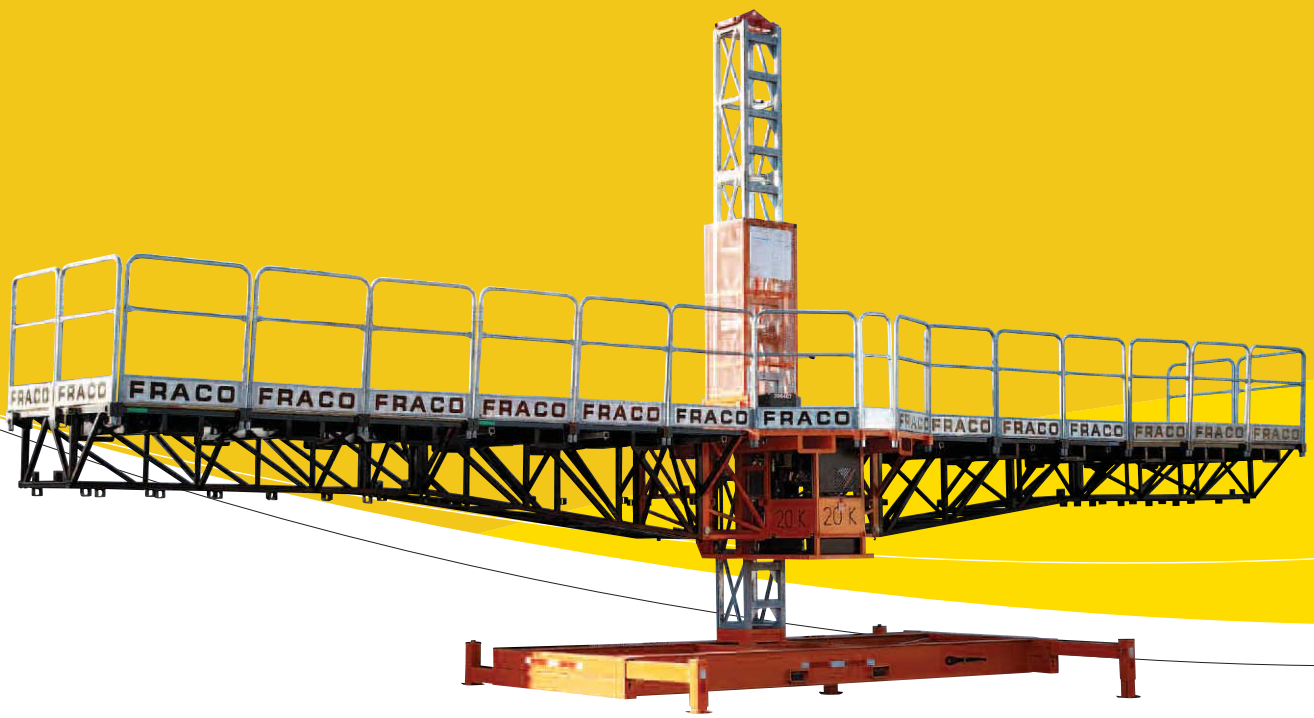
USER GUIDE

FRACO

20K

F R S M

MAST CLIMBING WORK PLATFORMS



98030246-02 (MU-F20K-AN 01-2009)

TABLE OF REVISIONS

Revision	Description	Date	Page	Comment
00	Issues for production	x	All	New product
01	General revision	04/2007	All	x
02	General revision	01/2009	All	Added format CE
03				
04				
05				
06				

CONGRATULATIONS!

You are about to use the excellent **FRACO** hydraulic mast-climbing work platform system! This system stands out for its **safety, stability** and **flexibility**.

The instruction manual and safety rules presented on the following pages will safely guide you through all the possibilities of this system. The platform cannot be sold or rented without this user's guide.

Les Produits FRACO Ltée reserves the right to modify the platform or its manual without notice, and will not assume any responsibility for any prejudices that may occur. The work platform **FRSM-20K** meets the norms **ANSI / SIA A 92.9-1993, CSA B354.5-2007, EN 1495-2003 and ISO 16369.**

The norms used for the calculations and the conception of the FRACO equipements are the following :

- CAN / CSA-S16.1-94 : «Règles de calcul aux états limites des charpentes en acier».
- ANSI / SIA 92.9-1993 : American national standard for mast-climbing work platform.
- CSA B354.5-07 : Mast-climbing work platforms.
- ISO 16369 : Elevating work platforms - Mast climbing work platforms.
- 29 CFR 1926 OSHA : Construction Industry Regulations.

Les Produits FRACO Ltée
91 Chemin des Patriotes
St-Mathias-sur-Richelieu
Québec, Canada, J3L 6A1
www.fraco.com
fraco@fraco.com

St-Mathias-sur-Richelieu : (+1) (450) 658-0094
Canada : 1-800-267-0094
Europe : +33 (0) 3.44.91.03.53
U.S.A. : 1-888-372 2648
or by fax at : (+1) (450) 658-8905

FRACO is an ISO 9001 registered company

WARRANTY

Les Produits FRACO Ltée, hereafter referred to as **FRACO**, guarantees its new products against any material or manufacturing defects for a period of one year from the date of delivery to the first user, or for a period of one year from the date of delivery to the accredited dealer.

FRACO's obligation and liability in virtue of this warranty are expressly limited to repairing or replacing with re-machined or new materials, at **FRACO**'s discretion, any part which appears to have a material or manufacturing defect. These parts shall be supplied free of charge according to the FOB terms of the dealer or user, at **FRACO**'s discretion.

Depending on the provisions of the service policy in force at the time of delivery, and in virtue of the provisions of this warranty, **FRACO** shall pay the installation cost for any repaired or replaced part. **FRACO** shall not bear any labor costs unless written authorization is obtained before the work begins.

This warranty does not apply to parts or accessories for products that were not manufactured by **FRACO** and which are covered by a warranty from their own manufacturer, nor does it apply to normal maintenance (for example, motor tuning) or to parts used in normal maintenance. **FRACO** offers no other warranty, either express or implicit, and gives no guarantee of commercial value or pertinence for a given application.

FRACO's obligation in virtue of this warranty does not cover customs duties, taxes or any other fees, nor does it bear any liability for direct, indirect, incidental or resulting damage or delay. Upon **FRACO** requests, the products or parts for which a warranty claim is made must be returned to **FRACO** at the expense of the dealer or owner.

Any improper use, including use of the product after defective or worn parts have been discovered, shall cancel this warranty. Other improper use that shall result in the cancellation of the warranty includes :

- Using the product beyond its rated capacity.
- Substituting other parts for **FRACO**-approved parts (including anchors), or any third-party alterations
- Modifications or repairs which **FRACO** deems to have damaged the product.

The warranty offered by **FRACO** is valid only if the preventive maintenance, as specified by the manufacturer, as carried out by a mechanic qualified and certified by **FRACO**. Documents of maintenance such as inspection sheet will be required to validate the information.

IDENTIFICATION PLATE

This identification plate is located on the elevating unit and **has to be visible all time.**

Serial number :

XX YY ZZZZ = **XX** (Model number) **YY** (Year of fabrication) **ZZZZ** (platform number)

Les Produits FRACO Ltée

91, Chemin des patriotes, St-Mathias-Sur-Richelieu, Québec, Canada J3L 6A1
Tel. : (450) 658-0094 Fax : (450) 658-8905 CDA : 1-800-267-0094 USA : 1-888-372-2648
Web : http://www.fraco.com e-mail: fraco@fraco.com

DECLARATION CE OF CONFORMITY

N° 0077-760C-1306-09-08

Type : Hydraulic work platform moving along a mast.

Brand : FRACO
Model : FRSM-20K

Serial Number :

__ __ __ __ __ __ __ __

Technical Details :

Single mast :

Nominal load / number of person :	**10 000 lb (4 535 kg) / 4 persons + 1 opérator**
Maximum height :	**45'-0" (13,7 m) in freestanding - 550'-0" (168 m) with anchors**
Platform length / depth :	**47'-6" (14,5 m) / 10'-11" (3,3 m)**

Double mast :

Nominal load / number of person :	**20 000 lb (9 070 kg) / 8 persons + 2 operators**
Maximum height :	**45'-0" (13,7 m) in freestanding - 550'-0" (168 m) with anchors**
Platform length / depth :	**127'-0" (38,7 m) / 10'-11" (3,3 m)**

Type certification issued for this model in application of Article 8.2b of the Directive 98/37/CE (89/392/CEE amended), relating to the reconciliation of legislation of the member states concerning machines.

This model satisfies the essential requirements for safety and health that apply to it.

Organization Notified :
APPAVE
Association Parisienne de Propriétaires d'Appareils à Vapeur et Électriques
13 à 17, rue Saineuve - 75854 PARIS CEDEX 17

Claudette L'Heureux
Vice President
Les Produits FRACO Ltée

Wednesday, December 13, 2006

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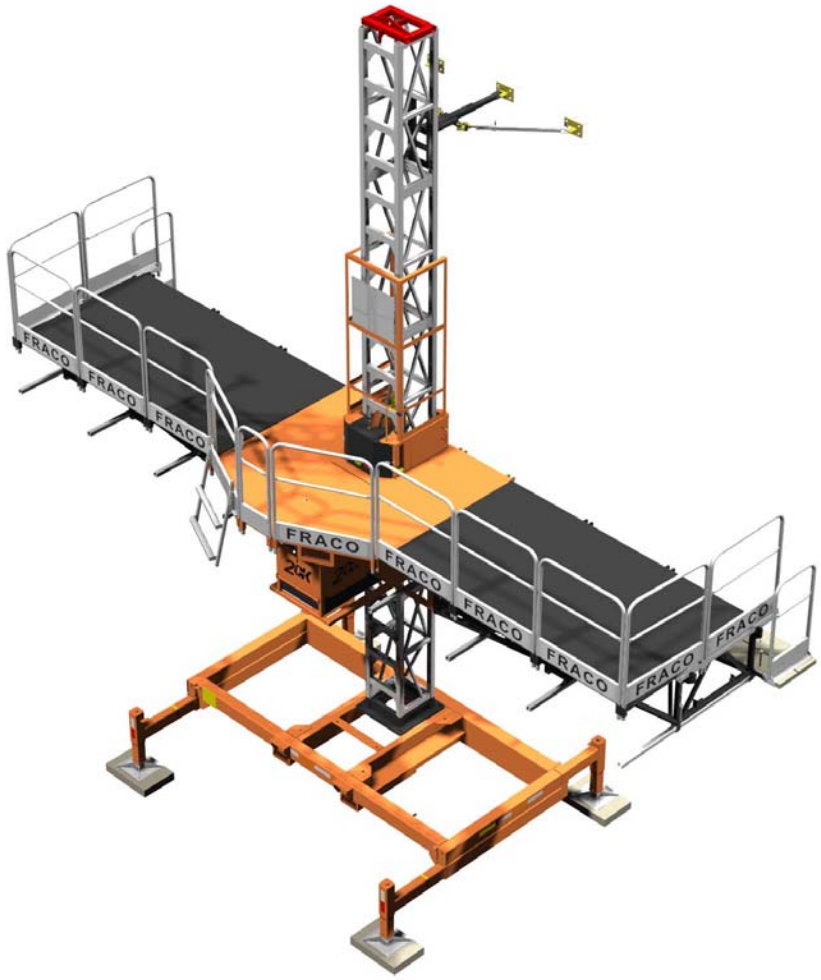


CHAPTER A

GENERAL INFORMATION AND OPERATION

WARNING

Safety is our primary concern. For this reason, never remove or alter any part in order to adapt the platform to fit a specific area of the building. Use only genuine FRACO parts.

Please read the following instructions carefully before installation. Failure to comply with these safety recommendations and local rules and regulations may lead to serious damage and personal injury as well as death. FRACO and/or its representative and/or its importer cannot in any case be held liable.

1- Safety rules (to be read before any use of the product) :

1.1- Mark out, with beacons or barricade tape, and prohibit access around the base and the platform. This should be done according to the local rules.

1.2- The platform should not be used in an environment with the potential for explosion (refineries, etc.).

1.3- The operator should have received Level 1 training (platform use), be familiar with the entire contents of the user's guide, and have mastery of the rules for using the platform.

1.4- The installer should have received Level 2a training (installation without anchor) or Level 2b training (installation with anchor), be familiar with the entire contents of the user's guide, and have mastery of the rules for using the platform.

1.5- Never assume anything! If you have any questions concerning the operation of the FRACO unit, stop and consult the user's guide. If you are still unsure, call your FRACO representative.

1.6- At least two (2) persons per mast should be on the platform at all times to assist in the event of a breakdown or the need for rescue during use, installing or dismantling.

1.7- The maximum freestanding height is 13,7 m (35'-0"). You must open the fronts stabilizers to the maximum.

1.8- If you need to go higher than the freestanding height (without anchoring devices), you must use anchoring device. Refer to the user's guide for instructions.

1.9- Always use anchoring device when you are not using the freestanding base.

1.10- This platform must be maintained periodically as well as inspected where required by local laws and regulations. Refer to the user's guide.

1.11- In the event of an storm, do not use the platform and get off of it immediately.

1.12- Assembly and disassembling are prohibited if speed of wind is higher than 45 km/h (28 mph). In out-service situation, you must locate the platform between two levels of anchorages at equal distance of those and balance load on each side of the mast or descend platform on level from the ground.

1.13- Maximum swiftness of the winds allowed at the time of the use of the platform is of :
- Freestanding height : 35 km/h (22 mph).
- With anchorages installation : 55 km/h (34 mph).

1.14- It is the operator's responsibility to ensure that the maximum load and the maximum number of people allowed on the platform at one time are respected. Refer to the user's guide for the type of the platform being used at the loading distribution and configurations parts.

1.15- The platform should not be used as an elevator.

1.16- Plank characteristics :
0,05 m x 0,25 m or 0,30 m (2" x 10" or 12") should be able to withstand a load of 120 kg (265 lb) at a mid-span of 1,2 m (4'-0").

1.17- Ensure that efforts transmitted by platform (anchors and bases) are adequately constant.

1.18- Do not use crane, monorail, interior working, overhead protection or winter enclosure with an installation freestanding base.

1.19- At all time, you must have an extinguisher adapted on the platform. This place must be announced on the platform.

2- Before raising or lowering the platform, make sure that :

2.1- The base is properly installed and the mast is leveled in all directions (see the allowable tolerance in the user's guide).

2.2- Guardrails are installed in all the places.

2.3- A visual inspection has been made before the platform is moved in order to verify that all the parts are in place and that no protrusions will impede the proper vertical movement.

2.4- The platform never exceeds the last anchor more than 1.5 m (5'-0").

2.5- All persons have been alerted prior to any platform's move.

3- In case of breakdown or in case the engine stops without reason :

3.1- Verify that the motor switch is in « ON ».

3.2- Verify if the emergency stop button is engaged. If so, pull it on the « OFF» position.

3.3- Verify the oil and gas level of the engine as well as hydraulic oil level in tank.

3.4- Contact your dealer FRACO.

3.5- If the problem persists, check the notice for the emergency routine.

4- In case of fire :

4.1- Do not panic, keep calm! Warn the other workers that there is a fire.

4.2- Do not try the impossible! If available, use a fire extinguisher and follow the instructions provided (refer to local regulation)

4.3- If the fire seems out of control, go down the platform as fast as you can by the nearest access.

4.4- Call the local fire department.

TIE-OFF POINTS

Wear your safety harness at all time when you install or dismantle the mast sections and/or the wall ties.

Workers that are exposed to falling hazards must wear a safety harness and be attached to a tie-off point that can support 5 000 pounds (2 270 kg), with a fall protection device equiped with a shock absorber. The tie-off points shown in this document are meeting the regulations in effects. However, we remind you that improper use of a fall protection device can increase the risk of injuries and even result in death. Therefore, we recommend that workers must receive the appropriate training on the use of fall protection devices before proceeding with any work in heights.

Important :

- 1 worker by tie-off point.
- An inspection of the tie-off point must be done by a competent person following the fall of a worker secure to this tie-off point.
- Never use a tie-off point presenting a deformation or any damage to the steel.

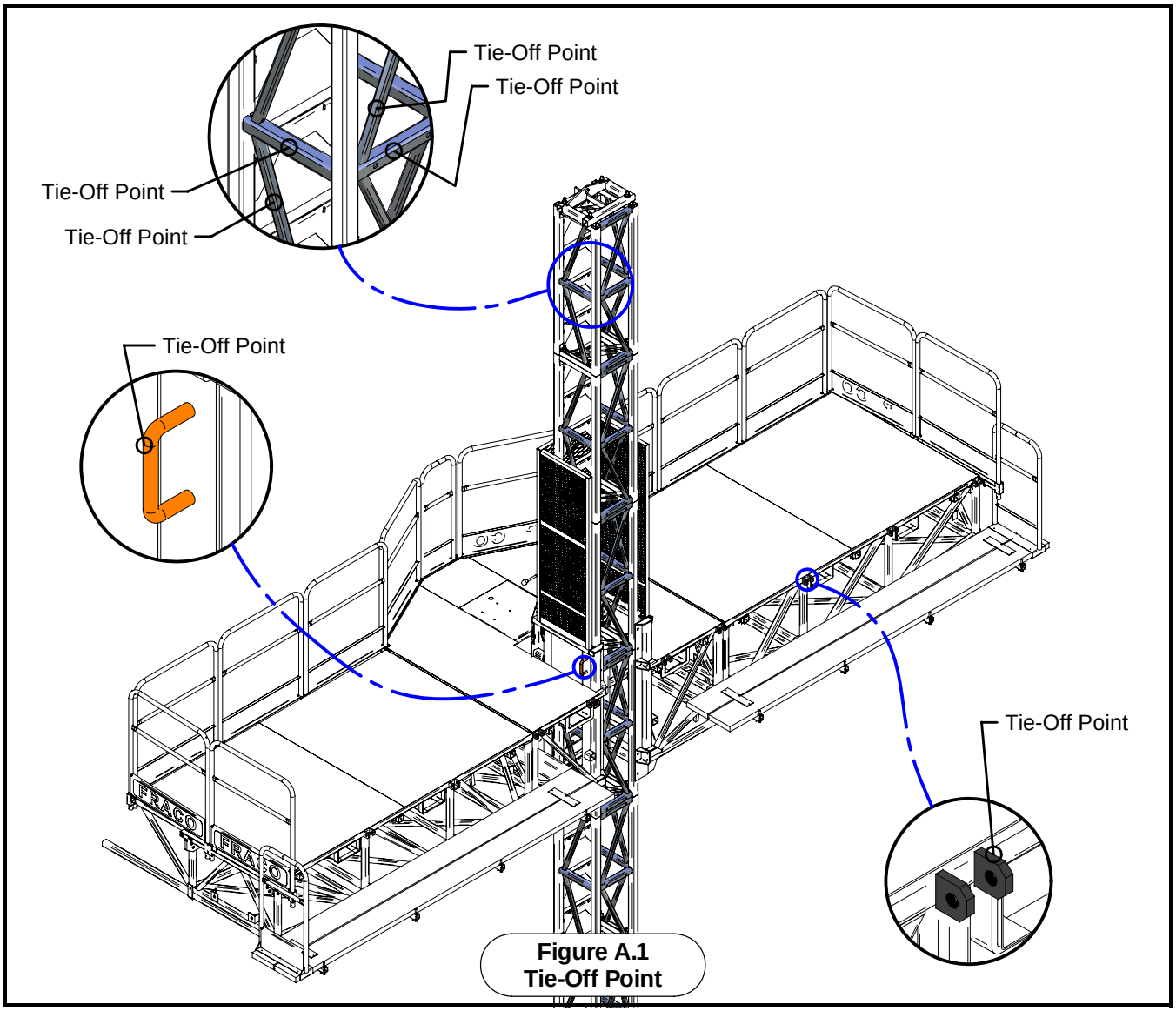


Figure A.1
Tie-Off Point

GENERAL VIEW (SINGLE MAST)

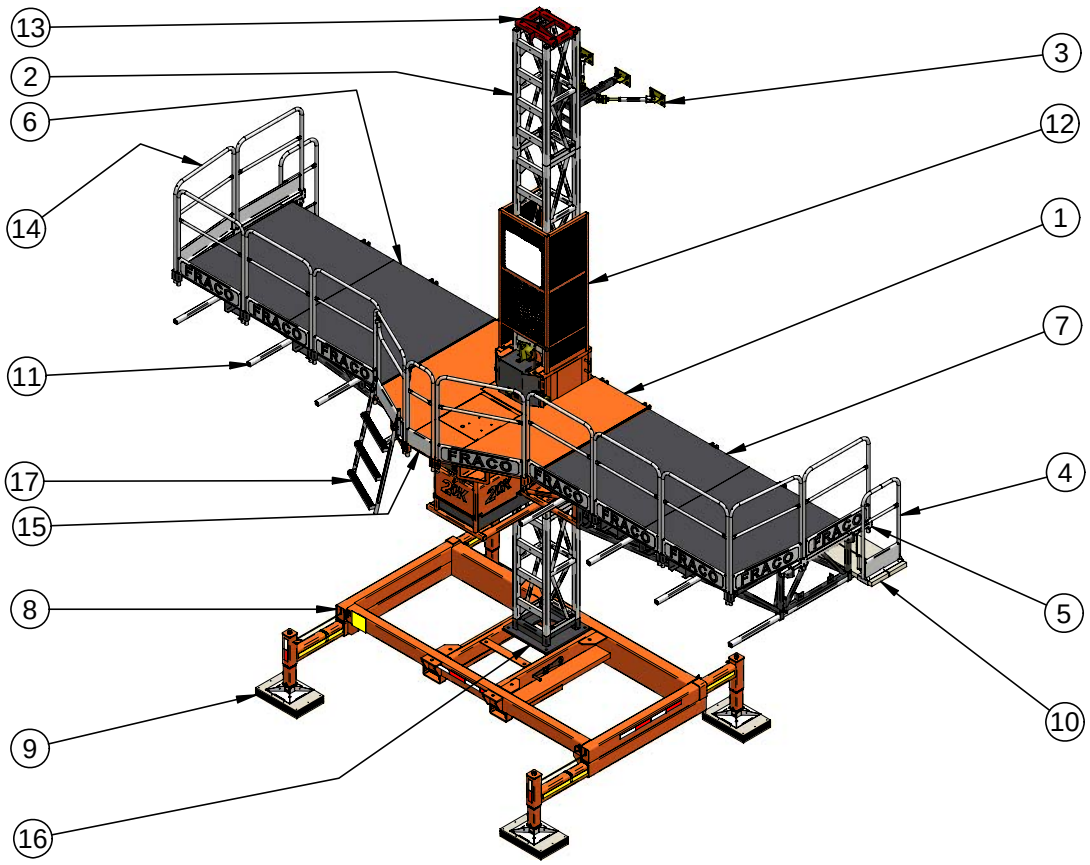


Figure A.2a
General View (single mast)

List of Components		
N°	**Code**	**Description**
1	100600xx	FRSM-20K Elevating Unit
2	13030041	Mast Section Without Rail
3	-	Anchoring Device
4	17490045	Plank-End Guardrail
5	20490195	Guardrail Pockets Support
6,7	150300xx 15060013 15060024 150200xx 15020086	Left or Right Modular Cantilever Section Left Modular Taper Cantilever Section Right Modular Taper Cantilever Section No-Modular Cantilever Section No-Modular Taper Cantilever Section
8	14030109	Universal Freestanding Base
9	20490083	Wooden Jack Pad
10	-	Planks
11	190xxxxx	Outrigger
12	20490645	Protection Wire Mesh
13	13030029	End Mast Section
14	17490023	Guardrail 3'-4" x 4'-2" (1,0 m x 1,27 m)
15	17490281	Guardrail 16 1/2” x 4’-2” (419 mm x 1,27 m)
16	14030110	Bolted Base for 20K
17	17490326	Acces Guardrail With Ladder

GENERAL VIEW (DOUBLE MAST)

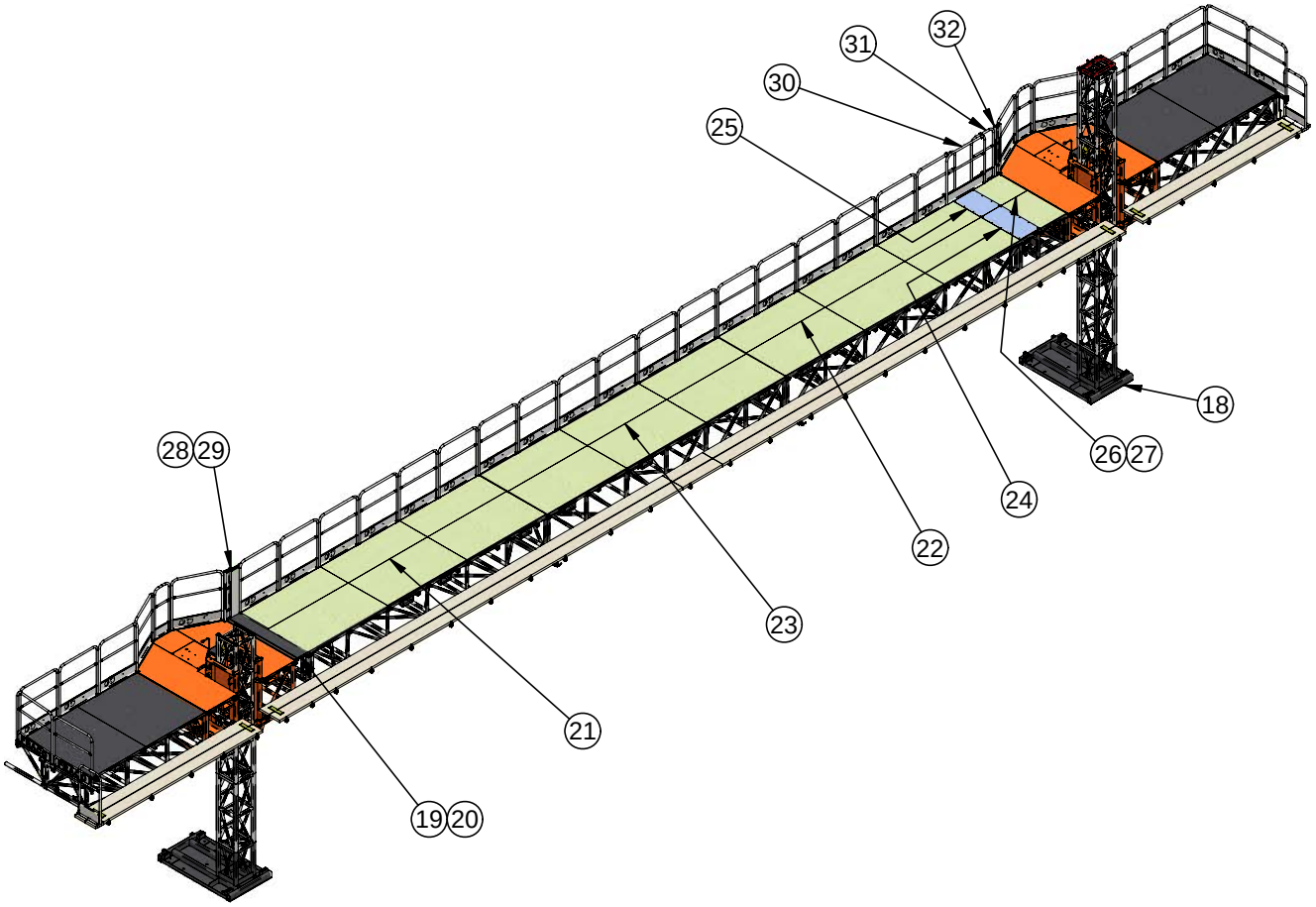


Figure A.2b
General View (double mast)

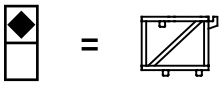
List of Components		
N°	**Code**	**Description**
18	14030019	Ground Base
19 20	20490689 20490690	Right Bridge Arm Adaptor Left Bridge Arm Adaptor
21, 22	150301xx 150200xx	Left or Right Modular Bridge Section (hybrid) No-Modular Bridge Section (hybrid)
23	15030076 15020075	Central Modular Bridge Section Central No-Modular Bidge Section
24 25	20490319 20490320	Anti Skid Steel Plate 2'-4" (711 mm) Anti Skid Steel Plate 3'-4" (1,0 m)
26, 27	150300xx 15020019	Right or Left Intermediate Modular Cantilever Section Intermediate No-Modular Cantilever Section
28, 29	17490427 17490416	Right Covering Guardrail Left Covering Guardrail
30	17490034	Extensible Guardrail
31	17490012	Guardrail 23 1/2" x 4'-2" (597 mm x 1,27 m)
32	17490090	Guardrail 5 7/8" x 4'-2" (149 mm x 1,27 m)

LOAD DISTRIBUTION AND CONFIGURATIONS

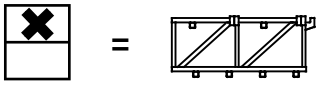
Note : (see Figure A.3)

- Weight of accessories must be deducted from permitted load distribution (portable crane, weather enclosure, overheadprotection, monorail, planks if more than two (2) planks wide, etc).
- See load distribution sheet for more information.
- Never place loads in working area or in traveling area.
- If you remove guardrails to load the platform, make sure you're attach to a tie-off point as presented at page A-3.
- Weight of workers is included in weight capacity. Total weight of workers must not exceed the allowed loads.
- The intermediate cantilever section of 5'-0" (1,5 m) could be replaced by twice intermediate cantilever section of 2'-6" (762 mm).

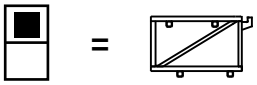
LEGEND



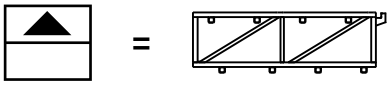
= Intermediate Cantilever Section of 2'-6" (762 mm)



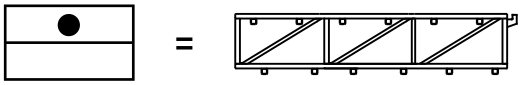
= Intermediate Cantilever Section of 5'-0" (1,52 m)



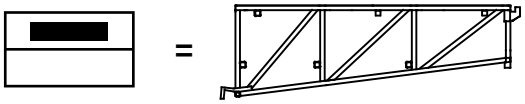
= Cantilever Section of 3'-4" (1,0 m)



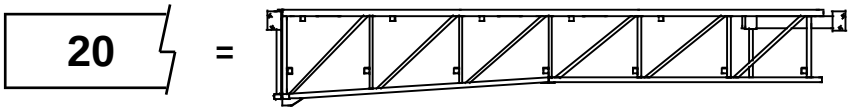
= Cantilever Section of 6'-8" (2,0 m)



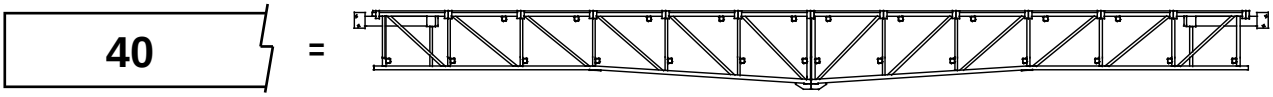
= Cantilever Section of 10'-0" (3,0 m)



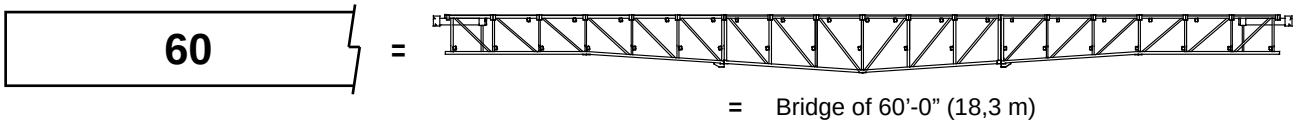
= Taper Cantilever Section of 10'-0" (3,0 m)



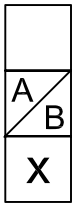
= Bridge of 20'-0" (6,1 m) (adaptor required)



= Bridge of 40'-0" (12,2 m)



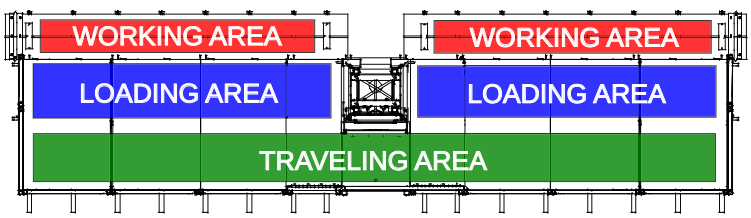
= Bridge of 60'-0" (18,3 m)



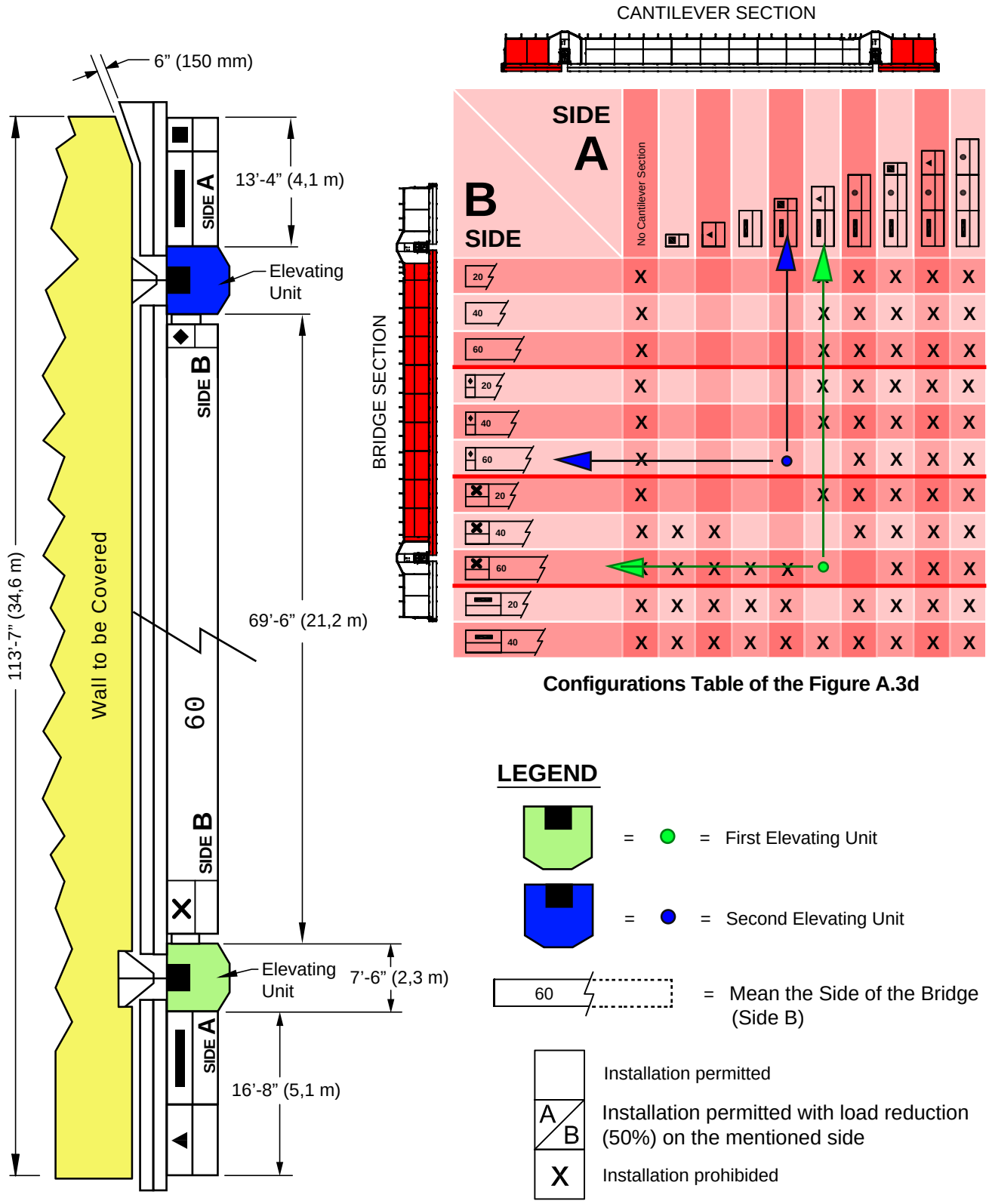
Installation permitted

Installation permitted with load reduction (50%) on the mentioned side

Installation prohibited



LOAD DISTRIBUTION AND CONFIGURATIONS (CONTINUED)

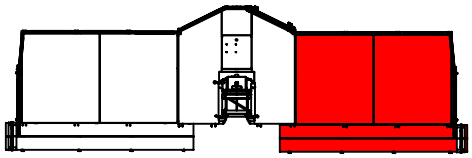


Configurations Table of the Figure A.3d

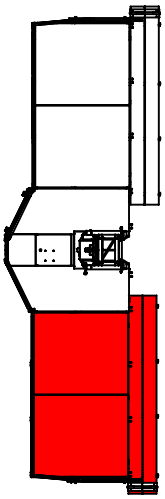
Figure A.3a
Exemple of Use Table

LOAD DISTRIBUTION AND CONFIGURATIONS (MASONRY) (CONTINUED)

CANTILEVER SECTION



CANTILEVER SECTION



B \ SIDE A	No Cantilever Section									
No Cantilever Section				X	X	X	X	X	X	X
					X	X	X	X	X	X
						X	X	X	X	X
	X					X	X	X	X	X
	X	X					X	X	X	X
	X	X	X	X			X	X	X	X
	X	X	X	X	X	X		X	X	X
	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X	X

Full Load

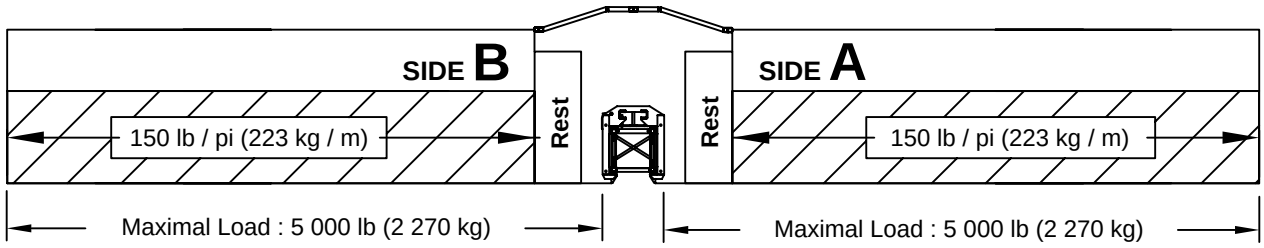
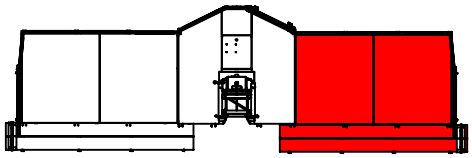
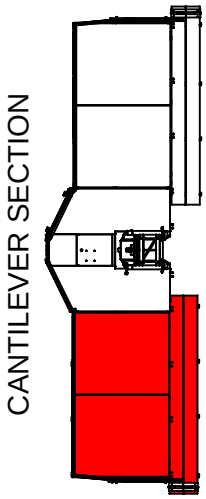


Figure A.3b
Configurations (masonry)

LOAD DISTRIBUTION AND CONFIGURATIONS (OTHERS) (CONTINUED)

CANTILEVER SECTION





CANTILEVER SECTION

B SIDE \ SIDE A	No Cantilever Section									
No Cantilever Section				X	X	X	X	X	X	X
				A	A	X	X	X	X	X
					A	A	X	X	X	X
	X	B				A	X	X	X	X
	X	B	B				A	X	X	X
	X	X	B	B			A	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		A
	X	X	X	X	X	X	X	X	B	A-B

Reduce Load

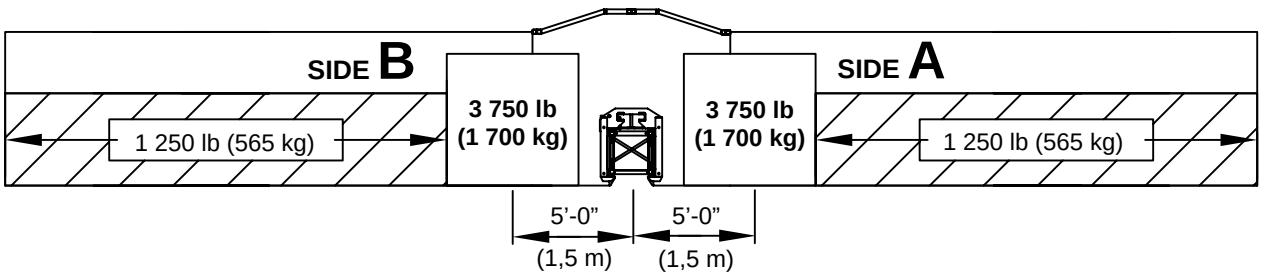
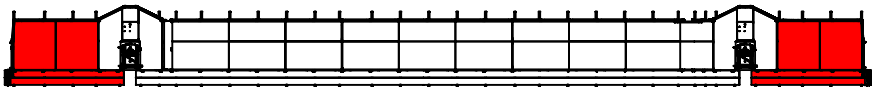


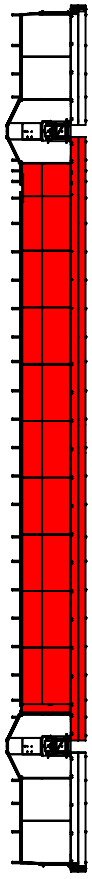
Figure A.3c
Configurations (others)

LOAD DISTRIBUTION AND CONFIGURATIONS (MASONRY)(CONTINUED)

CANTILEVER SECTION



BRIDGE SECTION



B \ SIDE A	No Cantilever Section									
20	X					X	X	X	X	X
40	X					X	X	X	X	X
60	X					X	X	X	X	X
20	X					X	X	X	X	X
40	X					X	X	X	X	X
60	X						X	X	X	X
20 or 20	X					X	X	X	X	X
40 or 40	X	X	X				X	X	X	X
60 or 60	X	X	X	X	X			X	X	X
20	X	X	X	X	X		X	X	X	X
40	X	X	X	X	X	X	X	X	X	X

Full Load

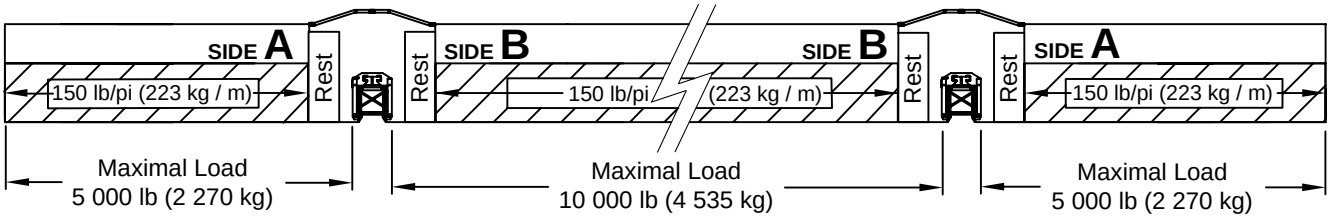
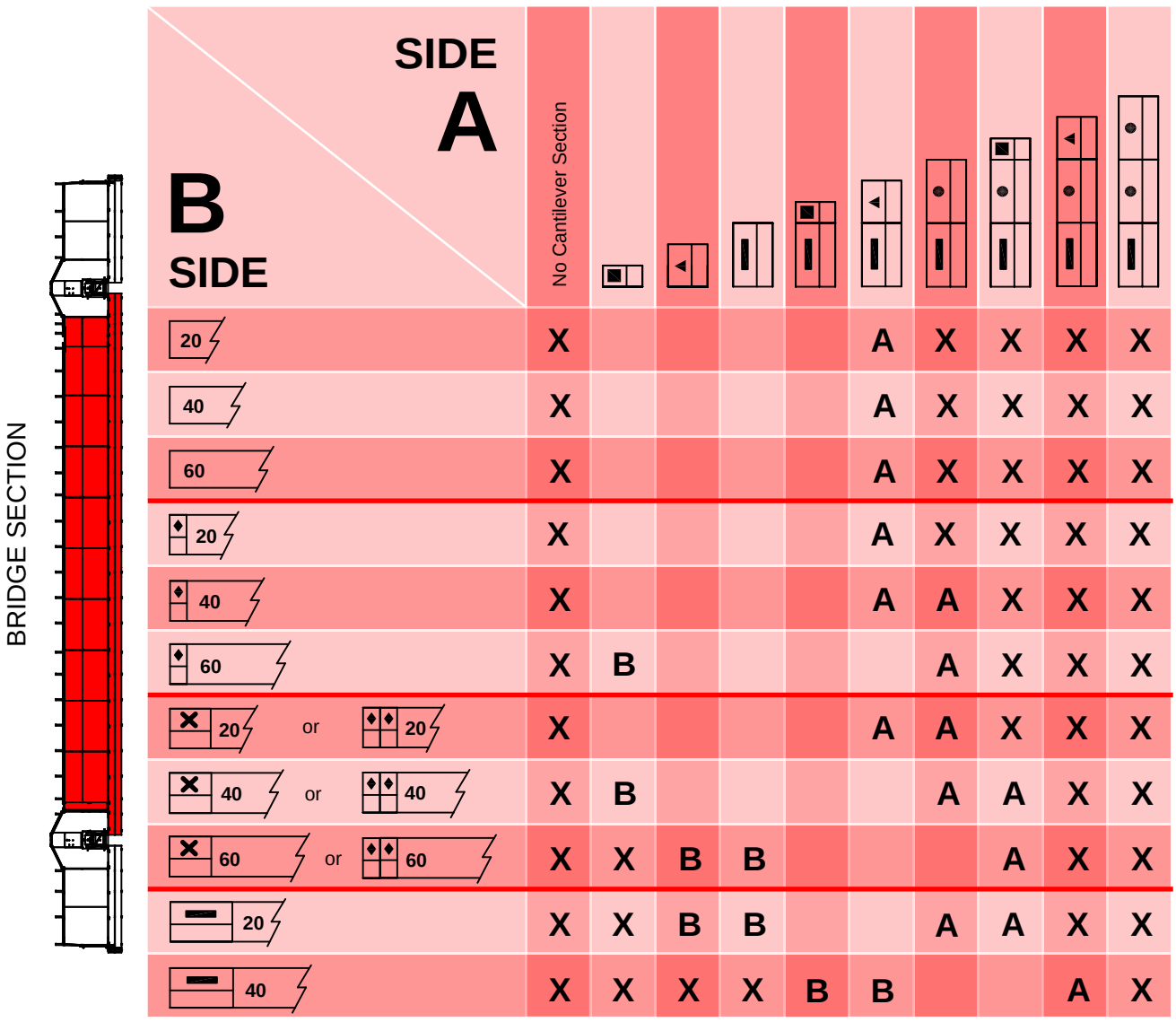


Figure A.3d
Configurations (masonry)

LOAD DISTRIBUTION AND CONFIGURATIONS (OTHERS)(CONTINUED)

CANTILEVER SECTION



B SIDE \ SIDE A	No Cantilever Section									
20	X					A	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	A	X	X	X
60	X	B					A	X	X	X
20 or 20	X					A	A	X	X	X
40 or 40	X	B					A	A	X	X
60 or 60	X	X	B	B				A	X	X
20	X	X	B	B			A	A	X	X
40	X	X	X	X	B	B			A	X

Reduce Load

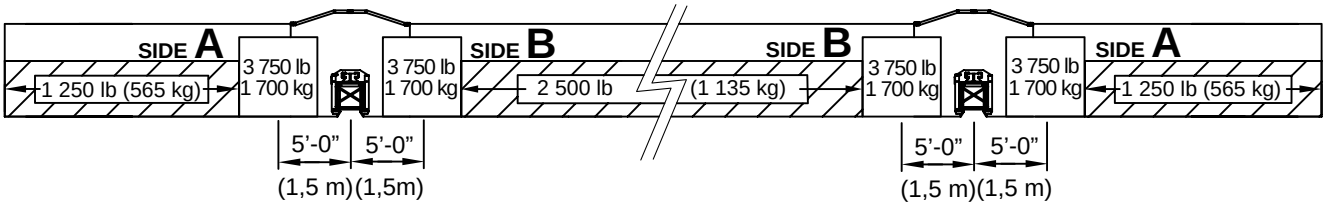


Figure A.4e
Configurations (others)

UTILIZATION OF ELEVATING UNIT (RAISING)

Step 1 (Before Ignition)

1- Make sure the trajectory of the platform is free of all obstacles.
2- Make sure the « Emergency Stop Button » is disengaged. (see View F)
3- Make sure the « Motor Selector » is in « FRSM-20K » position. (see View H)
4- Make sure the « Crane Selector » is in « FRSM-20K » position. (see View E)

Check the General Condition of the Engine :

5- Look around and underneath the engine for signs of oil or gasoline leaks.
6- Remove any excessive dirt or debris, especially around the muffler and recoil starter.
7- Look for signs of damage.
8- Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.

Check the Engine :

9- Check the fuel level. Starting with a full tank will help to eliminate or reduce operating interruptions for refueling.
10- Check the engine oil level. Running the engine with a low oil level can cause engine to stop.
11- Check the air filter element. A dirty air filter element will restrict air flow to the carburetor, reducing engine perfomance.

Step 2 (Ignition)

12- Make sure that the « Fuel Valve Lever » is in « ON » position. (see View K)
13- Make sure that the « Throttle Lever » is in « MAX » position. (see View L)
14- Pull the choke of the engine located on the right side (just over the « Pedal 20K »). (see View A)
15- Turn the « Starter Switch » to the « START » position. (see View G)
16- When the engine is started, let the « Starter Switch » go back to it « ON » position.
17- Push the choke.

Step 3 (Raising the Platform) (see Figure A.4a, Figure A.4b and Figure A.4c)

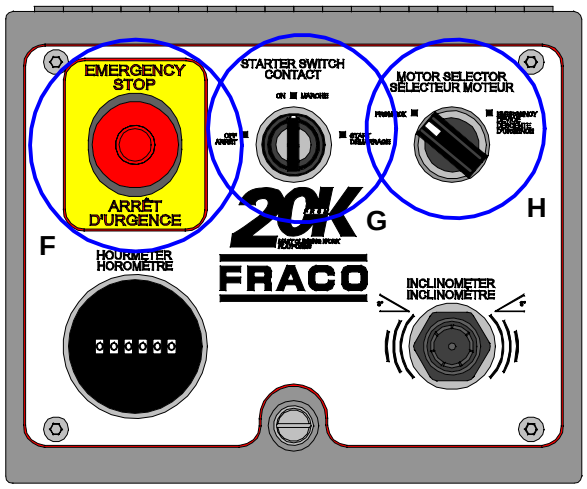
18- Push the « Activation Pedal 20K » down to activate the « UP » position. (see View C)
19- Turn the « Control Arm 20K » of the cylinder clockwise to extend the cylinder. (see View D)
20- When the « Hook 20K » reaches the tower brace, at this time the cylinder is fully open, turn « Control Arm 20K » counterclockwise until the cylinder is fully closed. (see Figure A.4b et A.4c)
21- When the cylinder is fully closed, turn « Control Arm 20K » clockwise to extend the cylinder. The elevating unit is now resting on the safety, this will disengage the « Hook 20K ». (see View D)
22- Repeat points 19 to 21 until you reach the desired working height.

We recommend to leave the elevating unit to rest on the safety and to close the cylinder once the desired working height is reached to protect shaft of cylinder of dirt and possible impact from falling objects.

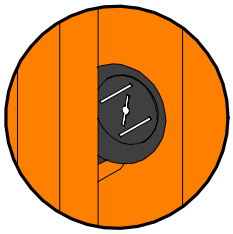
Important :

- A visual inspection of all points presented in the daily inspection sheet shall be done at the beginning of each shift.
- At all time you can push « Emergency Stop Button », the platform will stop immediately.
- If engine doesn’t start or for any mechanical problem, refer to the troubleshooting chart at page A-23. If you can’t solve the problem, contact your FRACO representative.
- The emergency engine shall be started and tested every day during the daily inspection.
- Do not refuel engine when it’s hot! Let engine cool off before refueling.
- Do not overfill.

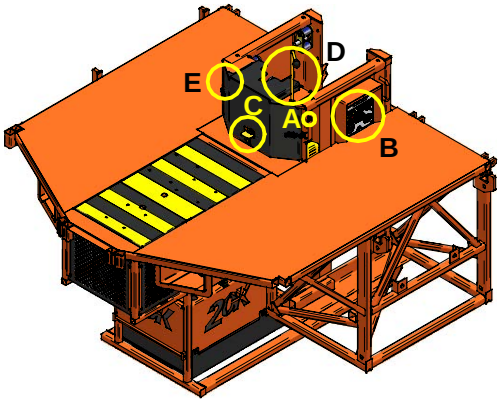
UTILIZATION OF ELEVATING UNIT (RAISING) (CONTINUED)

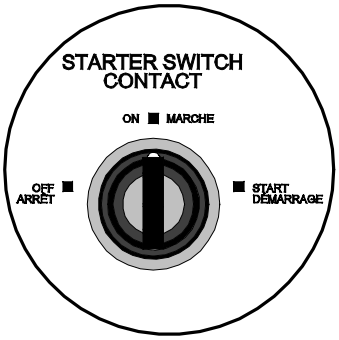


View B
Control Box FRSM-20K

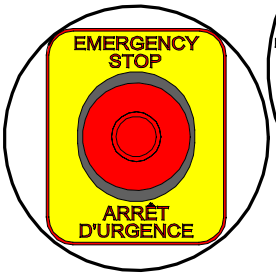


View A
Choke

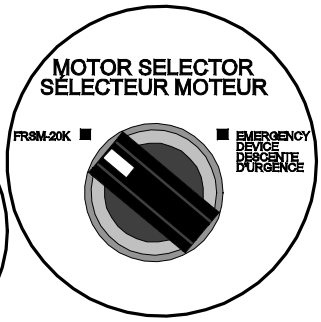




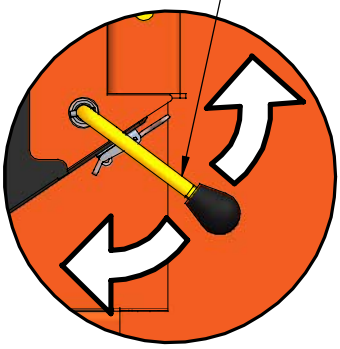
View G
Starter Switch



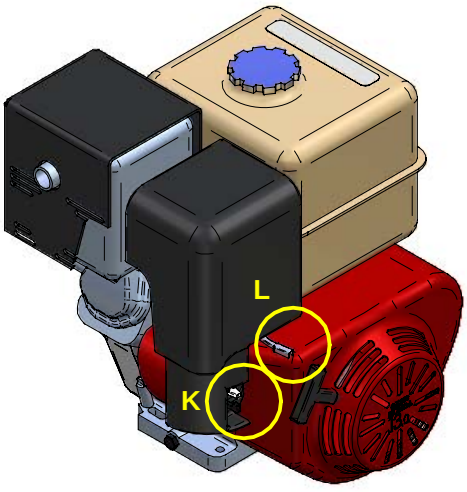
View F
Emergency Stop Button



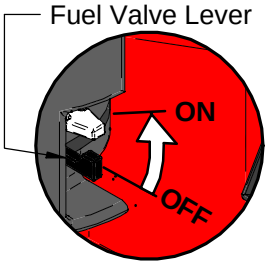
View H
Motor Selector



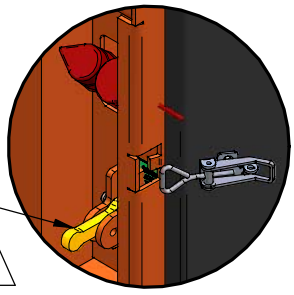
View D
Operation Pivot Assembly 20K
(clockwise, cylinder opens)
(counterclockwise, cylinder closes)



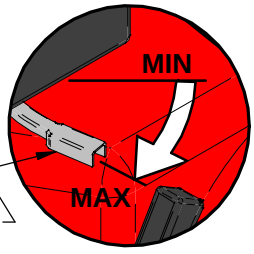
View J
Gasoline Engine



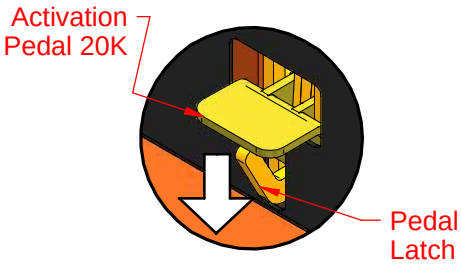
View K
Fuel Valve Lever



View E
Crane Selector



View L
Throttle Lever



View C
Descent Mechanism Assembly

Figure A.4a
Raising the platform

UTILIZATION OF ELEVATING UNIT (RAISING) (CONTINUED)

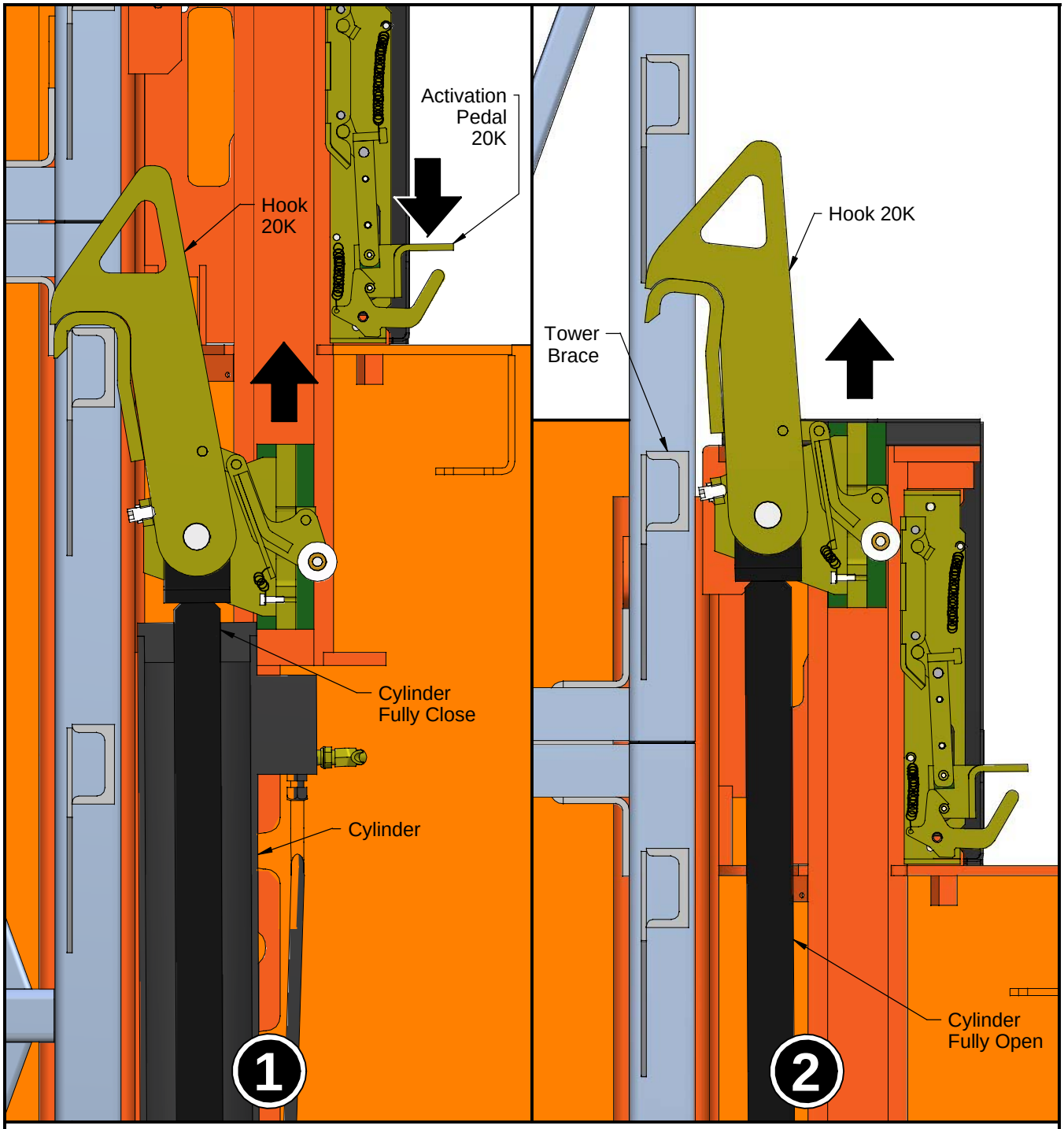


Figure A.4b
Mechanismin Movement (Raising)

UTILIZATION OF ELEVATING UNIT (RAISING) (CONTINUED)

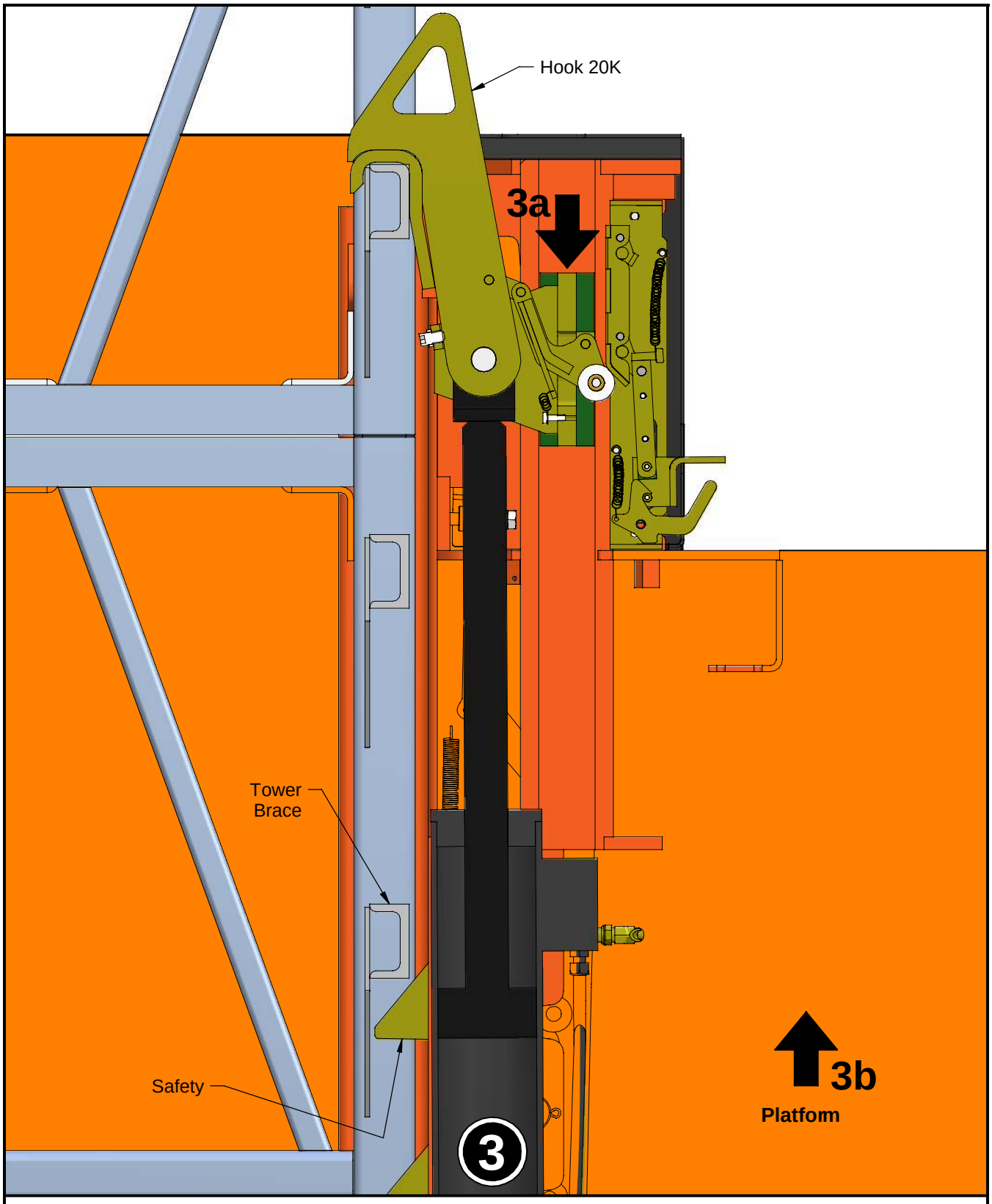


Figure A.4c
Mechanism in Movement (Raising)

UTILIZATION OF ELEVATING UNIT (LOWERING) (CONTINUED)

Step 1 (Before Ignition)

23- Make sure the trajectory of the platform is free of all obstacles.
24- Make sure the « Emergency Stop Button » is disengaged. (see View F)
25- Make sure the « Motor Selector » is in « FRSM-20K » position. (see View H)
26- Make sure the « Crane Selector » is in « FRSM-20K » position. (see View E)

Step 2 (Ignition)

27- Make sure that the « Fuel Valve Lever » is in « ON » position. (see View K)
28- Make sure that the « Throttle Lever » is in « MAX » position. (see View L)
29- Pull the choke of the engine located on the right side (just over the « Pedal 20K »). (see View A)
30- Turn the « Starter Switch » to the « START » position. (see View G)
31- When the engine is started, let the « Starter Switch » go back to « ON » position.
32- Push the choke.

