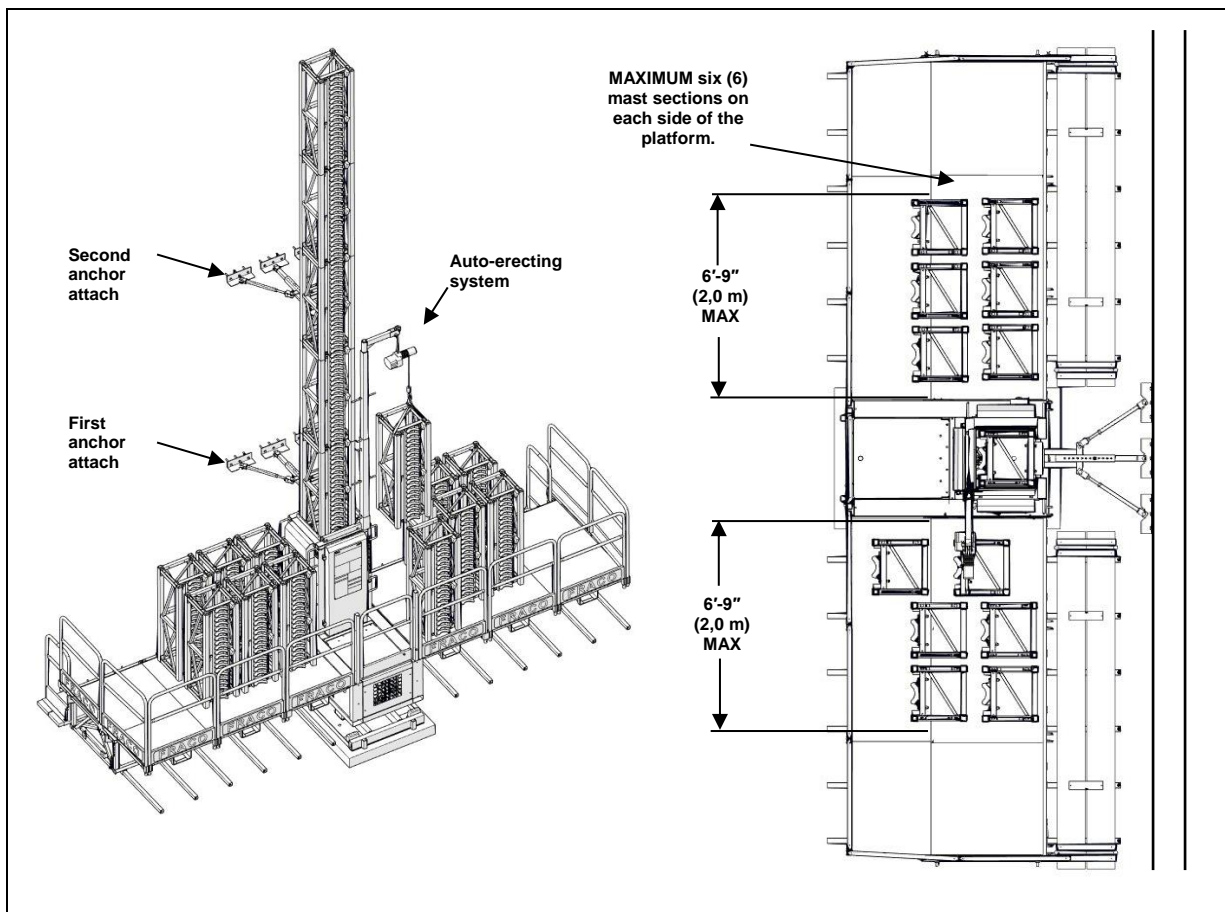


Figure 75 - Installation of masts and anchors on a ground base, self-erecting (optional)



## Installation of mast sections and anchor devices / ACT-8 platform with freestanding base (Universal and ACT-8)

**IMPORTANT!** In the case of a freestanding installation ONLY (with a working height not exceeding 45'-0" [13,7 m], thus not requiring anchors), you are allowed to install the complete platform in its final working configuration, including extension, bridge, plankings, guardrails and accessories, prior to installation of the mast sections.

### Step 1

- You may install up to a **MAXIMUM** 10'-0" (3,0 m) extension on each side of the unit during installation of the mast sections and mast anchors. Consider this as the « **Setup configuration** ».
- Install the outriggers, plankings guardrails, planking attachments, guardrails, guardrail pocket holders and plankings on the lifting unit.
- For installation with a crane truck, you may preassemble up to 40'-0" (12,2 m) [8 mast sections] of mast sections on the ground and install them by lifting them up with a lifting sling. Bolt the mast sections together respecting the defined tightening torques.  
∞SEE **BOLTING OF MAST SECTIONS AND MAST END SECTION**, ON PAGE 65
- If you are using a self-erecting system (**optional - self-erecting system**), go to **Step 4**

### Step 2

- Raise the unit up to the location of the first mast anchor.
- Place the plankings and planking attachments under the location of the mast anchors to be installed.
- Install the first mast anchor at 30'-0" (9,1 m) from the floor or at a maximum height of 45'-0" (13,7 m) from the ground (in this specific case, consult the dimensions for freestanding base in **Chapter A** (TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14)).

### Step 3

- You may again preassemble up to 40'-0" (12,2 m) [8 mast sections] of mast sections, position them using the crane truck over the previously installed mast and bolt the sections together.
- If you are using a self-erecting system (**optional - self-erecting system**), go to **Step 5**
- Remove the plankings and planking attachments from the space below the mast anchor **before** raising the lifting unit to the height of the next mast anchor.
- Raise the unit up to the location of the second mast anchor to be installed.
- Replace the plankings and planking attachments under the location of the second mast anchor to be installed.
- Then install the second anchor 31'-0" (9,5 m) ± 5'-0" (1,5 m) above the first. This dimension is the **MAXIMUM** authorized dimension between all subsequent anchor devices.
- Complete the installation of mast sections and anchors to the desired height and bolt the mast end section (see **Figure 72**) above the last mast section.
- Finally lower the platform to the ground and install your bridge and extension sections in accordance with the installation instructions defined in **Chapter D**. Complete the platform installation (add fittings, guardrails and other remaining accessories...) and install the protective mesh on the lifting unit (See **Figure 80**).

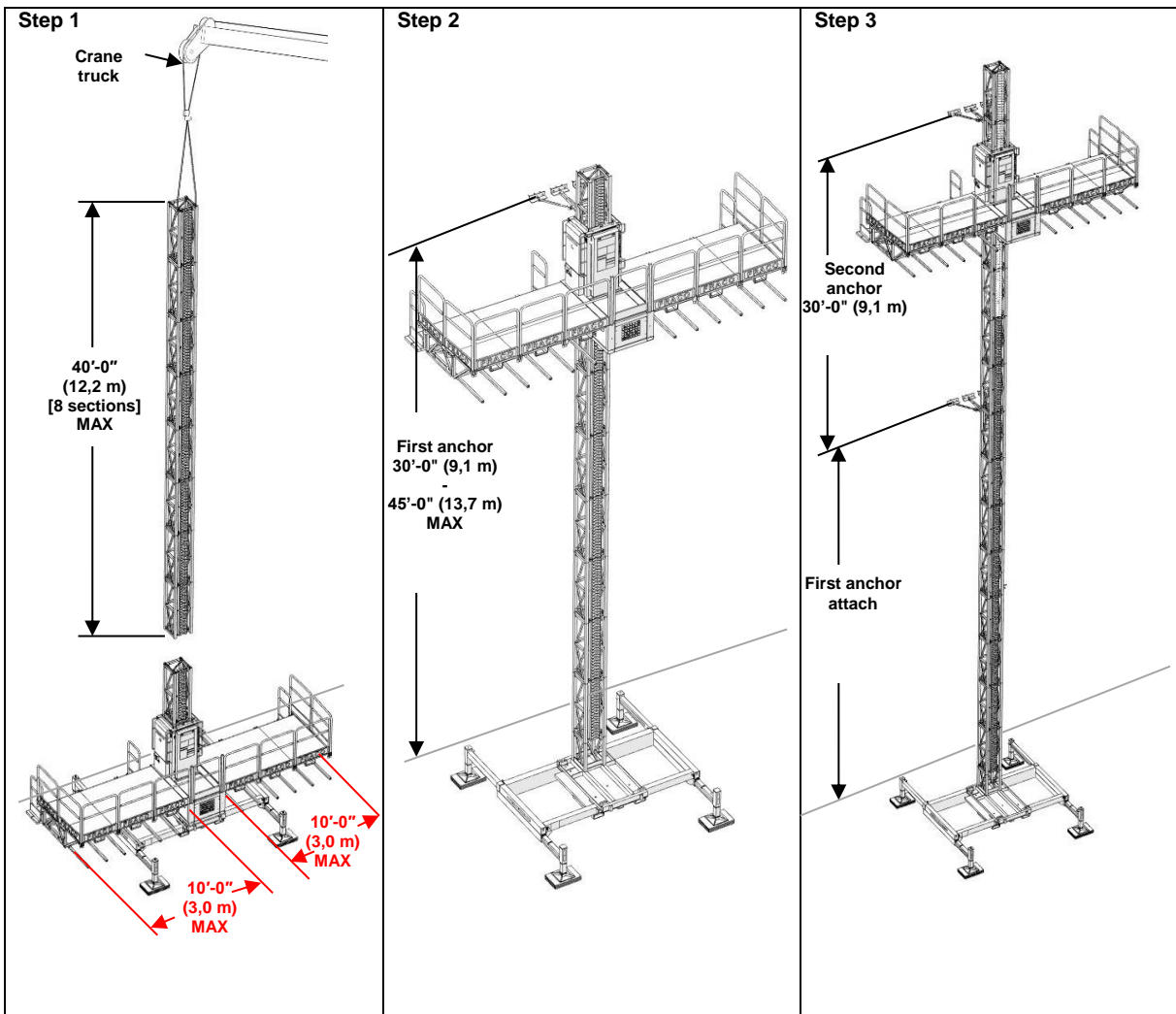


Figure 76 - Installation of masts and anchors, freestanding base

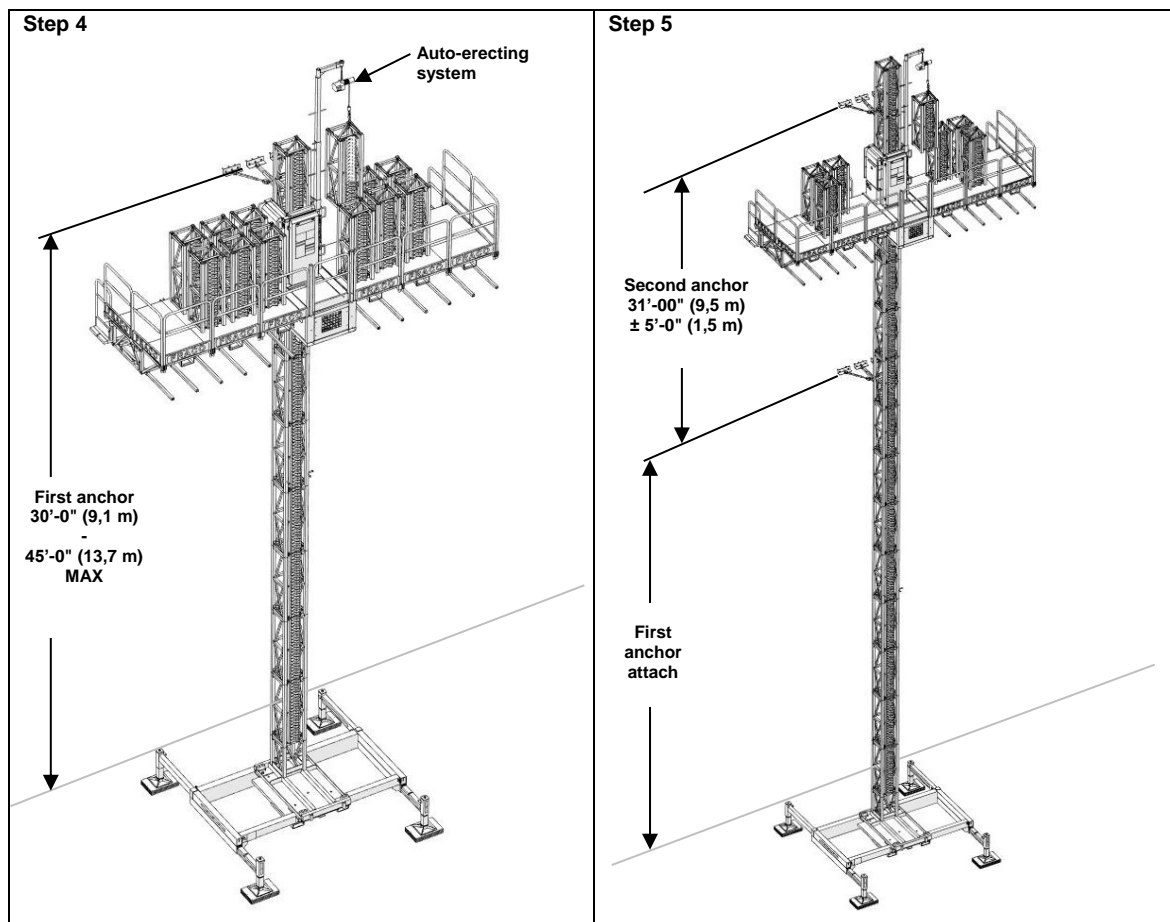
**Step 4 (Optional - self-erecting system)**

If you use a freestanding base, you can use the self-erecting system from the beginning of installation of the mast sections and mast anchors devices.

- Lower the unit to floor level.
- You may install up to a **MAXIMUM 10'-0"** (3,0 m) extension on each side of the unit during installation of the mast sections and mast anchors. Consider this as the « **Setup configuration** ».
- Install the outriggers, planking guardrails, planking attachments, guardrails, guardrail pocket holders and plankings on the lifting unit.
- Then install the self-erecting system and load up to six (6) mast sections on each side of the platform (twelve [12] sections per platform). Attention, it is important to always equally load the platform on both sides as shown in the **Figure 75**.
- Raise the unit up to the location of the second mast anchor to be installed.
- Replace the plankings and planking attachments under the location of the mast anchors to be installed.
- Install the first mast anchor at 30'-0" (9,1 m) from the floor or at a maximum height of 45'-0" (13,7 m) from the floor (in this specific case, consult the dimensions for freestanding base in **Chapter A (TABLE 1 - DIMENSIONS AND CLEARANCE, ON PAGE 14)**).

**Step 5 (Optional - self-erecting system)**

- Load up to **MAXIMUM** six (6) mast sections on each side of the platform. Attention, it is important to always equally load the platform on both sides.
- Remove plankings and plankings attachments under the anchors and lift the platform up to under the location of the second anchor to be installed.
- Replace the plankings and planking attachments under the location of the second mast anchor to be installed.
- Then install the second anchor 31'-0" (9,5 m) ± 5'-0" (1,5 m) above the first. This dimension is the **MAXIMUM** authorized dimension between all subsequent anchor devices.
- Proceed as such for the installation of all necessary mast sections and anchor devices until the desired height is reached.
- Once the last mast section is installed, bolt the mast end section.  
∞ SEE **Figure 72 - BOLTING OF MAST AND MAST END SECTIONS, ON PAGE 65**
- Lower the platform to floor level and remove the self-erecting system.
- With the platform at ground level, install your bridge and extension sections in accordance with the installation instructions in **Chapter D**. Complete the platform installation (add fittings, guardrails and other remaining accessories...) and install the protective mesh on the lifting unit (See **Figure 80**).



**Figure 77 - Installation of masts and anchors on a freestanding base, self-erecting (optional)**

## Installation of the self-erecting system (optional)

**IMPORTANT!** Always use a safety harness that is properly secured to a regulatory attachment point on the platform when assembling and dismantling the self-erecting system.

∞SEE SECTION REGULATORY TIE OFF POINT, ON PAGE 10

**IMPORTANT!** Make sure that all locks of the self-erecting system, such as items 5 and 10, are present before using the self-erecting system.

### Step 1

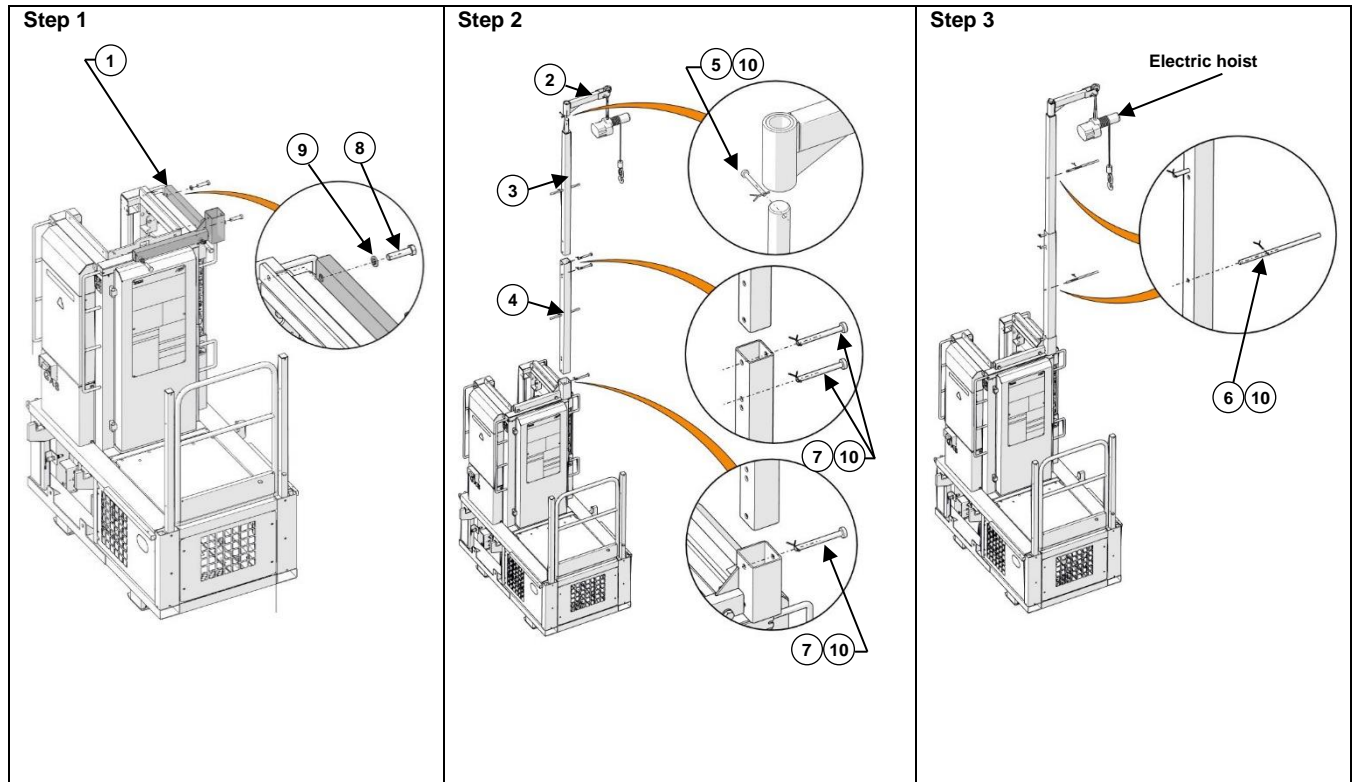
- Position and bolt the « L » self-tightening fastener (20490061) on the lifting unit.

### Step 2

- Position the tubes and the boom on the auto-erecting system and lock them in place with the specified locking shafts (see [Figure 78](#)).

### Step 3

- Install the washer shafts as ladder rungs. Use the ladder rungs to lift and install the electric hoist. Once the electric hoist has been installed, remove the washer shafts and store them for later use when disassembling.



| No. | Item     | Description                                    | No. | Item     | Description                     |
|-----|----------|--|-----|----------|---------------------------------|
| 01  | 20490061 | Self-erecting L tie 2'-2" x 2'-2"              | 06  | 25490077 | Pin with washer Ø 5/8" x 14"    |
| 02  | 20490162 | Self-erecting boom 3" x 3" x 21-1/4"           | 07  | 25490112 | Locking pin Ø 5/8" x 6-9/16"    |
| 03  | 20490331 | Self erecting tube with shaft 3" x 3" x 5' 10" | 08  | BOA-2031 | Bolt 3/4"-10unc x 3" A325 galv. |
| 04  | 20490342 | Self erecting tube 3-1/2" x 3-1/2" x 4'-10"    | 09  | LOZ-5050 | Lock washer 3/4" zinc           |
| 05  | 25490011 | Locking pin Ø 3/8" x 3-1/8"                    | 10  | GOU-1120 | Split Pin 1/8" x 2" zinc        |

Figure 78 - Self-erecting assembly

### Mast leveling with anchor devices

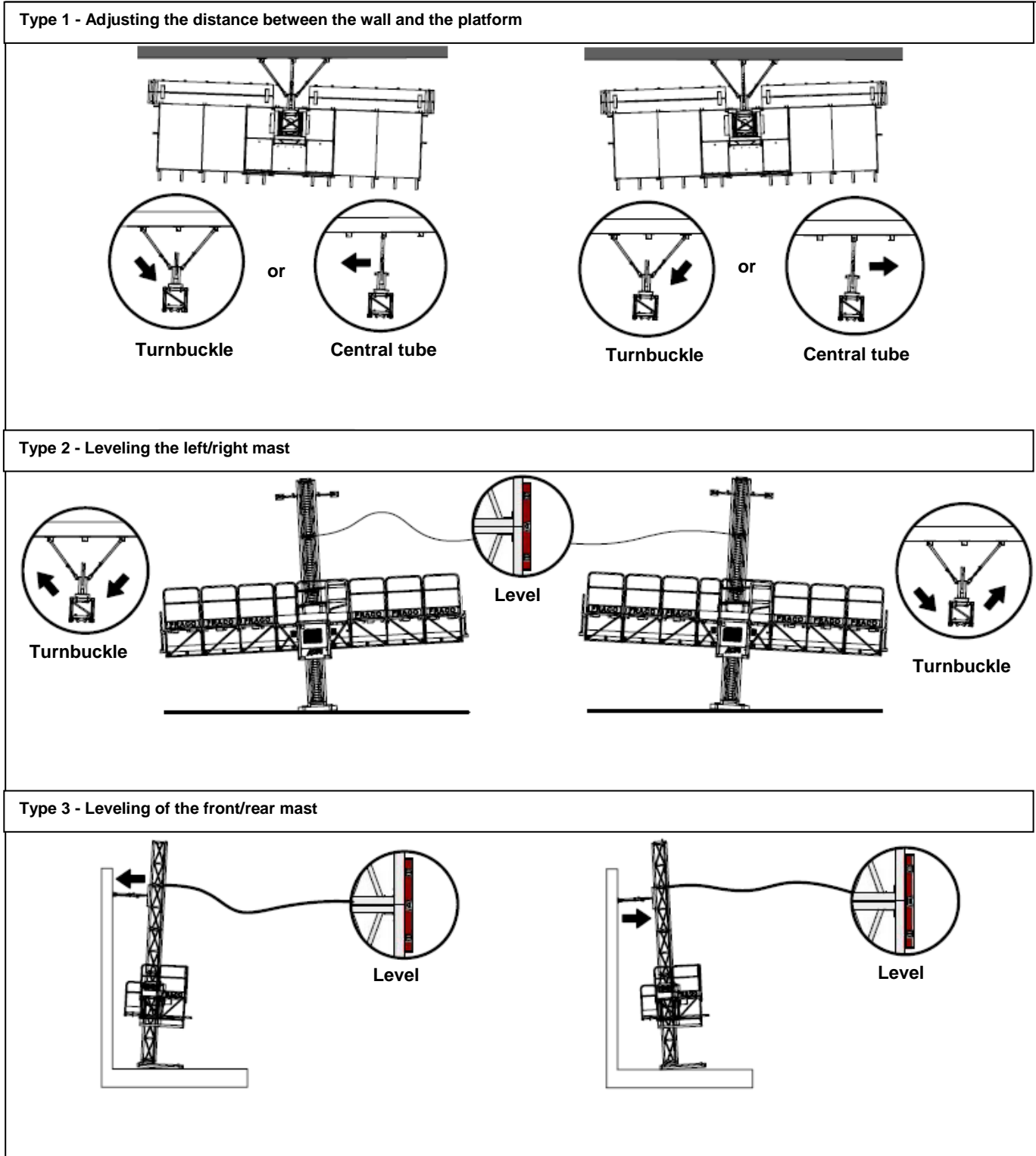


Figure 79 - Leveling with anchor devices



## Installation of the protection screen

The protective wire mesh is installed in the same location as the self-erecting system using the same bolts.

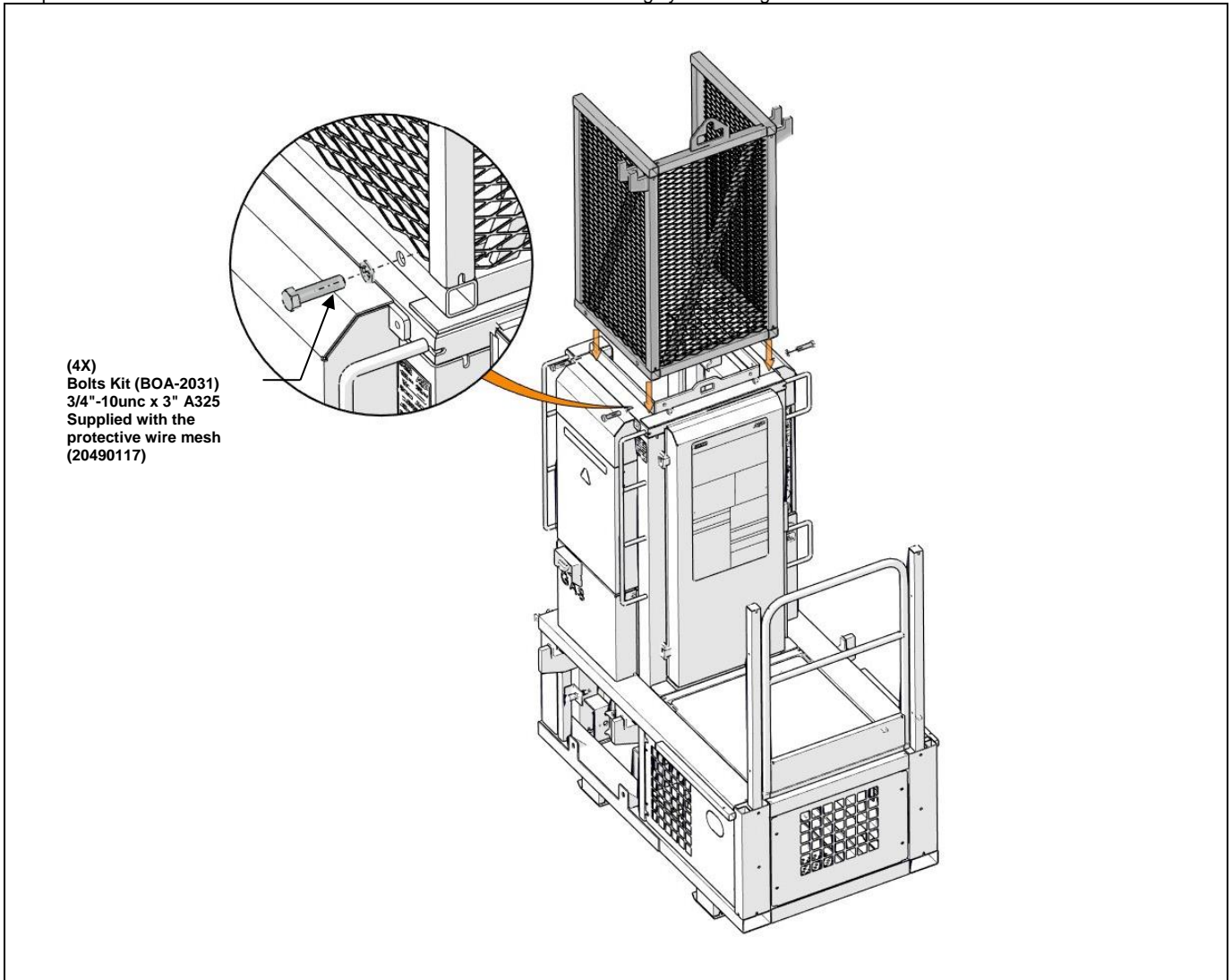


Figure 80 - protective wire mesh



## Disassembly of masts and anchors with ground base

### Step 1

- Lower the unit to the floor and unload all equipment, debris and materials from the platform.
- Remove the protective wire mesh (see [Figure 80](#)).
- Disassemble any extension section that does not respect a **MAXIMUM** 10'-0" (3,0 m) extension on each side of the unit during Disassembly of the mast sections and mast anchor devices. Consider this as the « **Installation configuration** ».
- If you have a self-erecting system (**optional – self-erecting system**), install it using the bolts provided in the protective wire mesh kit and go to **Step 3** once **Step 1** is completed.
- Raise the platform until reaching the top of the mast and unbolt the mast end section.
- Sling the top of the mast with an independent lifting system (crane truck, sling, belt, etc.) to dismantle several mast sections at a time. This is not necessary if you are using the self-erecting system.
- Then descend until you find the location of the highest anchor (last anchor device).

### Step 2

- Place the plankings and planking attachments under the location of the anchors to be removed.
- Loosen the turnbuckles and remove the anchor devices. Perform repairs to the wall if necessary.
- Remove the plankings and planking attachments under the anchor points.
- Then lower the platform to the next anchor.
- Unbolt and remove the mast sections using an independent lifting equipment (crane, crane truck or forklift truck) following the same instructions as for the installation (see [Figure 74](#)). Dismantle up to **MAXIMUM** 40'-0" (12,2 m) [8 mast sections] mast sections at a time for all anchors located above the first two (2) mast sections.
- Replace the plankings and planking attachments under the location of the second mast anchor to be removed.
- Continue disassembling until only the first two anchor devices remain.

### Step 3 (Optional - self-erecting system)

- Place the plankings and planking attachments under the location of the mast anchors to be removed.
- Loosen the turnbuckles and remove the mast anchor devices. Perform repairs to the wall if necessary.
- Remove the plankings, planking supports and planking railings at the anchor dedicated location between each movement of the platform.
- Unbolt and remove the mast sections using the self-erecting system following the same instructions as for the installation (see [Figure 75](#)). Load equally on each side of the platform up to **MAXIMUM** six (6) mast sections at a time (twelve [12] sections per platform **MAXIMUM**).
- Continue disassembling until only the first two anchor devices remain.
- Lower the platform to the floor and remove the self-erecting system.

### Step 4

**Important!** It is mandatory to support the mast using an independent lifting system (crane truck, sling, belt, etc.) during the dismantling of the first two (2) mast anchors.

- Bring the platform underneath the second anchor device and install the plankings, planking supports and railings destined for the location under the anchors.
- Remove the second anchor device and perform any necessary repairs to the wall.
- Remove the plankings, planking attachments and railings under the location of the anchors to be removed.
- Lower the unit under the first anchor device.
- Install the plankings, planking attachments and railings under the location of the anchors to be removed.
- Remove the first anchor device and perform any necessary repairs to the wall.
- Lower the unit to the ground and unbolt the top five (5) mast sections suspended by a crane truck.
- Remove the five (5) mast sections and place them on the ground to disassemble them.
- Complete the disassembly of the unit on the base.

**!** Disassembly of masts and anchors with ground base (CONTINUED)

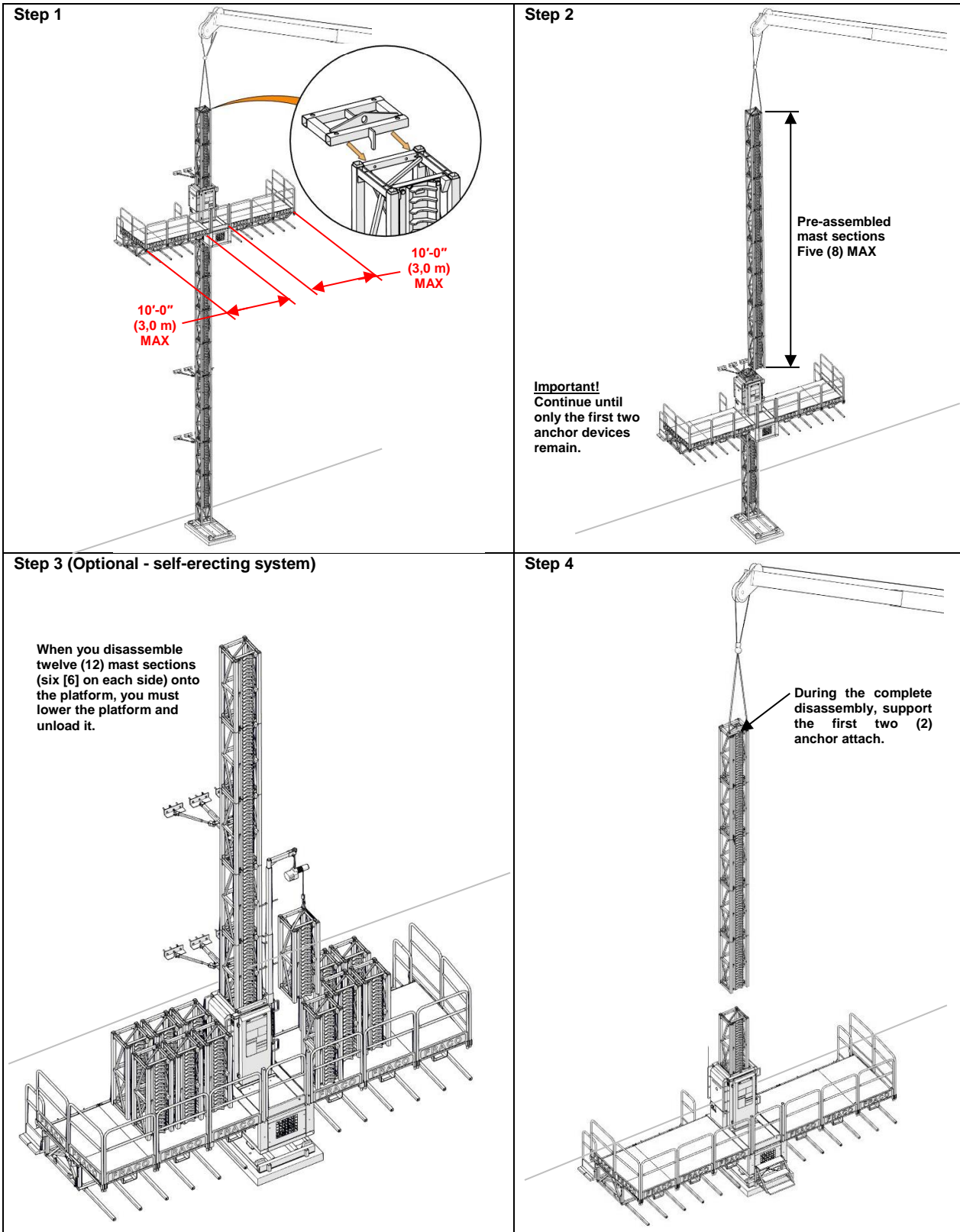


Figure 81 - Disassembly of masts and anchors, ground base

## Disassembly of anchors with freestanding base (universal, ACT-8)

### Step 1

- Lower the unit to the floor and unload all equipment, debris and materials from the platform.
- Remove the protective wire mesh (see [Figure 80](#)).
- Disassemble any extension section that does not respect a **MAXIMUM** 10'-0" (3,0 m) extension on each side of the unit during the disassembly of the mast sections and mast anchor devices. Consider this as the « **Installation configuration** ».
- If you have a self-erecting system (optional), install it using the bolts provided in the protective wire mesh kit and go to **Step 3** once **Step 1** is completed.
- Raise the platform until reaching the top of the mast and unbolt the mast end section.
- Sling the top of the mast with an independent lifting system (crane truck, sling, belt, etc.) to dismantle several mast sections at a time. This is not necessary if you are using the self-erecting system.
- Then descend until you find the location of the highest anchor (last anchor device).

### Step 2

- Place the plankings and planking attachments under the location of the anchors to be removed.
- Loosen the turnbuckles and remove the anchor devices. Perform repairs to the wall if necessary.
- Remove the plankings, planking attachments and railings at the anchor dedicated locations.
- Then lower the platform to the next anchor.
- Unbolt and remove the mast sections using an independent lifting equipment (crane, crane truck or forklift truck) following the same instructions as for the installation (see [Figure 74](#)). Dismantle up to **MAXIMUM** 40'-0" (12,2 m) [8 mast sections] mast sections at a time for all anchors located above the first two (2) mast sections.
- Install the plankings, planking attachments and railings under the location of the anchors to be removed.
- Continue disassembling until only the first two anchor devices remain.

### Step 3 (Optional - self-erecting system)

- Place the plankings, planking attachments and railings under the location of the anchors to be removed.
- Loosen the turnbuckles and remove the anchor devices. Perform repairs to the wall if necessary.
- Remove the plankings, planking supports and planking railings under the anchor dedicated location between each movement of the platform.
- Unbolt and remove the mast sections using the self-erecting system following the same instructions as for the installation (see [Figure 75](#)). Load equally on each side of the platform up to **MAXIMUM** six (6) mast sections at a time (twelve [12] sections per platform **MAXIMUM**).
- Continue disassembling until only the first two anchor devices remain.
- Lower the platform to the floor and remove the self-erecting system.

### Step 4

On a freestanding base, it is not necessary to sling the mast when disassembling the first two (2) anchors.

- Lower the platform underneath the second anchor device and install the plankings, planking supports and railings destined for the location under the anchors.
- Remove the second anchor device and perform any necessary repairs to the wall.
- Remove the plankings, planking attachments and railings under the location of the anchors to be removed.
- Lower the unit under the location of the first anchor device.
- Install the plankings, planking attachments and railings destined for under the anchors.
- Remove the first anchor device and perform any necessary repairs to the wall.
- Lower the unit to the floor level and unbolt all mast sections suspended by a crane truck, except the first two (2).
- Remove the mast sections suspended by a crane truck and place them on the ground for disassembly.
- Complete the disassembly of the unit on the base.

**Disassembly of anchors with freestanding base (universal, ACT-8) (CONTINUED)**

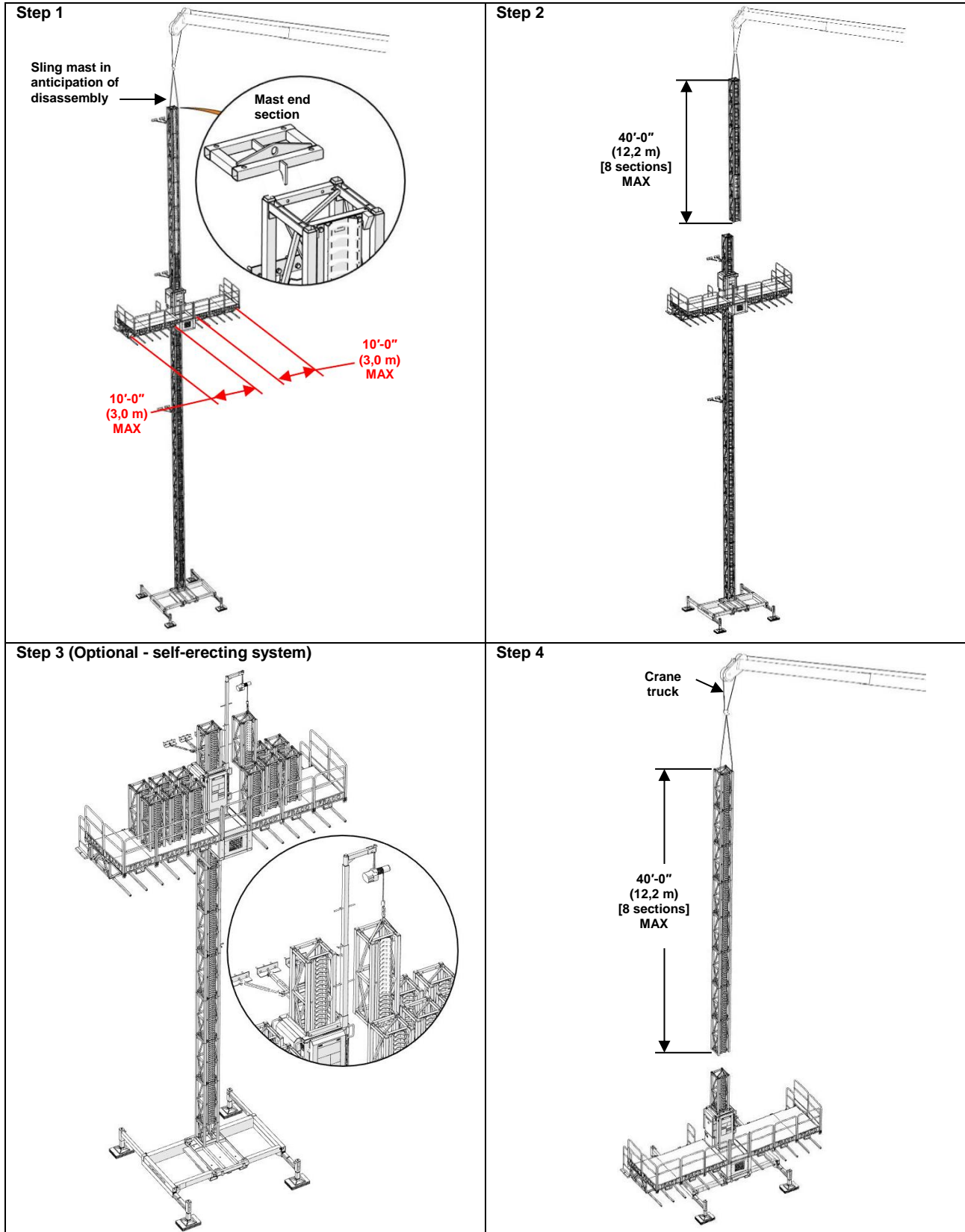


Figure 82 - Disassembly of masts and anchors, freestanding base (universal, 20K)



## Chapter D - Accessories

### Bridge and extension accessories

#### Installation of railing and guardrail pocket holders

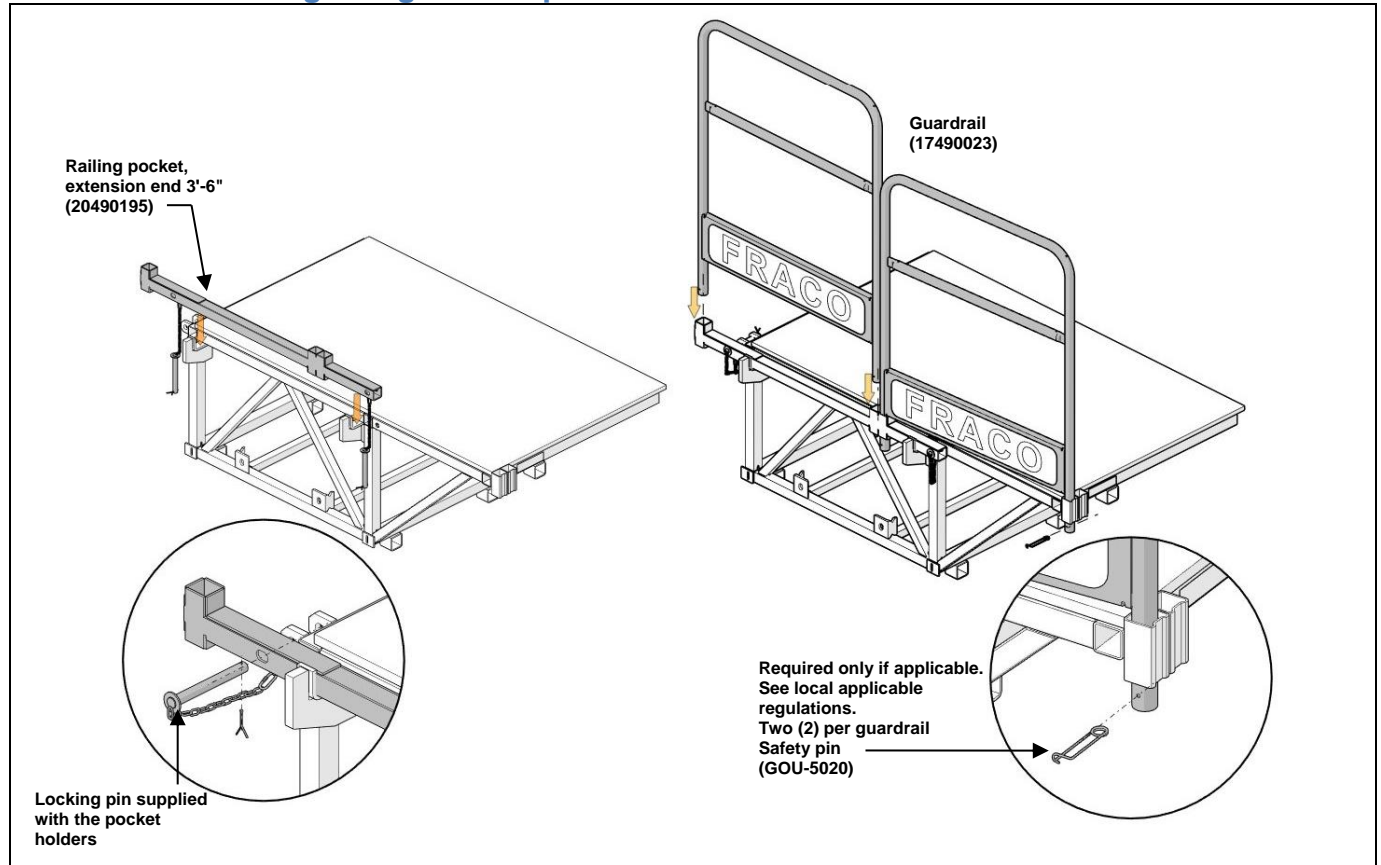


Figure 83 - Guardrails installation

#### Installation of the outriggers

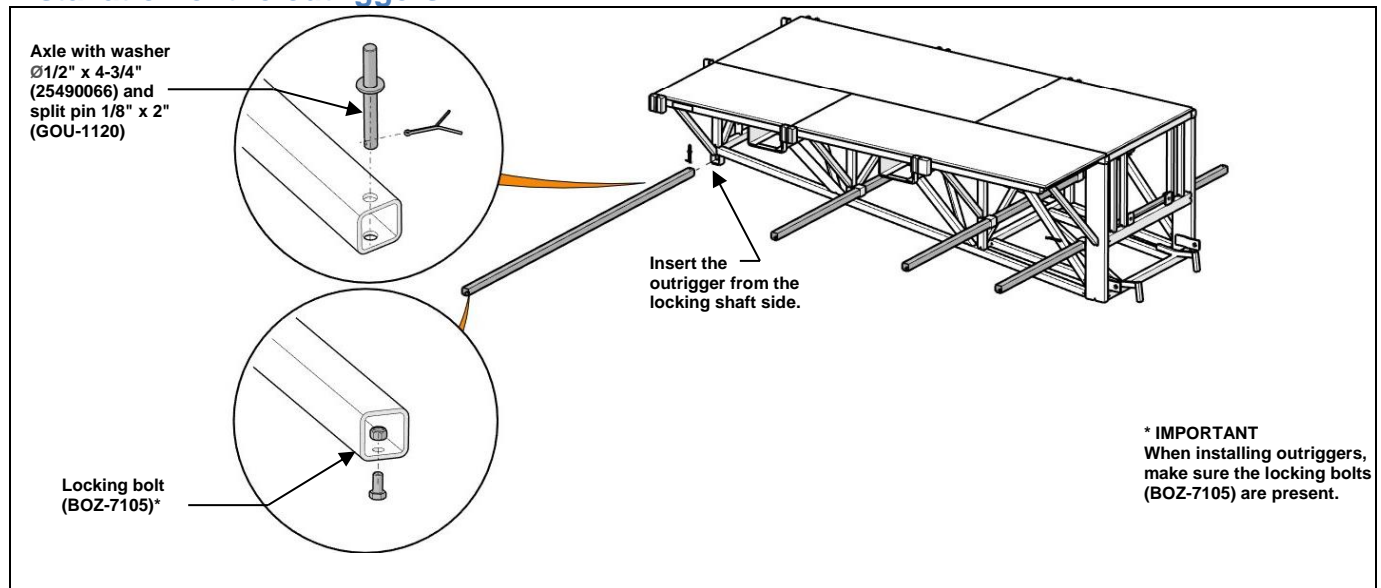


Figure 84 - Outriggers installation



## Configuration of the outriggers

The configurations presented below with reinforced outriggers must have been approved by FRACO and its engineering department. In addition, the plankings must never extend beyond the last outrigger more than 12"(300 mm) laterally.