Step 3 (Lowering the Platform) (see Figure A.4a and Figure A.4b)

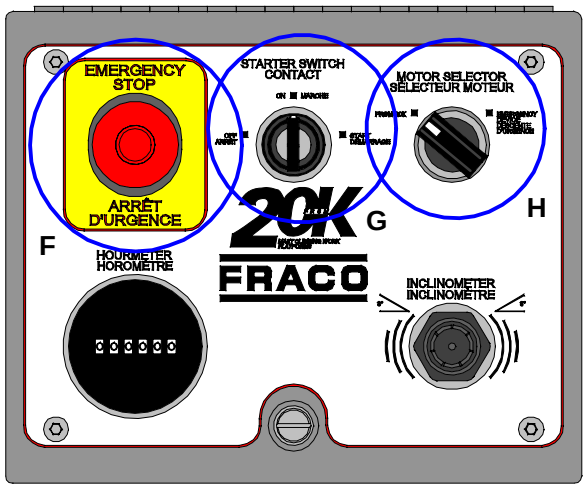
33- Kick the « Pedal Latch » to activate the « DOWN » position. (see View C)
34- Turn the « Control Arm 20K » of the cylinder counterclockwise to raise the elevating unit off the safety until cylinder is completely closed. (see View D)
35- When the cylinder is fully closed, push the « Pedal 20K » and turn « Control Arm 20K » clockwise to extend the cylinder. The platform lowers. (see View D)
36- Hold the « Control Arm 20K » (see View D) and the « Pedal 20K » (see View M) until you feel a light pressure under your feet indicating you to release the pedal. The elevating unit is now resting on the safety, this will disengage the « Hook 20K ».
37- Repeat points 34 to 36 until you reach the desired working height.

We recommend to leave the elevating unit to rest on the safety and to close the cylinder once the desired working height is reached to protect shaft of cylinder of dirt and possible impact from falling objects.

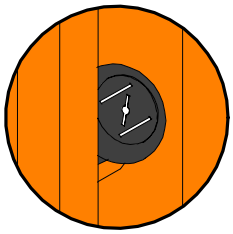
Important :

- A visual inspection of all points presented in the daily inspection sheet shall be done at the beginning of each shift.
- At all time you can push « Emergency Stop Button », the platform will stop immediately.
- If engine doesn’t start or for any mechanical problem, refer to the troubleshooting chart at page A-23. If you can’t solve the problem, contact your FRACO representative.
- The emergency engine shall be started and tested every day during the daily inspection.
- Do not refuel engine when it’s hot! Let engine cool off before refueling.
- Do not overfill.

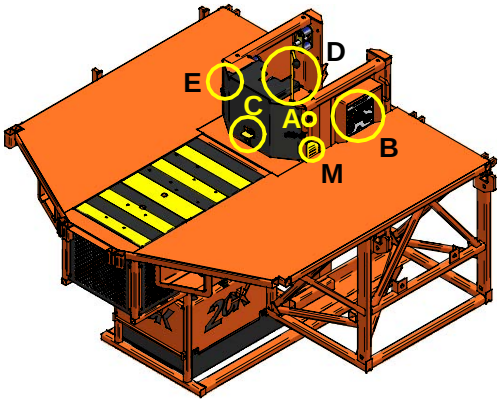
UTILIZATION OF ELEVATING UNIT (LOWERING) (CONTINUED)



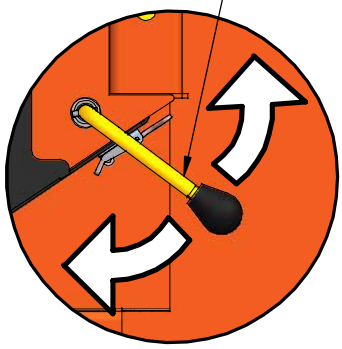
View B
Control Box FRSM-20K



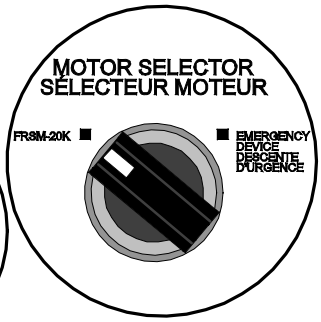
View A
Choke



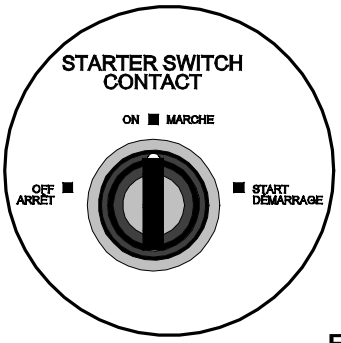
Control Arm 20K



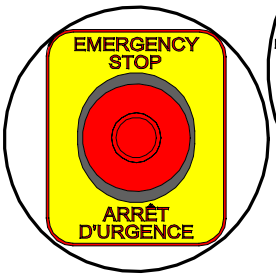
View D
Operation Pivot Assembly 20K
(clockwise, cylinder opens)
(counterclockwise, cylinder closes)



View H
Motor Selector

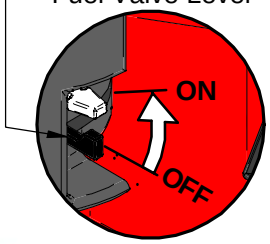


View G
Starter Switch

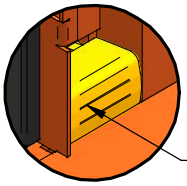


View F
Emergency Stop Button

Fuel Valve Lever

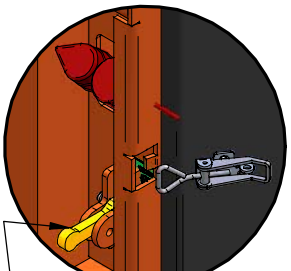


View K
Fuel Valve Lever



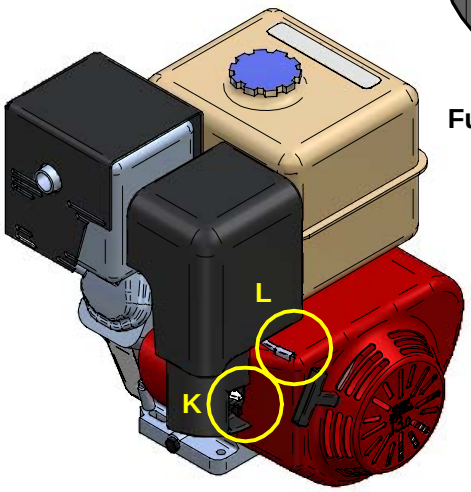
Pedal
20K

View M
Security System
Assembly

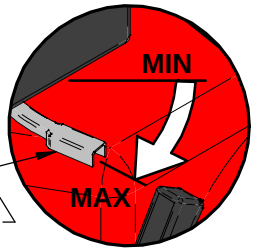


Crane
Selector

View E
Crane Selector



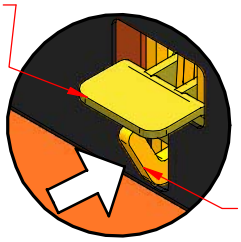
View J
Gasoline Engine



Throttle
Lever

View L
Throttle Lever

Activation
Pedal 20K



Pedal
Latch

View C
Descent Mechanism
Assembly

Figure A.4d
Lowering the Platform

UTILIZATION OF ELEVATING UNIT (LOWERING) (CONTINUED)

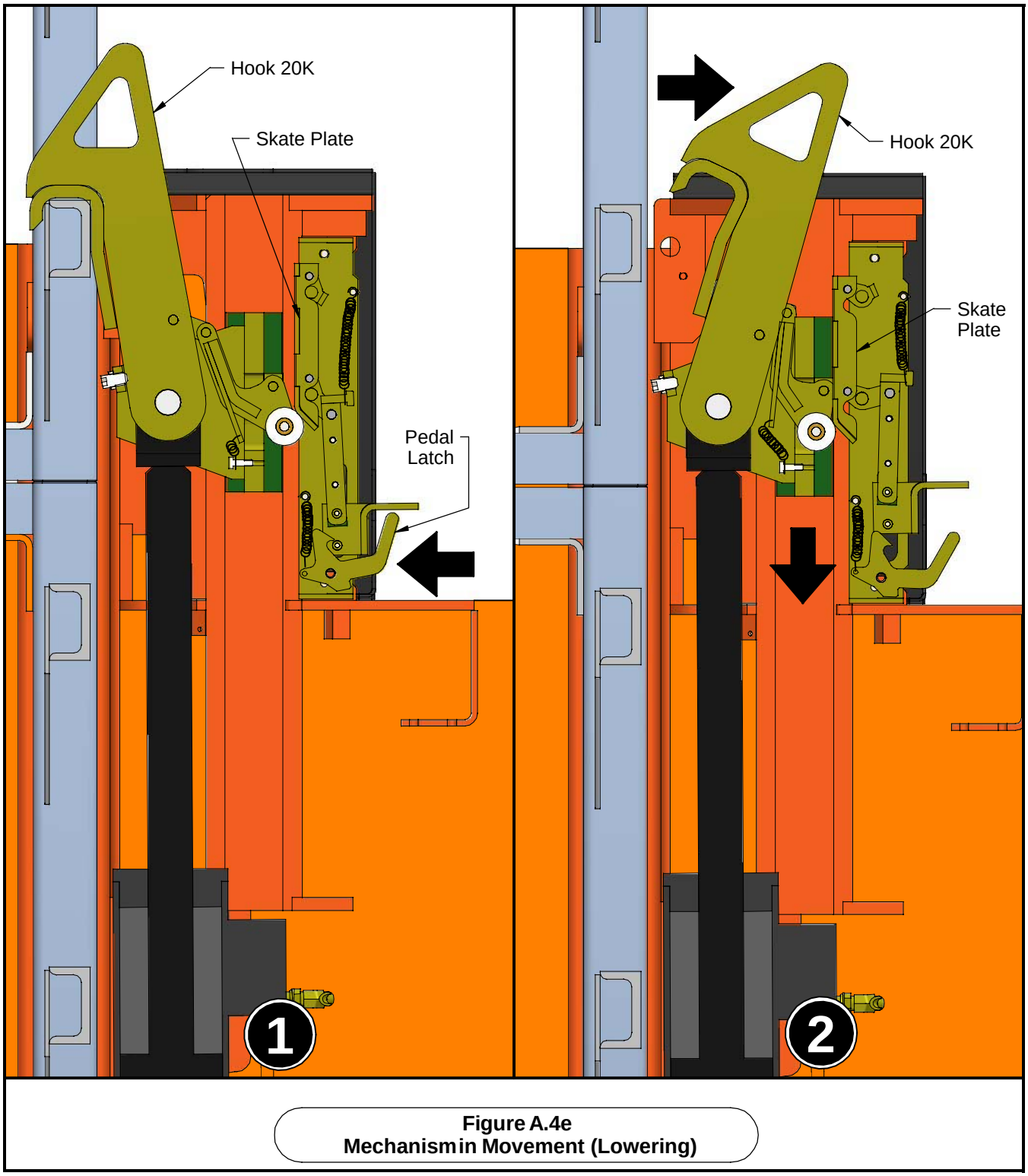


Figure A.4e
Mechanism in Movement (Lowering)

UTILIZATION OF ELEVATING UNIT (LOWERING) (CONTINUED)

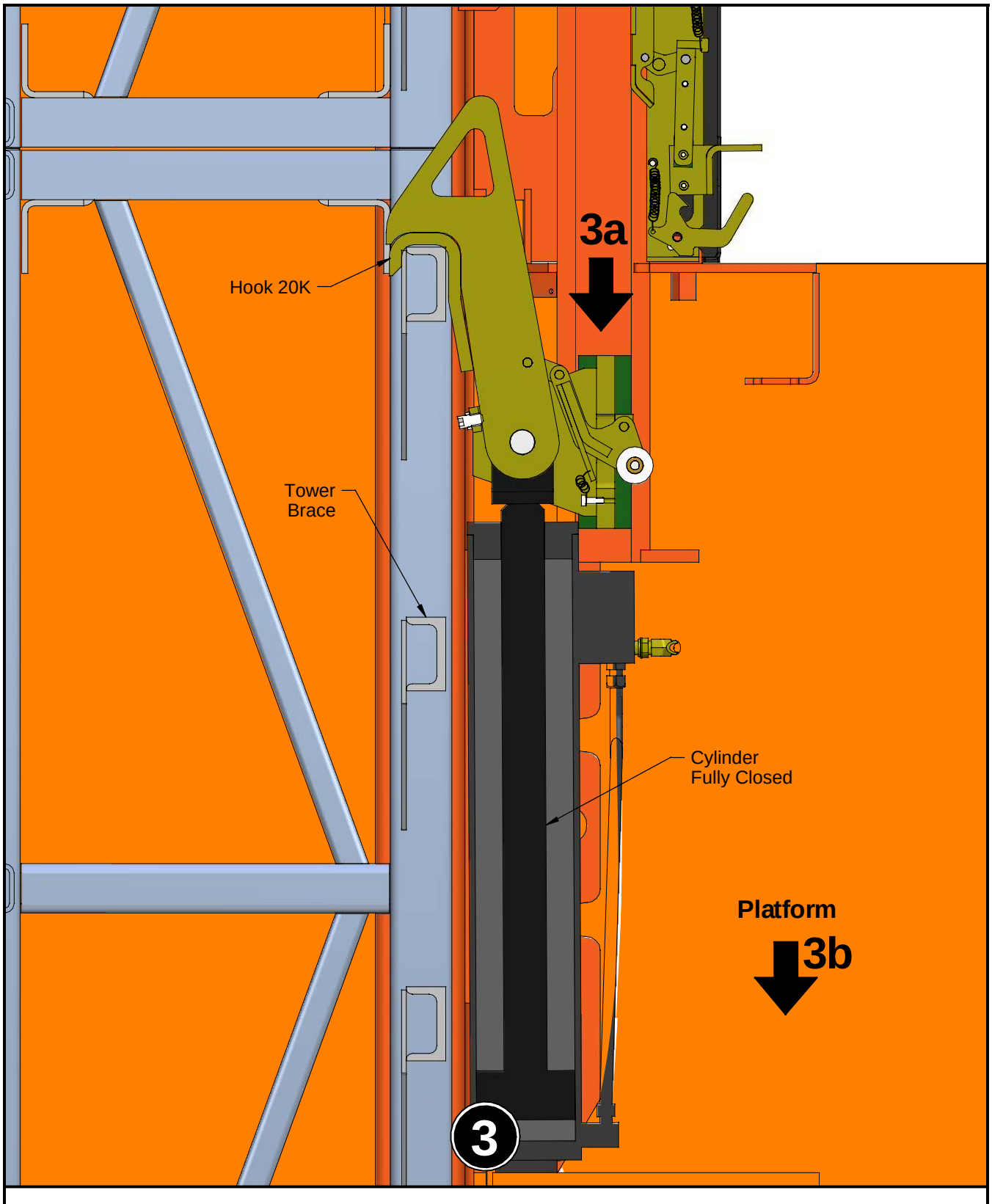


Figure A.4f
Mechanismin Movement (Lowering)

UTILIZATION OF INCLINOMETER

Inclinometer Alarm : (see Figure A.5)

38- The alarm is beeping when the angle of the bridge reaches +/- 3°, this indicates that both elevating units are not at the same level. You must use only one elevating unit to re-establish the perfect inclination and so the alarm stops.

Inclinometer Emergency Stop : (see Figure A.5)

39- The platform with the connected inclinometer will stop if the inclination reaches 5° or more.

40- When using a bridge, do not have more than 0,3 m (1'-0") difference between (two) 2 elevating units.

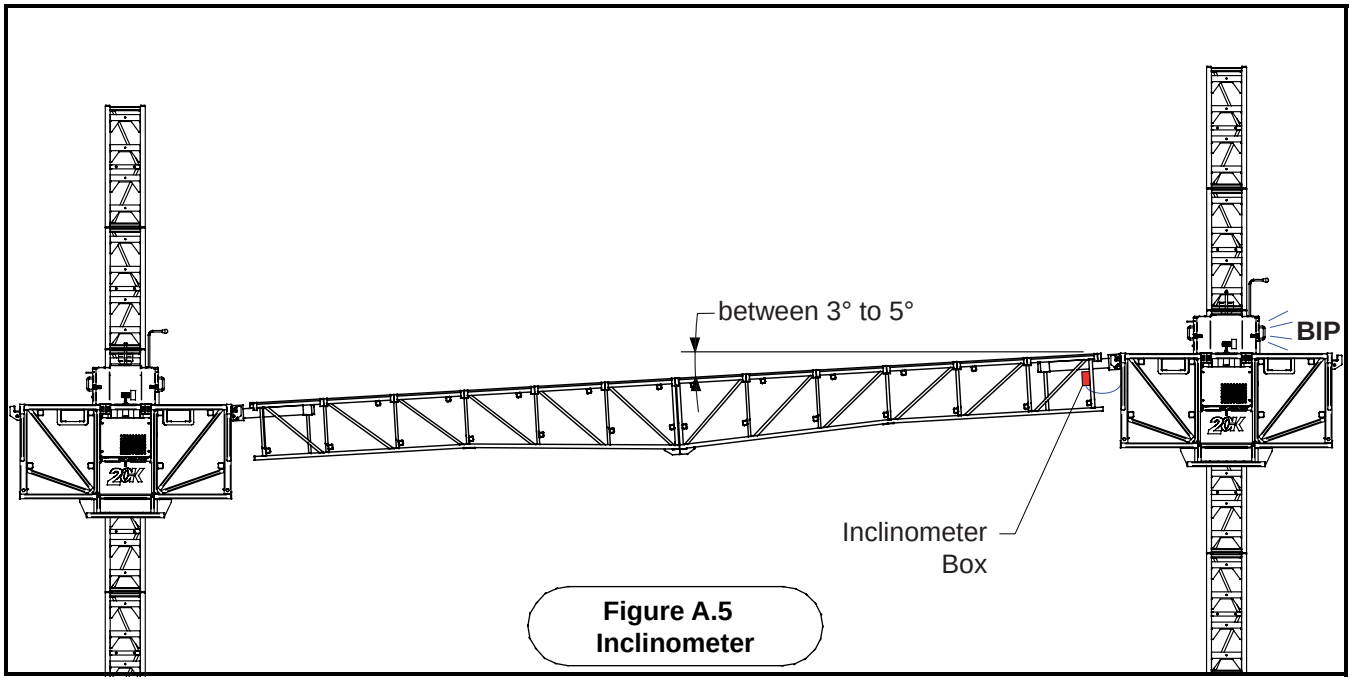


Figure A.5
Inclinometer

EMERGENCY DESCENT PROCEDURE

Step 1 (Before Ignition)

41- Make sure the trajectory of the platform is free of all obstacles.
42- Make sure the « Emergency Stop Button » is disengaged. (see View B)
43- Make sure the « Crane Selector » is in « FRSM-20K » position. (see View E on page A-12)
44- Make sure the « Motor Selector » is in « Emergency Device » position (see View B) and the « Valve Selector » levers are positioned « Emergency ». (see View A and View C)

Step 2 (Ignition)

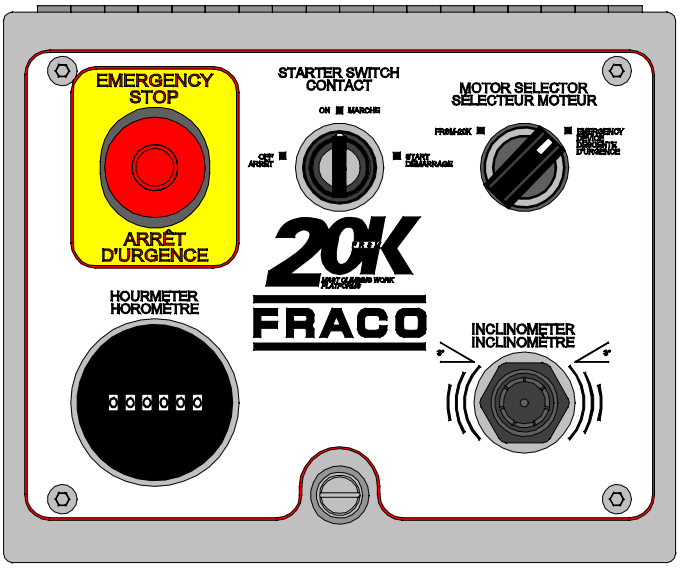
45- See page A-25 or see Honda owner manual to start engine.

Step 3 (Lowering the Platform)

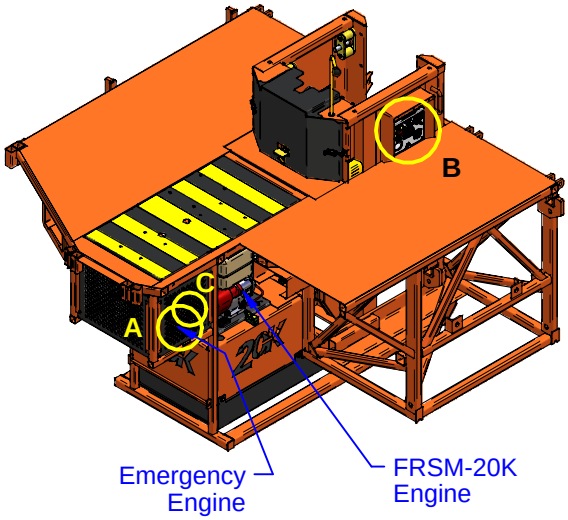
46- Follow the normal procedures to lower the platform.

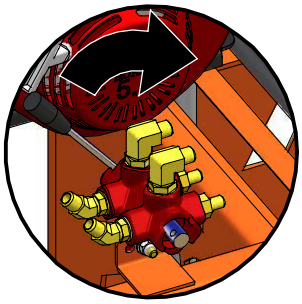
Important :

- A visual inspection of all points presented in the daily inspection sheet shall be done at the beginning of each shift by a certified FRACO technician.
- At all time you can push the « Emergency Stop Button », the platform will stop immediately.
- If engine doesn't start or for any mechanical problem, refer to the troubleshooting chart at page A-23. If you can't solve the problem with the troubleshooting chart, contact your FRACO representative.
- The emergency engine shall be started and tested every day during the daily inspection.

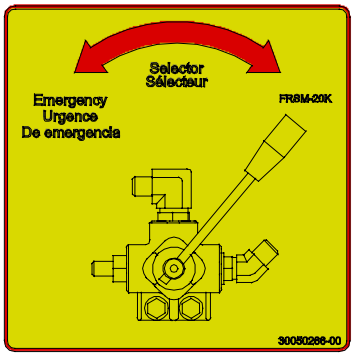


View B
Control Box 20K





View A
Valve Selector



View C
Sticker Valve Selector

Figure A.6
Emergency Descent Device

TECHNICAL SPECIFICATIONS

Description	Imperial	Metric
Maximum Length of the Platform in Single Mast Maximum Length of the Platform in Double Mast	Full Load 47'-6" Reduce Load 67'-6" Full Load 127'-0" Reduce Load 133'-8"	Full Load 14,5 m Reduce Load 20,6 m Full Load 38,7 m Reduce Load 40,7 m
Maximum Load Capacity	10 000 lb / mast	4 535 kg / mast
Raising Speed (gasoline) ***Only Available in Certain Country***	0 to 7.2' / minute	0 to 2,2 m / minute
Maximum Depth of Upper Working Area (depth of the section + depth of the planks)	5'-11" + 5'-0" = 10'-11"	1,8 m + 1,5 m = 3,3 m
Maximum Depth of Lower Working Area (depth of the planks)	5'-0"	1,5 m
Maximum Height (with ground base with anchoring devices)	550'-0"	168,0 m
Maximum Height (with freestanding base without anchoring devices)	45'-0"	13,7 m
Standard Distance Between Anchoring Devices	30'-0"	9,1 m
Rasing System	Hydraulic Raising System	
Engine Types (gasoline) ***Only Available in Certain Country***	Honda 13 HP, GX-390UQNR6 Honda 5.5 HP, GX-160 (emergency engine)	
Elevating Unit Dimensions (length x depth x height) / weight	7'-6" x 7'-6 3/8" x 5'-4" / 2 950 lb	2,3 m x 2,3 m x 1,6 m / 1 340 kg
Freestanding Base Dimensions (length x depth) / weight	12'-5" x 12'-11" / 2 275 lb	3,78 m x 3,94 m / 1 030 kg
Mast Section Dimensions (length x depth x height) / weight	20" x 20" x 5'-0" / 255 lb	0,5 m x 0,5 m x 1,5 m / 115 kg
No-Modular Cantilever Section Dimensions (length x depth) / weight	3'-4" x 3'-6" / 275 lb 6'-8" x 3'-6" / 455 lb 10'-0" x 3'-6" / 640 lb 10'-0" x 3'-6" / 1 000 lb Taper	1,0 m x 1,1 m / 125 kg 2,0 m x 1,1 m / 205 kg 3,0 m x 1,1 m / 290 kg 3,0 m x 1,1 m / 455 kg Taper
Modular Cantilever Section Dimensions (length x depth) / weight	3'-4" x 5'-11" / 280 lb 6'-8" x 5'-11" / 595 lb 10'-0" x 5'-11" / 830 lb 10'-0" x 5'-11" / 1 215 lb Taper	1,0 m x 1,8 m / 130 kg 2,0 m x 1,8 m / 270 kg 3,0 m x 1,8 m / 375 kg 3,0 m x 1,8 m / 550 kg Taper
No-Modular Bridge Section Dimensions (length x depth) / weight	15'-0" x 3'-6" / 1 200 lb 20'-0" x 3'-6" / 1 420 lb	4,6 m x 1,1 m / 545 kg 6,1 m x 1,1 m / 645 kg
Modular Bridge Section Dimensions (length x depth) / weight	15'-0" x 5'-11" / 1 290 lb 20'-0" x 5'-11" / 1 690 lb	4,6 m x 1,8 m / 585 kg 6,1 m x 1,8 m / 770 kg
No-Modular Central Bridge Section Dimensions (length x depth) / weight	20'-0" x 3'-6" / 1 350 lb	6,1 m x 1,1 m / 615 kg
Modular Central Bridge Section Dimensions (length x depth) / weight	20'-0" x 5'-11" / 1 660 lb	6,1 m x 1,8 m / 750 kg
Intermediate Cantilever Section Dimensions (length x depth) / weight	2'-6" x 3'-6" / 300 lb 2'-6" x 5'-11" / 310 lb 5'-0" x 5'-11" / 530 lb	752 mm x 1,1 m / 135 kg 752 mm x 1,8 m / 140 kg 1,5 m x 1,8 m / 240 kg

TROUBLESHOOTING

Motor	Problem	Potential Cause	Solution
Engine (*gasoline)	The engine doesn't start	The emergency stop button is actived	Deactivate the emergency stop button
Engine (*gasoline)	The platform doesn't rise or the engine doesn't start	The selector is in «CRANE» position	Turn the selector handle to «FRSM-20K»
Engine (*gasoline)	The platform doesn't move but the engine is running	Too much load or load poorly distributed	Remove the excedent load and / or distribute the load as recommended in the load distribution chart (see chapter A «Load distributions or configuration»)
Engine (*gasoline)	The platform doesn't move but the engine is running	RPM too low	Set to 3 600
Engine (*gasoline)	The engine doesn't start	The fuel valve is closed	Open the fuel valve
Engine (*gasoline)	The engine doesn't start	No fuel in the tank	Put fuel in the tank
Engine (*gasoline)	The engine doesn't start	The battery is dead	Use the manual starter / change battery
Engine (*gasoline)	The engine doesn't start	Oil level in the engine is too low	Put oil in the engine / Do not overfill
Engine (*gasoline)	The engine doesn't start	Fuel is contaminated	Drain fuel and fill it up with good fuel
Engine (*gasoline)	The engine doesn't start	The spark plug is bad	Replace the spark plug
Engine (*gasoline)	The engine stalls or doesn't run well	The choke is in « OPEN » position	Put the choke back in « CLOSED » position
Engine (*gasoline)	The engine stalls	The engine is too cold	Let the engine warm up before to use
Engine (*gasoline)	The engine is smoking	Too much oil in the motor	Verify the oil level
Engine (*gasoline)	The engine doesn't start	The motor selector is in «Emergency Engine» position and / or the valve selector is in «Emergency Engine» position	Position valve selector is in «FRSM-20K Engine» position and / or switch the selector to «FRSM-20K Engine».

(*) = Only available in certain country

* For more information, consult the elevating unit maintenance guide.
* If you cannot solve the problem with the troubleshooting chart, contact your FRACO representative.
* Warning, the repair section must be used by qualified mechanic.

MAINTENANCE

Important :

The frequency and extent of the periodic inspections and tests depend on national regulations, constructors' specifications, operating conditions and frequency of use. It should not be necessary to dismantle the parts during periodic inspections unless there is a doubt as to reliability and safety. Removing the bonnets, opening the observation traps and lowering the platform into transport position are not considered dismantling.

Daily :

Verify all the inspection points as described on the daily inspection sheet. (supplied with the user guide and the Level 1 training manual)

Monthly :

Refer to data sheet inspection in your maintenance guide.

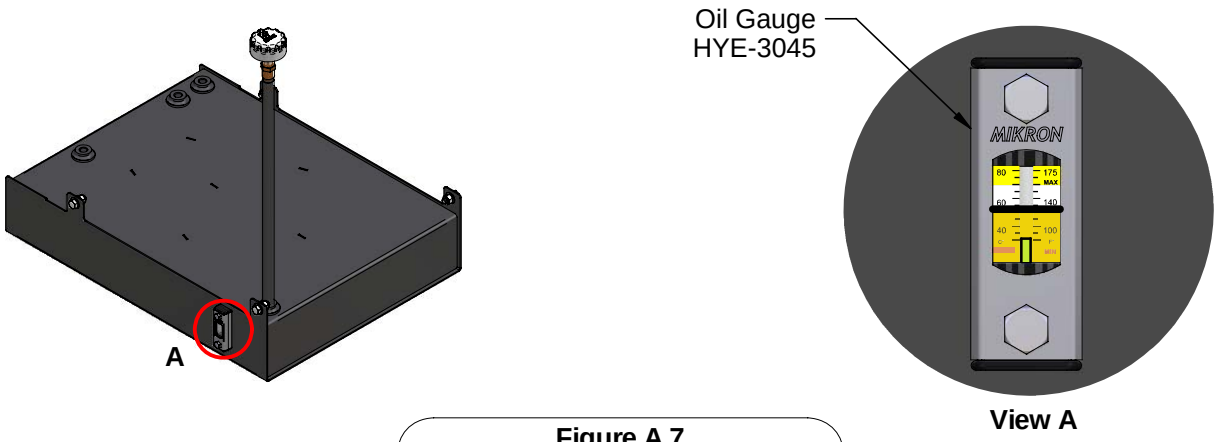


Figure A.7
Oil Gauge

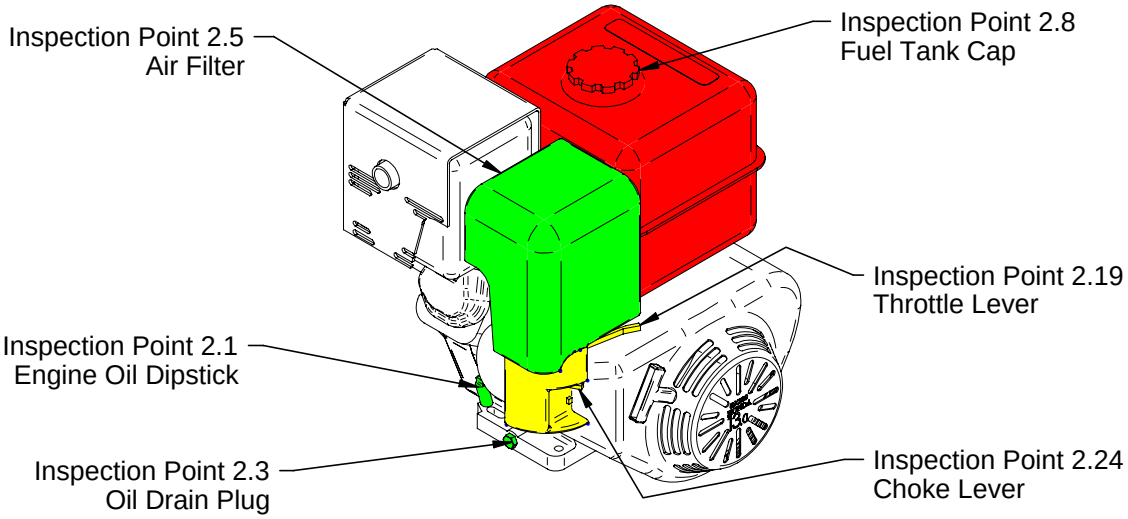
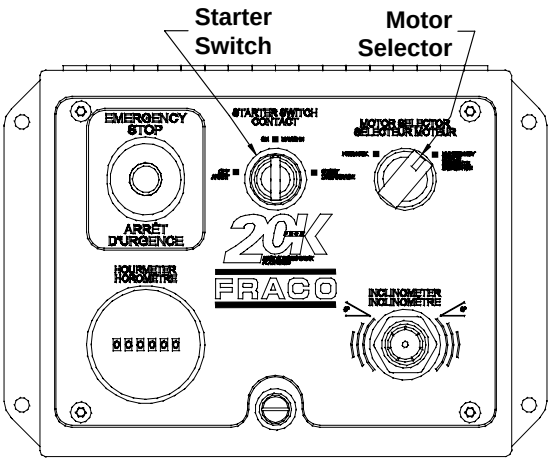


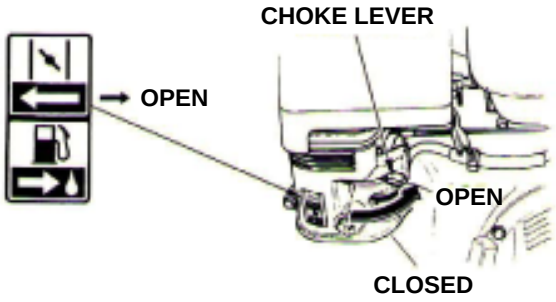
Figure A.8
Maintenance of the Gasoline Engine

1. Turn the key to the « ON » position.

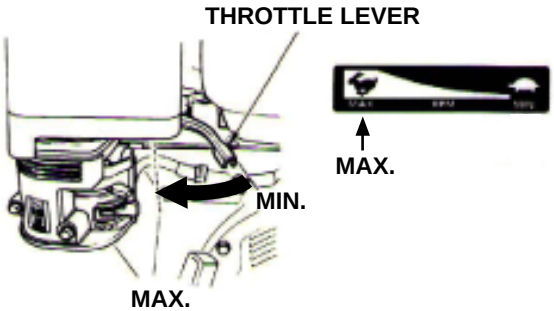


Control Box 20K

2. Place the choke lever on the « CLOSED » position to start the engine.



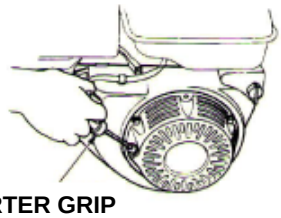
3. Make sure that the throttle lever is on « MAX. » position.



4. Operate the starter.

RECOIL STARTER

Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently.



STARTER GRIP

NOTICE

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

5. Gradually move the choke lever to the « OPEN » position as the engine warms up.

6. **STOPPING THE ENGINE**
To stop the engine in a emergency, simply turn the engine switch of the « Control Box 20K » to the « OFF » position. Under normal conditions, use the following procedure. Refer to the instructions provided by the equipment manufacturer.

Daily Inspection Sheet

User (Cie): _____ **Name of the job site:** _____

Address of the job site: _____
Street and address **city** **state**

Type of elevating unit: _____ **Single mast:** __ **Twin mast:** __ **Serial #:** _____ /_____

Freestanding: __ **Anchors:** __ **FRH on the elevating unit:** __ **Serial #:** _____ /_____

Note: initialize the items verified and N/A if non applicable

Inspected items	Checked	Comments
Safety perimeter		
Ground stability surrounding the base area		
Leveling of the base and mast		
Overhead clearance		
Condition of the electric cable		
Bridges and extension structure		
Tower structure, rung/railings		
Missing bolts and pins		
Condition of the platform floor		
Condition of the planks/plank ties in place		
Guardrail and protection mesh		
End mast section and/or descent limiting device		
Solidity of the wall ties, missing bolts/pins		
Load distribution on the platform		
Warning panel		
Level of fuel, engine and hydraulic oil		
Condition of the hydraulic hoses		
Condition of the electrical wire		
Battery and cables properly fixed		
User guide, daily inspection sheet		
Operation of the platform/safety mechanism		
Operation of the FRH, condition of the cable/hook		
Emergency switch buttons		
Emergency engine descent		

Comments: _____
_____
_____

Date: _____ **Name of the operator:** _____

Name of the employer: _____**Signature of the operator:** _____

Any irregularities or malfunction of the MCWP must be repaired by a qualified installer or mechanic, certified by Fraco products, prior to the utilization of the platform. A complete inspection of the platform must be executed every 3 months.

CHAPTER B

ELEVATING UNIT AND BASES

DATA SHEET OF ELEVATING UNIT AND BASES

Elevating Unit (10060018)	Imperial	Metric
Weight (elevating unit only)	2 700 lb	1 225 kg
Weight (elevating unit + ground base + first mast section)	2 950 lb	1 338 kg
Length (see Figure B.1)	7’-6”	2,3 m
Width (see Figure B.1)	7’-6 1/4”	2,3 m
Height (see Figure B.1)	5’-4”	1,6 m
Motion Speed	0 - 7,2 m / min	0 - 2,2 m / min
Lifting Capacity	10 000 lb	4 536 kg

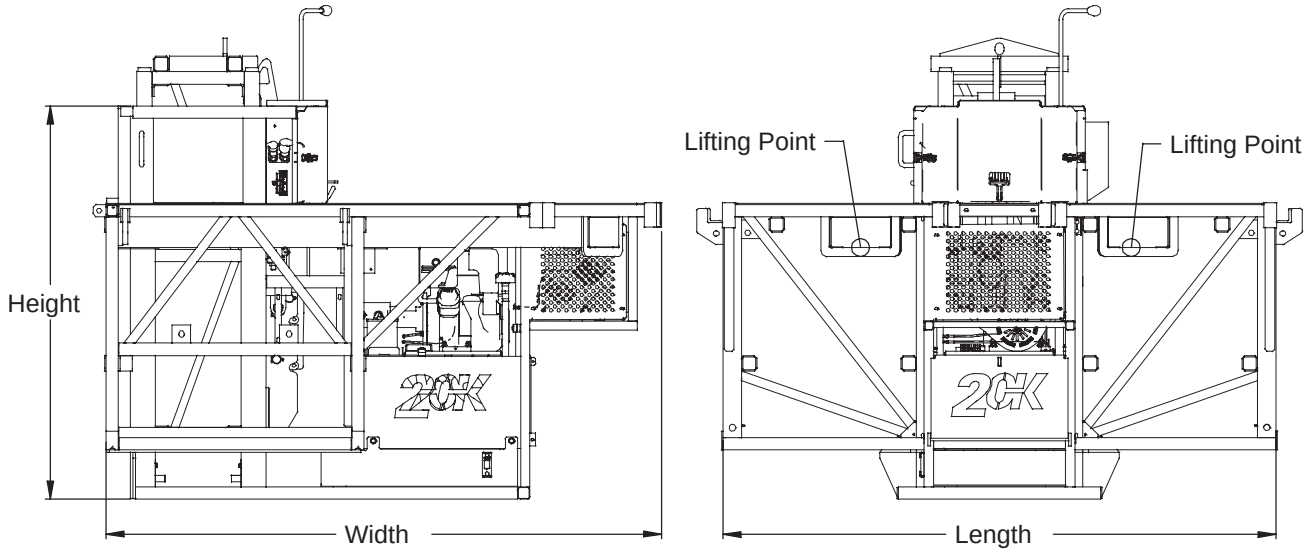


Figure B.1
Elevating Unit Dimensions

Ground Base (14030019)	Imperial	Metric
Weight (ground base only)	750 lb	340 kg
Weight (elevating unit + ground base + first mast section)	2 950 lb	1 338 kg
Length (see Figure B.2)	3’-6”	2,3 m
Width (see Figure B.2)	6’-1 7/8”	2,3 m
Height (see Figure B.2)	2’-10 1/4”	1,6 m

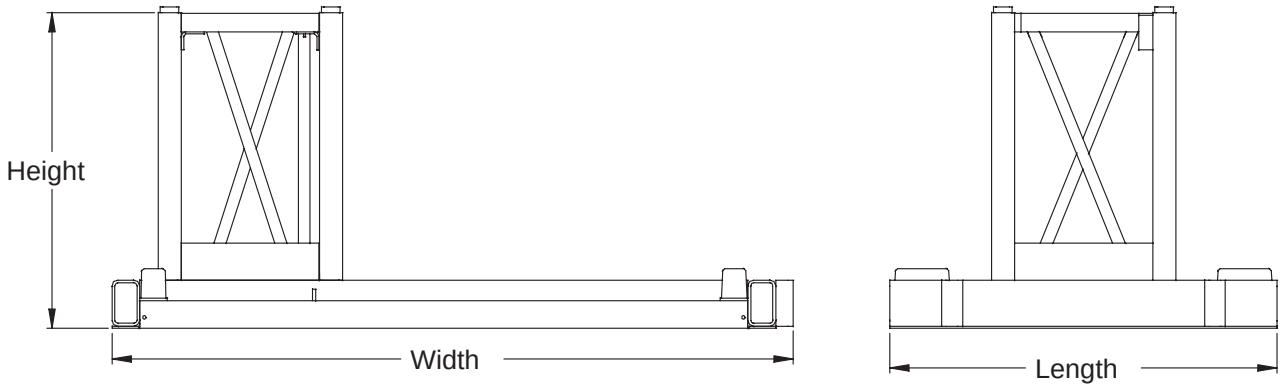


Figure B.2
Ground Base Dimensions

DATA SHEET OF ELEVATING UNIT AND BASES (CONTINUED)

Universal Freestanding Base (14030109)	**Imperial**	**Metric**
Weight (freestanding base only)	2 150 lb	975 kg
Weight (elevating unit + ground base + freestanding base+ first mast section)	5 855 lb	2 655 kg
Length (see Figure B.3)	12'-5"	3,78 m
Maximal Width (see Figure B.3)	12'-10 3/4"	3,93 m
Minimal Width (see Figure B.3)	8'-1"	2,46 m
maximal Height (see Figure B.3)	2'-5 5/8"	752 mm
Towards acceptable of the frame is 0.5° max. The «Minimum» sticker indicates the minimal position at 23" in freestanding		
Freestanding Base for FRSM-20K (14030053 old version)	**Imperial**	**Metric**
Weight (freestanding base only)	2 505 lb	1 135 kg
Length (see Figure B.3)	17'-11"	5,46 m
Maximal Width (see Figure B.3)	15'-9"	4,80 m
Minimal Width (see Figure B.3)	7'-9"	2,36 m
Maximal Height (see Figure B.3)	2'-1 3/4"	654 mm

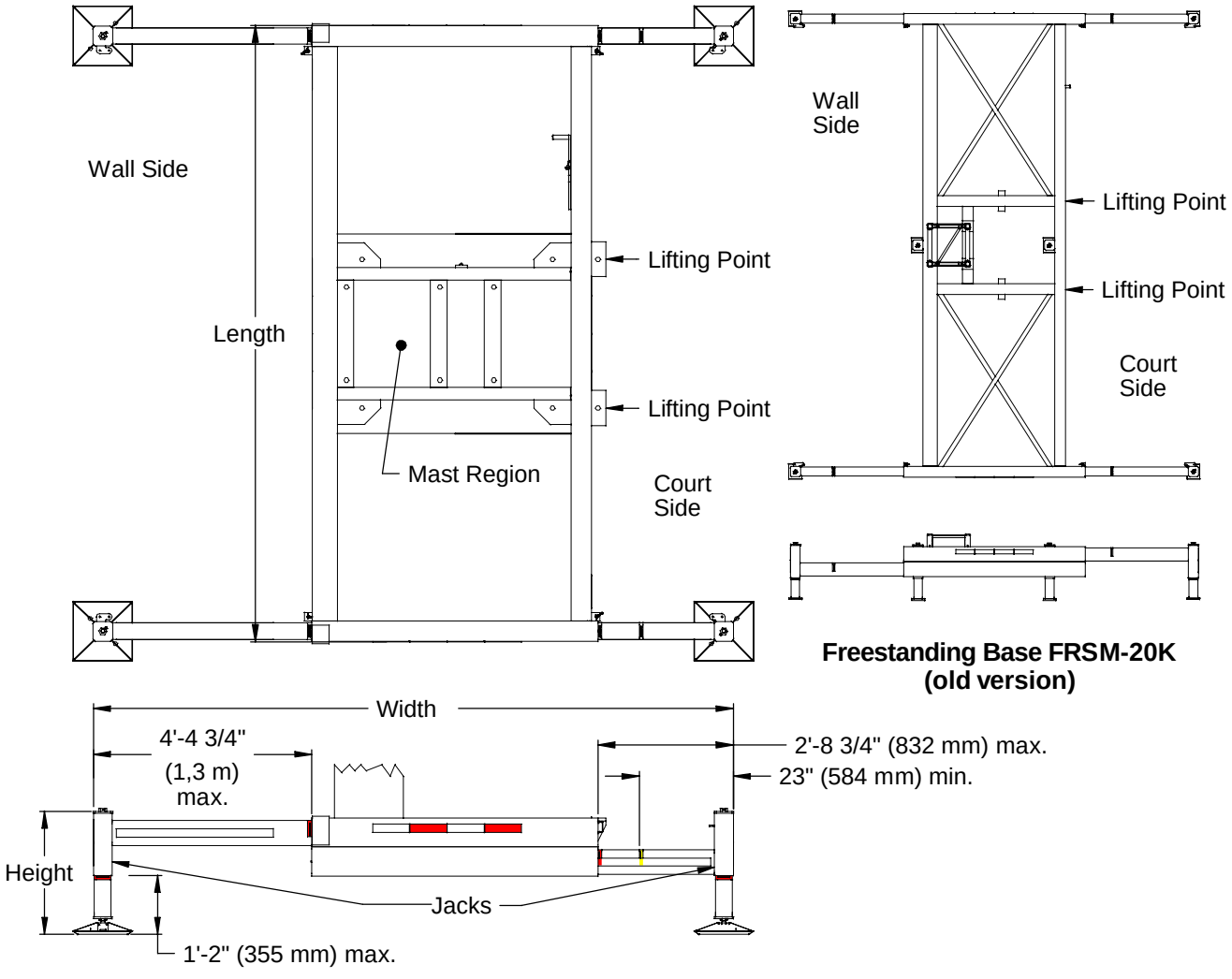


Figure B.3
Freestanding Base Dimensions

GROUND LOADS

Note :

- The load bearing capacity of the ground where the base of the platform is located must be verified before any installation. It must be sufficient to support adequately the loads passed on by the base of the platform.

Typical Ground Loads	
Freestanding Height	**Maximum Load Per Jack**
45’-0” (13,7 m)	13 005 lb (5 900 kg)
Installation Height	**Maximum Load Per Mast**
50’-0” (15,2 m)	30 535 lb (13 850 kg)
75’-0” (22,9 m)	31 855 lb (14 450 kg)
100’-0” (30,5 m)	33 070 lb (15 000 kg)
125’-0” (38,1 m)	34 395 lb (15 600 kg)
150’-0” (45,7 m)	35 605 lb (16 150 kg)
200’-0” (61,0 m)	38 140 lb (17 300 kg)
250’-0” (76,2 m)	41 115 lb (18 650 kg)
300’-0” (91,4 m)	43 100 lb (19 550 kg)
350’-0” (106,7 m)	45 635 lb (20 700 kg)
400’-0” (121,9 m)	48 170 lb (21 850 kg)
450’-0” (137,2 m)	50 595 lb (22 950 kg)
500’-0” (152,4 m)	53 130 lb (24 100 kg)

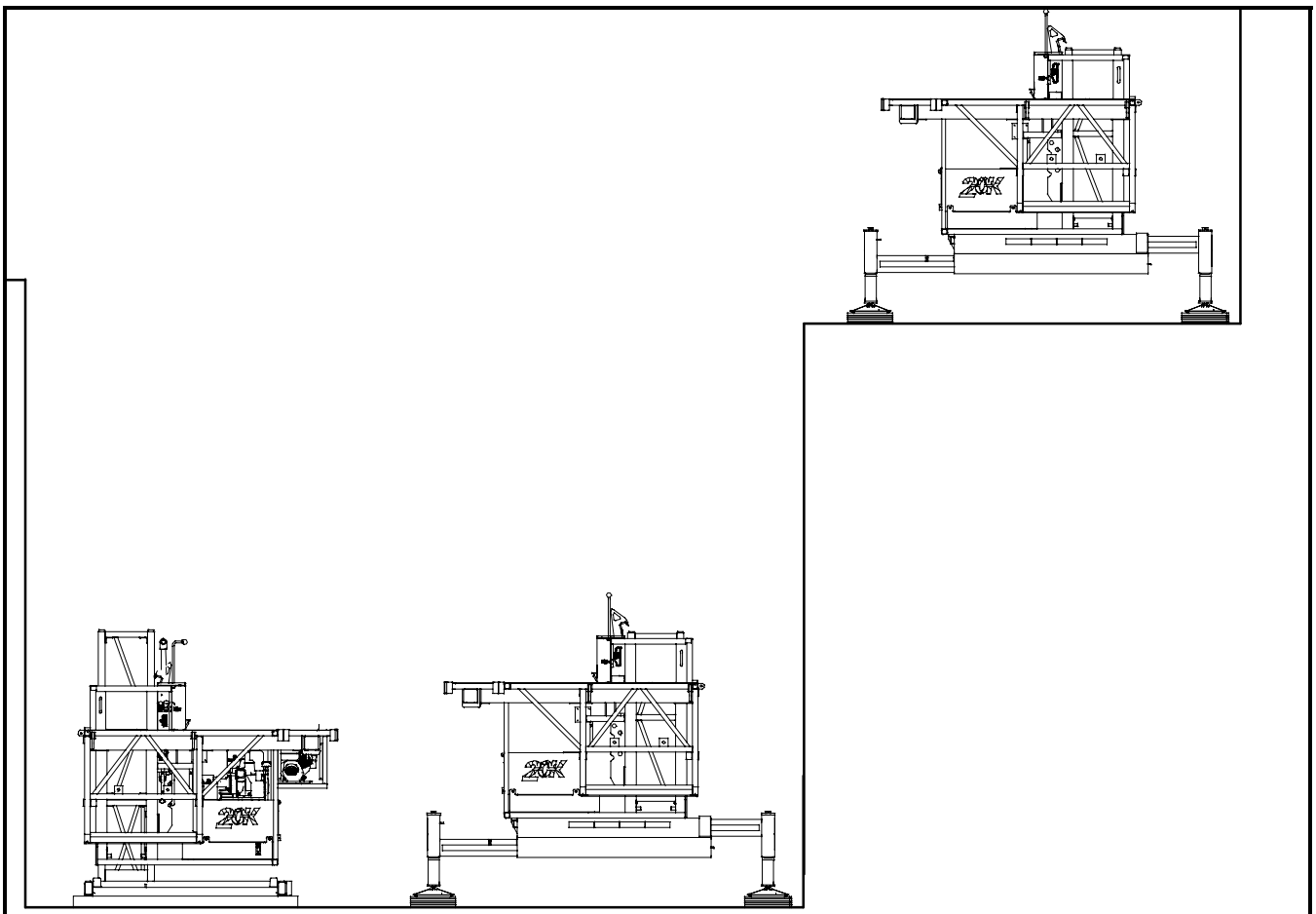


Figure B.4
Ground Loads

INSTALLATION OF WIRE MESH PROTECTION

Wire Mesh Protection (see Figure B.5)

- Position and bolt the wire mesh protection on the elevating unit with four (4) bolts BOA-2031.

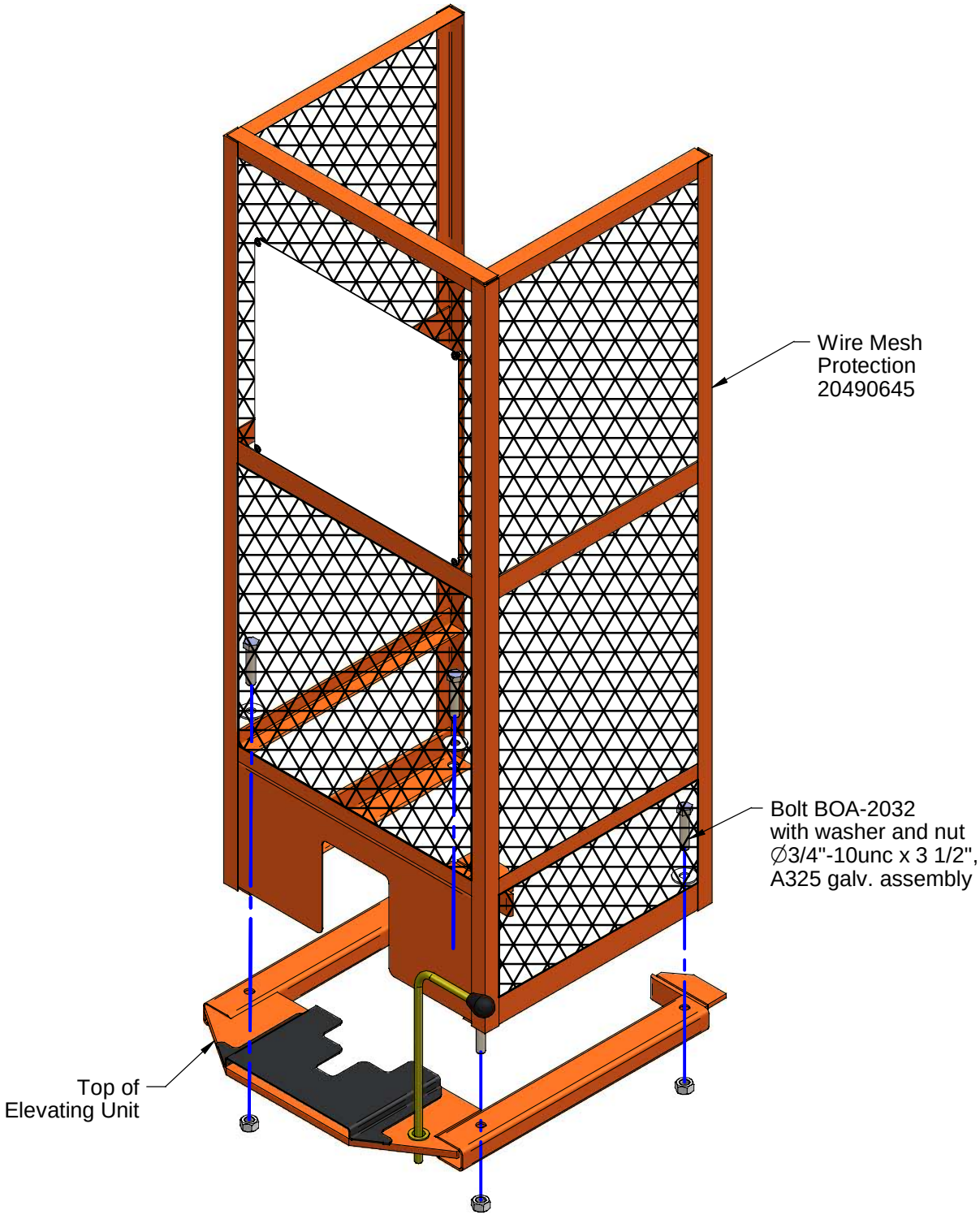


Figure B.5
Wire Mesh Protection

SITE LOCALIZATION AND MEASUREMENTS

Localization of Installation Site :

- Identify the facade of the building where the platform is to be installed.
- Identify the specific needs of the platform user (surface to be covered, work methods, pertinent architectural building details,presence of balconies, roof, number of planks used, etc.).

Ground Stability and Clearance :

- Make sure that the ground where base of the platform is located is stable, properly drained and that it have load bearing capacity required for installation (see figure of ground loads in page B-4). Excavation in zone surrounding base of the platform is forbidden during presence of the platform on this site.
- The platform must always be kept at a safe distance from any obstacles and power lines (distance depends on voltage of the power line). Contact your local utility to identify the line voltage and safe operating distance. Always keep enough clearance for movement of the platform.

Measurements and Identification of Configuration :

- The surface to be covered, work methods of the user (expansion joint, window sequence, stone pattern, etc.) and the limitations of the platform will help in identifying the required configuration. This information is collected when locating the installation site
- The distance from the building will be determined by the finished wall, the point furthest from the finished wall (balconies, window frames, gutters, roof, etc.) and the number of planks used to execute the work.
- Refer to project layout to identify the required configuration.
- Once location of elvating unit is identified, mark center and face of elevating unit on the ground.

Base Positioning (see Figure B.6 and B.7)	
Type of Installation	**« L »**
Without plank (minimum distance from finished wall)	8” (200 mm) max.
Two (2) planks (standard distance from finished wall)	28” (710 mm)
Five (5) planks (maximum distance from finished wall)	5’-3” (1,6 m) max.
* Contact the engineering department FRACO for distances higher than those indicated in table * Calculation of the distance « L » depends on width of the planks 10” (250 mm) * The distance in between two (2) platforms is 14” (350 mm)	

Project Layout

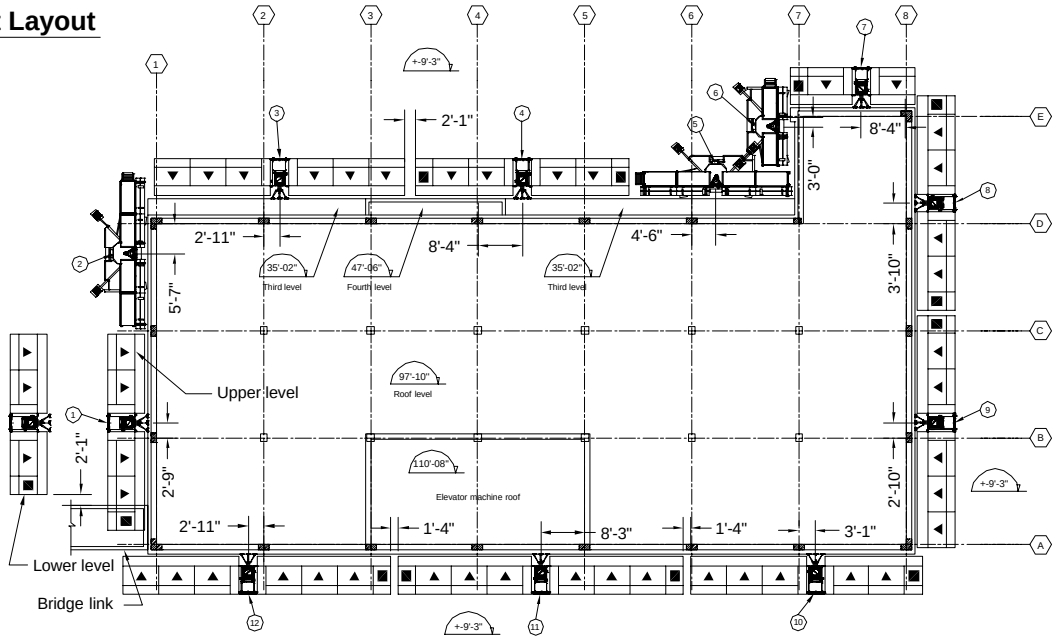


Figure B.6
Project Layout

SITE LOCALIZATION AND MEASUREMENTS (CONTINUED)

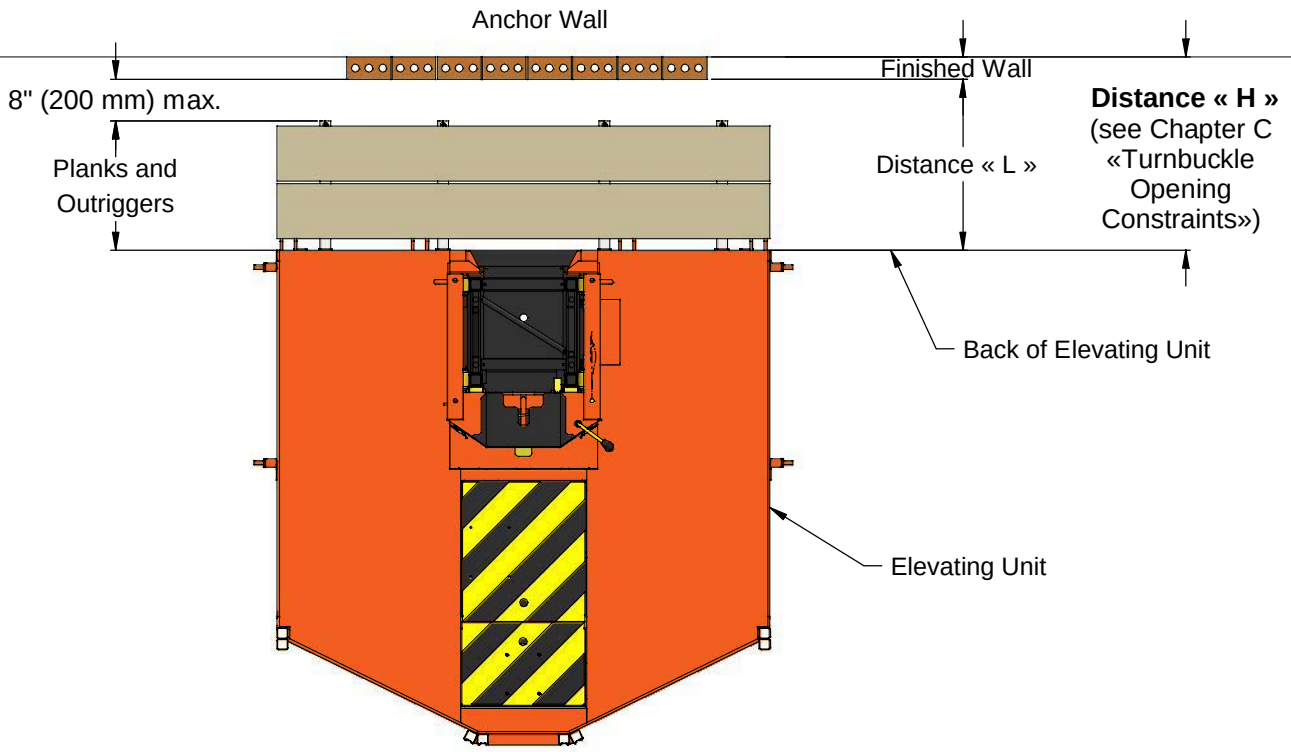


Figure B.7
Distance « L » with Ground Base

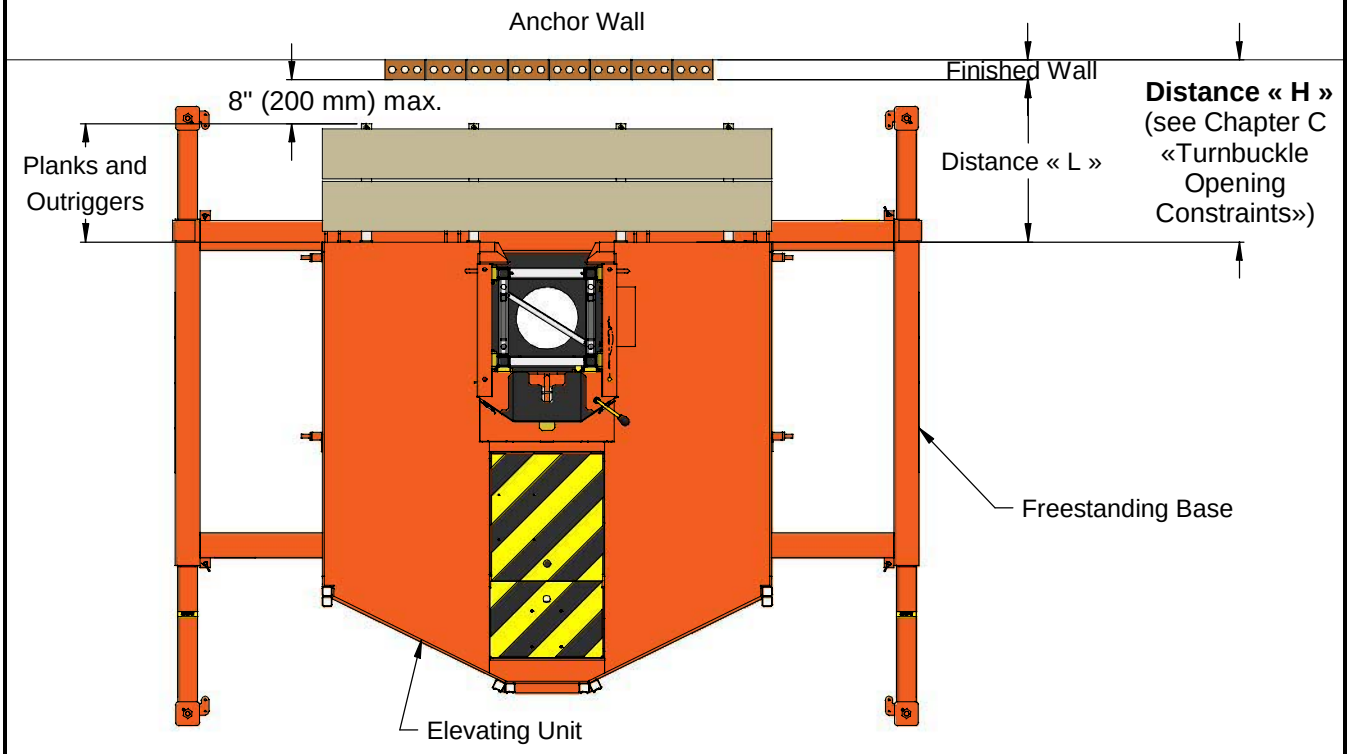


Figure B.8
Distance « L » with Freestanding Base

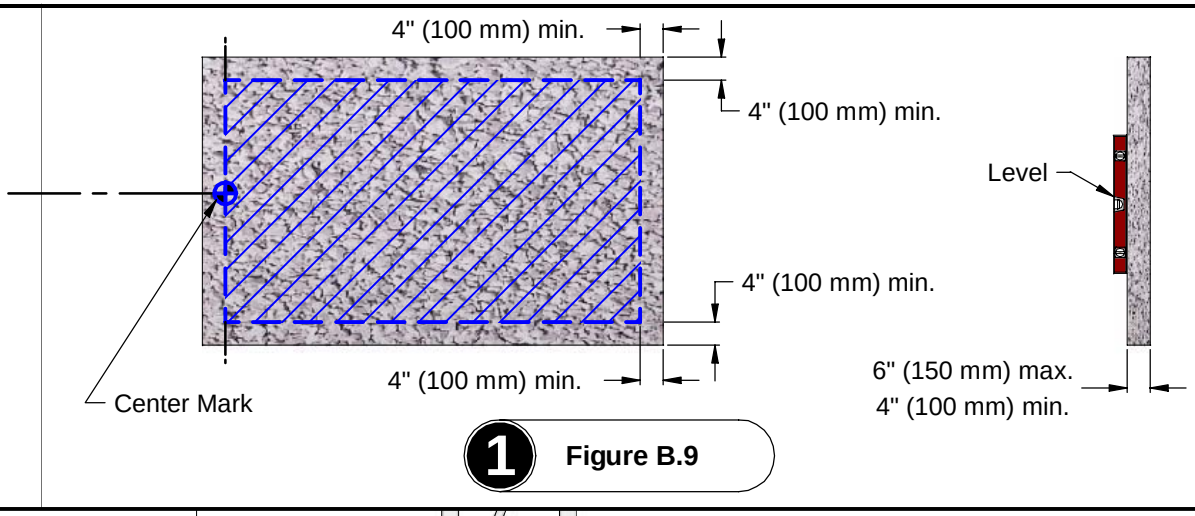
INSTALLATION WITH GROUND BASE

Step 1 (see Figure B.9)

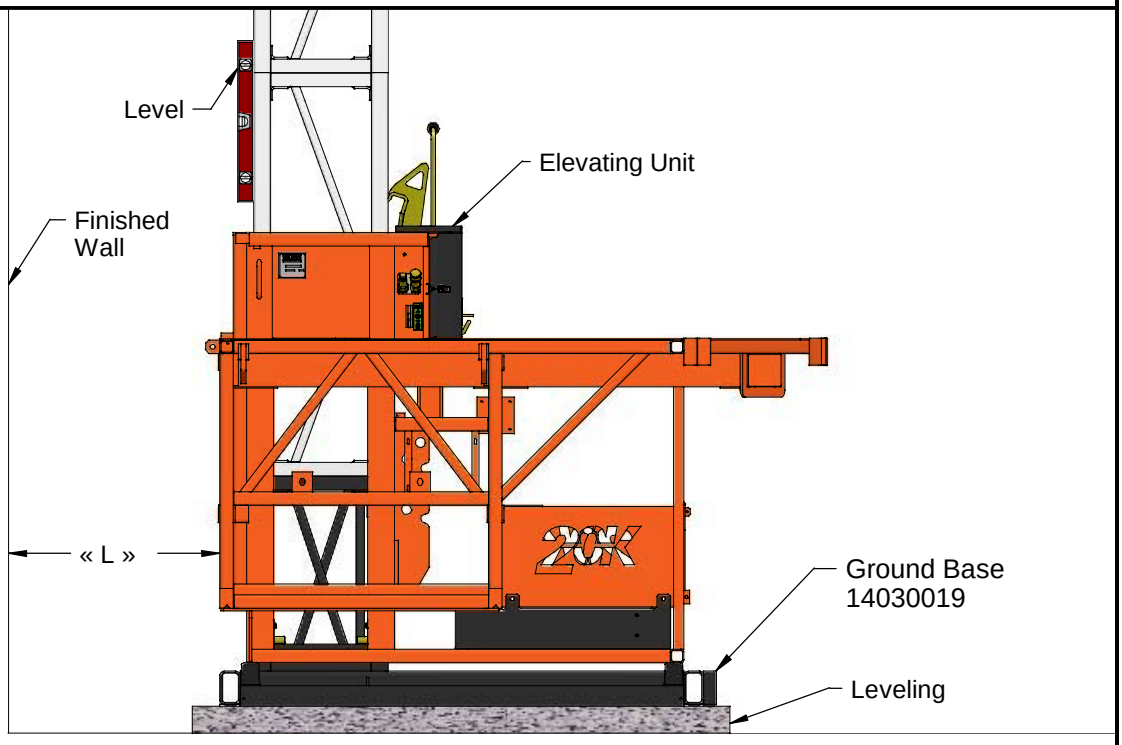
1- Level the ground in area where the base will be positioned with 4” to 6” (100 mm to 150 mm) of crushed stone. A minimum of 4” (100 mm) of material has to exceed the base of the platform and this on all sides of the base.
2- Verify the levelling of ground with a level.

Step 2 (see Figure B.7 and B.10)

3- Measure with precision the distance « L » between elevating unit and finished wall. (see Figure B-7)
4- Position the unit perpendicularly to wall with a lifting device.
5- Verify the perpendicular and levelling of elevating unit, make sure it is perfectly straight to wall. (see Chapter C – page C-5)



1 **Figure B.9**



2 **Figure B.10**

INSTALLATION WITH FREESTANDING BASE

Step 1 (see Figure B.11)

6- Pull the base's front and back stabilizers as far as they will go and lower them onto the wooden jack pads.

Step 2 (see Figure B.8 and B.12)

7- Carefully measure the distance «L» between the unit and the finished wall, taking into account all obstacles that the platform will have to clear. (see page B-6 and B-7).

8- Ensure that the mast is completely vertical, the base is stable and the stabilizers are positioned on the center of the woodden jack pads.

9- Do not use the bubble level against the elevating unit; use it against the mast section or the freestanding base.

Step 3 (see Figure B.13)

10- To level the freestanding base, use the six (6) sided key.

11- Follow the instructions on the sticker.

Step 4 (see Figure B.14)

12- Bolt the ground base with the elevating unit on the freestanding base using four (4) bolts (BOA-2072).

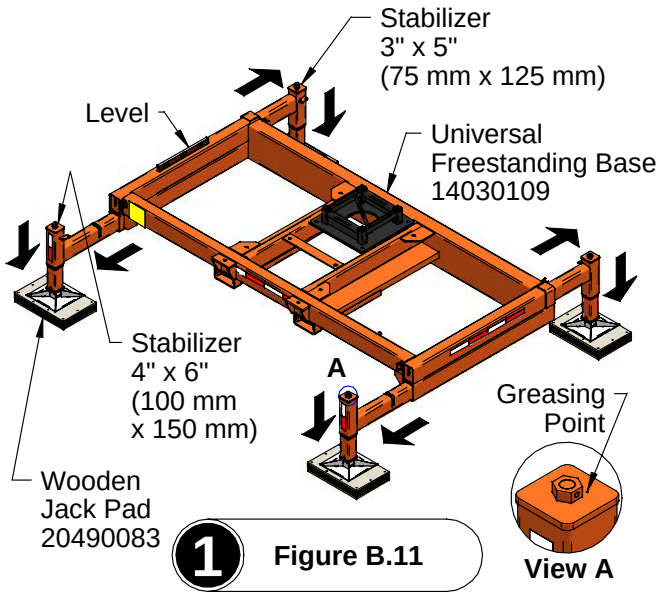
13- Bolt one (1) mast section on the last mast section.

14- Raise the elevating unit around 18" (460 mm).

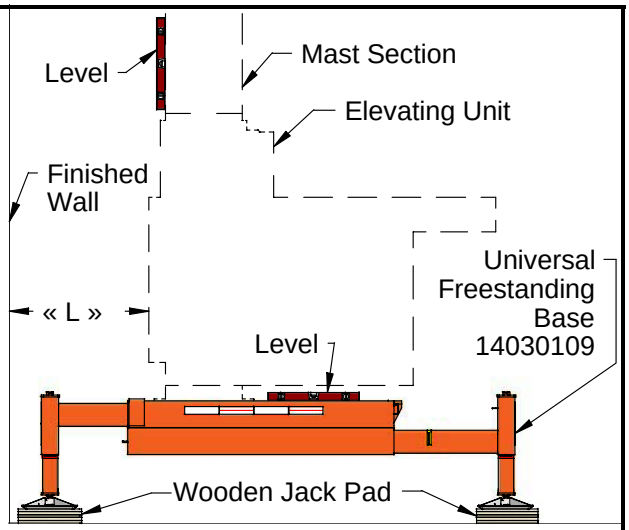
15- Secure bolt on the ground base with an impact wrench.

16- Lower the elevating unit.

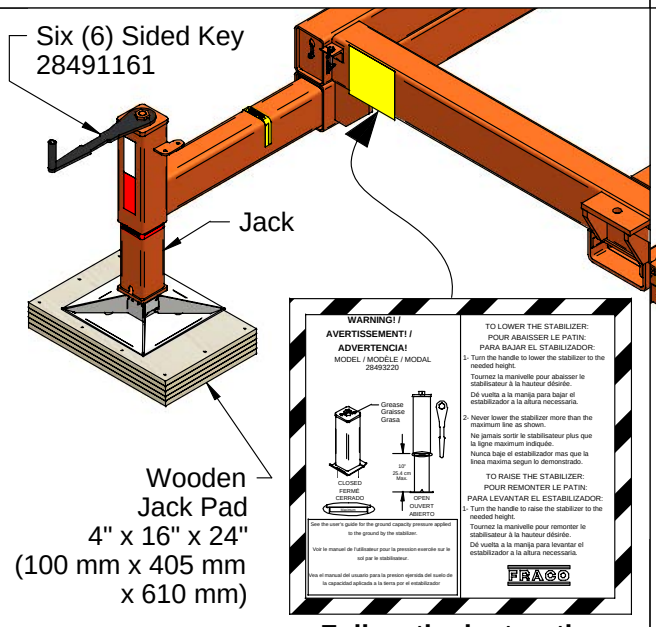
17- Keep leveling the mast section using a bubble level.



1 **Figure B.11**

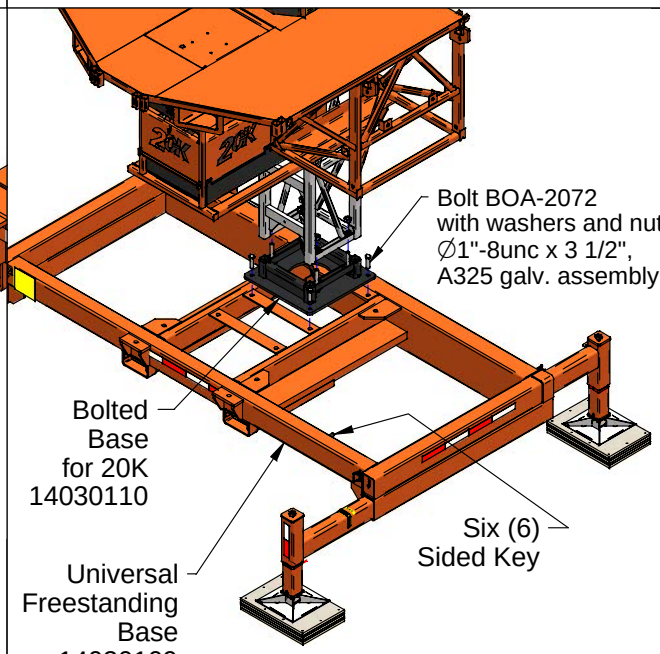


2 **Figure B.12**



Follow the instructions

3 **Figure B.13**



4 **Figure B.14**

INSTALLATION WITH FREESTANDING BASE (CONTINUED)

Important : (see Figure B.11)

- If you must exceed the maximum freestanding height of 45'-0" (13.7 m), be sure to use anchorings device.
- Should never use a crane, monorail, interior working, overhead protection, or winter enclosure when you use a platform with no anchoring device and you need to install the above accessories after the final installation of the platform.
- For heights exceeding 100'-0" (30,5 m), you must install wood pads under the mast and close the four (4) stabilizers completely as illustrated in Figure B.15.

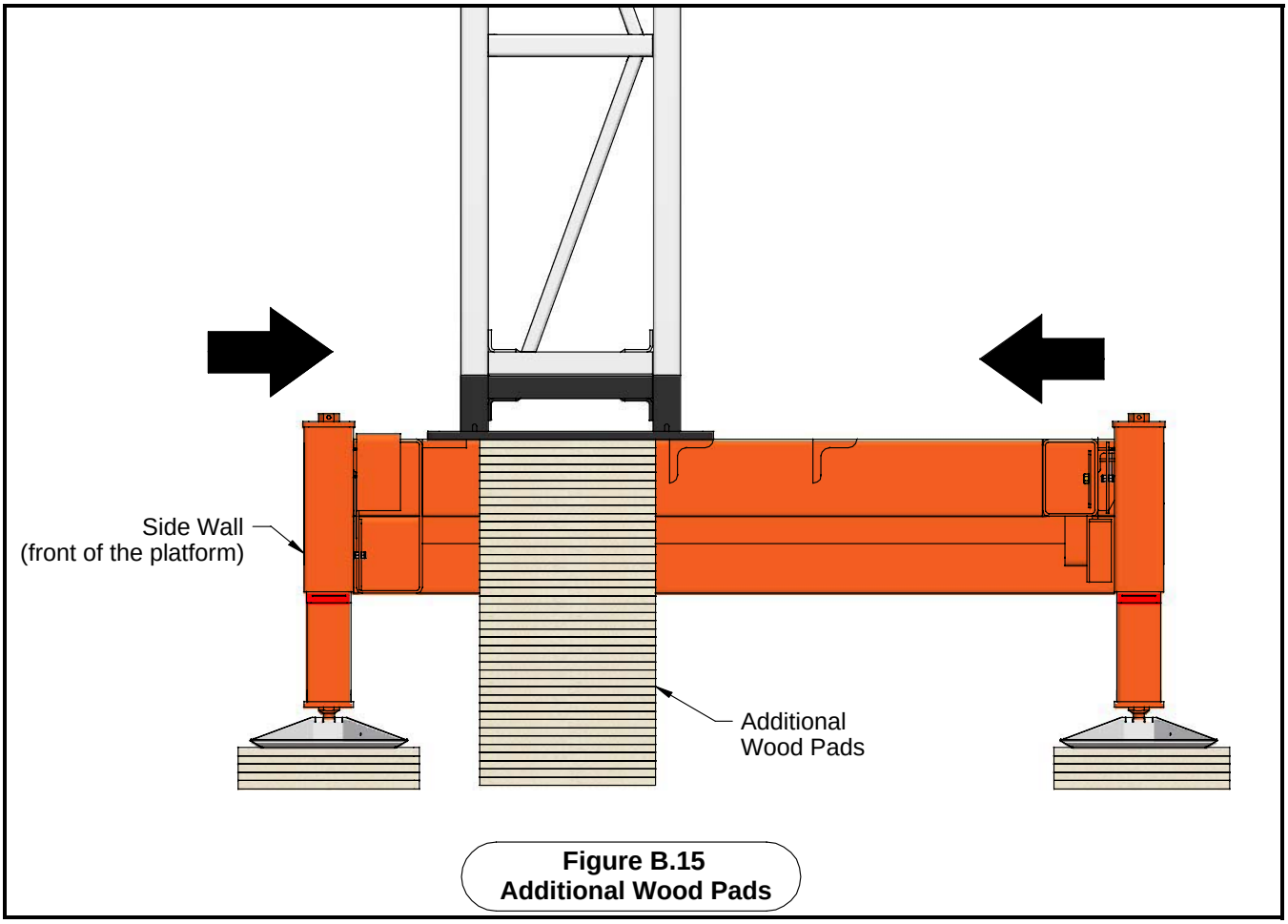


Figure B.15
Additional Wood Pads

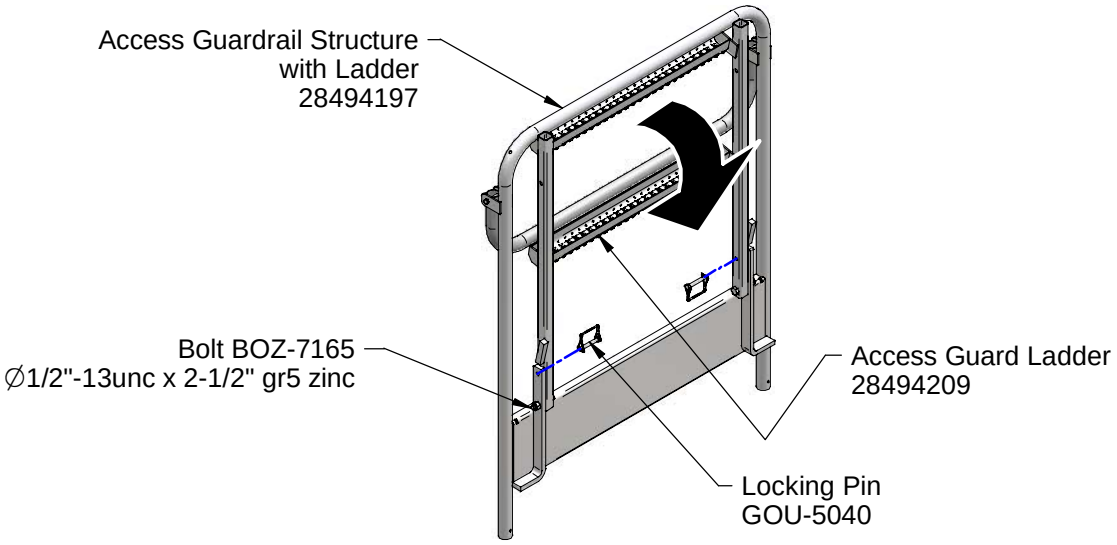
Step 1 (see Figure B.14)

18- Remove bolts BOZ-7165 from access guardrail with ladder.
19- Remove the locking pins.
20- Turn the access guard ladder downwards.

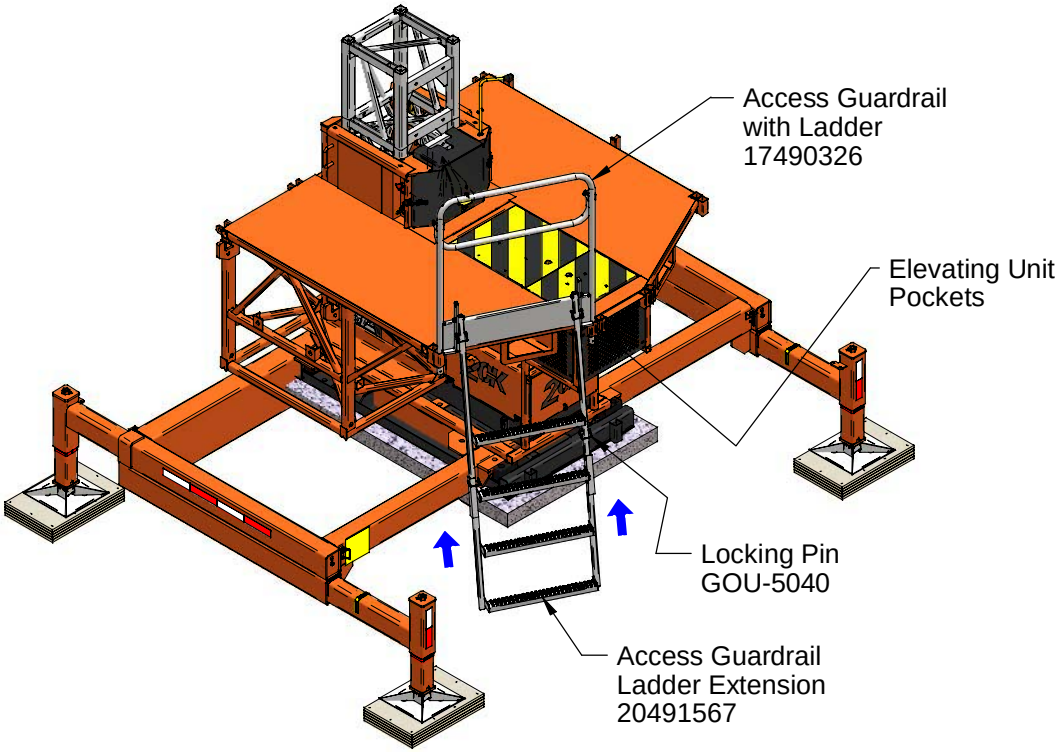
Step 2 (see Figure B.15)

21- Remove the locking pins from the access guardrail ladder extension.
22- Install the access guardrail ladder extension on the access guardrail with ladder.
23- Replace the locking pins.
24- Place the access guardrail with ladder into the elevating unit pockets.

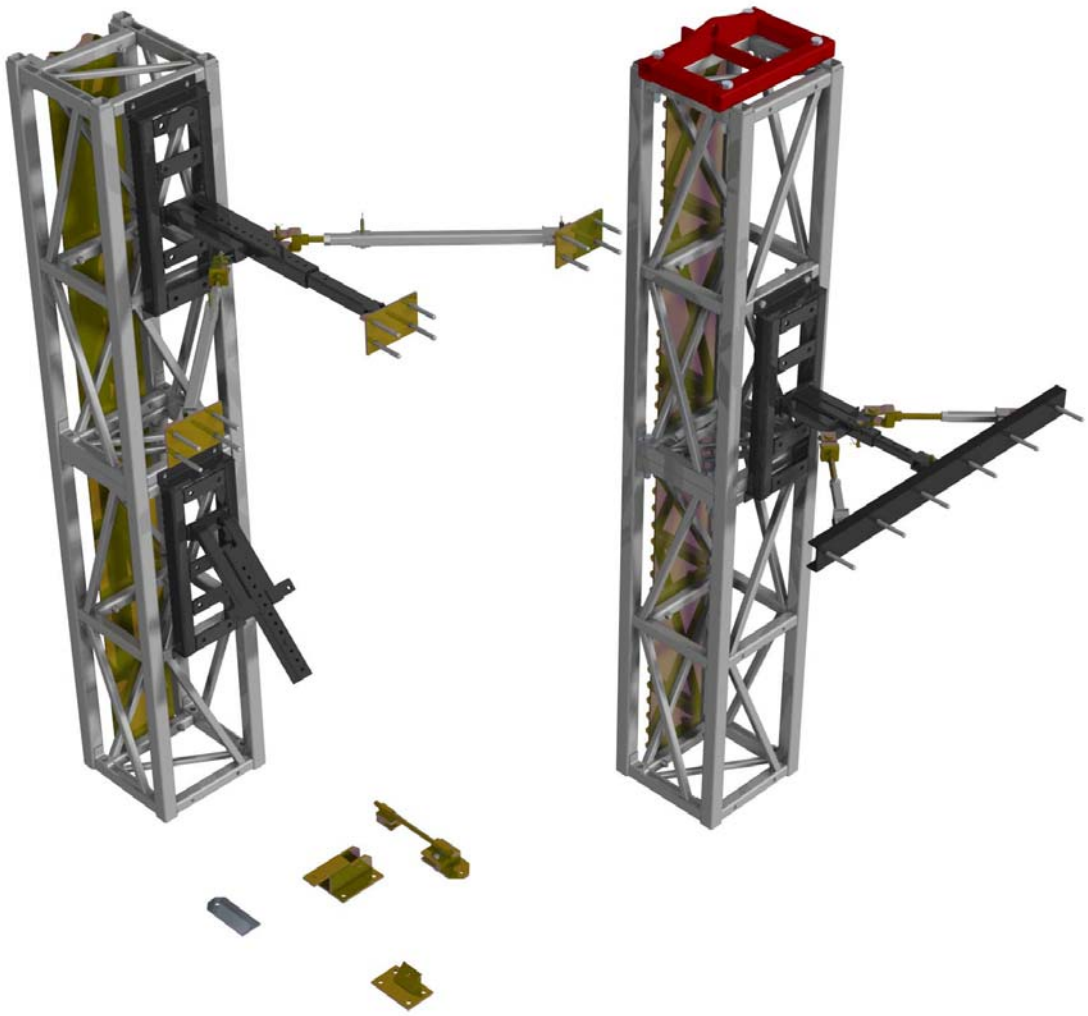
INSTALLATION WITH FREESTANDING BASE (CONTINUED)



1 **Figure B.16**



2 **Figure B.17**



CHAPTER C

MAST AND ANCHORING DEVICES

DATA SHEET OF MAST SECTION

Mast Section with Rung (13030041)	Imperial	Metric
Weight	255 lb	115 kg
Length (see Figure C.1)	20”	508 mm
Width (see Figure C.1)	20”	508 mm
Height (see Figure C.1)	5’-0”	1,5 m
Tightening Torque	265 lb * ft	360 n * m
Maximum Lifting Capacity (see Figure C.2)	6 500 lb	2 950 kg

Note :

* The maximum work height which a mast can reach on a freestanding base is 45’-0” (13,7 m).
* Use a telescopic fork lift, a crane or the self-erecting device to install the mast.
* Be careful of the orientation of the mast section. Place all rungs on the same side.

Do not exceed the following verticality tolerance :

* 1/2” (13 mm) for a 10’-0” (3 m) mast.
* 3/4” (19 mm) for a 20’-0” (6,1 m) mast.
* 1” (25 mm) for the mast’s maximum.

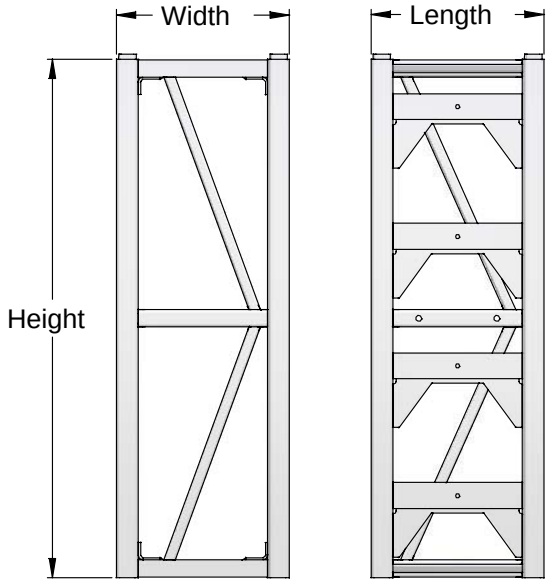


Figure C.1
Mast Section

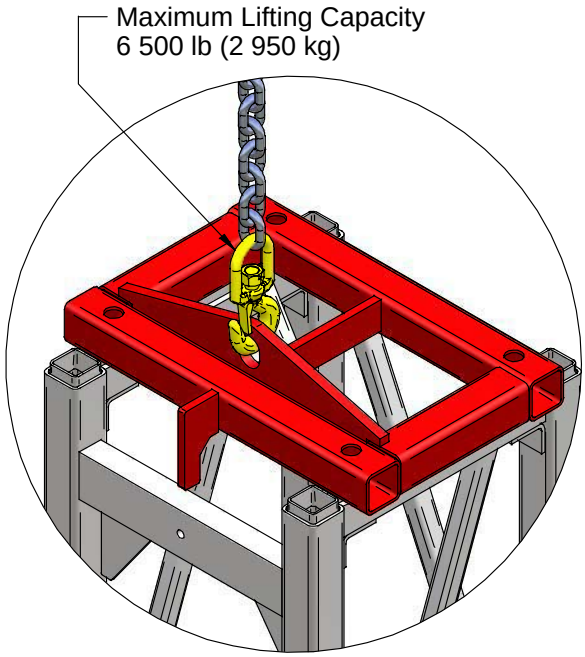


Figure C.2
Maximum Lifting Capacity

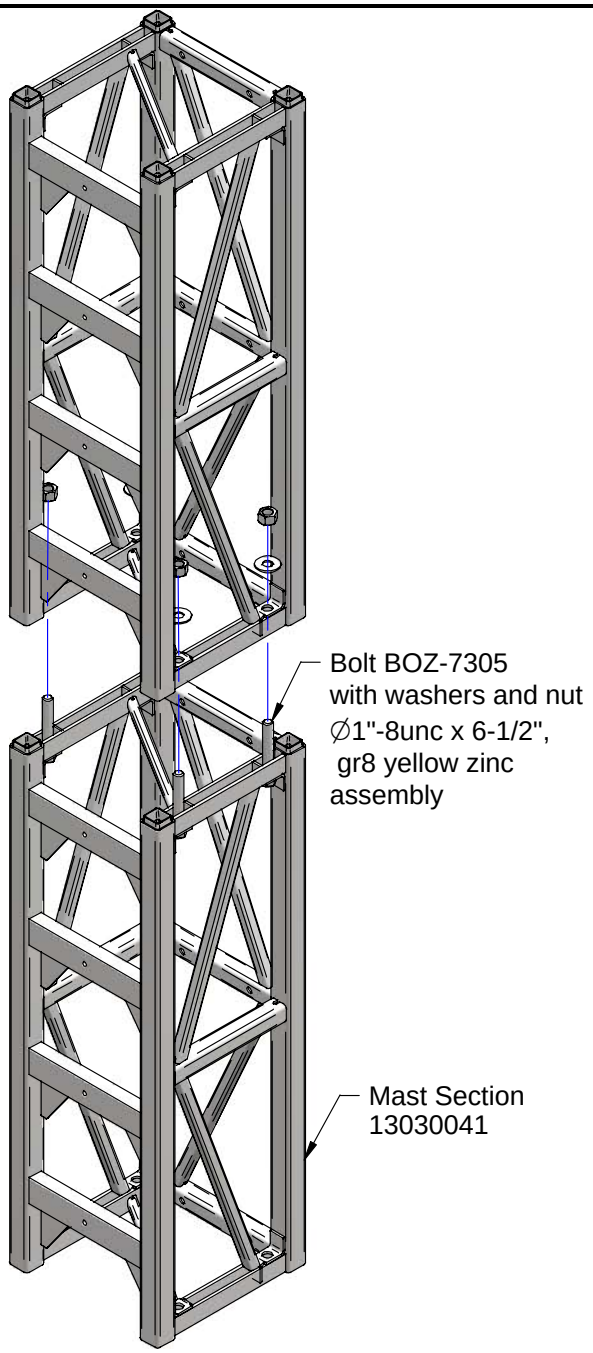
INSTALLATION OF MAST SECTION AND END MAST SECTION

Step 1 (see Figure C.3)

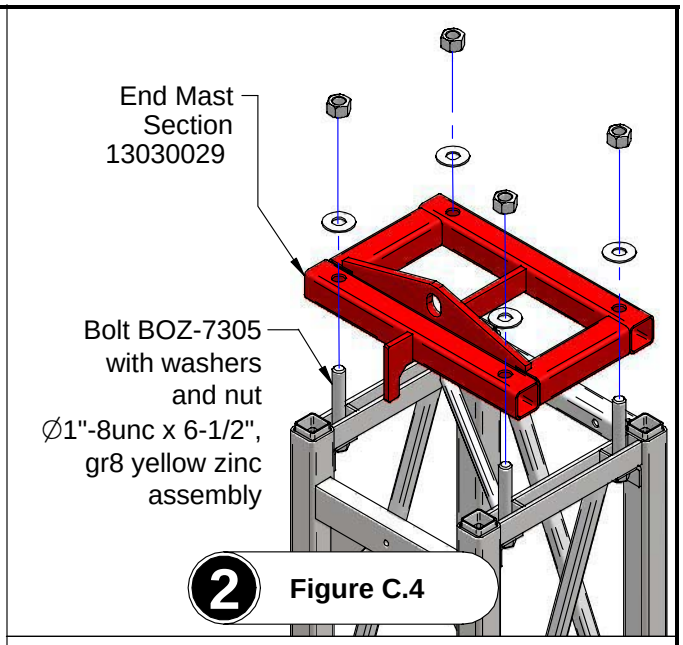
1- Join the male and female sections.
2- Fix the mast sections with four (4) bolts BOZ-7305. Bolt underneath and nut on top.
3- Secure with an impact wrench.

Step 2 (see Figure C.4)

4- Once the last mast section is installed, bolt end mast section with four (4) bolts BOZ-7305.
5- Secure with an impact wrench. Bolt underneath and nut on top.



1 **Figure C.3**



2 **Figure C.4**

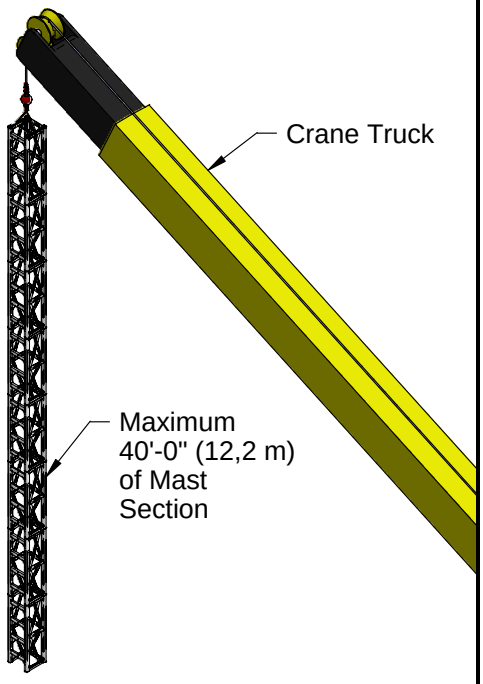


Figure C.5
Maximum Mast Section Assembly

ANCHORING DEVICE SPECIFICATIONS

Forces applied per plate			
	Force	**Standard Installation**	**Installation with Crane / Shelter**
A	Shear	2 500 lb (1 135 kg)	2 500 lb (1 135 kg)
B	Tension / Compression / Shear	4 500 lb (2 045 kg)	4 500 lb (2 045 kg)
C	Tension / Compression / Shear	4 500 lb (2 045 kg)	5 500 lb (2 500 kg)

Note :

* The real reactions are calculated with the specification of a standard anchoring device. (UNFACTORED)
* In « Out of Service » condition, lower the platform to ground level.
* A local engineer must give a written approval for the load applied on the building.
* Only one turnbuckle is working at a time.

Specifications :

* Distance between each anchoring device = 30'-0" (9,1 m).
* The platform must never go over the last anchor except during installation and dismantling procedures.
* Maximum wind condition while in service = 34 mph (55 km / h).
* Maximum wind condition while not in service = 100 mph (165 km/h).
* The minimal penetration in the concrete slab depends of the type of anchoring device and anchors being used. For more details, refer to the engineering drawing specific to every installation.

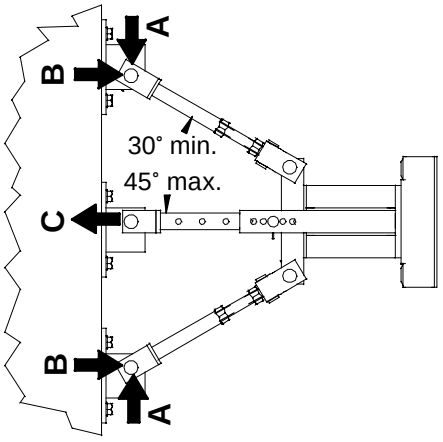


Figure C.6
Three (3) point anchoring device on the face of the slab

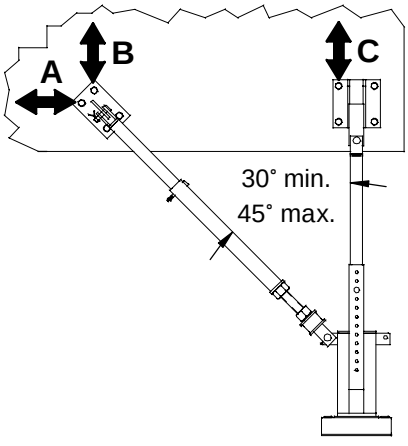


Figure C.7
Two (2) point anchoring device on the face of the slab

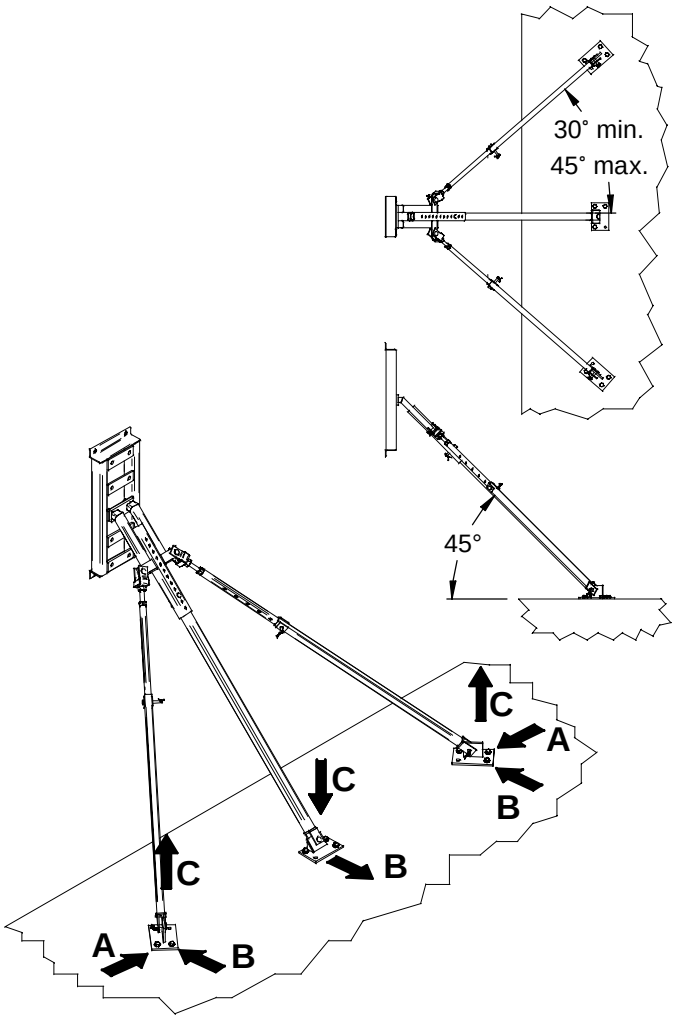
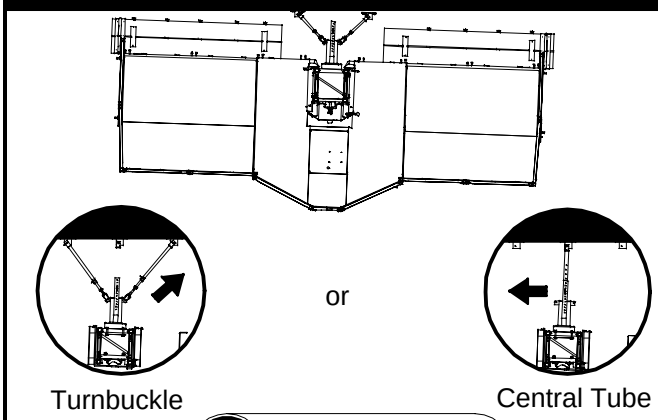


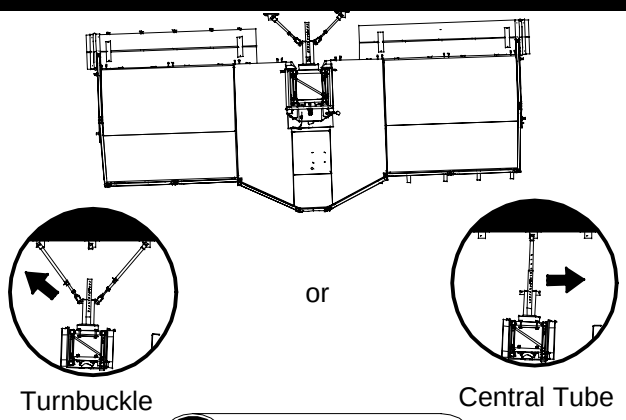
Figure C.8
Three (3) point anchoring device in angle on the slab

LEVELING MAST WITH ANCHORING DEVICES

Type N°1 : Adjustment of the distance between the wall and the platform.

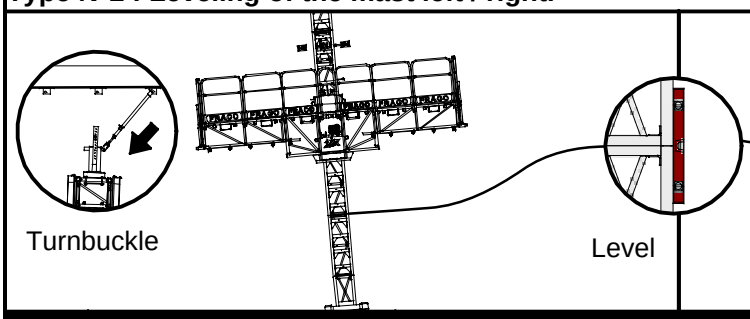


A **Figure C.10**

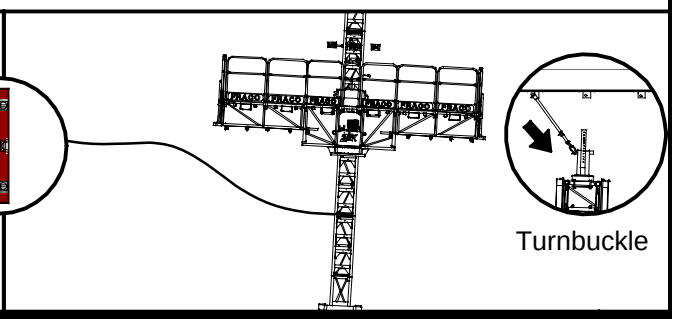


B **Figure C.11**

Type N°2 : Leveling of the mast left / right.

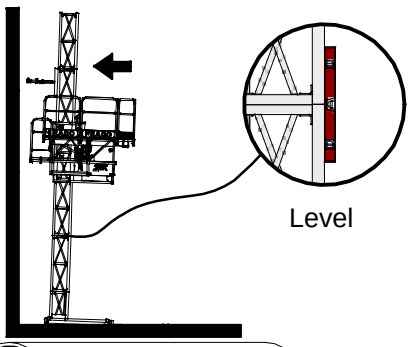


C **Figure C.12**

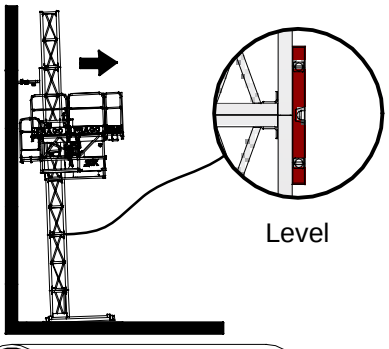


D **Figure C.13**

Type N°3 : Leveling of the mast front / back.



E **Figure C.14**



F **Figure C.15**

Situations :

A- Move central tube to left or push with left turnbuckle before the installation of the central tube. (see Figure C.10)
B- Move central tube to right or push with right turnbuckle before the installation of the central tube. (see Figure C.11)
C- Shorten the right turnbuckle and extend the left turnbuckle. (see Figure C.12)
D- Shorten the left turnbuckle and extend the right turnbuckle. (see Figure C.13)
E- Extend two (2) turnbuckles and the central tube. Push with turnbuckles. (see Figure C.14)
F- Shorten two (2) turnbuckles and the central tube. Pull with turnbuckles. (see Figure C.15)

DATA SHEET OF ANCHORING DEVICES

Wall Tie Adaptor (20490016)	**Imperial**	**Metric**
Weight (only wall tie adaptor)	44 lb	20 kg
Depth	3 3/16”	81 mm
Wall Tie (2'-3") (21490017)	**Imperial**	**Metric**
Weight (only wall tie)	21.2 lb	9.6 kg
Maximum Length (wall tie + central tube max. + width of wall tie adaptor)	12’-2 5/8”	3,7 m
Wall Tie (16") (21490028)	**Imperial**	**Metric**
Weight (only wall tie)	14.1 lb	6.4 kg
Maximum Length (wall tie + central tube max. + width of wall tie adaptor)	3’-2 3/4”	1,0 m
Angle Wall Tie (21490051)	**Imperial**	**Metric**
Weight (only wall tie)	21.6 lb	9.8 kg
Maximum Length (wall tie + central tube max. + width of wall tie adaptor)	11’-8 1/4” + 5 1/8”	3,56 m + 129 mm

Important : the minimum that you see in Figure C.16 to C.22 is calculated with an shorter central tube.