∞SEE **FIGURE 90 - DETAIL OF PLANKING INSTALLATION, ON PAGE 96**

### Outriggers

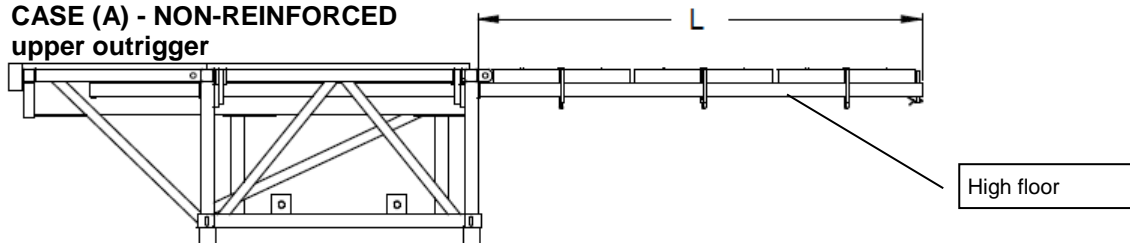
- A minimum of three (3) outriggers must be used to install plankings beyond (L) = 5'-4" (1,62 m).
- The outriggers may be installed at the top or bottom of the platform as needed.
- Reinforced outriggers may only be installed at the top level.
- The reinforced outrigger fastener (20490544) must be installed from 6" (152 mm) to 36" (914 mm) from the end of the outrigger.
- The maximum length (L) at which the outrigger may be extended is given in the following table. This dimension is calculated by taking into account 2" x 10" (50 mm x 254 mm) plankings. For any installation requiring a length (L) greater than 6'-0" (1,8 m), reinforced outriggers **must** be used.

| Code      | Outrigger type  | Max length (L)           |
|-----------|---|--------------------------|
| 19010034  | Outrigger 3/16" x 2" x 2" x 8'-8" (4,65 mm x 50 mm x 50 mm x 2,65 m)<br><b>(Standard 8'-8" [2,65m])</b>   | 5'-4" (1,6 m)            |
| 19010045  | Outrigger 3/16" x 2" x 2" x 10'-6" (4,65 mm x 50 mm x 50 mm x 3,20 m)<br><b>(Standard 10'-6" [3,20 m])</b><br>(Requires a minimum of 3 side by side outriggers) | 6'-0" (1,8 m)            |
| *19010045 | Outrigger 3/16" x 2" x 2" x 10'-6" (4,65 mm x 50 mm x 50 mm x 3,20 m)<br><b>(Reinforced outrigger 10'-6" [3,20 m])</b>  | 7'-0" (2,1 m) REINFORCED |
| *19010056 | Outrigger 3/16" x 2" x 2" x 13'-6" (4,65 mm x 50 mm x 50 mm x 4,10 m)<br><b>(Reinforced outrigger 13'-6" [4,10 m])</b>  | 8'-0" (2,4 m) REINFORCED |
| 20492063  | Central tube 2" x 2" x 6'-0" (50 mm x 50 mm x 1,82 m)<br>(Outrigger reinforcement 8'-8" [2,65 m] and 10'-6" [3,20 m])   |                          |

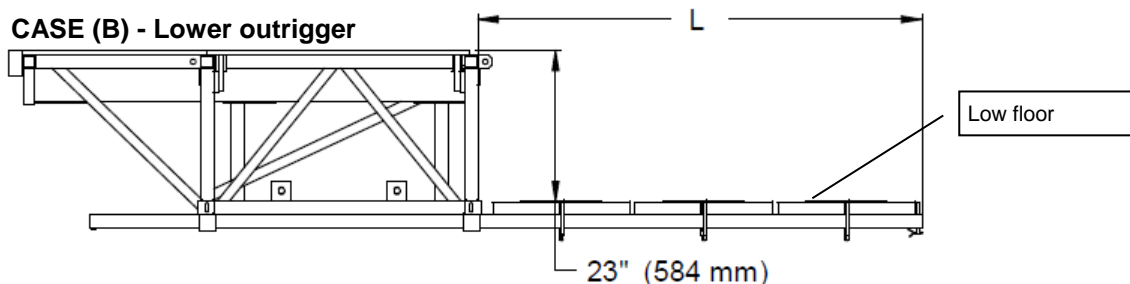
\* For any installation requiring outrigger with (L) greater than 6'-0" (1.82 m), consult the FRACO engineering department.

### Standard outrigger:

#### CASE (A) - NON-REINFORCED upper outrigger



#### CASE (B) - Lower outrigger



### Reinforced outrigger:

#### CASE (C) - REINFORCED upper outrigger

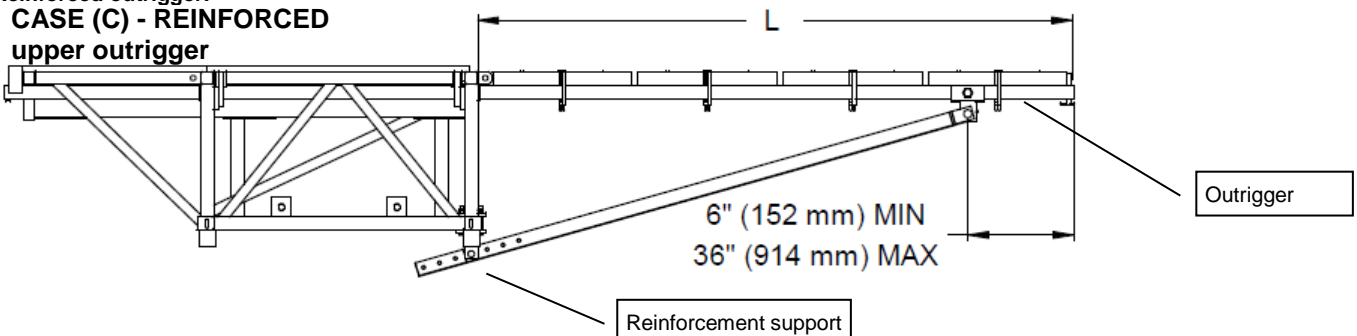


Figure 85 - Outrigger extension

- To be extended to their maximum capacity, the outrigger shall be spaced not more than 40" (1,0 m) apart.
- **Important!** Use planking approved by the local applicable regulations.
- The planking configuration presented below is for illustrative purposes only. Layout of the planking must comply with local applicable regulations.

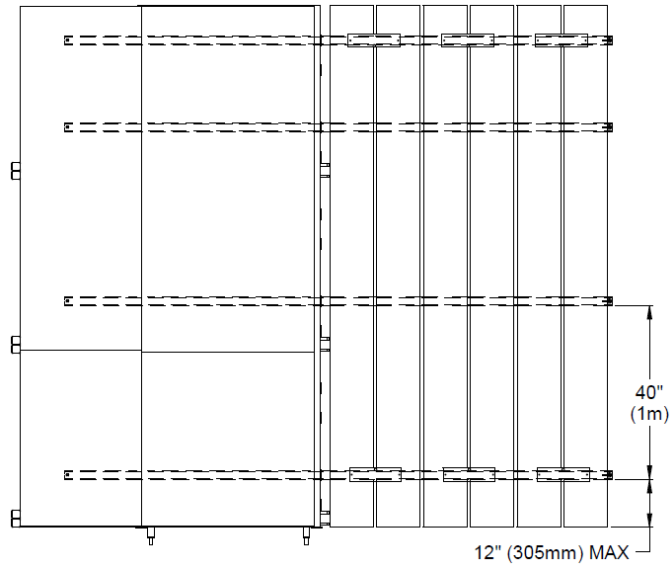
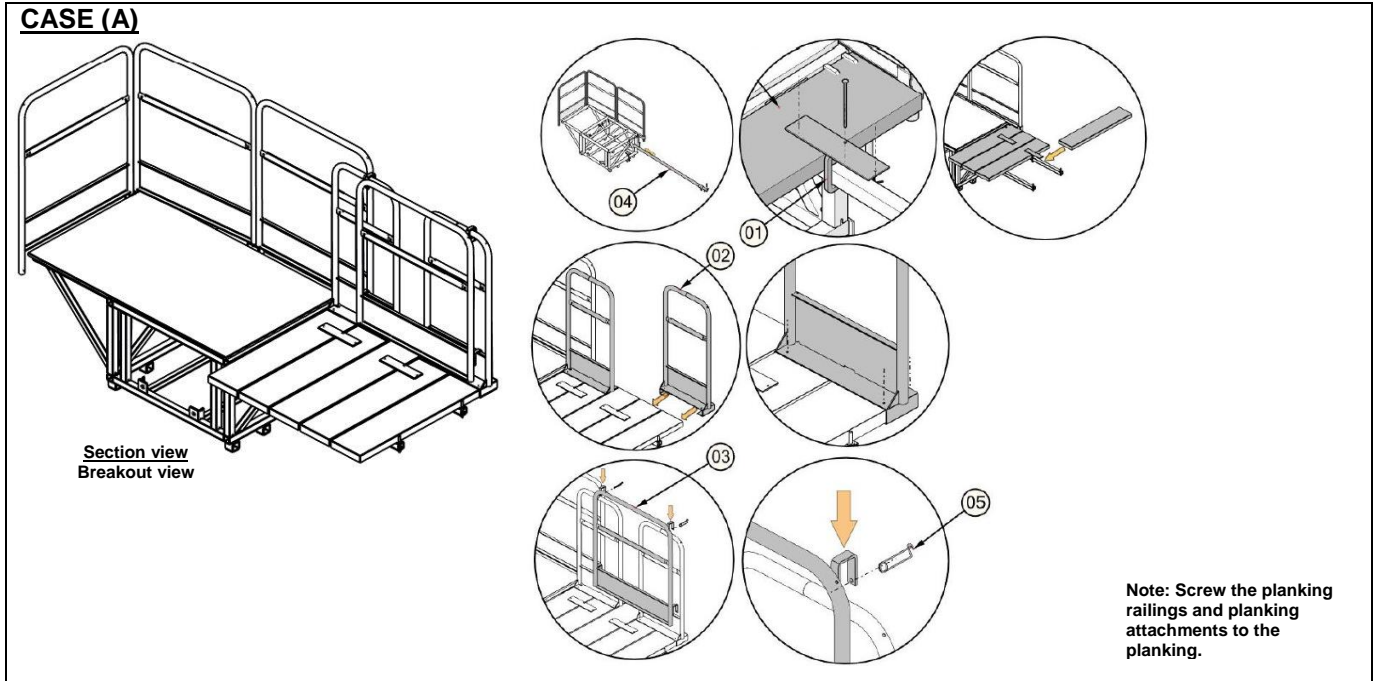
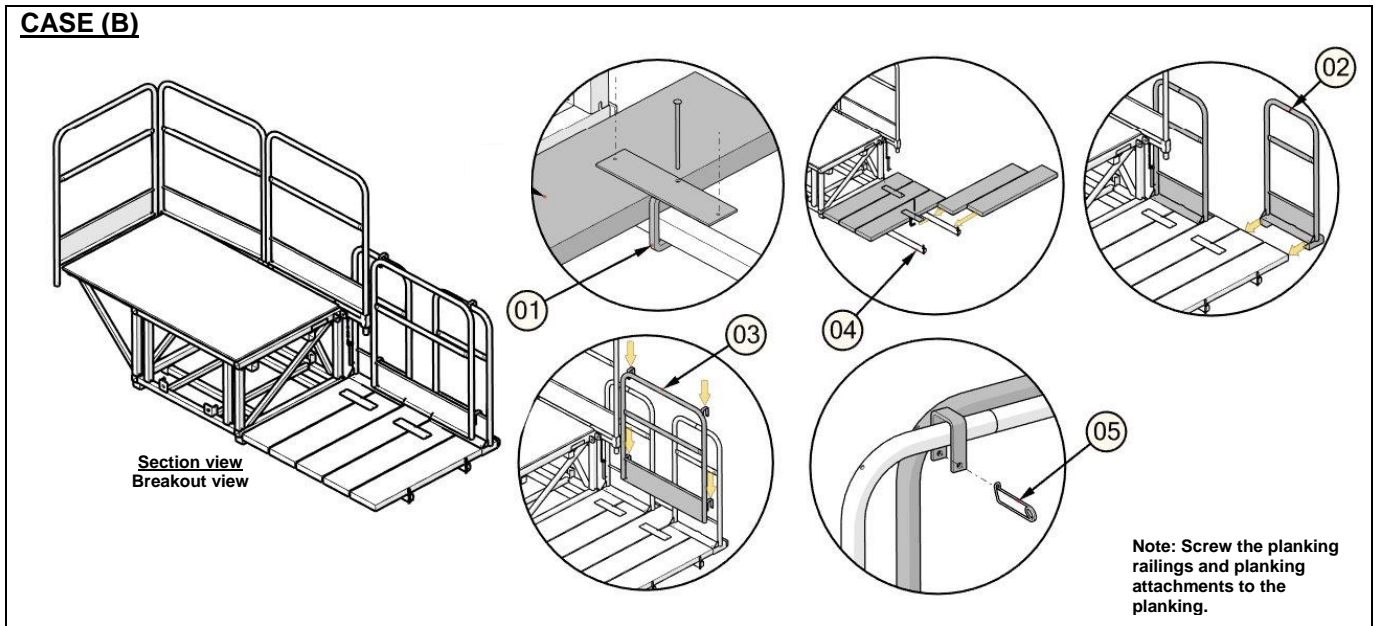


Figure 86 - Spacing between outrigger



| No. | Item     | Description                         | No. | Item     | Description                       |
|-----|----------|-------------------------------------|-----|----------|-----------------------------------|
| 01  | 20490050 | Plank tie 3" x 12"                  | 04  | 19010034 | Outrigger 3/16" x 2" x 2" x 8'-8" |
| 02  | 17490045 | Plank-end guard-rail 21" x 3'-6"    | 05  | GOU-5020 | Safety pin 1/8" x 4-1/4"          |
| 03  | 17490034 | Extensible guard-rail 3'-4" x 3'-7" |     |          |                                   |

Figure 87 - Installation of NON-REINFORCED upper outriggers



| No. | Item     | Description                         | No. | Item     | Description                       |
|-----|----------|-------------------------------------|-----|----------|-----------------------------------|
| 01  | 20490050 | Plank tie 3" x 12"                  | 04  | 19010034 | Outrigger 3/16" x 2" x 2" x 8'-8" |
| 02  | 17490045 | Plank-end guard-rail 21" x 3'-6"    | 05  | GOU-5020 | Safety pin 1/8" x 4-1/4"          |
| 03  | 17490034 | Extensible guard-rail 3'-4" x 3'-7" |     |          |                                   |

Figure 88 - Installation of lower outriggers

**CASE (C)**

**Section view**  
**Breakout view**

Center tube red side down

| Compatibility table (outriggers - central tube) |   |                         |   |
|---|---|-------------------------|---|
| Outrigger                                       | Description   | Compatible central tube | Description   |
| 19010034  | 3/16" x 2" x 2" x 8'-8" outrigger (4,65 mm x 50 mm x 50 mm x 2,65 m)  | 22010061                | Central tube 2" x 2" x 5'-0" (50 mm x 50 mm x 1,52 m) |
| 19010045  | 3/16" x 2" x 2" x 10'-6" outrigger (4,65 mm x 50 mm x 50 mm x 3,20 m) | 20492063                | Central tube 2" x 2" x 6'-0" (50 mm x 50 mm x 1,83 m) |
| 19010056  | 3/16" x 2" x 2" x 13'-6" outrigger (4,65 mm x 50 mm x 50 mm x 4,10 m) | 20492063                | Central tube 2" x 2" x 6'-0" (50 mm x 50 mm x 1,83 m) |

Note: Screw the planking railings and planking attachments to the planking.

| No. | Item                             | Description   | No. | Item                 | Description   |
|-----|----------------------------------|---|-----|----------------------|---|
| 01  | 20490050                         | Plank tie 3" x 12"  | 07  | GOU-1120             | Split Pin 1/8" x 2" zinc                                      |
| 02  | 17490045                         | Plank-end guard-rail 21" x 3'-6"  | 08  | 20490555             | Outrigger special swivel tie                                  |
| 03  | 17490034                         | Extensible guard-rail 3'-4" x 3'-7"   | 09  | 20490544             | Special outrigger tie   |
| 04  | 19010034<br>19010045<br>19010056 | Outrigger 3/16" x 2" x 2" x 8'-8"<br>Outrigger 3/16" x 2" x 2" x 10'-6"<br>Outrigger 3/16" x 2" x 2" x 13'-6" | 10  | 25490066             | Pin with washer dia. 1/2" x 4-3/4"                            |
| 05  | GOU-5020                         | Safety pin 1/8" x 4-1/4"  | 11  | 22010061<br>22010184 | Central tube 2" x 2" x 5'-0"<br>Central tube 2" x 2" x 10'-0" |
| 06  | 25490033                         | Locking pin dia. 5/8" x 3-3/16"   | 12  | 20490072             | Outrigger lock 1" x 2" x 2"                                   |

Figure 89 - Installation of REINFORCED upper outriggers

## Detail of plankings and end of bean railing

### Plankings

The type, dimensions and arrangement of plankings used on the outriggers shall be in accordance with applicable local standards and regulations. For information purposes, the plankings used should have the following characteristics:  
 2" x 10" or 2" x 12" (0,05 m x 0,25 m or 0,05 m x 0,30 m) capable of supporting a load of at least 265 lb (120 kg) over a minimum length of 4'-0" (1,2 m).

Other types of cover may be used, provided that the dimensions of the attachments accessories are in compliance with local standards and regulations.

Any additional weight must be taken into account and deduced from the allowed load.

∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

∞SEE TABLE 17 - LOAD DEDUCTIONS, ON PAGE 160

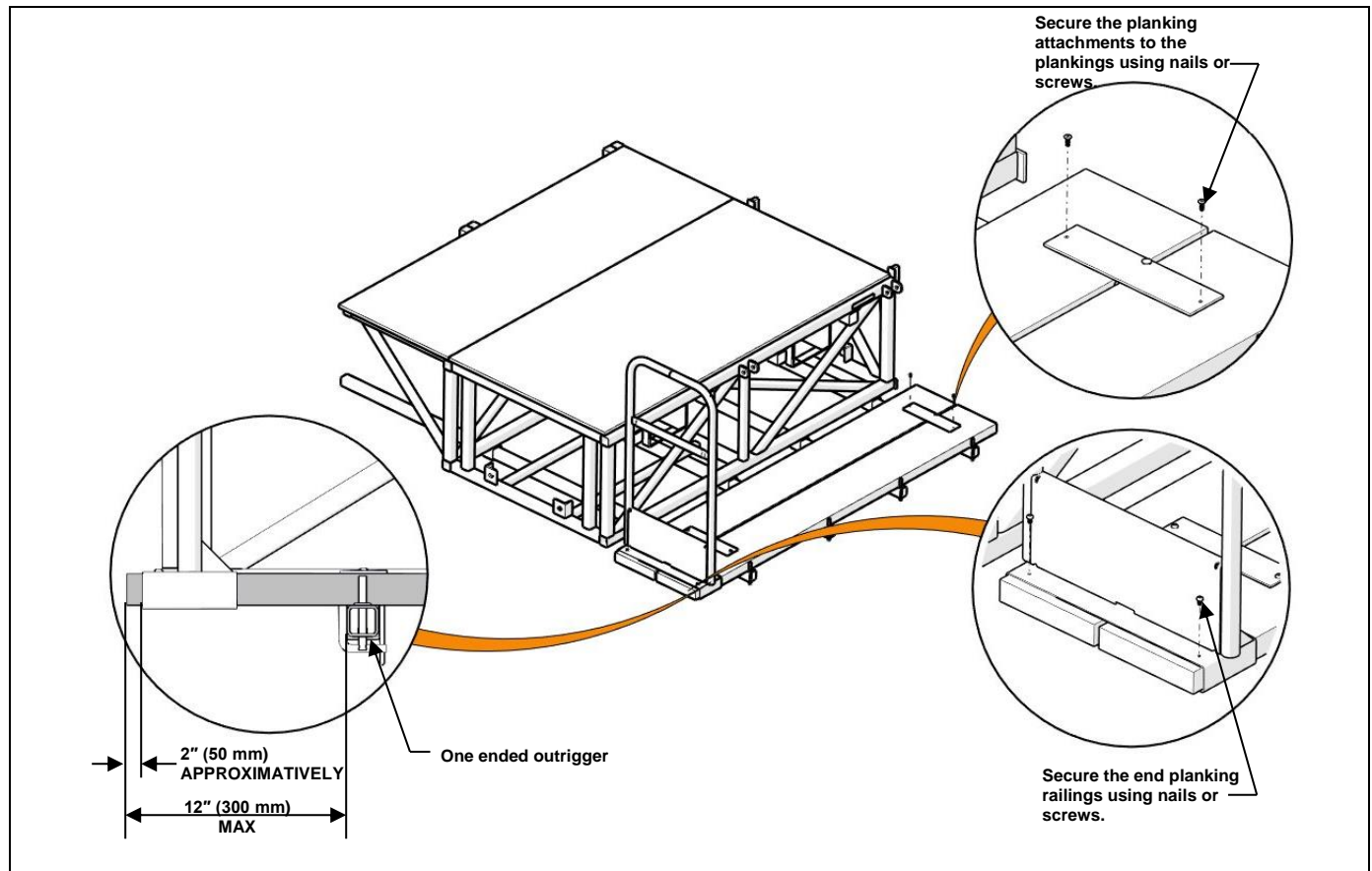


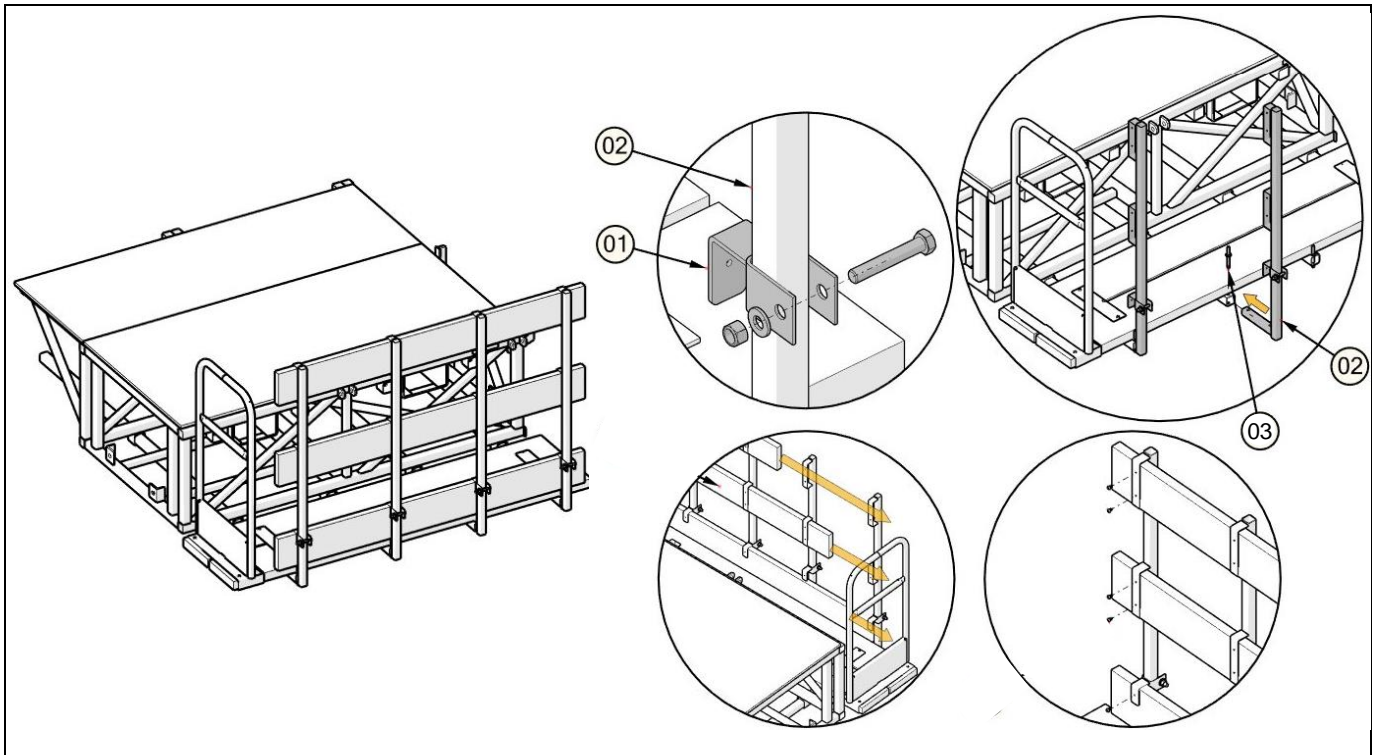
Figure 90 - Detail of planking installation







## Installation of end of outrigger guardrail



| No. | Item     | Description                      | No. | Item     | Description                        |
|-----|----------|----------------------------------|-----|----------|------------------------------------|
| 01  | 20491646 | « L » guard-rail sliding tie     | 03  | 25490066 | Pin with washer dia. 1/2" x 4-3/4" |
| 02  | 17490067 | « L » outrigger guard-rail 4'-3" |     |          |                                    |

Figure 92 - Installation of end of outrigger guardrail

## Installation of mast anchor devices access guardrails

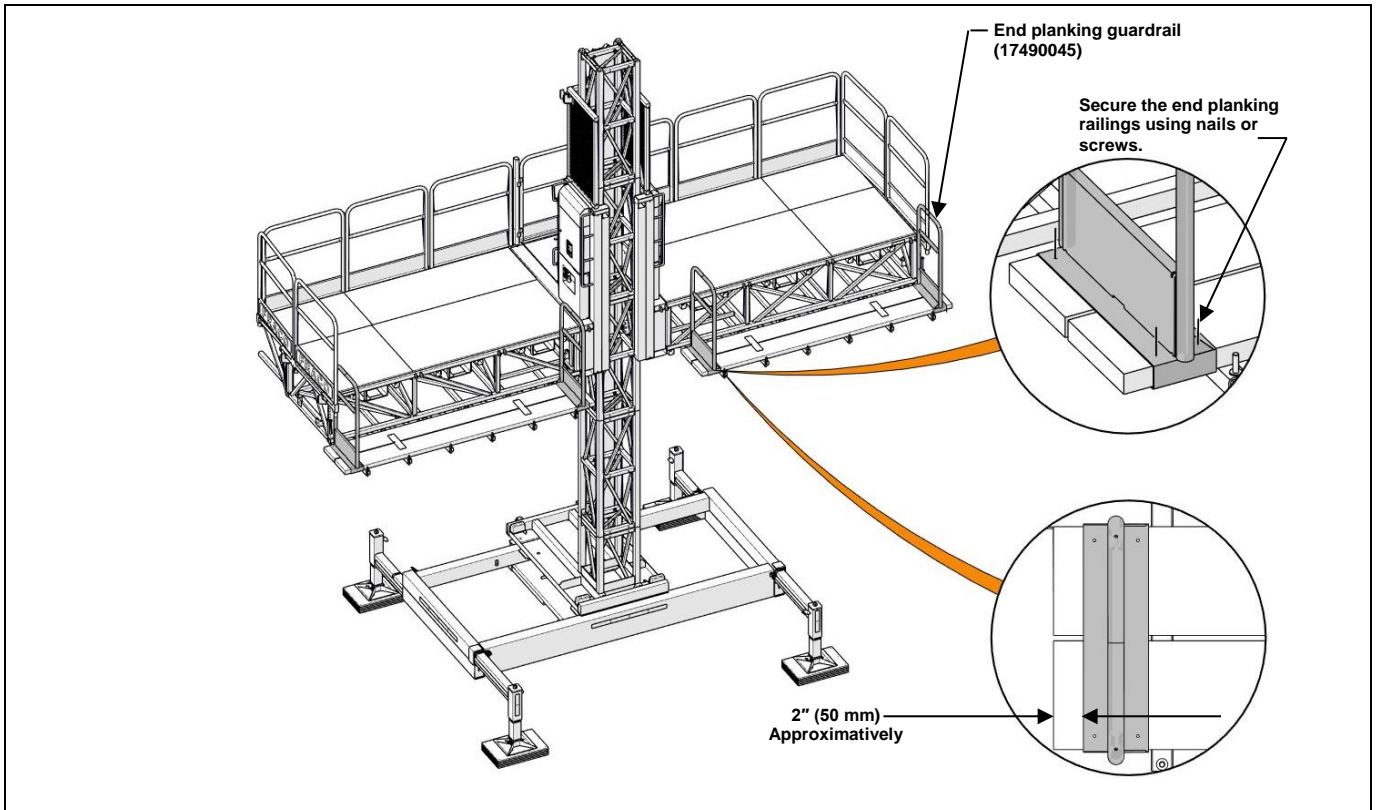
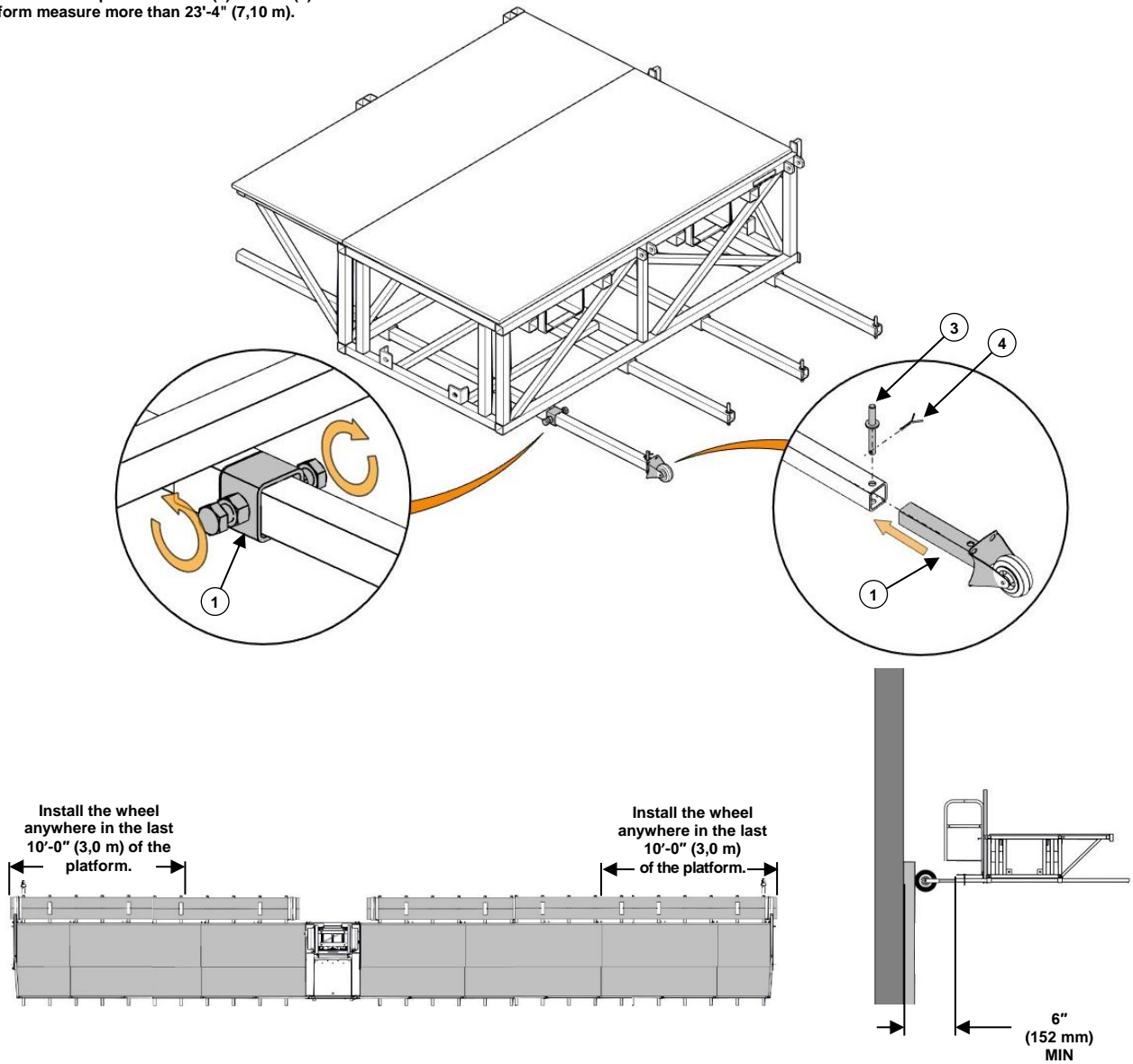


Figure 93 - Installation of guardrail at mast anchor device

### Installation anti-pivot device, small wheel (optional)

**Important!** The anti-pivot system wheels must be installed on both sides of the platform if one (1) or both (2) sides of the platform measure more than 23'-4" (7,10 m).