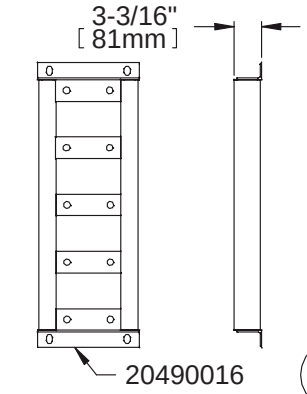


Figure C.16
Wall Tie Adaptor

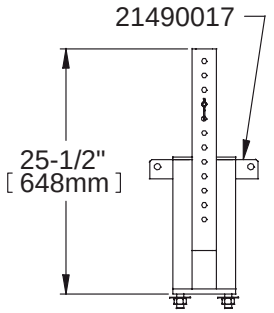


Figure C.17
Wall Tie 2'-3" (686 mm)

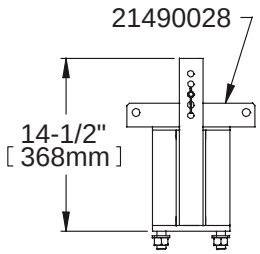


Figure C.18
Wall Tie 16" (406 mm)

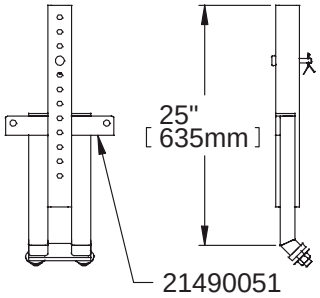


Figure C.19
Angle Wall Tie

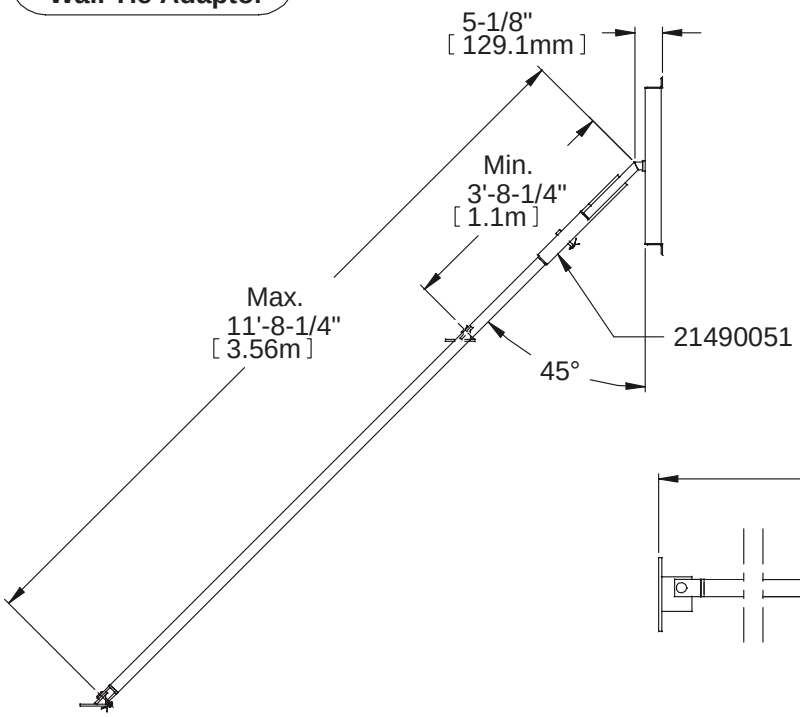


Figure C.20
Angle Length Dimensions

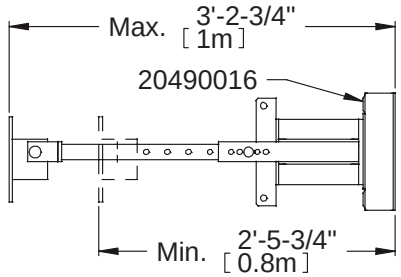


Figure C.21
Short Length Dimensions

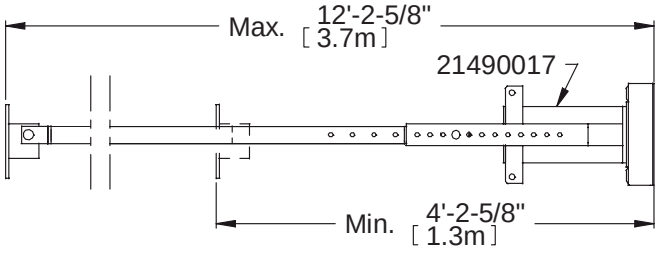


Figure C.22
Long Length Dimensions

DATA SHEET OF ANCHORING DEVICES (CONTINUED)

Central Tube 2” x 2” x 2’-0” (51 mm x 51 mm x 610 mm) (22010027)	**Imperial**	**Metric**
Weight	9.9 lb	4.5 kg
Length (max. / min. adjustment)	20 5/8” / 10 5/8”	524 mm / 270 mm
Central Tube 2” x 2” x 3’-0” (51 mm x 51 mm x 914 mm) (22010049)	**Imperial**	**Metric**
Weight	13.4 lb	6.1 kg
Length (max. / min. adjustment)	2’-8 5/8” / 1’-10 5/8”	828 mm / 575 mm
Central Tube 2” x 2” x 4’-0” (51 mm x 51 mm x 1,2 m) (22010050)	**Imperial**	**Metric**
Weight	18.7 lb	8.5 kg
Length (max. / min. adjustment)	3’-8 5/8” / 2’-10 5/8”	1,1 m / 880 mm
Central Tube 2” x 2” x 5’-0” (51 mm x 51 mm x 1,5 m) (22010061)	**Imperial**	**Metric**
Weight	22.7 lb	10.3 kg
Length (max. / min. adjustment)	4’-8 5/8” / 3’-10 5/8”	1,4 m / 1,2 m
Central Tube 2” x 2” x 6’-0” (51 mm x 51 mm x 1,8 m) (22010072)	**Imperial**	**Metric**
Weight	27.4 lb	12.4 kg
Length (max. / min. adjustment)	5’-8 5/8” / 4’-10 5/8”	1,7 m / 1,5 m
Central Tube 2” x 2” x 7’-0” (51 mm x 51 mm x 2,1 m) (22010083)	**Imperial**	**Metric**
Weight	31.67 lb	14.4 kg
Length (max. / min. adjustment)	6’-8 5/8” / 5’-10 5/8”	2,0 m / 1,8 m
Central Tube 2” x 2” x 8’-0” (51 mm x 51 mm x 2,4 m) (22010106)	**Imperial**	**Metric**
Weight	41.8 lb	19 kg
Length (max. / min. adjustment)	7’-8 5/8” / 6’-10 5/8”	2,4 m / 2,1 m
Central Tube 2” x 2” x 9’-0” (51 mm x 51 mm x 2,7 m) (22010162)	**Imperial**	**Metric**
Weight	38.25 lb	17.3 kg
Length (max. / min. adjustment)	8’-8 5/8” / 7’-10 5/8”	2,7 m / 2,4 m
Central Tube 2” x 2” x 10’-0” (51 mm x 51 mm x 3,0 m) (22010184)	**Imperial**	**Metric**
Weight	42.5 lb	19.3 kg
Length (max. / min. adjustment)	9’-8 5/8” / 8’-10 5/8”	3,0 m / 2,7 m
Central Tube 1 1/2” x 1 1/2” x 2’-0” (38 mm x 38 mm x 610 mm) (22020017)	**Imperial**	**Metric**
Weight	7.8 lb	3.5 kg
Length (max. / min. adjustment)	19 5/8” / 11 1/8”	498 mm / 283 mm
Central Tube 1 1/2” x 1 1/2” x 15” (38 mm x 38 mm x 381 mm) (22020028)	**Imperial**	**Metric**
Weight	5.27 lb	2.4 kg
Length (max. / min. adjustment)	10 5/8” / 4 1/4”	270 mm / 108 mm
Central Tube 1 1/2” x 1 1/2” x 6” (38 mm x 38 mm x 152 mm) (22020039)	**Imperial**	**Metric**
Weight	5.6 lb	2.5 kg
Length (max. / min. adjustment)	7 5/8” / 5 1/2”	194 mm / 140 mm

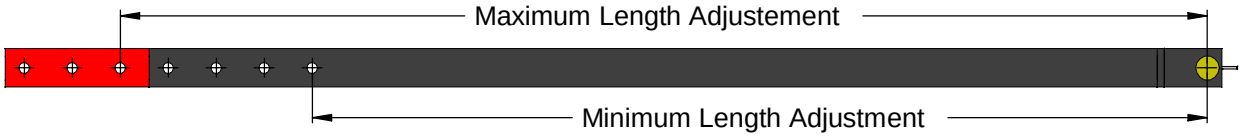


Figure C.23
Central Tube

DATA SHEET OF ANCHORING DEVICES (CONTINUED)

Turnbuckle with Hand 2'-5" (737 mm) (23020018)	**Imperial**	**Metric**
Weight	5.15 lb	2.35 kg
Turnbuckle with Hand 3'-4" (1,0 m) (23020029)	**Imperial**	**Metric**
Weight	6.85 lb	3.10 kg
Turnbuckle with Hand 4'-4" (1,32 m) (23020030)	**Imperial**	**Metric**
Weight	8.60 lb	3.90 kg
Turnbuckle with Hand 5'-4" (1,63 m) (23020041)	**Imperial**	**Metric**
Weight	10.50 lb	4.75 kg
Turnbuckle with Hand 6'-4" (1,93 m) (23020052)	**Imperial**	**Metric**
Weight	12.25 lb	5.55 kg
Turnbuckle with Hand 7'-4" (2,24 m) (23020063)	**Imperial**	**Metric**
Weight	14.10 lb	6.40 kg
Turnbuckle with Hand 8'-4" (2,54 m) (23020074)	**Imperial**	**Metric**
Weight	15.90 lb	7.25 kg
Turnbuckle with Nut 25 13/16" (605 mm) (23010028) (for turnbuckle reinforced)	**Imperial**	**Metric**
Weight	12.85 lb	5.85 kg
Turnbuckle with Nut 2'-5" (736 mm) (23010017)	**Imperial**	**Metric**
Weight	4.40 lb	2.00 kg
Turnbuckle Hand 8 1/2" (216 mm) (23030019)	**Imperial**	**Metric**
Weight	3.70 lb	1.65 kg
Turnbuckle Hand 16” (406 mm) (23030020)	**Imperial**	**Metric**
Weight	5.00 lb	2.25 kg
Turnbuckle Hand 14 3/16” (360 mm) (23030031) (for turnbuckle reinforced)	**Imperial**	**Metric**
Weight	9.80 lb	4.45 kg
Turnbuckle Hand and Nut 11” (279 mm) (23050011)	**Imperial**	**Metric**
Weight	2.45 lb	1.10 kg
Turnbuckle Hand and Nut 15 1/8” (384 mm) (23050055)	**Imperial**	**Metric**
Weight	3.10 lb	1.40 kg
Turnbuckle Hand and Nut 20 1/2” (521 mm) (23050022)	**Imperial**	**Metric**
Weight	3.75 lb	1.70 kg
Turnbuckle Extension 15 1/8” (384 mm) (23040010)	**Imperial**	**Metric**
Weight	5.10 lb	2.35 kg
Turnbuckle Extension 2’-3” (686 mm) (23040032)	**Imperial**	**Metric**
Weight	7.75 lb	3.55 kg
Turnbuckle Extension 3’-3” (991 mm) (23040021)	**Imperial**	**Metric**
Weight	10.80 lb	4.90 kg

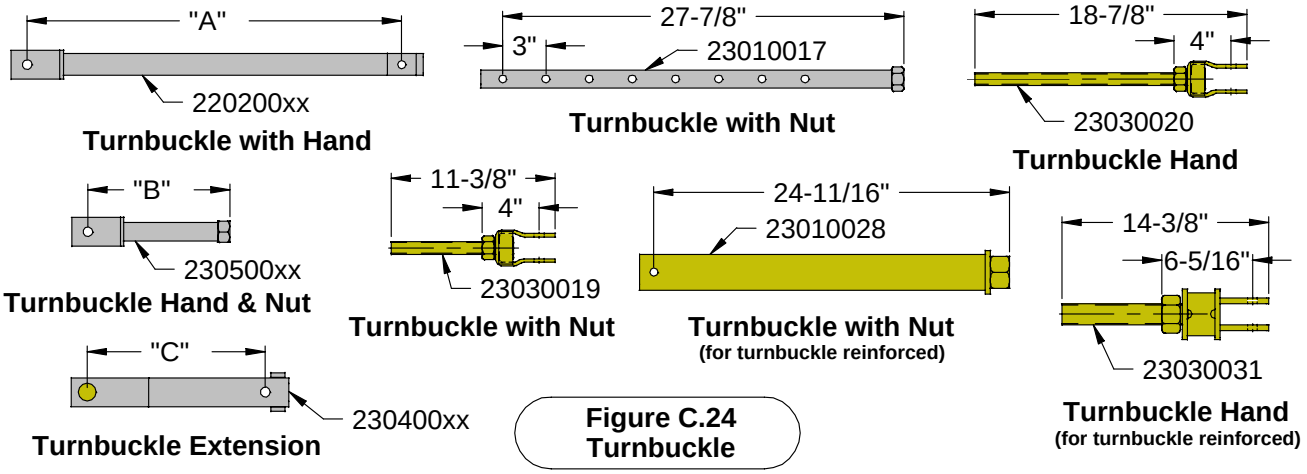


Figure C.24
Turnbuckle

DATA SHEET OF ANCHORING DEVICES (CONTINUED)

Turnbuckle 12’-0” (3,65 m) Assembly (see Figure C.25)	**Imperial**	**Metric**
Maximum Length Adjustment (calculated with an longer turnbuckle with hand)	11’-9 3/8”	3.59 m
Minimum Length Adjustment (calculated with an longer turnbuckle with hand)	8’-11 7/8”	2.70 m
Turnbuckle 5’-6” (1,68 m) Assembly (see Figure C.25)	**Imperial**	**Metric**
Maximum Length Adjustment (calculated with a shorter turnbuckle with hand)	5’-2 7/8”	1.60 m
Minimum Length Adjustment (calculated with a shorter turnbuckle with hand)	3’-0 7/8”	937 mm
Turnbuckle 12’-0” (3,6 m) Assembly (see Figure C.26) (for turnbuckle reinforced)	**Imperial**	**Metric**
Maximum Length Adjustment (calculated with the 9’-0” (2,7 m) central tube)	11’-8 5/8”	3.60 m
Minimum Length Adjustment (calculated with the 9’-0” (2,7 m) central tube)	10’-5 5/8”	3.20 m
Turnbuckle 5’-0” (1,52 m) Assembly (see Figure C.26) (for turnbuckle reinforced)	**Imperial**	**Metric**
Maximum Length Adjustment (calculated with a shorter central tube)	4’-8 5/8”	1.44 m
Minimum Length Adjustment (calculated with a shorter central tube)	3’-5 5/8”	1.10 m
Turnbuckle 14” (356 mm) Assembly (23070174)	**Imperial**	**Metric**
Maximum Length Adjustment	19”	483 mm
Minimum Length Adjustment	14”	356 mm
Turnbuckle 18” (457 mm) Assembly (23070147)	**Imperial**	**Metric**
Maximum Length Adjustment	23”	584 mm
Minimum Length Adjustment	18”	457 mm
Turnbuckle 2’-0” (610 mm) Assembly (23070125)	**Imperial**	**Metric**
Maximum Length Adjustment	36”	915 mm
Minimum Length Adjustment	23 1/2”	597 mm

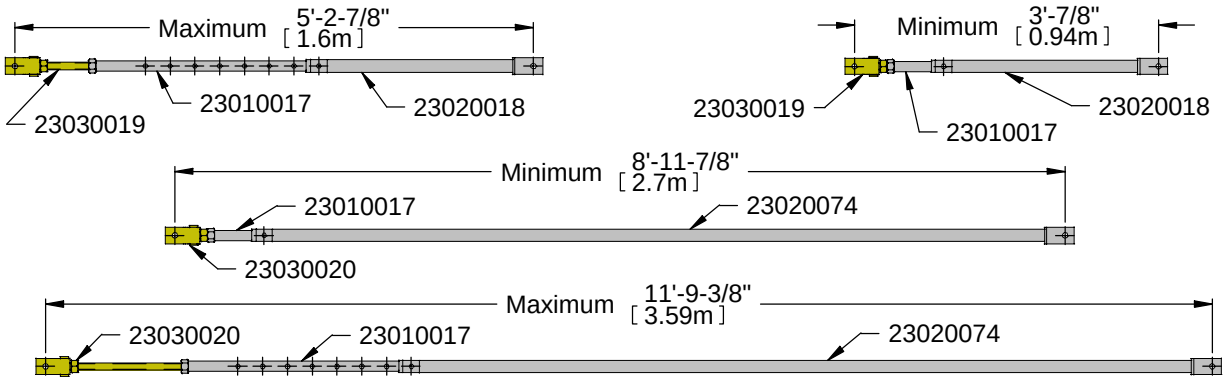


Figure C.25
Length Adjustment of Turnbuckles

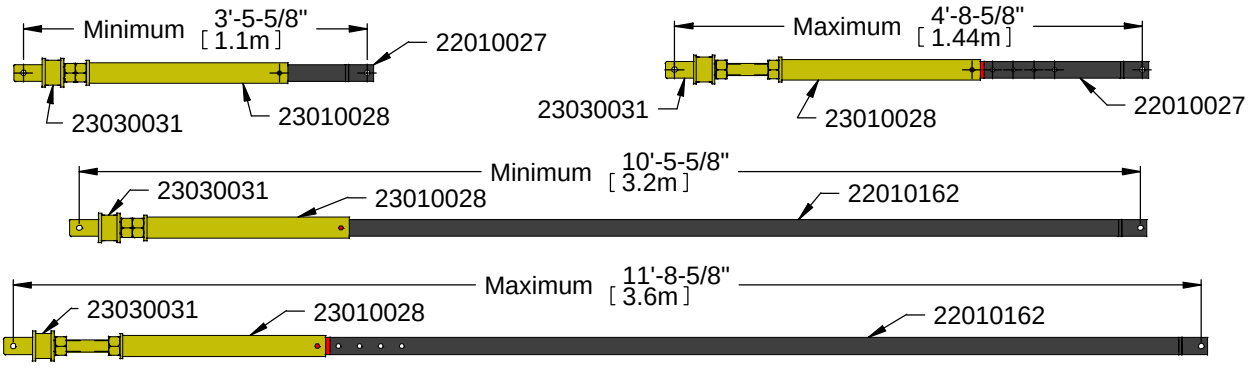


Figure C.26
Length Adjustment of Turnbuckles Reinforced

TURNBUCKLE OPENING CONSTRAINTS

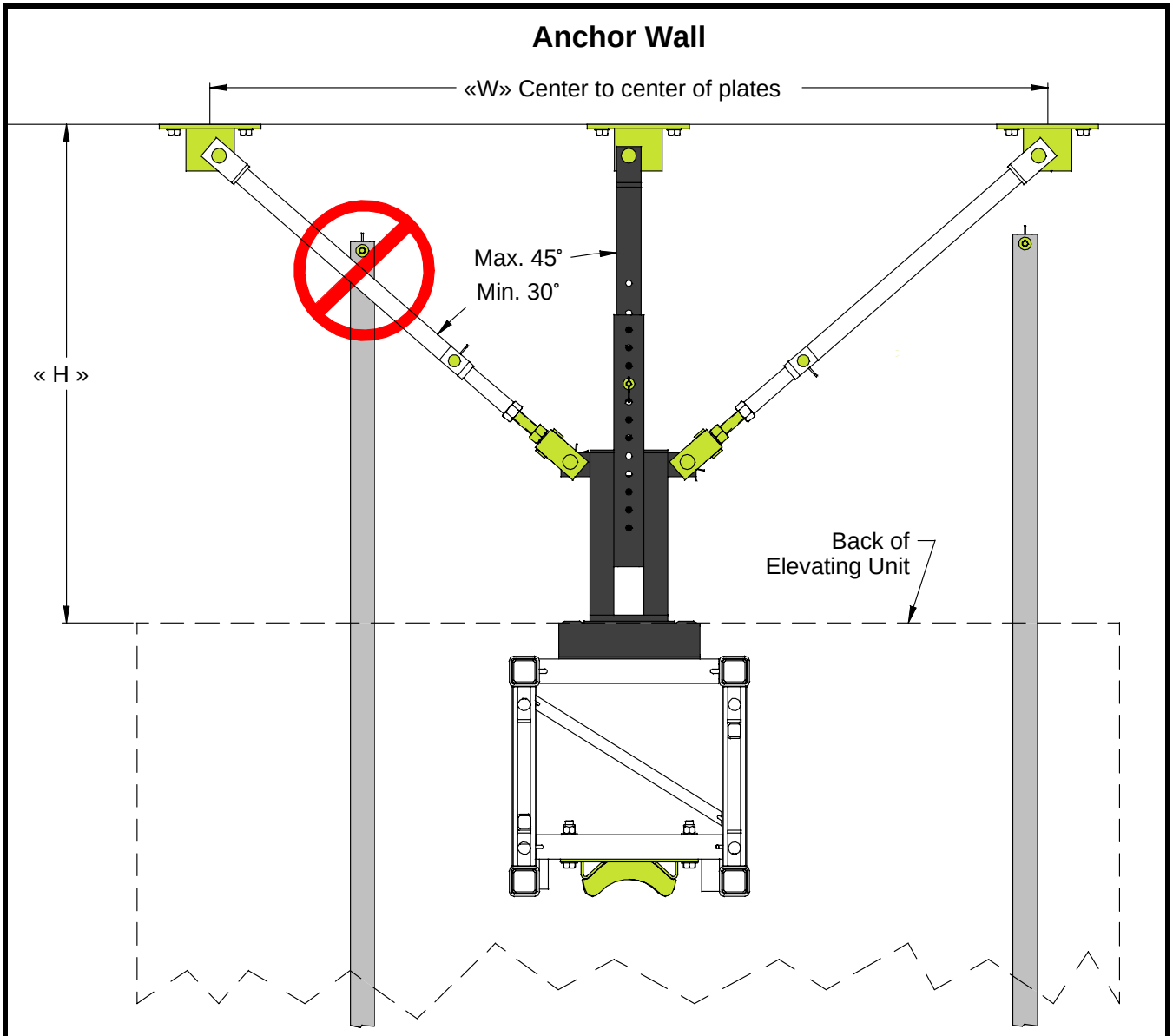


Figure C.27
Turnbuckle Opening Constraints

Distance «H» (between the machine and the anchoring wall)	Minimal Opening «W» at 30°	Maximal Opening «W» at 45°
20 “ (500 mm)	22” (559 mm)	30” (762 mm)
2’-4” (710 mm)	28” (711 mm)	40” (1 016 mm)
3’-0” (915 mm)	37” (940 mm)	56” (1 442 mm)
3’-8” (1 120 mm)	46” (1 168 mm)	72” (1 829 mm)
4’-4” (1 320 mm)	55” (1 397 mm)	88” (2 235 mm)
5’-0” (1 525 mm)	65” (1 651 mm)	104” (2 642 mm)
5’-8” (1 725 mm)	74” (1 880 mm)	120” (3 048 mm)

*** For distances « H » greater than 5’-8” (1 725 mm) contact the FRACO engineering department.**
*** Make sure that the turnbuckle don’t interfere with the first outrigger used with the planks.**

INSTALLATION OF ANCHORING DEVICES WITH GROUND BASE

* Under no circumstances can the platform be raised and/or loaded with material unless the installation of the two (2) first anchoring devices is complete. This rule applies for installation and dismantling.

* With ground base intallation, If the anchoring device is higher than 10'-0" (3,0 m), the platform must be secured with a lifting device (crane truck, fork lift, etc...) during the installation or dismantling of the two (2) first anchoring device.

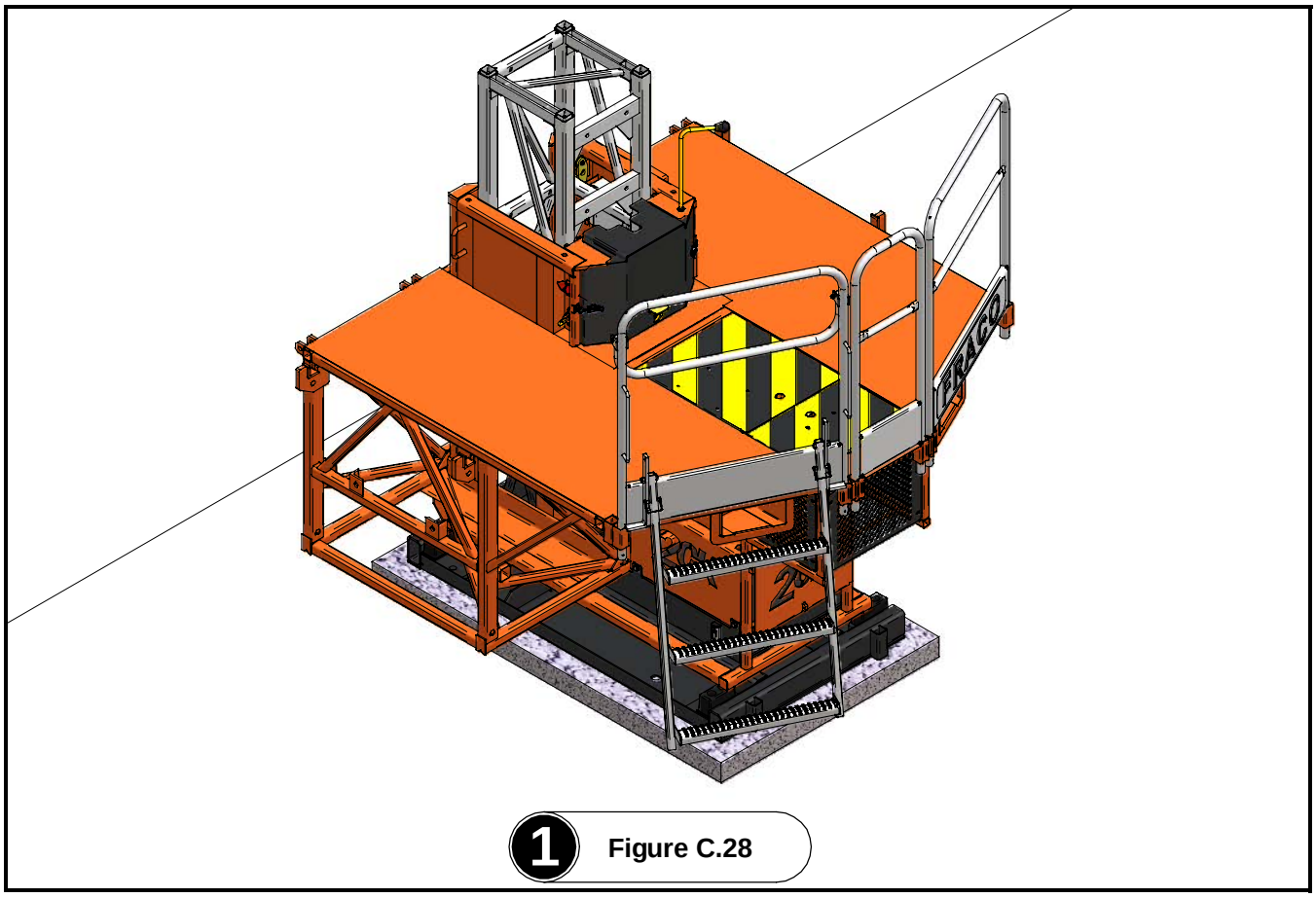
* Wear a safety harness at all time during the installation and dismantling procedures of the platform.

* To disregard any of these procedures can cause serious material and corporal damages, as well as death. If you are in presence of a situation other than the ones mentioned in this manual, contact your **FRACO** representative. **FRACO Ltd**. and / or its importer / representative cannot, in no case be held responsible for any damages due to the non-respect of these procedures.

- During the installation of the first two (2) anchoring devices, you must only use the elevating unit.
- You must secure the end of the mast with a lifting unit that can support the platform for the entire period of installation of the first two (2) anchoring devices.
- You will need five (5) mast sections and two (2) anchoring devices.

Step 1 (see Figure C.28)

6- Install the elevating unit (see Chapitre B - page B-8)



1 **Figure C.28**

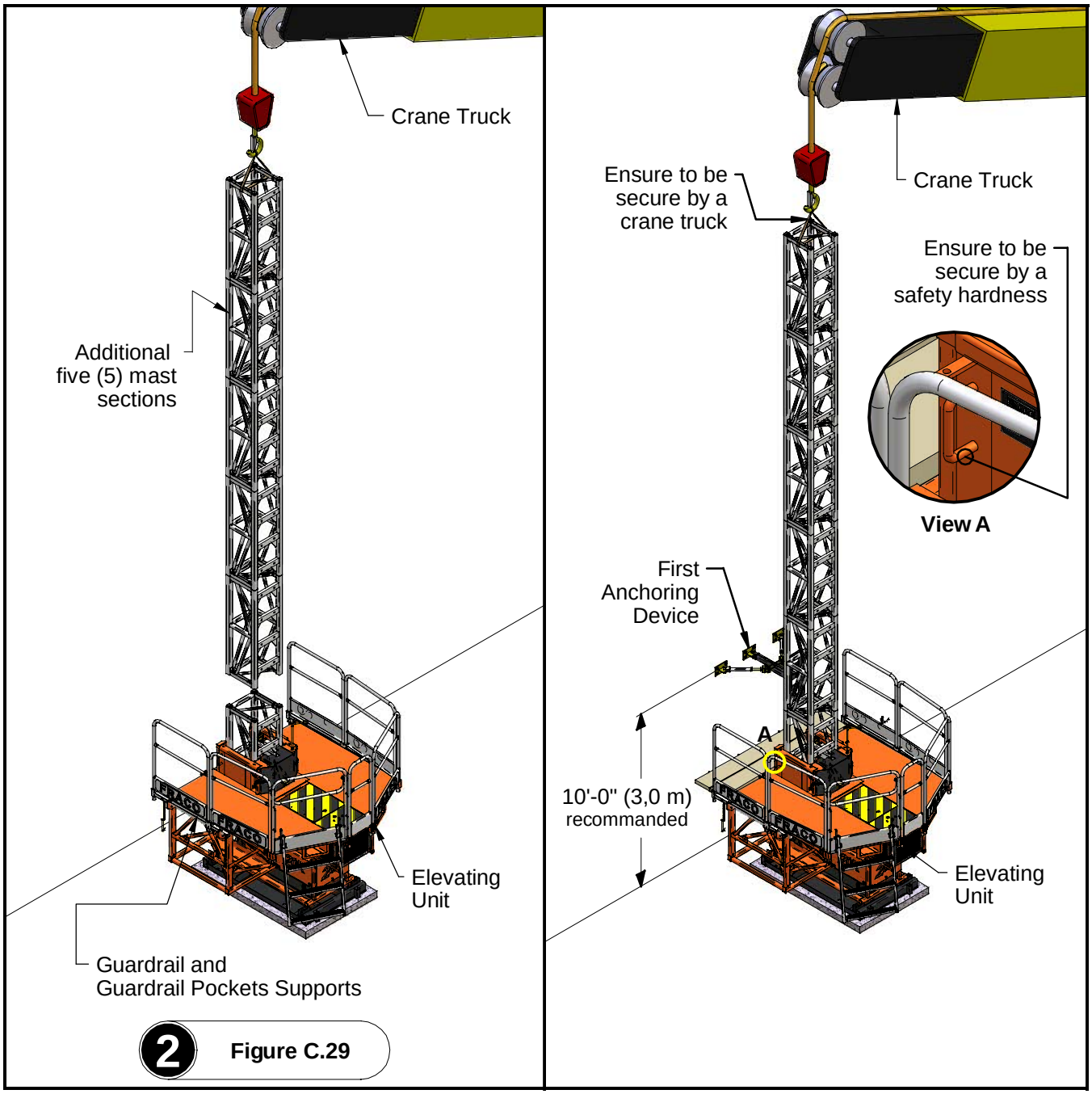
INSTALLATION OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)

Step 2 (see Figure C.29)

7- Install the outriggers, plank-end guardrails, plank-ties, guardrails, guardrails pockets support and planks on the elevating unit (see Chapitre E).
8- Connect five (5) additional mast sections on the ground.
9- With the help of a crane truck orient the five (5) mast sections on the mast section which is provided with the elevating unit.
10- Bolt the five (5) additional mast sections to the mast section which is provided with the elevating unit.

Step 3 (see Figure C.30)

11- Always ensure to be tied up by the safety harness.
12- Install the planks and plank-ties in order to cover the anchor space.
13- Raise the elevating unit and make sure that you continue to be secured by the crane truck.
14- Install the first anchoring device at 10'-0" (3,0 m) from the ground (according to recommended dimensions) (see pages C-18 to C-26)



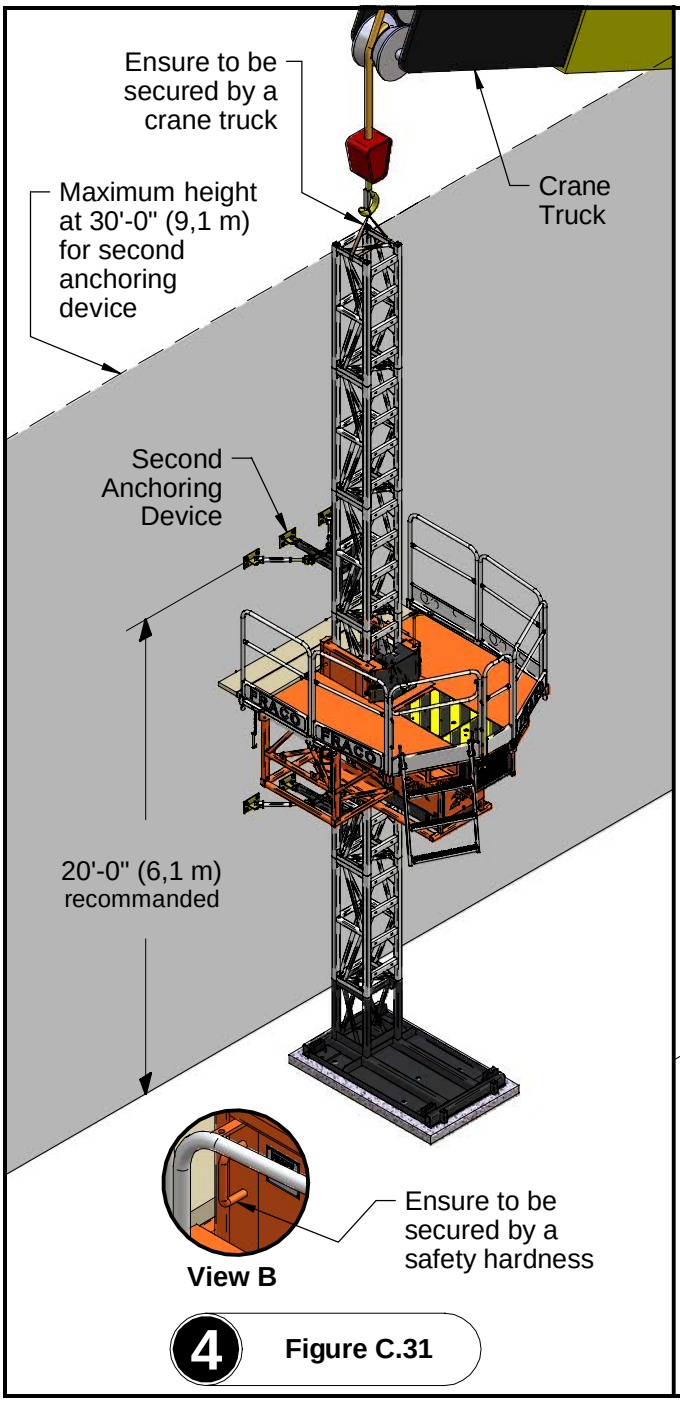
INSTALLATION OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)

Step 4 (see Figure C.31)

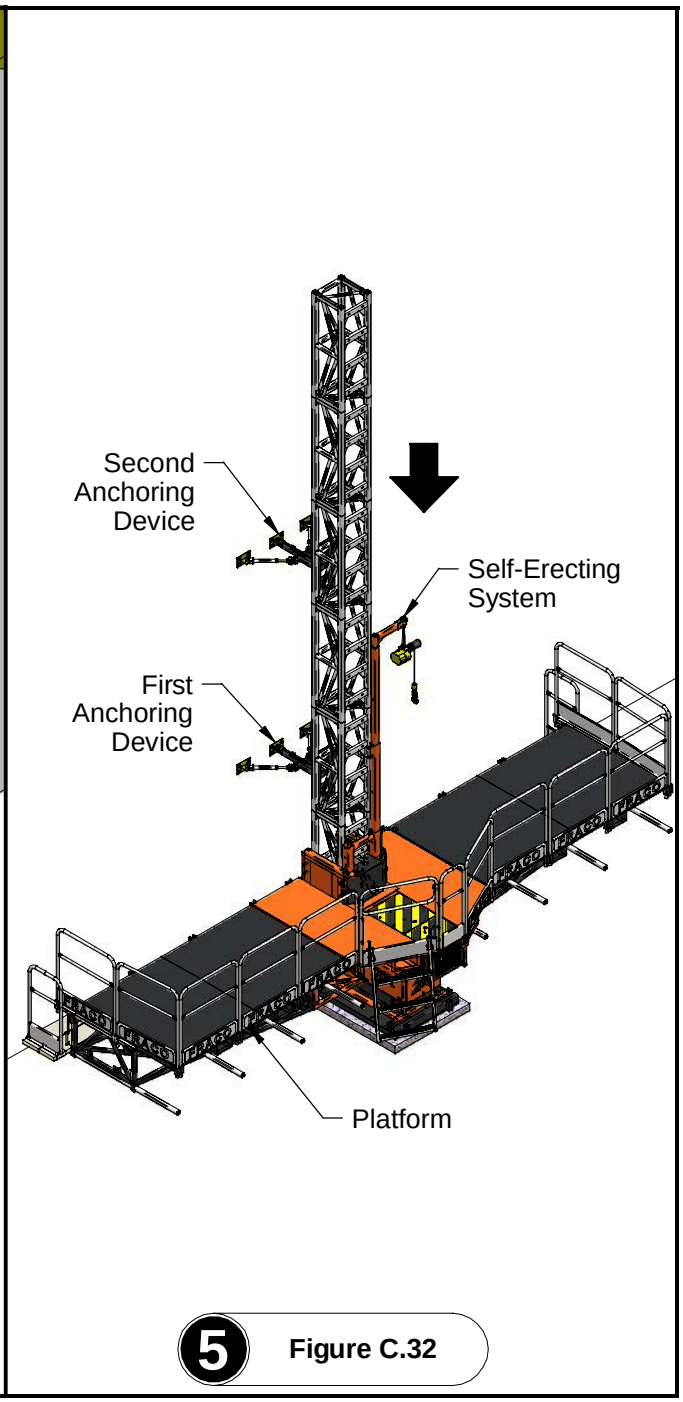
15- Remove the planks and plank-ties (in the anchor space) before raising the elevating unit.
16- Replace the plank-ties and planks (in the anchor space) on the elevating unit.
17- **Attention**, maximal height at 30'-0" (9,1 m) for the second anchoring device.
18- Install the second anchoring device at 20'-0" (6,1 m) from the ground. (according to recommended dimensions) (see pages C-18 to C-26)
19- Ensure to be secured by the crane truck.

Step 5 (see Figure C.32) (self-erecting system only)

20- Once the two (2) first anchoring devices are installed, lower the elevating unit to the ground.
21- Install the self-erecting system. (see pages C-32 to C-33)



4 **Figure C.31**



5 **Figure C.32**

INSTALLATION OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)

Step 6a (see Figure C.34) (self-erecting system)

22- If you use the bridge, install the bride sections. (see Chapter D - pages D-6 to D-9)
23- Load eight (8) mast sections on each side of the platform. (see Figure C.33)
24- Raise the platform.
25- Finish the installation of the mast sections and anchoring devices according to the desired height.
26- Do not exceed the distance of 30'-0" (9,1 m) between the anchoring devices.
27- Once the last mast section is installed, bolt on the mast end section.
28- When the mast installation is completed, lower the platform and remove the self-erecting system.
29- Finish the installation of the platform (turnbuckle of the cantilever section, guardrail, etc...)
30- Install the wire mesh protection on the elevating unit. (see Chapter B «Wire Mesh Protection»)

Step 6b (crane truck)

31- If you use the bridge, install the bride sections. (see Chapter D - page D-6 to D-9)
32- Finish the installation of the mast sections and anchoring devices according to the desired height.
33- You can join up to 40'-0" (12,2 m) of mast sections for next bolting them on the previous mast section using the crane truck. (see Figures C.5)
34- Do not exceed the distance of 30'-0" (9,1 m) between the anchoring devices.
35- Once the last mast section is installed, bolt on the mast end section.
36- When the mast installation is completed, lower the platform.
37- Finish the installation of the platform (turnbuckle of the cantilever section, guardrail, etc...)
38- Install the wire mesh protection on the elevating unit. (see Chapter B «Wire Mesh Protection»)

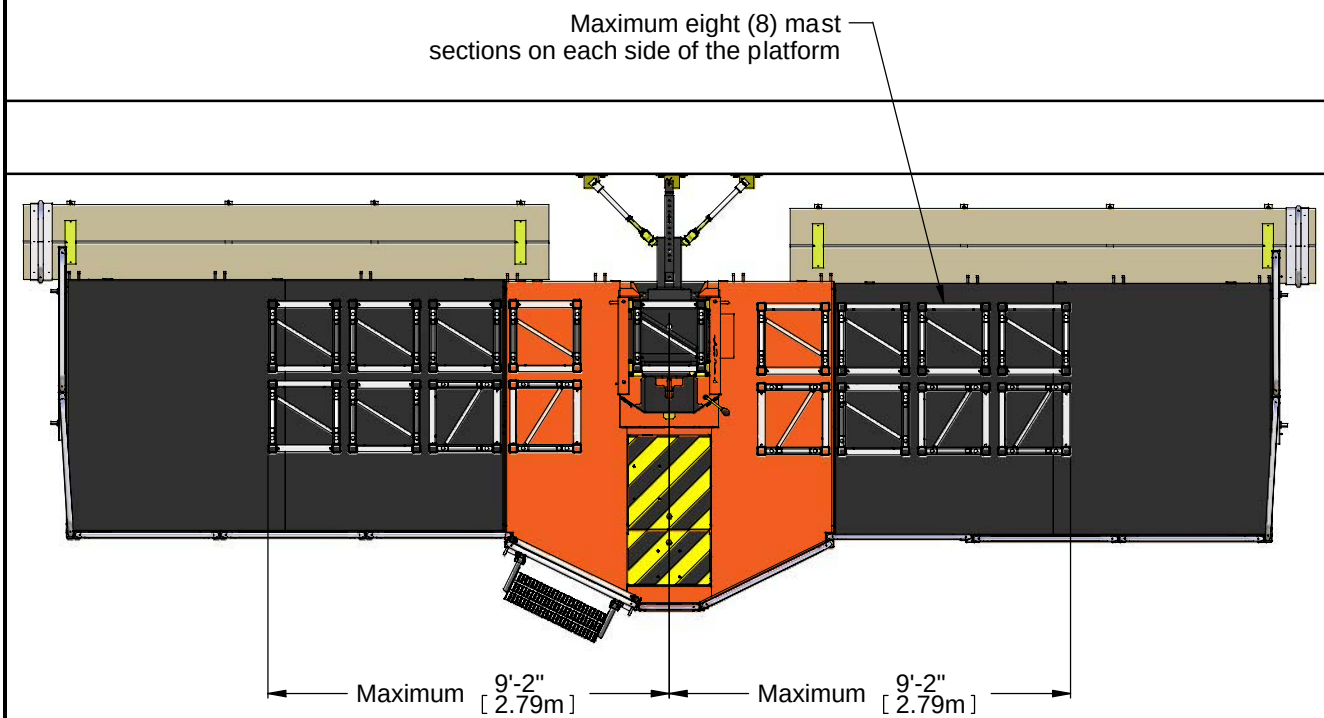
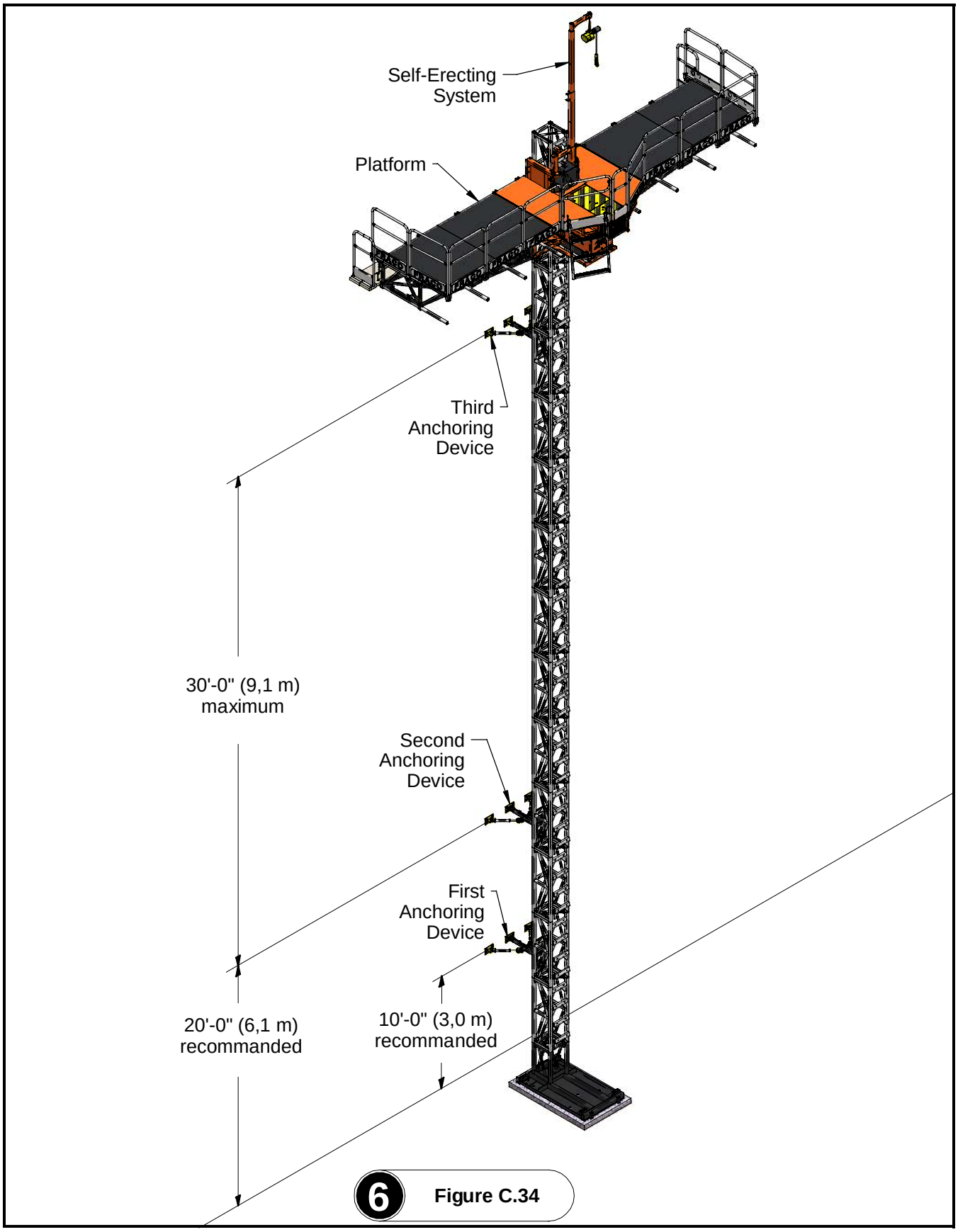


Figure C.33
Loading Area

INSTALLATION OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)



6 **Figure C.34**

INSTALLATION OF ANCHORING DEVICES WITH FREESTANDING BASE

Step 1 (see Figure C.35)

39- Install the elevating unit on the freestanding base. (see Chapter B - page B-9 to B-10)

Step 2a (see Figure C.36) (self-erecting system)

40- Install the bridge sections (if is bridge configuration) and the 10'-0" (3,0 m) cantilever sections or less. (see Chapter D)

41- Install the outriggers, plank-end guardrails, plank-ties, guardrails, guardrails pockets support and planks on the cantilever sections or bridge sections. (see Chapter E)

42- Do not place more than eight (8) mast sections on each side of the platform. (see Figure C.33)

43- Set-up the self-erecting system and place the planks and plank-ties on the anchor space.

44- Join 30'-0" (9,1 m) of mast sections with the self-erecting system in order to be able to install the first anchoring device. (according to recommended dimensions)

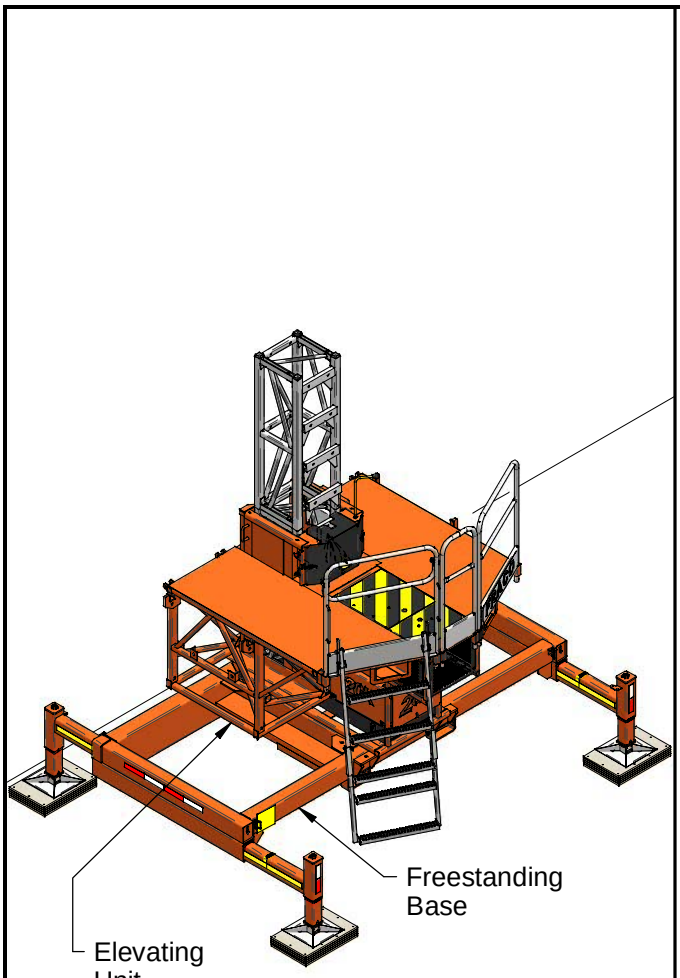
Step 2b (crane truck)

45- Install the bridge sections (if is bridge configuration) and the 10'-0" (3,0 m) cantilever sections or less. (see Chapter D)

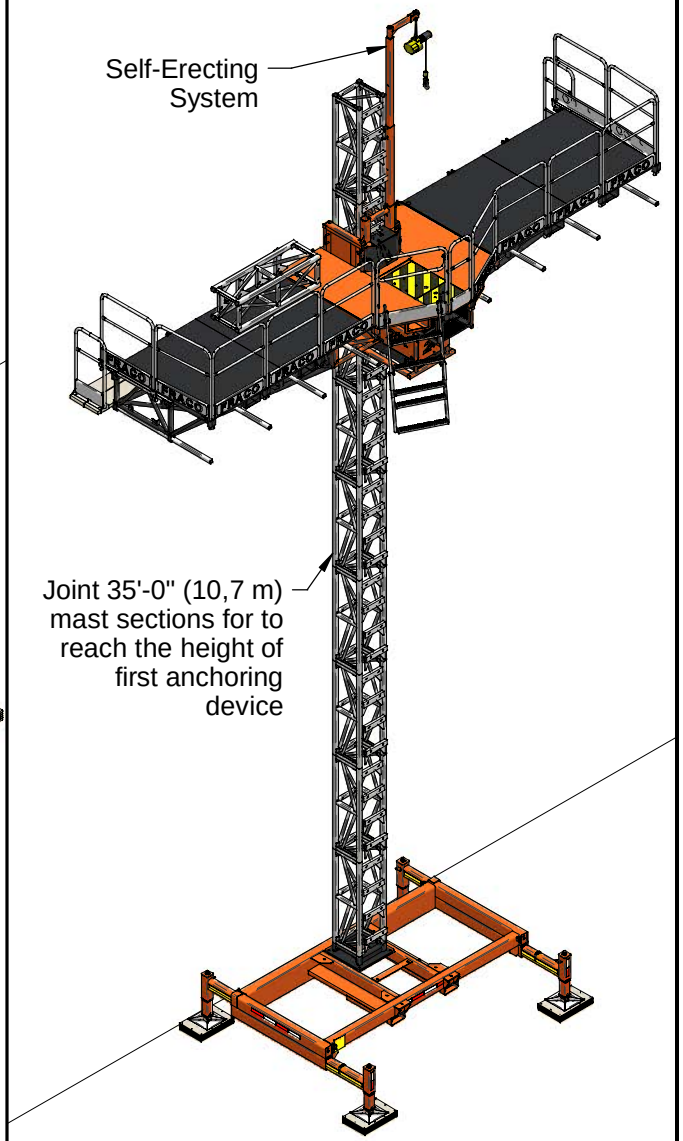
46- Install the outriggers, plank-end guardrails, plank-ties, guardrails, guardrails pockets support and planks on the cantilever sections or bridge sections. (see Chapter E)

47- You can join up to 30'-0" (9,1 m) of mast sections for next bolting them on the previous mast section using the crane truck. (see Figures C.5)

48- Place the planks and plank-ties on the anchor space.



1 **Figure C.35**



2 **Figure C.36**

INSTALLATION OF ANCHORING DEVICES WITH FREESTANDING BASE (CONTINUED)

Step 3 (see Figure C.37)

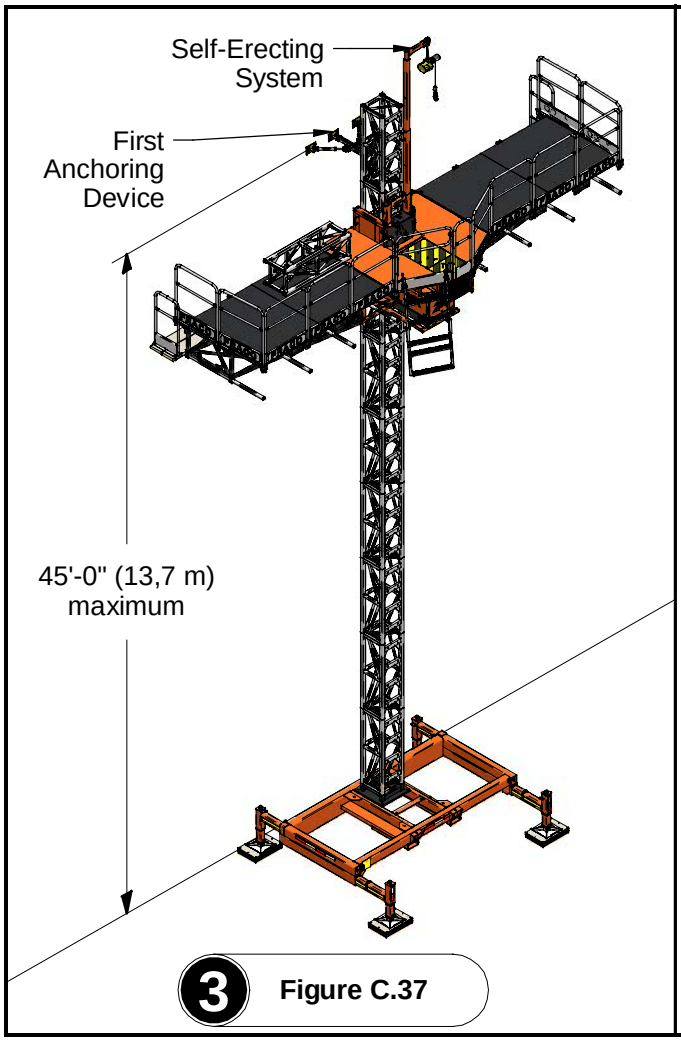
49- Install the first anchoring device at 45’-0” (13,7 m) from the ground. (according to recommended dimensions) (see pages C-18 to C-26)

Step 4a (see Figure C.38) (self-erecting system)

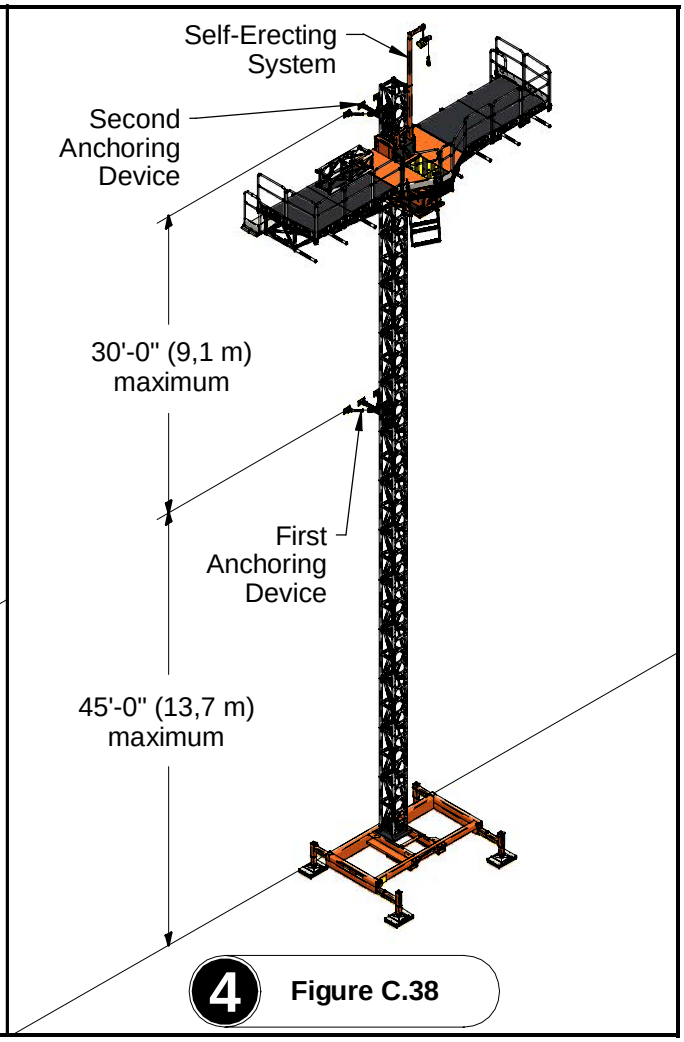
50- Load (8) eight mast sections on each side of the platform (see Figure C.33) and raise the platform.
51- Continue the installation of the mast sections until reaching the future position of second anchoring device.
52- Replace the planks and plank-ties on the anchor space.
53- Install the second anchoring device at 30’-0” (9,1 m) above first anchoring device. (see pages C-18 to C-26)
54- Complete the installation of the mast sections and anchoring devices according to the desired height.
55- Do not exceed the distance of 30’-0” (9,1 m) between the anchoring devices.
56- Once the last mast section is installed, bolt on the mast end section.
57- When the mast installation is completed, lower the platform and remove the self-erecting system.
58- Finish the installation of the platform (turnbuckle of the cantilever section, guardrail, etc...).
59- Install the wire mesh protection on the elevating unit. (see Chapter B «Wire Mesh Protection»)

Step 4b (crane truck)

60- You can join up to 40’-0” (12,2 m) of mast sections for next bolting them on the previous mast section using the crane truck. (see Figure C.5)
61- Continue the installation of the mast sections until reaching the future position of second anchoring device.
62- Replace the planks.
63- Install the second anchoring device at 30’-0” (9,1 m) above first anchoring device. (see pages C-18 to C-26)
64- Complete the installation of the mast sections and anchoring devices until reaching the desired height.
65- Do not exceed the distance of 30’-0” (9,1 m) between the anchoring devices.
66- Once the last mast section is installed, bolt on the mast end section.
67- Finish the installation of the platform (turnbuckle of the cantilever section, guardrail, etc...).
68- Install the wire mesh protection on the elevating unit. (see Chapter B «Wire Mesh Protection»)



3 Figure C.37



4 Figure C.38

GENERAL STEPS FOR ASSEMBLING OF ANCHORING DEVICES

Step 1 (see Figure C.39)

69- Position the wall tie adaptor to desired point on the mast.
70- Bolt the wall tie adaptor on the mast and screw them with the nut plate.

Step 2 (see Figure C.40)

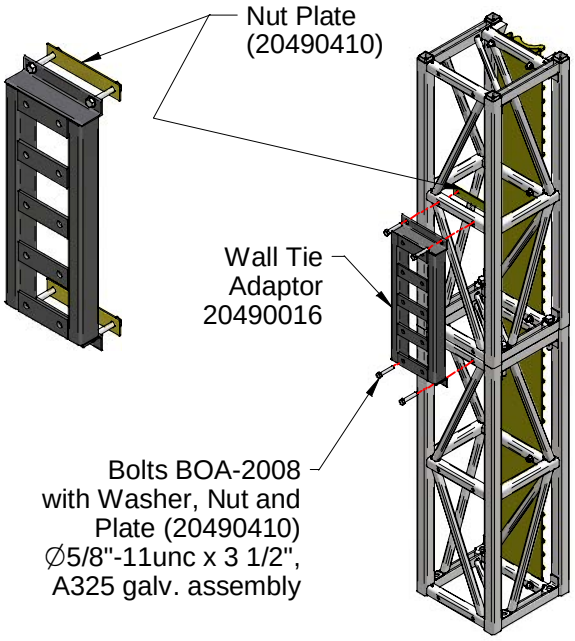
71- Slide the central tube into the wall tie tube and fix it with a locking pins supplied with the wall tie.

Step 3 (see Figure C.41)

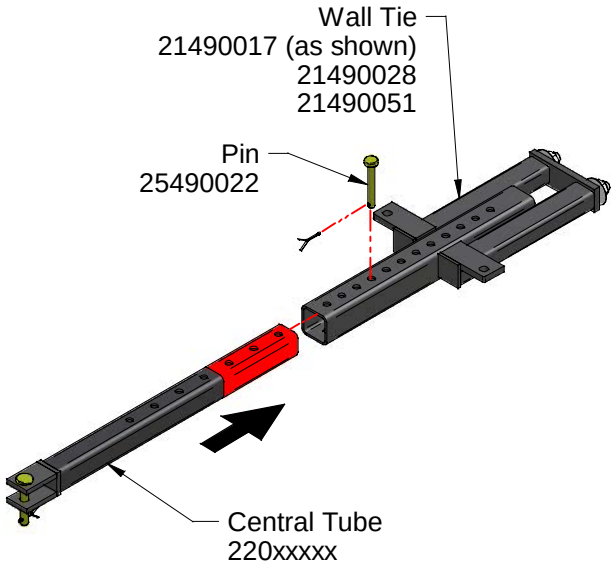
72- Bolt the wall tie to the wall tie adaptor.

Step 4 (see Figure C.42)

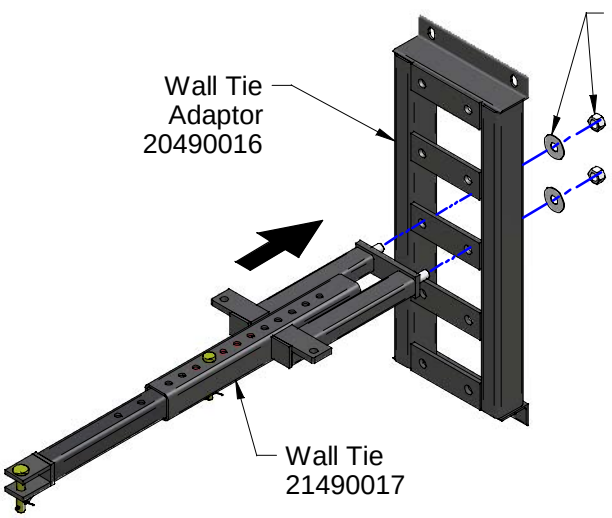
73- Fix the turnbuckles on the wall tie with the locking pins supplied with the turnbuckle.



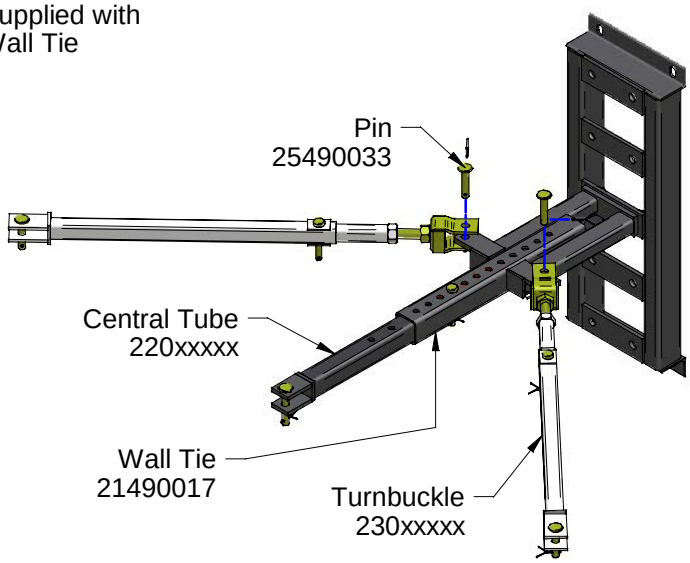
1 **Figure C.39**



2 **Figure C.40**



3 **Figure C.41**

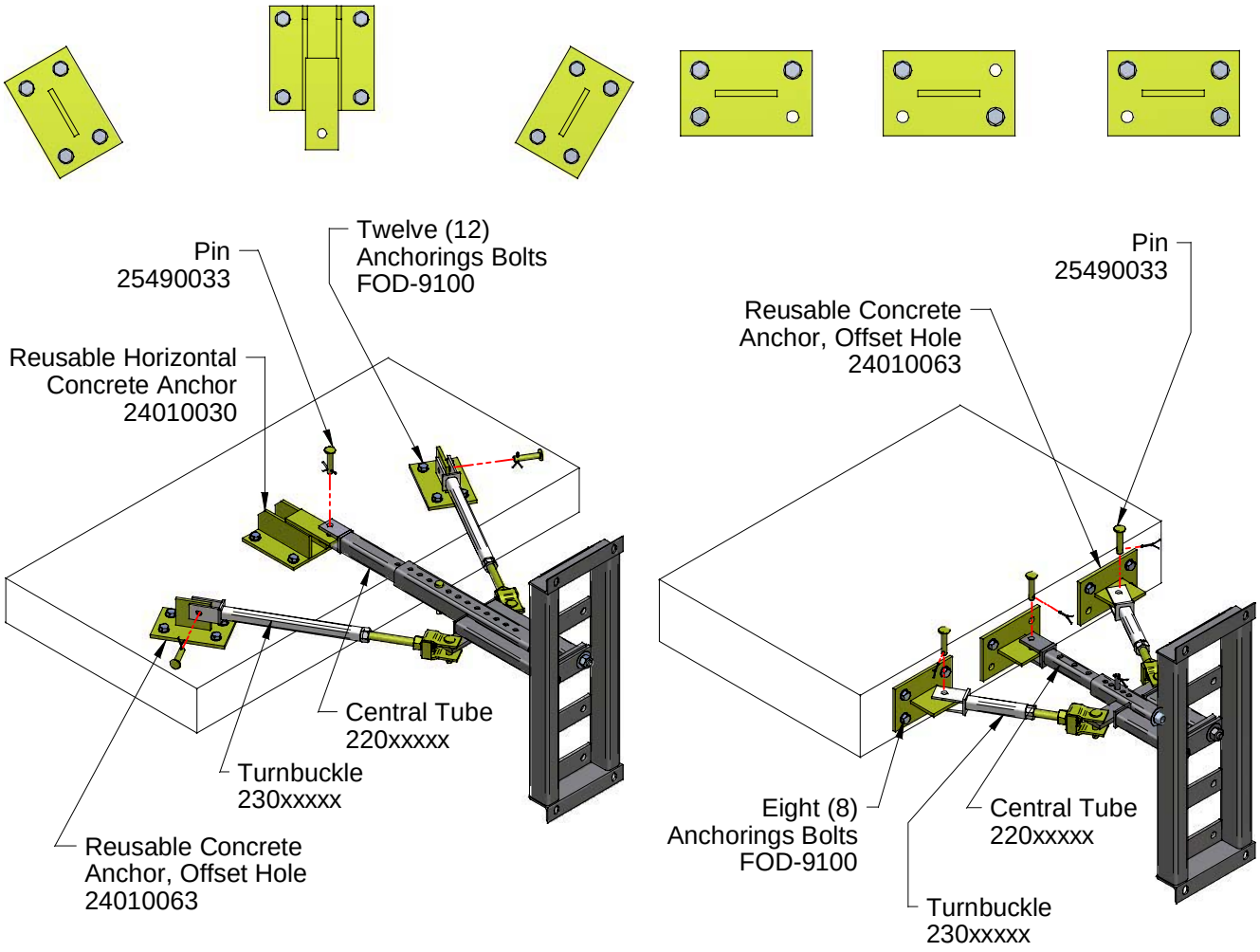


4 **Figure C.42**

INSTALLATION OF BOLTED ANCHORS

Bolted Anchors (see Figure C.43 to C.48)

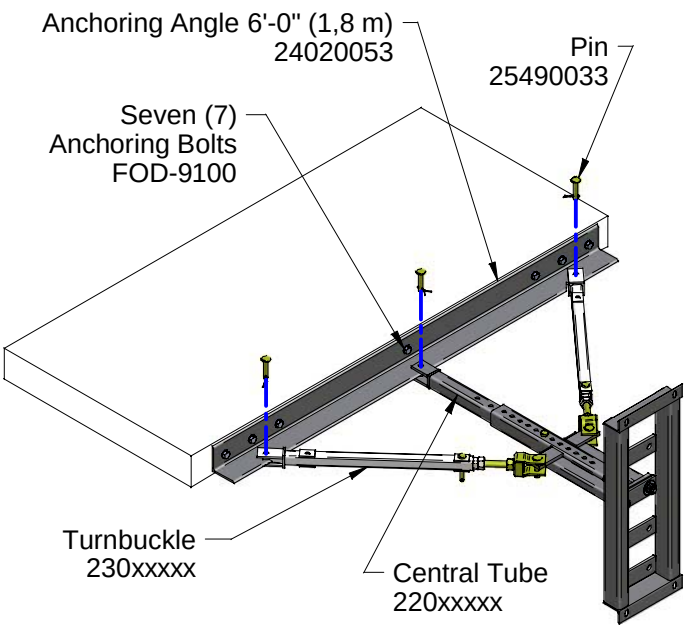
74- During installation of anchoring devices, respect the recommendations on page C-4.
75- Identify the location to drill the holes on slab in accordance with type of anchor being use. (see page C-10 «Turnbuckle Opening Constraints»)
76- Fix anchor with anchoring bolts ∅5/8" x 5". (see Figure C.43 to C.48)
77- Fix turnbuckles and central tube. (see Figure C.43 to C.48)
78- Make sure all pins are in place.
79- Secure the turnbuckles to lock the anchoring device in place. The turnbuckles will be in tension and the central tube will be in compression.



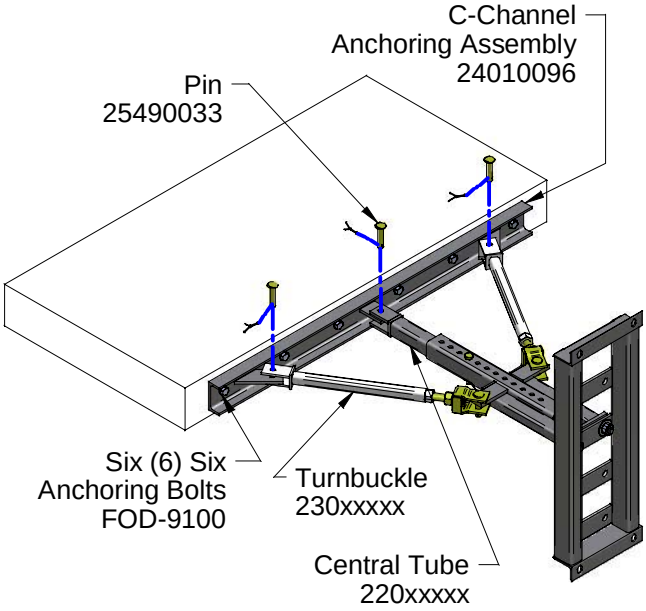
A **Figure C.43**

B **Figure C.44**

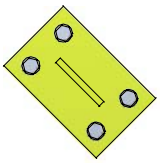
INSTALLATION OF BOLTED ANCHORS (CONTINUED)

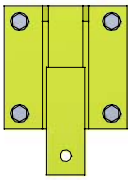


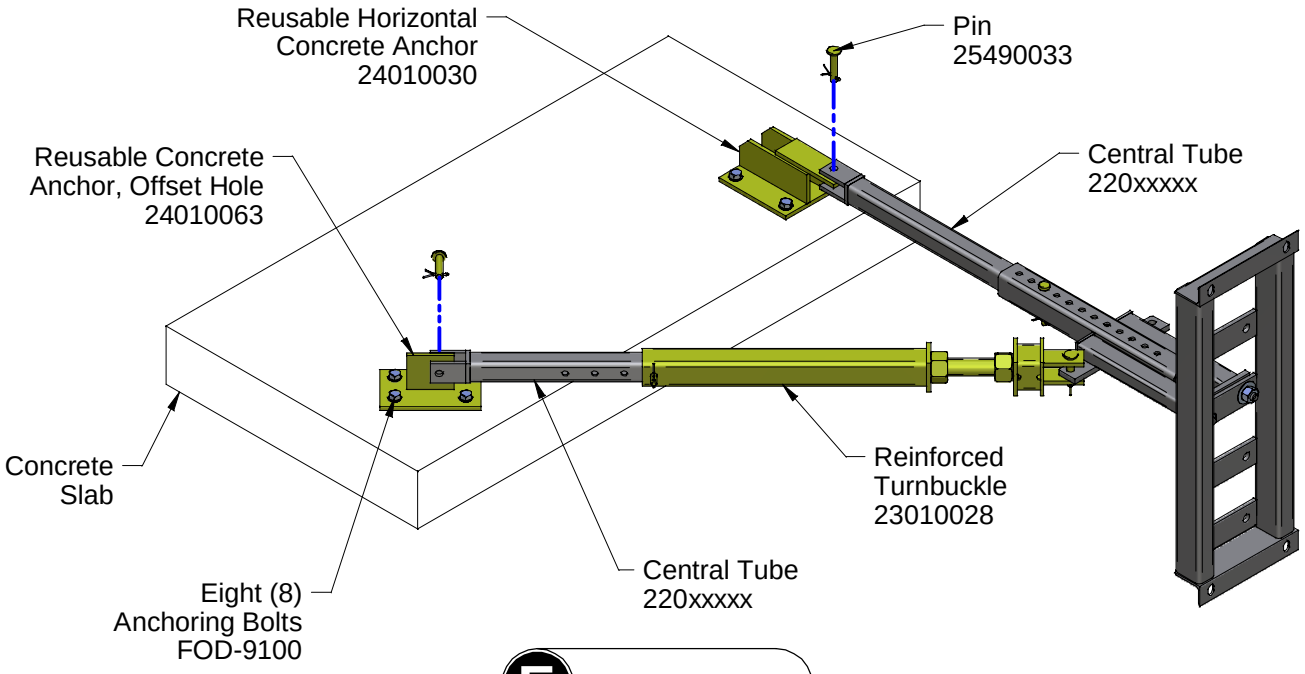
C **Figure C.45**



D **Figure C.46**







E **Figure C.47**

INSTALLATION OF BOLTED ANCHORS (CONTINUED)

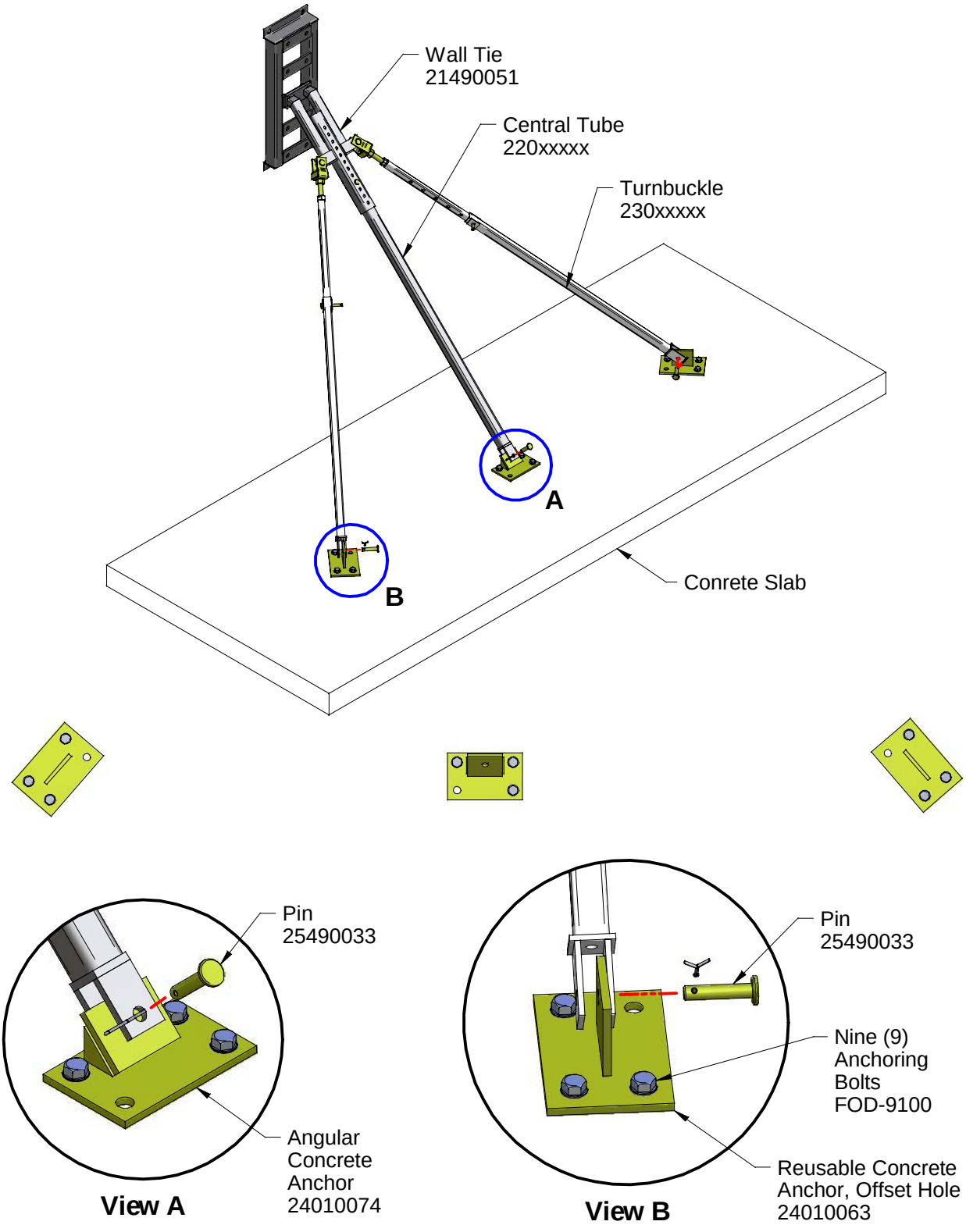


Figure C.48

INSTALLATION OF WELDED ANCHORS

Step 1 (see Figure C.49)

(must be welded by a certified welder)

80- During installation of anchoring devices, follow the recommendations on page C-4.

81- Identify location to weld the anchor plates to the steel structure. (see page C-10 «Turnbuckle Opening Constraints»)

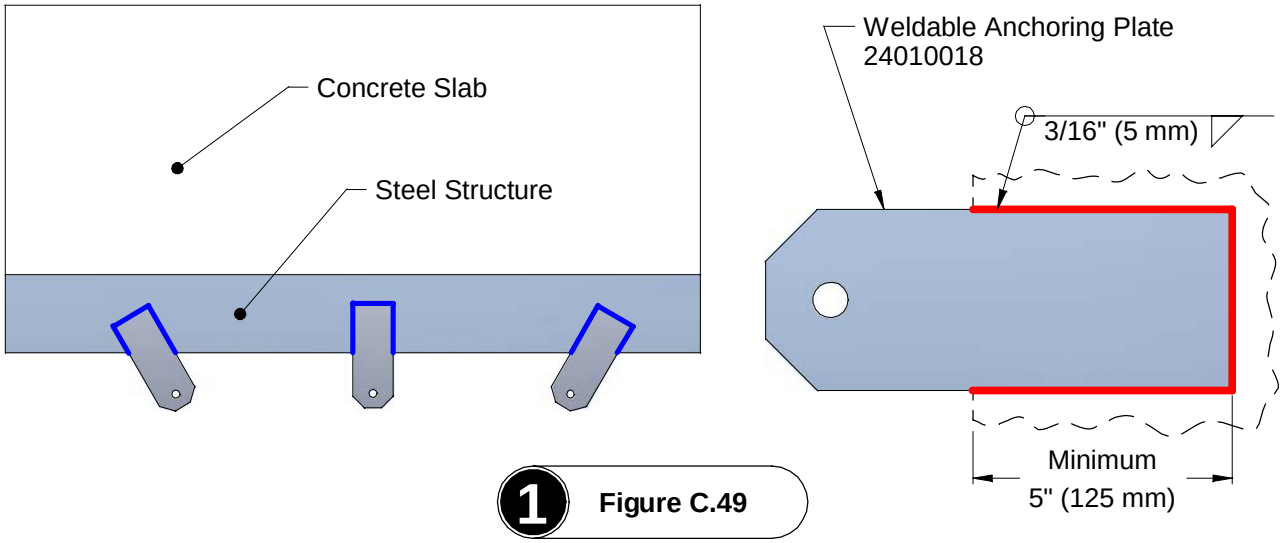
82- Weld anchor plates to the steel structure with a minimal length of 5" (125 mm).

Step 2 (see Figure C.50)

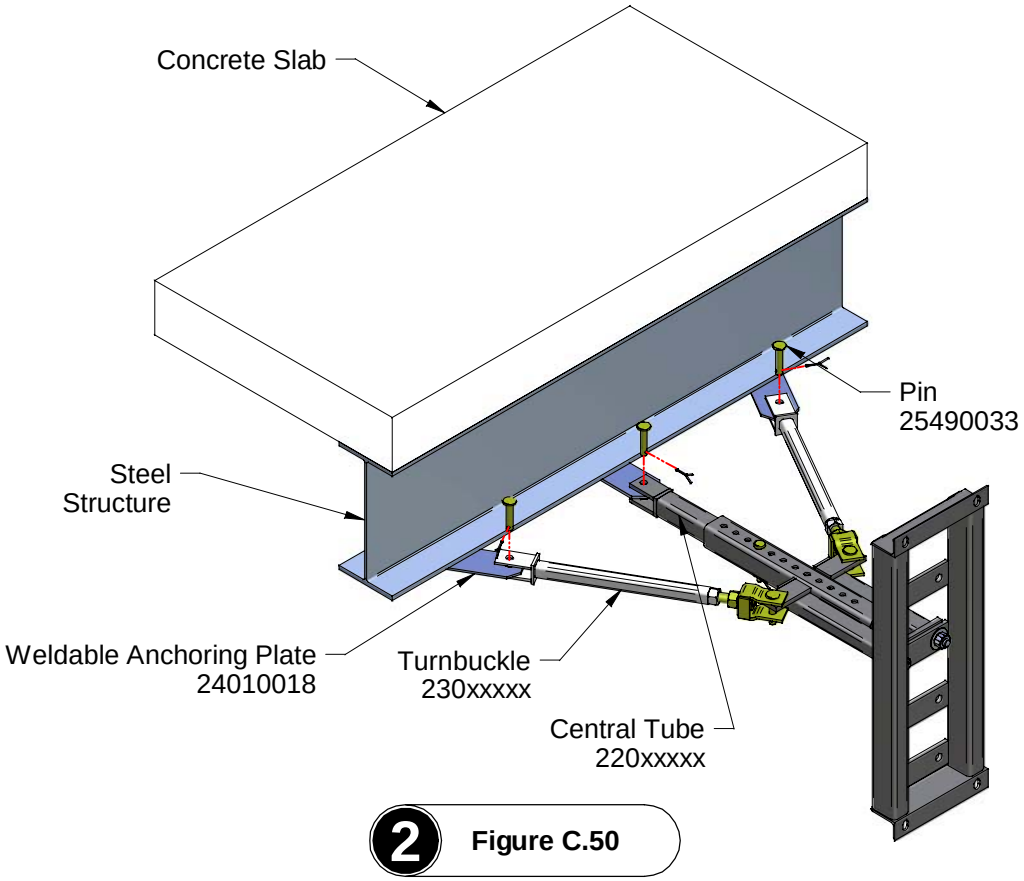
83- Fix turnbuckles and central tube.

84- Make sure all pins are in place.

85- Secure turnbuckles to lock the anchoring device in place. The turnbuckles will be in tension and central tube will be in compression.



1 **Figure C.49**



2 **Figure C.50**

INSTALLATION OF CLAMPED ANCHORS (OPTIONAL)

Step 1 (see Figure C.51)

86- Before beginning, you must adhere to the instructions on page C-4.

87- Determine the area where the H-shaped beam adjustable anchors will be positioned on the steel structure (see page C-10 «Tunrbuckle Opening Constraints»).

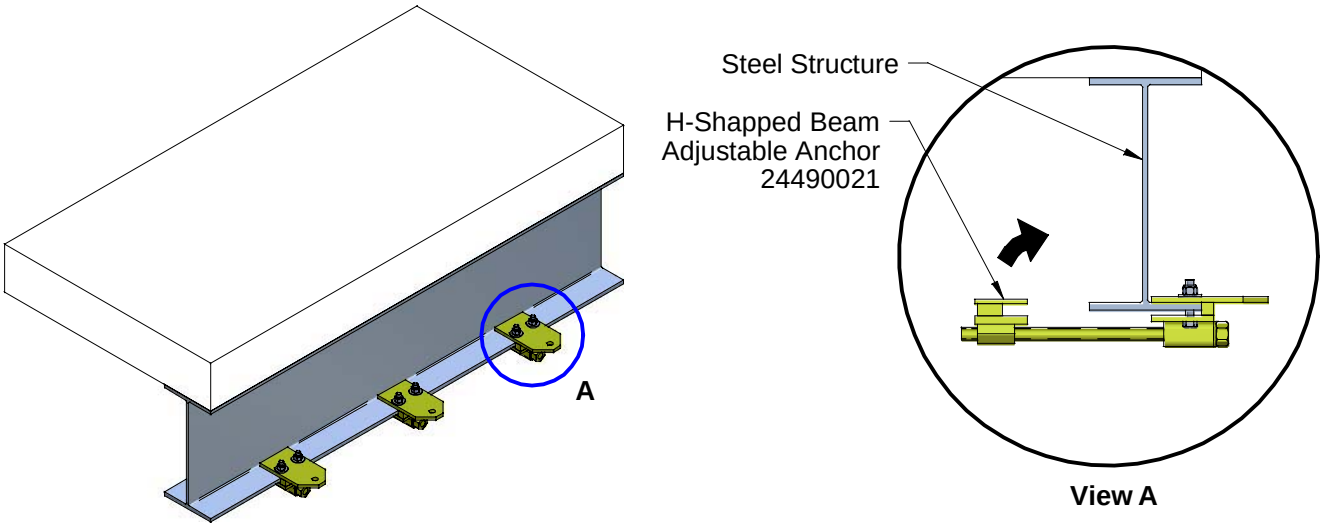
88- Place the H-shaped beam adjustable anchors on the steel structure.

Step 2 (see Figure C.52)

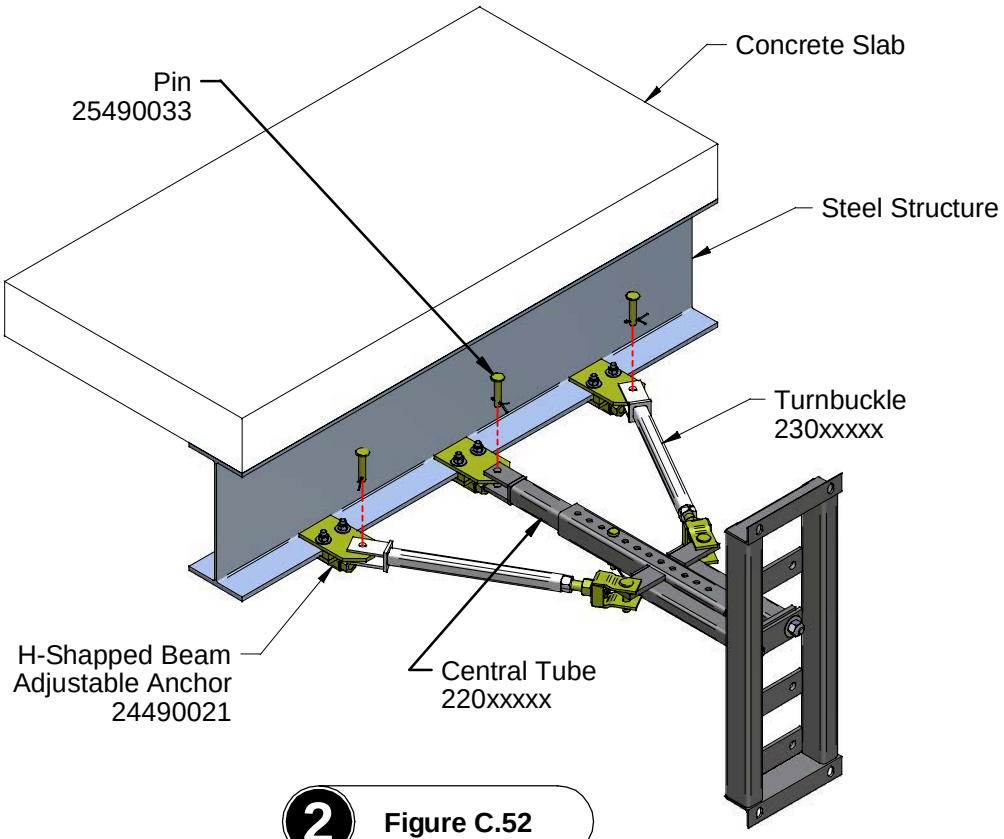
89- Fix the turnbuckles and the central tube.

90- Verify that all the locking pins are attached.

91- Lock the anchoring device by putting the turnbuckles under tension and the central tube under compression.



1 **Figure C.51**



2 **Figure C.52**

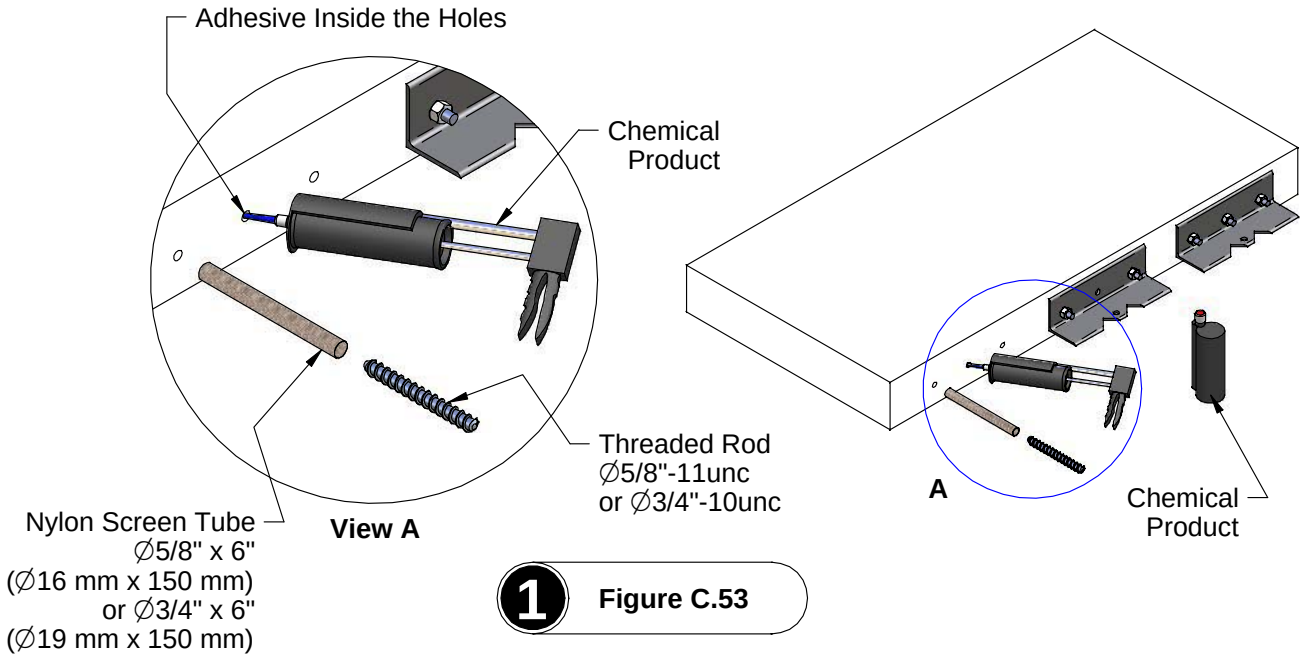
INSTALLATION OF ANCHORS WITH CHEMICAL PRODUCT

Step 1 (see Figure C.53)

92- During installation of anchoring devices, follow the recommendations on page C-4.
93- Identify location to drill the holes on the slab in accordance with type of anchor being use. (see page C-19 to C-26)
94- Drill holes ∅ 3/4" (19 mm) or ∅ 7/8" (22 mm) in the slab with a minimum depth of 6" (150 mm).
95- Clean holes (see Figure C.54)
96- Inject chemical mix inside the hole using a chemical product.
97- Put in place the threaded rod with a screen nylon tube (if there is a gap) and temperately bolt the anchoring angle, giving time to the mixture to harden. (see manufacturer specification)

Note:

- Refer to the plan and engineering drawing specific to the installation to identify the diameter of threaded rod and distances to respect.



1 **Figure C.53**

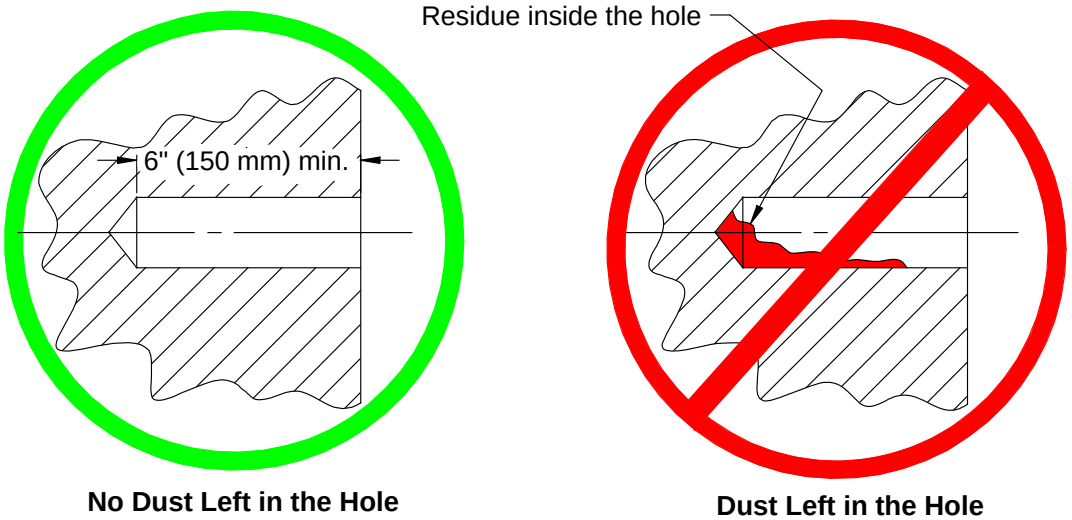
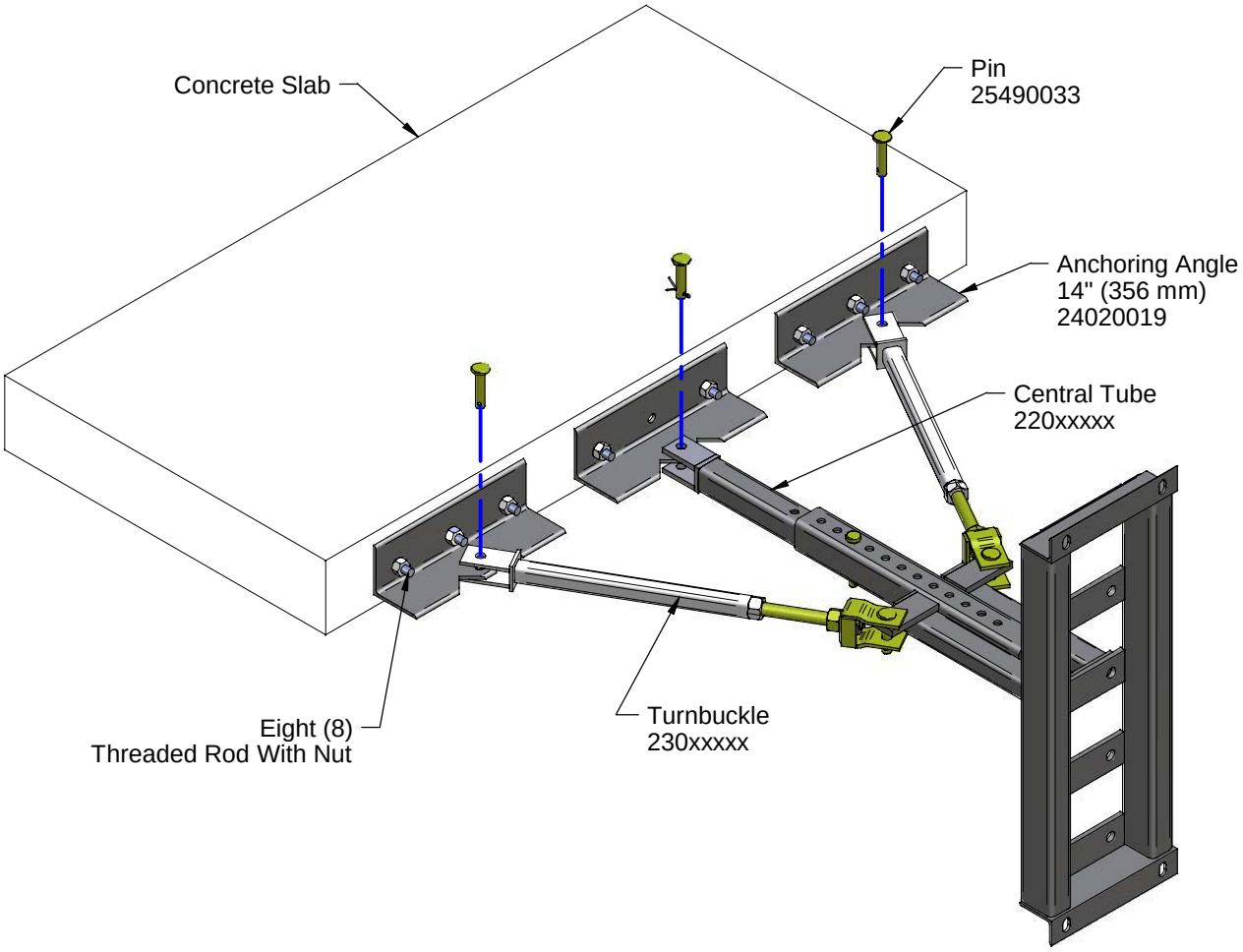


Figure C.54
Cleanness Inside the Hole

INSTALLATION OF ANCHORS WITH CHEMICAL PRODUCT (CONTINUED)

Step 2 (see Figure C.55)

98- Once the mix has harden, secure the threaded rod.
99- Fix turnbuckles and central tube.
100- Make sure all pins are in place.
101- Secure turnbuckles to lock the anchoring device in place. The turnbuckles will be in tension and central tube will be in compression.



2 Figure C.55

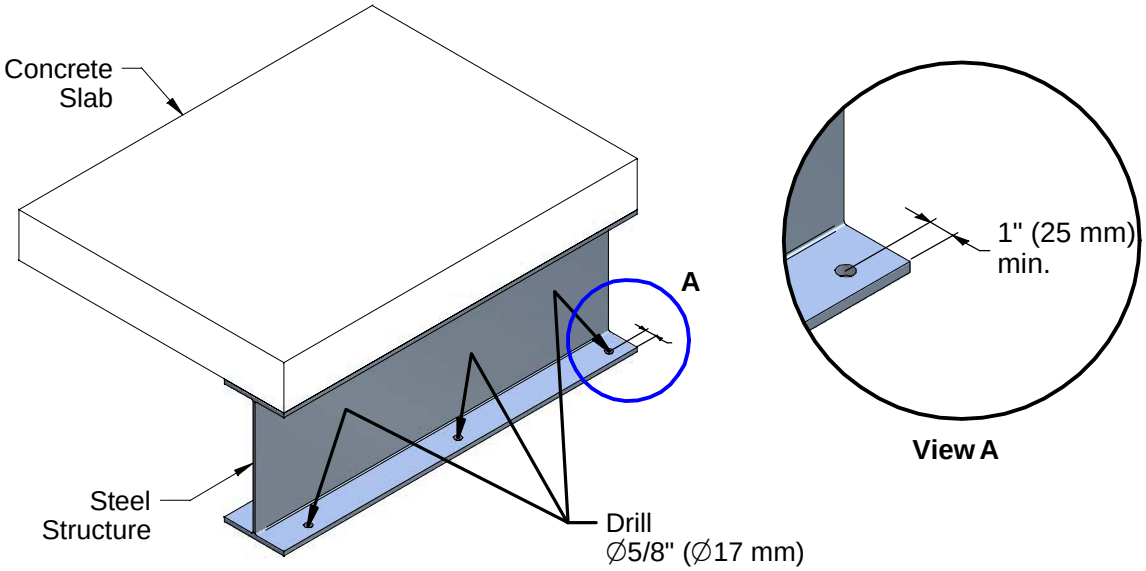
INSTALLATION OF FIXED ANCHORS

Step 1 (see Figure C.56)

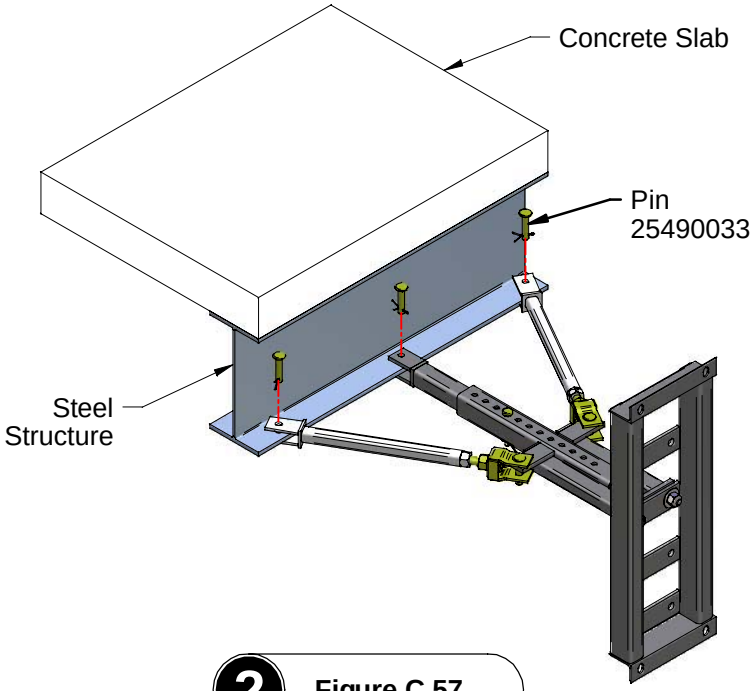
102- Before beginning, you must adhere to the instructions on page C-4.
103- Determine the area where the holes will be drilled in the steel structure (see page C-10 «Turnbuckle Opening Constraints»).
104- Drill the holes with ∅5/8" (∅17 mm) at an distance of 1" (25 mm) from the edge of the steel structure.

Step 2 (see Figure C.57)

105- Fix the turnbuckles and the central tube.
106- Verify that all the locking pins are attached.
107- Lock the anchoring device by putting the turnbucklesunder tension and the central tube under compression.



1 **Figure C.56**



2 **Figure C.57**

DISMANTLING OF ANCHORING DEVICES WITH GROUND BASE

Step 1

108- Lower the platform to the ground and unload any equipment, material and detritus from the platform.
109- Remove the wire mesh protection (see Chapter B «Wire Mesh Protection»).
110- Important : The platform cannot be positioned more than 30'-0" (9,1 m) above the highest anchoring device.

Step 1a (see Figure C.58) (self-erecting system)

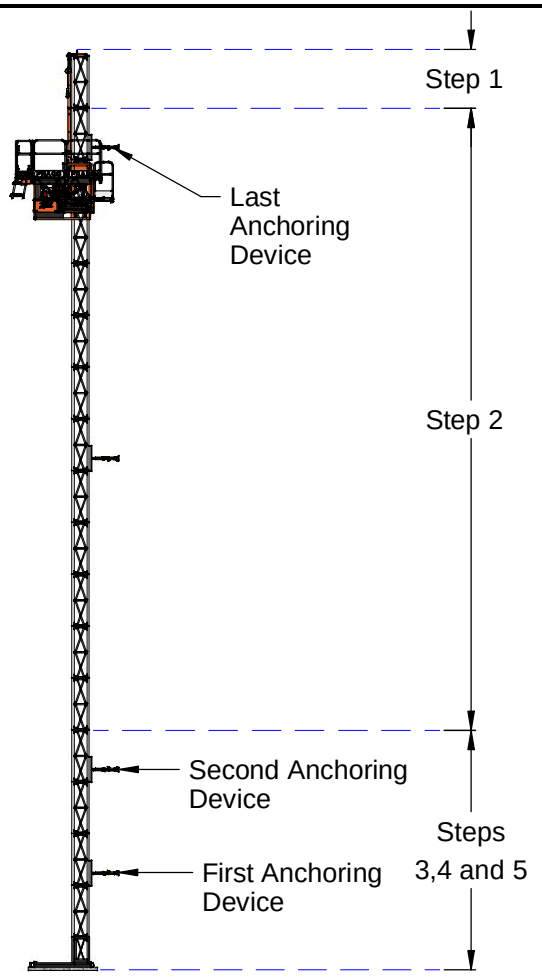
111- Set up the self-erecting system (see page C-32 to C-33).
112- Raise the platform to the last mast section junction. In the same step, unbolt the mast end section.
113- Unbolt and remove the mast sections to the next anchoring device.
114- Remove the anchoring device as describe on step 2.

Step 1b (crane truck)

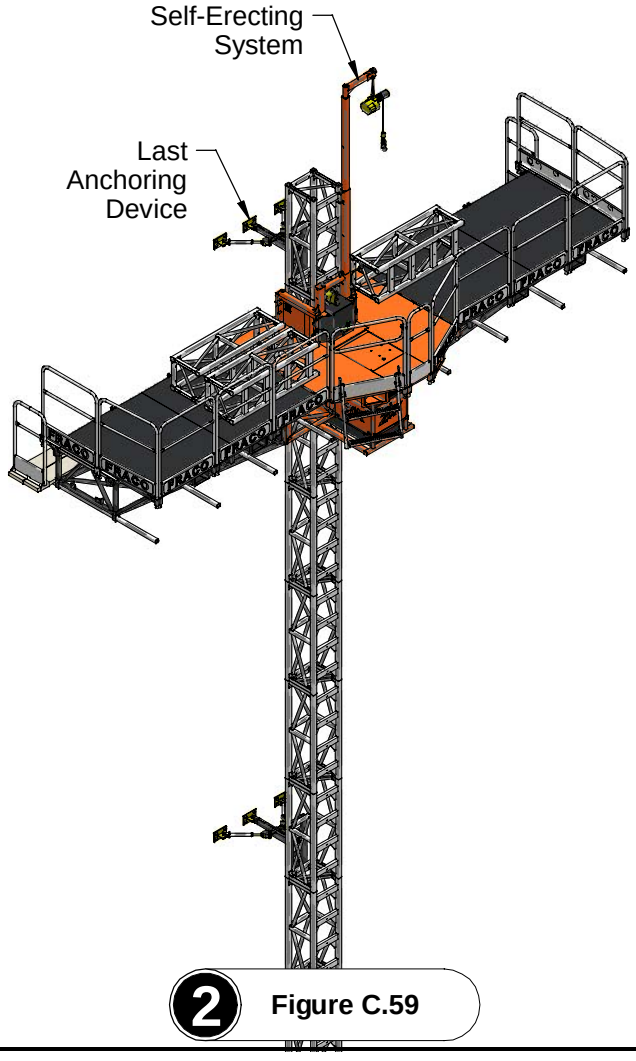
115- Raise the platform to the next anchoring device.
116- Strap up the top of the mast with a crane truck
117- Remove the anchoring device as describe on step 2.
118- Unbolt and remove the 30'-0" (9,1 m) of mast sections.

Step 2 (see Figure C.59) (This step is valid for all anchoring devices which are above the two (2) first anchoring devices)

119- Elevate the platform until it is below the highest anchoring device.
120- Place the planks and plank-ties on the anchor space.
121- Slack the turnbuckles and remove the anchoring device.
122- Perform the necessary repairs to the wall.
123- Remove the planks and plank-ties on the anchor space.
124- Unbolt and remove the mast sections to the next anchoring device.
125- Finish disassembling the mast sections and anchoring devices to the height of the last two (2) anchoring devices.
126- Once sixteen (16) mast sections have been placed on the platform (eight (8) on each side), lower the platform to the ground and remove the sixteen (16) mast sections. (see Figure C.33)



1 **Figure C.58**



2 **Figure C.59**

DISMANTLING OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)

* Under no circumstances can the platform be raised and/or loaded with material unless the installation of the two (2) first anchoring devices is complete. This rule applies for installation and dismantling.

* With ground base intallation, If the anchoring device is higher than 10'-0" (3,0 m), the platform must be secured with a lifting device (crane truck, fork lift, etc...) during the installation or dismantling of the two (2) first anchoring device.

* Wear a safety harness at all time during the installation and dismantling procedures of the platform.

* To disregard any of these procedures can cause serious material and corporal damages, as well as death. If you are in presence of a situation other than the ones mentioned in this manual, contact your **FRACO** representative. **FRACO Ltd**. and / or its importer / representative cannot, in no case be held responsible for any damages due to the non-respect of these procedures.

Step 3 (see Figure C.60)

127- When you get to the second anchoring device lower the platform to the ground.
128- Remove the cantilever sections and keep the 3,0 m cantilever section or less, on each side of the elevating unit.
129- Reinstall the plank-end guardrails, plank-ties, guardrails, guardrails pockets support and planks on the cantilever sections. (see Chapter E)
130- Ensure to be secured by the crane truck.
131- Raise the elevating unit below the second anchoring device and place the planks and plank-ties on the anchor place.
132- Remove the second anchoring device and perform the necessary repairs to the wall.

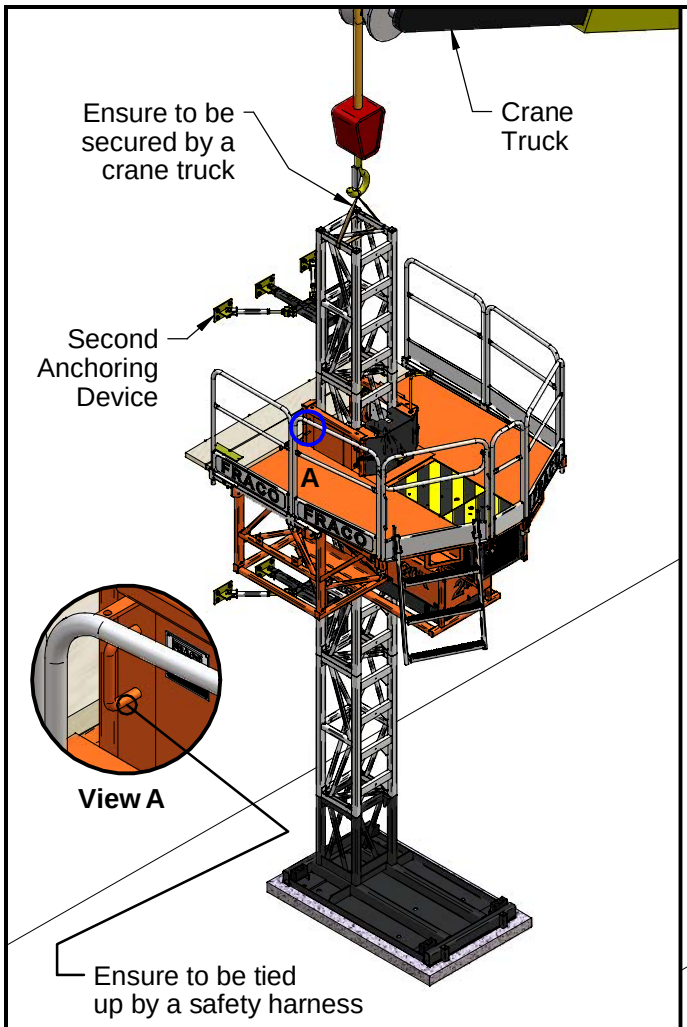
Step 4 (see Figure C.61)

133- Lower the elevating unit below the first anchoring device and place the planks and plank-ties on the anchor space.
134- Ensure to be secured by the crane truck.
135- Removes the first anchoring device and perform the necessary repairs to the wall.
136- Lower the elevating unit to the ground.

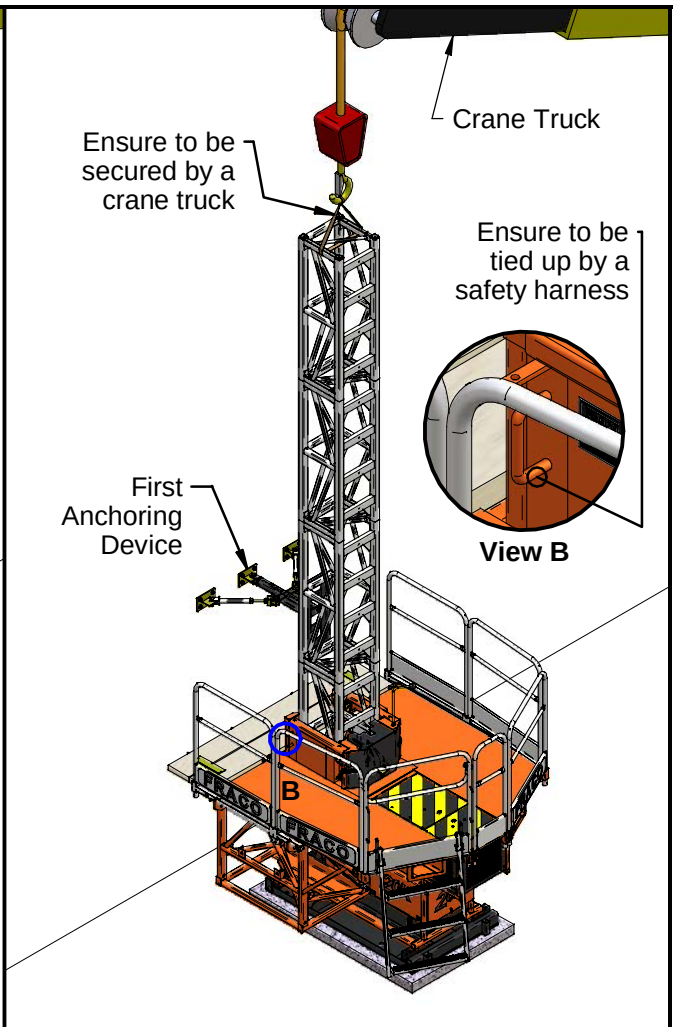
Step 5 (see Figure C.62)

137- Unbolt and remove five (5) mast sections and place them on the ground.
138- Unbolt and remove five (5) mast sections from each other.
139- Remove the planks, plank-end guardrails, plank-ties, cantilever sections, bridge sections. (if is bridge configuration)

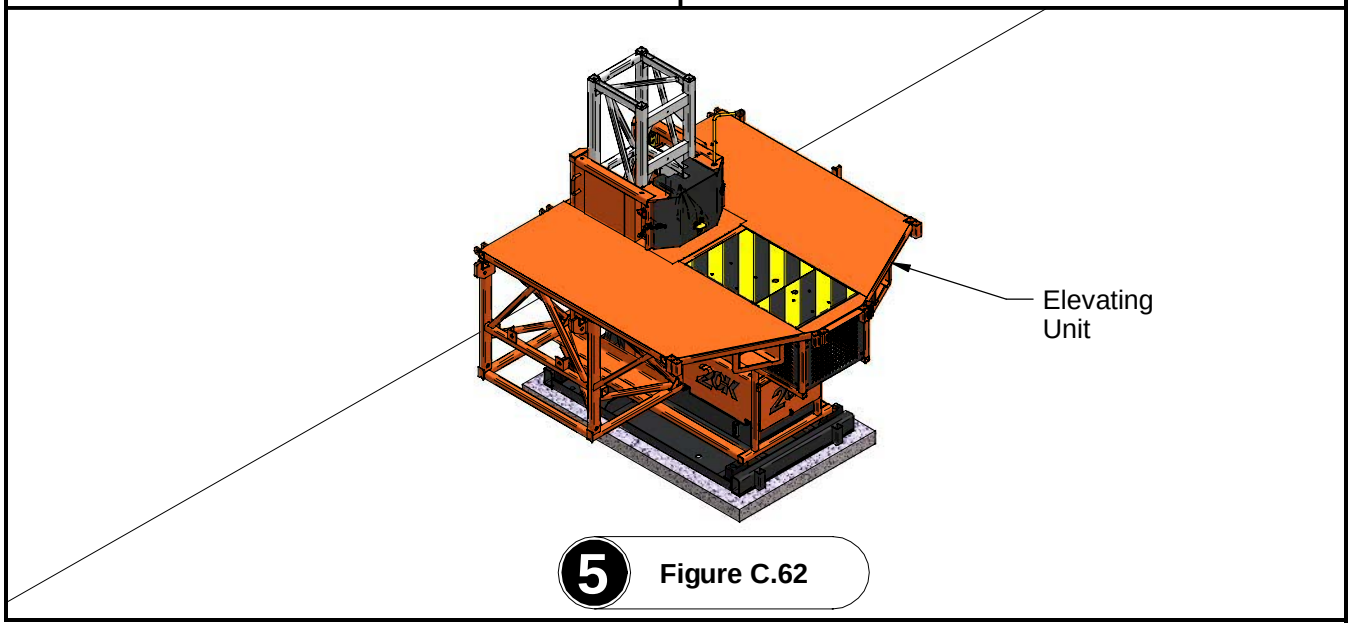
DISMANTLING OF ANCHORING DEVICES WITH GROUND BASE (CONTINUED)



3 **Figure C.60**



4 **Figure C.61**



5 **Figure C.62**

DISMANTLING OF ANCHORING DEVICES WITH FREESTANDING BASE

Step 1 and 2 (see page C.27)

Step 3 (see Figure C.63)

140- When you get to the first anchoring device, dismantle the first anchoring device and perform the necessary repairs to the wall.

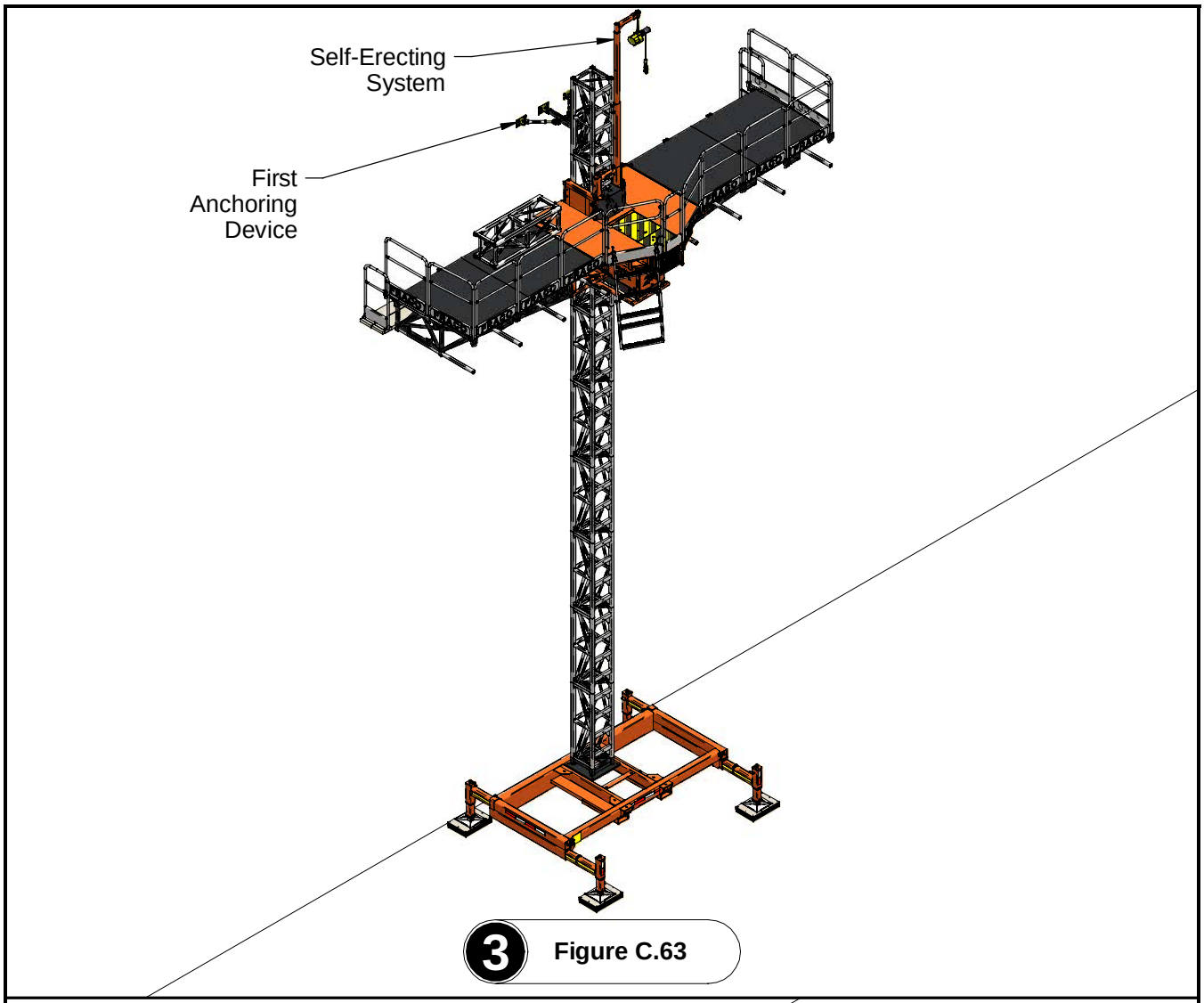
Step 4a (see Figure C.64) (self-erecting system)

141- Unbolt and remove the mast sections with the self-erecting system until reaching the last two (2) mast sections.
142- Let the platform at 4'-0" (1,2 m) from the ground.
143- Remove the cantilever sections, guardrails, guardrail pockets supports, planks, plank-ties, plank-end guardrails, outriggers and bridge sections (if is bridge configuration).
144- Slack bolt from the ground base with impact wrench and leave them in place.
145- Lower the elevating unit to the ground.
146- Unbolt and remove the mast section from the last mast section with the help of self-erecting system or fork lift.
147- Remove self-erecting system.
148- Unbolt and remove the elevating unit from the freestanding base.

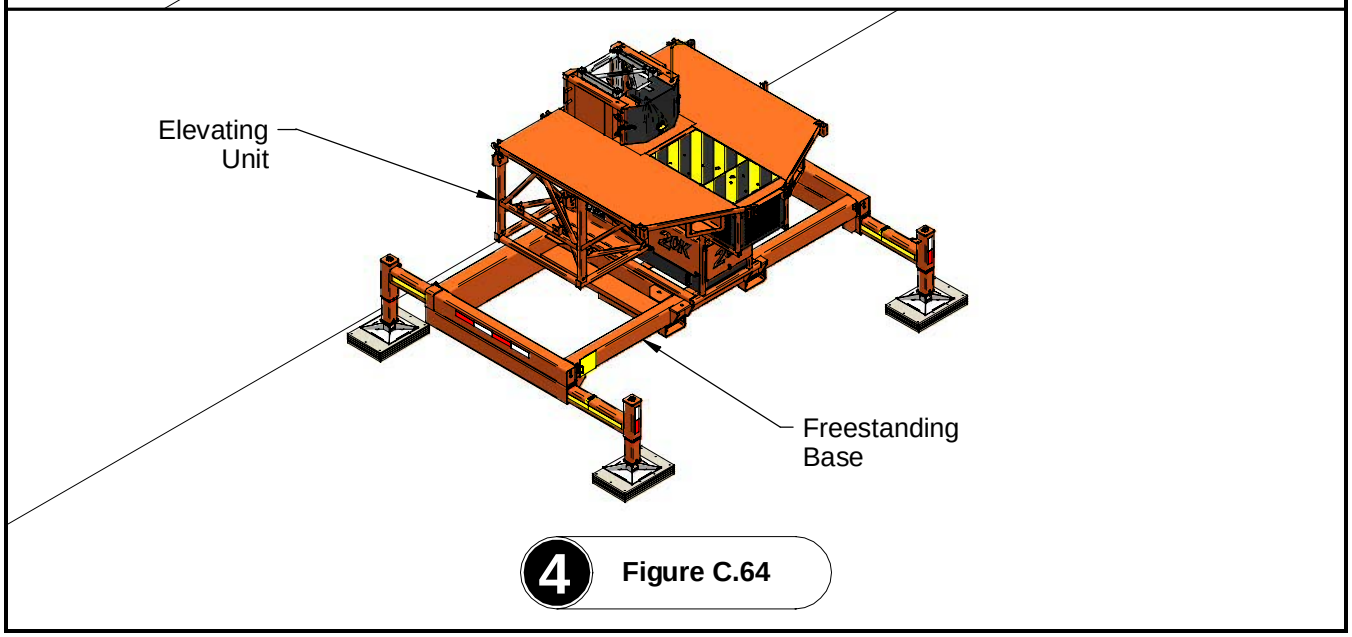
Step 4b (crane truck)

149- Let the platform at 4'-0" (1,2 m) from the ground.
150- Unbolt and remove the mast sections with the crane truck until reaching the last two (2) mast sections and put them on the ground.
151- Remove the cantilever sections, guardrails, guardrail pockets supports, planks, plank-ties, plank-end guardrails, outriggers and bridge sections (if is bridge configuration).
152- Slack bolt from the ground base with impact wrench and leave them in place.
153- Lower the elevating unit to the ground.
154- Unbolt and remove the mast section from the last mast section with the fork lift.
155- Unbolt and remove the elevating unit from the freestanding base.