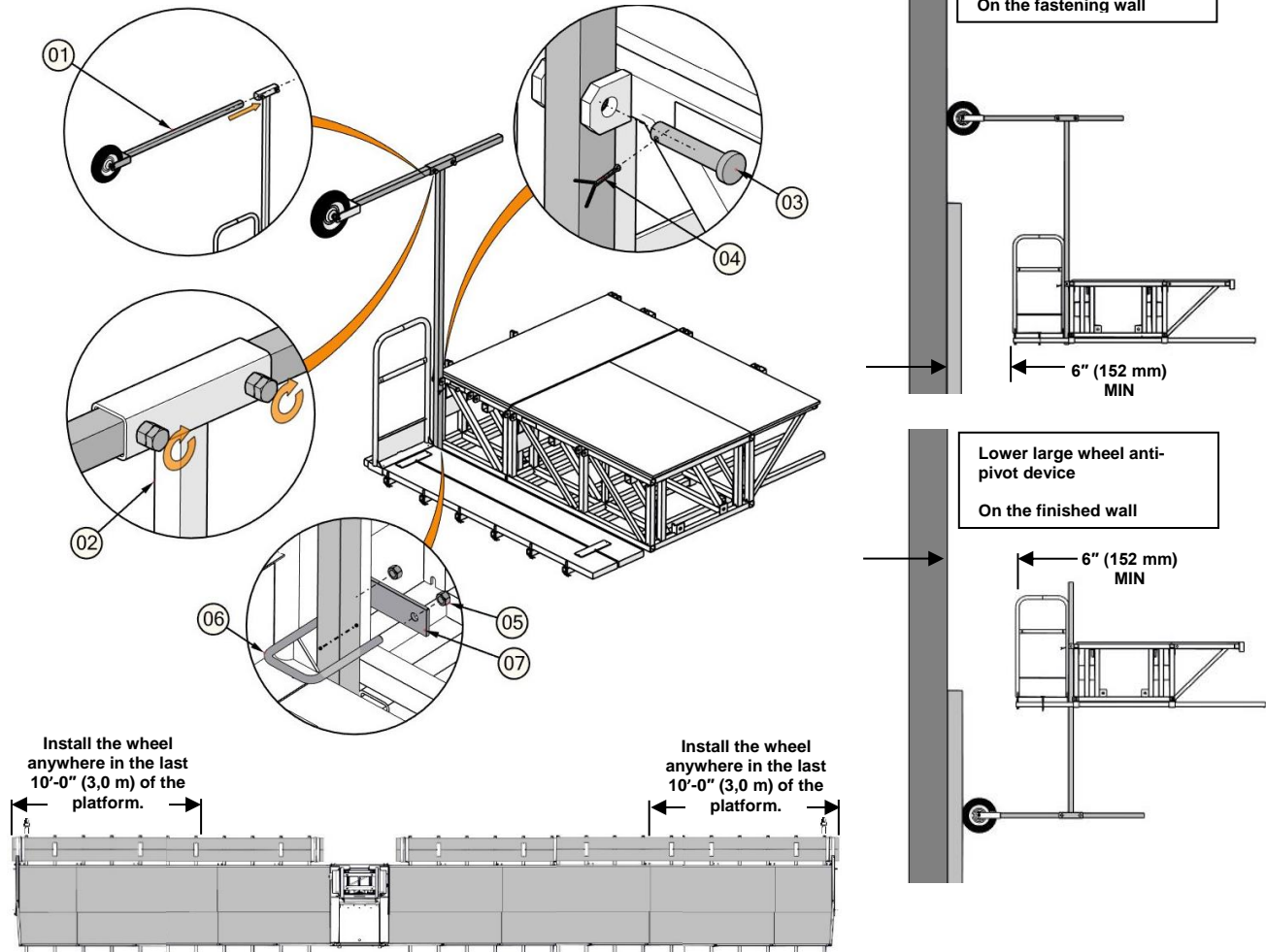


| No. | Item     | Description                 | No. | Item     | Description                     |
|-----|----------|-----------------------------|-----|----------|---------------------------------|
| 01  | 20490263 | Outrigger 4" wheel          | 03  | 25490055 | Locking pin dia. 3/4" x 4-3/16" |
| 02  | 20490072 | Outrigger lock 1" x 2" x 2" | 04  | GOU-1120 | Split Pin 1/8" x 2" zinc        |

Figure 94 - Anti-pivot device (small wheel)

### Installation anti-pivot device, large wheel (optional)

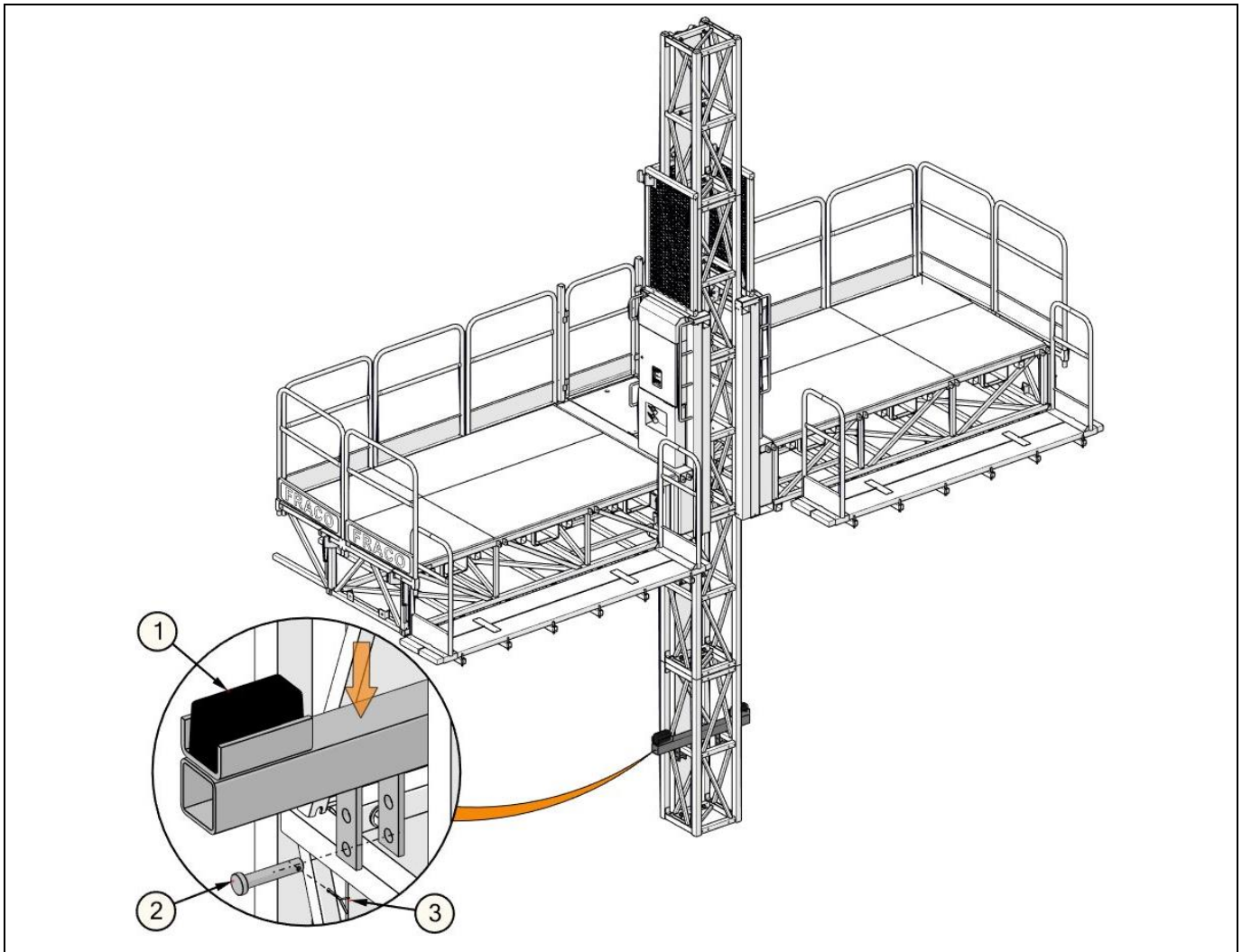
**Important!** The anti-pivot system wheels must be installed on both sides of the platform if one (1) or both (2) sides of the platform measure more than 23'-4" (7,10 m).



| No. | Item     | Description   | No. | Item     | Description                              |
|-----|----------|---|-----|----------|--|
| 01  | 20491028 | Wheel for single mast blocking system (over platform)         | 05  | ECZ-8501 | Nut 1/2"-13unc gr8 zinc                  |
| 02  | 20491039 | Support for single mast blocking system wheel (over platform) | 06  | 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2" |
| 03  | 25490055 | Locking pin dia. 3/4" x 4-3/16"                               | 07  | 20490173 | Forge steel 1/4" x 2" x 6"               |
| 04  | GOU-1120 | Split Pin 1/8" x 2" zinc                                      |     |          |  |

Figure 95 - Anti-pivot device (large wheel)

## Installation of the descent stop



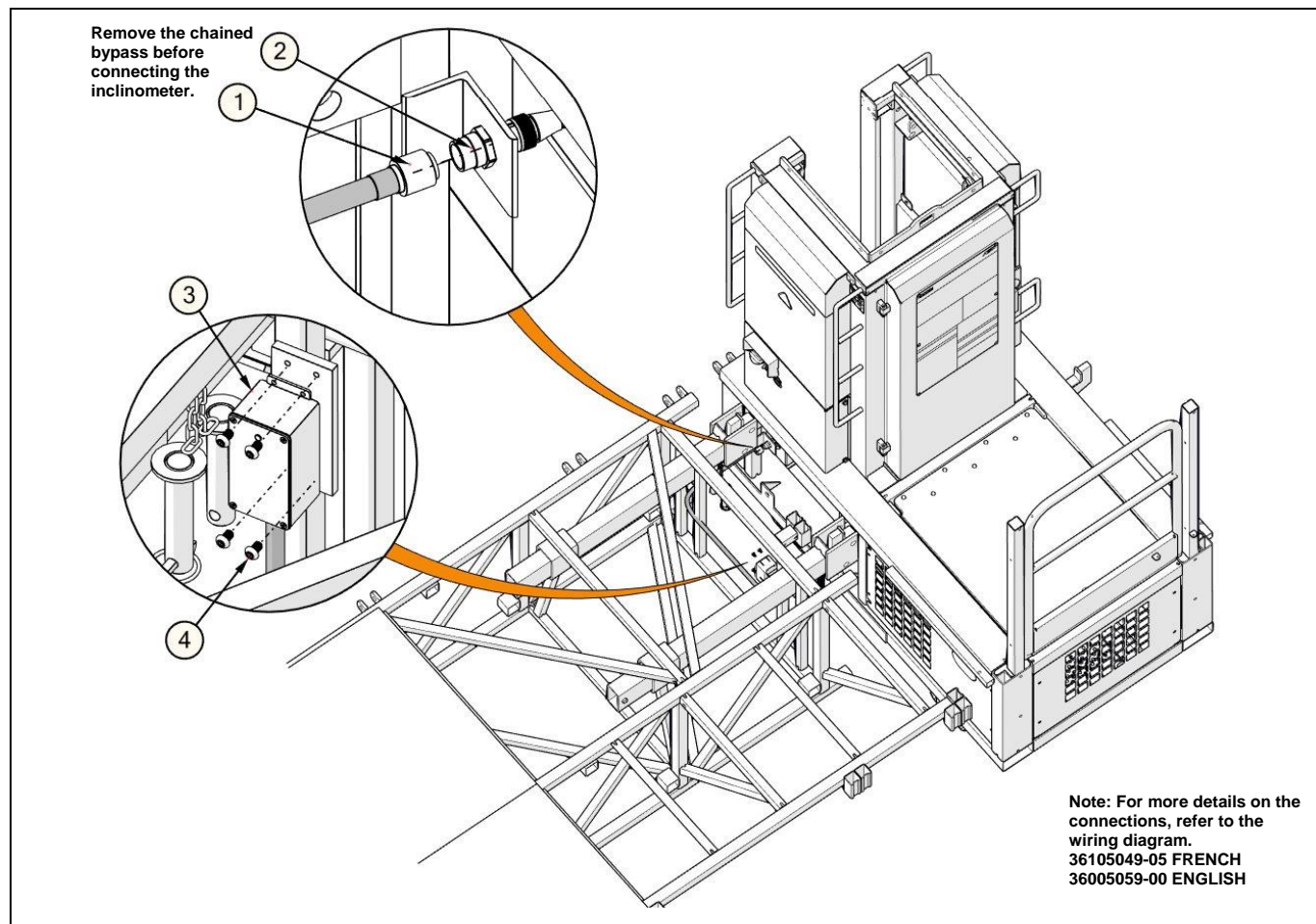
| No. | Item     | Description                                    | No. | Item     | Description              |
|-----|----------|--|-----|----------|--------------------------|
| 01  | 20490768 | 20" x 20" mast section descent limiting device | 03  | GOU-1120 | Split Pin 1/8" x 2" zinc |
| 02  | 25490055 | Locking pin dia. 3/4" x 4-3/16"                |     |          |                          |

Figure 96 - Descent stop device



### Installation of the inclinometer

**Important!** Refer to local regulations to determine if inclinometer installation is mandatory.



| No. | Item     | Description                             | No. | Item     | Description                         |
|-----|----------|---|-----|----------|-------------------------------------|
| 01  | ELE-1402 | 5-pole auxiliary connector M with cable | 03  | ELE-1816 | 1-axis inclinometer box 5 relays 5A |
| 02  | ELE-1405 | Receiver 5-pin F                        | 04  | XXXXXXXX | Screw ØM3                           |

Figure 97 - Inclinometer

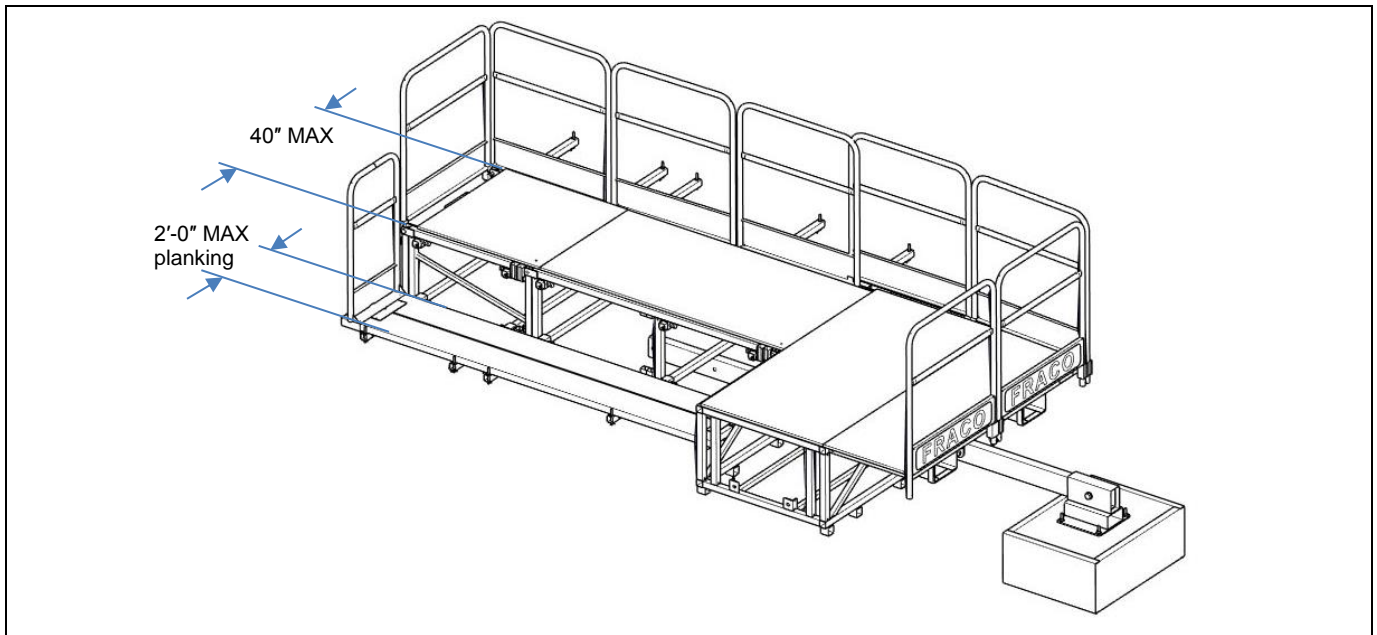


## Reinforced corner return support system with counterweight

**Important!** This system can only be used with certain configurations. Consult the FRACO Engineering Department for the required configurations.

**Important!** It is **forbidden** to use a corner return system on a freestanding base without a wall attach system.

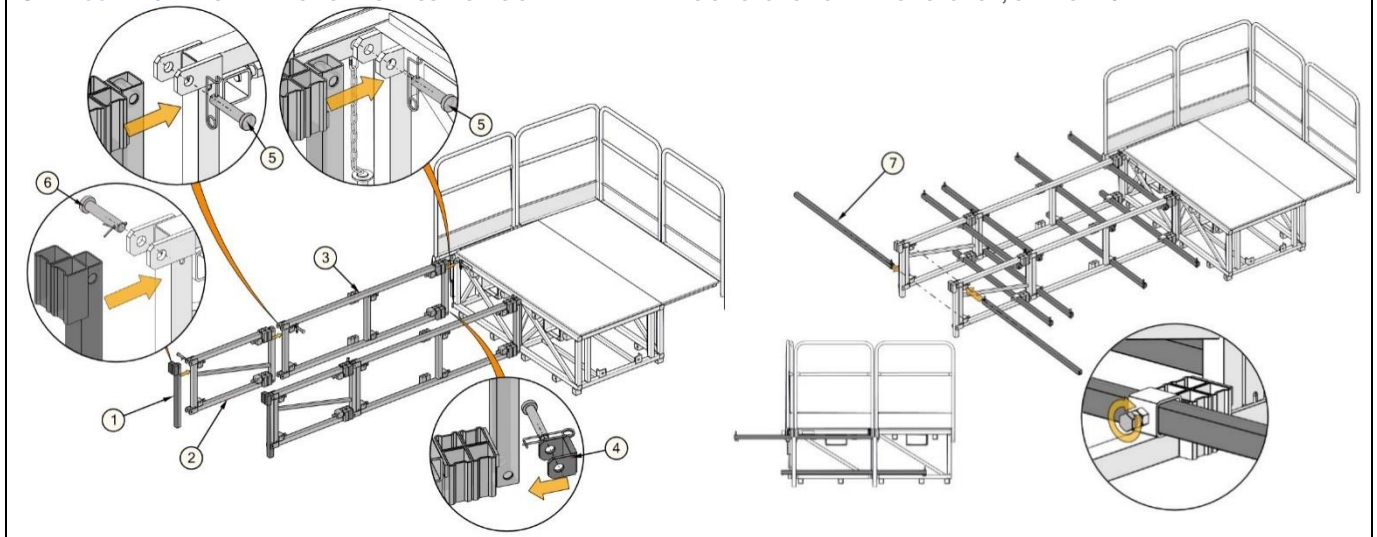
**Important!** It is **forbidden** to pass the last mast anchor if you use a corner return system with counterweight.



### Installation of work supports on an extension section

Note: Installation on a bridge section or tapered extension requires the use of a reinforced work support attachment (20491916).

SEE **FIGURE 101** - INSTALLATION OF WORK SUPPORTS ON TAPERED EXTENSION SECTION OR BRIDGE SECTION, ON PAGE 107

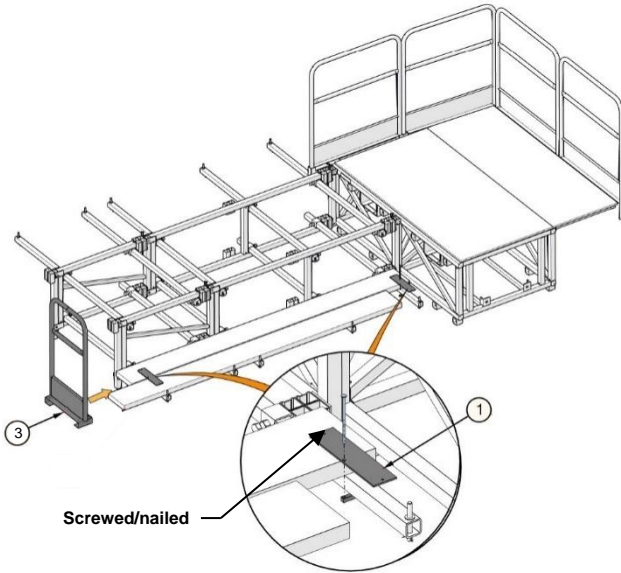


| No. | Item     | Description                              | No. | Item                  | Description  |
|-----|----------|--|-----|-----------------------|--|
| 01  | 20490184 | Guard-rail sockets with 3/4" hole        | 05  | 25490055 and GOU-5020 | Pin dia. 3/4" x 4-3/16" and 1/8" x 4-1/4" safety pin |
| 02  | 20491893 | Reinforced working support 2'-0" x 3'-4" | 06  | 25490055 and GOU-1120 | Pin dia. 3/4" x 4-3/16" and 1/8" x 2" split pin zinc |
| 03  | 20491905 | Reinforced working support 2'-0" x 6'-8" | 07  | 19010089              | 3/16" x 2" x 2" x 6'-6" outrigger + pin 6"           |
| 04  | 20491927 | Truss support bloc                       |     |                       |  |

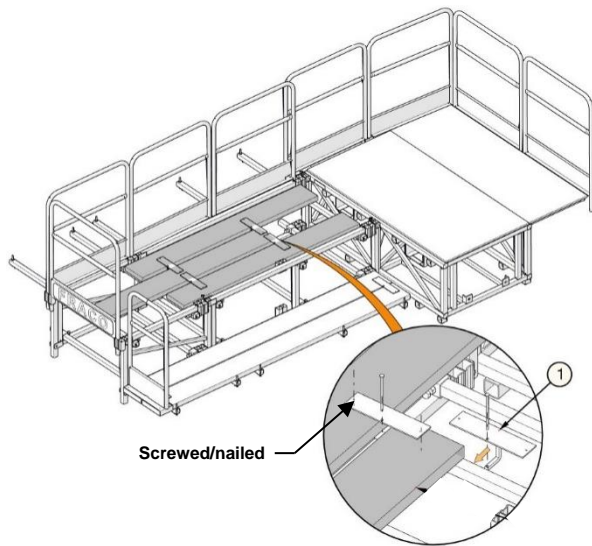
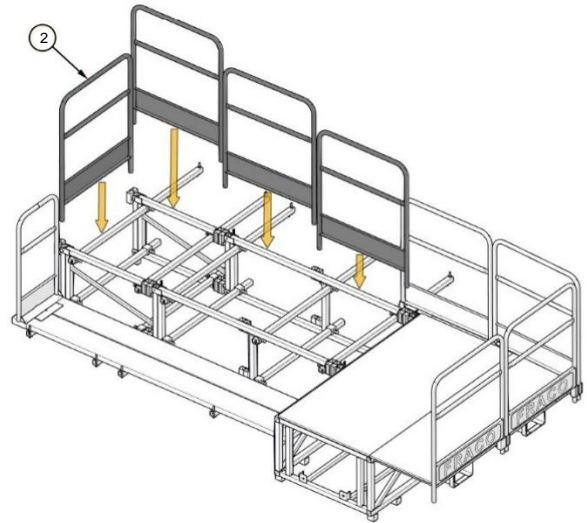
Figure 98 - Corner return, installation

## Reinforced corner return support system with counterweight (CONTINUED)

### Installation guardrail, plankings and finishing

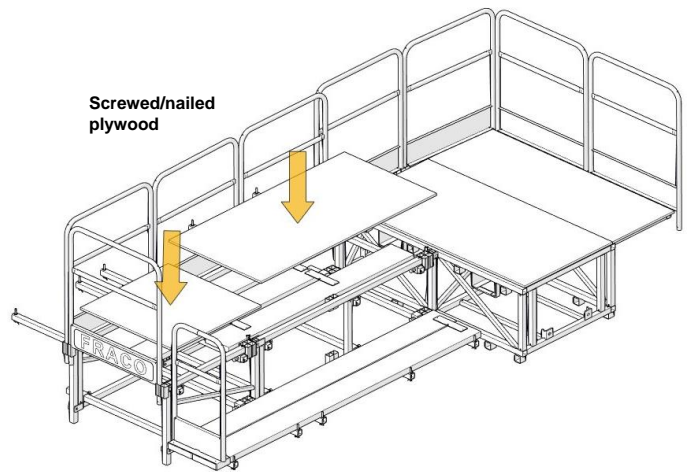


Screwed/nailed



Screwed/nailed

Screwed/nailed  
plywood

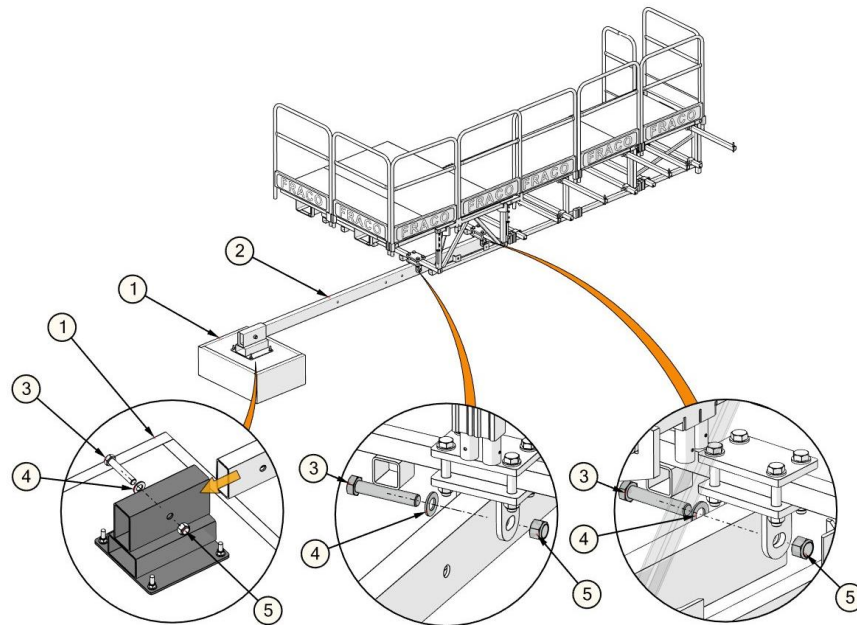
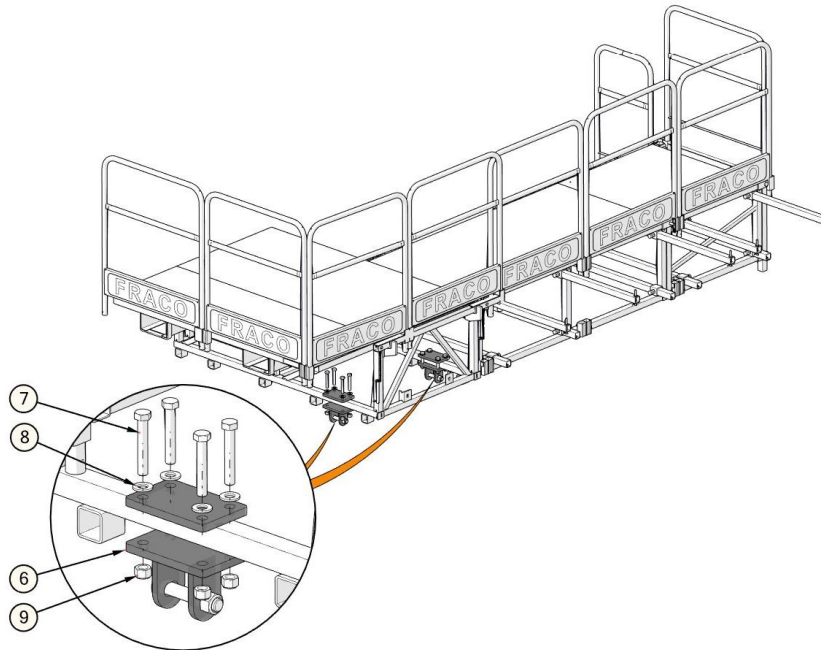


| No. | Item     | Description              | No. | Item     | Description                      |
|-----|----------|--------------------------|-----|----------|----------------------------------|
| 01  | 20490050 | Plank tie 3" x 12"       | 03  | 17490045 | Plank-end guard-rail 21" x 3'-6" |
| 02  | 17490023 | Guard-rail 3'-4" x 4'-2" |     |          |                                  |

Figure 99 - Corner return, installation

## Reinforced corner return support system with counterweight (CONTINUED)

### Installation of counterweight

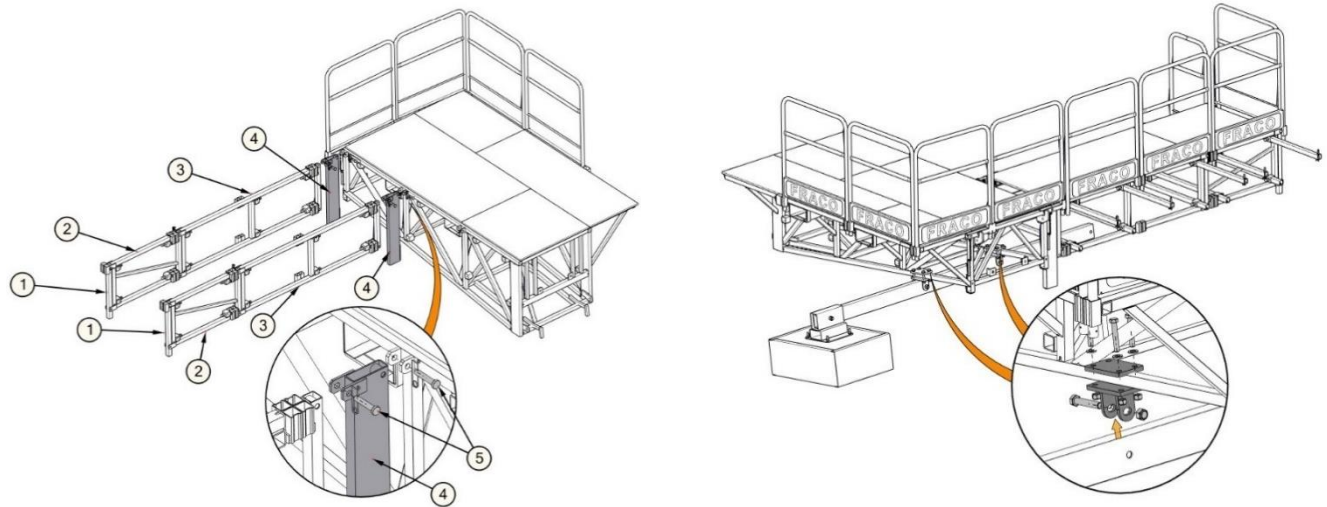
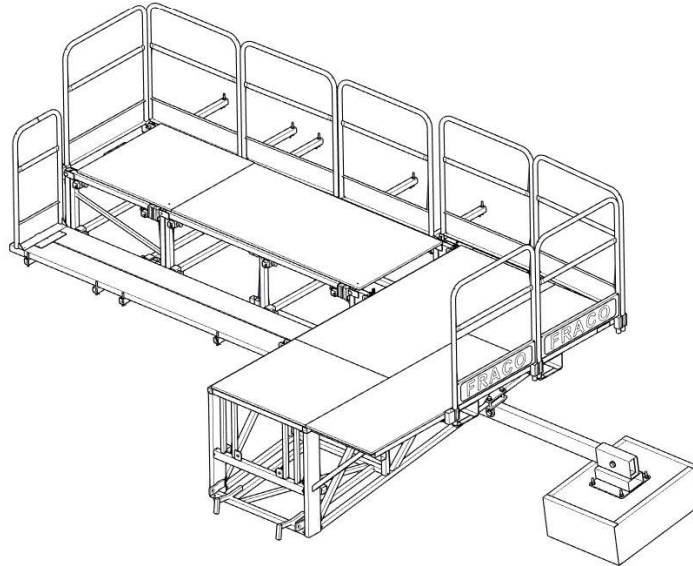


| No. | Item     | Description                              | No. | Item     | Description                        |
|-----|----------|--|-----|----------|------------------------------------|
| 01  | 20491815 | Counter-weight 1 650 lbs 15" x 30" x 40" | 06  | 20491871 | Counterweight support tie          |
| 02  | 20491882 | Counterweigh connection tube 12'-6"      | 07  | BOZ-7245 | Bolt 3/4"-10unc x 4-1/2" gr5 zinc  |
| 03  | BOZ-7262 | Bolt 1"-8unc x 5-1/2" gr5 zinc           | 08  | WAZ-7051 | Washer 3/4" SAE zinc               |
| 04  | WAZ-7071 | Washer 1" SAE zinc                       | 09  | NYL-2050 | Nylon lock nut 3/4"-10unc gr5 zinc |
| 05  | NYL-2060 | Nylon lock nut 1"-8unc gr5 zinc          |     |          |                                    |

Figure 100 - Corner return, installation of the counterweight

## Reinforced corner return support system with counterweight (CONTINUED)

**Installation of work supports on a bridge section or tapered extension section**  
 The example shows an installation on a tapered extension section.



| No. | Item     | Description                              | No. | Item                  | Description   |
|-----|----------|--|-----|-----------------------|---|
| 01  | 20490184 | Guardrail pockets with 3/4" hole         | 04  | 20491916              | Bridge Truss tie  |
| 02  | 20491893 | Reinforced working support 2'-0" x 3'-4" | 05  | 25490055 and GOU-5020 | Lock pin dia. 3/4" x 4-3/16" and Safety pin 1/8" x 4-1/4" |
| 03  | 20491905 | Reinforced working support 2'-0" x 6'-8" |     |                       |   |

**Figure 101 - Installation of work supports on tapered extension section or bridge section**



## Reinforced corner return support system with counterweight (CONTINUED)

- Reinforced work support 2'-0" (610 mm) x 3'-4" (1,0 m) (20491893)
- Reinforced work support 2'-0" (610 mm) x 6'-8" (2,0 m) (20491905)

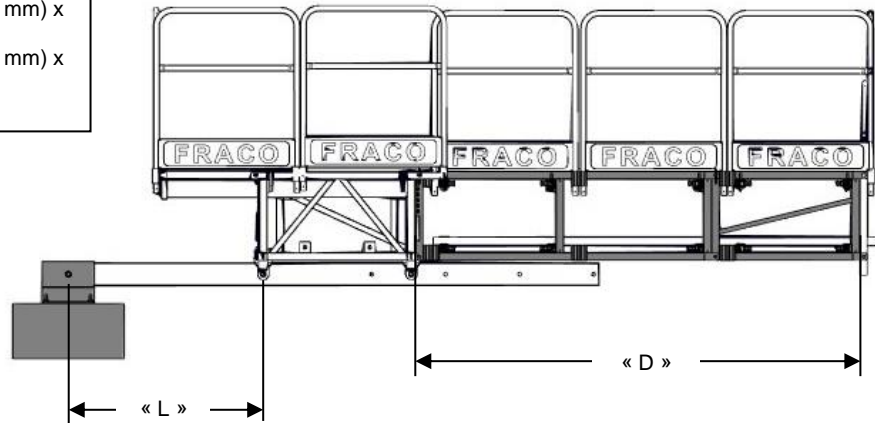


Figure 102 - Installation distance of counterweight for work support in corner return

| Length « D » of the combined work supports | Combination of work support sections (truss outriggers)                             | Distance « L » for installation of counterweights |
|--|---|---|
| 10'-0" (3,0 m)                             | [6'-8" (2,0 m) + [3'-4" (1,0 m)   | 50" (1,3 m)                                       |
| 13'-4" (4,0 m)                             | [6'-8" (2,0 m) + [3'-4" (1,0 m) + [3'-4" (1,0 m) or [6'-8" (2,0 m) + [6'-8" (2,0 m) | 80" (2,0 m)                                       |
| 16'-8" (5,1 m)                             | [6'-8" (2,0 m) + [3'-4" (1,0 m) + [6'-8" (2,0 m)                                    | 100" (2,6 m)                                      |

**Important!** For the platform configurations admissible for the use of the reinforced work support system, consult the FRACO Engineering Department.

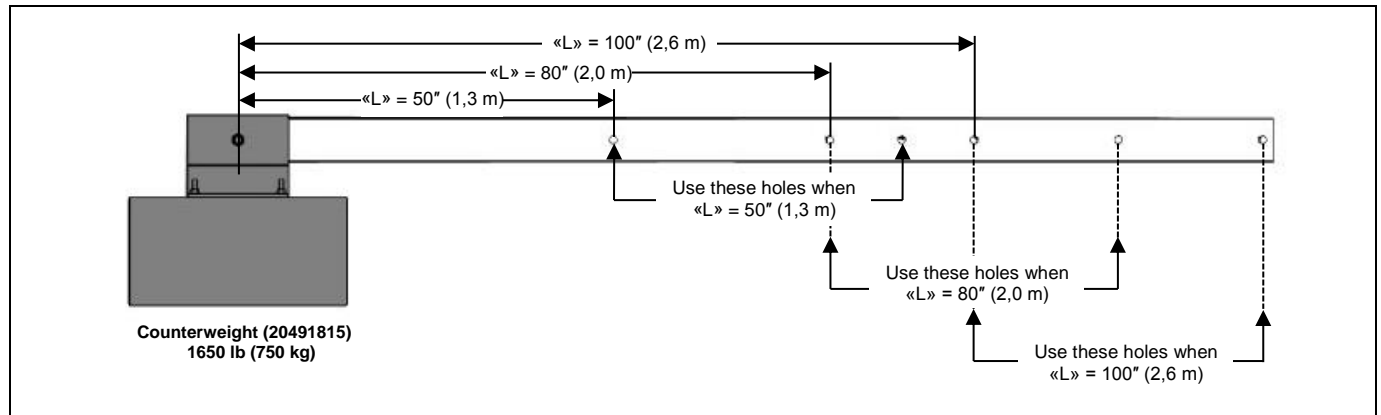


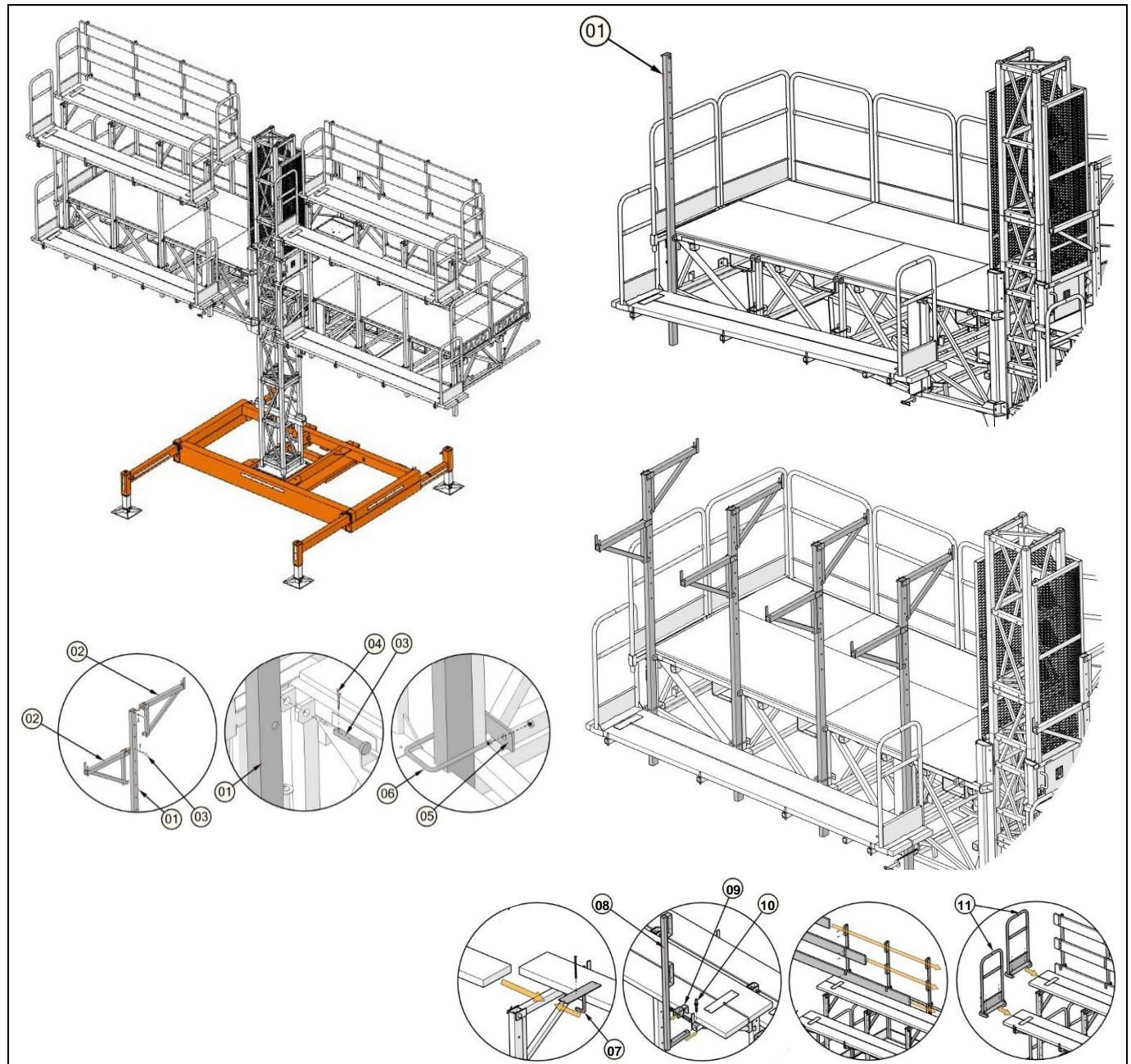
Figure 103 - Installation of counterweight outrigger

## Indoor work system

**Important!** This system can only be used with certain configurations. Consult the FRACO Engineering Department for the required configurations.

**Important!** It is **forbidden** to use an indoor working system on a freestanding base without a wall attach system.

**Important!** It is **forbidden** to pass the last mast anchor if you use an indoor working system.



| No. | Item     | Description                              | No. | Item     | Description                        |
|-----|----------|--|-----|----------|------------------------------------|
| 01  | 20490421 | Multifunctional Tube 2" x 3" x 11'-6"    | 07  | 20490050 | Plank tie 3" x 12"                 |
| 02  | 20490386 | Interior work support Bracket            | 08  | 17490067 | L outrigger guard-rail 4'-3"       |
| 03  | 25490055 | Pin dia. 3/4" x 4-3/16"                  | 09  | 20491646 | « L » guard-rail sliding tie       |
| 04  | GOU-1120 | Split Pin 1/8" x 2" zinc                 | 10  | 25490066 | Pin with washer dia. 1/2" x 4-3/4" |
| 05  | 20490173 | Forge steel 1/4" x 2" x 6"               | 11  | 17490045 | Plank-end guard-rail 21" x 3'-6"   |
| 06  | 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2" |     |          |                                    |

Figure 104 - Installation of indoor working system



## Rigid roof system

**Important!** This system can only be used with certain configurations. Consult the FRACO engineering department for the required configurations.

**Important!** It is **forbidden** to use a rigid roof system on a freestanding base without a wall attach system.

**Important!** It is **forbidden** to pass the last mast anchor if you use a rigid roof system

Inclination of the roof may be adjusted as needed. Refer to the positioning of the supports in a horizontal or inclined position.

∞SEE **FIGURE 106** - RIGID ROOF SYSTEM, INSTALLATION OF SUPPORTS, ON PAGE 111

It is strongly recommended to use a FIRE DELAYING bulkhead in compliance with the local applicable standards.

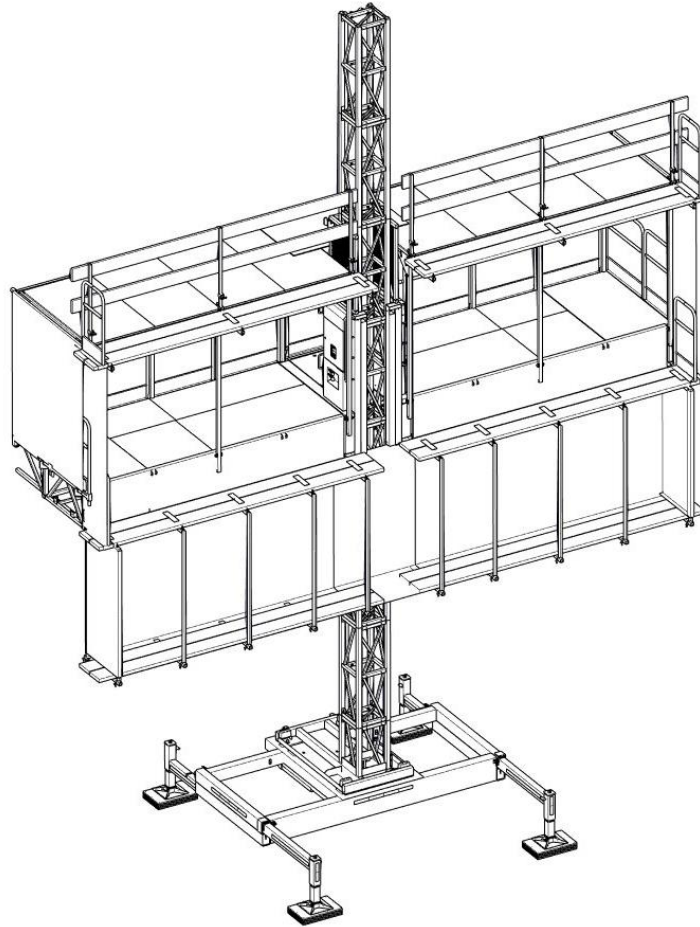
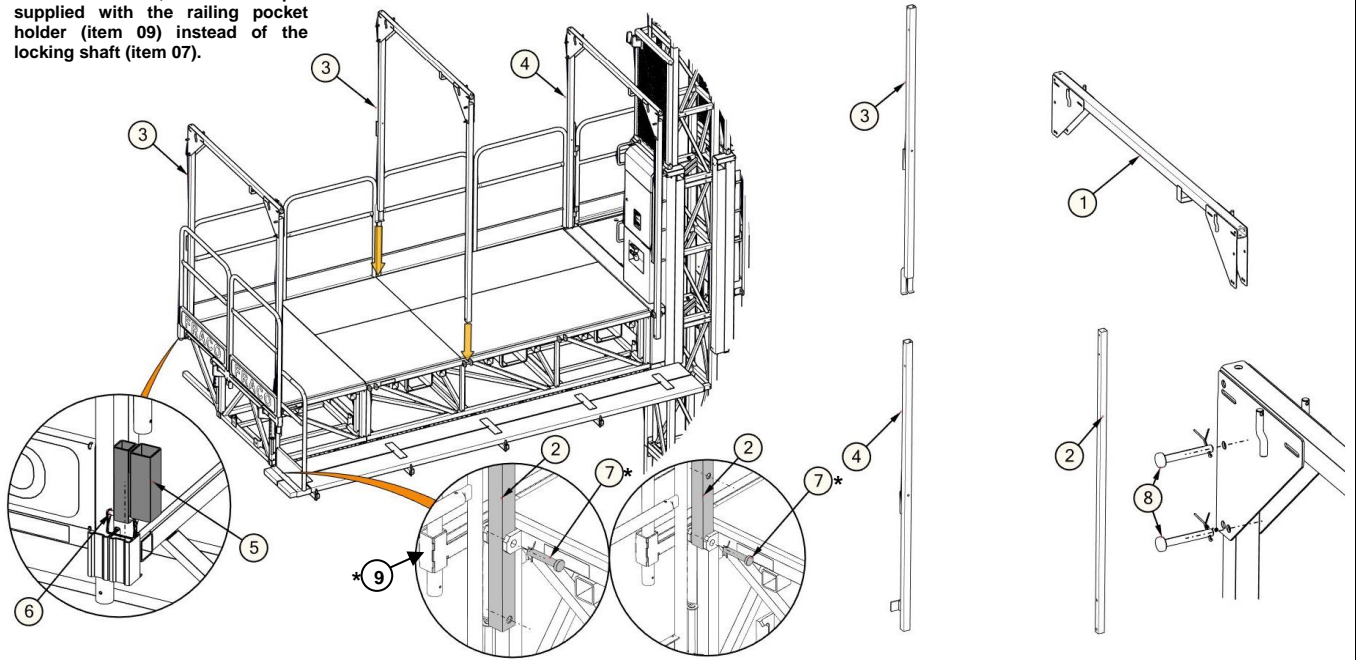


Figure 105 - Rigid roof system

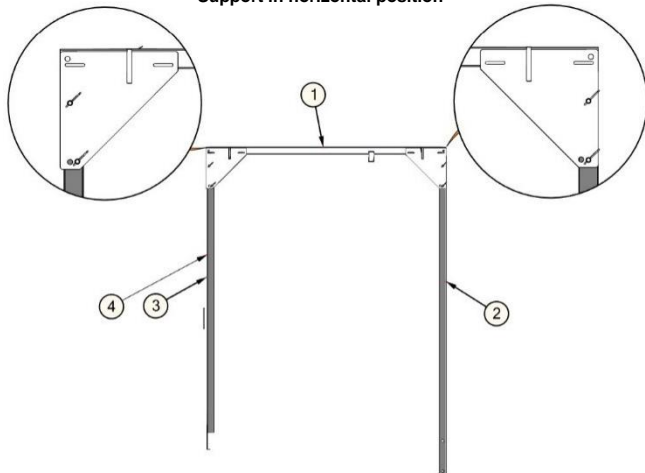
## Rigid roof system (CONTINUED)

### Installation of the rigid roof structure

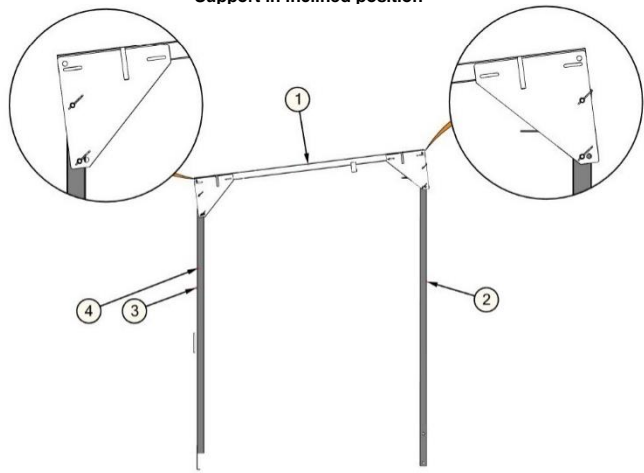
\* **Note:** At the edge of the extension section, use the chain pin supplied with the railing pocket holder (item 09) instead of the locking shaft (item 07).



#### Support in horizontal position



#### Support in inclined position

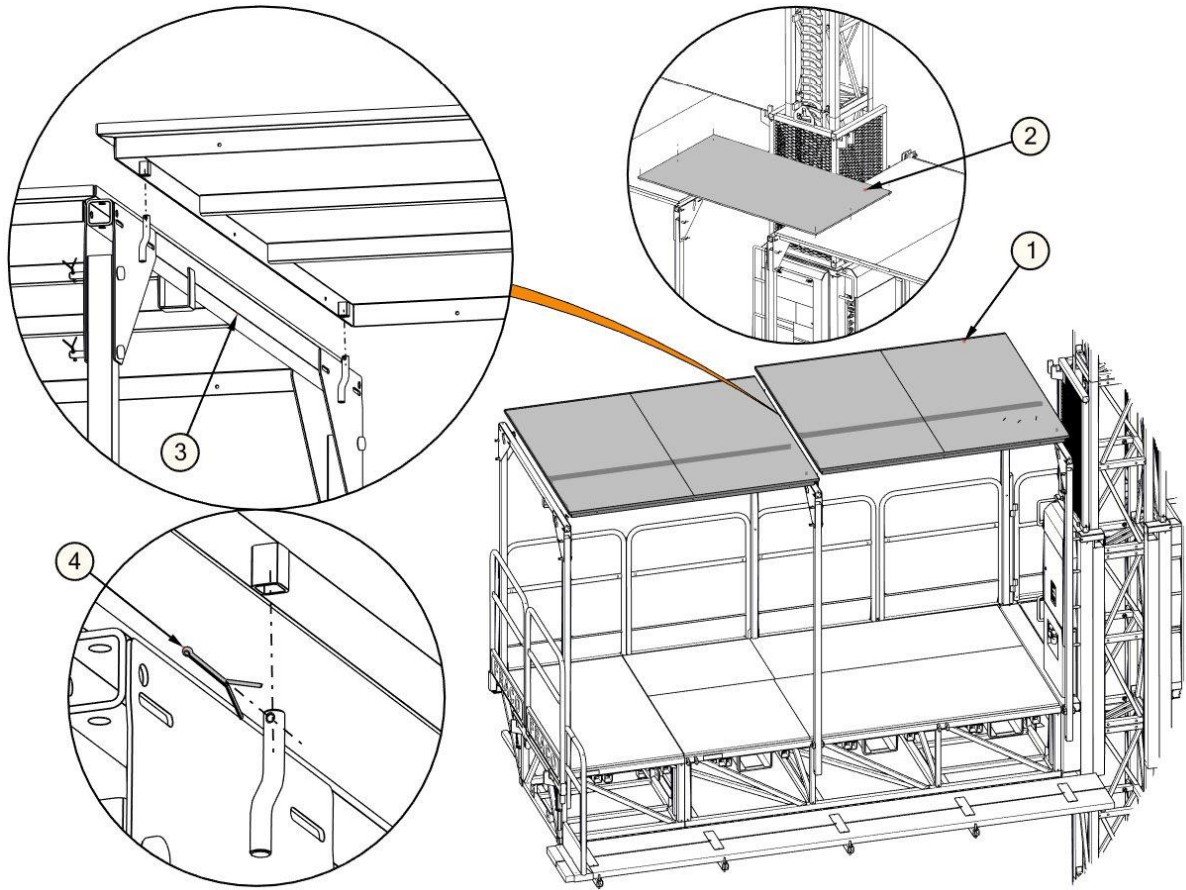


| No. | Item     | Description                         | No. | Item                  | Description  |
|-----|----------|-------------------------------------|-----|-----------------------|--|
| 01  | 26010223 | Cross support for rigid roof        | 06  | GOU-5040              | Locking pin 3/8" x 2-1/2" x 1-1/2"                   |
| 02  | 26010188 | Rigid front roof support            | 07* | 25490055 and GOU-1120 | Pin dia. 3/4" x 4-3/16" and 1/8" x 2" split pin zinc |
| 03  | 26010234 | Back support for rigid roof         | 08  | 25490022 and GOU-1120 | Pin dia. 1/2" x 4-1/8" and Split Pin 1/8" x 2" zinc  |
| 04  | 26010245 | ACT-8's back support for rigid roof | 09* | 20490195              | Guard-rail sockets for 3'-6" extension               |
| 05  | 26010199 | Guard-rail adaptor                  |     |                       |  |

Figure 106 - Rigid roof system, installation of supports

## Rigid roof system (CONTINUED)

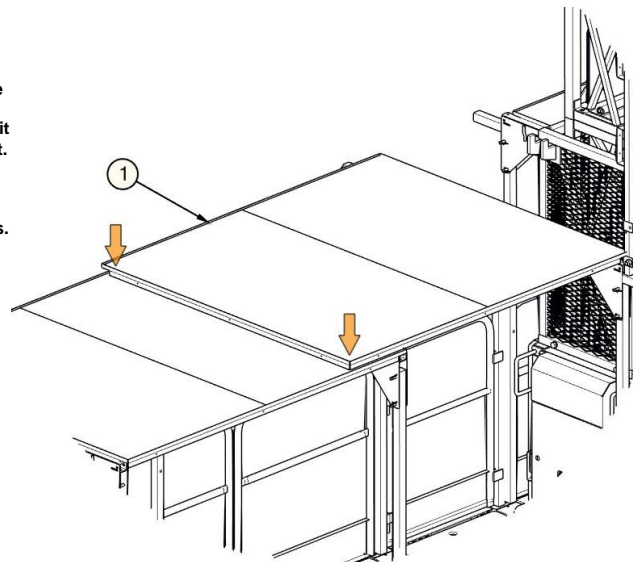
### Installation of plywood supports



### Installation of plywood supports on a bridge section

When installing over a bridge section, simply install the plywood support near the unit over the neighboring support.

This type of installation is necessary to follow the pivot movement of the bridge arms.



| No. | Item     | Description                         | No. | Item     | Description                  |
|-----|----------|-------------------------------------|-----|----------|------------------------------|
| 01  | 26010212 | Flooring support 6'-8" x 5'-11"     | 03  | 26010223 | Cross support for rigid roof |
| 02  | 16030077 | Flooring (1/2" x 39-3/4" x 70-5/8") | 04  | GOU-1120 | Split Pin 1/8" x 2" zinc     |

Figure 107 - Rigid roof system, installation of plywood supports

## Rigid roof system (CONTINUED)

### Installation of canvas partitioning

**Important!** Canvases not included, suggested presentation. The canvases must be supplied by the contractor.

Slide the canvas segments under the planking of the work areas.

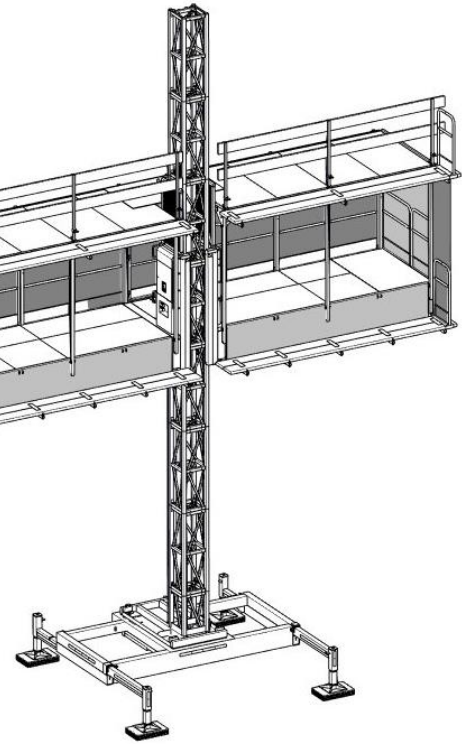
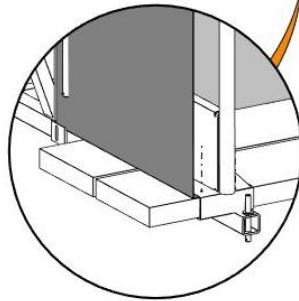
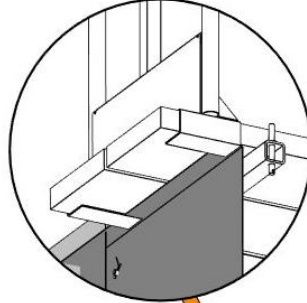
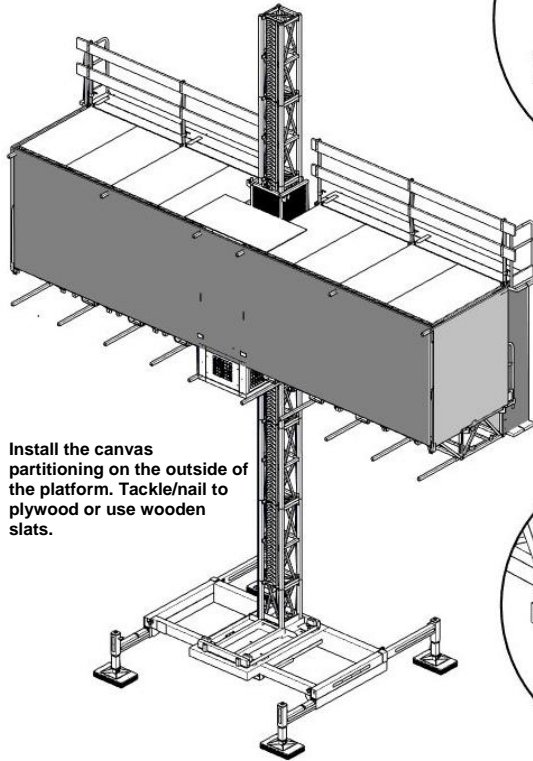
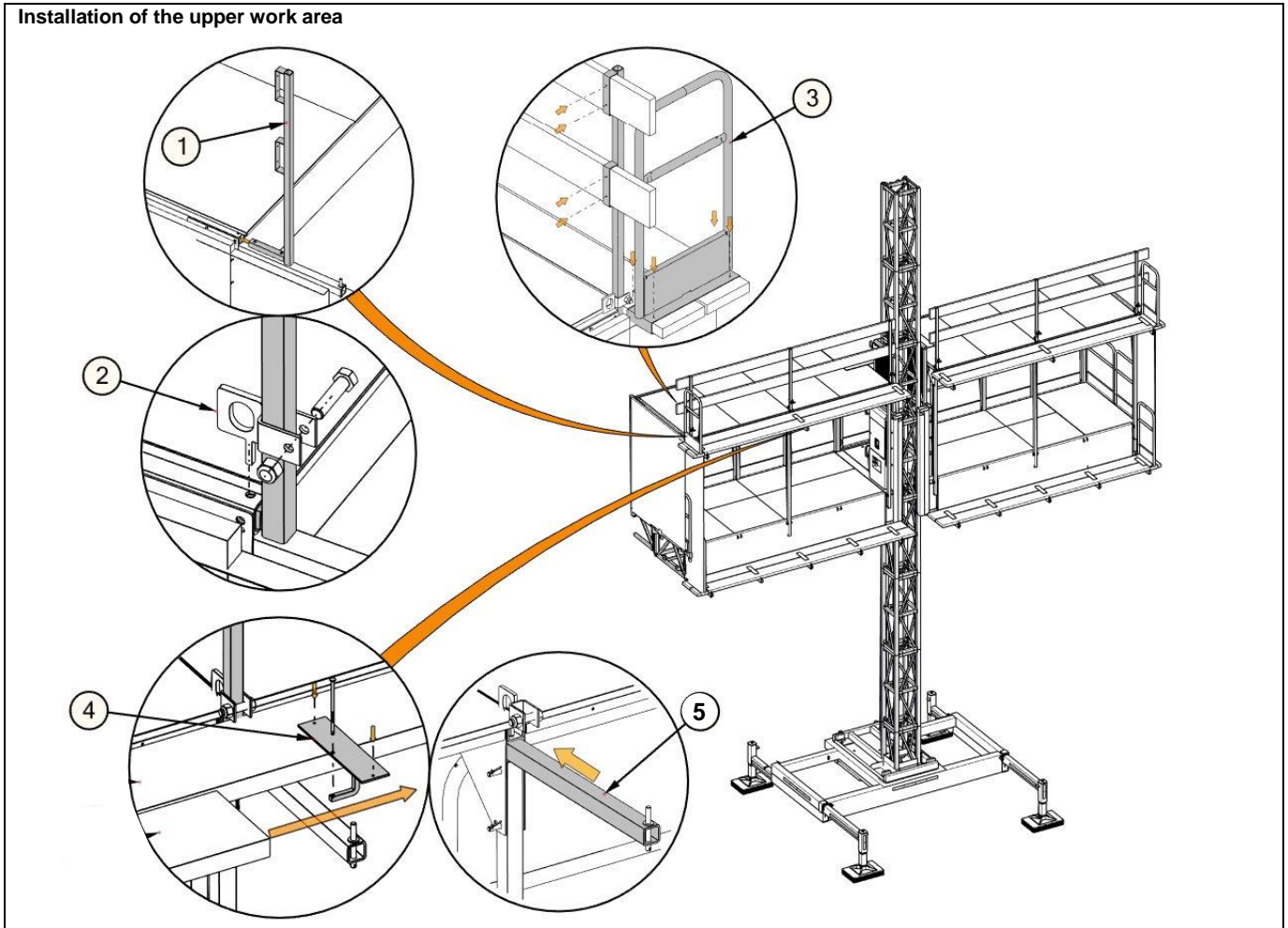


Figure 108 - Rigid roof system, installation of canvas partitions



## Rigid roof system (CONTINUED)

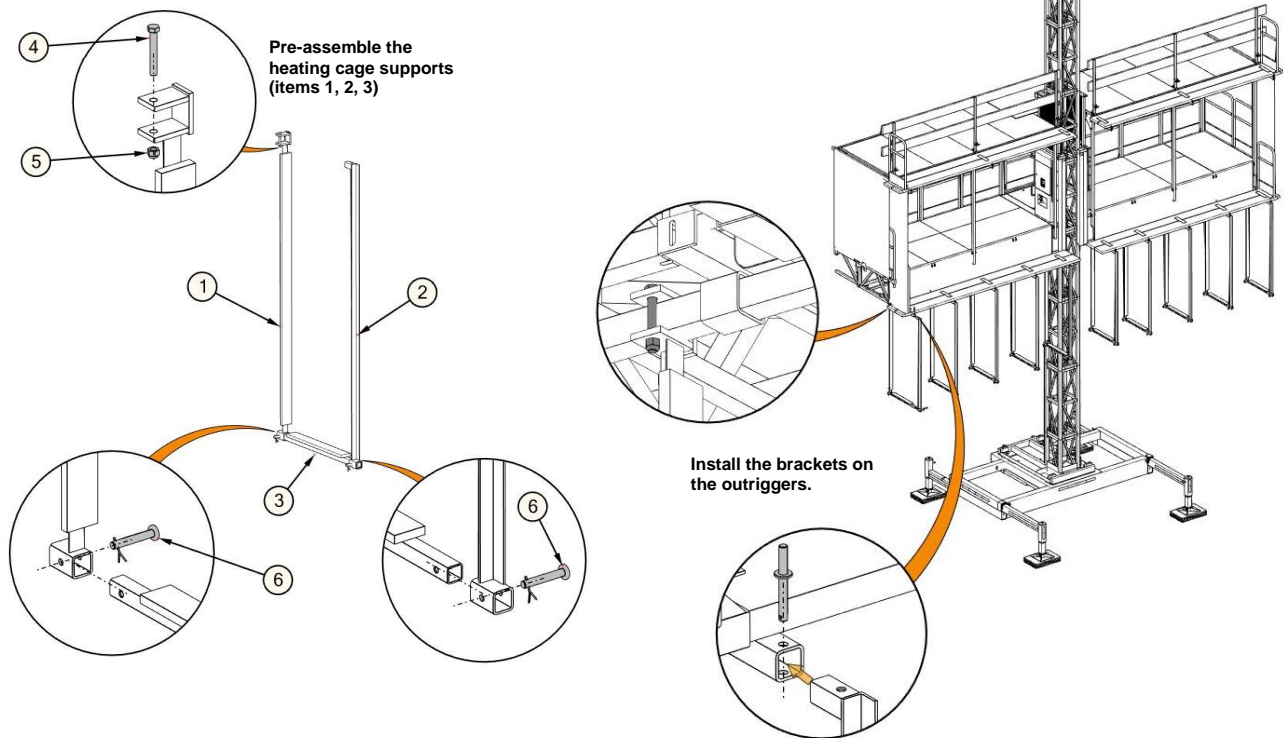


| No. | Item     | Description                            | No. | Item     | Description                       |
|-----|----------|--|-----|----------|-----------------------------------|
| 01  | 17490067 | L outrigger guard-rail 4'-3"           | 04  | 20490050 | Plank tie 3" x 12"                |
| 02  | 20490780 | Tie for L outrigger guard-rail on roof | 05  | 19010034 | Outrigger 3/16" x 2" x 2" x 8'-8" |
| 03  | 17490045 | Plank-end guard-rail 21" x 3'-6"       |     |          |                                   |

Figure 109 - Rigid roof system, upper work area

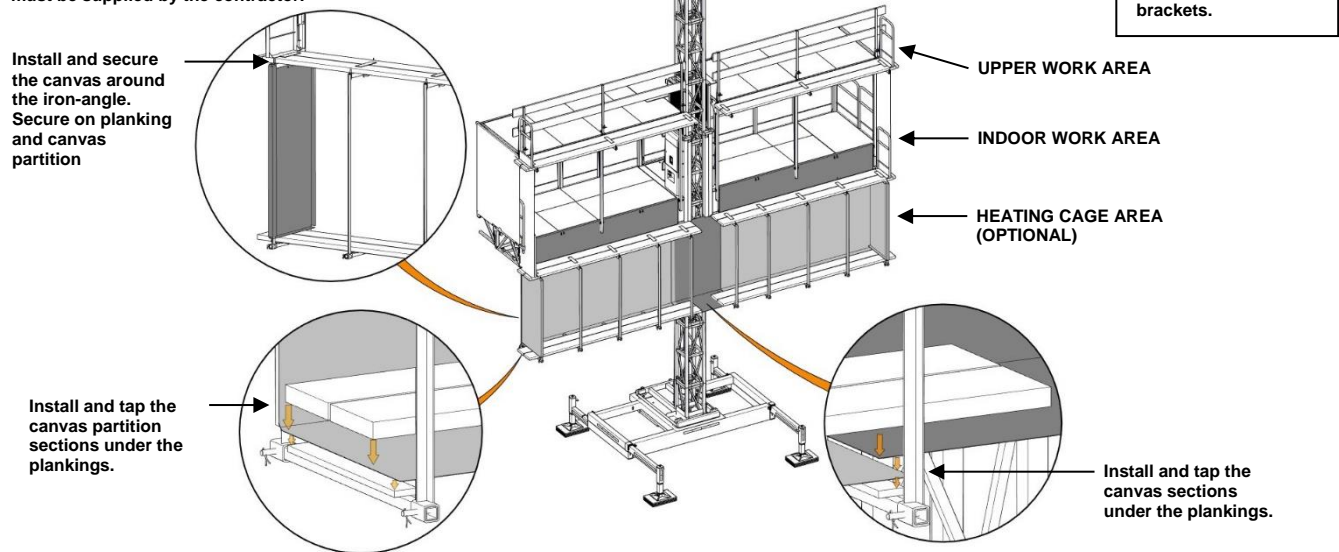
## Rigid roof system (CONTINUED)

### Installation of heating cage supports



### Installation of canvas, plankings and finishing

**Important!** Canvases not included, suggested presentation. The canvases must be supplied by the contractor.



| No. | Item     | Description                           | No. | Item                  | Description  |
|-----|----------|---------------------------------------|-----|-----------------------|--|
| 01  | 26010021 | Heating cage tube with plywood 6'-10" | 04  | BOZ-7185              | Bolt 1/2"-13unc x 3-1/2" gr5 zinc                    |
| 02  | 26010032 | Heating cage tube with tube 6'-9"     | 05  | NYL-2030              | Nylon lock nut 1/2"-13unc gr5 zinc                   |
| 03  | 26010043 | Heating cage tube with plywood 3'-0"  | 06  | 25490044 and GOU-1120 | Pin dia. 5/8" x 4-3/16" and Split Pin 1/8" x 2" zinc |

Figure 110 - Rigid roof system, heating cage



## Winter shelter system

**Important!** This system can only be used with certain configurations. Consult the FRACO engineering department for the required configurations.

**Important!** It is **forbidden** to use a winter shelter system on a freestanding base without a wall attach system.

**Important!** It is **forbidden** to pass the last mast anchor if you use a winter shelter system.

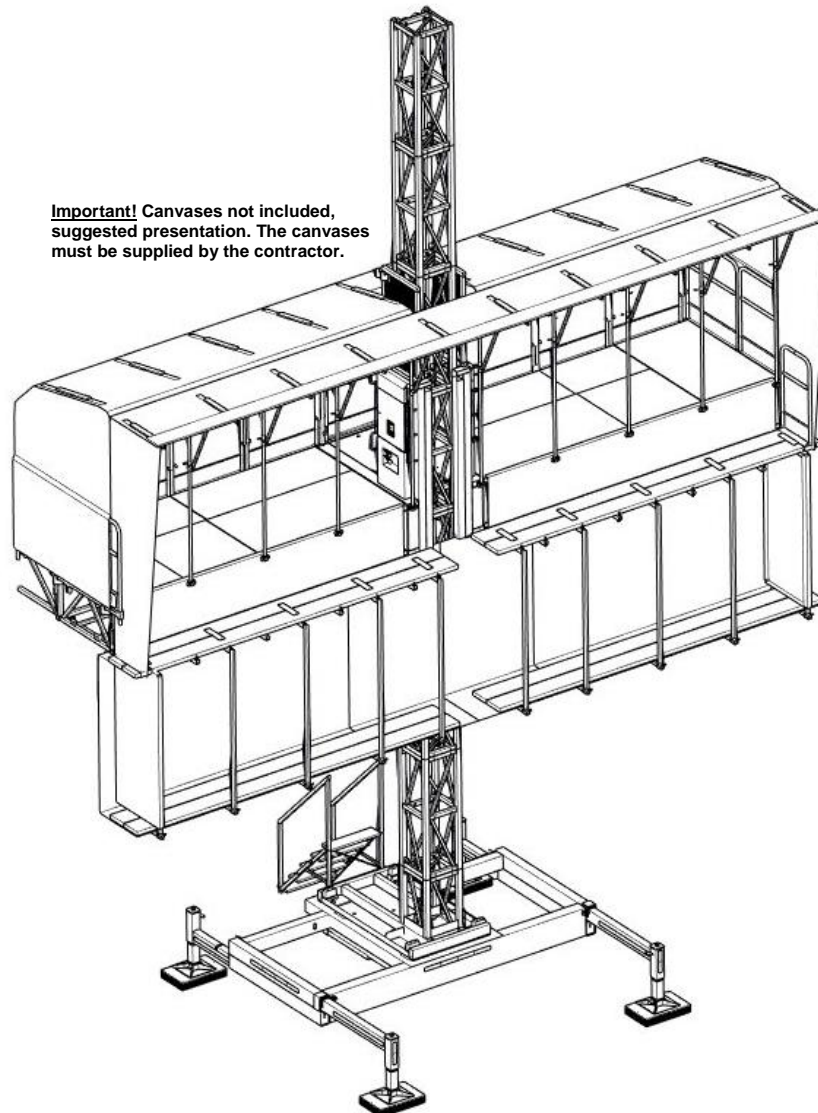
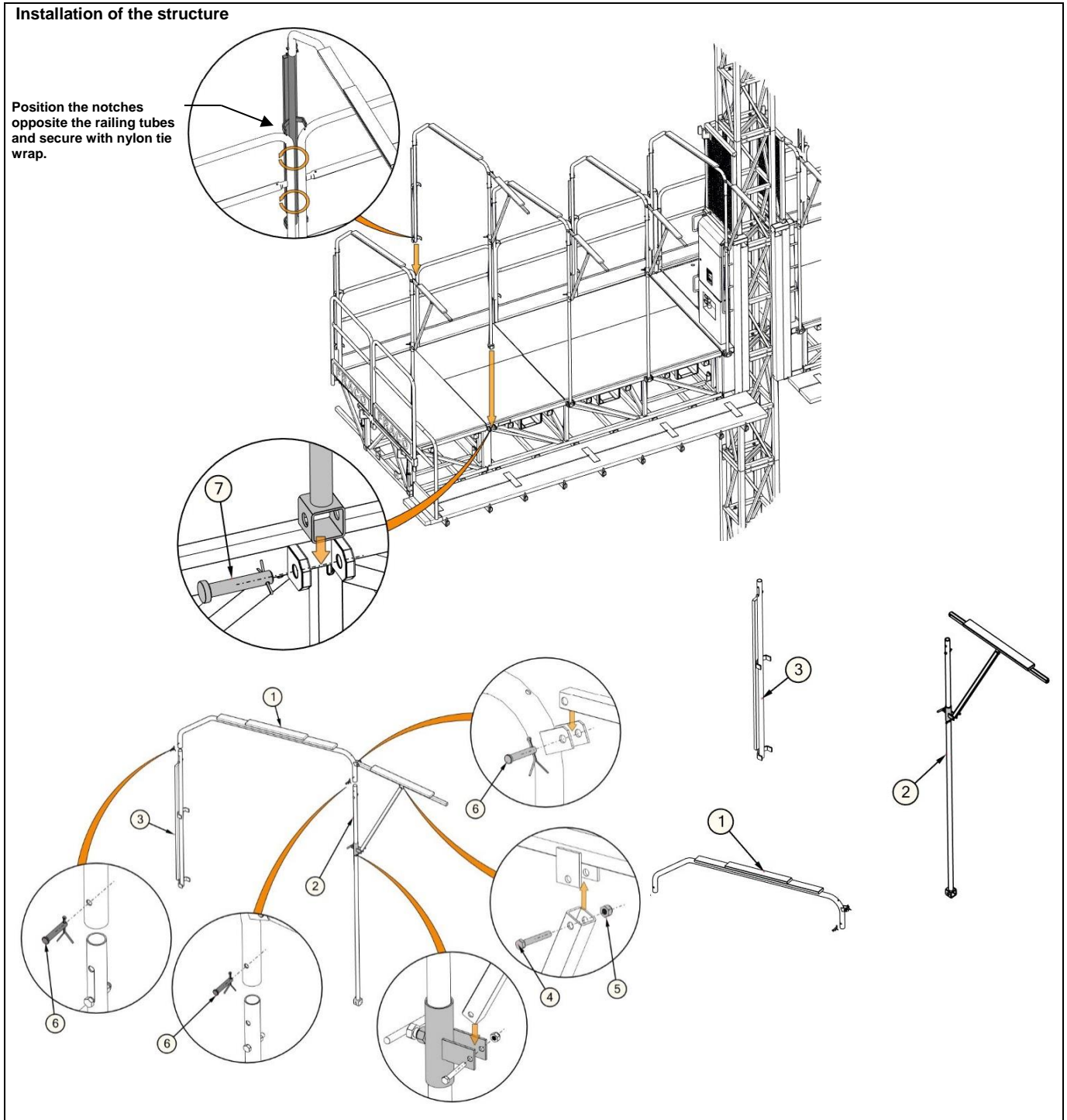


Figure 111 - Winter shelter system

## Winter shelter system (CONTINUED)

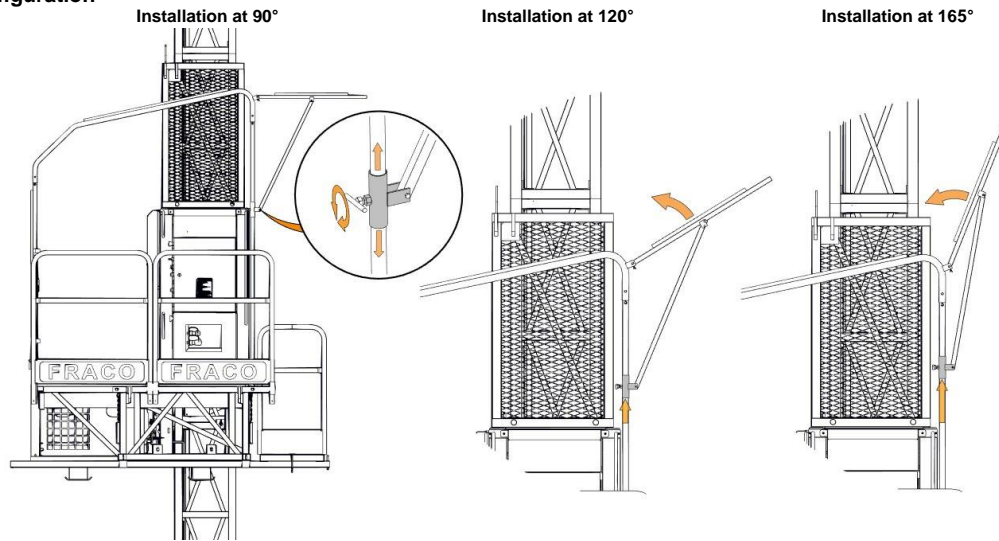


| No. | Item     | Description                        | No. | Item     | Description                        |
|-----|----------|------------------------------------|-----|----------|------------------------------------|
| 01  | 26010100 | « U » Enclosure tube 5'-11"        | 05  | NYL-2010 | Nylon lock nut 1/4"-20unc gr5 zinc |
| 02  | 26010098 | Enclosure tube with 2 holes        | 06  | FOD-5058 | Screed axle 3/8" x 1-7/8"          |
|     | 26010076 | Enclosure tube with 2 plates       |     |          |                                    |
|     | 26010087 | Enclosure tube 40"                 |     |          |                                    |
|     | 28491284 | Winter shelter support ring        |     |          |                                    |
| 03  | 26010065 | Enclosure tube with 2 plates 4'-9" | 07  | 25490055 | Pin dia. 3/4" x 4-3/16"            |
| 04  | BOZ-7030 | Bolt 1/4"-20unc x 1-3/4" gr5 zinc  |     |          |                                    |

Figure 112 - Winter shelter system, installation of supports

## Winter shelter system (CONTINUED)

### Supports configuration

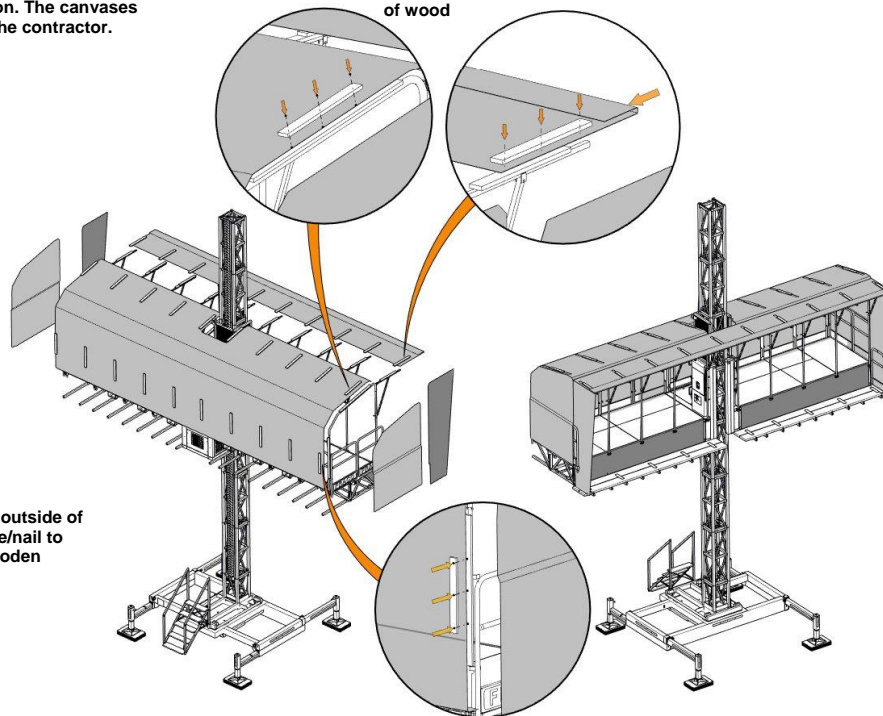


### Installation of canvas partitioning

**Important!** Canvases not included, suggested presentation. The canvases must be supplied by the contractor.

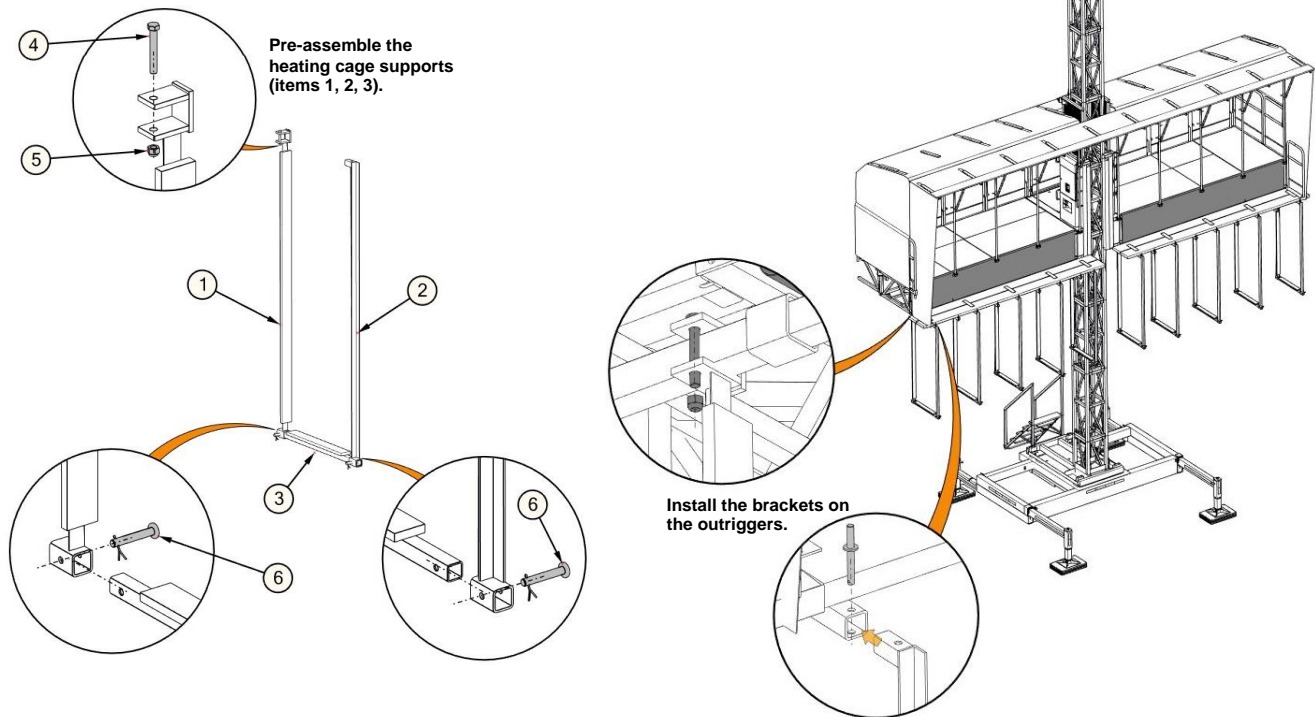
Install and screw the canvas sections between two pieces of wood

Install the canvas partitioning on the outside of the platform. Tackle/nail to plywood or use wooden slats.

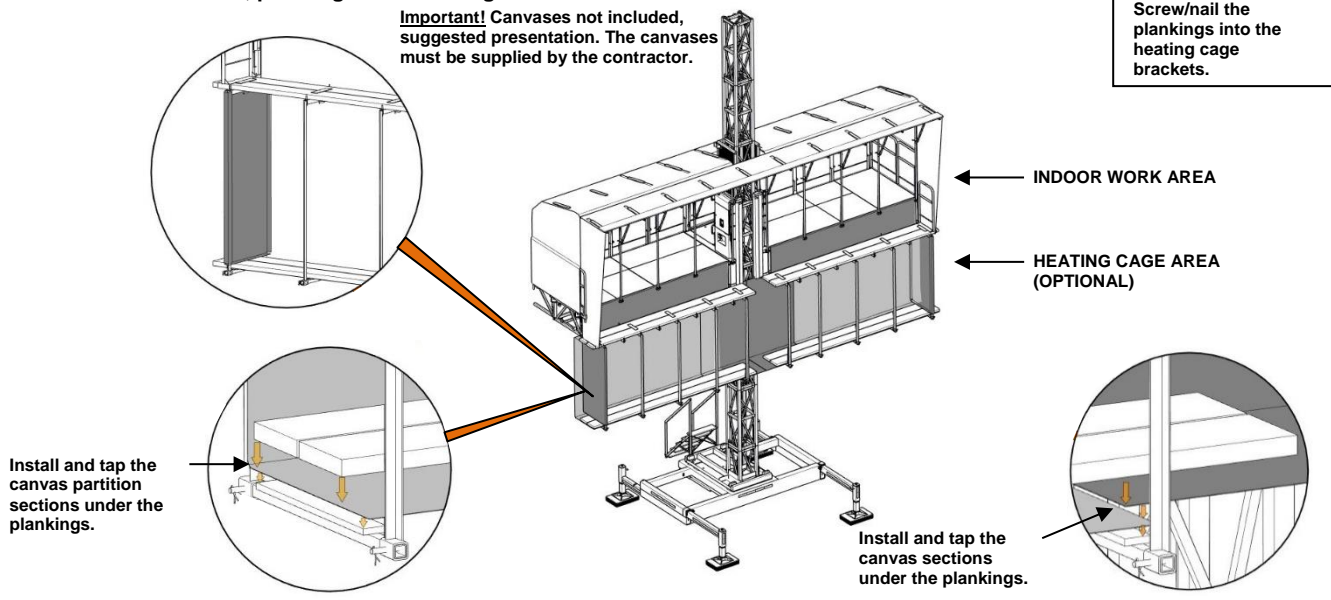


## Winter shelter system (CONTINUED)

### Installation of heating cage supports



### Installation of canvases, plankings and finishing



| No. | Item     | Description                           | No. | Item                  | Description  |
|-----|----------|---------------------------------------|-----|-----------------------|--|
| 01  | 26010021 | Heating cage tube with plywood 6'-10" | 04  | BOZ-7185              | Bolt 1/2"-13unc x 3-1/2" gr5 zinc                    |
| 02  | 26010032 | Heating cage tube with tube 6'-9"     | 05  | NYL-2030              | Nylon lock nut 1/2"-13unc gr5 zinc                   |
| 03  | 26010043 | Heating cage tube with plywood 3'-0"  | 06  | 25490044 and GOU-1120 | Pin dia. 5/8" x 4-3/16" and Split Pin 1/8" x 2" zinc |

Figure 113 - Winter shelter, heating cage

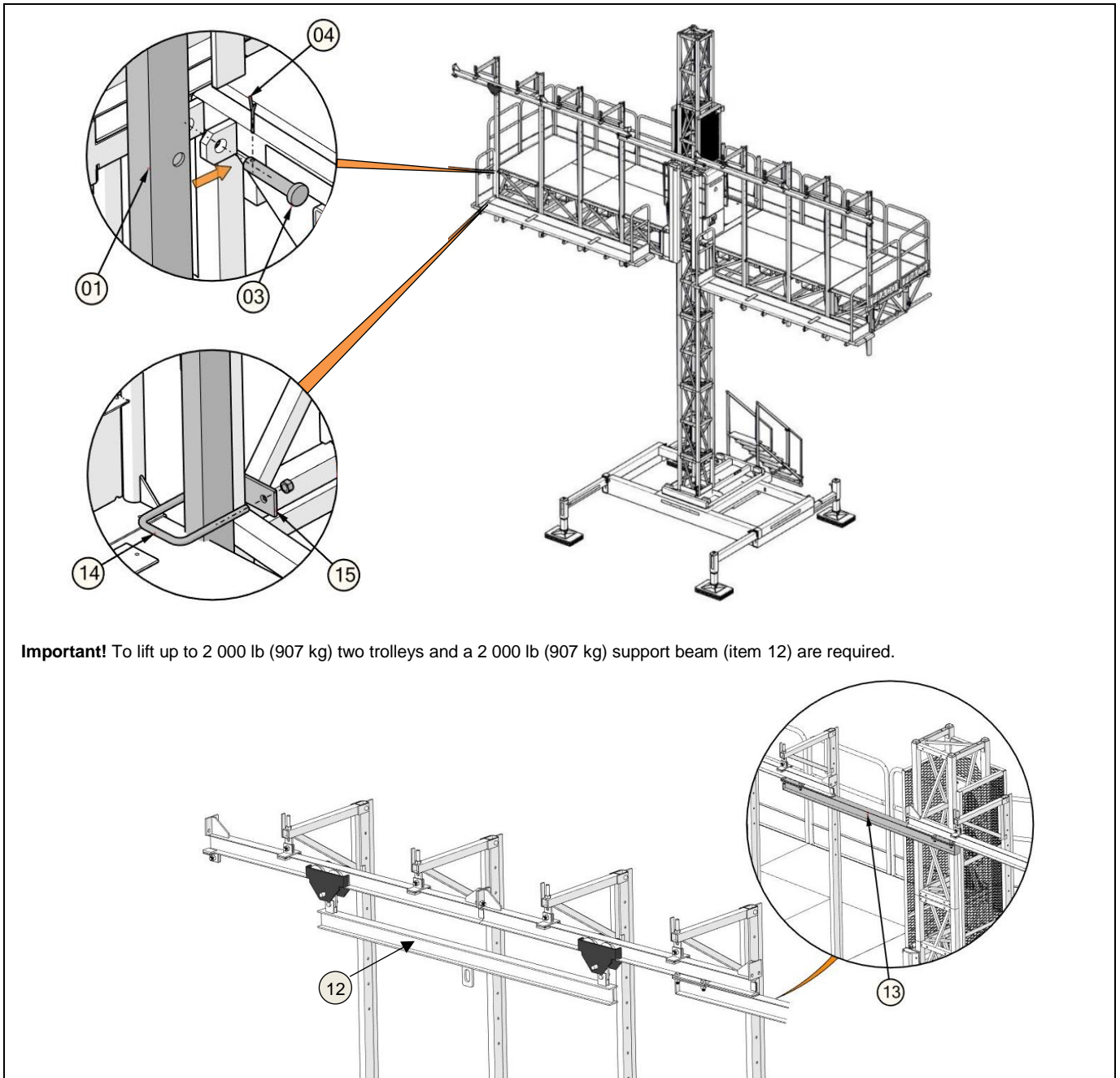


## Monorail on platform

**Important!** This system can only be used with certain configurations. Consult the FRACO engineering department for the required configurations.