DISMANTLING OF ANCHORING DEVICES WITH FREESTANDING BASE (CONTINUED)



3 **Figure C.63**



4 **Figure C.64**

INSTALLATION OF SELF-ERECTING SYSTEM (OPTIONAL)

Step 1 (see Figure C.65)

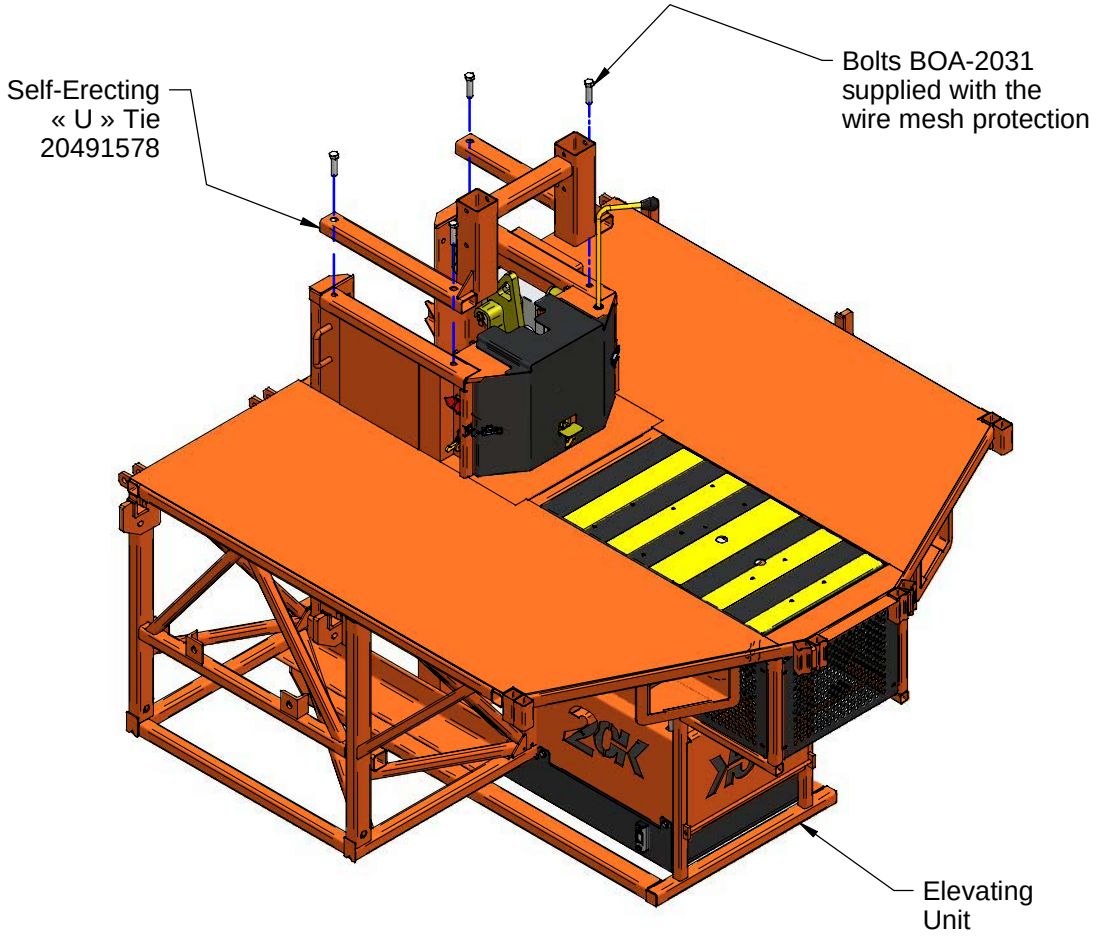
156- Position and bolt the self-erecting « U » tie onto the elevating unit, using the bolts supplied with the wire mesh protection.

Step 2 (see Figure C.66)

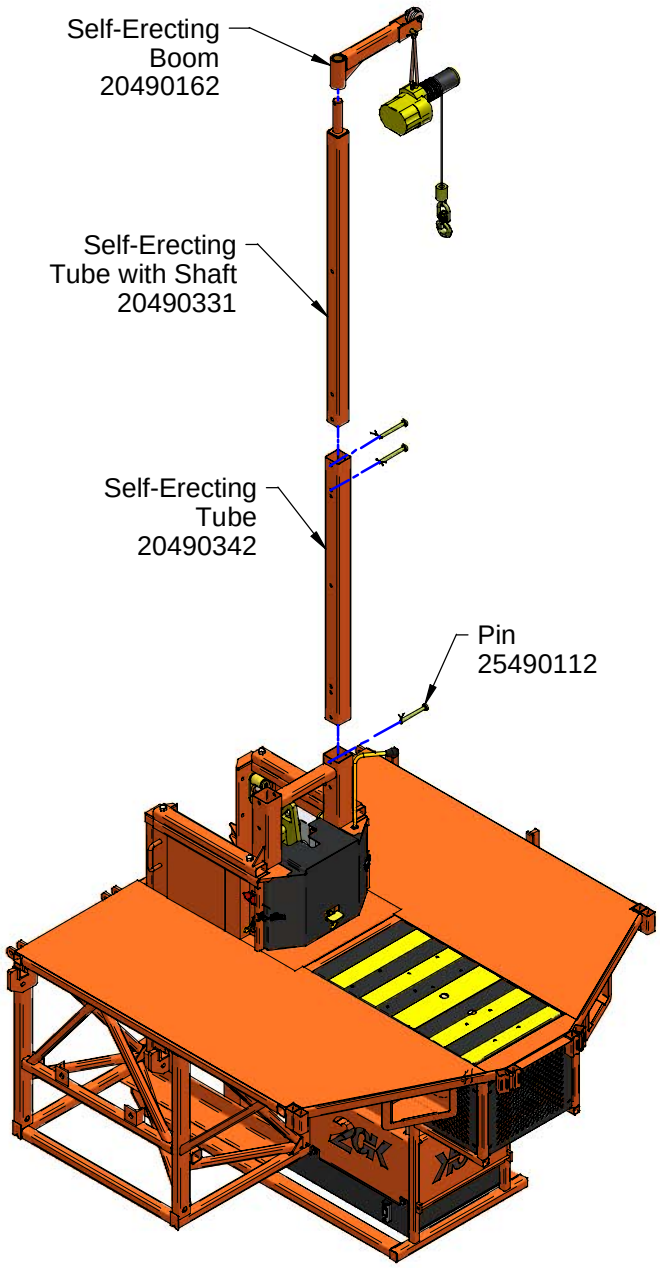
157- Position and secure the self-erecting tube using pins.
158- Position and secure the self-erecting tube with shaft using pins.
159- Position the self-erecting boom on the self-erecting tube with shaft.

Step 3 (see Figure C.67)

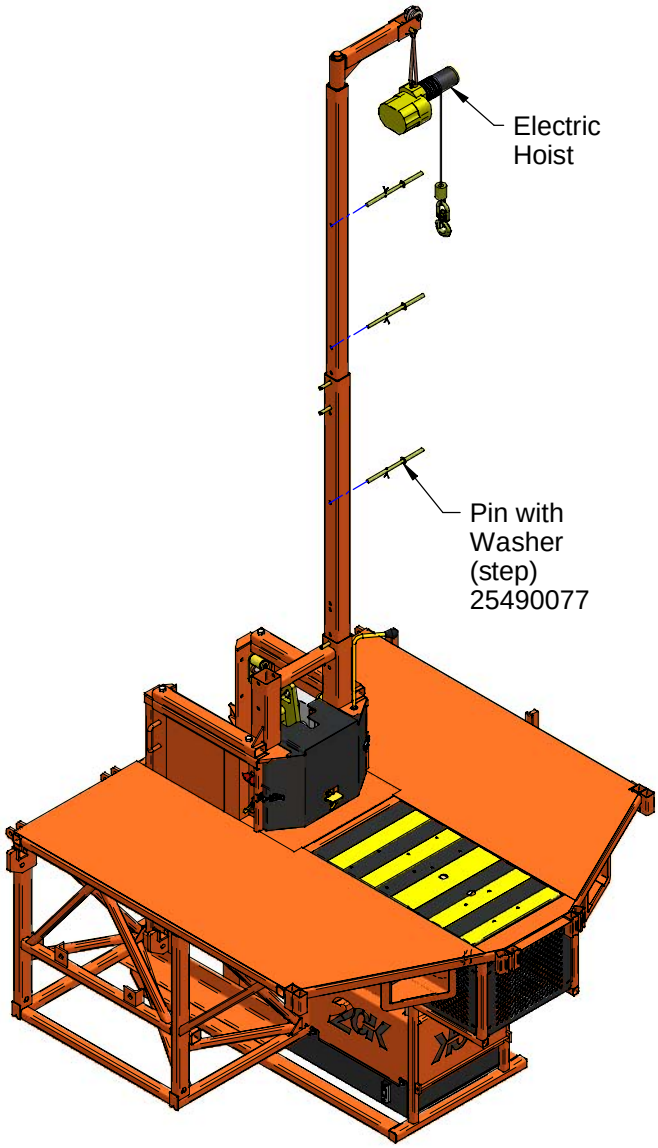
160- Position and secure the pins with washers using cotter pins (the pins with washers are used as steps). This will allow the installation of the electric hoist.
161- Once the electric hoist is installed, remove the pins with washers (steps).
162- The pins with washers must be reinstalled during the dismantling of the self-erecting system.



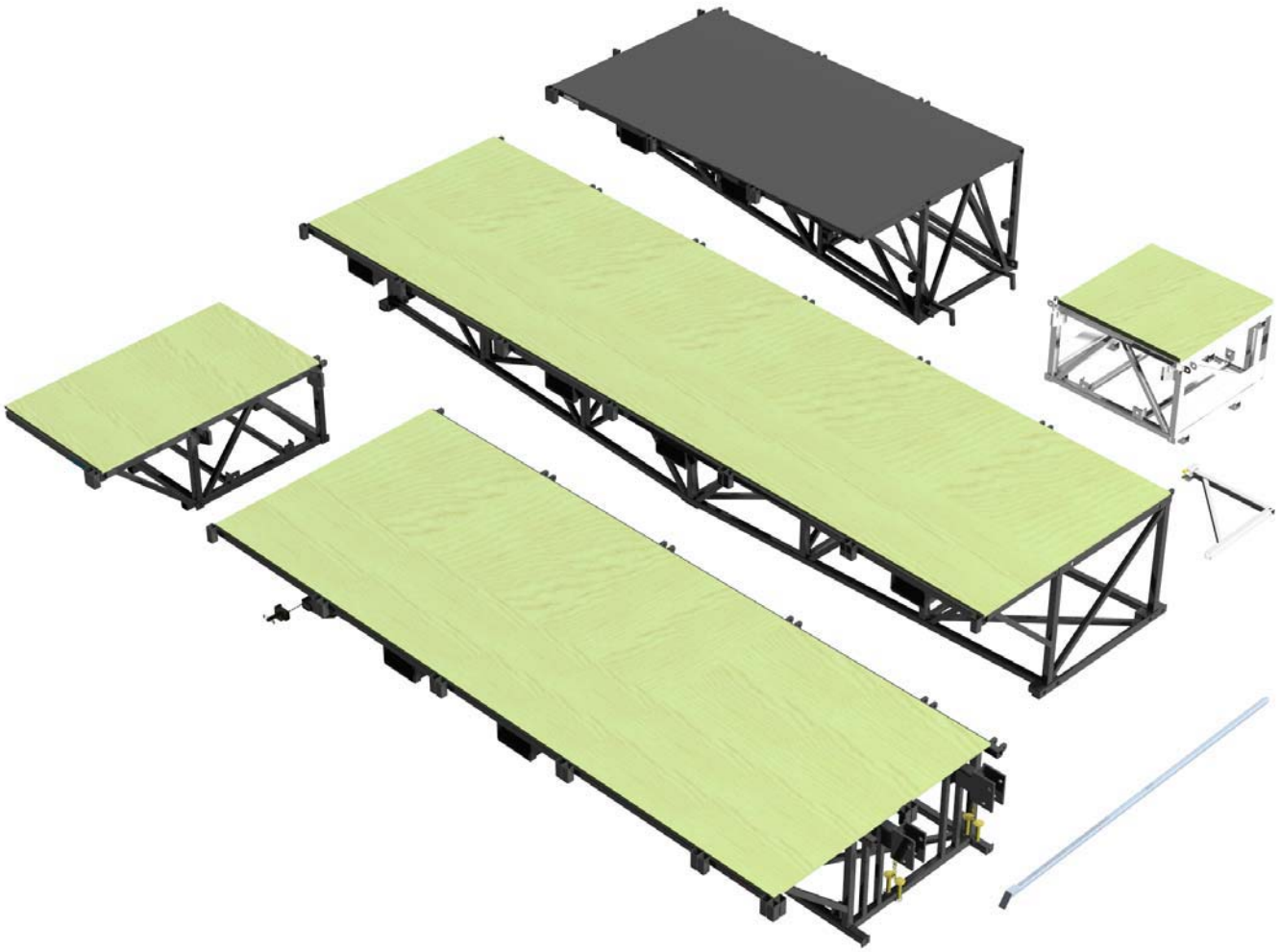
1 **Figure C.65**



2 **Figure C.66**



3 **Figure C.67**



CHAPTER D

BRIDGE SECTIONS AND CANTILEVER SECTIONS

DATA SHEET OF MODULAR CANTILEVER SECTIONS

Intermediate Cantilever Section of 2'-6" x 5'-9" (762 mm x 1,75 m) (15030087 and 15030010)	**Imperial**	**Metric**
Weight	305 lb	140 kg
Length (see Figure D.1)	2'-6"	762 mm
Width (see Figure D.1)	5'-9"	1,75 m
Height (see Figure D.1)	2'-3"	673 mm
Cantilever Section of 3'-4" x 5'-9" (1,0 m x 1,75 m) (15030098 and 15030021)	**Imperial**	**Metric**
Weight	285 lb	130 kg
Length (see Figure D.1)	3'-4"	1,00 m
Width (see Figure D.1)	5'-9"	1,75 m
Height (see Figure D.1)	2'-3"	673 mm
Intermediate Cantilever Section of 5'-0" x 5'-9" (1,52 m x 1,75 m) (15030188 and 15030199)	**Imperial**	**Metric**
Weight	525 lb	240 kg
Length (see Figure D.1)	5'-0"	1,52 m
Width (see Figure D.1)	5'-9"	1,75 m
Height (see Figure D.1)	2'-3"	673 mm
Cantilever Section of 6'-8" x 5'-9" (2,0 m x 1,75 m) (15030100 and 15030032)	**Imperial**	**Metric**
Weight	595 lb	270 kg
Length (see Figure D.1)	6'-8"	2,00 m
Width (see Figure D.1)	5'-9"	1,75 m
Height (see Figure D.1)	2'-3"	673 mm
Cantilever Section of 10'-0" x 5'-9" (3,0 m x 1,75 m) (15030111 and 15030043)	**Imperial**	**Metric**
Weight	830 lb	375 kg
Length (see Figure D.1)	10'-0"	3,00 m
Width (see Figure D.1)	5'-9"	1,75 m
Height (see Figure D.1)	2'-3"	673 mm
Taper Cantilever Section of 10'-0" x 5'-9" (3,0 m x 1,75 m) (15060013 and 15060024)	**Imperial**	**Metric**
Weight	1 215 lb	550 kg
Length (see Figure D.2)	10'-0"	3,00 m
Width (see Figure D.2)	5'-9"	1,75 m
Height 1 / Height 2 (see Figure D.2)	2'-1" / 3'-4"	622 mm / 1,00 m

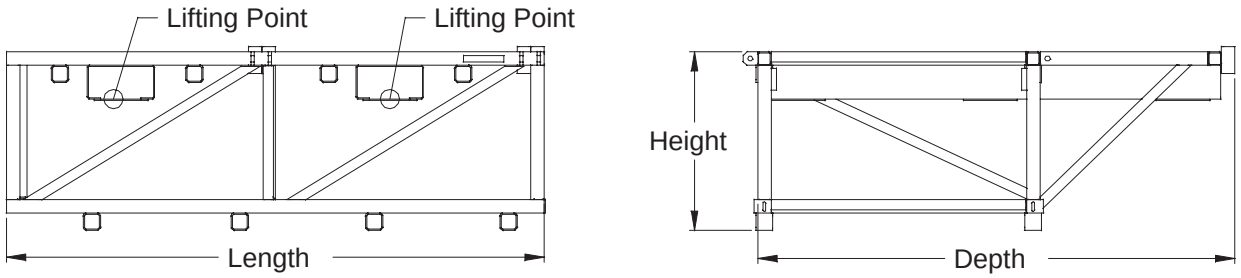


Figure D.1
Dimensions of Modulars Cantilever Section

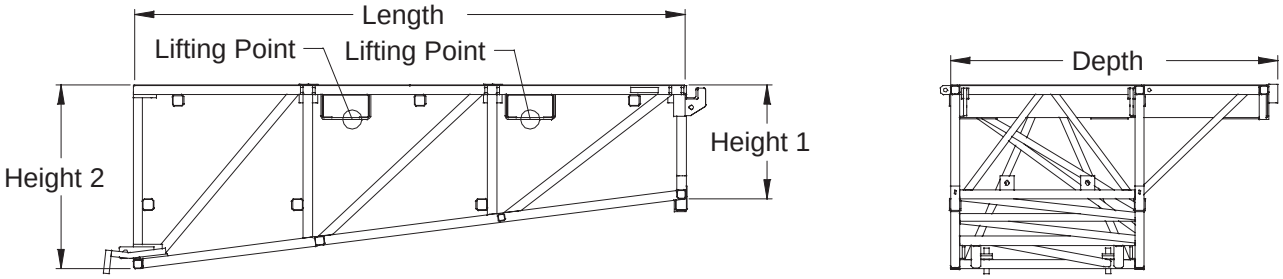


Figure D.2
Dimensions of Modulars Tapper Cantilever Section

DATA SHEET OF NO-MODULAR CANTILEVER SECTIONS

Cantilever Section of 2'-6" x 3'-6" (762 mm x 1,07 m) (15020019)	**Imperial**	**Metric**
Weight	300 lb	135 kg
Length (see Figure D.3)	2'-6"	762 mm
Width (see Figure D.3)	3'-6"	1,07 m
Height (see Figure D.3)	2'-3"	673 mm
Cantilever Section of 3'-4" x 3'-6" (1,0 m x 1,07 m) (15020020)	**Imperial**	**Metric**
Weight	275 lb	125 kg
Length (see Figure D.3)	3'-4"	1,00 m
Width (see Figure D.3)	3'-6"	1,07 m
Height (see Figure D.3)	2'-3"	673 mm
Cantilever Section of 6'-8" x 3'-6" (2,0 m x 1,07 m) (15020031)	**Imperial**	**Metric**
Weight	455 lb	205 kg
Length (see Figure D.3)	6'-8"	2,00 m
Width (see Figure D.3)	3'-6"	1,07 m
Height (see Figure D.3)	2'-3"	673 mm
Cantilever Section of 10'-0" x 3'-6" (3,0 m x 1,07 m) (15020042)	**Imperial**	**Metric**
Weight	640 lb	290 kg
Length (see Figure D.3)	10'-0"	3,00 m
Width (see Figure D.3)	3'-6"	1,07 m
Height (see Figure D.3)	2'-3"	673 mm
Taper Cantilever Section of 10'-0" x 3'-6" (3,0 m x 1,07 m) (15020086)	**Imperial**	**Metric**
Weight	1 000 lb	455 kg
Length (see Figure D.4)	10'-0"	3,00 m
Width (see Figure D.4)	3'-6"	1,07 m
Height 1 / Height 2 (see Figure D.4)	2'-1" / 3'-4"	622 mm / 1,00 m

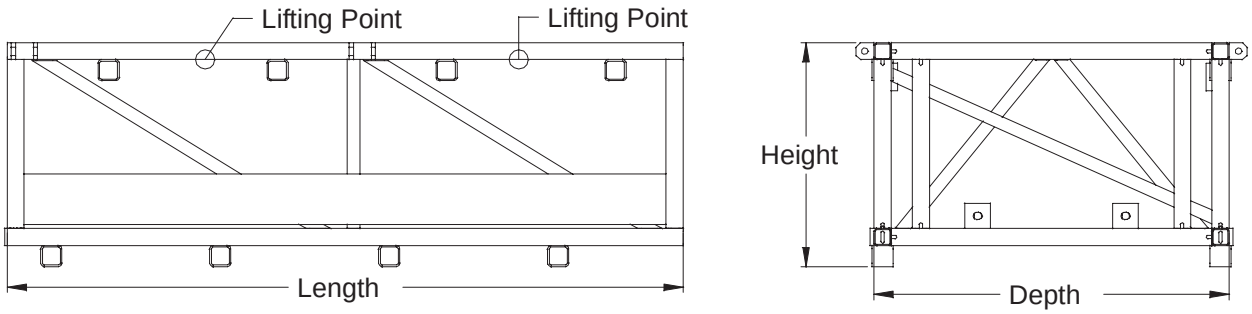


Figure D.3
Dimensions of No-Modulars Cantilever Section

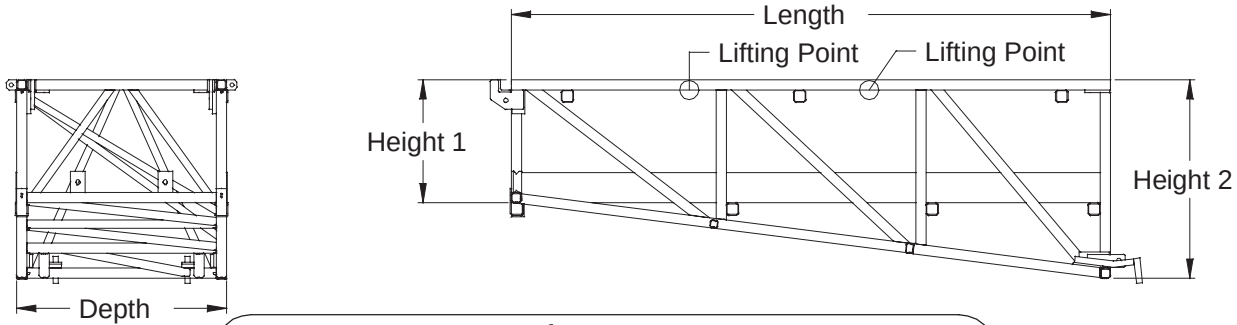


Figure D.4
Dimensions of No-Modulars Tapper Cantilever Section

DATA SHEET OF MODULAR BRIDGE SECTIONS

Bridge Section of 15'-0" x 5'-9" (4,57 m x 1,75 m) (15030166 and 15030177)	**Imperial**	**Metric**
Weight	1 290 lb	585 kg
Length (see Figure D.5)	15'-0"	4,57 m
Width (see Figure D.5)	5'-9"	1,75 m
Height 1 / Height 2 (see Figure D.5)	2'-6" / 3'-2"	762 mm / 953 mm
Bridge Section of 20'-0" x 5'-9" (6,1 m x 1,75 m) (15030144 and 15030155)	**Imperial**	**Metric**
Weight	1 690 lb	770 kg
Length (see Figure D.5)	20'-0"	6,10 m
Width (see Figure D.5)	5'-9"	1,75 m
Height 1 / Height 2 (see Figure D.5)	2'-6" / 3'-2"	762 mm / 953 mm
Center Bridge Section of 20'-0" x 5'-9" (6,1 m x 1,75 m) (15030076)	**Imperial**	**Metric**
Weight	1 660 lb	750 kg
Length (see Figure D.6)	20'-0"	6,10 m
Width (see Figure D.6)	5'-9"	1,75 m
Height 1 / Height 2 (see Figure D.6)	3'-2" / 3'-9"	953 mm / 1,14 m

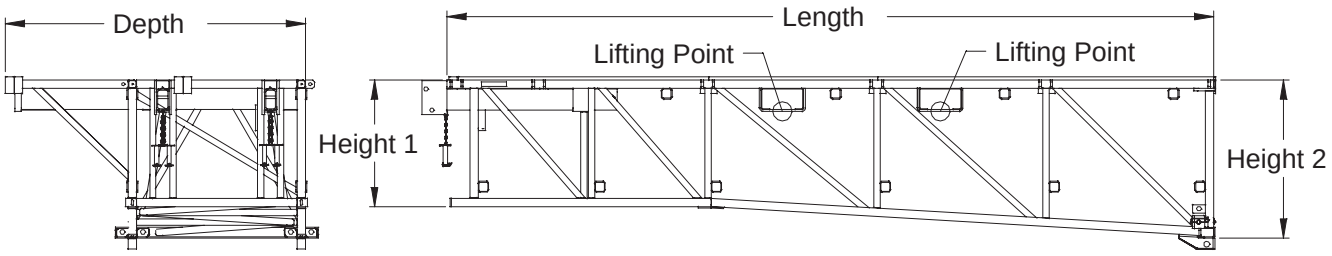


Figure D.5
Dimensions of Modular Bridge Section

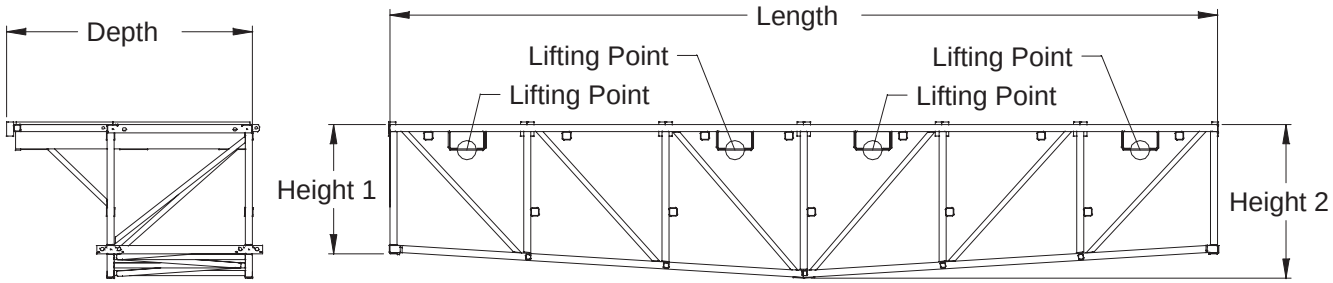


Figure D.6
Dimensions of Modular Central Bridge Section

DATA SHEET OF NO-MODULAR BRIDGE SECTIONS

Bridge Section of 15'-0" x 3'-6" (4,57 m x 1,07 m) (15020097)	**Imperial**	**Metric**
Weight	1 200 lb	545 kg
Length (see Figure D.7)	15'-0"	4,57 m
Width (see Figure D.7)	3'-6"	1,07 m
Height 1 / Height 2 (see Figure D.7)	2'-6" / 3'-2"	762 mm / 953 mm
Bridge Section of 20'-0" x 3'-6" (6,1 m x 1,07 m) (15020109)	**Imperial**	**Metric**
Weight	1 425 lb	645 kg
Length (see Figure D.7)	20'-0"	6,10 m
Width (see Figure D.7)	3'-6"	1,07 m
Height 1 / Height 2 (see Figure D.7)	2'-6" / 3'-2"	762 mm / 953 mm
Center Bridge Section of 20'-0" x 3'-6" (6,1 m x 1,07 m) (15020075)	**Imperial**	**Metric**
Weight	1 350 lb	615 kg
Length (see Figure D.8)	20'-0"	6,10 m
Width (see Figure D.8)	3'-6"	1,07 m
Height 1 / Height 2 (see Figure D.8)	3'-2" / 3'-9"	953 mm / 1,1 m

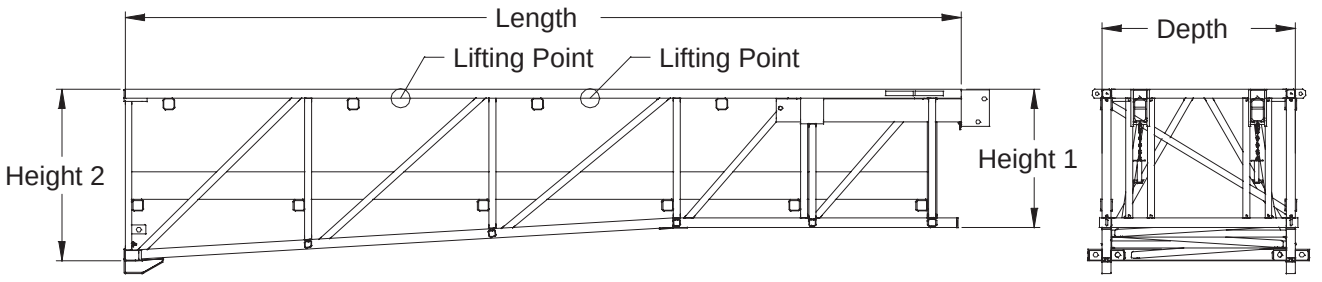


Figure D.7
Dimensions of No-Modular Bridge Section

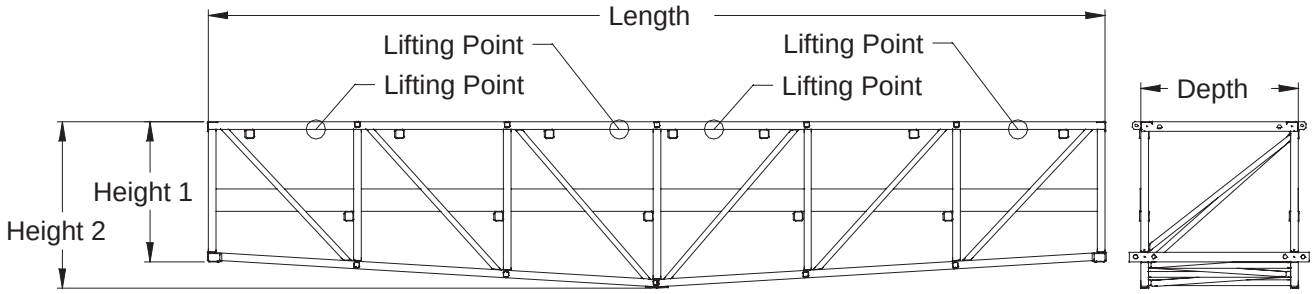


Figure D.8
Dimensions of No-Modular Central Bridge Section

INSTALLATION OF BRIDGE SECTIONS

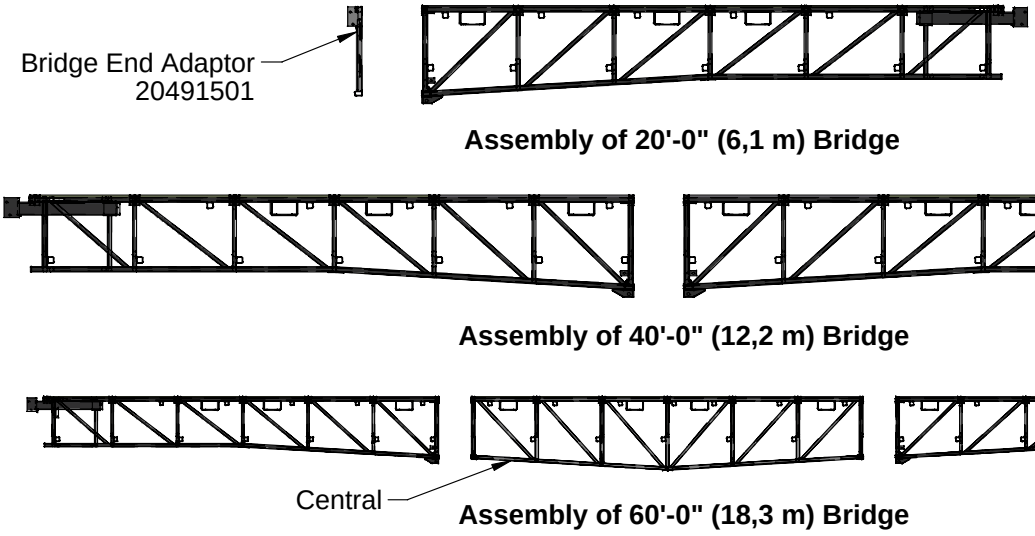
Step 1 (see Figure D.9)

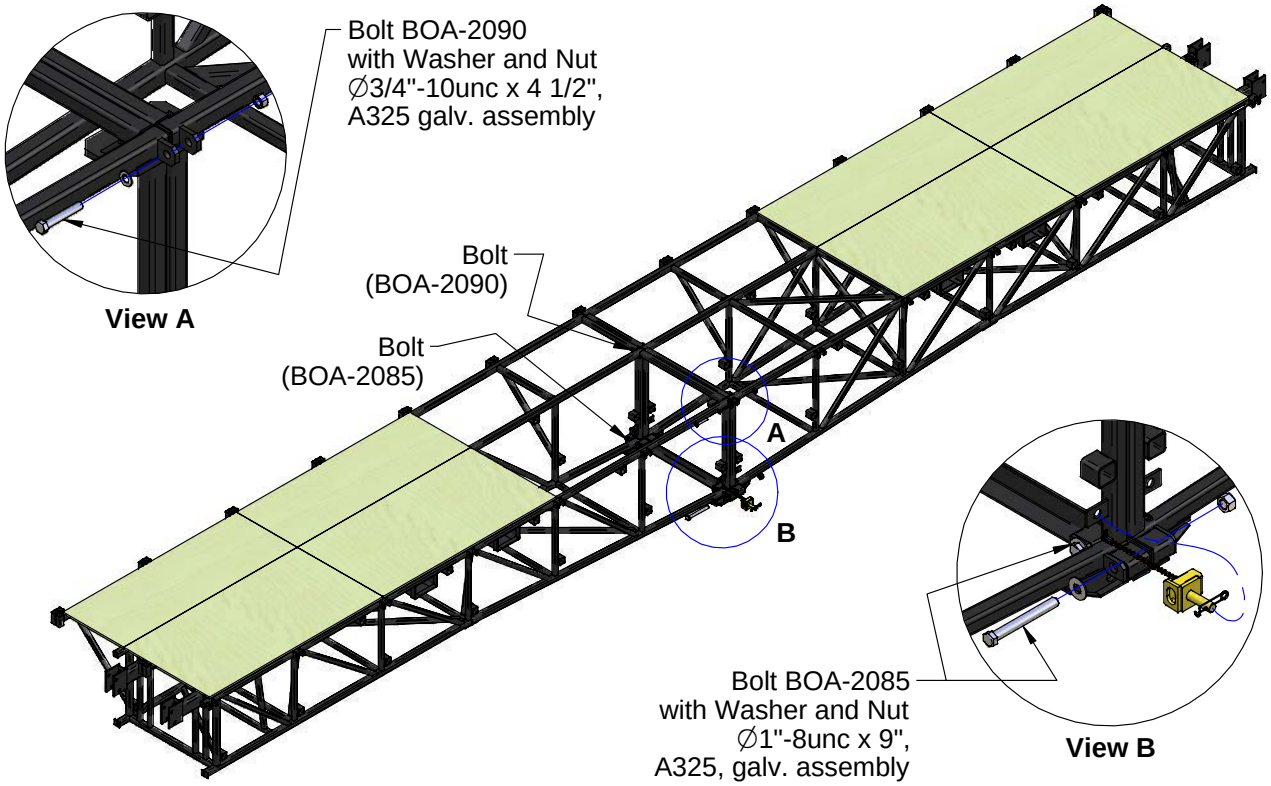
1- Bolt the bridge sections together using four (4) bolts BOA-2085 at the bottom (see View B) and two (2) bolts BOA-2090 at the top. (see View A)

2- Place the pin with chain through the plate with holes.

Note :

- The following three (3) drawings demonstrate the assembly of each bridge.





1 Figure D.9

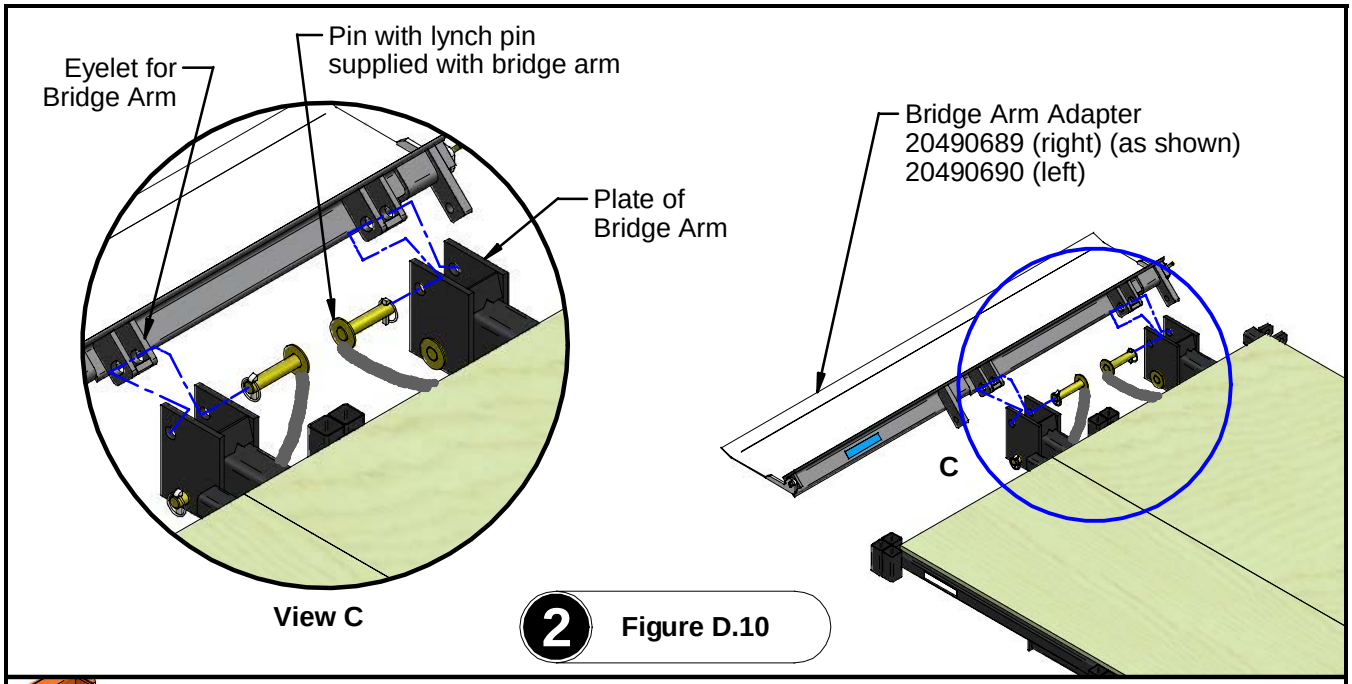
INSTALLATION OF BRIDGE SECTIONS (CONTINUED)

Step 2 (see Figure D.10 and View C)

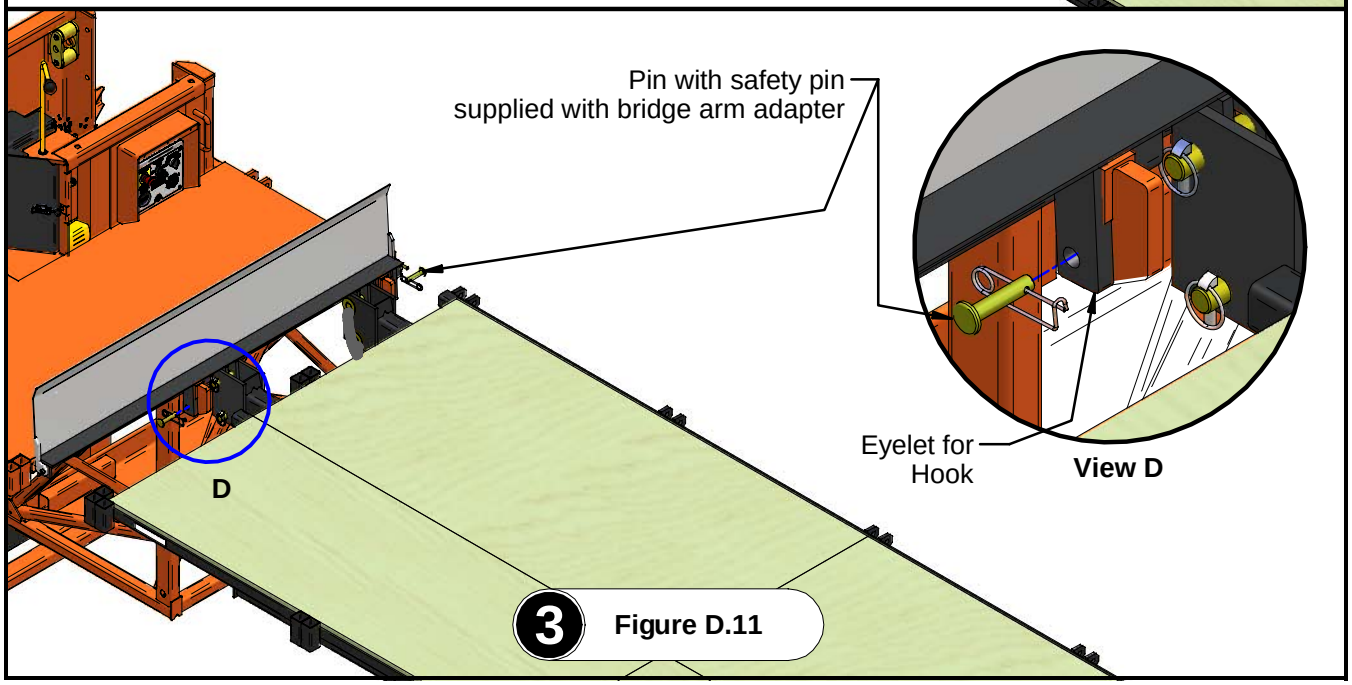
3- Install the eyelets for bridge arm into the plates of bridge arm.
4- Place the pins in the top hole from the bridge arm and block the pins with the lynch pin.
5- Place the other pins in the bottom hole of the bridge arm and block the pins with the lynch pin.

Step 3 (see Figure D.11 and View D)

6- Place the pins in every eyelets for hook and block the pins with the safety pin.



2 **Figure D.10**



3 **Figure D.11**

INSTALLATION OF BRIDGE SECTIONS (CONTINUED)

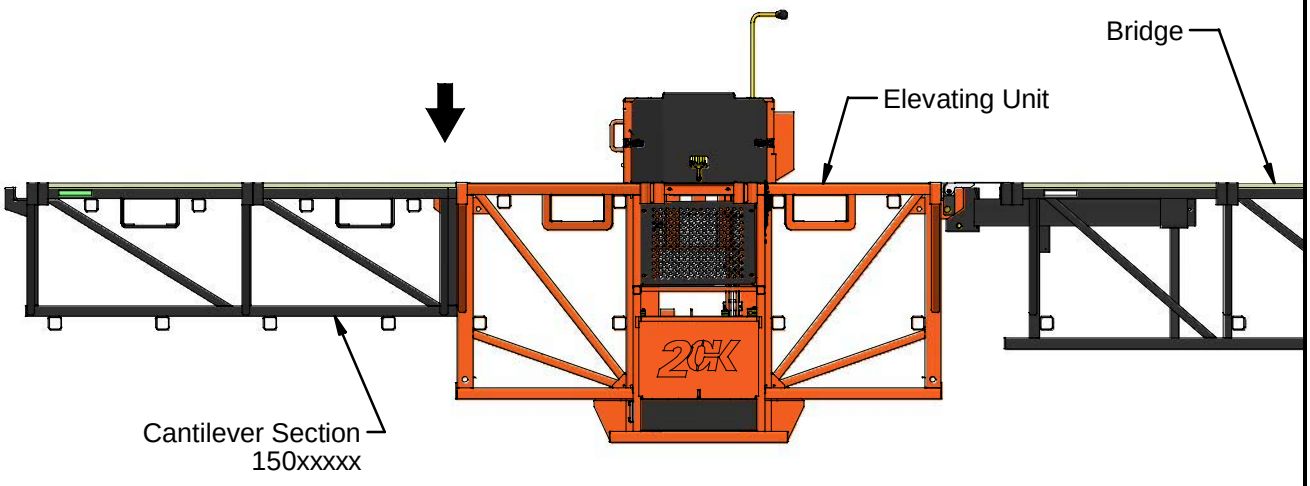
Step 4 (see Figure D.12)

7- Position and bolt the cantilever section to the opposite side of the bridge. (consult the pages D-10 to D-12 for more information)

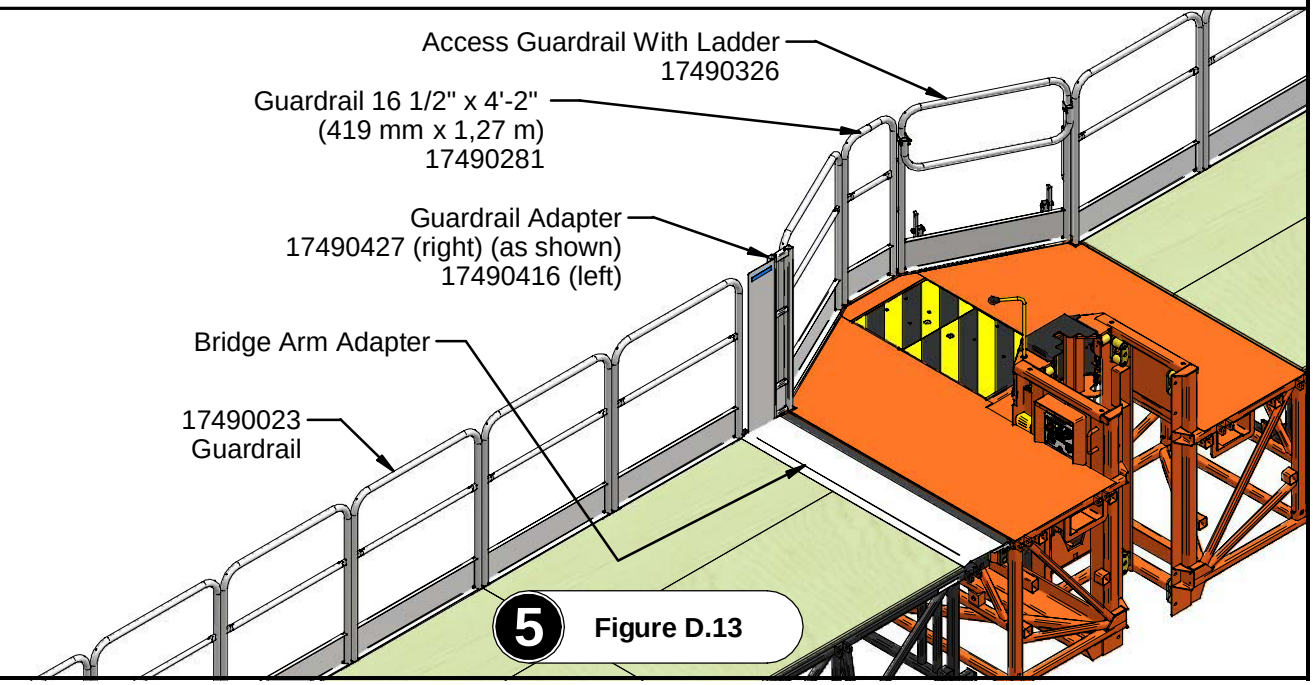
Step 5 (see Figure D.13)

8- Place all guardrails.

9- Place the guardrail adapter in the pocket of the elevating unit.



4 **Figure D.12**



5 **Figure D.13**

INSTALLATION OF INTERMEDIATE CANTILEVER SECTIONS

Choice of Intermediate (see Figure D.14)

- For the installation on the elevating unit, see follow page for the installation of cantilever section.
- For the installation on the bridge section, insert the first pin in the top hole of the bridge arm.
- Drop the bridge arm on the hooks of the intermediate cantilever section.
- Insert the second pin in the bottom hole of the bridge arm.

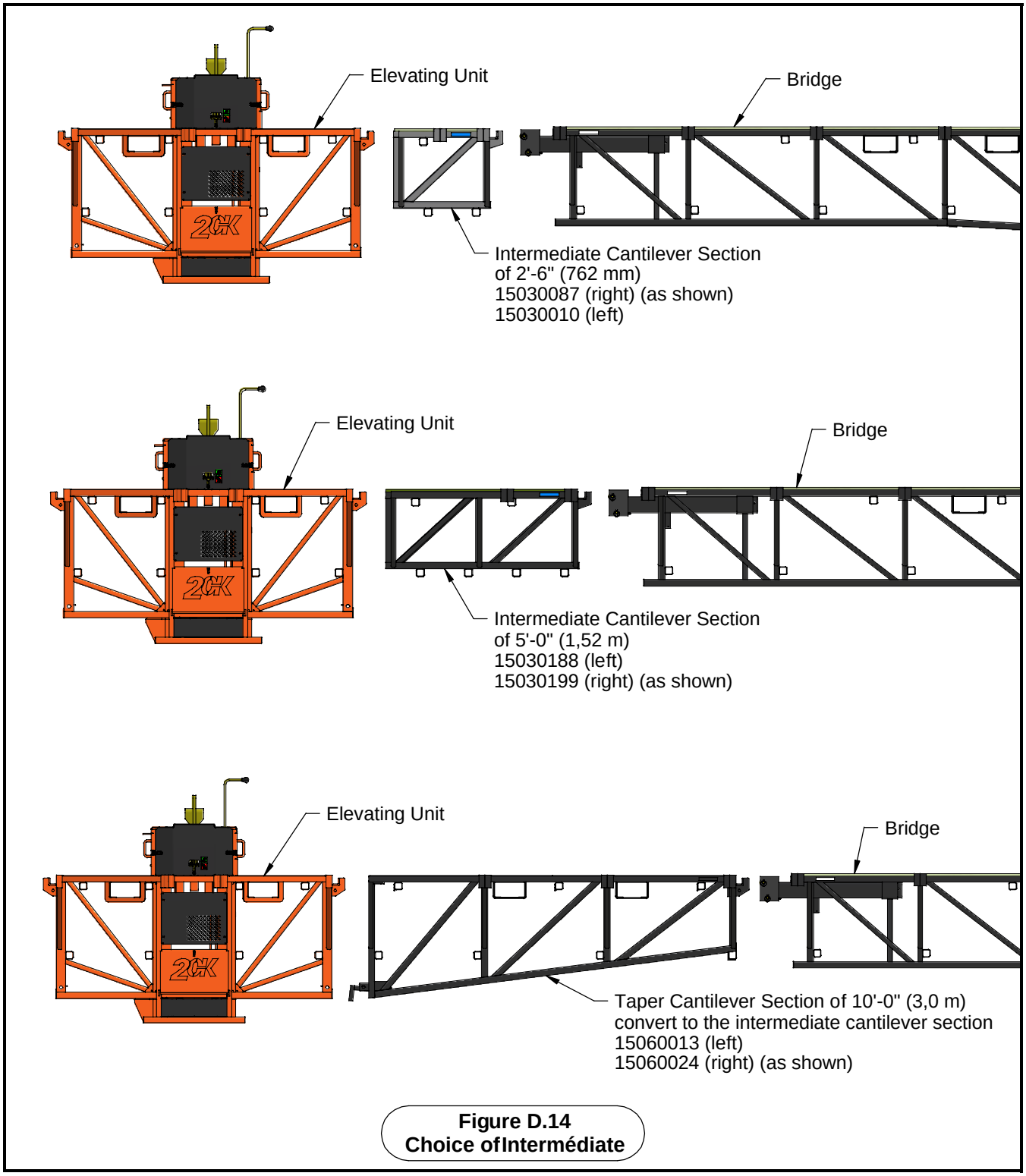


Figure D.14
Choice ofIntermédiate

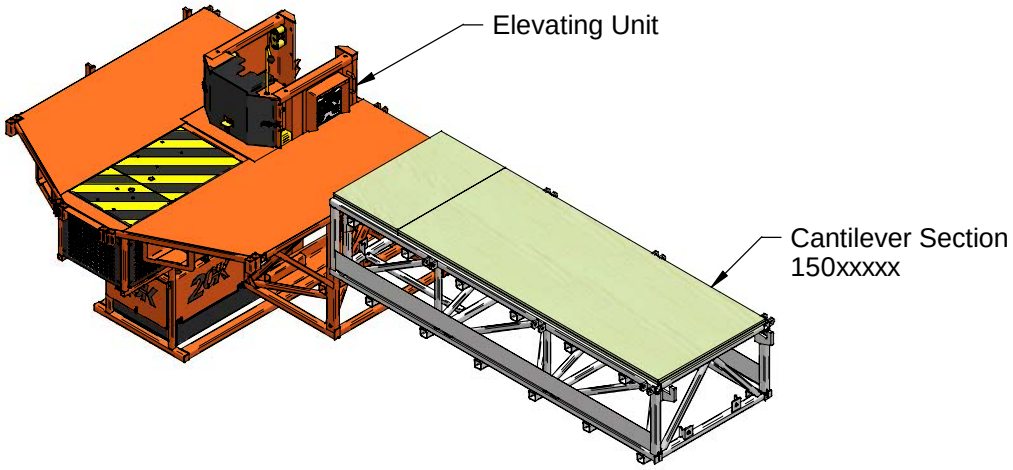
INSTALLATION OF NO-MODULAR CANTILEVER SECTIONS

Step 1 (see Figure D.15)

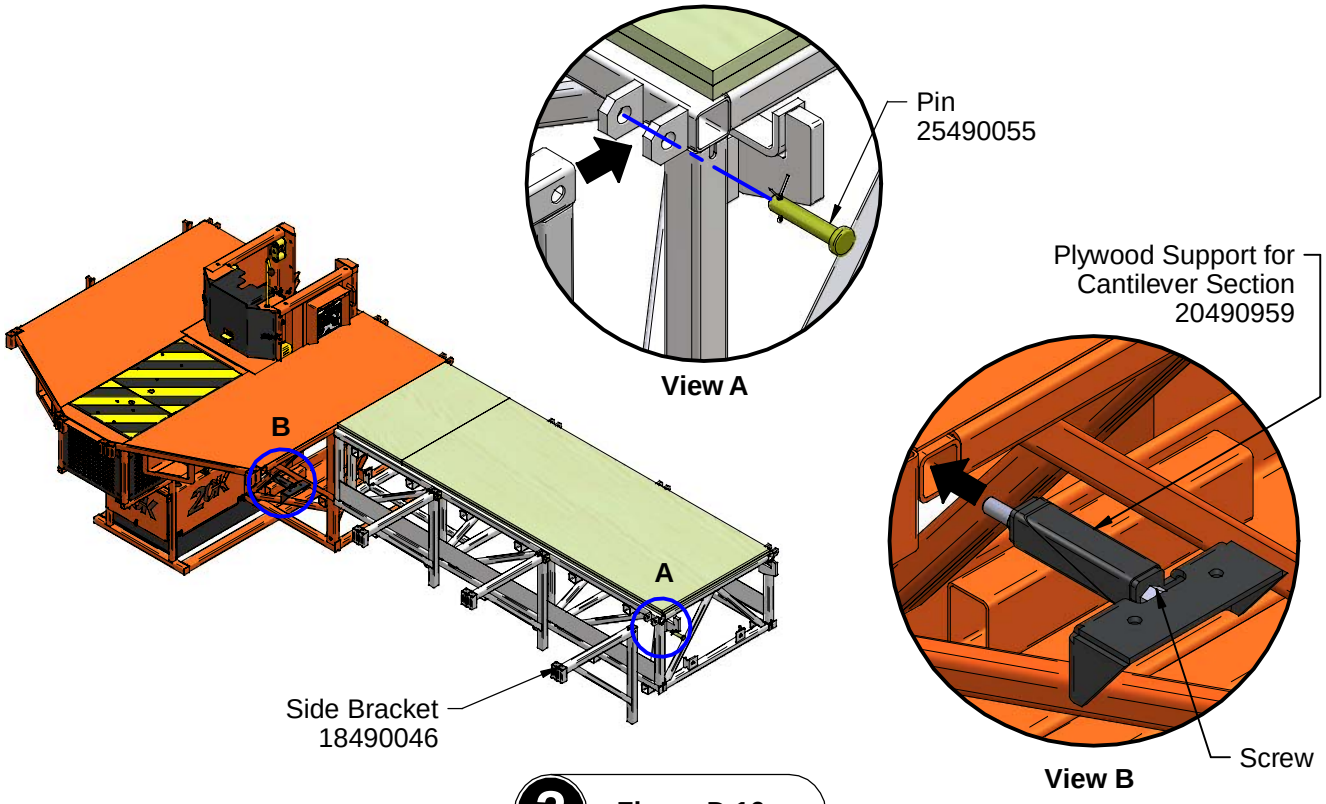
10- Position and bolt the cantilever section. (see page D-12)

Step 2 (see Figure D.16)

11- Place each side bracket in its adaptor.
12- Secure the side bracket using a pin and cotter pin. (see View A)
13- Insert the plywood support for cantilever section into the structure of the elevating unit. (see View B)
14- Tighten the screw for to block the plywood support for cantilever section.