**Important!** It is **forbidden** to use a monorail system on a freestanding base without a wall attach system.

**Important!** It is **forbidden** to pass the last mast anchor if you use a monorail system.

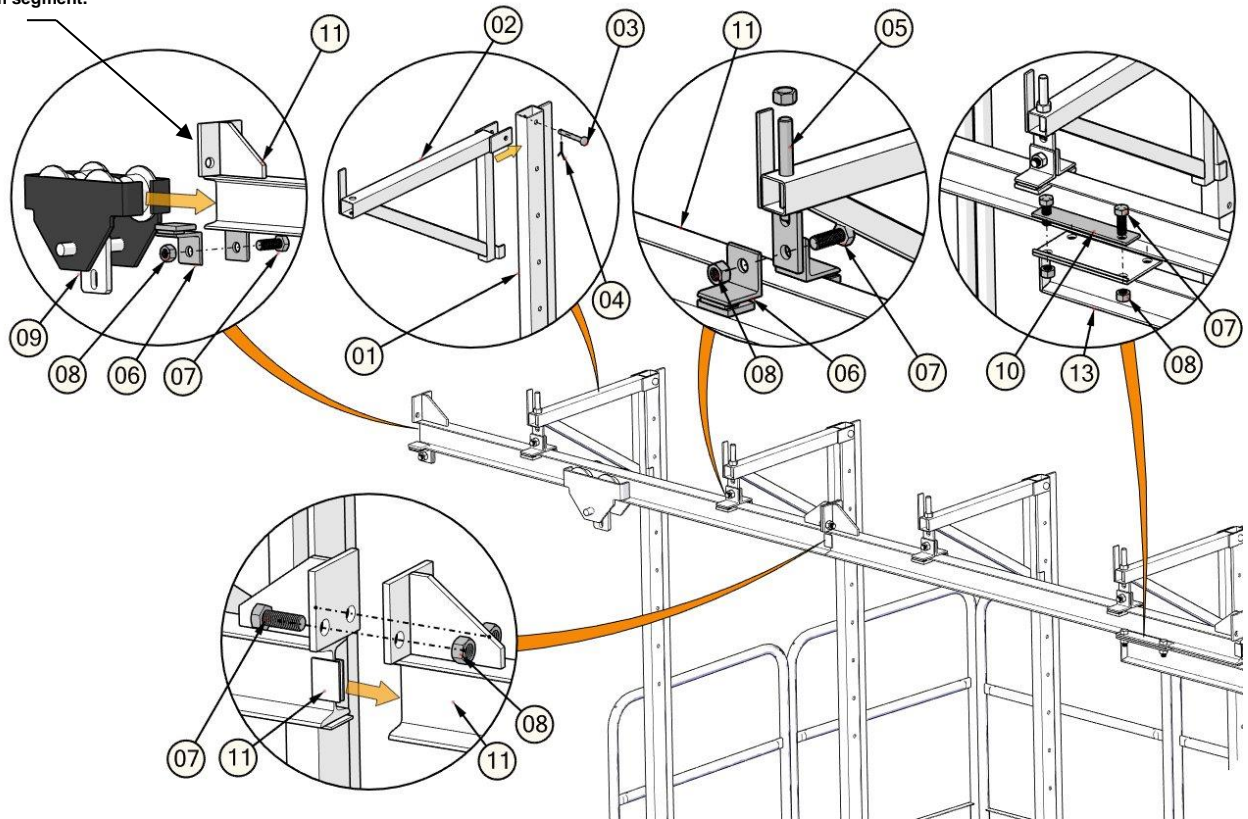


**Important!** To lift up to 2 000 lb (907 kg) two trolleys and a 2 000 lb (907 kg) support beam (item 12) are required.

Figure 114 - Monorail on platform



Note: After the trolley is installed, bolt the clamps (item 06) to secure the beam segment.



| No. | Item     | Description                           | No. | Item     | Description                                   |
|-----|----------|---------------------------------------|-----|----------|---|
| 01  | 20490421 | Multifunctional Tube 2" x 3" x 11'-6" | 09  | FOD-1098 | Trolley 1/2 NPT for « I » beam 4" x 7,7 lb-ft |
| 02  | 20490386 | Interior work support Bracket         | 10  | 20490814 | Tightening plate for junction planking        |
| 03  | 25490055 | Pin dia. 3/4" x 4-3/16"               | 11  | 20490375 | « I » beam 4" x 7'-0" x 7,7 lbs/pi            |
| 04  | GOU-1120 | Split Pin 1/8" x 2" zinc              | 12  | 20491107 | Support planking for 2 000lbs                 |
| 05  | 20490274 | Threaded planking beam support        | 13  | 20490207 | Junction « I » beam 4" x 7'-0" x 7,7 lbs/pi   |
| 06  | 20490296 | Beam clamp                            | 14  | 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2"      |
| 07  | BOZ-7225 | Bolt 3/4"-10unc x 2" gr5 zinc         | 15  | 20490173 | Forge steel 1/4" x 2" x 6"                    |
| 08  | ECZ-7080 | Nut 3/4"-10unc gr5 zinc               |     |          |   |

Figure 115 - Monorail installation

## Monorail components 500 lb (227 kg) - Extension

| Item     | Description                                 | Extension length |                |                 |                 |                 |                 | Unit |
|----------|---|------------------|----------------|-----------------|-----------------|-----------------|-----------------|------|
|          |   | 3'-4"<br>(1 m)   | 6'-8"<br>(2 m) | 10'-0"<br>(3 m) | 13'-4"<br>(4 m) | 16'-8"<br>(5 m) | 20'-0"<br>(6 m) |      |
| 20490173 | Forge steel 1/4" x 2" x 6"                  | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 20490207 | Junction « I » beam 4" x 7'-0" x 7,7 lbs/pi | -                | -              | -               | -               | -               | -               | 1    |
| 20490218 | « I » beam 4" x 10'-0" x 7,7 lbs/pi         | 0                | 1              | 1               | 1               | 1               | 2               | -    |
| 20490375 | « I » beam 4" x 7'-0" x 7,7 lbs/pi          | 1                | 0              | 0               | 1               | 1               | 0               | -    |
| 20490274 | Threaded beam clamp support                 | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 20490296 | Beam clamp                                  | 3                | 3              | 3               | 4               | 4               | 4               | -    |
| 20490386 | Interior work support Bracket               | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 20490421 | Multifunctional Tube 2" x 3" x 11'-6"       | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 20490814 | Tightening plate for junction beam          | -                | -              | -               | -               | -               | -               | 4    |
| 25490022 | Locking pin dia. 1/2" x 4-1/8"              | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 25490055 | Locking pin dia. 3/4" x 4-3/16"             | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2"    | 2                | 2              | 2               | 3               | 3               | 3               | -    |
| BOA-2025 | Bolt 3/4"-10unc x 2" A325 galv. assembled   | 3                | 3              | 3               | 4               | 4               | 4               | 8    |
| GOU-1120 | Split Pin 1/8" x 2" zinc                    | 4                | 4              | 4               | 6               | 6               | 6               | -    |

## Monorail components 1 000 lb (454 kg) - Extension

| Item     | Description                                 | Extension length |                |                 |                 |                 |                 | Unit |
|----------|---|------------------|----------------|-----------------|-----------------|-----------------|-----------------|------|
|          |   | 3'-4"<br>(1 m)   | 6'-8"<br>(2 m) | 10'-0"<br>(3 m) | 13'-4"<br>(4 m) | 16'-8"<br>(5 m) | 20'-0"<br>(6 m) |      |
| 20490173 | Forge steel 1/4" x 2" x 6"                  | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 20490207 | Junction « I » beam 4" x 7'-0" x 7,7 lbs/pi | -                | -              | -               | -               | -               | -               | 1    |
| 20490218 | « I » beam 4" x 10'-0" x 7,7 lbs/pi         | 0                | 1              | 1               | 1               | 1               | 2               | -    |
| 20490375 | « I » beam 4" x 7'-0" x 7,7 lbs/pi          | 1                | 0              | 0               | 1               | 1               | 0               | -    |
| 20490274 | Threaded planking clamp support             | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 20490296 | Beam clamp                                  | 3                | 3              | 4               | 5               | 6               | 7               | -    |
| 20490386 | Interior work support Bracket               | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 20490421 | Multifunctional Tube 2" x 3" x 11'-6"       | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 20490814 | Tightening plate for junction planking      | -                | -              | -               | -               | -               | -               | 4    |
| 25490022 | Locking pin dia. 1/2" x 4-1/8"              | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 25490055 | Locking pin dia. 3/4" x 4-3/16"             | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2"    | 2                | 2              | 3               | 4               | 5               | 6               | -    |
| BOA-2025 | Bolt 3/4"-10unc x 2" A325 galv. assembled   | 3                | 3              | 4               | 5               | 6               | 7               | 8    |
| GOU-1120 | Split Pin 1/8" x 2" zinc                    | 4                | 4              | 6               | 8               | 10              | 12              | -    |

## Monorail components 500 lb (227 kg) - Bridge

| Item     | Description                                 | Intermediate extension |                   | Bridge length   |                    |                  |                  |                    |                  | Unit |
|----------|---|------------------------|-------------------|-----------------|--------------------|------------------|------------------|--------------------|------------------|------|
|          |   | +2'-6"<br>(0,75 m)     | +5'-0"<br>(1,5 m) | 30'-0"<br>(9 m) | 35'-0"<br>(10,6 m) | 40'-0"<br>(12 m) | 50'-0"<br>(15 m) | 55'-0"<br>(16,5 m) | 60'-0"<br>(18 m) |      |
| 20490173 | Forge steel (1/4" x 2" x 6")                | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 20490207 | Junction « I » beam 4" x 7'-0" x 7,7 lbs/pi | -                      | -                 | -               | -                  | -                | -                | -                  | -                | 2    |
| 20490218 | « I » beam 4" x 10'-0" x 7,7 lbs/pi         | *                      | *                 | 3               | 3                  | 4                | 5                | 5                  | 6                | -    |
| 20490375 | « I » beam 4" x 7'-0" x 7,7 lbs/pi          | *                      | *                 | 0               | 1                  | 0                | 0                | 1                  | 0                | -    |
| 20490274 | Threaded beam clamp support                 | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 20490296 | Beam clamp                                  | +1                     | +1                | 8               | 9                  | 9                | 11               | 12                 | 12               | -    |
| 20490386 | Interior work support bracket               | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 20490421 | Multifunctional Tube 2" x 3" x 11'-6"       | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 20490814 | Tightening plate for junction beam          | -                      | -                 | -               | -                  | -                | -                | -                  | -                | 4    |
| 25490022 | Locking pin dia. 1/2" x 4-1/8"              | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 25490055 | Locking pin dia. 3/4" x 4-3/16"             | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2"    | +1                     | +1                | 6               | 7                  | 7                | 9                | 10                 | 10               | -    |
| BOA-2025 | Bolt 3/4"-10unc x 2" A325 galv. assembled   | +1                     | +1                | 8               | 9                  | 9                | 11               | 12                 | 12               | 8    |
| GOU-1120 | Split Pin 1/8" x 2" zinc                    | +2                     | +2                | 12              | 14                 | 14               | 18               | 20                 | 20               | -    |

\* The number of additional beams should be determined according to the type and number of intermediate extension sections used.

## Monorail components 1 000 lb (454 kg) - Bridge

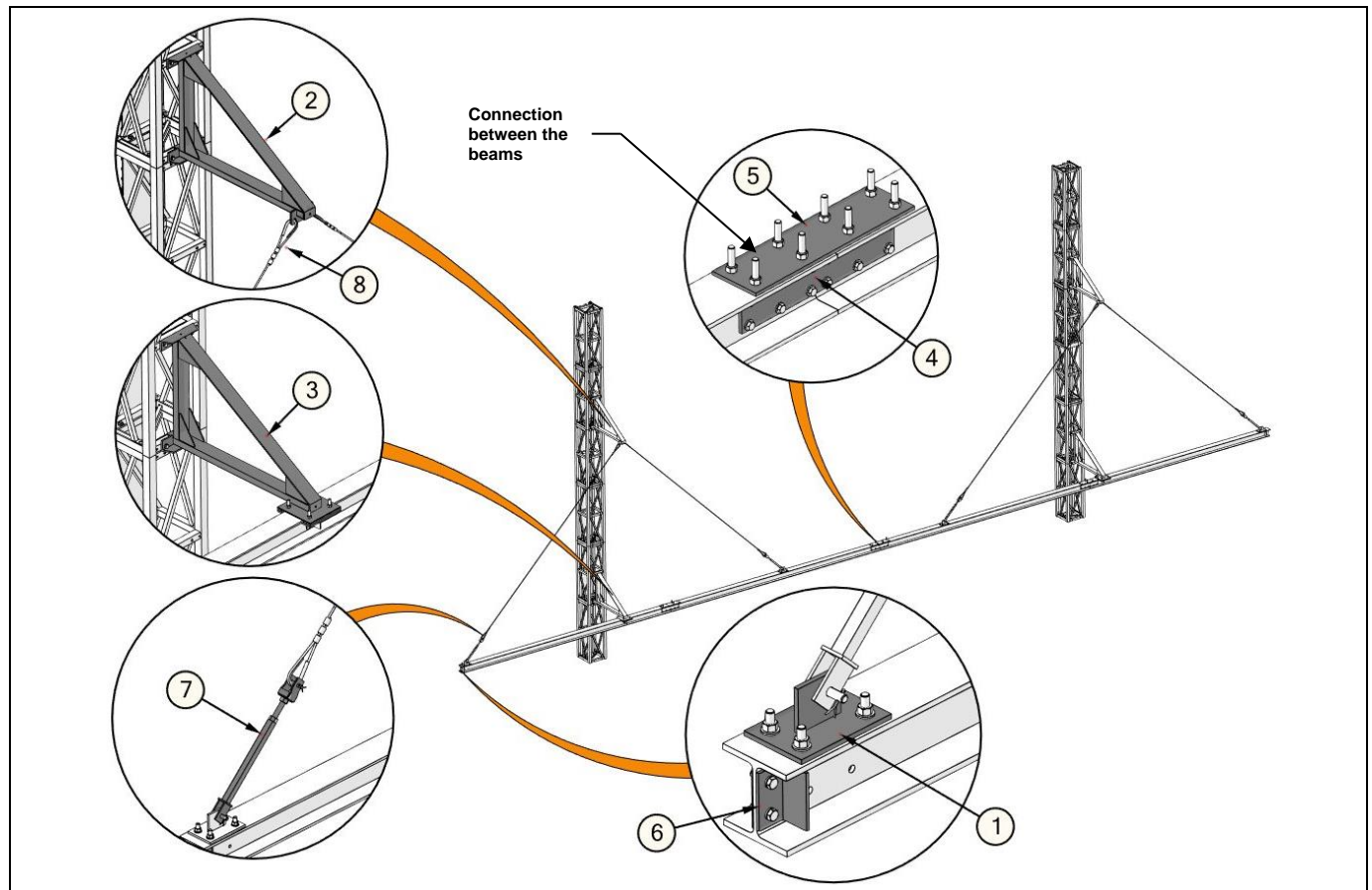
| Item     | Description                                 | Intermediate extension |                   | Bridge length   |                    |                  |                  |                    |                  | Unit |
|----------|---|------------------------|-------------------|-----------------|--------------------|------------------|------------------|--------------------|------------------|------|
|          |   | +2'-6"<br>(0,75 m)     | +5'-0"<br>(1,5 m) | 30'-0"<br>(9 m) | 35'-0"<br>(10,6 m) | 40'-0"<br>(12 m) | 50'-0"<br>(15 m) | 55'-0"<br>(16,5 m) | 60'-0"<br>(18 m) |      |
| 20490173 | Forge steel (1/4" x 2" x 6")                | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 20490207 | Junction « I » beam 4" x 7'-0" x 7,7 lbs/pi | -                      | -                 | -               | -                  | -                | -                | -                  | -                | 2    |
| 20490218 | « I » beam 4" x 10'-0" x 7,7 lbs/pi         | *                      | *                 | 3               | 3                  | 4                | 5                | 5                  | 6                | -    |
| 20490375 | « I » beam 4" x 7'-0" x 7,7 lbs/pi          | *                      | *                 | 0               | 1                  | 0                | 0                | 1                  | 0                | -    |
| 20490274 | Threaded beam clamp support                 | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 20490296 | Beam clamp                                  | +1                     | +1                | 13              | 14                 | 15               | 19               | 20                 | 21               | -    |
| 20490386 | Interior work support bracket               | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 20490421 | Multifunctional Tube 2" x 3" x 11'-6"       | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 20490814 | Tightening plate for junction beam          | -                      | -                 | -               | -                  | -                | -                | -                  | -                | 4    |
| 25490022 | Locking pin dia. 1/2" x 4-1/8"              | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 25490055 | Locking pin dia. 3/4" x 4-3/16"             | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| 25490101 | Treaded U-lock 1/2-13unc 4-1/2" x 6-1/2"    | +1                     | +1                | 11              | 12                 | 13               | 17               | 18                 | 19               | -    |
| BOA-2025 | Bolt 3/4"-10unc x 2" A325 galv. assembled   | +1                     | +1                | 13              | 14                 | 15               | 19               | 20                 | 21               | 8    |
| GOU-1120 | Split Pin 1/8" x 2" zinc                    | +2                     | +2                | 22              | 24                 | 26               | 34               | 36                 | 38               | -    |

\* The number of additional beams should be determined according to the type and number of intermediate extensions sections used.

## Mast head monorail

**Important!** The mast head monorail system can only be used with double mast installations.

**Important!** The final height of the masts must exceed the roof of the building by at least 30'-0" (9,0 m).

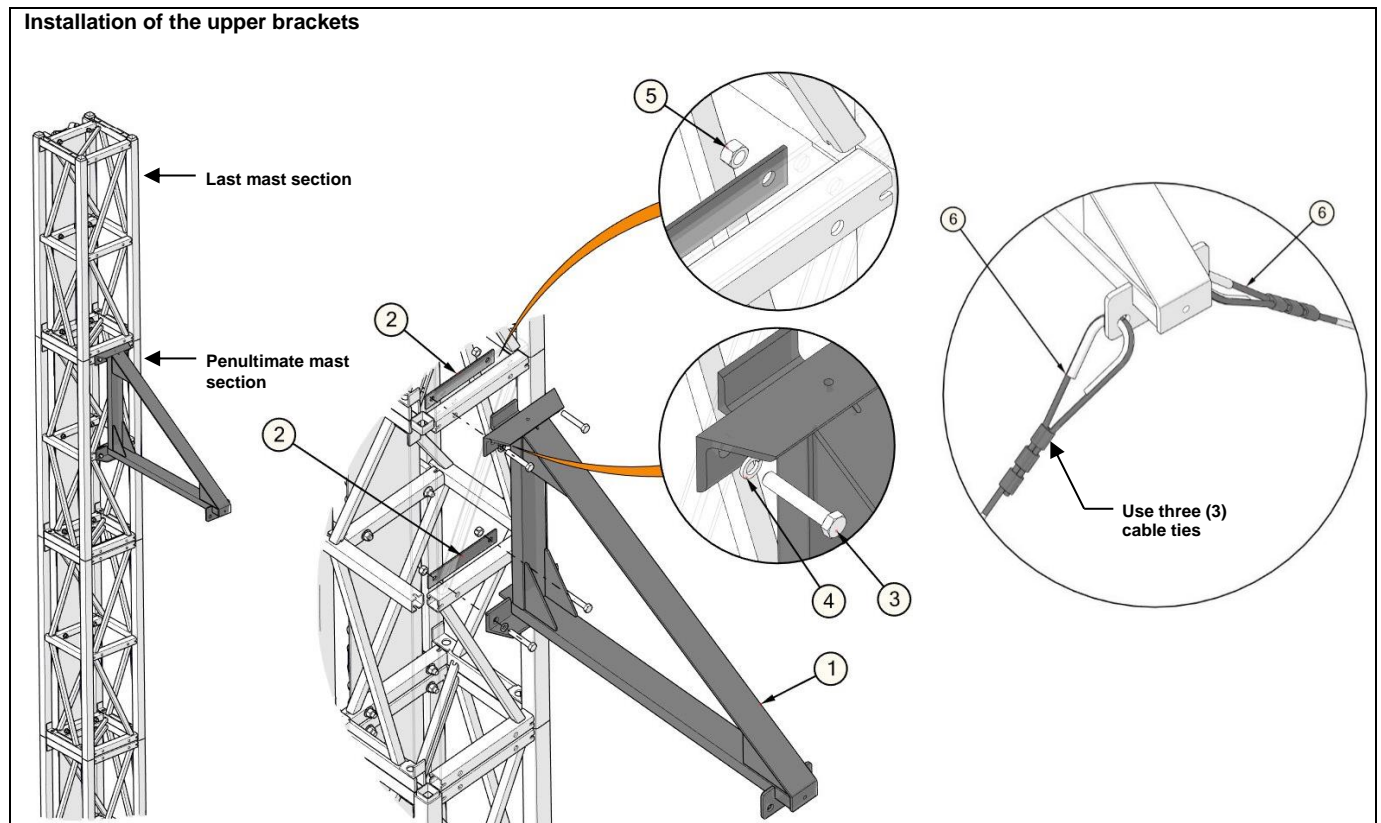


| No. | Item     | Description                            | No. | Item     | Description  |
|-----|----------|--|-----|----------|--|
| 01  | 24010063 | Reusable concrete anchor (offset hole) | 05  | 20490892 | Top junction plate top mast mono-rail              |
| 02  | 20490836 | Top mast monorail cable holder         | 06  | 20491613 | Limit stop for monorail (2-1/2" x 2-1/2" x 4-1/2") |
| 03  | 20490847 | Top mast monorail beam support bracket | 07  | 23070125 | Turnbuckle assembly (2' 0")                        |
| 04  | 20490881 | Side junction plate top mast monorail  | 08  | XXXXXXX  | Steel cable 195"                                   |

Figure 116 – Mast head monorail

## Mast head monorail (CONTINUED)

Raise the platform until reaching the junction between the two highest mast sections.  
 Install the top bracket on the upper or lower portion of the penultimate mast section.  
 Then install the two (2) 195" (5,0 m) steel cables in the eyelets of the top bracket, secure with three (3) cable ties.



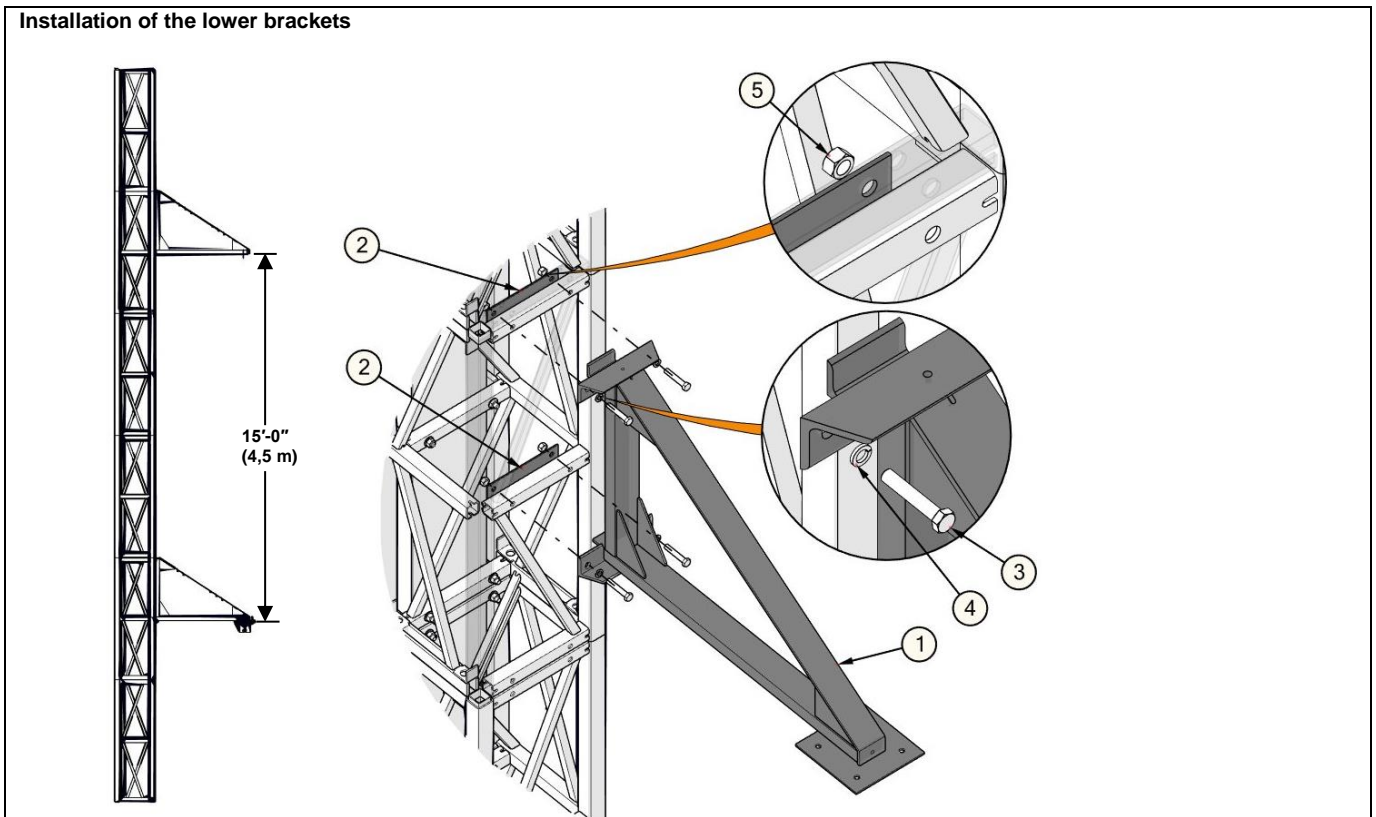
| No. | Item     | Description                       | No. | Item     | Description              |
|-----|----------|-----------------------------------|-----|----------|--------------------------|
| 01  | 20490836 | Top mast monorail cable holder    | 04  | LOZ-5040 | Locking washer 5/8" zinc |
| 02  | 20490410 | Forged steel 3/16" x 2" x 11"     | 05  | ECZ-7065 | Nut 5/8"-11unc gr5 zinc  |
| 03  | BOZ-7215 | Bolt 5/8"-11unc x 3-1/2" gr5 zinc | 06  | XXXXXX   | Steel cable 195"         |

Figure 117 - Mast head monorail, installation



## Monorail at mast head (CONTINUED)

Lower the platform by three (3) mast sections 15'-0" (4,5 m) and install the lower brackets. Install the bracket on the upper or lower portion of the mast section.



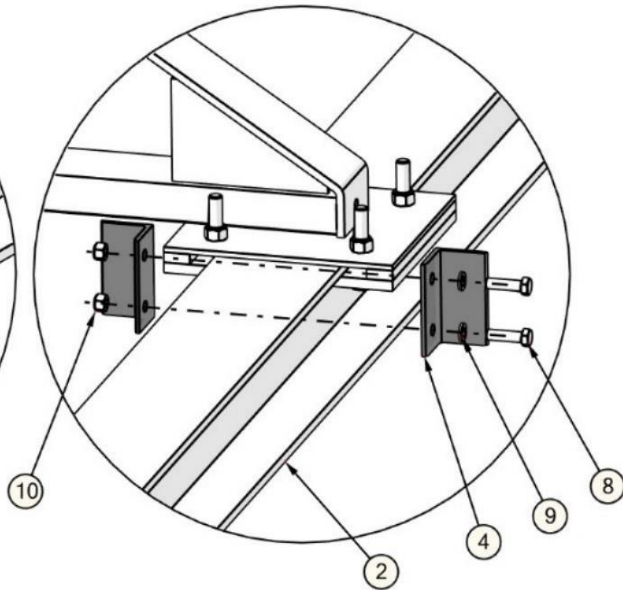
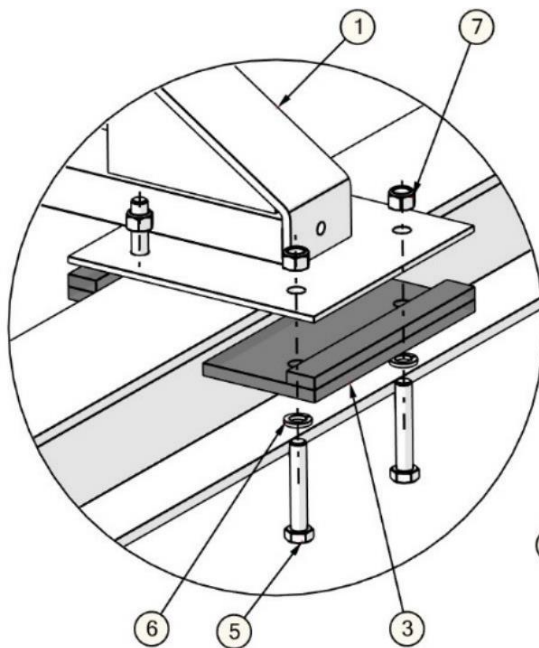
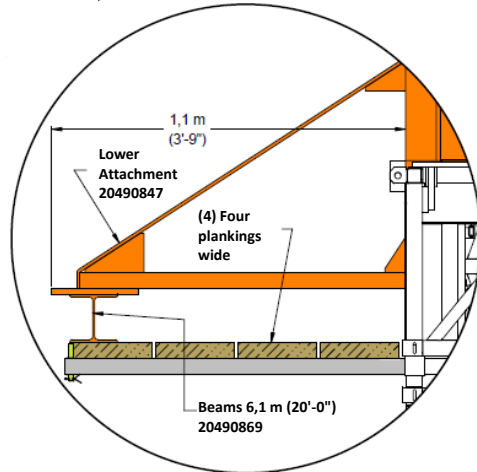
| No. | Item     | Description                                | No. | Item     | Description              |
|-----|----------|--|-----|----------|--------------------------|
| 01  | 20490847 | Top mast monorail planking support bracket | 04  | LOZ-5040 | Locking washer 5/8" zinc |
| 02  | 20490410 | Forged steel 3/16" x 2" x 11"              | 05  | ECZ-7065 | Nut 5/8"-11unc gr5 zinc  |
| 03  | BOZ-7215 | Bolt 5/8"-11unc x 3-1/2" gr5 zinc          |     |          |                          |

Figure 118 - Mast head monorail, installation

## Monorail at mast head (CONTINUED)

Extend the outriggers and install the planking for the required distance of approximately 3'-9" (1,1 m). Place the beam on the planking and raise the unit until it reaches the position of the lower attachments. Align the beams with the ends of the lower brackets.

### Installation of beams on the lower brackets

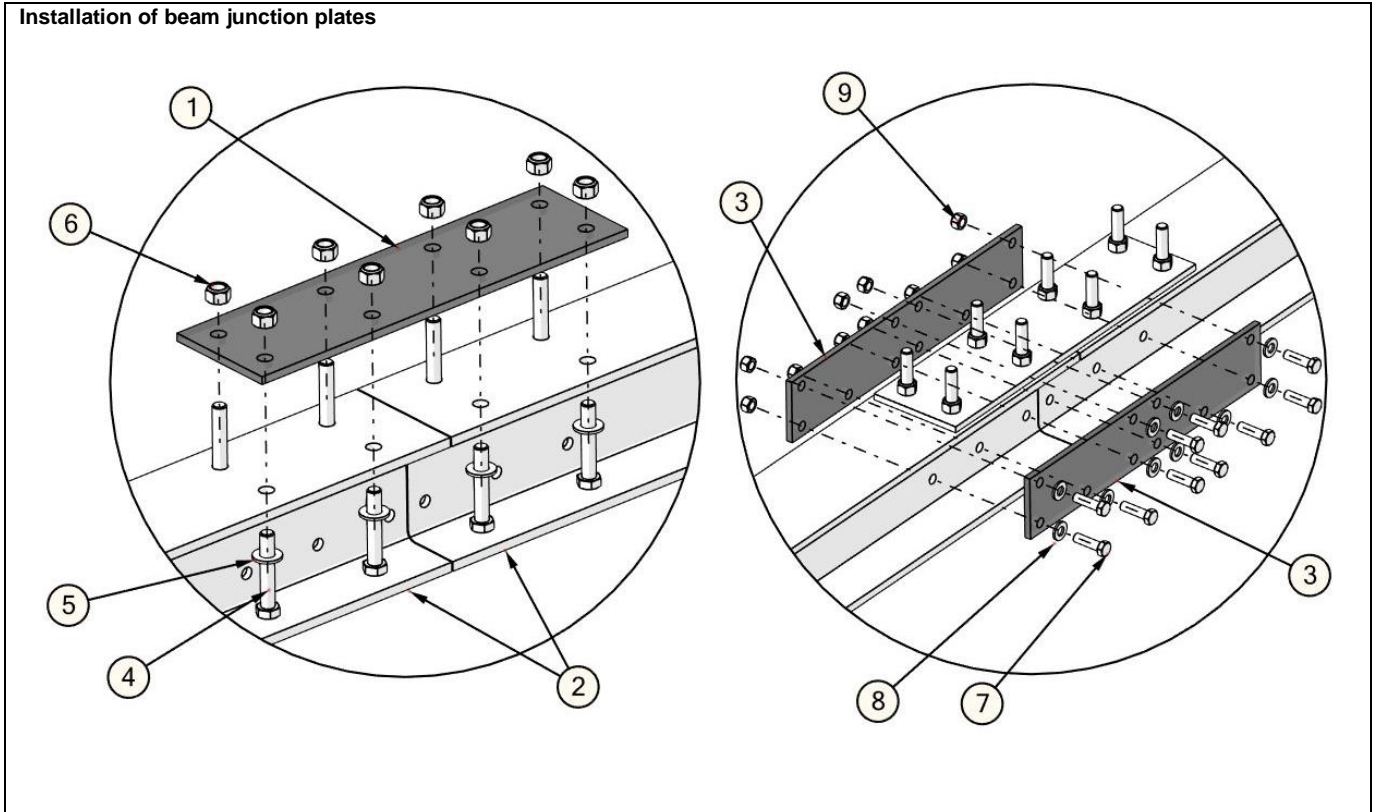


| No. | Item     | Description                                      | No. | Item     | Description                       |
|-----|----------|--|-----|----------|-----------------------------------|
| 1   | 20490847 | Top mast monorail beam support bracket           | 6   | LOZ-5040 | Locking washer 5/8" zinc          |
| 2   | 20490869 | Monorail beam 20' top mast monorail              | 7   | ECZ-7065 | Nut 5/8"-11unc gr5 zinc           |
| 3   | 20490904 | Bottom clamp plate for beam top mast monorail    | 8   | BOZ-7157 | Bolt 1/2"-13unc x 1-3/4" gr5 zinc |
| 4   | 20491613 | Limit stop for monorail 2-1/2" x 2-1/2" x 4-1/2" | 9   | LOZ-5030 | Locking washer 1/2" zinc          |
| 5   | BOZ-7215 | Bolt 5/8"-11unc x 3-1/2" gr5 zinc                | 10  | ECZ-7045 | Nut 1/2"-13unc gr5 zinc           |

Figure 119 - Mast head monorail, installation

## Monorail at mast head (CONTINUED)

**Important!** It is prohibited to overlay a concrete anchor (24010063) over a junction plate.



| No. | Item     | Description                           | No. | Item     | Description                       |
|-----|----------|---------------------------------------|-----|----------|-----------------------------------|
| 1   | 20490892 | Top junction plate top mast mono-rail | 6   | ECZ-7065 | Nut 5/8"-11unc gr5 zinc           |
| 2   | 20490869 | Monorail beam 20' top mast monorail   | 7   | BOZ-7157 | Bolt 1/2"-13unc x 1-3/4" gr5 zinc |
| 3   | 20490881 | Side junction plate top mast monorail | 8   | LOZ-5030 | Locking washer 1/2" zinc          |
| 4   | BOZ-7215 | Bolt 5/8"-11unc x 3-1/2" gr5 zinc     | 9   | ECZ-7045 | Nut 1/2"-13unc gr5 zinc           |
| 5   | LOZ-5040 | Locking washer 5/8" zinc              |     |          |                                   |

Figure 120 - Mast head monorail, installation

### Monorail at mast head (CONTINUED)

Comply with the load distribution diagram shown below.

Determine the anchor locations taking into account the following MIN and MAX dimension ranges:

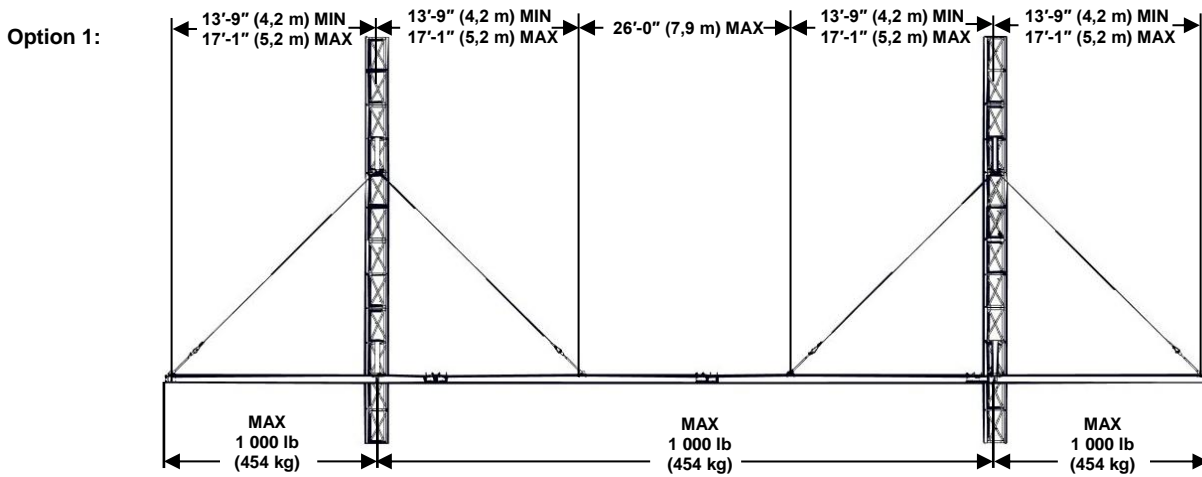


Figure 121 - Option 1, Load Distribution, mast head monorail

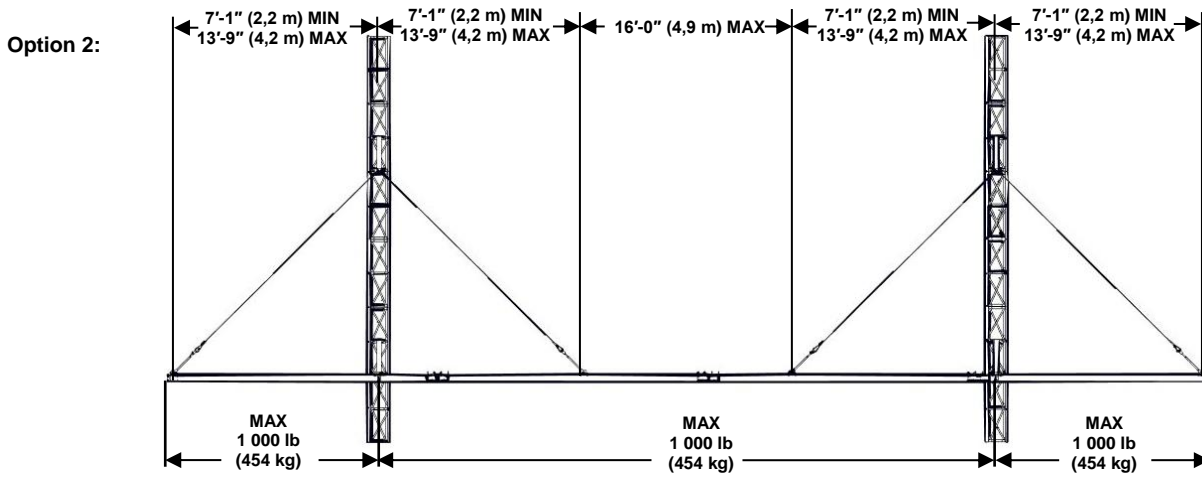


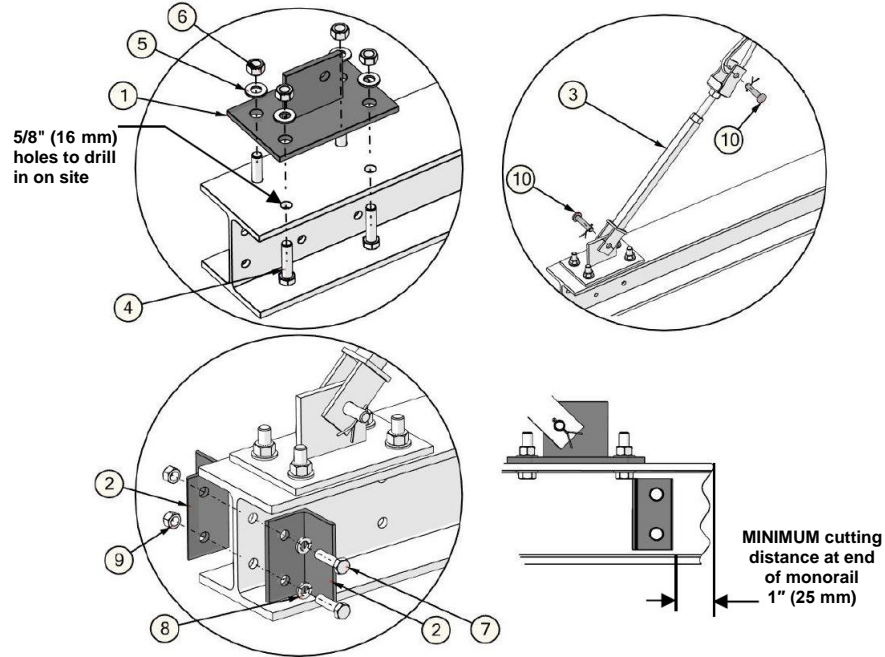
Figure 122 - Option 2, Load Distribution, mast head monorail

## Monorail at mast head (CONTINUED)

Use the anchor plates as a drilling template to drill the beams where required. Typical 5/8" (16 mm) holes.

Install the stops at each travel limit. Drill the beam if necessary.  
**IMPORTANT!** The customer is responsible for having the required lifting training that complies with the specifications, standards and regulations in force before using a trolley.

### Installation of turnbuckle anchors and stops



| No. | Item     | Description                                      | No. | Item                  | Description  |
|-----|----------|--|-----|-----------------------|--|
| 1   | 24010063 | Reusable concrete anchor offset hole             | 6   | ECZ-7065              | Nut 5/8"-11unc gr5 zinc                              |
| 2   | 20491613 | Limit stop for monorail 2-1/2" x 2-1/2" x 4-1/2" | 7   | BOZ-7157              | Bolt 1/2"-13unc x 1-3/4" gr5 zinc                    |
| 3   | 23070125 | Turnbuckle assembly 2'-0"                        | 8   | LOZ-5030              | Locking washer 1/2" zinc                             |
| 4   | BOZ-8542 | Bolt 5/8"-11unc x 2-1/2" gr8 zinc                | 9   | ECZ-7045              | Nut 1/2"-13unc gr5 zinc                              |
| 5   | WAZ-7041 | Washer 5/8" SAE zinc                             | 10  | 25490033 and GOU-1120 | Pin dia. 5/8" x 3-3/16" and Split Pin 1/8" x 2" zinc |

Figure 123 - Monorail at mast head, installation



## Crane FRH-2500

**Important!** Refer to section « WARNINGS » and « OPERATION, USE OF THE LIFTING UNIT » for general safety instructions and additional applicable warnings.

∞SEE WARNINGS, ON PAGE 7

∞SEE OPERATION, USE OF THE LIFTING UNIT, ON PAGE 25

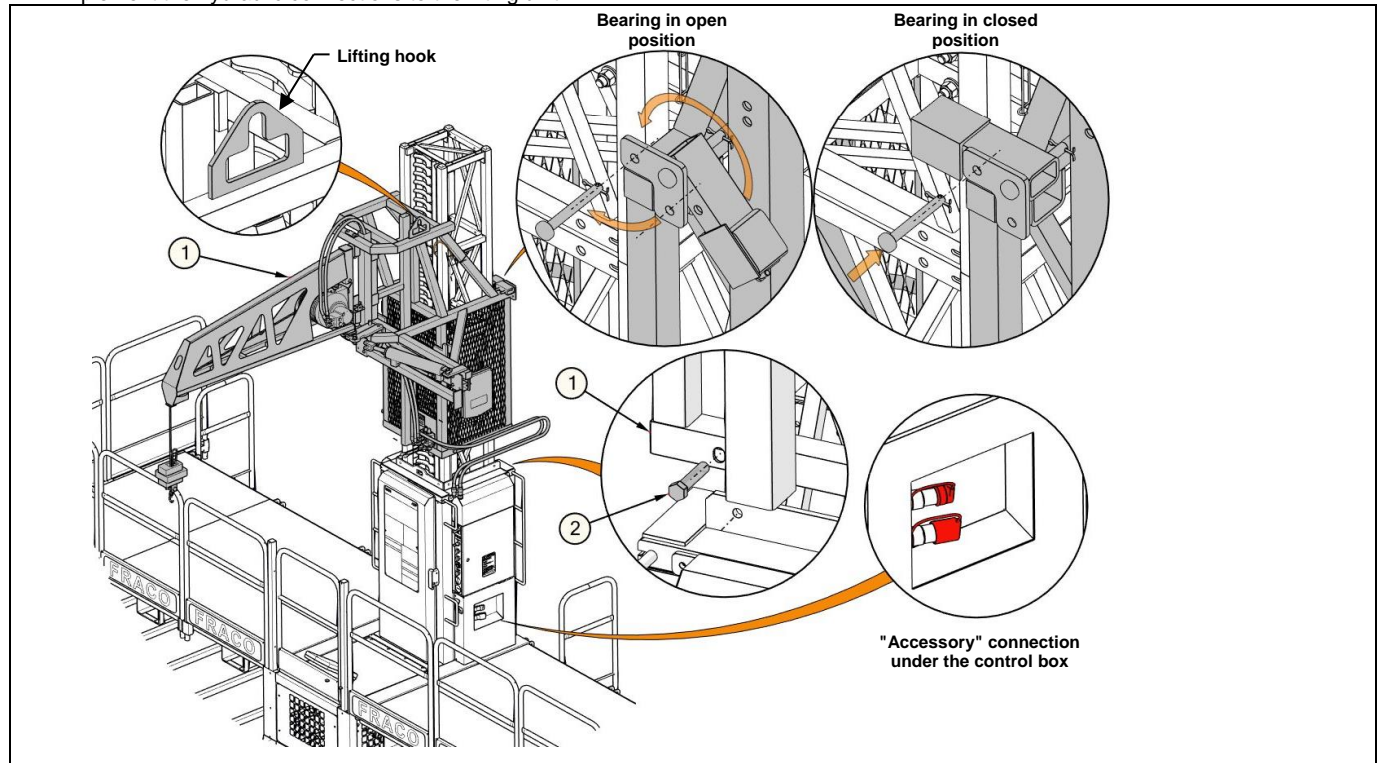
**Warning:**

- On the ground, establish a marked safety perimeter around the lifting area and prohibit access.
- Before using the portable crane, make sure people around are aware of the potential dangers.
- This equipment must not be used for lifting or moving personnel.
- Use the controls smoothly. Sudden movements may damage the winch.
- Never move or lift loads over a person.
- Do not leave loads suspended for long periods or unattended.
- Always remain at a safe distance from the load.
- Maintain a minimum of five (5) turns of cable on the drum at all times.
- The load must be lifted vertically.
- Allow the equipment to preheat before use, especially during cold temperatures.
- Wear appropriate clothing and keep hands away from moving parts when using the crane.
- Wear your safety harness, attached to a regulatory attachment point, if the guardrails are to be handled.  
∞SEE REGULATORY ATTACHMENT POINTS, ON PAGE 10
- It is **forbidden** to use a crane on a freestanding base without a wall attach system.
- It is **forbidden** to position the lift unit above the highest mast anchor device when using a portable crane.

## Installation

**Important!** If the platform is installed on a ground base, the first two (2) mast anchors must first be installed. If the platform is installed on a freestanding base, at least one (1) mast anchor must be installed.

- Use the lifting hook provided for said purpose for lifting and moving the portable crane.
- Bolt the structure on top of the lifting unit.
- Once the crane is secured on the lifting unit, place the bearings in the closed position with respect to the segments of the mast sections.
- Implement the hydraulic connections to the lifting unit.



| No. | Item     | Description                              | No. | Item     | Description                         |
|-----|----------|--|-----|----------|-------------------------------------|
| 01  | 12490073 | Mobile crane FRH-2500 for 20" x 20" mast | 02  | BOA-2032 | Bolt 3/4"-10unc x 3-1/2" A325 galv. |

Figure 124 - Crane FRH-2500

## Operation

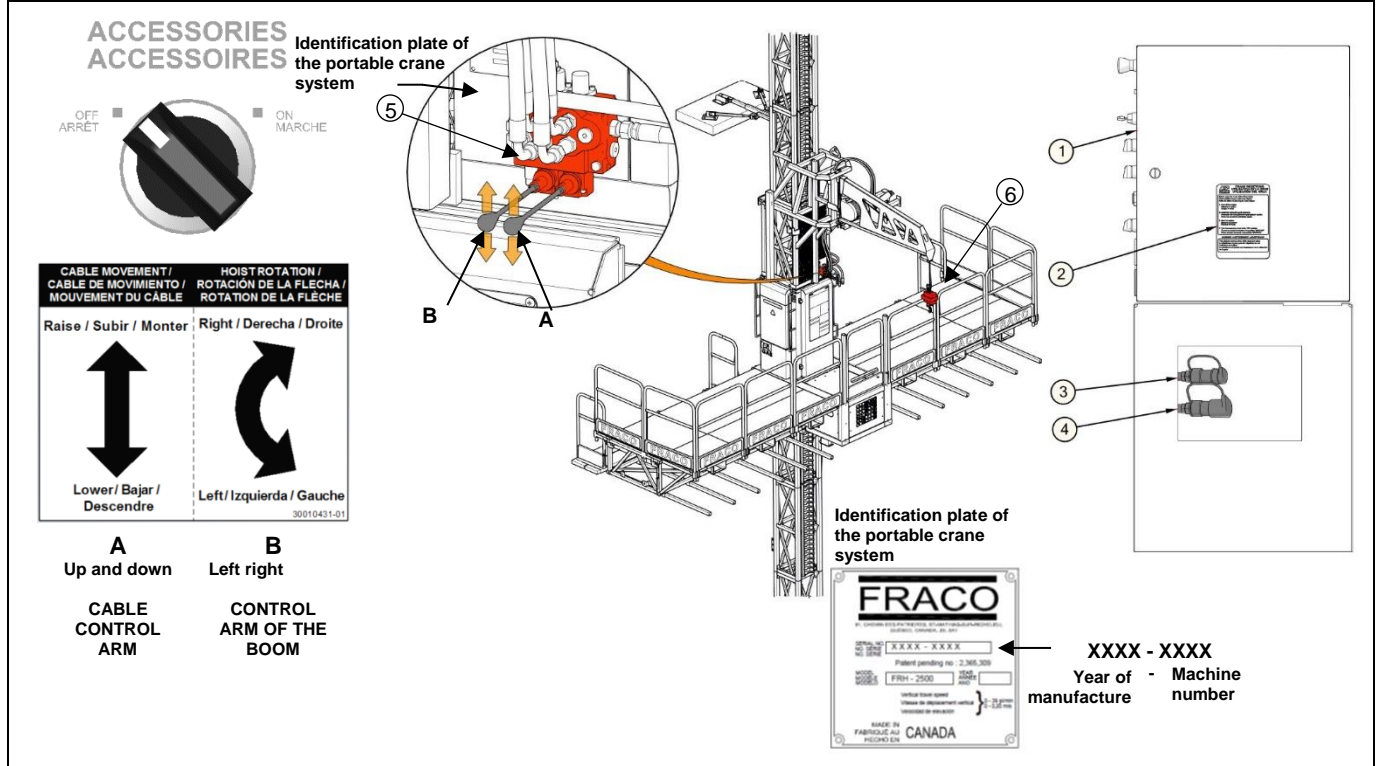
**Important!** Before use at the beginning of each shift, all points of the **DAILY INSPECTION GRID, ON PAGE 157**, must be checked, including a functional check. During operation, the operator must strictly follow all operating instructions.

**Important!** The operator of the portable crane must have the necessary skills and training to use the crane.

⇒ SEE OPERATION, USE OF THE LIFTING UNIT, ON PAGE 25

Start the lifting unit and set the « ACCESSORIES » switch to « ON/MARCHE ».

- When the « ACCESSORIES » switch is in the « OFF » position, the platform controls are active and the crane controls are inactive.
- When the « ACCESSORIES » switch is in the « ON/MARCHE » position, the platform controls are inactive and the crane controls are active.



**Important!** Be sure to read the operating instructions for the crane on the sticker under the crane's hydraulic couplings.

**Important!** After using the crane, turn the « ACCESSORIES » switch to the « OFF » position.

If you have any questions regarding the portable crane system, please consult the documentation or contact your FRACO representative.

| No. | Item     | Description                           | No. | Item     | Description                           |
|-----|----------|---------------------------------------|-----|----------|---------------------------------------|
| 01  | 32120020 | ACT-8 Control Box                     | 04  | HYR-5146 | Quick coupling NPT-¼-M portable crane |
| 02  | 30050233 | "Crane operation » sticker            | 05  | 32060012 | Distributor of the FRH-2500 crane     |
| 03  | HYR-5147 | Quick coupling NPT-¼-F portable crane | 06  | 28490283 | Weight and lifting hook FRH-2500      |

Valid for the Braden Gearmatic winch (Model: B64A05 119-01)



Adjustment of the hydraulic pressure and installation or replacement of the steel cable must be carried out by a person holding a **valid Level 3 card**. This person must be familiar with the instructions for use, have sufficient experience and be aware of the risks involved in the use of the platform.

| Câble Dia.5/16 in<br>1,850 Psi<br>2,500 Lb Max |         |          | Câble Dia.1/4 in<br>1,200 Psi<br>1,000 Lb Max |         |          |
|--|---------|----------|---|---------|----------|
| Layer  | Length  | Capacity | Layer   | Length  | Capacity |
| 1  | 33' 0"  | 2,500 lb | 1   | 43' 0"  | 1,000 lb |
| 2  | 79' 0"  | 2,500 lb | 2   | 100' 0" | 1,000 lb |
| 3  | 129' 0" | 2,500 lb | 3   | 160' 0" | 1,000 lb |
| 4  | 183' 0" | 2,500 lb | 4   | 224' 0" | 1,000 lb |
| 5  | 241' 0" | 2,500 lb | 5   | 292' 0" | 1,000 lb |
|  |         |          | 6   | 364' 0" | 1,000 lb |

## Loading areas

Observe the load distribution.

∞ SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

**Important!** Workers must wear a safety harness properly secured to an attachment point before handling the guardrails.

∞ SEE REGULATORY REGULATORY, ON PAGE 10

Remove the guardrails where necessary to allow the material to pass through and reposition the guardrails before using the platform.

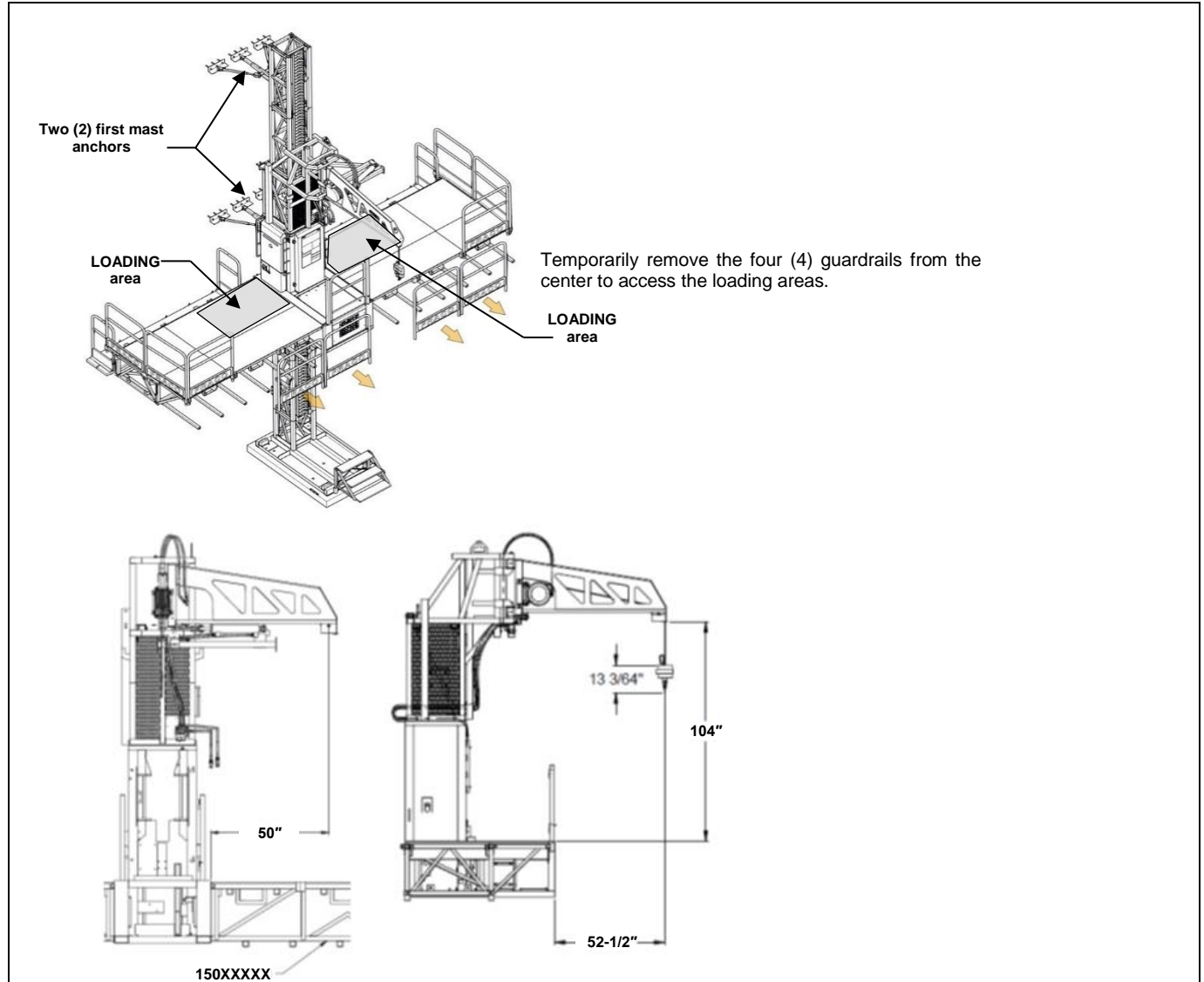


Figure 125 - Crane FRH-2500, loading area

## Periodic maintenance

Refer to the « PERIODIC MAINTENANCE » section for applicable points, as well as to the inspection sheet in the model-specific and serial-specific service manual.

∞ SEE PERIODIC MAINTENANCE, ON PAGE 155

∞ SEE DAILY INSPECTION GRID, ON PAGE 157

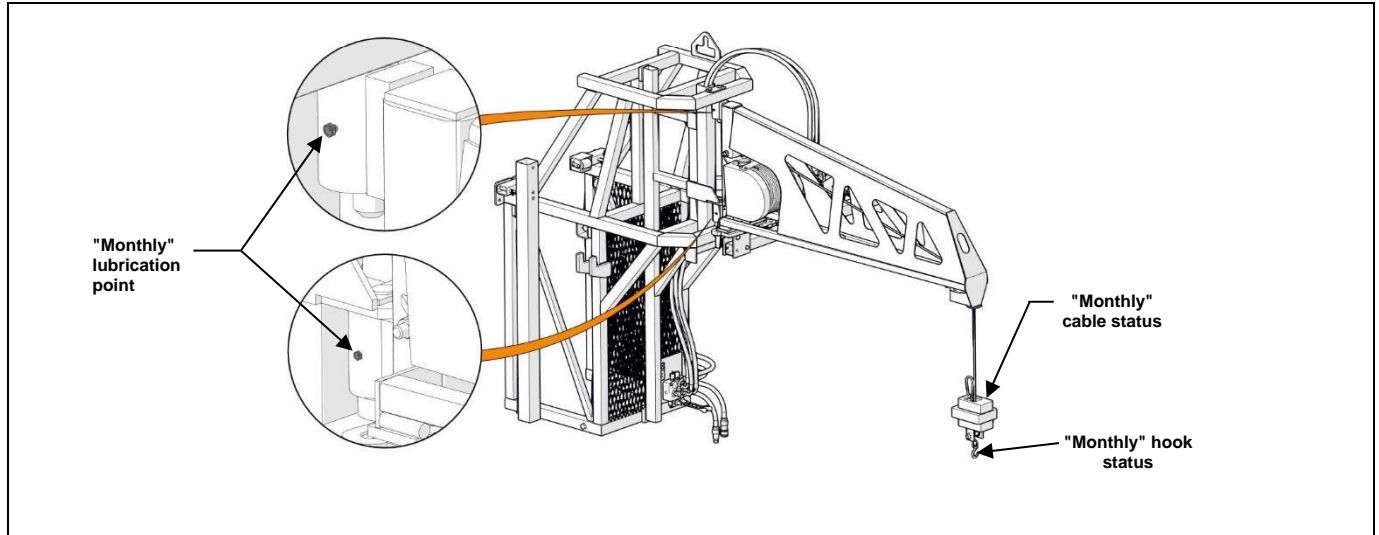


Figure 126 - Crane FRH-2500, maintenance

## Crane FRH-4000

**Important!** Refer to section « WARNINGS" and « OPERATION, USE OF THE LIFTING unit" for general safety instructions and additional applicable warnings.

∞SEE WARNINGS, ON PAGE 7, AND OPERATION, USE OF THE LIFTING unit, ON PAGE 25.

**Important!** The maximum load is limited to 2 500 lb (1 134 kg) when the FRH-4000 crane is used on an ACT-8 platform. It is also important to respect the maximum punctual loads.

∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

**Warning:**

- On the ground, establish a marked safety perimeter around the lifting area and prohibit access.
- Before using the portable crane, make sure people around are aware of the potential dangers.
- This equipment must not be used for lifting or moving personnel.
- Use the controls smoothly. Sudden movements may damage the winch.
- Never move or lift loads over a person.
- Do not leave loads suspended for long periods or unattended.
- Always remain at a safe distance from the load.
- Maintain a minimum of five (5) turns of cable on the drum at all times.
- The load must be lifted vertically.
- Allow the equipment to preheat before use, especially during cold temperatures.
- Wear appropriate clothing and keep hands away from moving parts when using the crane.
- Wear your safety harness, attached to a regulatory attachment point, if the guardrails are to be handled.
- ∞SEE REGULATORY ATTACHMENT POINTS, ON PAGE 10
- It is **forbidden** to use a crane on a freestanding base without a wall attach system.
- It is **forbidden** to position the lift unit above the highest mast anchor device when using a portable crane.

## Installation

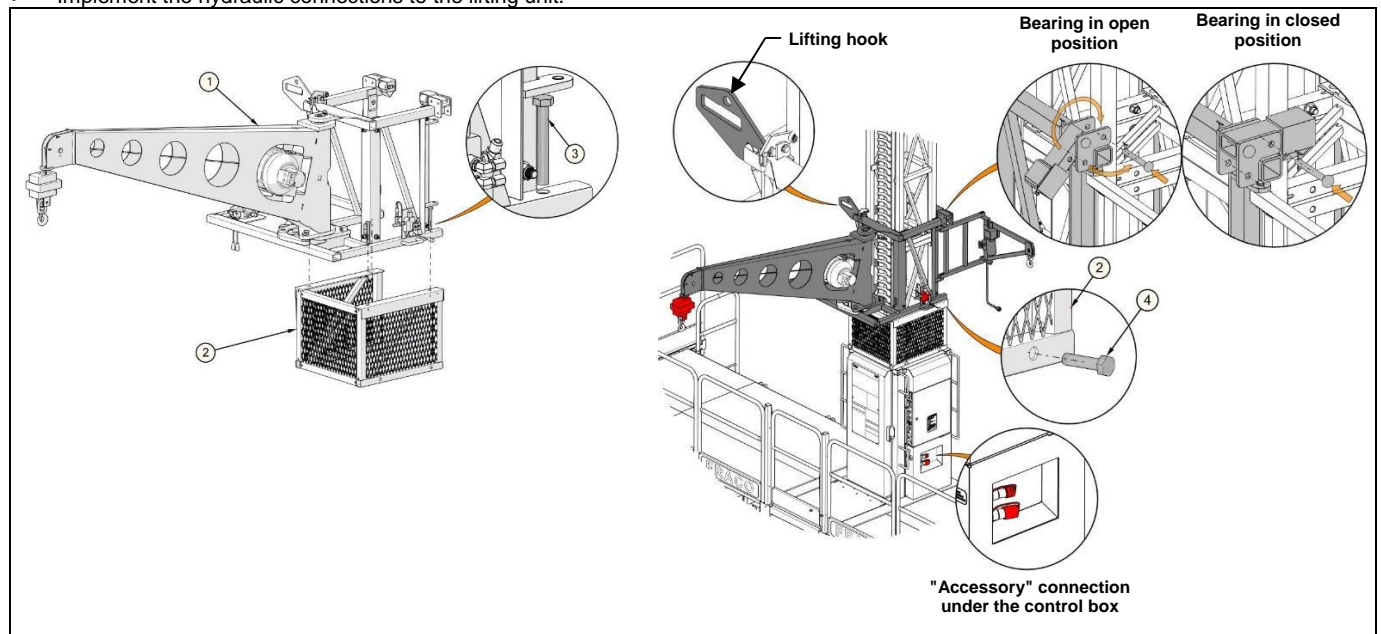
**Important!** If the platform is installed on a ground base, the first two (2) mast anchors must first be installed. If the platform is installed on a freestanding base, at least one (1) mast anchor must be installed.

Workers must wear a safety harness properly secured to an attachment point before handling the guardrails.

**Important!** It is impossible to use the crane and extension turnbuckles simultaneously. For platforms requiring more than 13'-4" extensions, be sure to use 10'-0" tapered extensions that do not require turnbuckles.

∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

- Use the lifting hook provided for said purpose for lifting and moving the portable crane.
- Bolt the structure on top of the lifting unit.
- Once the crane is secured on the lifting unit, place the bearings in the closed position with respect to the segments of the mast sections.
- Implement the hydraulic connections to the lifting unit.



| No. | Item     | Description  | No. | Item     | Description                                   |
|-----|----------|--|-----|----------|---|
| 01  | 28494311 | Mobile crane structure FRH-4000 for 20" x 20" mast | 03  | BOA-2030 | Bolt 3/4"-10unc x 5-1/2" A325 galv. assembled |
| 02  | 20491488 | FRH-4000 adapter for ACT-8                         | 04  | BOA-2029 | Bolt 3/4"-10unc x 3" A325 galv. assembled     |

Figure 127 - Crane FRH-4000



## Operation

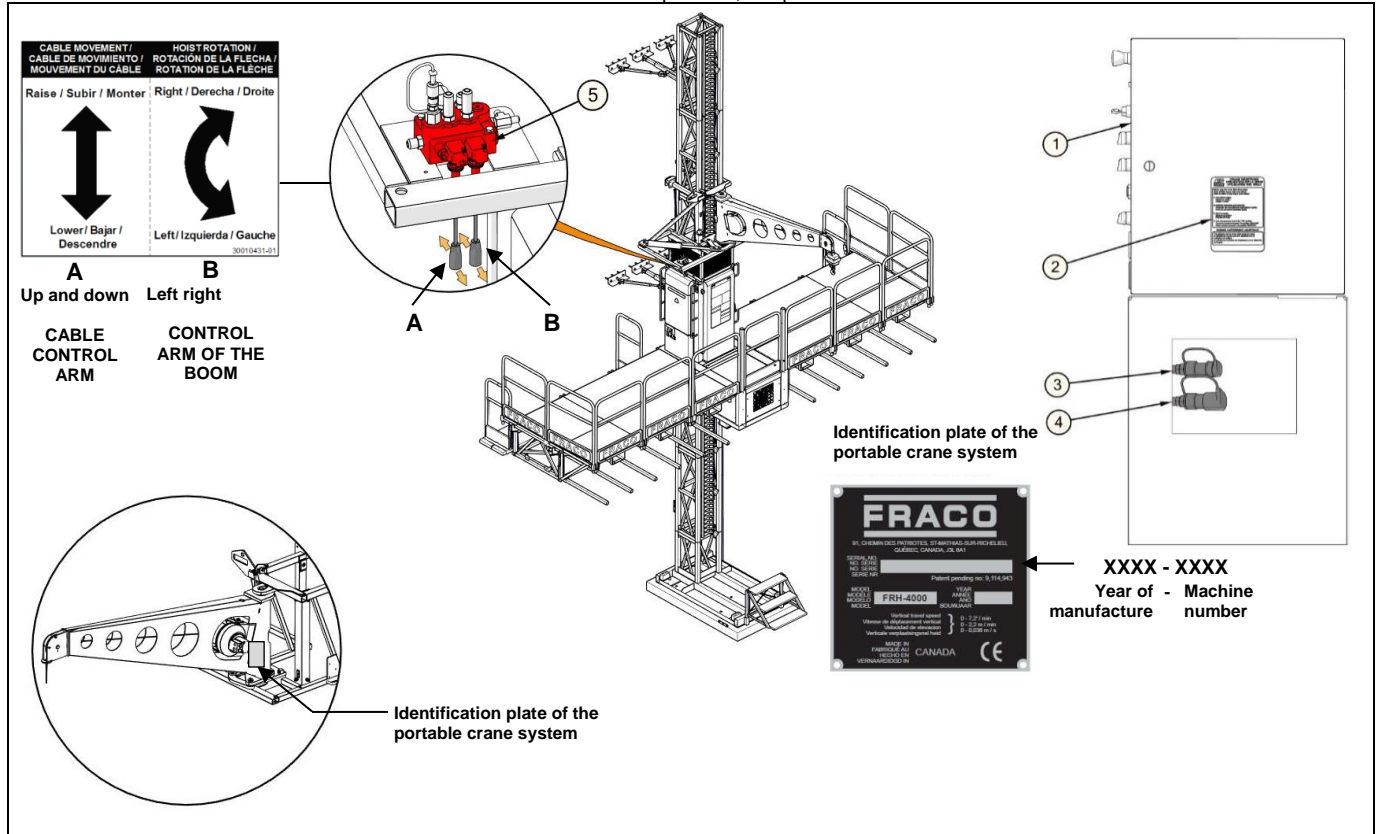
**Important!** Before use at the beginning of each shift, all points of the **DAILY INSPECTION GRID**, ON PAGE 157, must be checked, including a functional check. During operation, the operator must strictly follow all operating instructions.

**Important!** The operator of the portable crane must have the necessary skills and training to use the crane.

⇒ SEE OPERATION, USE OF THE LIFTING UNIT, ON PAGE 25

Start the lifting unit and set the « ACCESSORIES » switch to « ON/MARCHE ».

- When the « ACCESSORIES » switch is in the « OFF » position, the platform controls are active and the crane controls are inactive.
- When the « ACCESSORIES » switch is in the « ON/MARCHE » position, the platform controls are inactive and the crane controls are active.



**Important!** Be sure to read the operating instructions for the crane on the sticker under the crane's hydraulic couplings.

**Important!** After using the crane, turn the « ACCESSORIES » switch to the « OFF » position.

If you have any questions regarding the portable crane system, please consult the documentation or contact your FRACO representative.

| No. | Item     | Description                           | No. | Item     | Description                             |
|-----|----------|---------------------------------------|-----|----------|---|
| 01  | N/A      | ACT-8 Control Box                     | 04  | HYR-5146 | Quick coupling NPT-¼-M portable crane   |
| 02  | N/A      | "Crane operation » sticker            | 05  | 32060056 | FRH-4000 double sections valve assembly |
| 03  | HYR-5147 | Quick coupling NPT-¼-F portable crane |     |          |   |

Figure 128 - Crane FRH-4000, installation

Valid for the Braden Gearmatic winch (Model: B64A05 119-01)

| Cable dia. 3/8 in<br>2,850 psi<br>4,000 lb Max |         |          | Cable dia. 5/16 in<br>1,850 psi<br>2,500 lb Max |         |          | Cable dia. 1/4 in<br>1,200 psi<br>1,000 lb Max |         |          |
|--|---------|----------|---|---------|----------|--|---------|----------|
| Layer  | Length  | Capacity | Layer   | Length  | Capacity | Layer  | Length  | Capacity |
| 1  | 26'-0"  | 4 000 lb | 1   | 33'-0"  | 2 500 lb | 1  | 43'-0"  | 1 000 lb |
| 2  | 66'-0"  | 4 000 lb | 2   | 79'-0"  | 2 500 lb | 2  | 100'-0" | 1 000 lb |
| 3  | 109'-0" | 4 000 lb | 3   | 129'-0" | 2 500 lb | 3  | 160'-0" | 1 000 lb |
| 4  | 156'-0" | 3 800 lb | 4   | 183'-0" | 2 500 lb | 4  | 224'-0" | 1 000 lb |
|  |         |          | 5   | 241'-0" | 2 500 lb | 5  | 292'-0" | 1 000 lb |
|  |         |          |   |         |          | 6  | 364'-0" | 1 000 lb |



Adjustment of the hydraulic pressure and installation or replacement of the steel cable must be carried out by a person holding a **valid Level 3 card**. This person must be familiar with the instructions for use, have sufficient experience and be aware of the risks involved in the use of the platform.

### Loading areas

Observe the load distribution.

∞ SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19

**Important!** Workers must wear a safety harness properly secured to an attachment point before handling the guardrails.

∞ SEE REGULATORY ATTACHMENT POINTS, ON PAGE 10

Remove the guardrails where necessary to allow the material to pass through and reposition the guardrails before using the platform.

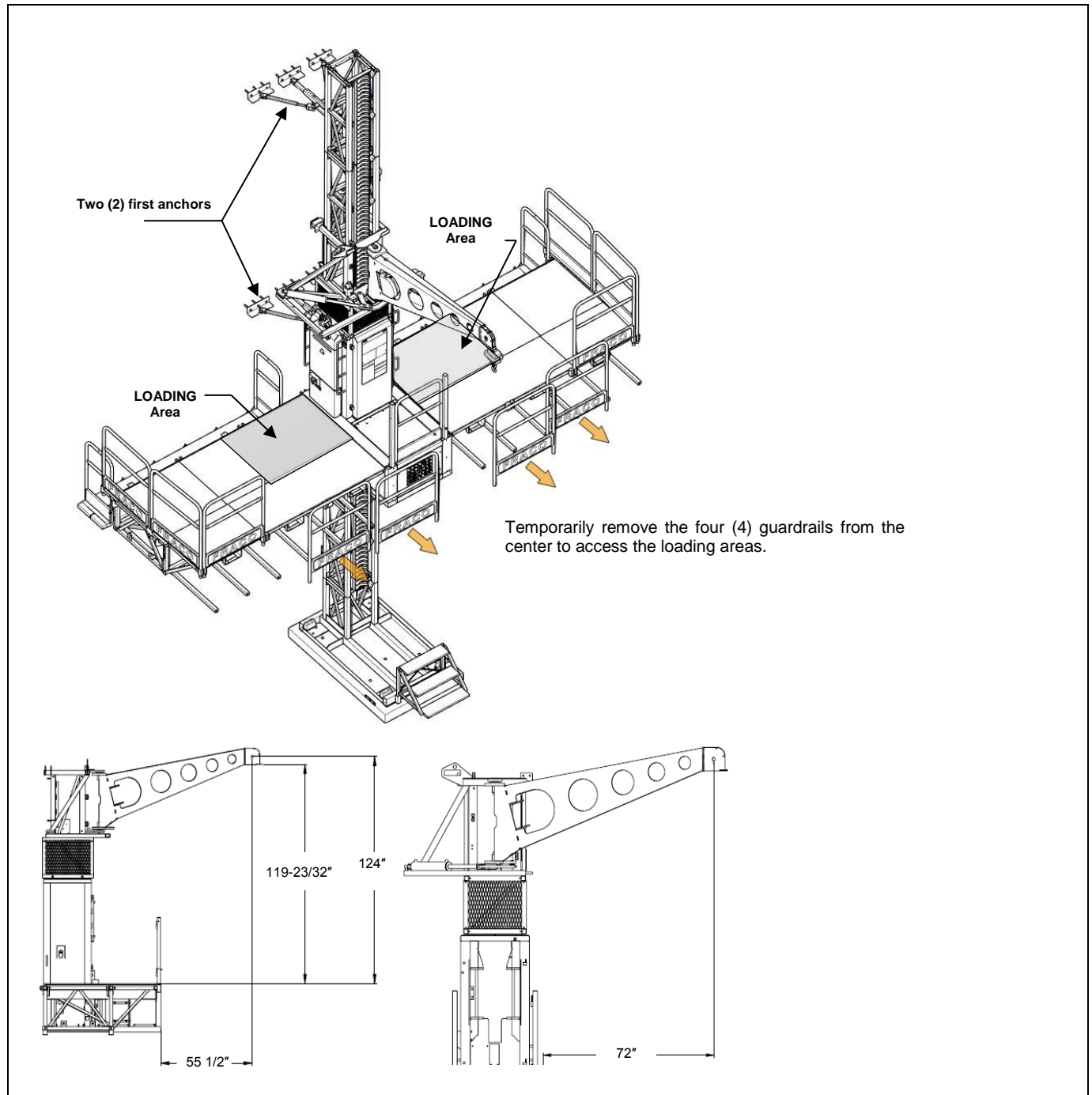
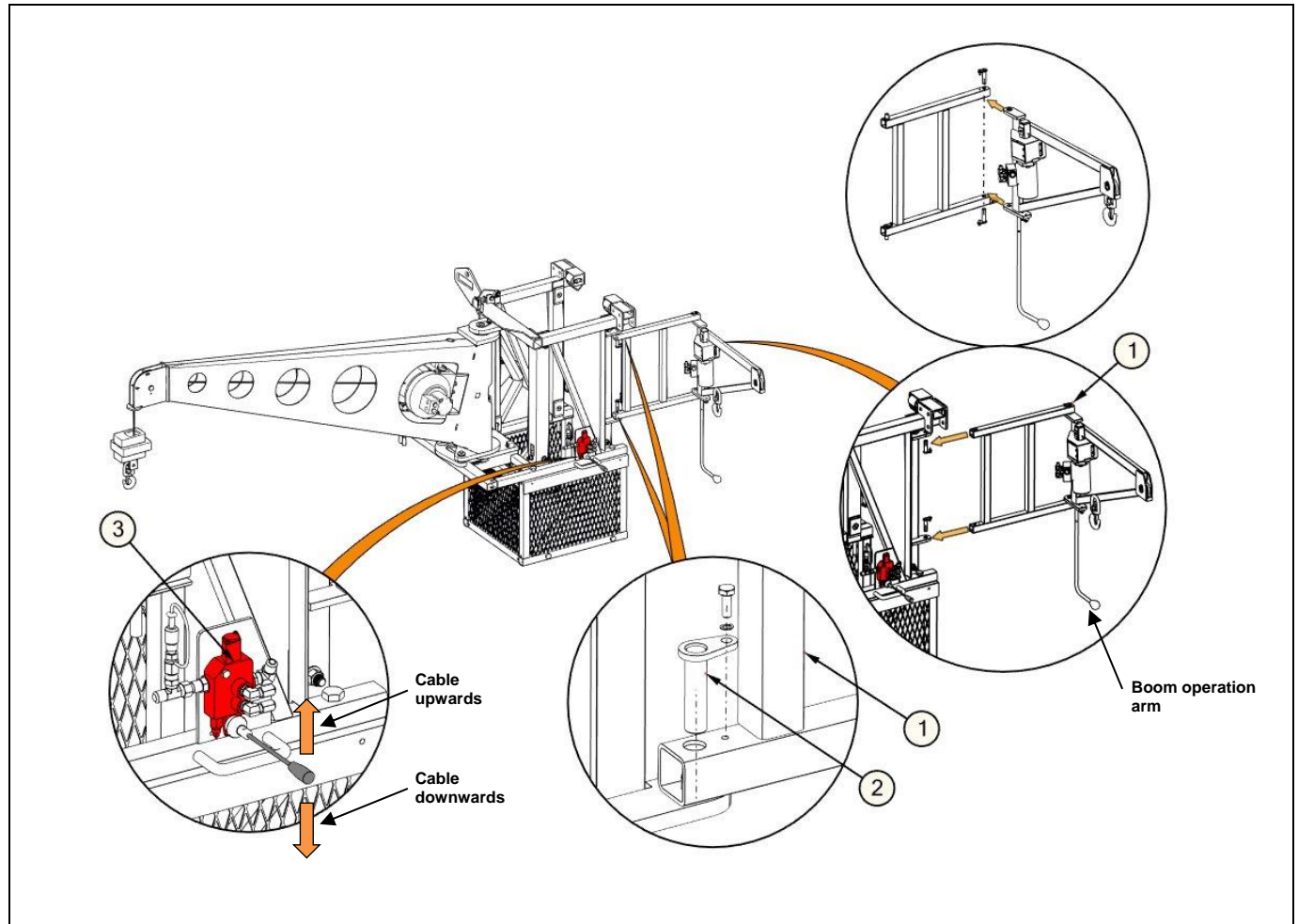


Figure 129 - Crane FRH-4000, loading area

### Integrated self-erecting system

Observe the load distribution.

∞ SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19



| No. | Item     | Description               | No. | Item     | Description                    |
|-----|----------|---------------------------|-----|----------|--------------------------------|
| 01  | 12490129 | Self-erecting FRH-4000    | 03  | 32060067 | Simple valve assembly FRH-4000 |
| 02  | 25490347 | Pin ( 5/8" dia. x 2-3/8") |     |          |                                |

Figure 130 - Crane FRH-4000, integrated self-erecting system

## Periodic maintenance

REFER TO THE PERIODIC MAINTENANCE section for applicable points, as well as to the inspection sheet in the model-specific and serial-specific service manual.

∞ SEE PERIODIC MAINTENANCE, ON PAGE 155, AND DAILY INSPECTION GRID, ON PAGE 157

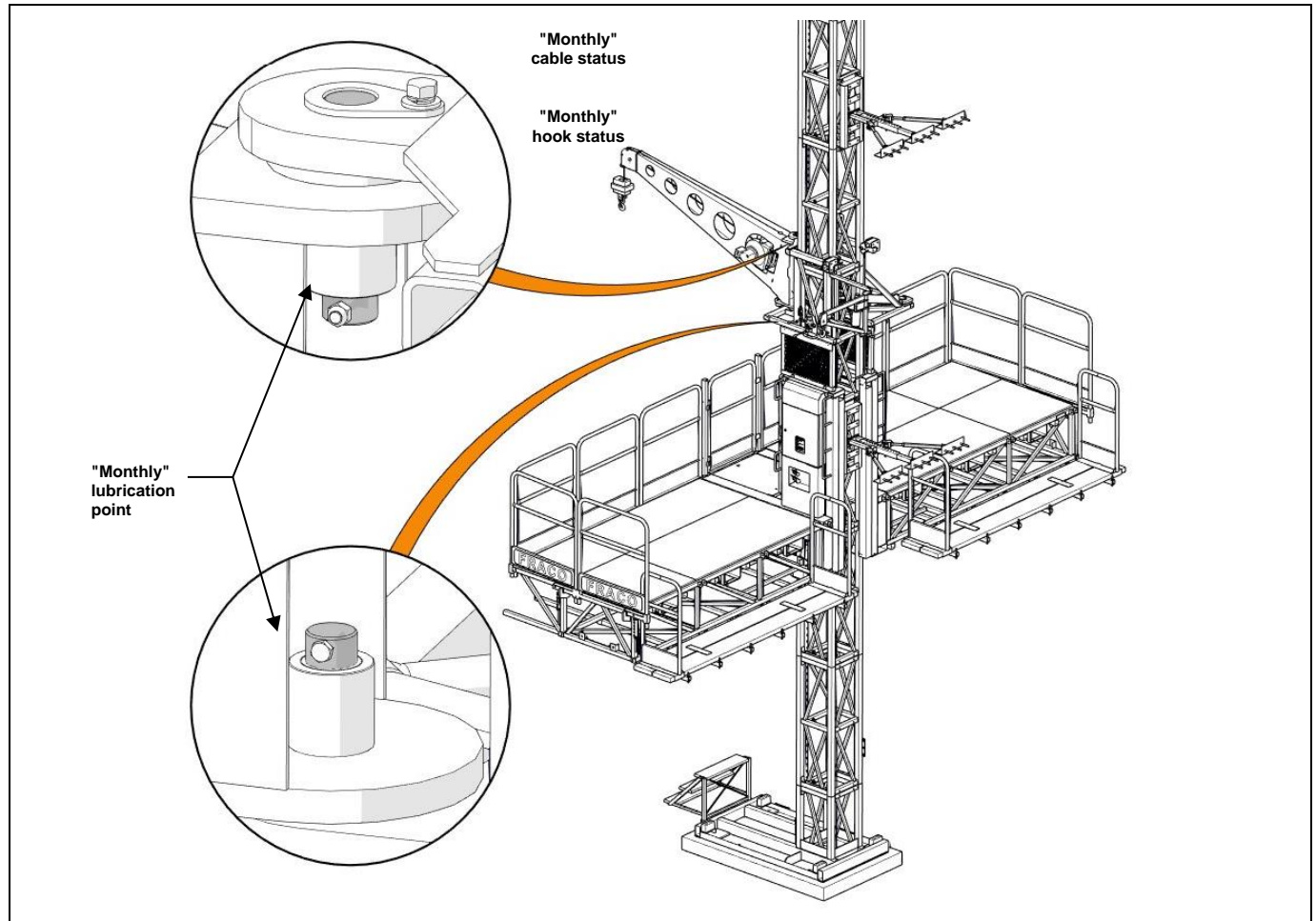


Figure 131 - Crane FRH-4000, maintenance

## Freestanding mobile base

**Important!** These safety instructions apply specifically to this accessory and are in addition to any other safety instructions relating to the mounting, dismantling, displacement, operation and maintenance of the platform as described in the previous sections.

∞SEE WARNINGS, ON PAGE 7

The freestanding mobile base can only be used for single-mast configuration assemblies. It is **prohibited** to use mobile bases to move a two-mast configuration assembly. It is also **prohibited** to use mobile bases with the following accessories (winter shelters, rigid roof system, FRH-2500 portable crane system or FRH-4000 and monorail system).