1 **Figure D.15**

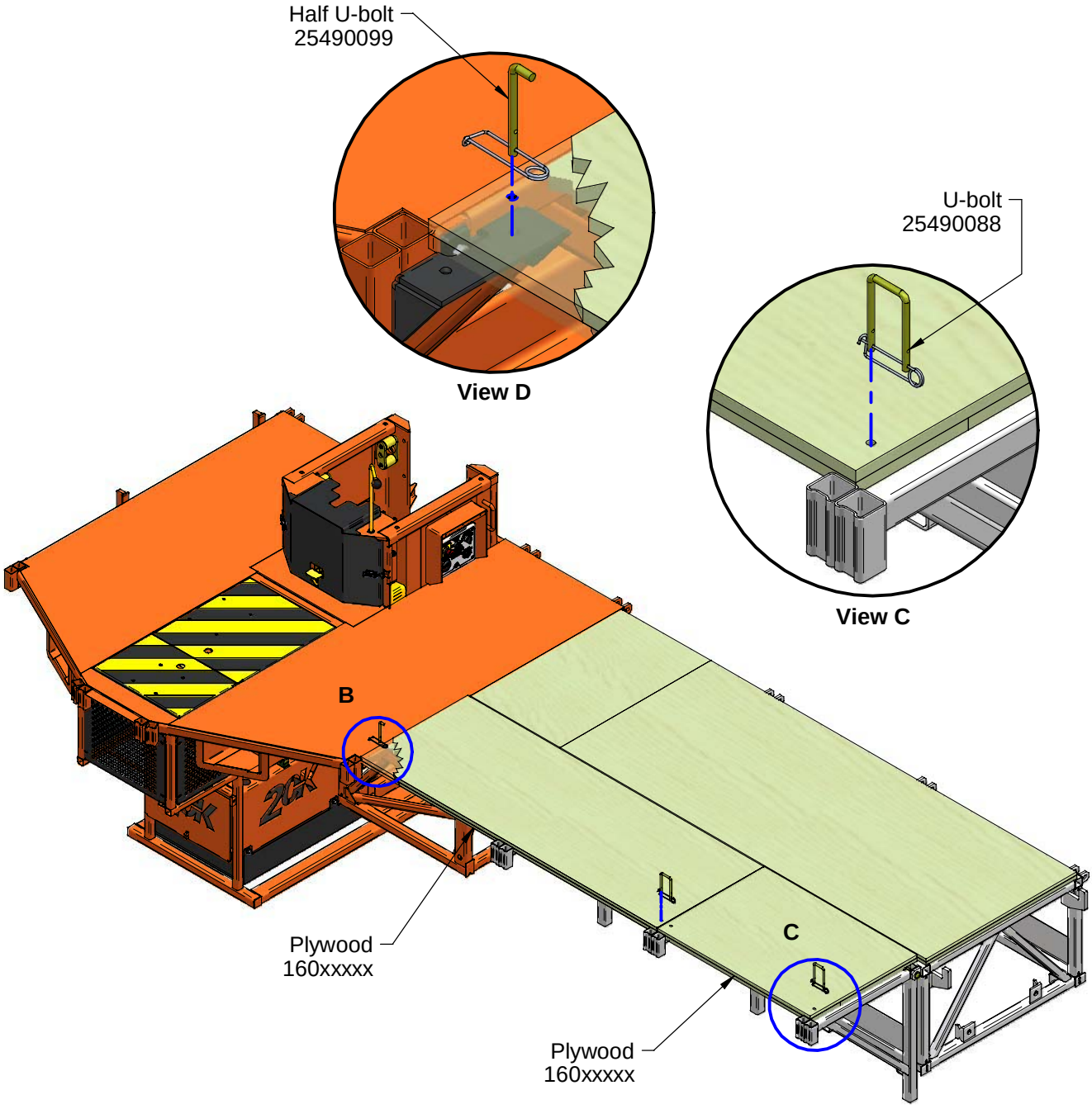


2 **Figure D.16**

INSTALLATION OF NO-MODULAR CANTILEVER SECTIONS (CONTINUED)

Step 3 (see Figure D.17)

15- Place the plywood on the side brackets.
16- Block the plywood with the U-bolts (see View C) or half U-bolts (see View D)
17- Block the U-bolt or half U-bolts with the safety pin.



3 **Figure D.17**

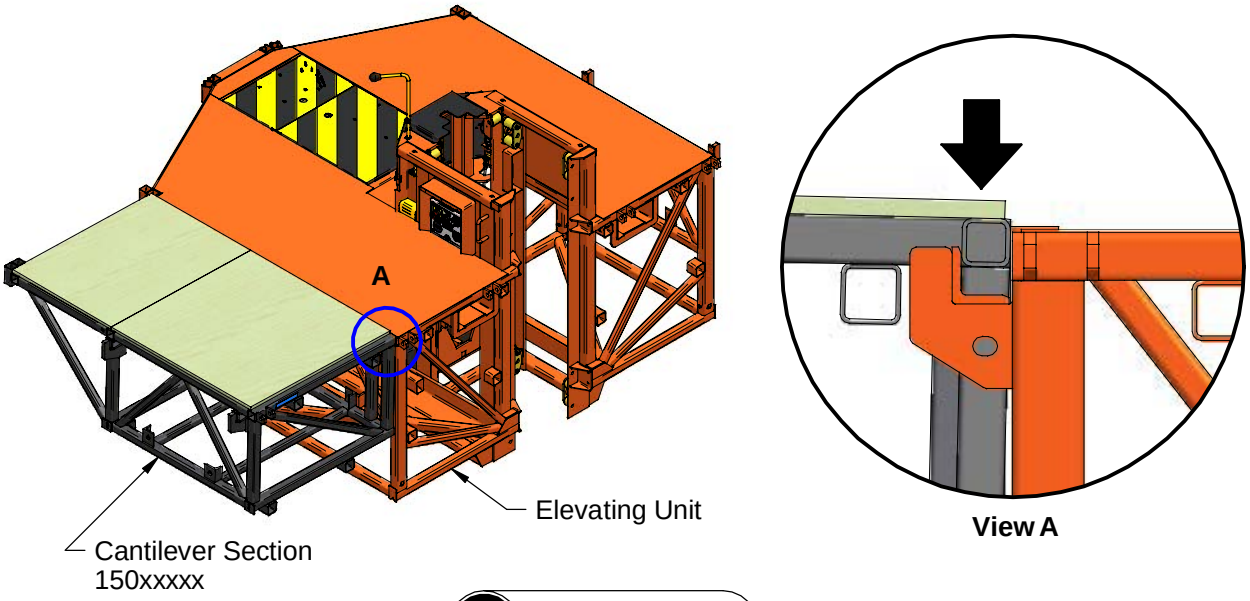
INSTALLATION OF MODULAR CANTILEVER SECTIONS

Step 1 (see Figure D.18 and View A)

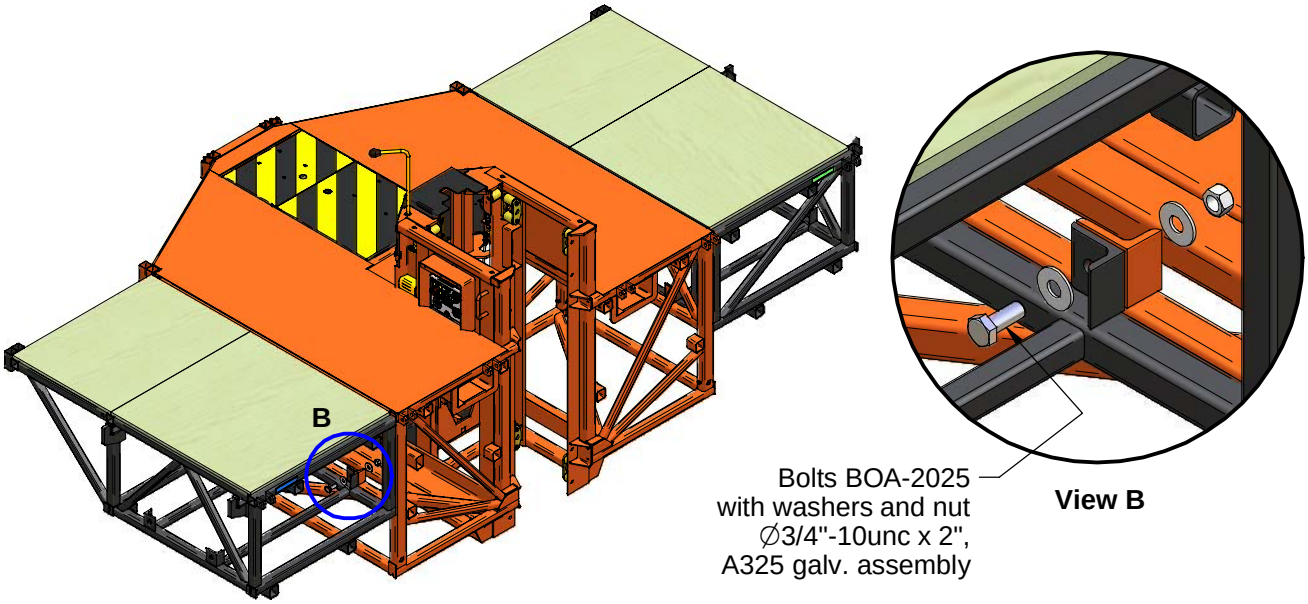
18- Drop the cantilever sections on the hooks of the elevating unit or on the other cantilever section.

Step 2 (see Figure D.19 and View B)

19- Bolt the cantilever sections to the elevating unit or bolt the cantilever section between it with the help of two (2) bolts BOA-2025.



1 **Figure D.18**



2 **Figure D.19**

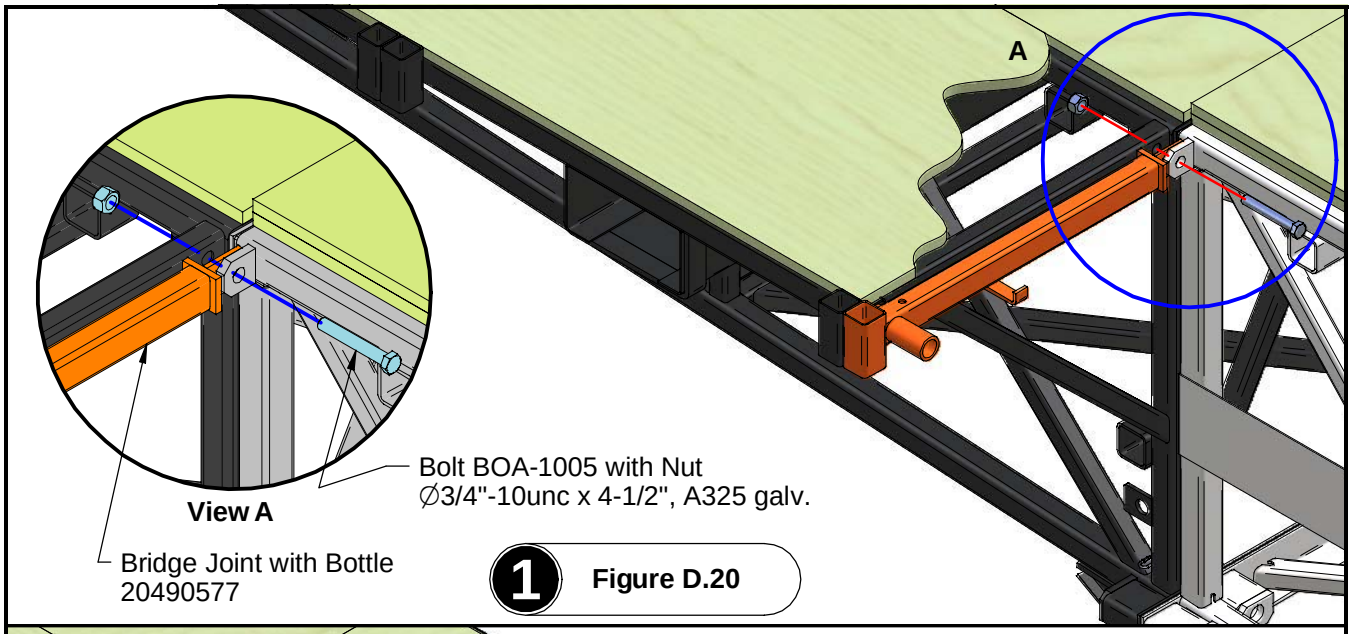
INSTALLATION OF MODULAR BRIDGE JOINT

Step 1 (see Figure D.20)

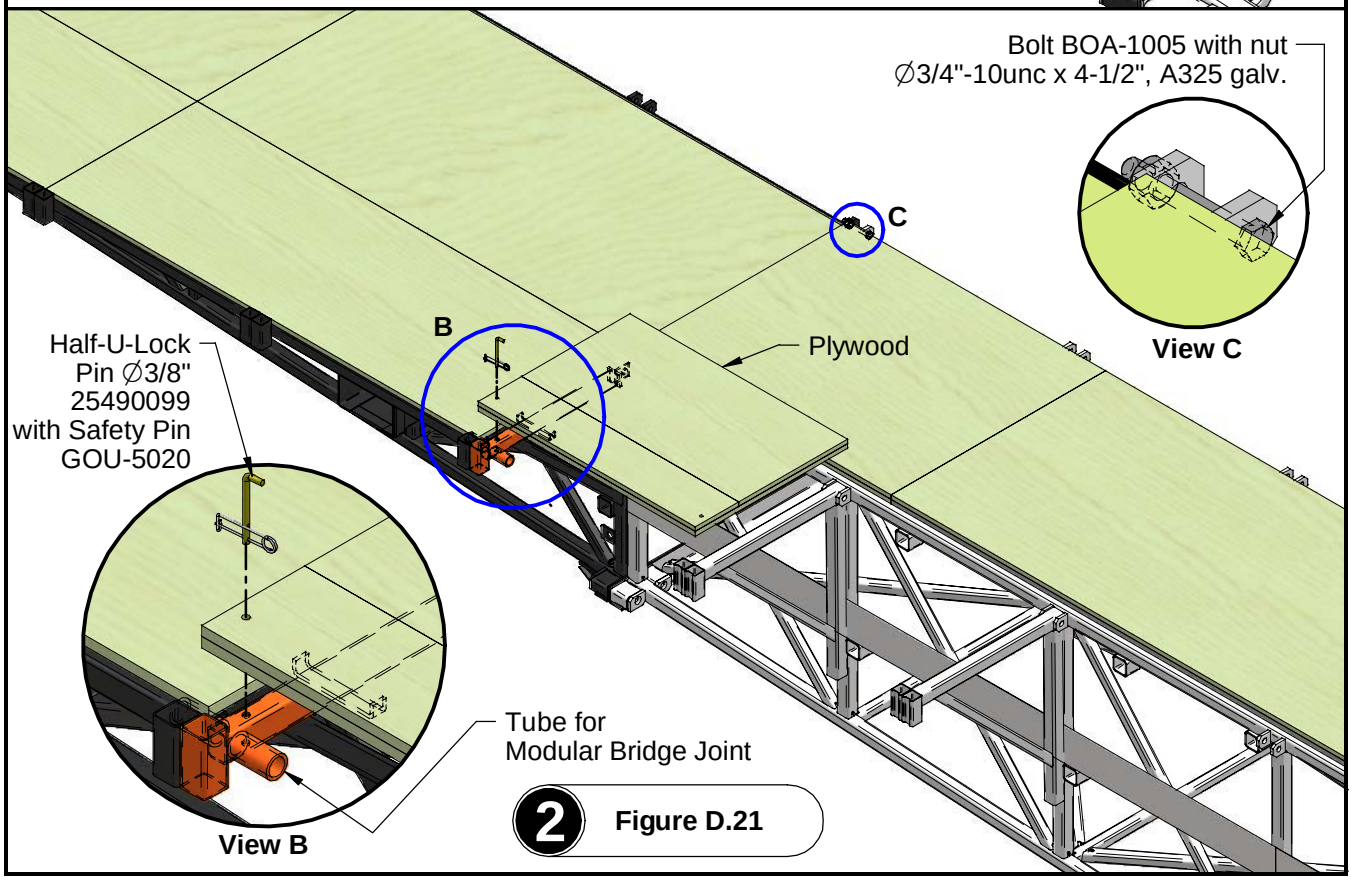
20- Install the bridge joint with bottle into the eyelets of the platform with one (1) bolt BOA-1005. (see View A)
21- Introduce the tube for modular bridge joint into the frame of the modular bridge section.

Step 2 (see Figure D.21)

22- Bolt the bridge section into the eyelets behind the two bridge section with bolts BOA-1005. (see View C)
23- Install the side bracket into each eyelets of the platform.
24- Place the plywood and insert the half-U-lock pin through the plywood, side bracket and modular bridge section. (see View B)



1 **Figure D.20**



2 **Figure D.21**

DISTANCE BETWEEN MAST

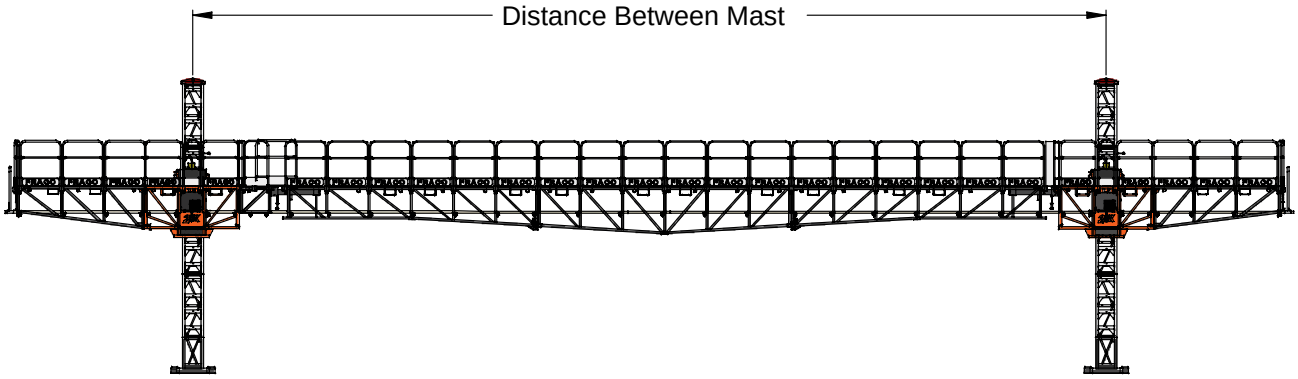


Figure D.22
Distance Between Mast

Minimal Distance Between Mast (Bridge of 20'-0" (6,1 m))	Imperial	Metric
Without intermediate section	28'-5 3/8"	8,67 m
With one intermediate section of 2'-6" (762 mm)	30'-11 3/8"	9,43 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	33'-5 3/8"	10,19 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	35'-11 3/8"	10,96 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	38'-5 3/8"	11,72 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	40'-11 3/8"	12,48 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	43'-5 3/8"	13,24 m
With two (2) intermediate section of 10'-0" (3,0 m)	48'-5 3/8"	14,77 m
Minimal Distance Between Mast (Bridge of 40'-0" (12,2 m)). Remove 10'-0" (3 m) from overall for bridge 30'-0" (9,1 m)	**Imperial**	**Metric**
Without intermediate section	48'-1 1/2"	14,67 m
With one intermediate section of 2'-6" (762 mm)	50'-7 1/2"	15,43 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	53'-1 1/2"	16,19 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	55'-7 1/2"	16,95 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	58'-1 1/2"	17,72 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	60'-7 1/2"	18,48 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	63'-1 1/2"	19,24 m
With two (2) intermediate section of 10'-0" (3,0 m)	68'-1 1/2"	20,76 m
Minimal Distance Between Mast (Bridge of 60'-0" (18,3 m)). Remove 10'-0" (3 m) from overall for bridge 50'-0" (15,2 m)	**Imperial**	**Metric**
Without intermediate section	68'-1 1/2"	20,76 m
With one intermediate section of 2'-6" (762 mm)	70'-7 1/2"	21,53 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	73'-1 1/2"	22,29 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	75'-7 1/2"	23,05 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	78'-1 1/2"	23,81 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	80'-7 1/2"	24,57 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	83'-1 1/2"	25,34 m
With two (2) intermediate section of 10'-0" (3,0 m)	88'-1 1/2"	26,86 m

DISTANCE BETWEEN MAST (CONTINUED)

Standard Distance Between Mast (Bridge of 20'-0" (6,1 m))	Imperial	Metric
Without intermediate section	28'-8"	8,75 m
With one intermediate section of 2'-6" (762 mm)	31'-2"	9,50 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	33'-8"	10,25 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	36'-2"	11,00 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	38'-8"	11,80 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	41'-2"	12,55 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	43'-8"	13,30 m
With two (2) intermediate section of 10'-0" (3,0 m)	48'-8"	14,85 m
Standard Distance Between Mast (Bridge of 40'-0" (12,2 m)). Remove 10'-0" (3 m) from overall for bridge 30'-0" (9,1 m)	**Imperial**	**Metric**
Without intermediate section	48'-9"	14,85 m
With one intermediate section of 2'-6" (762 mm)	51'-3"	15,65 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	53'-9"	16,40 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	56'-3"	17,15 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	58'-9"	17,90 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	61'-3"	18,65 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	63'-9"	19,45 m
With two (2) intermediate section of 10'-0" (3,0 m)	68'-9"	21,00 m
Standard Distance Between Mast (Bridge of 60'-0" (18,3 m)). Remove 10'-0" (3 m) from overall for bridge 50'-0" (15,2 m)	**Imperial**	**Metric**
Without intermediate section	68'-9"	20,95 m
With one intermediate section of 2'-6" (762 mm)	71'-3"	21,75 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	73'-9"	22,50 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	76'-3"	23,25 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	78'-9"	24,00 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	81'-3"	24,75 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	83'-9"	25,55 m
With two (2) intermediate section of 10'-0" (3,0 m)	88'-9"	27,05 m

Maximal Distance Between Mast (Bridge of 20'-0" (6,1 m))	Imperial	Metric
Without intermediate section	28'-10 3/4"	8,81 m
With one intermediate section of 2'-6" (762 mm)	31'-4 3/4"	9,57 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	33'-10 3/4"	10,33 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	36'-4 3/4"	11,09 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	38'-10 3/4"	11,86 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	41'-4 3/4"	12,62 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	43'-10 3/4"	13,38 m
With two (2) intermediate section of 10'-0" (3,0 m)	48'-10 3/4"	14,90 m
Maximal Distance Between Mast (Bridge of 40'-0" (12,2 m)). Remove 10'-0" (3 m) from overall for bridge 30'-0" (9,1 m)	**Imperial**	**Metric**
Without intermediate section	49'-4 1/4"	15,04 m
With one intermediate section of 2'-6" (762 mm)	51'-10 1/4"	15,81 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	54'-4 1/4"	16,57 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	56'-10 1/4"	17,33 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	59'-4 1/4"	18,09 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	61'-10 1/4"	18,85 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	64'-4 1/4"	19,62 m
With two (2) intermediate section of 10'-0" (3,0 m)	69'-4 1/4"	21,14 m
Maximal Distance Between Mast (Bridge of 60'-0" (18,3 m)). Remove 10'-0" (3 m) from overall for bridge 50'-0" (15,2 m)	**Imperial**	**Metric**
Without intermediate section	69'-4 1/4"	21,14 m
With one intermediate section of 2'-6" (762 mm)	71'-10 1/4"	21,90 m
With two (2) intermediate section of 2'-6" (762 mm) or one intermediate section of 5'-0" (1,52 m)	74'-4 1/4"	22,66 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 5'-0" (1,52 m)	76'-10 1/4"	23,43 m
With two (2) intermediate section of 5'-0" (1,52 m) or one intermediate section of 10'-0" (3,0 m)	79'-4 1/4"	24,19 m
With one intermediate section of 2'-6" (762 mm) and one intermediate section of 10'-0" (3,0 m)	81'-10 1/4"	24,95 m
With one intermediate section of 5'-0" (1,52 m) and one intermediate section of 10'-0" (3,0 m)	84'-4 1/4"	25,71 m
With two (2) intermediate section of 10'-0" (3,0 m)	89'-4 1/4"	27,24 m

INSTALLATION OF INCLINOMETER

Step 1 (see Figure D.23)

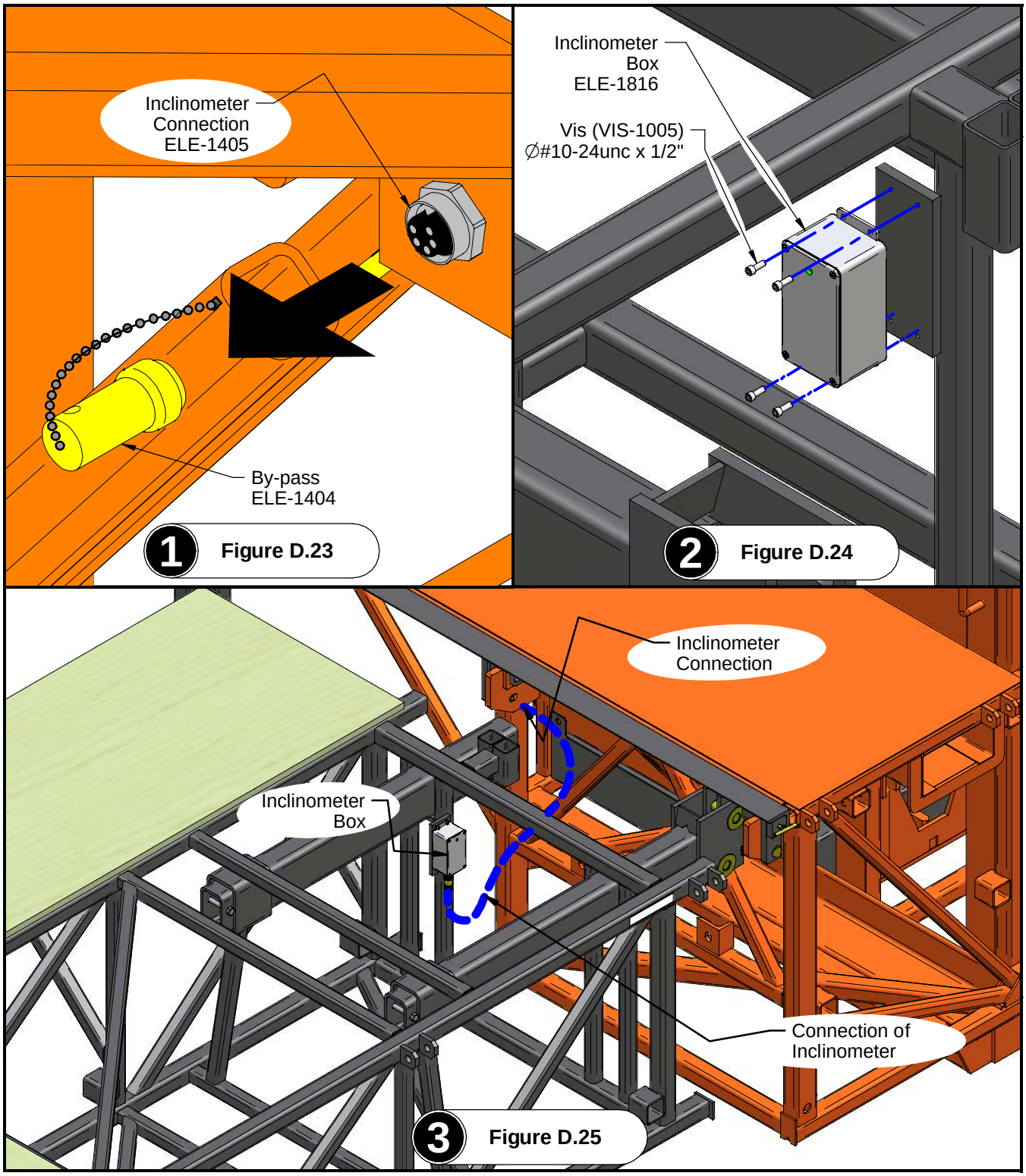
25- Remove the derivation circuit.

Step 2 (see Figure D.24)

26- Screw the inclinometer box to the inclinometer plate.
27- The connection points must face downwards.

Step 3 (see Figure D.25)

28- Connect the inclinometer box to the connection using the cable.



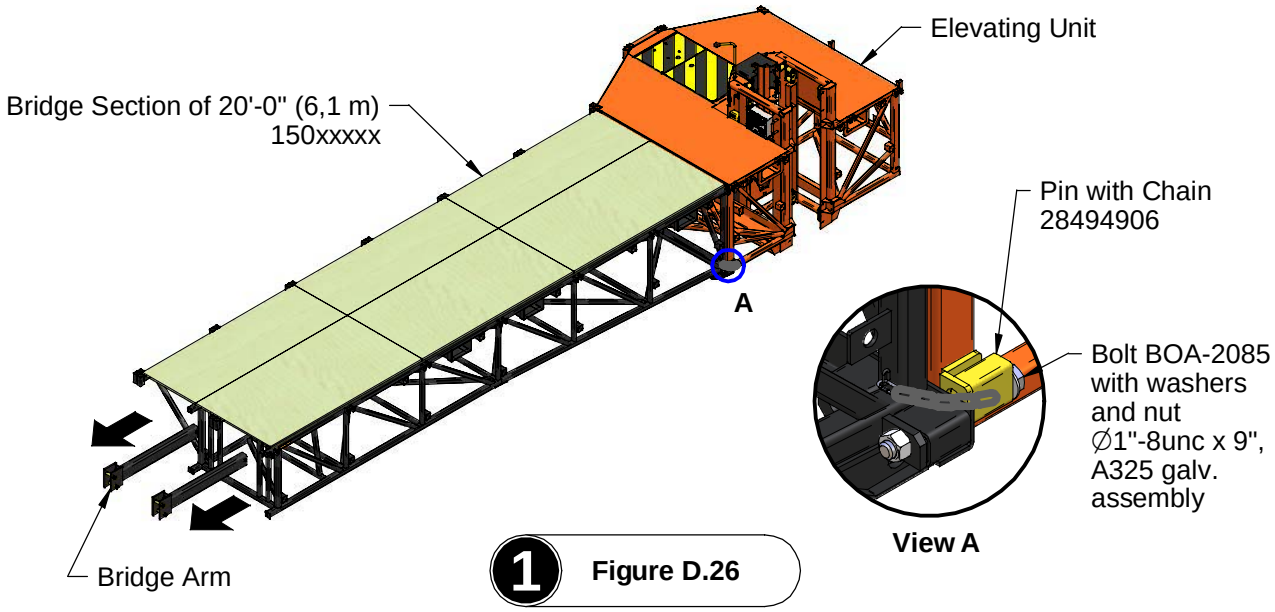
INSTALLATION OF BRIDGE SECTION IN CANTILEVER SECTION

Step 1 (see Figure D.26)

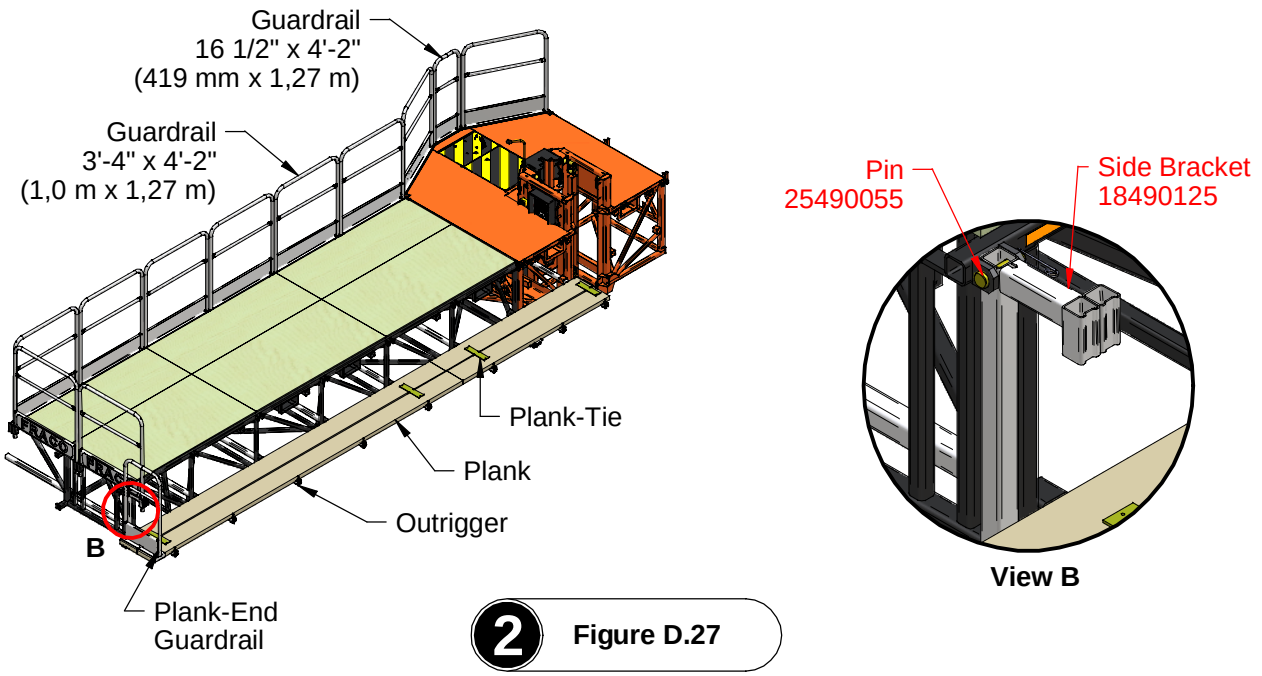
29- Install the bridge section on the hooks of the elevating unit.
30- Remove the bridge arms.
31- Place the pin with chain in such a way so that the oval hole faces the bridge section. Then, bolt the pin to the bridge section using two (2) bolts BOA-2085.

Step 2 (see Figure D.27)

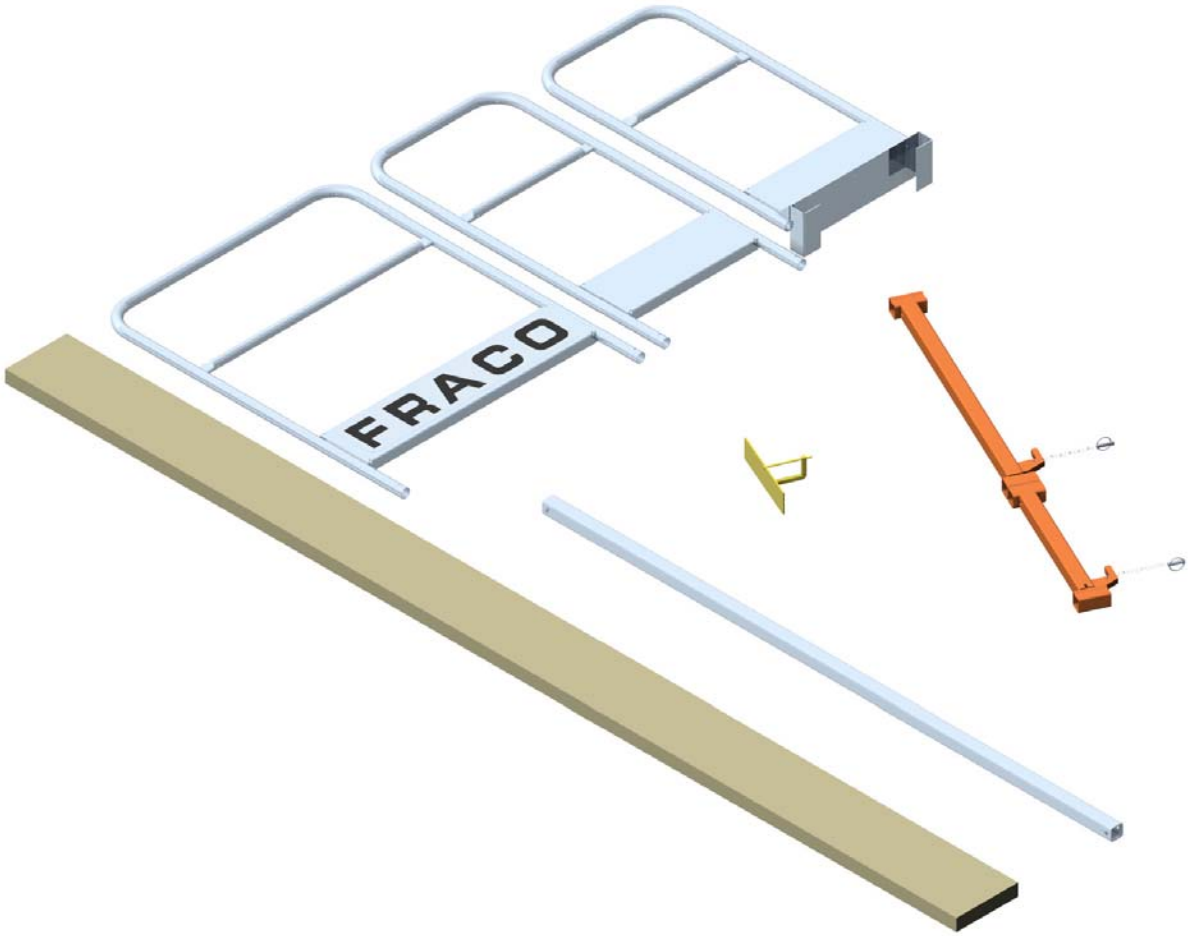
32- Install the side bracket to the bridge section with pin and safety pin. (see View B)
33- Install the outriggers, the guardrails, the planks, plank-ties and the plank-end guardrails.



1 **Figure D.26**



2 **Figure D.27**



CHAPTER E

ACCESSORIES

DATA SHEET OF ACCESSORIES

Guardrail 3’-4” x 4’-2” (1,0 m x 1,27 m) (17490023)	**Imperial**	**Metric**
Weight	31 lb	14,1 kg
Guardrail 16 1/2” x 4’-2” (419 mm x 1,27 m) (17490281)	**Imperial**	**Metric**
Weight	18 lb	8,1 kg
Access Guardrail with Ladder 3’-4” x 4’-2” (1,0 m x 1,27 m) (17490326)	**Imperial**	**Metric**
Weight	292 lb	132 kg
Extensible Guardrail 3'-4" x 3'-7" (1,0 m x 1,10 m) (17490034)	**Imperial**	**Metric**
Weight	30 lb	13,6 kg
Plank-End Guardrail 21” x 3’-6” (533 mm x 1,07 m) (17490045)	**Imperial**	**Metric**
Weight	26 lb	11,8 kg
Guardrail Pockets Support (20490195)	**Imperial**	**Metric**
Weight	21 lb	9,5 kg
Outrigger 3/16” x 2" x 2" x 7'-8" (5 mm x 51 mm x 51 mm x 2,34 m) (19010023)	**Imperial**	**Metric**
Weight	33 lb	15,0 kg
Outrigger 3/16” x 2" x 2" x 8'-8" (5 mm x 51 mm x 51 mm x 2,64 m) (19010034)	**Imperial**	**Metric**
Weight	37 lb	16,6 kg
Outrigger 3/16” x 2" x 2" x 10'-6" (5 mm x 51 mm x 51 mm x 3,2 m) (19010045)	**Imperial**	**Metric**
Weight	45 lb	20,5 kg
Outrigger 3/16” x 2" x 2" x 13'-6" (5 mm x 51 mm x 51 mm x 4,11 m) (19010056)	**Imperial**	**Metric**
Weight	55 lb	25,0 kg
Outrigger-End Guardrail 4’-3” (1,30 m) (17490067)	**Imperial**	**Metric**
Weight	12 lb	5,4 kg
« L » Work Area Guardrail (17490056)	**Imperial**	**Metric**
Weight	7,5 lb	3,4 kg
Handrail 1 1/2" x 1 1/2" x 4'-0" (38,1 mm x 38,1 mm x 1,2 m) (20490230)	**Imperial**	**Metric**
Weight	7,2 lb	3,3 kg
Handrail 1 1/2" x 1 1/2" x 8'-0" (38,1 mm x 38,1 mm x 2,4 m) (20490241)	**Imperial**	**Metric**
Weight	14 lb	6,4 kg
Junction Tube 1 1/4" x 1 1/4" x 30" (31,8 mm x 31,8 mm x 762 mm) (20490353)	**Imperial**	**Metric**
Weight	4,4 lb	2,0 kg
ACT Descent Limiting Device (20490768)	**Imperial**	**Metric**
Weight	48 lb	21,7 kg

INSTALLATION OF GUARDRAIL POCKET SUPPORT AND GUARDRAIL

Step 1 (see Figure E.1)

1- Insert the guardrail pocket support into the cantilever section's hooks.

Step 2 (see Figure E.2)

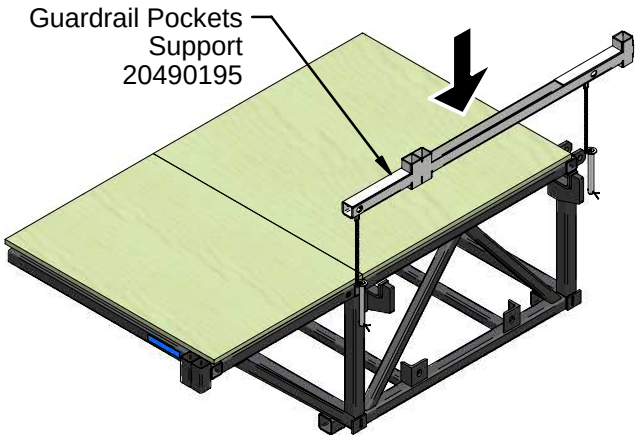
2- Fix guardrail pocket support with the pin. (see View A)

Step 3 (see Figure E.3)

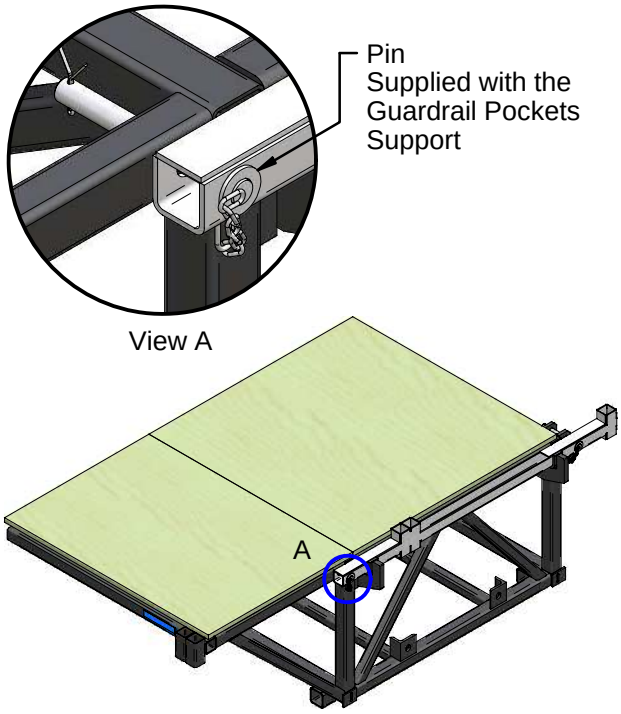
3- Install guardrails into the guardrail pockets and into the guardrail pocket supports.

4- Insert a safety pin GOU-5020 with chain at each guardrails. (CE only) (see View B)

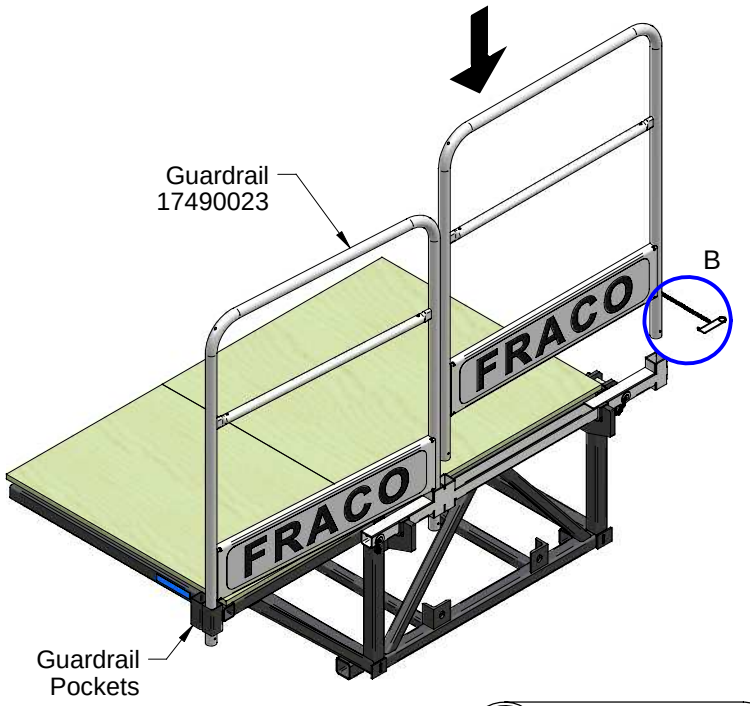
5- Place the guardrails wherever there might be a risk of falling.

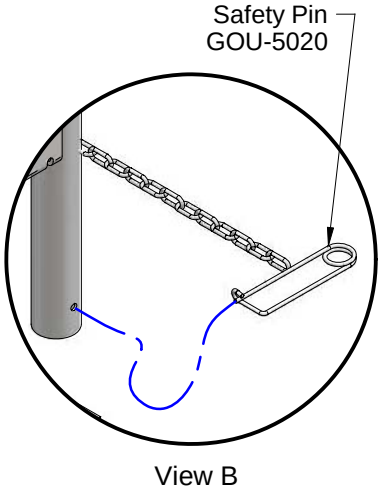


1 Figure E.1



2 Figure E.2





3 Figure E.3

ACCESSORIES

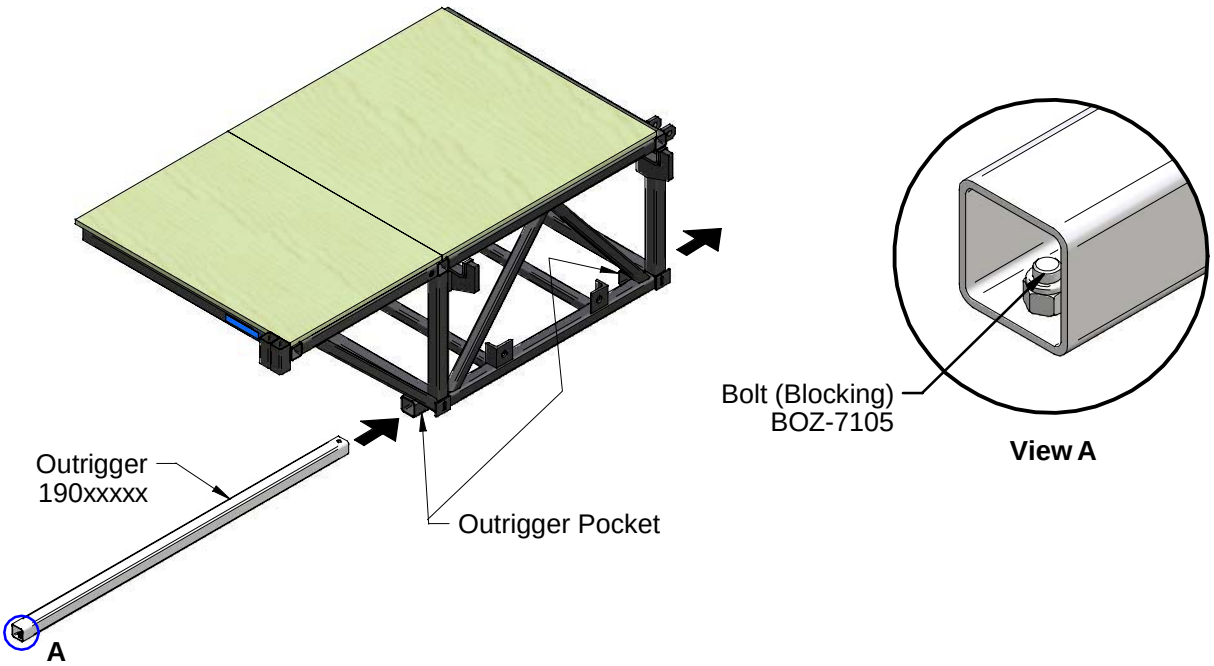
INSTALLATION OF OUTRIGGERS

Step 1 (see Figure E.4)

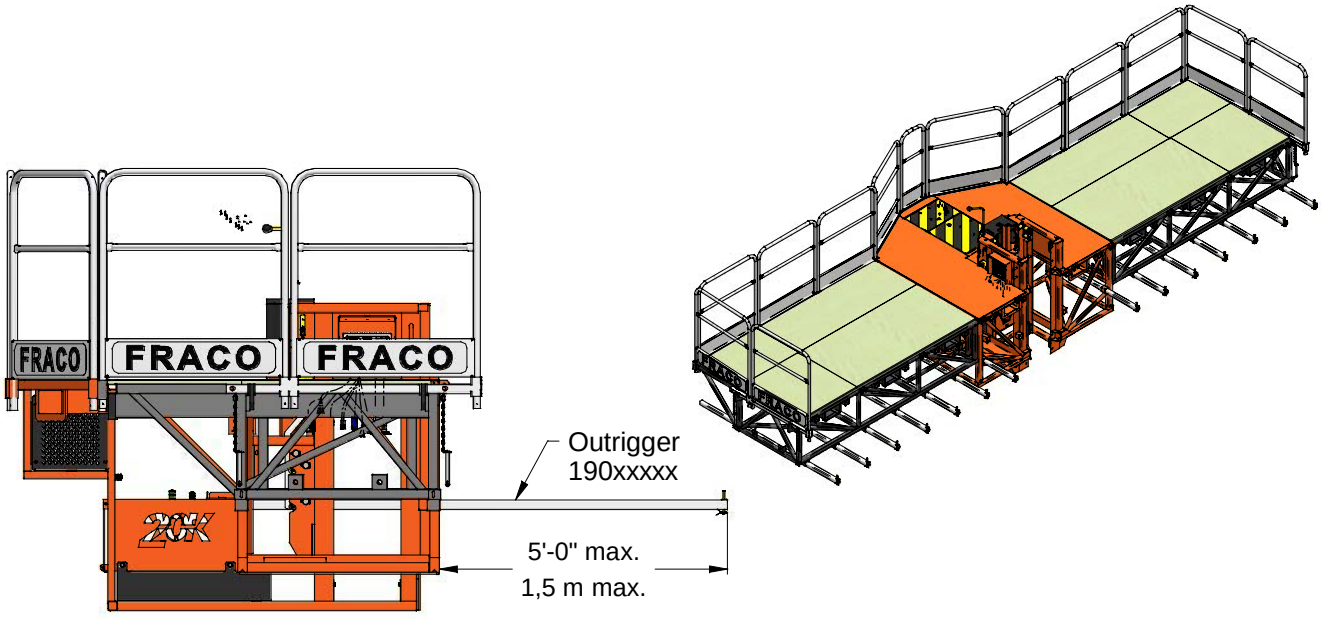
6- Ensure that the blocking bolt BOZ-7105 is in place before installing the outriggers. (see View A)
7- Slide the outriggers into the top or bottom cantilever section pockets or bride section pockets.

Step 2 (see Figure E.5)

8- Install the outriggers in such a way that the top row or the bottom row of cantilever section pockets or bridge section pockets is completely filled.



1 **Figure E.4**



2 **Figure E.5**

INSTALLATION OF OUTRIGGERS (CONTINUED)

Step 3 (see Figure E.6)

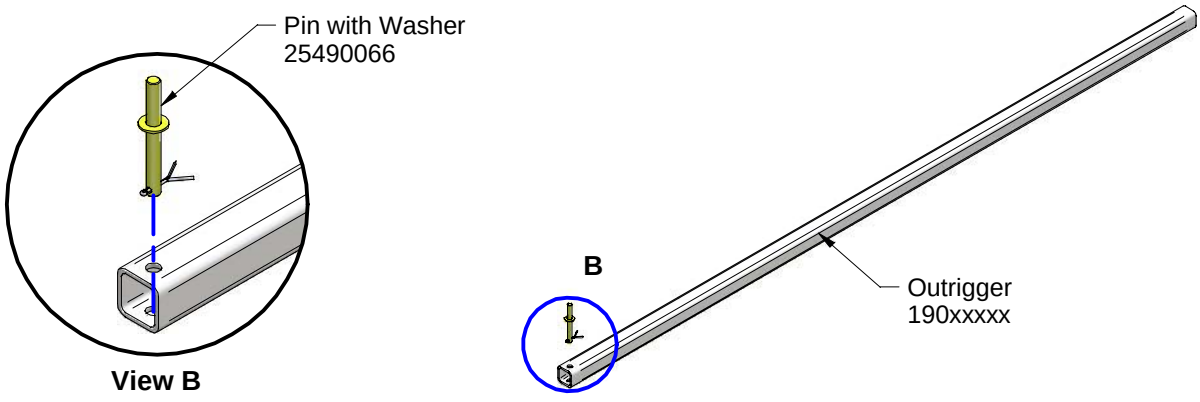
9- Install a pin with washer on each outrigger. (see View B)

Step 4 (see Figure E.7)

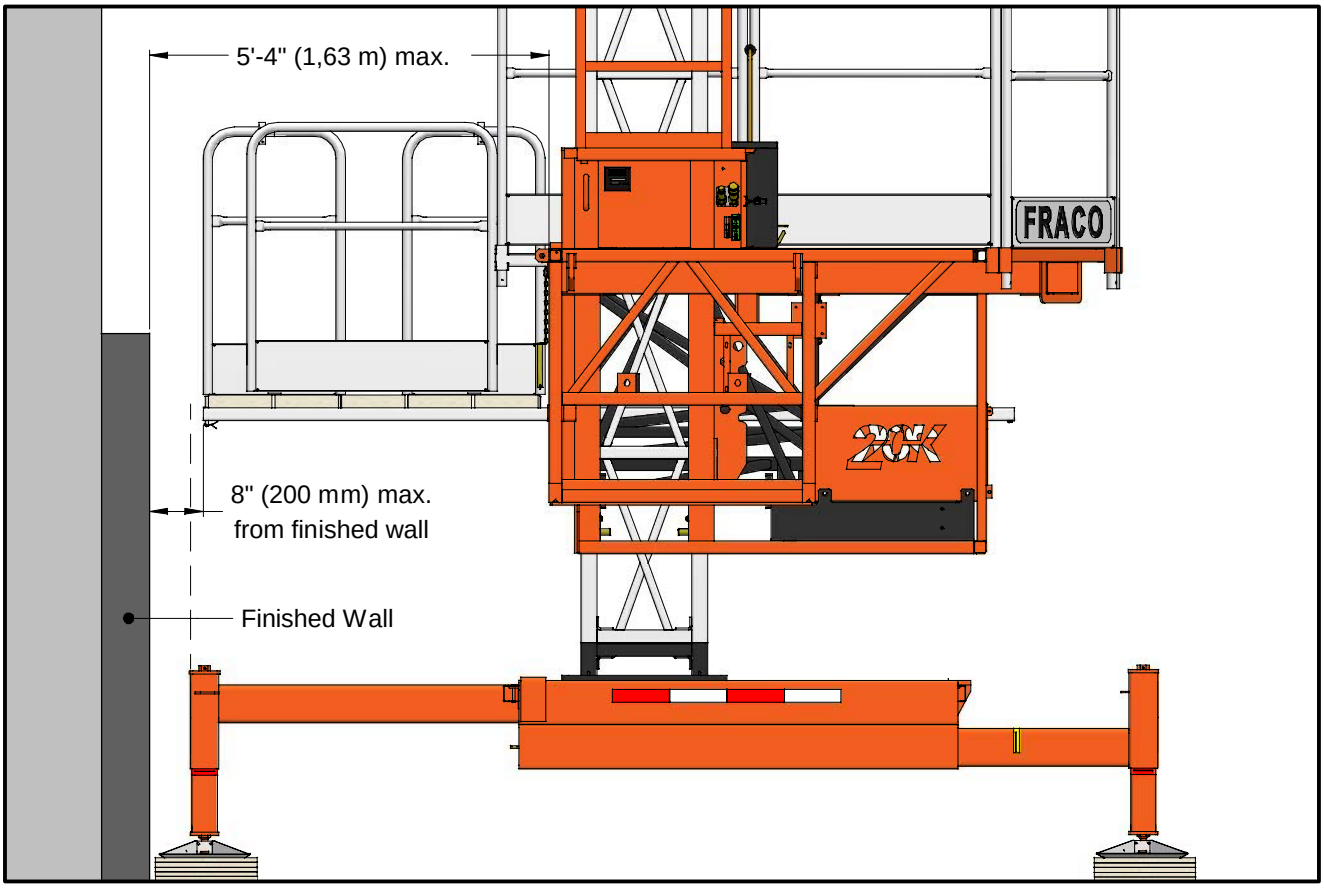
10- Adjust the outriggers so that they are 8” (200 mm) max. from the finished wall.

Important :

- In freestanding situation without anchoring device, outriggers do not exceed the freestanding base stabilizers.



3 **Figure E.6**



4 **Figure E.7**

INSTALLATION OF OUTRIGGERS (CONTINUED)

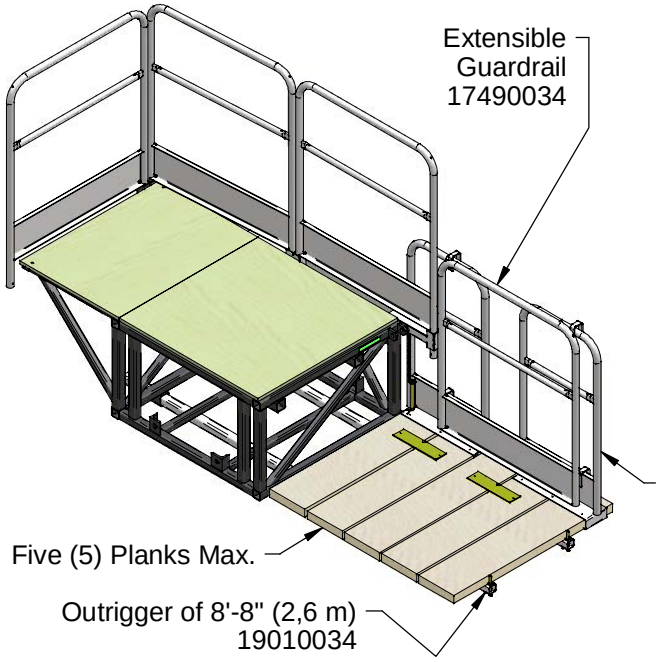
Possible setup (must be approved by engineering FRACO department)

A (see Figure E.8) and B (see Figure E.9)

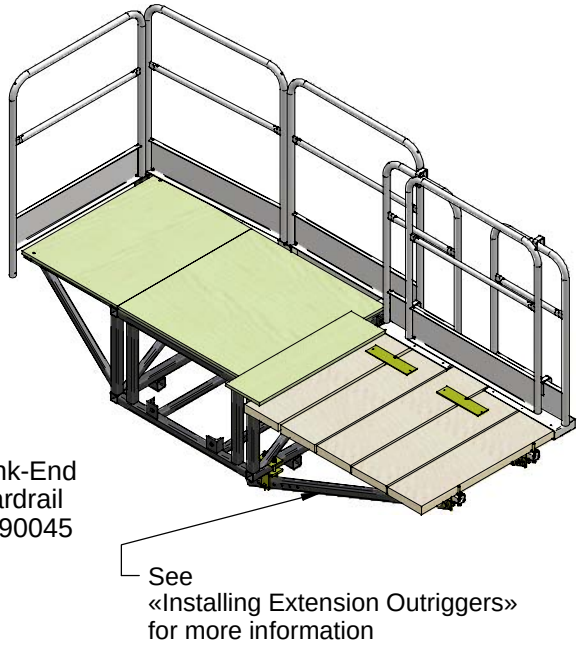
- 8'-8" (2,6 m) outrigger with a maximum clearance of two (2) to six (6) plank-widths. Planks of 10" (250 mm) wide.

C (see Figure E.10) and D (see Figure E.11)

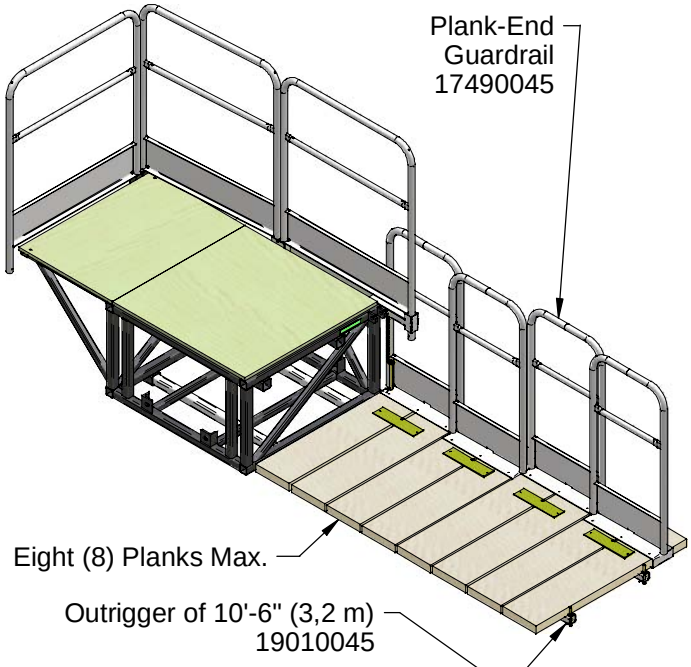
- 10'-6" (3,2 m) outrigger with a maximum clearance of two (2) to eight (8) plank-widths. Planks of 10" (250 mm) wide.