Nominal power:

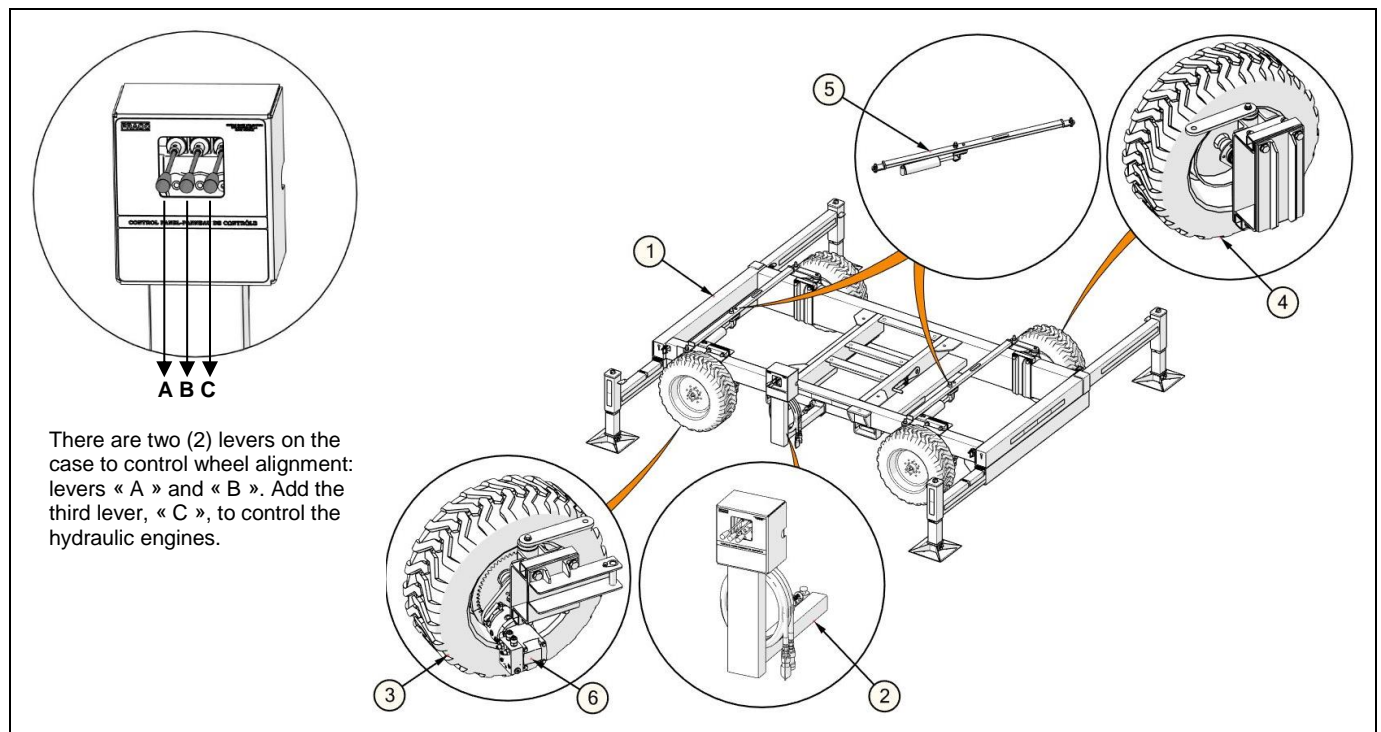
|                                    |
|------------------------------------|
| <b>ACT-8 Diesel (35 hp/25 kW)</b>  |
| <b>ACT-8 Gaz (24 hp/17,9 kW)</b>   |
| <b>ACT-8 Elec. (20 hp/14,9 kW)</b> |

## Assembly



Only a certified mechanic holding a valid Level 3 card may perform this assembly. This person must be familiar with the operating instructions, have sufficient experience and be aware of the risks involved in the use of the platform.

### BASE WITH ENGINE

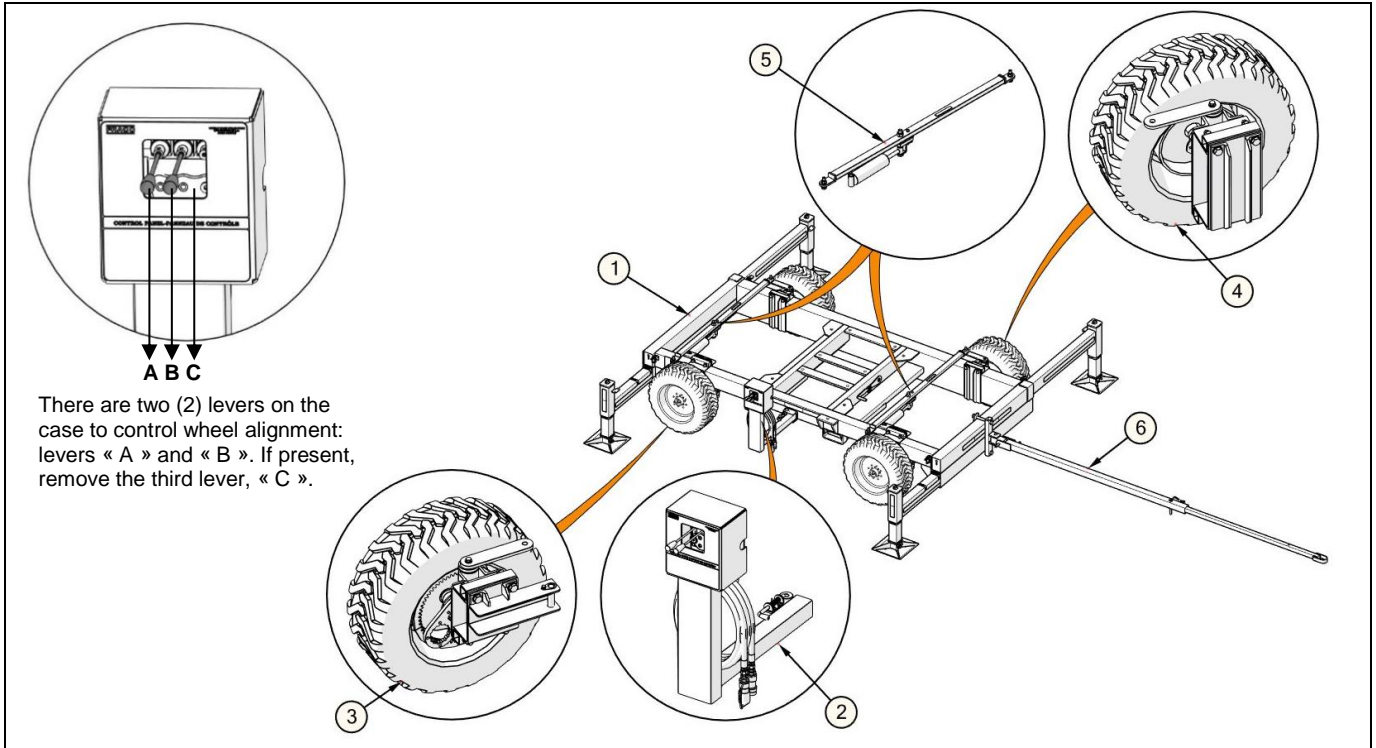


| No. | Item     | Description   | No. | Item     | Description   |
|-----|----------|---|-----|----------|---|
| 01  | 14030109 | Universal freestanding base                         | 04  | 14490154 | Non self-propelled wheel ass. (Universal mobile base) |
| 02  | 14490097 | Generation 4 control panel assembly for mobile base | 05  | 14490053 | Right direction tie (blue) (universal mobile base)    |
| 03  | 14490109 | Left wheel motorized assy (universal mobile base)   | 06  | XXXXXXX  | Wheel motor assembly                                  |

Figure 132 - Mobile base, with engine



**MOBILE BASE BY TRACTION (WITHOUT ENGINE)**

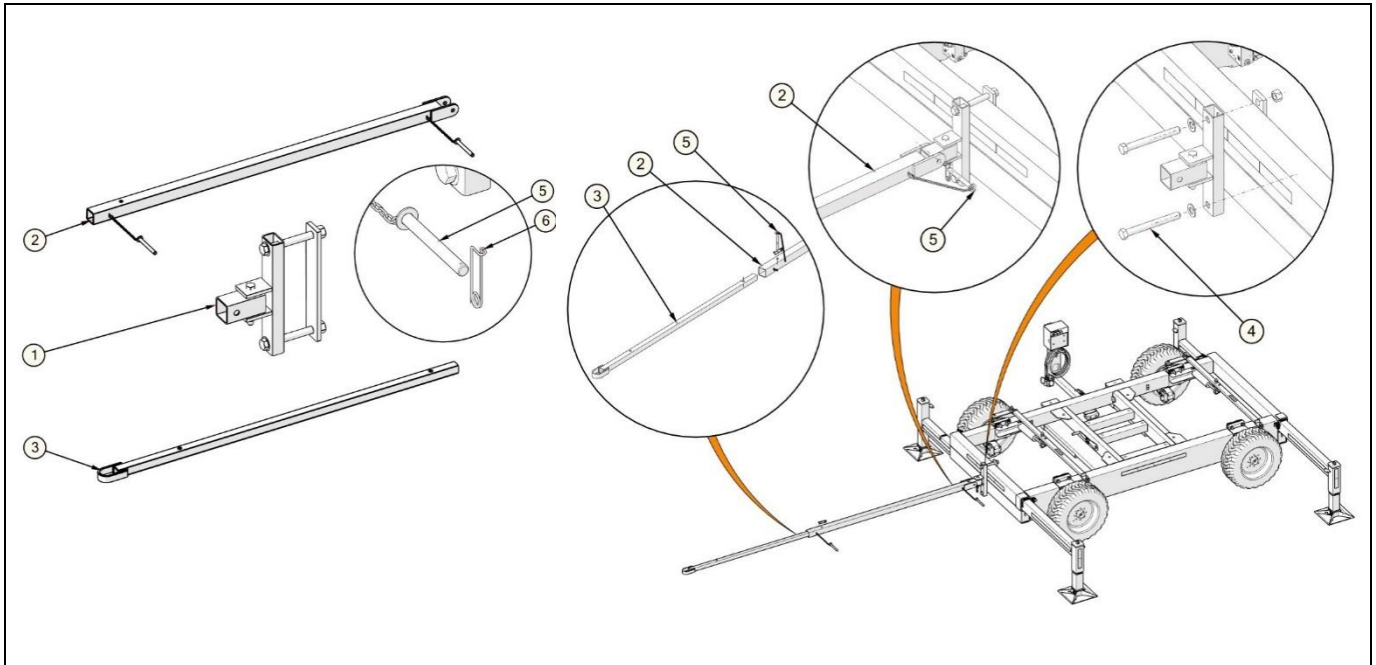


| No. | Item     | Description   | No. | Item     | Description   |
|-----|----------|---|-----|----------|---|
| 01  | 14030109 | Universal freestanding base                         | 04  | 14490154 | Non self-propelled wheel ass. (Universal mobile base) |
| 02  | 14490097 | Generation 4 control panel assembly for mobile base | 05  | 14490053 | Right direction tie (blue) (universal mobile base)    |
| 03  | 14490109 | Left wheel motorized assy (universal mobile base)   | 06  | XXXXXXX  | Steering arm assembly for traction                    |

**Figure 133 - Mobile base, traction**

*Installation of the traction arm (MOBILE BASE WITHOUT ENGINE)*

**Warning:** The helm of the traction assembly must be properly secured to the moving equipment.



| No. | Item     | Description   | No. | Item     | Description                                      |
|-----|----------|---|-----|----------|--|
| 01  | 14490042 | Universal mobile base directionnal handle tie       | 04  | BOA-2085 | Assembly, bolt 1"-8unc x 9" A325 galv. assembled |
| 02  | 20491837 | Universal mobile base rudder                        | 05  | 28494344 | Locking shaft Ø 3/4" x 7" with 11" chain         |
| 03  | 20490601 | Directional arm with ring (2" x 2") for mobile base | 06  | GOU-5020 | Safety pin 1/8" x 4-1/4"                         |

**Figure 134 - Mobile base, installation of traction arm**

**Installation of wheels**

The freestanding base must be supported by its stabilizers when installing the mobile assembly. This mobile assembly model is only used with the universal freestanding base (14030109).

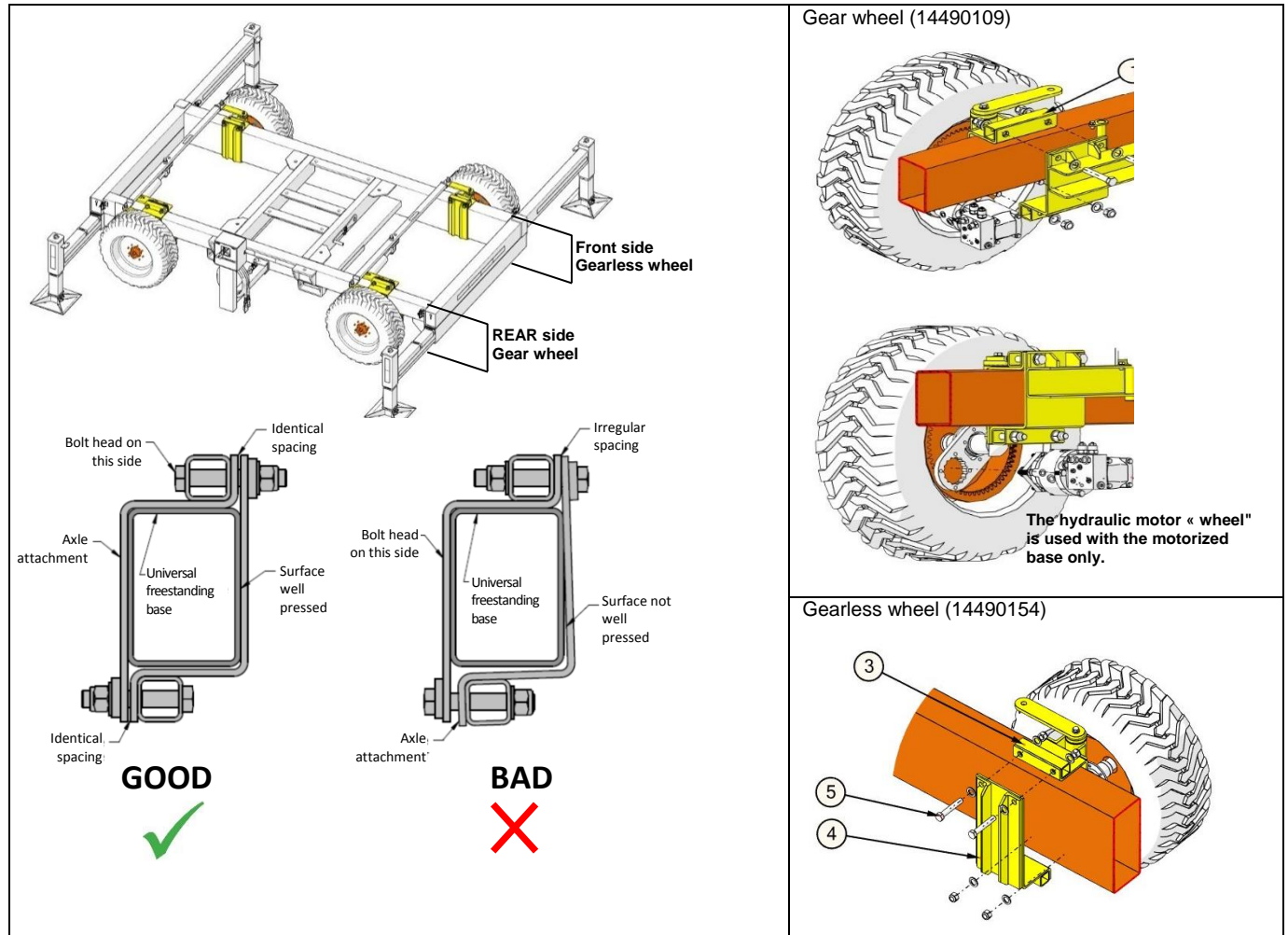
∞SEE TECHNICAL DATA SHEET OF THE UNIVERSAL FREESTANDING base, ON PAGE 149

|   |                           |
|---|---------------------------|
| Recommended tire pressure<br>(Check the indications on the tire sidewall) | minimum 50 psi (3,45 bar) |
|   | maximum 70 psi (4,82 bar) |

Position and bolt the gear wheels on the REAR side of the base and the gearless wheels on the FRONT side (wall side).

**Important!** The movable axle pivot must be on top. Pay attention to the bolts' insertion direction.

Ensure there is an identical space between the top and bottom plates. The surface of the fastener must be properly supported on the sides of the tubes of the freestanding base.

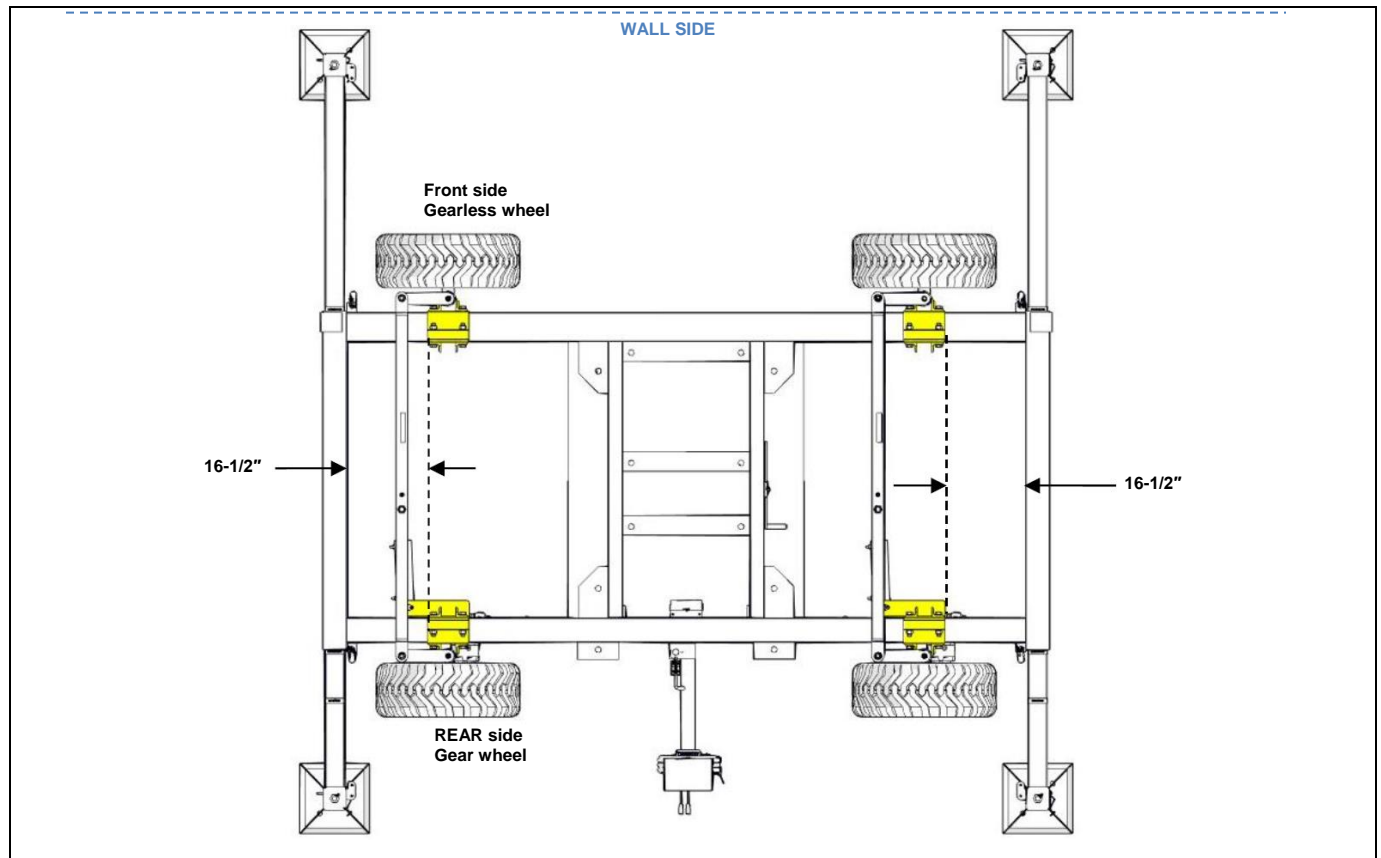


| No. | Item     | Description                                  | No. | Item     | Description  |
|-----|----------|--|-----|----------|--|
| 01  | 28496368 | Attachment for left axle (mobile base)       | 04  | 28496379 | Attachment for right inner axle (mobile base)                        |
| 02  | 28496380 | Attachment for left inner axle (mobile base) | 05  | BOZ-7245 | Bolt 3/4"-10unc x 4-1/2" gr5 zinc                                    |
| 03  | 28496391 | Attachment for right axle (mobile base)      | 06  | HYE-3597 | Assembled hydraulic motor 400 cc - with brake + counterbalance valve |

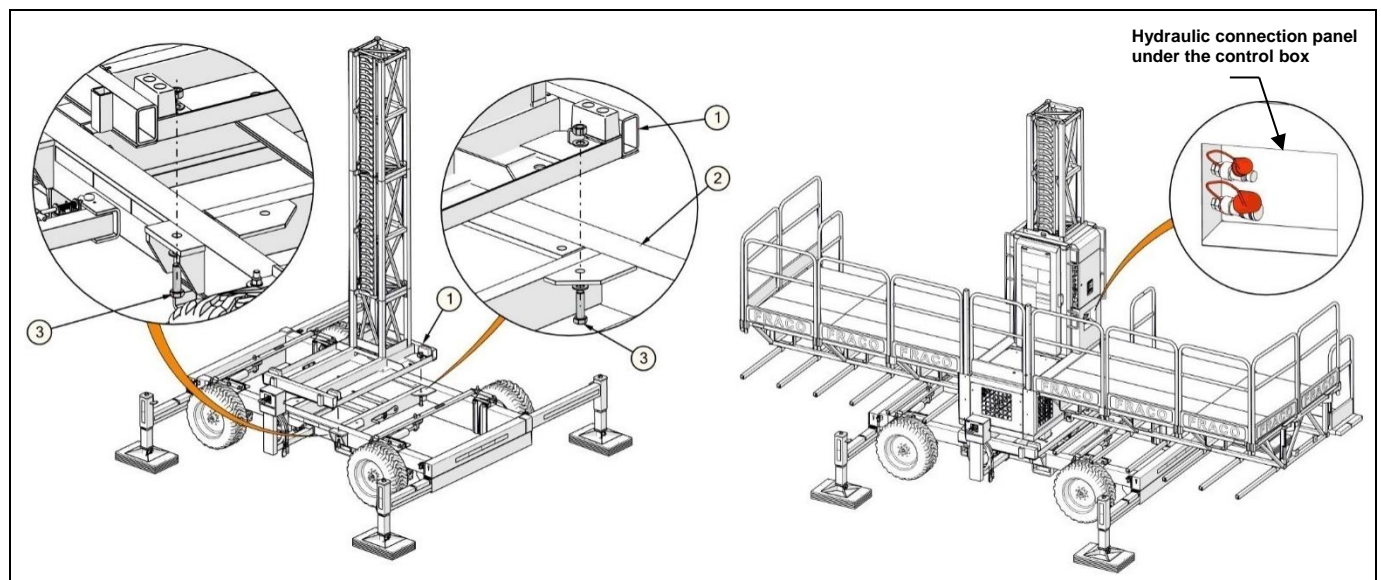
Figure 135 - Mobile base, installation of wheels

**Installation of wheels (CONTINUED)**

Check the installation spacing of the wheels with respect to the inside of the bracket support beams.



**Installation of the base and lifting unit**



| No. | Item     | Description                                  | No. | Item     | Description                                |
|-----|----------|--|-----|----------|--|
| 01  | 14030019 | Ground base for 20" x 20" mast 3'-6" x 6'-0" | 03  | BOA-2072 | Bolt 1"-8unc x 3-1/2" A325 galv. assembled |
| 02  | 14030109 | Universal freestanding base                  |     |          |  |

Figure 136 - Mobile base, unit installation

## Mobile base use



The operator must hold a **valid Level 1 card**. This person must be familiar with the instructions for use, have sufficient experience and be aware of the risks involved in the use of the platform.

**Important!** Before use at the beginning of each shift, all points of the « **DAILY INSPECTION GRID** » must be checked, including a functional check. During operation, the operator must strictly follow all operating instructions.

∞SEE **DAILY INSPECTION GRID**, ON PAGE 157

Lower the platform to its lowest level (lifting unit in contact with the base).

Remove the mast sections and bridge and/or extension sections.

The movement configuration allows a maximum of 45'-0" (13,7 m) of mast sections and 20'-0" (6,1 m) of extension section on either side of the lifting unit.

Remove all loads on the platform before using the assembled mobile base.

Make sure all components are properly secured.

Check the clearance of all parts of the platform and base before starting any movement (e.g. balconies, electrical wiring, etc.).

Implement the hydraulic connections to the lifting unit.

Start the lifting unit and set the switch to « **ACCESSORIES** »

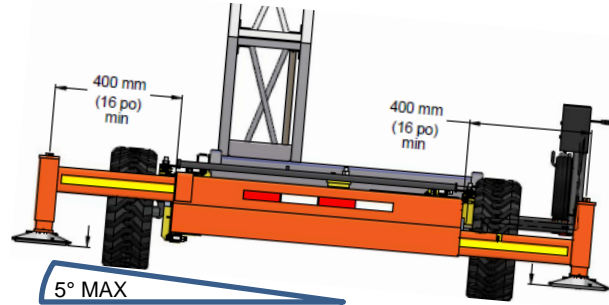
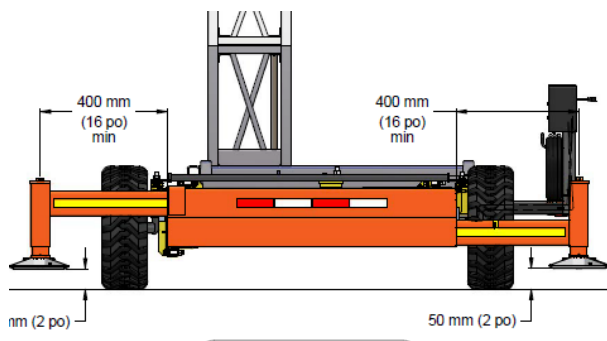
∞SEE **OPERATION, USE OF THE LIFTING UNIT**, ON PAGE 25



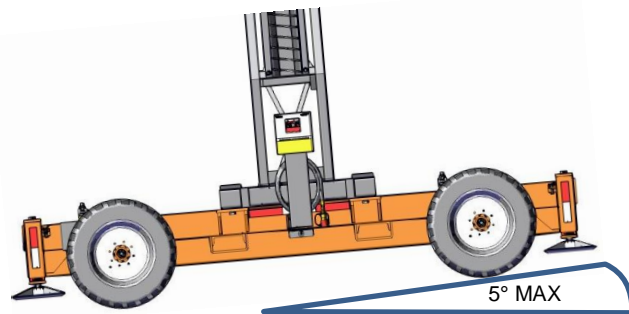
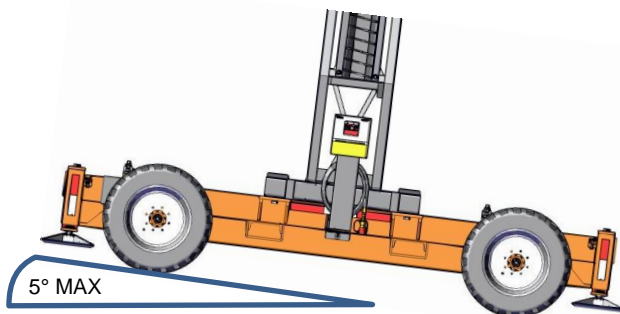
**ATTENTION:** When moving, the stabilizers on the movable base must be at least 16" (400 mm) extended and the pads must be at 2" (50 mm) from the ground.

Do not exceed a speed of 3,1 m/h (5 km/h) when moving the base.

Do not exceed an inclination of 5° (the ground must be relatively straight and without sudden level changes). A spirit level on the base indicates the inclination level.



Use the control box levers to steer the wheels when moving.





**Control box**

Lever No. 1 is used to orient the Left wheels, while Lever No. 2 is used to orient the Right wheels.  
 Lever No. 3 is used to actuate the hydraulic motor of the rear wheels. The lever is removed if not necessary.  
 The minimum turning radius is 7'-0" (2,1 m).

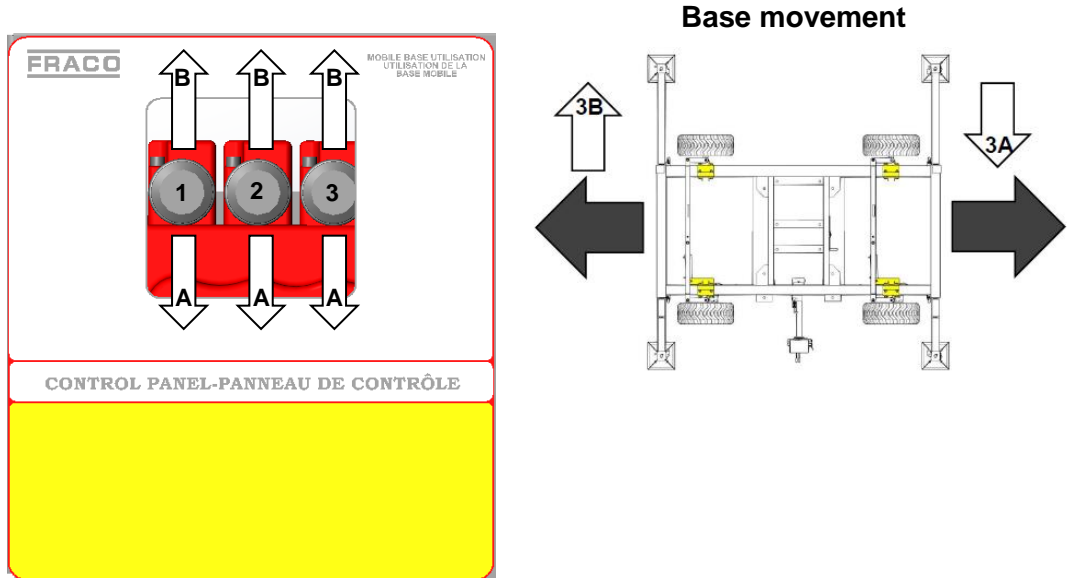
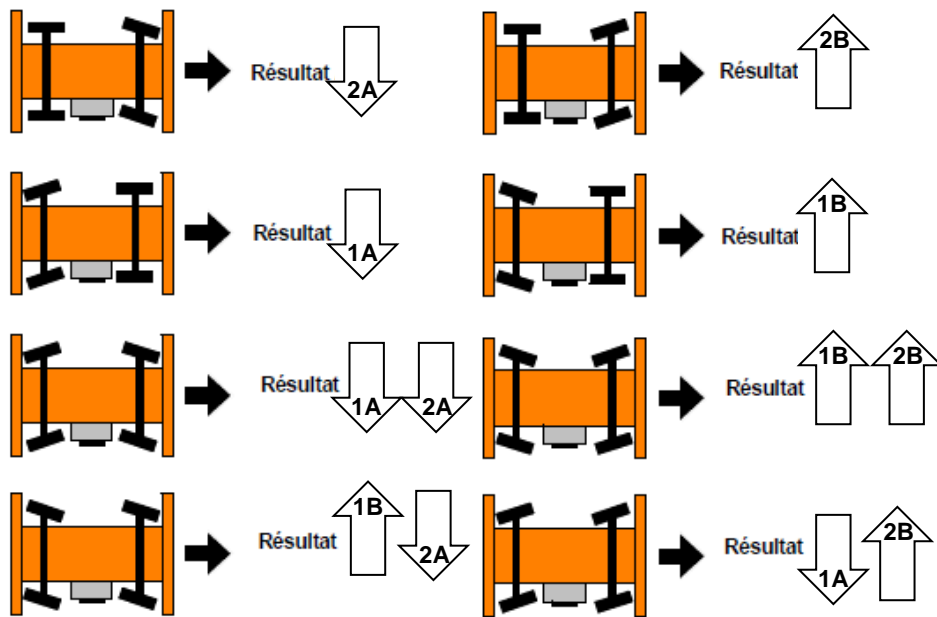


Figure 137 - Mobile base operating sticker (30060290)

**Wheels pivots movement**



**Warning:** When movement is complete and BEFORE using the platform, turn the selector switch back to the « OFF » position and disconnect the hydraulic connections to the lifting unit.

∞SEE OPERATION, USE OF THE LIFTING UNIT, ON PAGE 25



# Index

## Technical data sheets

### Lifting unit technical data sheet

Table 11 - Technical data sheet, lifting unit

|          | Lifting unit (10030015-GAS),<br>(10030048-CE_GAZ),<br>(10030059-CE_Diesel),<br>(10030060-CE_Électrique),<br>(10030071-Électrique) | Imperial     | Metric         |
|----------|---|--------------|----------------|
| <b>A</b> | Length (see <a href="#">Figure 138</a> )  | 3'-3 3/8"    | 1 m            |
| <b>B</b> | Width (see <a href="#">Figure 138</a> )   | 5'-10 7/8"   | 1,8 m          |
| <b>C</b> | Height (see <a href="#">Figure 138</a> )  | 7'-2 5/8"    | 2,2 m          |
|          | Mass (gas/diesel lifting unit only)   | 2 610 lb     | 1 185 kg       |
|          | Mass (gas/diesel lifting unit + ground base + first mast section)   | 3 680 lb     | 1 670 kg       |
|          | Mass (electric lifting unit only)   | 2 785 lb     | 1 265 kg       |
|          | Mass (electric lifting unit + ground base + first mast section)   | 3 855 lb     | 1 750 kg       |
|          | Lifting capacity  | 8 000 lb     | 3 635 kg       |
|          | Travel speed (Gas/Diesel)   | 0 - 38 fpm   | 0 – 11,6 m/min |
|          | Travel Speed (Electric)   | 0 – 34,8 fpm | 0 – 10,7 m/min |

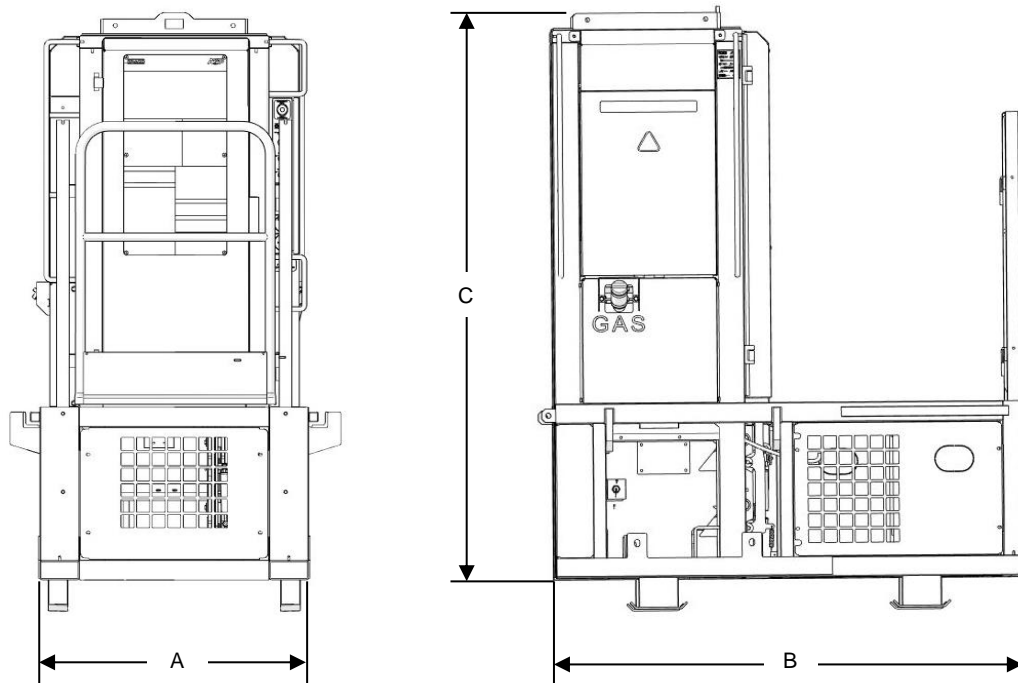


Figure 138 - Lifting unit dimensions

## Technical data sheet of the ground base

Table 12 - Technical data sheet ground base

|          | Ground base (14030019)  | Imperial   | Metric   |
|----------|---|------------|----------|
| <b>D</b> | Length (see <a href="#">Figure 139</a> )                          | 3'-6"      | 1,1 m    |
| <b>E</b> | Width (see <a href="#">Figure 139</a> )                           | 6'-1 7/8"  | 1,9 m    |
| <b>F</b> | Height (see <a href="#">Figure 139</a> )                          | 2'-10 1/4" | 869 mm   |
|          | Mass (Ground base only)   | 740 lb     | 335 kg   |
|          | Mass (gas/diesel lifting unit + ground base + first mast section) | 3 680 lb   | 1 670 kg |
|          | Mass (electric lifting unit + ground base + first mast section)   | 3 855 lb   | 1 750 kg |

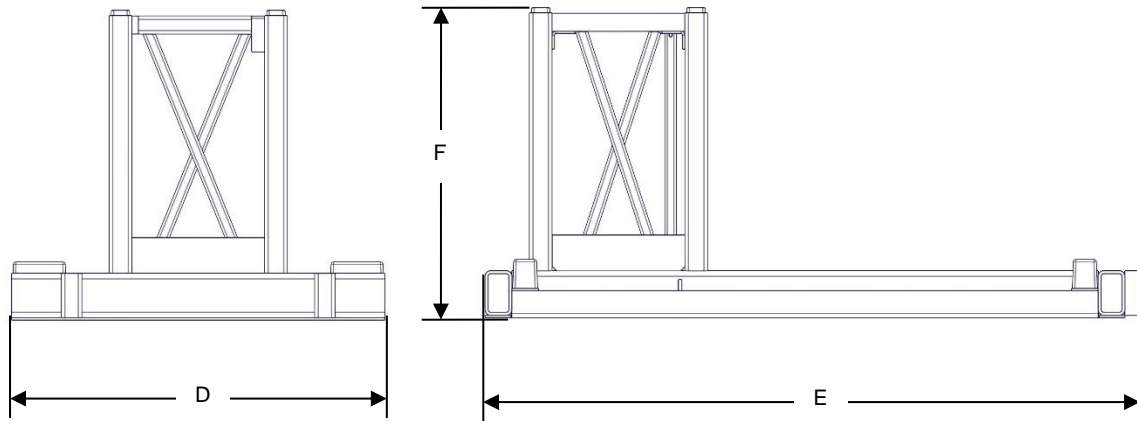


Figure 139 - Ground base dimensions

## Technical data sheet of the universal freestanding base

Table 13 - Technical data sheet universal freestanding base

|          | Universal freestanding base (14030109)   | Imperial    | Metric   |
|----------|--|-------------|----------|
| <b>G</b> | Length (see <a href="#">Figure 141</a> )   | 12'-5"      | 3,78 m   |
| <b>H</b> | Maximum width (see <a href="#">Figure 141</a> )*   | 12'-10 3/4" | 3,93 m   |
| <b>I</b> | Minimum width (see <a href="#">Figure 141</a> )*   | 8'-1"       | 2,46 m   |
| <b>J</b> | Maximum height (see <a href="#">Figure 141</a> )*  | 2'-5 5/8"   | 752 mm   |
|          | Mass (freestanding base only)  | 2 255 lb    | 1 025 kg |
|          | Mass (gas/diesel lifting unit + ground base + freestanding base + first mast section)  | 5 935 lb    | 2 692 kg |
|          | Mass (electric lifting unit + ground base + freestanding base + first mast section)  | 6 110 lb    | 2 771 kg |
|          | <p>* The specified widths must take into account the limits imposed by the MINIMUM and MAXIMUM stickers mentioned in the notes below.<br/>           Note: The permissible slope of the chassis is 0,5° MAXIMUM.<br/>           Note: The « MINIMUM » stickers (see <a href="#">Figure 140</a>) indicate the minimum opening of the outriggers.<br/>           Note: The « MAXIMUM » stickers (see <a href="#">Figure 140</a>) indicate the maximum opening of the outriggers.</p> |             |          |

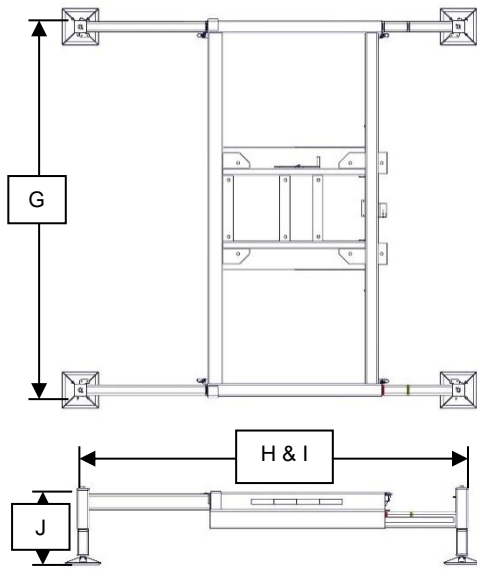


Figure 141 - Universal freestanding base dimensions

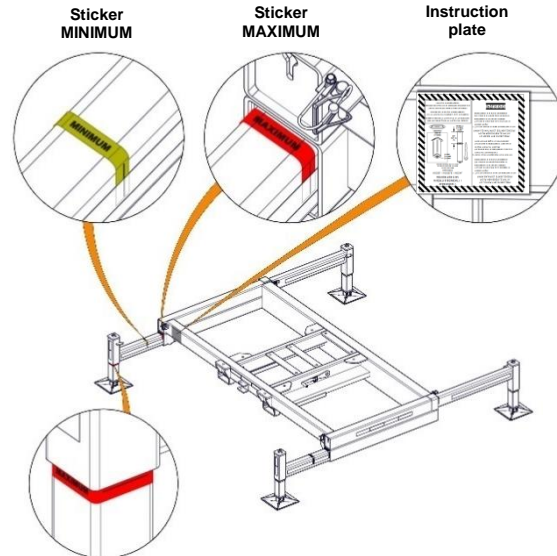


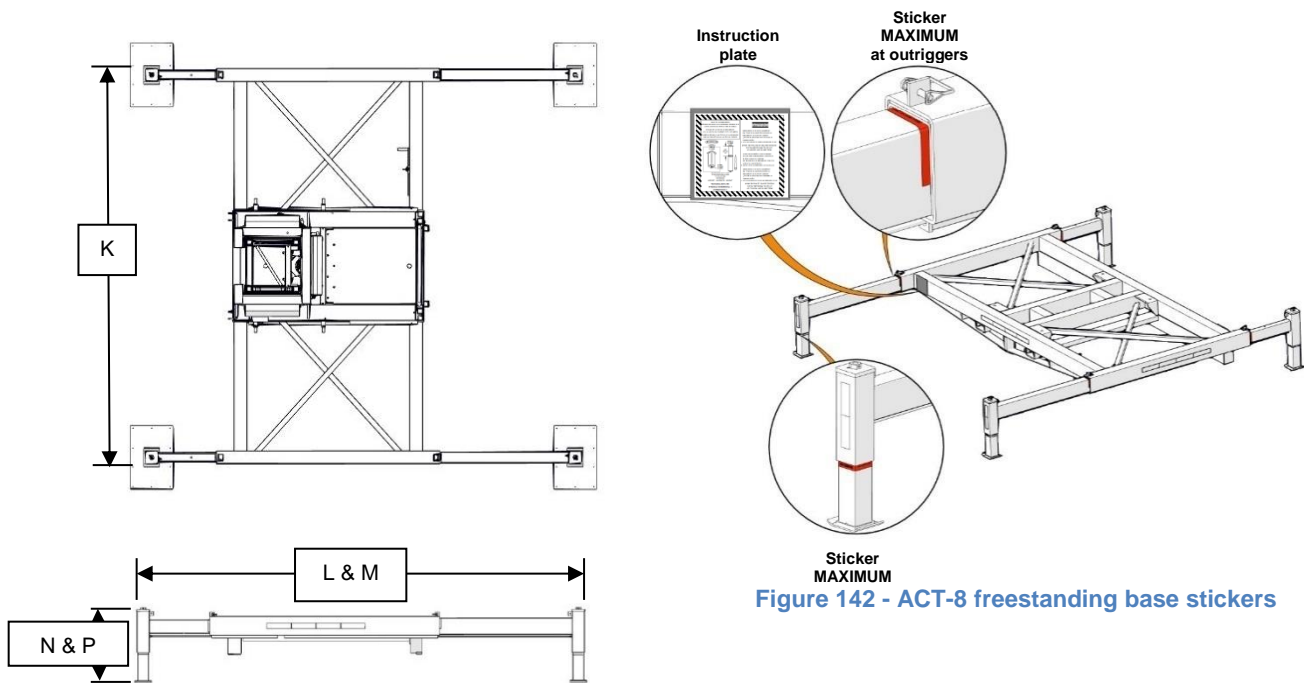
Figure 140 - Universal freestanding base stickers

## Technical data sheet of the ACT-8 freestanding base

Note: This base can be found on older machines. Also, it must be assembled to a ground base (14030019)

Table 14 - Technical data sheet ACT-8 freestanding base

|          | ACT-8 freestanding base (14030020)  | Imperial   | Metric   |
|----------|---|------------|----------|
| <b>K</b> | Length (see <a href="#">Figure 143</a> )  | 12'-4 1/2" | 3,8 m    |
| <b>L</b> | Maximum width (see <a href="#">Figure 143</a> )*  | 12'-9 1/2" | 3,9 m    |
| <b>M</b> | Minimum width (see <a href="#">Figure 143</a> )*  | 12'-1 5/8" | 3,7 m    |
| <b>N</b> | Minimum height (see <a href="#">Figure 143</a> )  | 1'-3 3/4"  | 400 mm   |
| <b>P</b> | Maximum height (see <a href="#">Figure 143</a> )*   | 2'-1 5/8"  | 650 mm   |
|          | Mass (freestanding base only)   | 2 070 lb   | 940 kg   |
|          | Mass (gas/diesel lifting unit + freestanding base + first mast section)   | 5 010 lb   | 2 210 kg |
|          | Mass (electric lifting unit + freestanding base + first mast section)   | 5 185 lb   | 2 352 kg |
|          | * The specified widths must take into account the limits imposed by the MINIMUM and MAXIMUM stickers mentioned in the notes below.<br>Note: The permissible slope of the chassis is 0,5° MAXIMUM.<br>Note: There are no « MINIMUM » stickers (see <a href="#">Figure 142</a> ).<br>Note: The « MAXIMUM » stickers (see <a href="#">Figure 142</a> ) indicate the maximum opening of the outriggers. |            |          |





### Mast sections technical data sheet

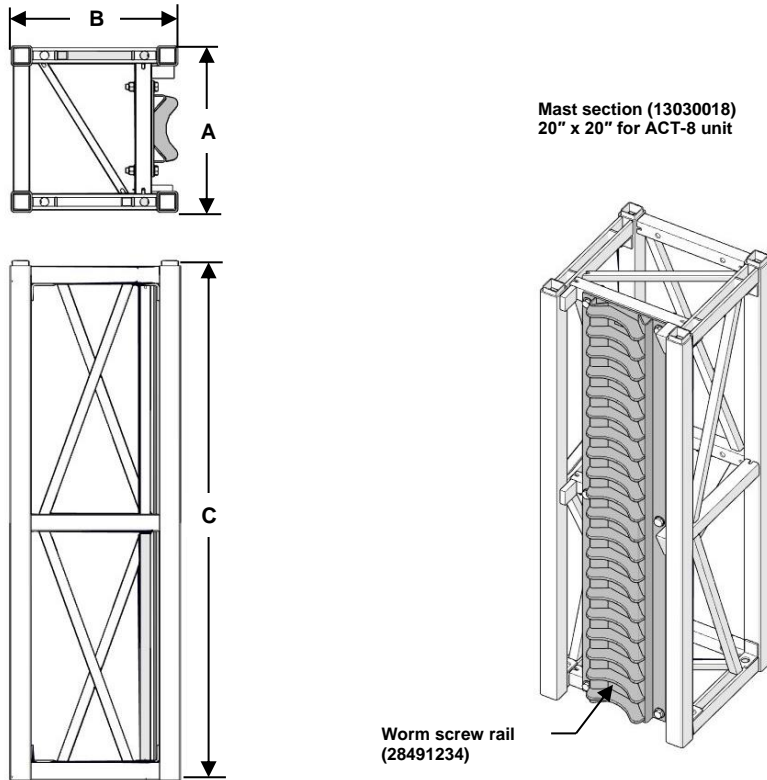


Figure 144 - ACT-8 mast section

Table 15 - Technical data sheet ACT-8 mast section

|          | Mast section with bars (13030018)  | Imperial  | Metric |
|----------|--|-----------|--------|
| <b>A</b> | Length (see <a href="#">Figure 144</a> )   | 20"       | 0,50 m |
| <b>B</b> | Width (see <a href="#">Figure 144</a> )  | 20"       | 0,50 m |
| <b>C</b> | Height (see <a href="#">Figure 144</a> )   | 5'-0"     | 1,5 m  |
|          | Assembly tightening torque   | 265 lb-ft | 360 Nm |
|          | Weight   | 330 lb    | 150 kg |
|          | <p>Note: The maximum working height of a mast assembled on a freestanding base (without anchors) is 45'-0" (13,7 m).</p> <p>Note: Use a forklift truck, crane truck or self-erecting system to install the masts.</p> <p>Note: When installing the masts, ensure the rails are all oriented in the proper direction.</p> <p><b>Do not exceed the following vertical tolerances:</b><br/>           1/2" (13 mm) for a 10'-0" assembled mast (3 m)<br/>           3/4" (19 mm) for a 20'-0" assembled mast (6,1 m)<br/>           1" (25 mm) for a mast assembled to the maximum permitted height</p> |           |        |

## Distance between the masts

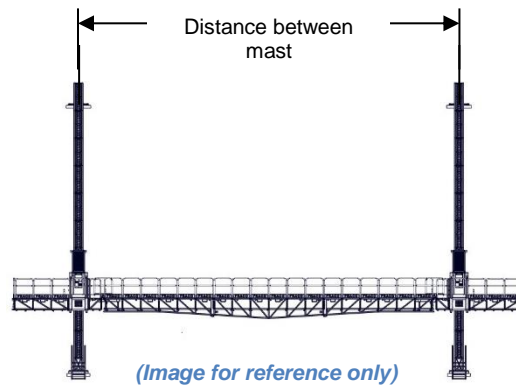


Table 16 - Distance between the masts

| Configuration   | Min distance         | Standard distance    | Max distance         |
|---|----------------------|----------------------|----------------------|
| 20'-0" (6,1 m) bridge section   | 24'-5"<br>(7,44 m)   | 24'-8"<br>(7,51 m)   | 24'-11"<br>(7,59 m)  |
| Bridge section 20'-0" (6,1 m) + one (1) 2'6" (0,75 m) extension section   | 26'-11"<br>(8,20 m)  | 27'-2"<br>(8,28 m)   | 27'-5"<br>(8,36 m)   |
| Bridge section 20'-0" (6,1 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section  | 29'-5"<br>(8,97 m)   | 29'-8"<br>(9,04 m)   | 29'-11"<br>(9,12 m)  |
| Bridge section 20'-0" (6,1 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section  | 31'-11"<br>(9,73 m)  | 32'-2"<br>(9,80 m)   | 32'-5"<br>(9,88 m)   |
| Bridge section 20'-0" (6,1 m) + two (2) 5'0" (1,50 m) extension sections  | 34'-5"<br>(10,49 m)  | 34'-8"<br>(10,57 m)  | 34'-11"<br>(10,64 m) |
| 40'-0" (12,2 m) bridge section  | 44'-4"<br>(13,51 m)  | 44'-10"<br>(13,67 m) | 45'-4"<br>(13,82 m)  |
| Bridge section 40'-0" (12,2 m) + one (1) 2'6" (0,75 m) extension section  | 46'-10"<br>(14,27 m) | 47'-4"<br>(14,43 m)  | 47'-10"<br>(14,58 m) |
| Bridge section 40'-0" (12,2 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section | 49'-4"<br>(15,04 m)  | 49'-10"<br>(15,19 m) | 50'-4"<br>(15,34 m)  |
| Bridge section 40'-0" (12,2 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section | 51'-10"<br>(15,80 m) | 52'-4"<br>(15,95 m)  | 52'-10"<br>(16,10 m) |
| Bridge section 40'-0" (12,2 m) + two (2) 5'0" (1,50 m) extension sections   | 54'-4"<br>(16,56 m)  | 54'-10"<br>(16,71 m) | 55'-4"<br>(16,87 m)  |
| 60'-0" (18,3 m) bridge section  | 64'-4"<br>(19,61 m)  | 64'-10"<br>(19,76 m) | 65'-4"<br>(19,91 m)  |
| Bridge section 60'-0" (18,3 m) + one (1) 2'6" (0,75 m) extension section  | 66'-10"<br>(20,37 m) | 67'-4"<br>(20,52 m)  | 67'-10"<br>(20,68 m) |
| Bridge section 60'-0" (18,3 m) + two (2) 2'6" (0,75 m) extension sections or one (1) 5'0" (1,5 m) extension section | 69'-4"<br>(21,13 m)  | 69'-10"<br>(21,29 m) | 70'-4"<br>(21,44 m)  |
| Bridge section 60'-0" (18,3 m) + one (1) 2'6" (0,75 m) extension section and one (1) 5'0" (1,5 m) extension section | 71'-10"<br>(21,89 m) | 72'-4"<br>(22,05 m)  | 72'-10"<br>(22,20 m) |
| Bridge section 60'-0" (18,3 m) + two (2) 5'0" (1,50 m) extension sections   | 74'-4"<br>(22,66 m)  | 74'-10"<br>(22,81 m) | 75'-4"<br>(22,96 m)  |

**ATTENTION!**  
**AN ERROR HAS OCCURRED ON THIS PAGE. DO NOT**  
**USE THE INFORMATION ON THIS PAGE.**  
**REFER TO THE TECHNICAL BULLETIN AT THE**  
**BEGINNING OF THIS MANUAL.**

## Extensions and bridges (non-modular)

| Extension section (non-modular) |  |                      |              |             |                                |
|---------------------------------|--|----------------------|--------------|-------------|--------------------------------|
| Code                            | Description                            | Weight               | Length       | Width       | Height                         |
| 15020019                        | 28" x 43" (0,7 m x 1,1 m)              | 300 lb<br>(135 kg)   | 30" (762 mm) | 43" (1,1 m) | 26,5" (673 mm)                 |
| 15020020                        | 40" x 43" (1 m x 1,1 m)                | 275 lb<br>(125 kg)   | 40" (1 m)    | 43" (1,1 m) | 26,5" (673 mm)                 |
| 15020031                        | 80" x 43" (2 m x 1,1 m)                | 450 lb<br>(205 kg)   | 80" (2 m)    | 43" (1,1 m) | 26,5" (673 mm)                 |
| 15020042                        | 120" x 43" (3 m x 1,1 m)               | 640 lb<br>(290 kg)   | 120" (3 m)   | 43" (1,1 m) | 26,5" (673 mm)                 |
| 15020086                        | Tapered 120" x 43" (3 m x 1,1 m)       | 1 000 lb<br>(455 kg) | 120" (3 m)   | 43" (1,1 m) | 24,5" / 40"<br>(622 mm / 1 m)  |
| Bridge section (non-modular)    |  |                      |              |             |                                |
| Code                            | Description                            | Weight               | Length       | Width       | Height                         |
| 15020053<br>(former code)       | 180" x 43" (4,6 m x 1,1 m)<br>(hybrid) | 1 200 lb<br>(545 kg) | 180" (4,6 m) | 43" (1,1 m) | 30" / 38"<br>(762 mm / 953 mm) |
| 15020064<br>(former code)       | 240" x 43" (6,1 m x 1,1 m)<br>(hybrid) | 1 675 lb<br>(760 kg) | 240" (6,1 m) | 43" (1,1 m) | 30" / 38"<br>(762 mm / 953 mm) |
| 15020097                        | 180" x 43" (4,6 m x 1,1 m)<br>(hybrid) | 1 200 lb<br>(545 kg) | 180" (4,6 m) | 43" (1,1 m) | 30" / 38"<br>(762 mm / 953 mm) |
| 15020109                        | 240" x 43" (6,1 m x 1,1 m)<br>(hybrid) | 1 675 lb<br>(760 kg) | 240" (6,1 m) | 43" (1,1 m) | 30" / 38"<br>(762 mm / 953 mm) |
| 15020075                        | Central 240" x 43" (6,1 m x 1,1 m)     | 1 355 lb<br>(615 kg) | 240" (6,1 m) | 43" (1,1 m) | 38" / 43"<br>(953 mm / 1,1 m)  |

## Extensions and bridges (modular)

| Extension section (modular)           |  |                      |                |             |                                  |
|---------------------------------------|--|----------------------|----------------|-------------|----------------------------------|
| Code                                  | Description                                      | Weight               | Length         | Width       | Height                           |
| 15030087 / 15030010<br>(former codes) | 28" x 70" (0,7 m x 1,8 m)                        | 310 lb<br>(140 kg)   | 28" (762 mm)   | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15030098 / 15030021<br>(former codes) | 40" x 70" (1 m x 1,8 m)                          | 286 lb<br>(130 kg)   | 40" (1 m)      | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15030100 / 15030032<br>(former codes) | 80" x 70" (2 m x 1,8 m)                          | 595 lb<br>(270 kg)   | 80" (2 m)      | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15030111 / 15030043<br>(former codes) | 120" x 70" (3 m x 1,8 m)                         | 825 lb<br>(375 kg)   | 120" (3 m)     | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15060013 / 15060024<br>(former codes) | Tapered 120" x 70" (3 m x 1,8 m)                 | 1210 lb<br>(550 kg)  | 120" (3 m)     | 70" (1,8 m) | 24,5" / 39,5"<br>(622 mm / 1 m)  |
| 15090016 / 15090094                   | 28" x 70" (0,7 m x 1,8 m)                        | 310 lb<br>(140 kg)   | 28" (762 mm)   | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15090027 / 15090106                   | 40" x 70" (1 m x 1,8 m)                          | 286 lb<br>(130 kg)   | 40" (1 m)      | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15090038 / 15090117                   | 60" x 70" (1,5 m x 1,8 m)                        | 530 lb<br>(240 kg)   | 60" (1,5 m)    | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15090049 / 15090128                   | 80" x 70" (2 m x 1,8 m)                          | 630 lb<br>(285 kg)   | 80" (2 m)      | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15090050 / 15090139                   | 120" x 70" (3 m x 1,8 m)                         | 760 lb<br>(345 kg)   | 120" (3 m)     | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15090184 / 15090195                   | Tapered 120" x 70" (3 m x 1,8 m)<br>(Universal)  | 1 150 lb<br>(520 kg) | 120" (3 m)     | 70" (1,8 m) | 26,5" (673 mm)                   |
| 15060013 / 15060024                   | Tapered 120" x 70" (3 m x 1,8 m)                 | 1 210 lb<br>(550 kg) | 120" (3 m)     | 70" (1,8 m) | 26,5" (673 mm)                   |
| 20490971                              | Tapered extension section adapter                | 550 lb<br>(250 kg)   | 6.75" (170 mm) | 43" (1,1 m) | 40" (1 m)                        |
| Bridge section (modular)              |  |                      |                |             |                                  |
| Code                                  | Description                                      | Weight               | Length         | Width       | Height                           |
| 15030223 / 15030234<br>(former codes) | 180" x 70" (4,6 m x 1,8 m)<br>(Hybrid-universal) | 1 540 lb<br>(700 kg) | 180" (4,6 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15030201 / 15030212<br>(former codes) | 240" x 70" (6,1 m x 1,8 m)<br>(Hybrid-universal) | 1 880 lb<br>(855 kg) | 240" (6,1 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15030166 / 15030177<br>(former codes) | 180" x 70" (4,6 m x 1,8 m)<br>(hybrid)           | 1 290 lb<br>(585 kg) | 180" (4,6 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15030144 / 15030155<br>(former codes) | 240" x 70" (6,1 m x 1,8 m)<br>(hybrid)           | 1 700 lb<br>(770 kg) | 240" (6,1 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15030054 / 15030133                   | 180" x 70" (4,6 m x 1,8 m)                       | 1 500 lb<br>(680 kg) | 180" (4,6 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15090205 / 15090206                   | 240" x 70" (6,1 m x 1,8 m)                       | 1 690 lb<br>(765 kg) | 240" (6,1 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15030076                              | Central 240" x 70" (6,1 m x 1,8 m)               | 1 650 lb<br>(750 kg) | 240" (6,1 m)   | 70" (1,8 m) | 37,5" / 43"<br>(953 mm / 1,1 m)  |
| 15090229 / 15090230                   | 180" x 70" (4,6 m x 1,8 m)<br>(Hybrid-universal) | 1 540 lb<br>(700 kg) | 180" (4,6 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15090207 / 15090218                   | 240" x 70" (6,1 m x 1,8 m)<br>(Hybrid-universal) | 1 880 lb<br>(855 kg) | 240" (6,1 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15090061 / 15090140                   | 180" x 70" (4,6 m x 1,8 m)<br>(hybrid)           | 1 290 lb<br>(585 kg) | 180" (4,6 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |
| 15090072 / 15090151                   | 240" x 70" (6,1 m x 1,8 m)<br>(hybrid)           | 1 885 lb<br>(855 kg) | 240" (6,1 m)   | 70" (1,8 m) | 30" / 37,5"<br>(762 mm / 953 mm) |

## Periodic maintenance

### IMPORTANT NOTE

The frequency and extent of periodic testing and evaluations depends on national regulations, manufacturer specifications, operating conditions and frequency of use. Normally, it is not necessary to dismantle parts during periodic reviews, unless a doubt exists as to reliability and safety. Removal of hoods, the opening of observation hatches and the lowering of the platform to its transport position are not considered as part of a disassembly operation.

### IMPORTANT

Before servicing, be sure to observe the following:

- Turn off the main power supply (for example, remove the main plug or turn the key to the « OFF » position) and secure the access to prevent any unintentional restart.
- Physically secure the unit if work must be done under it.
- Only a qualified and certified FRACO mechanic may perform the maintenance and/or repair.
- Replace the disassembled parts when the operation is complete.

### Daily

- Check the fuel tank level (if applicable).
- Check the base horizontal level and mast vertical level with a 1 m spirit level (in both directions).
- Remove cement or dry mortar deposits that may prevent proper operation of the platform.
- Test the good function of the emergency descent.

### Weekly

- Check the hydraulic and engine oil levels (if applicable).
- Check the hydraulic hoses to ensure there are no oil leaks.
- Check that there is no metal deformation in parts such as extension sections, mast sections, base, hooks, etc. Deformation may occur as a result of improper handling.

### Monthly

- Refer to the inspection sheet of the model-specific service manual and serial number.



## Periodic emergency descent test (daily)

As part of the periodic maintenance, a test of the emergency descent must be conducted, as mentioned in the daily inspection grid. The following instructions show the steps of the test and specific components verification on the safety system.

∞ SEE DAILY INSPECTION GRID, ON PAGE 162.

Take notice of the emergency descent procedure for operation instruction.

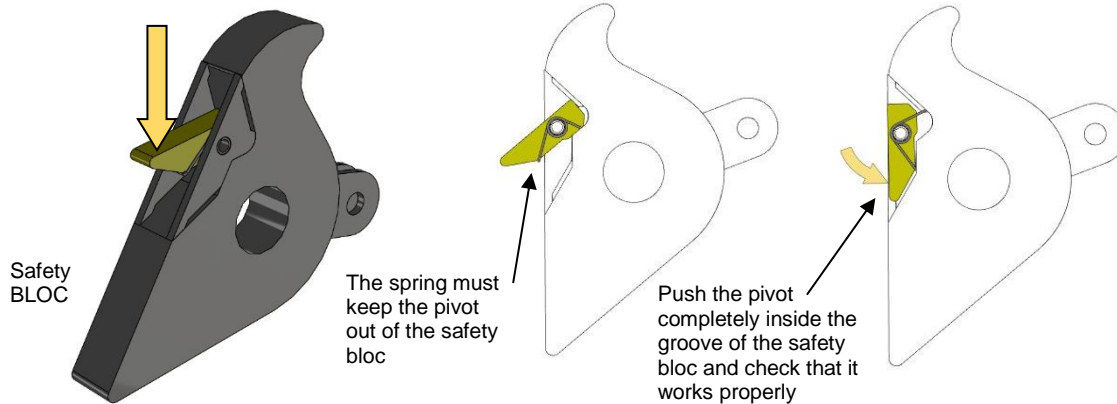
∞ SEE EMERGENCY DESCENT PROCEDURE, ON PAGE 31

∞ SEE EMERGENCY DESCENT PROCEDURE (OLDER GENERATION), ON PAGE 32

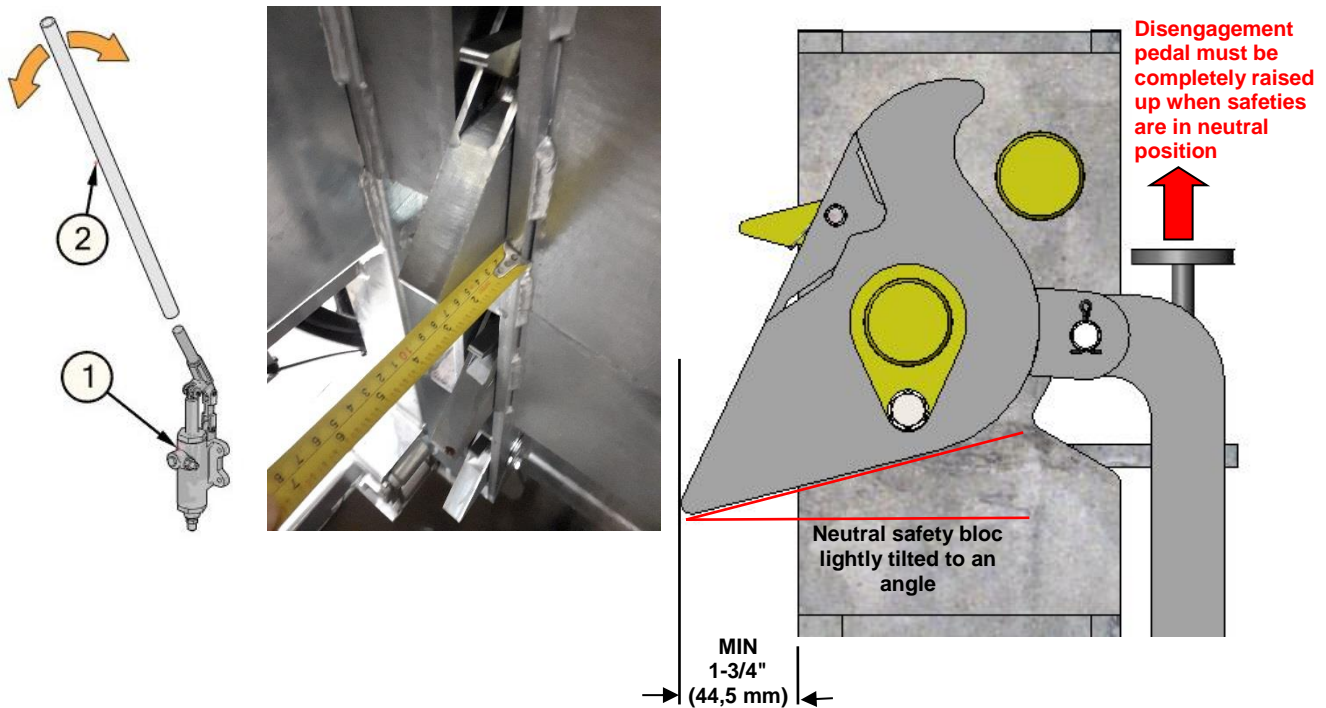
∞ SEE SAFETY SYSTEM PERIODIC VERIFICATION, ON PAGE 33

### STEPS:

- 1- Verify that spring pivots work well on each of the three (3) safety BLOCS. These must not clog, nor jam and the springs must work well.  
Note: This verification must be carried on daily by the operator of the platform



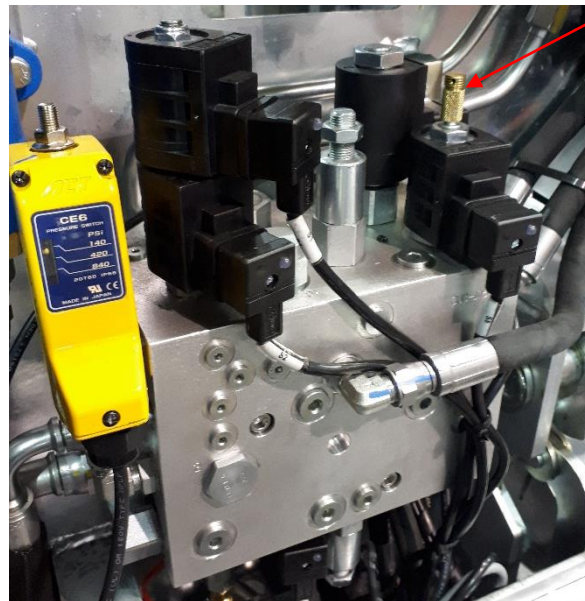
- 2- Raise the platform of approximately 3" (76 mm) and more by using the manual pump arm (items 1 and 2), until complete disengagement of the safeties. Safety BLOCS drop to **NEUTRAL POSITION**. In this position, safety BLOCS need to be lightly tilted. Check the measure specified below. **Important!** The dimension must respect a **MINIMUM of 1-3/4" (44,5 mm)** for each of the three (3) safety BLOCS.



- 3- Raise the platform of at least 60" (1,50 m) and more.
- 4- Disengage the safeties by pressing on the disengagement pedal and use the manual descent to lower the platform of at least 60" (1,50 m). Use the hydraulic release valve to slowly lower the platform.

**Important!** Press on the disengagement pedal at all time while lowering the platform.

∞ SEE FIGURE 146 – SAFETY DISENGAGED, BELOW



Hydraulic releasing valve

**Important!** Make sur that there is a contact between mobile component and locking axle.

- 5- After having tested the manual descent on a distance of at least 60" (1,50 m), release the disengagement pedal. The pedal must raise back to its original position automatically (**neutral position**).
- 7- Again, raise up the platform of approximately 20" (0,50 m) and more.

**Important!** Use the manual descent again (hydraulic release valve) to lower the platform until the safety end up resting on the next mast stopper. To approve that the safety properly works, these must rest completely on the stopper and must support the platform.

∞ SEE FIGURE 145 – SAFETY ENGAGED, BELOW

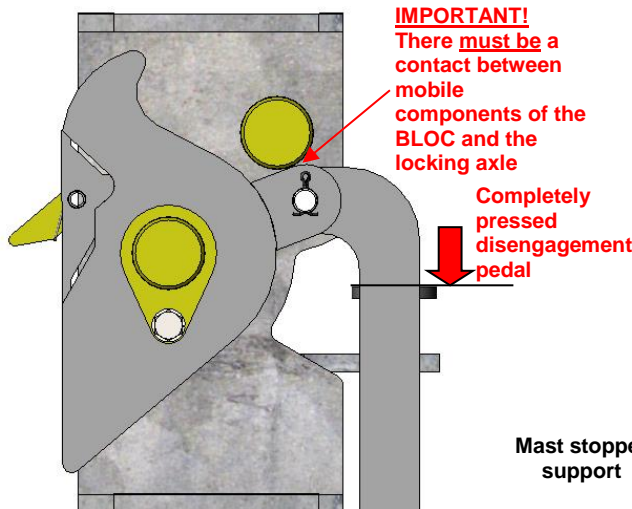


Figure 146 – Safety disengaged

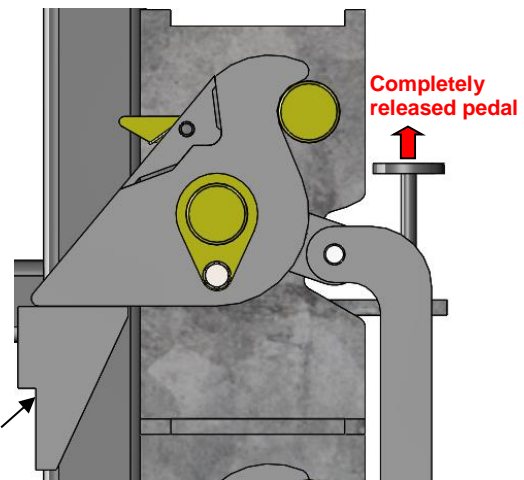
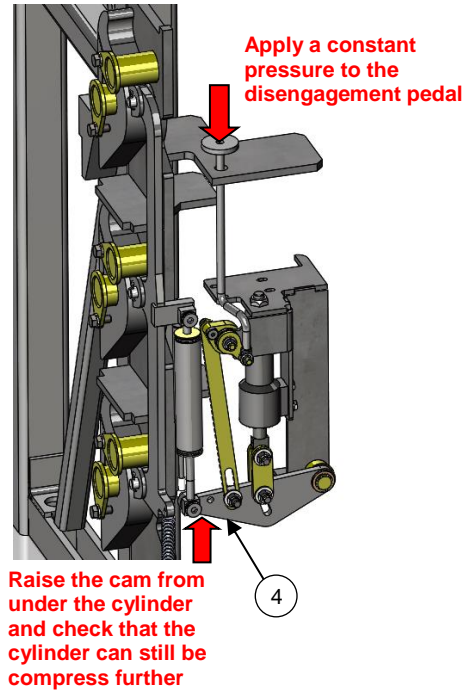
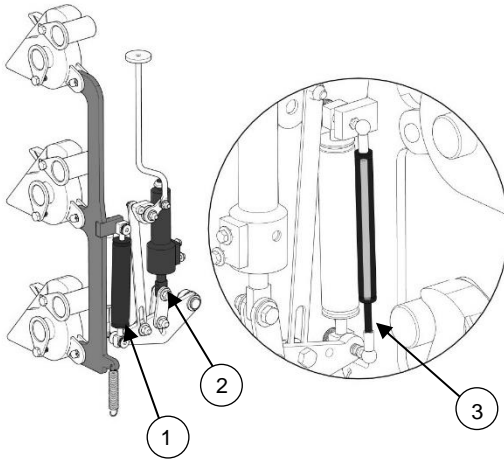


Figure 145 – Safety engaged

## Periodic emergency descent test (monthly)

- 1- Check the state of the gas cylinder (**items 1, 2, 3**). Check for any leaking or deformations.
  - 2- Apply a constant pressure on the disengagement pedal to completely disengage safeties. Simultaneously, raise the cam (**item 4**) and verify that both cylinders (**items 1 and 2**) can still compress further.
- In case of a noncompliance, check the integrity of the safety system (**32030323**) and repair the problematic component.



### Other (lubrication points)

Refer to (30010880) the English/French « ACT-8 screw lubrication » sticker for recommended maintenance periods and lubrications.

**GREASE SCHEDULE FOR SCREW DRIVE**  
**CÉDULE DE GRAISSAGE DE LA VIS**  
**CEDULA DE LUBRICACIÓN DEL TORNILLO**

**TYPES OF GREASE APPROVED**  
**TIPOS DE GRASA APROBADOS:**

- TOTAL CERAN MM used by Fraco
- Mobil Centaur Moly 1
- Shell SRS 2000 Extreme
- Total Multis Complex SHD 220
- Mobil SHC 220

GREASE EVERY 50 HOURS OF USE (HOURMETER) OR 3 MONTH  
 GRAISSAGE À TOUS LES 50 HEURES D'UTILISATION (COMPTEUR) OU À TOUS LES 3 MOIS  
 LUBRICACIÓN A CADA 50 HORAS DE USO (CONTADOR) O EN CADA 3 MESES

GREASE EVERY 400 HOURS OF USE (HOURMETER) OR 6 MONTHS  
 GRAISSAGE À TOUS LES 400 HEURES D'UTILISATION (COMPTEUR) OU À TOUS LES 6 MOIS  
 LUBRICACIÓN A CADA 400 HORAS DE USO (CONTADOR) O CADA 6 MESES

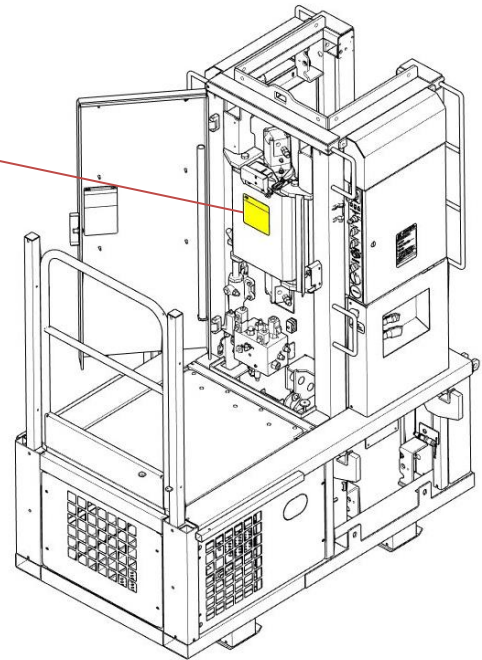
**31 x 32030038**

**Torque**  
**Couple de serrage**  
**Par**  
**50 (lb-ft)**  
**68 (N-m)**  
**600 (lb-in)**

**Note :**

- Apply only one shot from a standard grease gun (1.5ml). An excessive application can blow the seal.
- Appliquer un seul coup d'un fusil à graisse standard (1.5ml). Une application excessive de graisse risque de faire éclater le joint d'étanchéité.
- Aplicar un solo disparo de una pistola de grasa estándar ( 1.5ml ).Una aplicación excesiva puede soplar el sello.

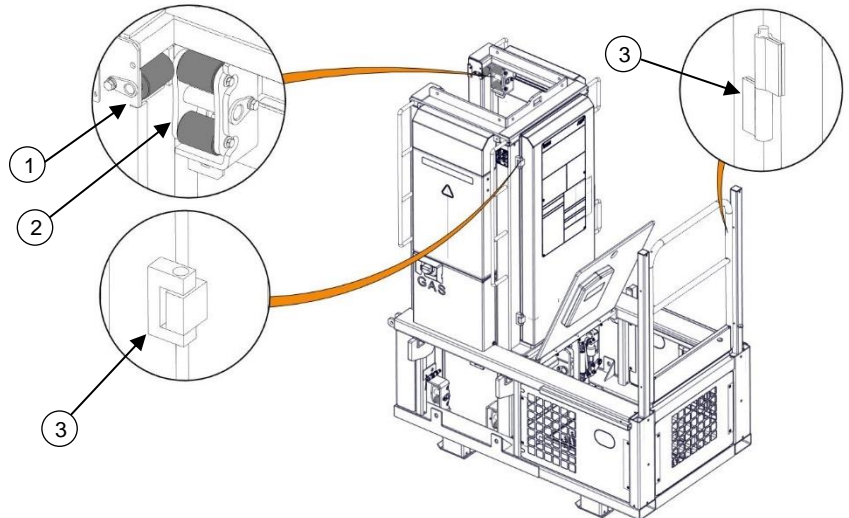
30010880-00



As part of a platform maintenance operation, it is recommended to lubricate the following points:

Use a penetrating oil lubricant, such as: Castrol Chain Lubricant

- 1- Roller
- 2- Tandem rollers
- 3- Hinges/door pivots and panels



### Daily inspection grid

| <b>Name of user:</b>  |             | <b>Name of site:</b>                              |  |
|---|-------------|---|--|
| <b>Address of site:</b>   |             |   |  |
| <b>Number / street</b>  | <b>City</b> | <b>Province/State</b>                             |  |
| <b>Type of lifting unit:</b><br>Single mast <input type="checkbox"/> Double mast <input type="checkbox"/> |             | <b>Serial number:</b>                             |  |
| <b>Autostable</b> <input type="checkbox"/>  |             | <b>Walls attachments</b> <input type="checkbox"/> |  |
| <b>FRH on lifting unit</b> <input type="checkbox"/>   |             | <b>Serial number:</b>                             |  |
| <b>Note: Mark the verified items with your initials and indicate N/A when not applicable</b>              |             |   |  |
| Inspected Items   | Checked     | Comments  |  |
| Ground safety perimeter   |             |   |  |
| Stability of the floor surrounding the base of the platform   |             |   |  |
| Leveling of the base and verticality of the mast  |             |   |  |
| Stabilizers/wooden blocks   |             |   |  |
| Tires and Wheels / Steering, Drives (if available)  |             |   |  |
| Lateral and vertical clearance of the platform  |             |   |  |
| Condition of platform power cable   |             |   |  |
| Structure of bridge and extension sections  |             |   |  |
| Mast structure (rail/bars)  |             |   |  |
| Safety bolts, nuts and pins   |             |   |  |
| Condition of platform floor   |             |   |  |
| Condition of plankings/ planking attachments in place   |             |   |  |
| Outriggers  |             |   |  |
| Guardrails and protective wire mesh   |             |   |  |
| Mast end and mechanical descent stop  |             |   |  |
| Anchor strength: Bolts and pins in place  |             |   |  |
| Loads distribution on the platform  |             |   |  |
| Warning sign/stickers, installed and readable   |             |   |  |
| Fuel/engine and hydraulic oil level   |             |   |  |
| Condition of hydraulic hoses  |             |   |  |
| Presence of leaks   |             |   |  |
| Condition of electrical wiring  |             |   |  |
| Battery and cables securely fixed   |             |   |  |
| User Manual, Daily inspection grid available in the documentation compartment                             |             |   |  |
| Platform Operation / Security Mechanism   |             |   |  |
| FRH Operation, Cable and hook status (if available)   |             |   |  |
| Load maintained   |             |   |  |
| Emergency stop button   |             |   |  |
| Test the emergency descent  |             |   |  |
| <b>Comments:</b>  |             |   |  |
| <b>Date</b>   |             | <b>Name of operator:</b>                          |  |
| <b>Name of employee:</b>  |             | <b>Signature of operator:</b>                     |  |

Any irregularity or malfunction of the platform must be corrected by a qualified and FRACO certified installer or mechanic before the platform is returned into service. A complete inspection of the platform must be carried out every 3 months.



## Spare parts

When ordering spare parts, please provide the following information available on the nameplate of the lifting unit:

∞SEE IDENTIFICATION AND SERIAL NUMBER PLATE , ON PAGE 15

- Model
- Year of manufacture
- Serial number
- Operating Voltage (if electrical)
- Required part number

### NOTE

Spare parts must comply with the manufacturer's technical specifications. Only use genuine FRACO parts.

To place an order for spare parts, contact FRACO customer service.

### Les Produits FRACO Ltée

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No charge CDA: 1-800-267-0094 / USA 1-888-FRACO 4U

France: + 33 (0)3 44.91.03.53

## Assistance

| Problem  | Engine                   | Potential cause   | Solution   |
|--|--------------------------|---|--|
| The engine will not start                                  | D / G / E                | Emergency stop activated                                    | Reactivate emergency stop  |
|  | D                        | Glow plug   | Replace glow plugs   |
|  | G                        | Engine oil level too low                                    | Add oil in the engine  |
|  |                          | Plug burned   | Replace spark plugs  |
|  | D / G                    | No fuel in the tank   | Place fuel in tank   |
|  |                          | Dead battery  | Boost or replace the battery   |
|  |                          | Fuel contaminated with water or other                       | Empty tank and fill with clean fuel  |
|  | Filter/feed hose blocked | Unblock hose/replace or clean fuel filter                   |  |
| The engine is running, but the platform does not lift      | D / G / E                | Accessory switch in « off/Arrêt » or « on/Marche » position | Return the selector switch to the « off/Arrêt » position   |
|  |                          | Too much load or load poorly distributed                    | Remove excess material and/or distribute in compliance with charter<br>∞SEE PERMITTED CONFIGURATIONS AND LOAD DISTRIBUTION, ON PAGE 19 |
| The platform does not go up or down                        | E                        | Key is in « OFF » position                                  | Turn the key to the « ON » position  |
| The motor does not start and the « Phase » LED is lit      | E                        | Reverse phases  | Turn the phase selector located on the side of the electrical box  |
| The engine will not start. The tank was dry and was filled | D                        | Presence of air in the fuel system                          | Perform bleeding procedure (see maintenance manual)  |
| The engine emits smoke                                     | D / G                    | Too much engine oil   | Check the engine oil level   |
| Engine starts, but stops or does not run properly          | G                        | Choke in « ON » position                                    | Return choke to the « CLOSED » position  |
| Engine starts but stops quickly                            | D / G                    | Engine too cold   | Allow the engine to warm up  |

Engine type: **D** = Diesel                      **G** = Gasoline\*                      **E** = Electric  
For more information, see the platform maintenance guide.

**Important!** All equipment repairs must be carried out by a FRACO technician or one of its representatives.

\* Gas model available in some countries only.

**Table 17 - Load deductions**

| Description                        | Load                   |
|------------------------------------|------------------------|
| FRH-2500/FRH-4000                  | 1 350 lb (612 kg)      |
| Monorail on platform               | 48 lb-ft (71,5 kg/m)   |
| Winter shelter                     | 9 lb-ft (161 kg/m)*    |
| Rigid roof                         | 31 lb/ft (555 kg/m)    |
| Planking**                         | 8.8 lb/ft (157,5 kg/m) |
| Weight of a worker                 | 176 lb (80 kg)         |
| Weight of a worker's equipment *** | 88 lb (40 kg)          |

\* It is also necessary to add the weight of the canvas to the total load.

\*\* One takes into account the weight for 2"(51 mm) x 10" (254 mm) plankings.

\*\*\* The load of equipment per worker is considered only for a MAXIMUM of two (2) workers, or 176 lb (80 kg).

## CE Declaration

# FRACO

Les Produits FRACO Ltée

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## CE COMPLIANCE STATEMENT

**No. 0060 / 5162 / 760 / 01 / 10 / 1303 / REV01**

**Type:**

**Apparatus for lifting persons or persons and objects, with a vertical drop risk greater than 3 meters.  
 Hydraulic work platform moving along a mast, single and double masts.**

**Brand: FRACO Model: ACT-8**

**Serial number:**

**Technical details:**

In single mast:

- Nominal load / No. of persons: 4 000kg / 5 people
- Maximum height: 13,7 m (freestanding) —167 m (with anchors)
- Platform Length/Width: 11,2 m/3,4 m
- Reduced load in single mast: 1 364 kg / 3 persons at max length (15,23 m)

In double mast:

- Platform Length/Width: 36,0 m/3,4 m
- Nominal load / No. of persons: 8 200kg / 10 people
- Maximum height: 13,7 m (freestanding) —167 m (with anchors)
- Reduced load in double mast: 13,7 m (freestanding) -167 m (with anchors)

This model satisfies all the relevant provisions of Directive 2006/42/EC (95 16. EC modified) on the approximation of the laws of the Member States relating to machines. This model meets the essential health and safety requirements applicable to it. This declaration relates exclusively to machines in the state in which they were placed on the market and excludes added components and/or subsequent operations performed by the end-user.

**Notified body**

**APAVE Parisienne SAS**

Identification number: 0060

17, rue Salneuve - 75854 PARIS CEDEX 17

**Technical file**

**SARL Fraco**

420 rue des Érables - F-60710 CHEVRIERES FRANCE

Director of Operations  
**Les Produits FRACO Ltée**  
**Emmanuelle Rainville**

St-Mathias-Sur-Richelieu  
 December 31, 2015

**ORIGINAL NOTICE**

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