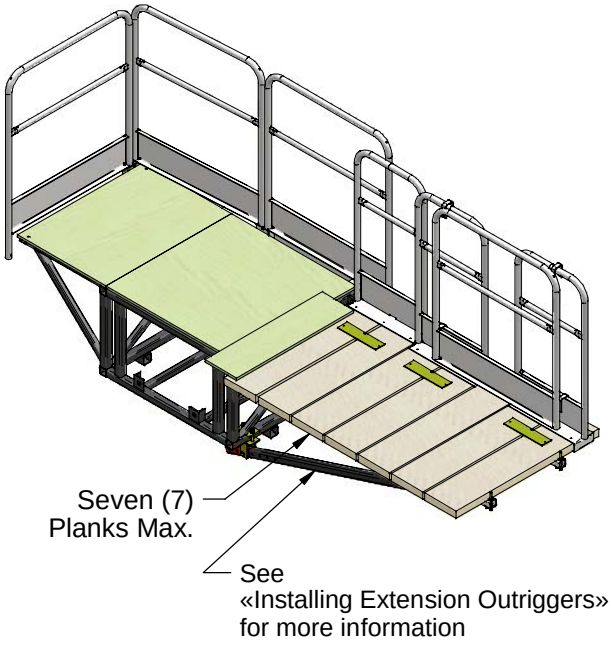
A **Figure E.8**



B **Figure E.9**



C **Figure E.10**



D **Figure E.11**

INSTALLATION OF OUTRIGGERS (CONTINUED)

Possible setup (must be approved by engineering FRACO department)

E (see Figure E.12)

- 13’-6” (4,1 m) outrigger with a maximum clearance of two (2) to eleven (11) plank-widths. Planks of 10” (250 mm) wide.

Important :

- This configuration must be used exclusively with the outrigger pockets found at the upper portion of the cantilever section.

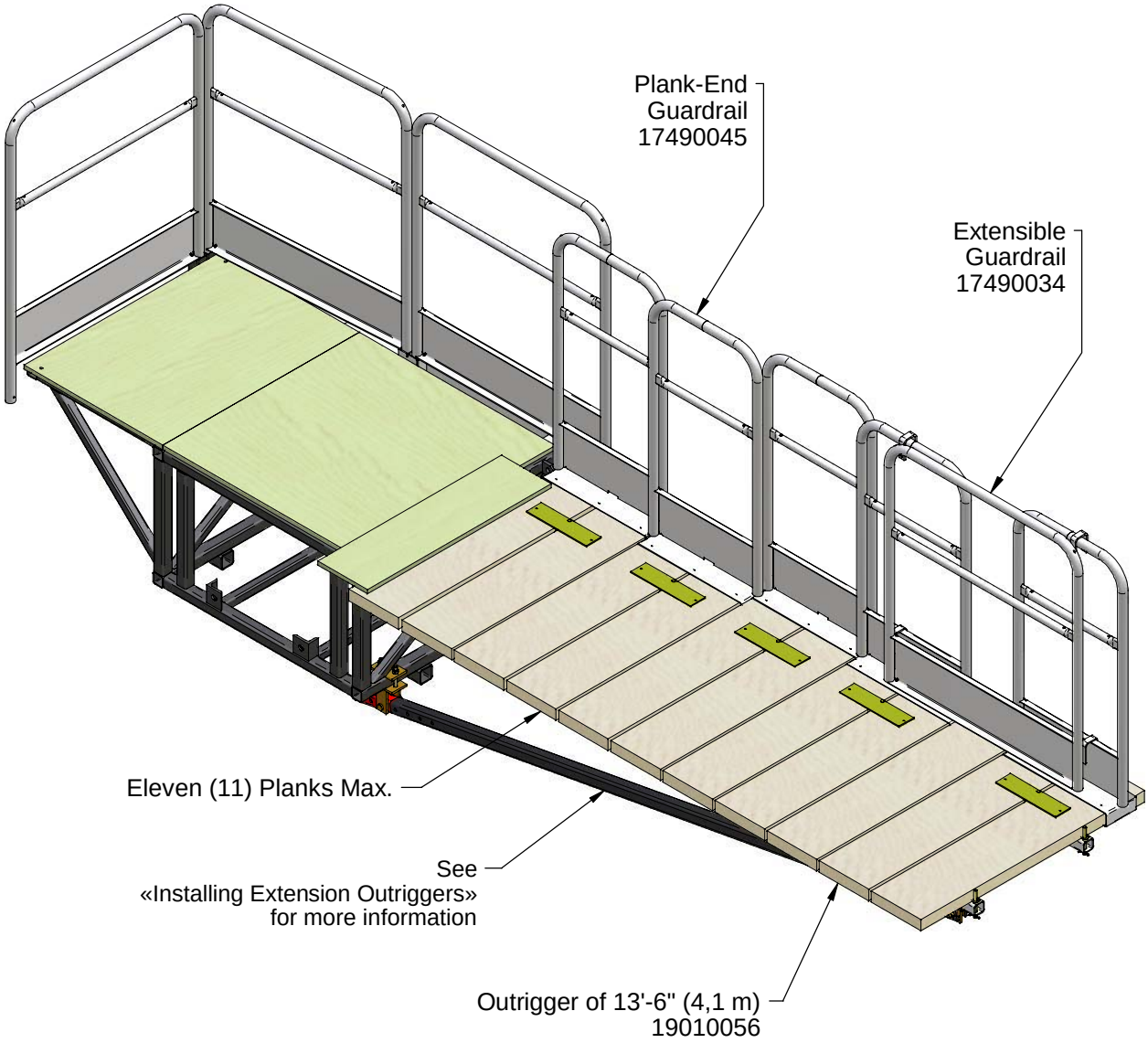


Figure E.12

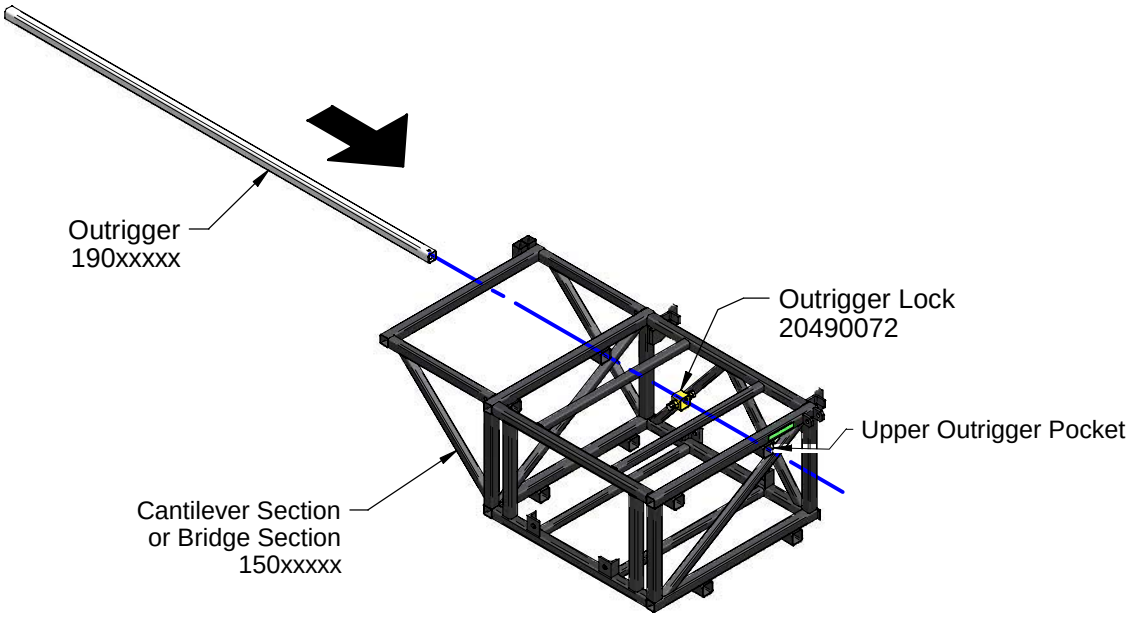
INSTALLATION OF EXTENSION OUTRIGGERS

Step 1 (see Figure E.13)

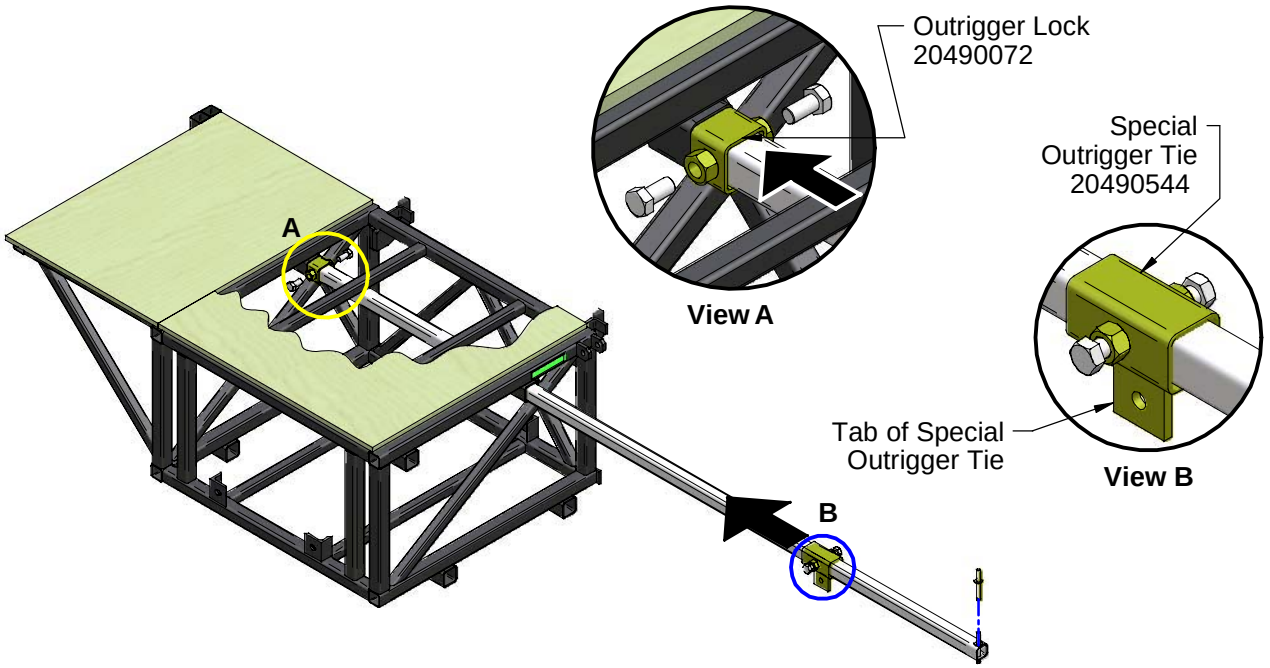
11- Slide an outrigger lock around an outrigger. (see View A)
12- Slide the outrigger into the upper pockets of cantilever section or bridge section.

Step 2 (see Figure E.14)

13- Slide an special outrigger tie onto the outrigger.
14- Tab must be pointed downwards. (see View B)



1 Figure E.13



2 Figure E.14

INSTALLATION OF EXTENSION OUTRIGGERS (CONTINUED)

Step 3 (see Figure E.15)

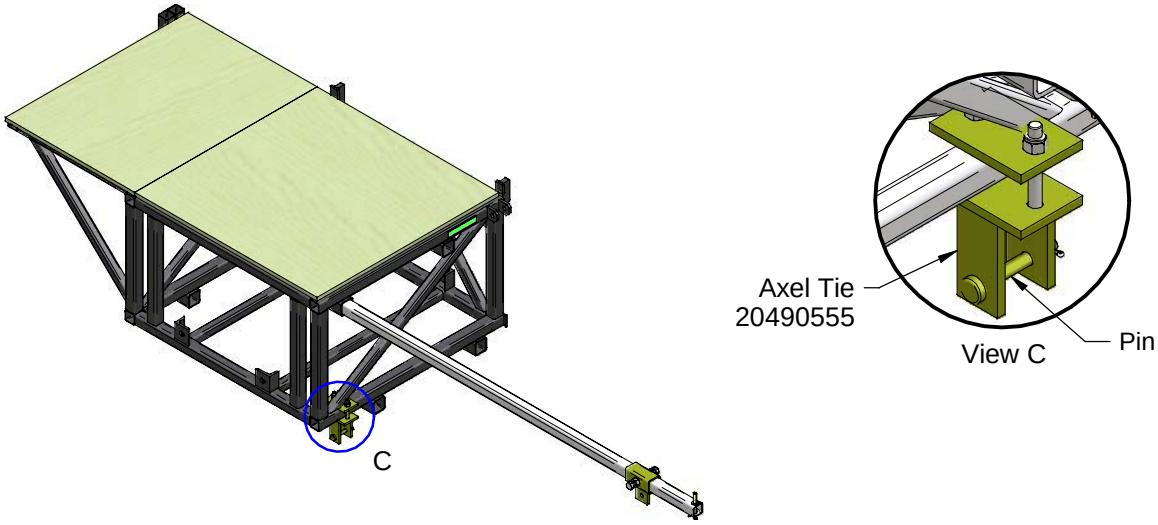
15- Bolt the axel tie onto the lower tube of the cantilever section or bridge section and tighten it securely.
16- The pin must be pointed downwards. (see View C)

Step 4 (see Figure E.16)

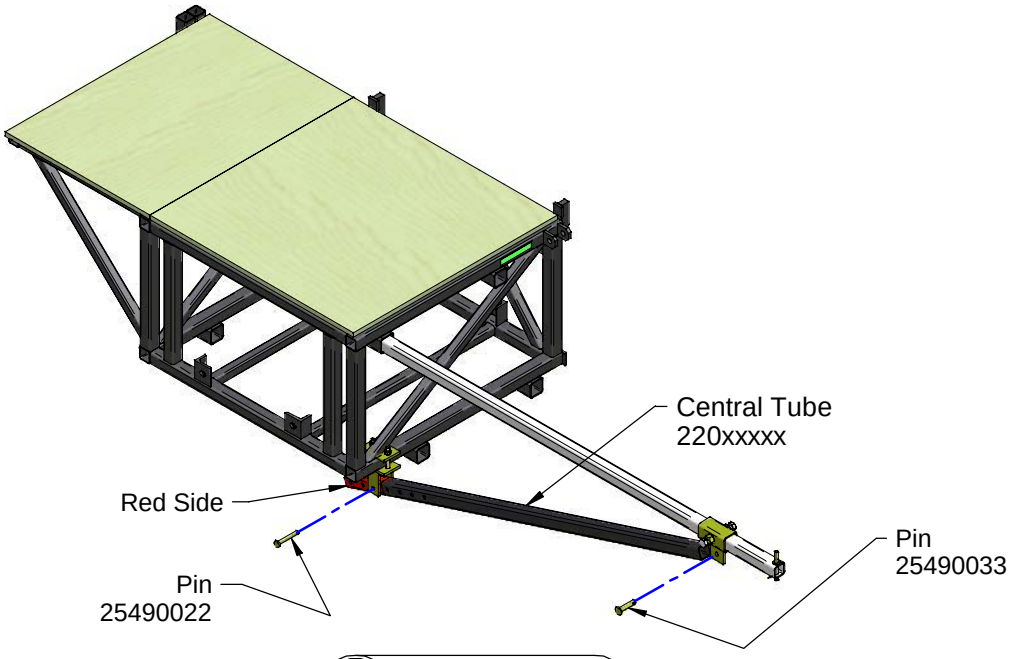
17- Install the central tube and insert all the pins.
18- Red side of central tube must be pointed to axel tie.
19- Tighten the special outrigger tie and the axel tie.

Important :

- This installation must be approved by engineers department.



3 **Figure E.15**



4 **Figure E.16**

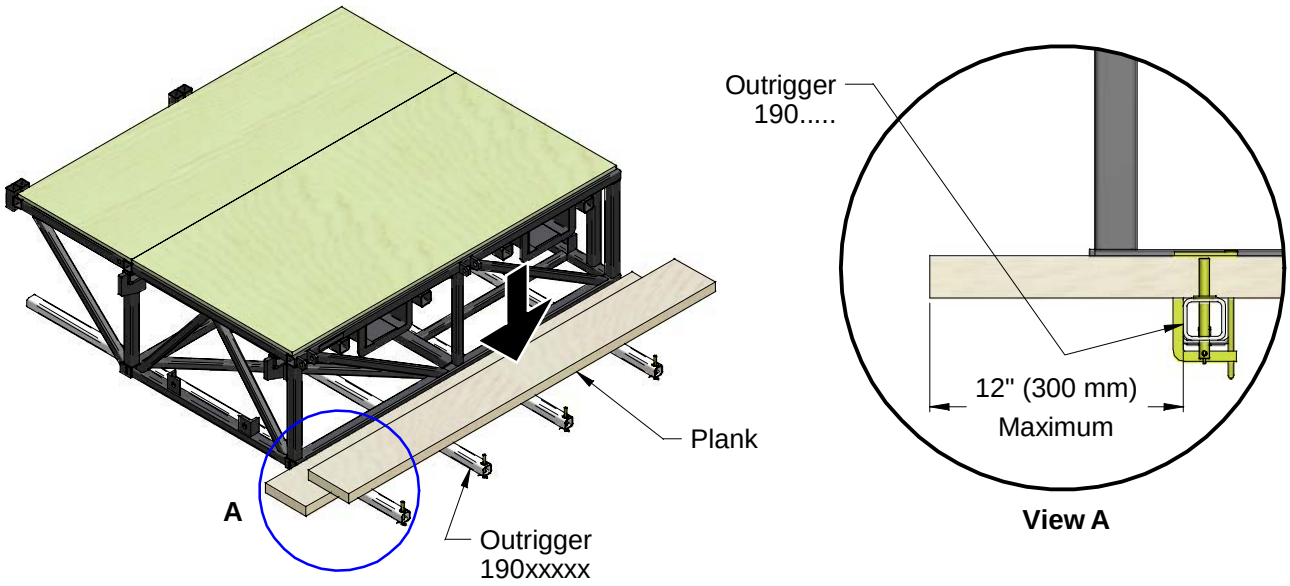
INSTALLATION OF PLANK-TIES AND PLANK-END GUARDRAILS

Step 1 (see Figure E.17)

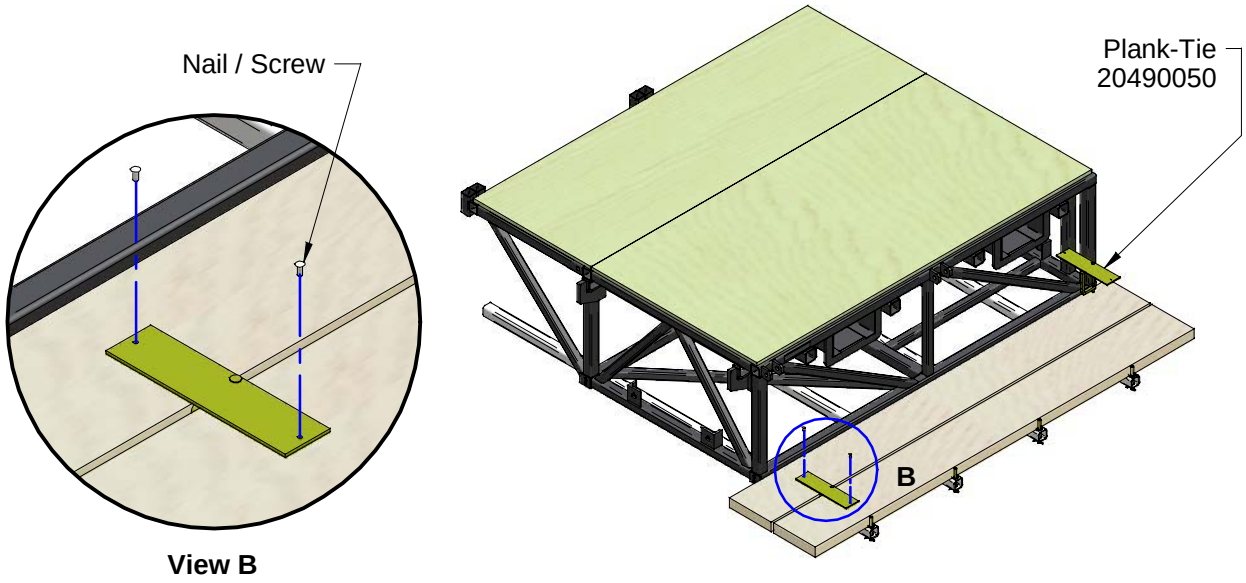
20- Place a first plank on the outriggers and push it up against the plynth of the cantilever sections or the bridge sections.
21- Install the second plank.
22- The planks may not exceed the last outrigger by more than 12” (300 mm). (see View A)

Step 2 (see Figure E.18)

23- Raise the plank-tie nail, insert the plank tie around the outrigger and then replace the nail.
24- Place a plank tie around the outriggers located at each extremity.
25- Screw or nail the ties to the planks to prevent them from moving. (see View B)



1 **Figure E.17**



2 **Figure E.18**

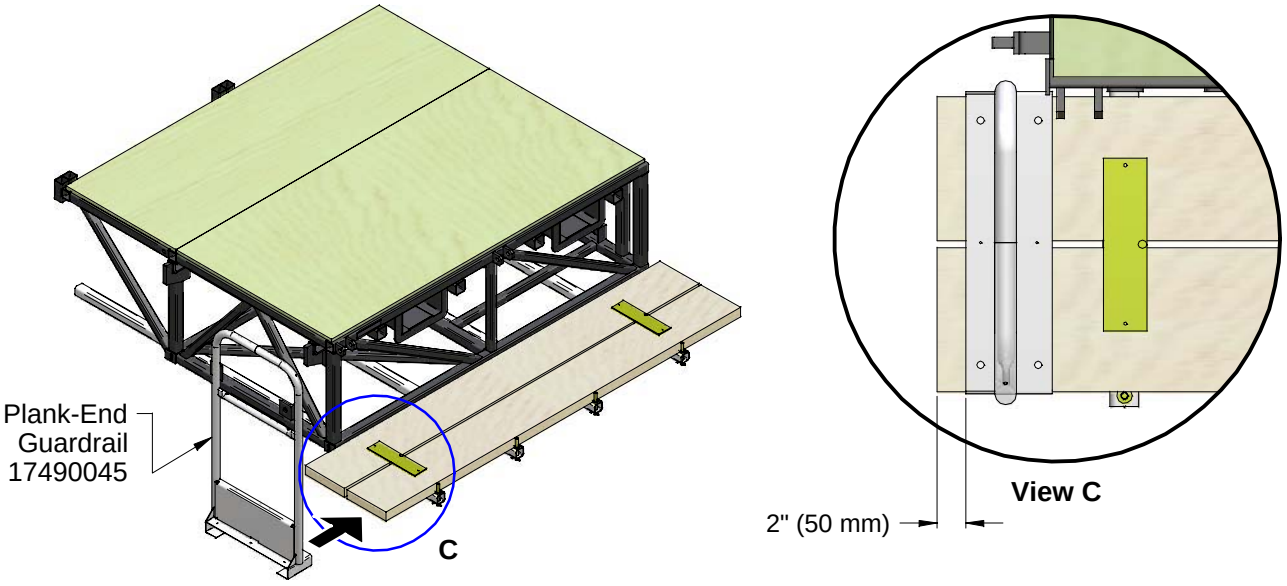
INSTALLATION OF PLANK-TIES AND PLANK-END GUARDRAILS (CONTINUED)

Step 3 (see Figure E.19)

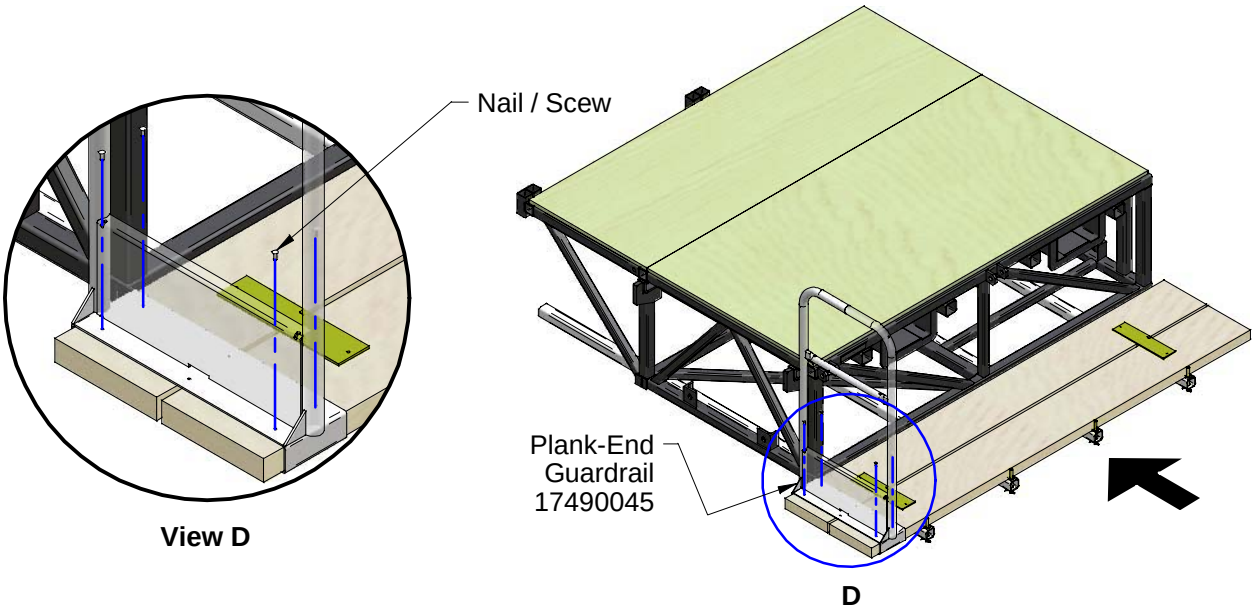
26- Install the plank-end guardrails at the extremity of the planks of the work zone.
27- There should be a space of 2” (50 mm) between the extremity of the planks and the beginning of the plank-end guardrail. (see View C)

Step 4 (see Figure E.20)

28- Fix the plank-end guardrails with nails or screws. (see View D)
29- Push it up against the plynth of the cantilever sections or bridge sections.
30- Place the guardrails wherever there might be a risk of falling.



3 **Figure E.19**



4 **Figure E.20**

ACCESSORIES

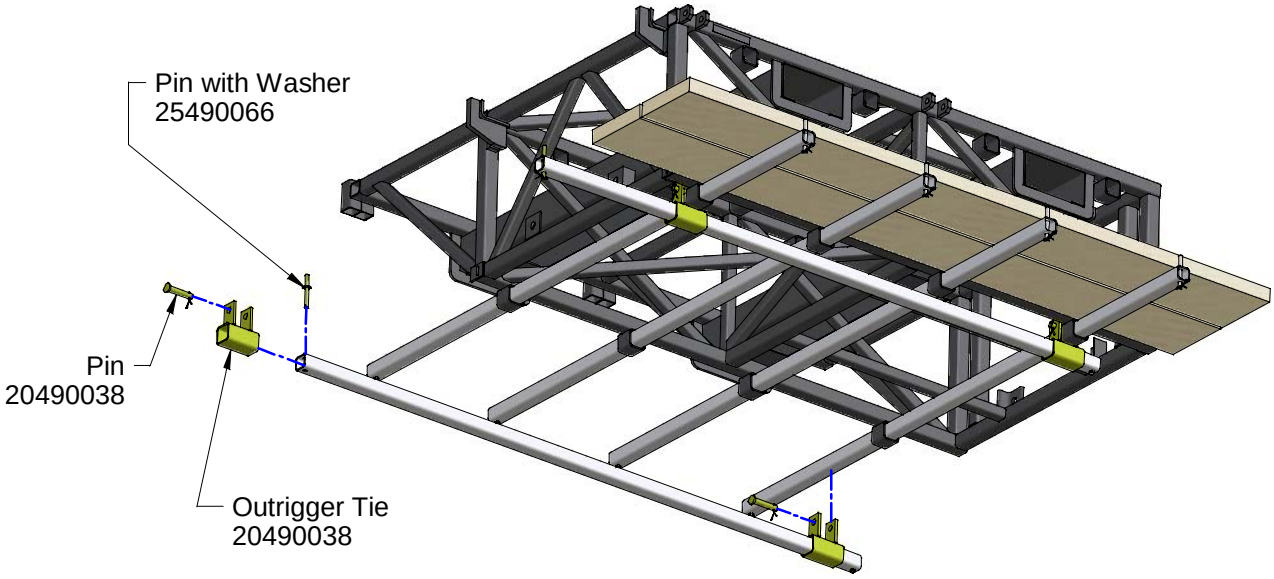
INSTALLATION OF OUTRIGGER SUPPORTS (OPTIONAL)

Step 1 (see Figure E.21)

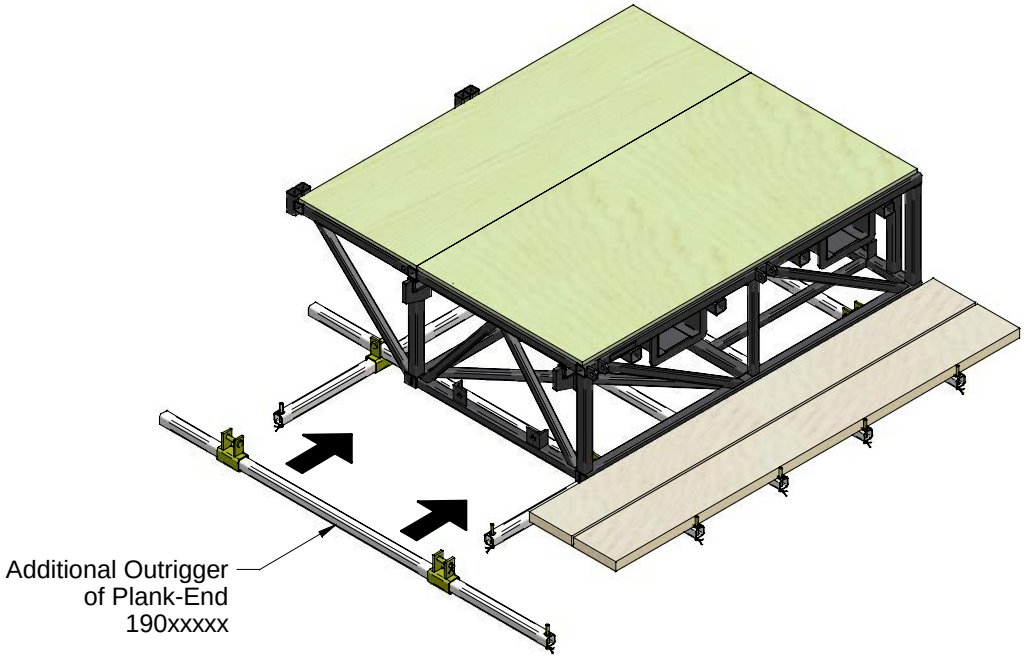
31- Install the outrigger ties to an outrigger (two (2) per outrigger).
32- The pin must be pointed downwards.
33- Install the outriggers with the outrigger ties on the previously installed outriggers.
34- Install the pins with washers supplied with the outrigger ties.

Step 2 (see Figure E.22)

35- Install an additional outrigger with the outrigger tie at the end of plank.
36- Install pin with washer at the end of outrigger.



1 **Figure E.21**



2 **Figure E.22**

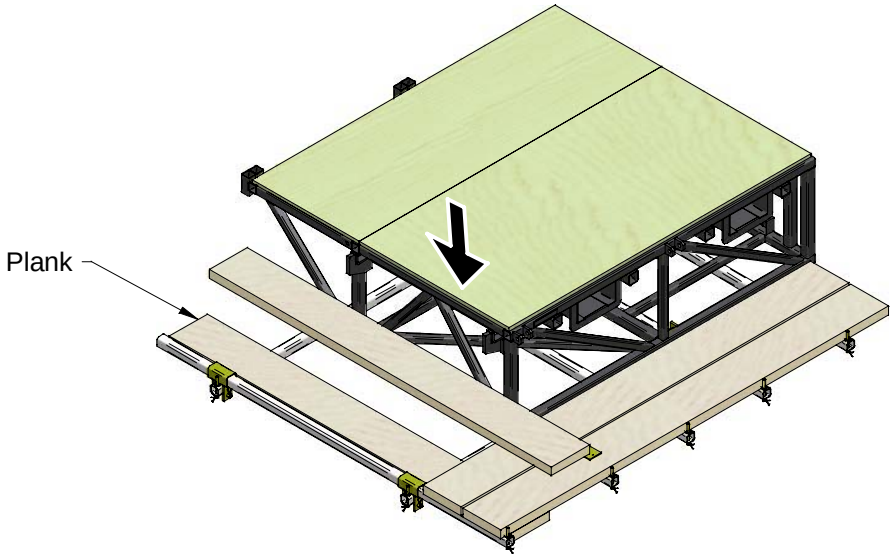
INSTALLATION OF OUTRIGGER SUPPORTS (OPTIONAL) (CONTINUED)

Step 3 (see Figure E.23)

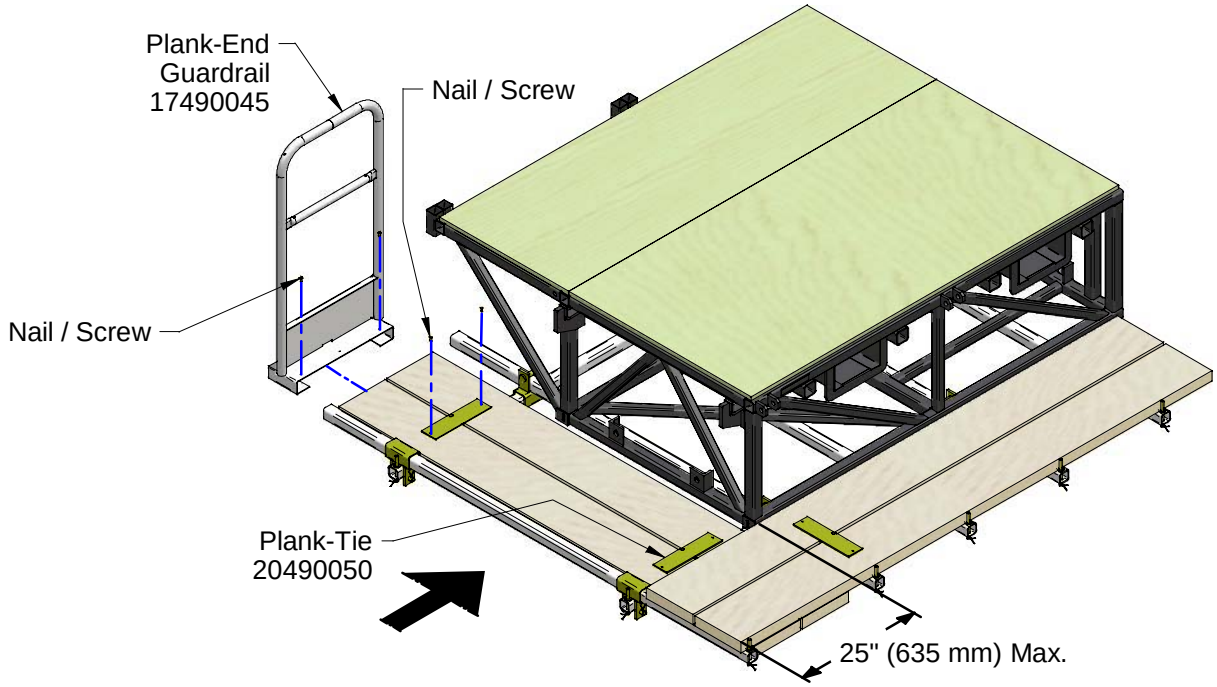
37- Place the planks onto the outriggers to enlarge the work area. The maximal depth is 25” (635 mm).

Step 4 (see Figure E.24)

38- Install the plank-ties to each end of the planks.
39- Install the plank-end guardrail at the end of the planks in the work area.
40- There should be a space of about 2” (50 mm) between the extremity of the plank and the beginning of the plank-end guardrail.
41- Push the planks up against the side of the platform.
42- Fix the plank-end guardrail and the plank-ties with nails or screws.



3 **Figure E.23**



4 **Figure E.24**

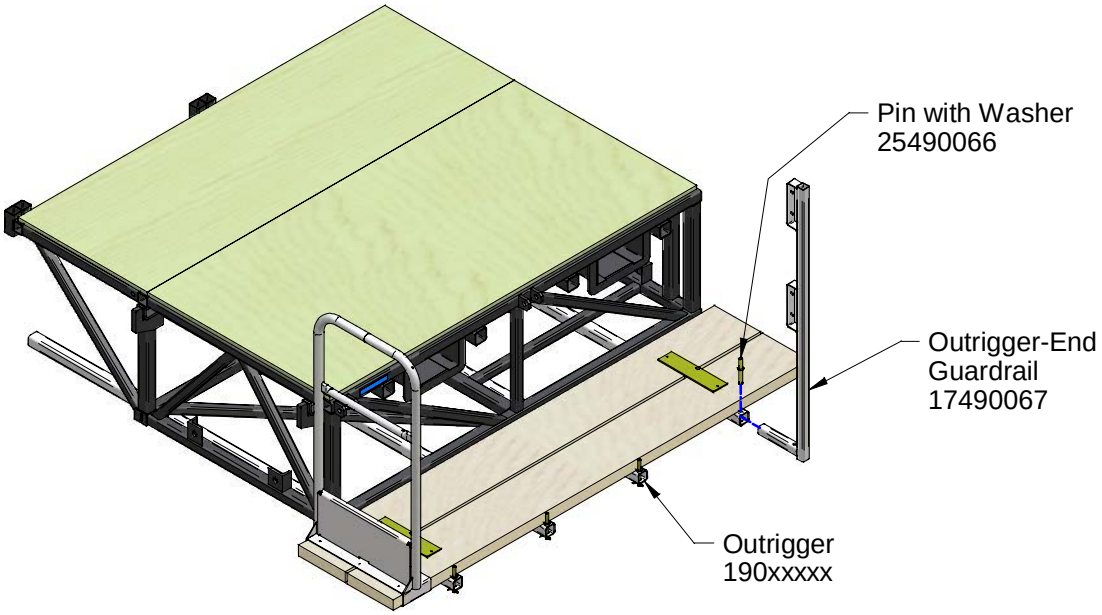
INSTALLATION OF OUTRIGGER-END GUARDRAILS

Step 1 (see Figure E.25)

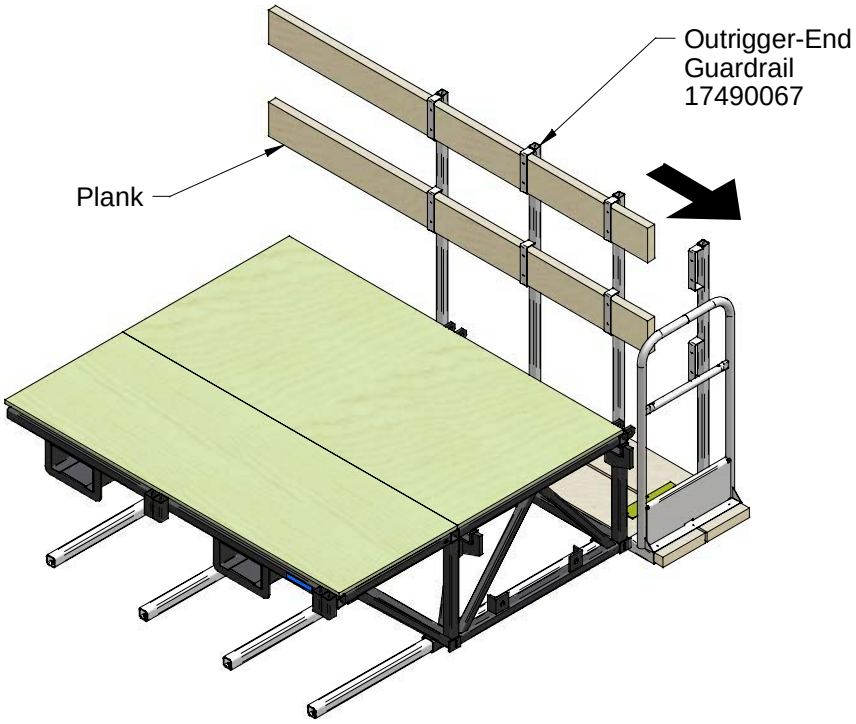
43- Install the outrigger-end guardrail onto each previously installed outrigger.
44- Fix the outrigger-end guardrail with the pin with washer that are supplied with the outrigger.

Step 2 (see Figure E.26)

45- Place the planks onto the outrigger-end guardrails.



1 **Figure E.25**



2 **Figure E.26**

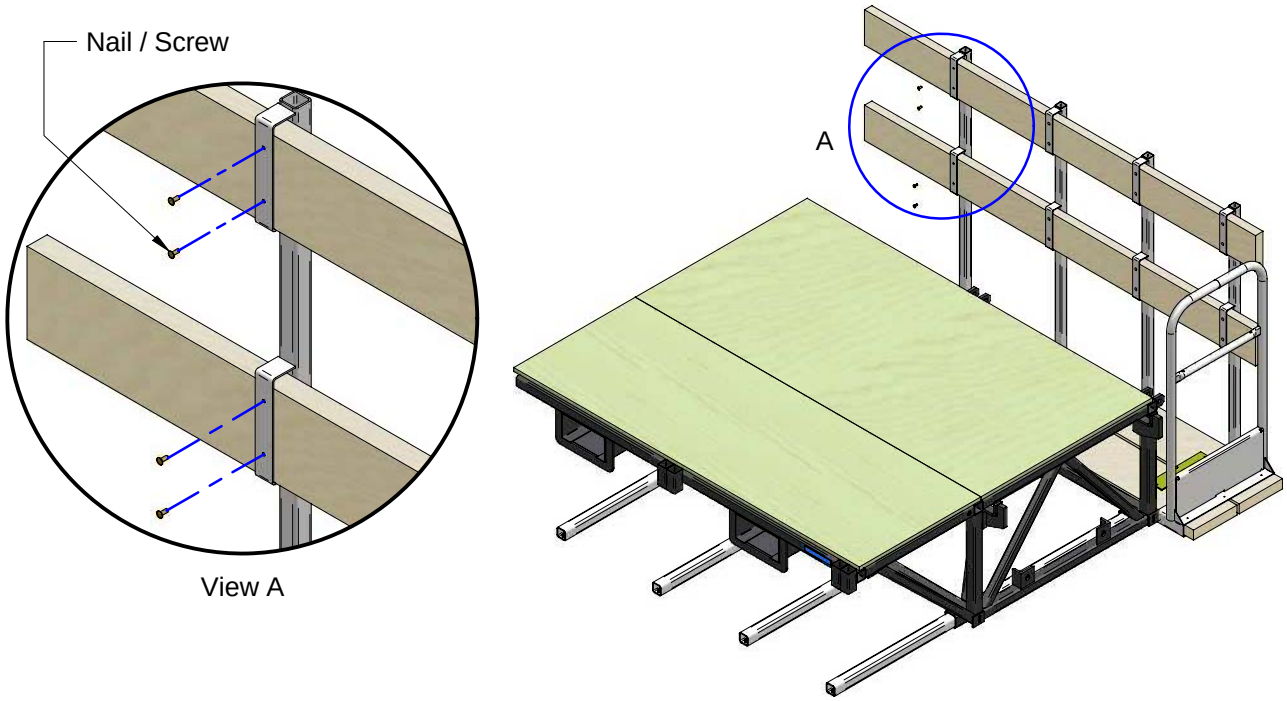
INSTALLATION OF OUTRIGGER-END GUARDRAILS (CONTINUED)

Step 3 (see Figure E.27)

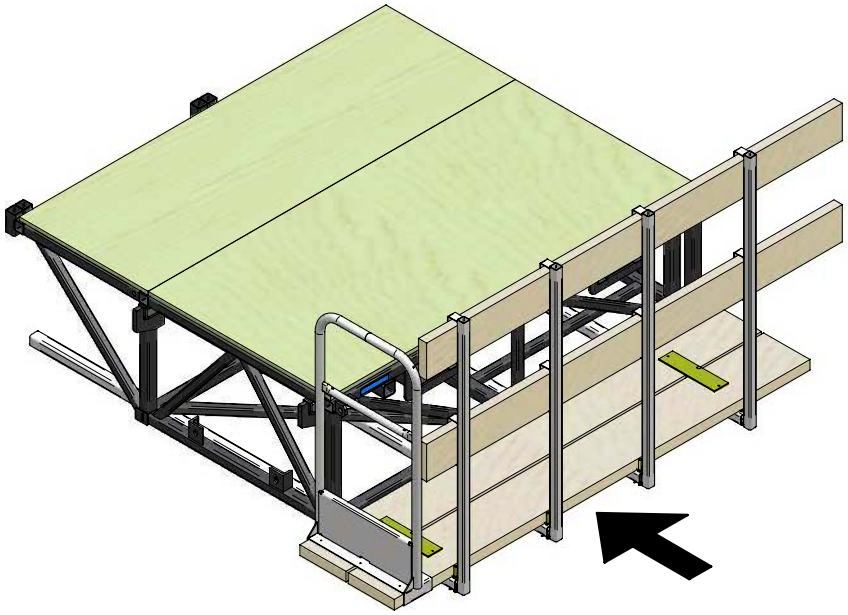
46- Fix the planks with screws or nails. (see View A)

Step 4 (see Figure E.28)

47- Push the planks up against the plinth of the platform.



3 **Figure E.27**



4 **Figure E.28**

INSTALLATION OF ANTI-SWIVEL DEVICE (OPTIONAL)

Step 1 (see Figure E.29)

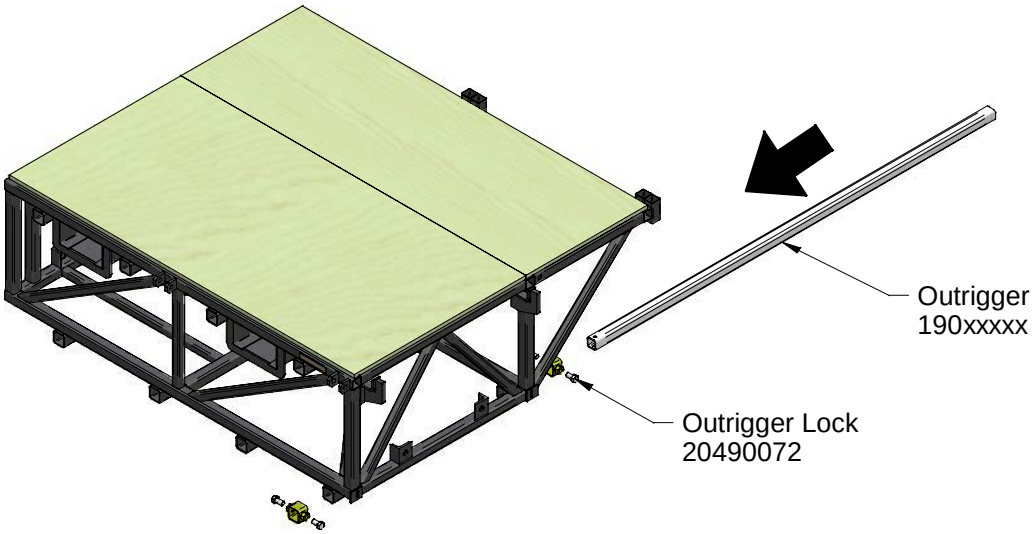
48- Insert two (2) outrigger locks on the two (2) outriggers found at each extremity of the platform.

Step 2 (see Figure E.30)

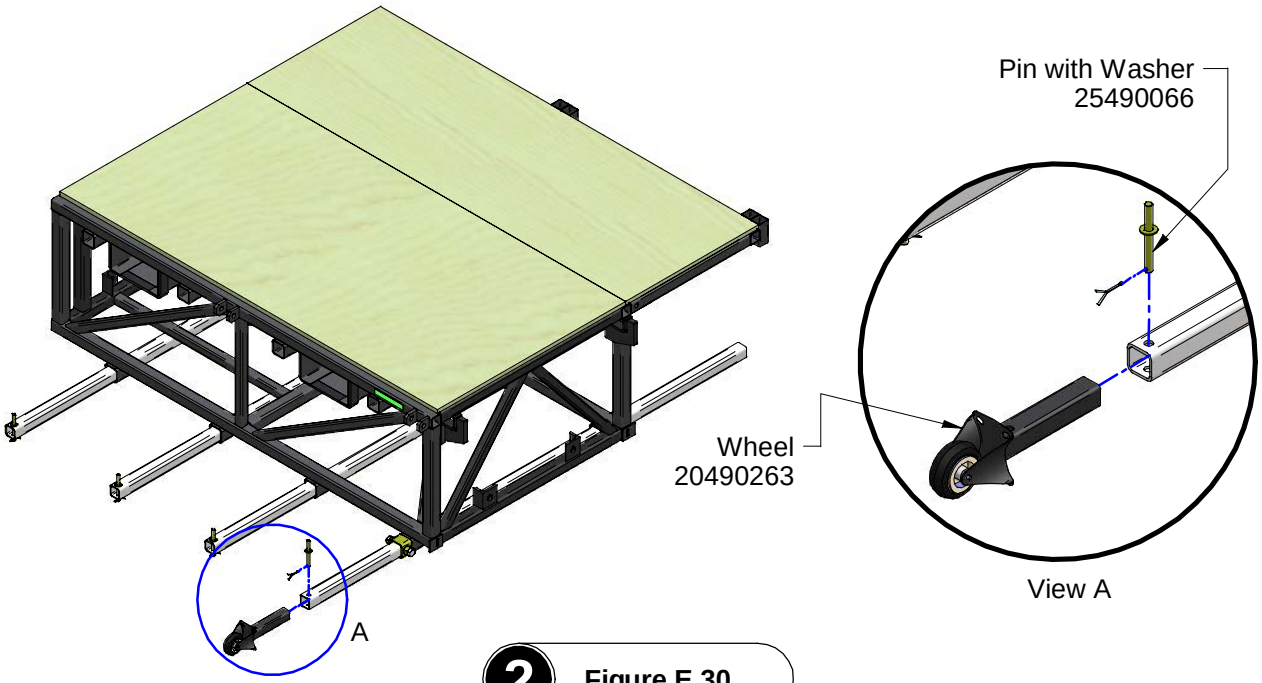
49- Insert two (2) wheel into each outrigger having outrigger locks. (see View A)
50- Secure the wheels to the outrigger using the pin with washer supplied with the outrigger.
51- Push the whole assembly against the platform.
52- Adjust the outrigger length according to the distance from the finished wall and the contact point of the wheel to the wall.
53- Tighten the bolts of the outrigger lock.

Important :

- Install anti-swivel device on single mast configurations.



1 Figure E.29

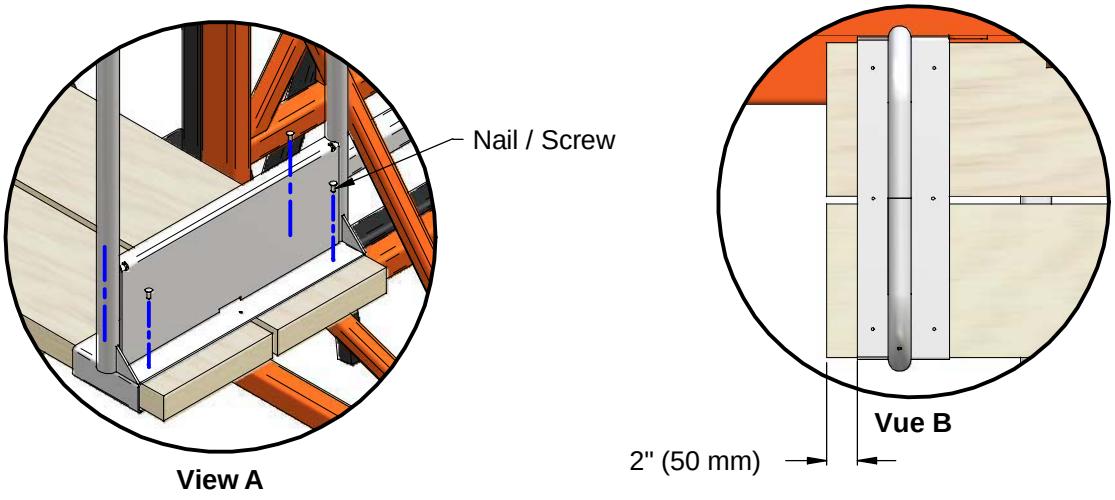


2 Figure E.30

INSTALLATION OF ANCHORING DEVICE ACCESS GUARDRAILS

Anchoring Device Access Guardrail (see Figure E.31)

- After having installed the anchoring devices, you must install anchoring device access guardrails to block access to the anchoring devices during movements.
- Install the anchoring device access guardrails at the end of the planks facing the anchoring devices.
- There must be a space of about 2” (50 mm) between the end of the plank and the beginning of the guardrail for access to the anchoring devices. (see View B)
- Attach the guardrails to the end of the plank with nails or screws. (see View A)



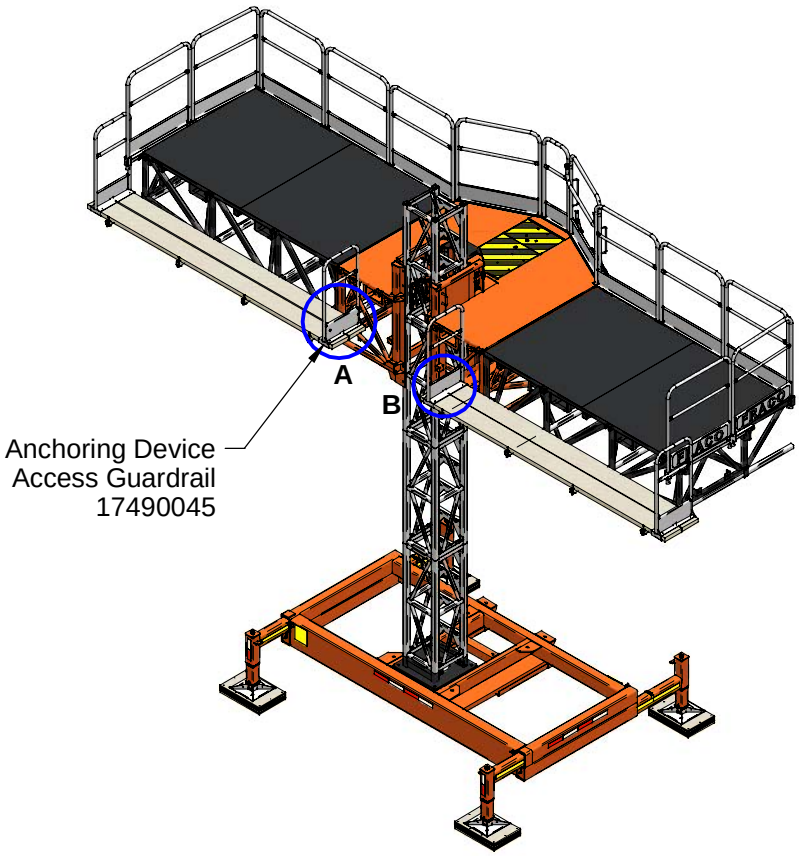


Figure E.31
Anchoring Device Access Guardrail

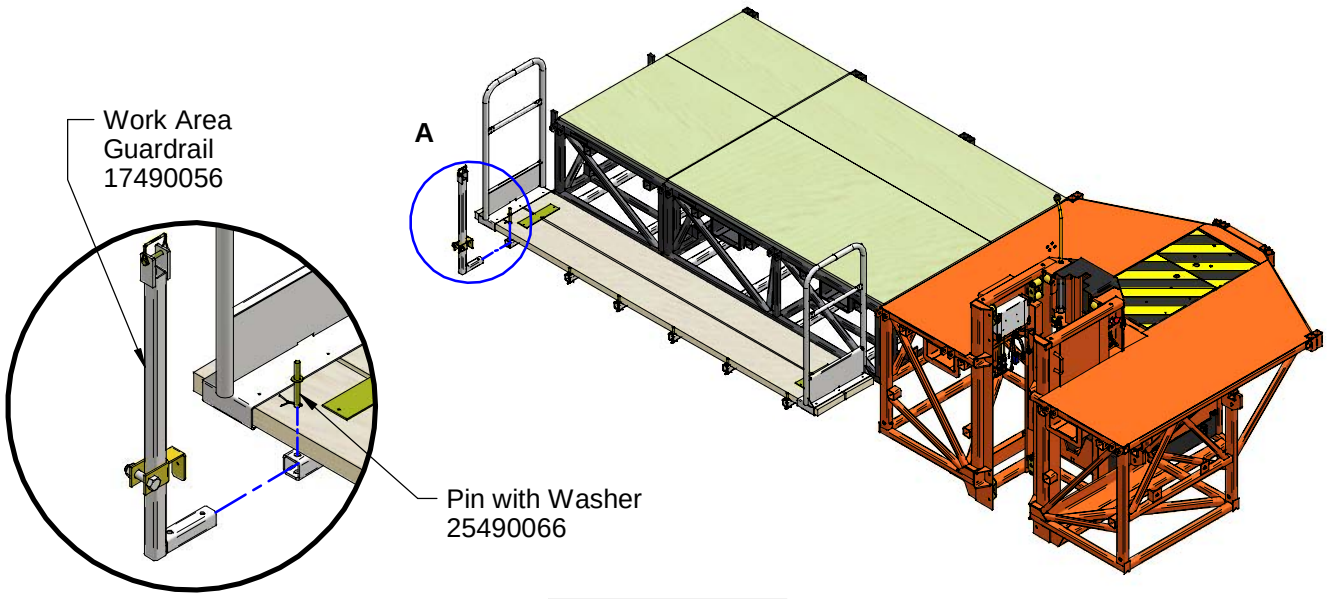
INSTALLATION OF WORK AREA GUARDRAILS

Step 1 (see Figure E.32 and View A)

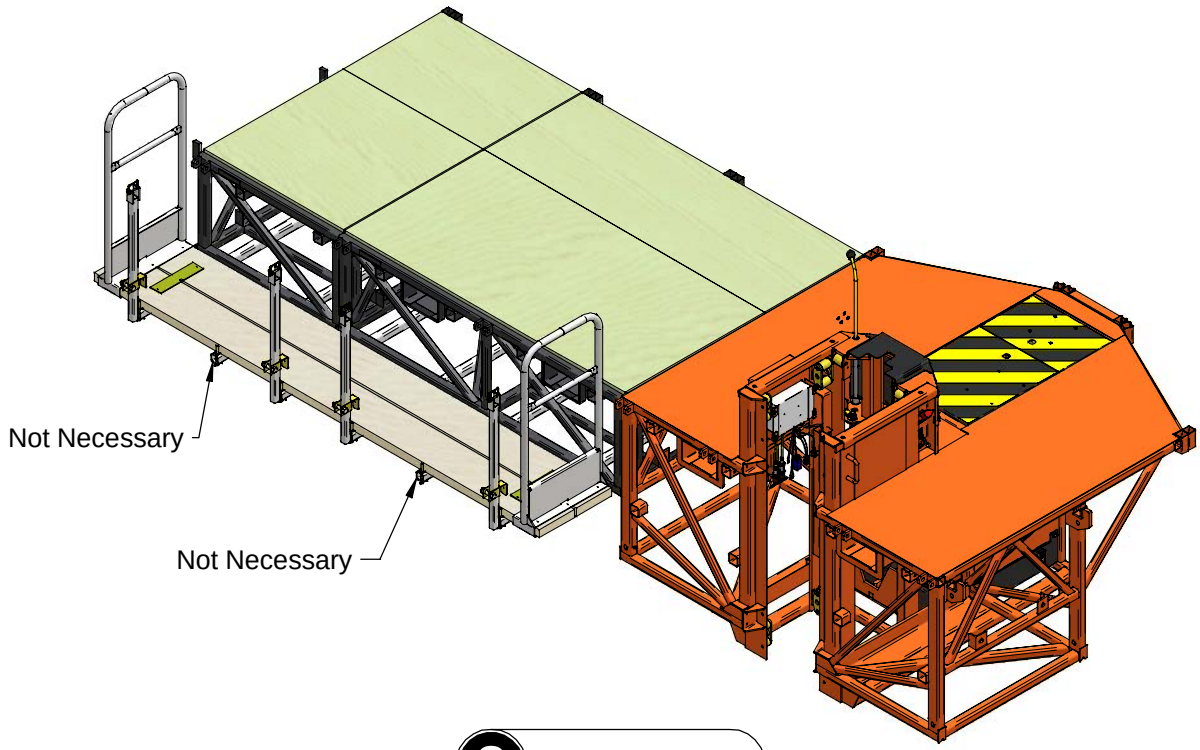
54- Attach the work area guardrail with the help of the pin with washer which is provided with the outrigger.

Step 2 (see Figure E.33)

55- Install the work area guardrail on each spar necessary for the installation of the handrails.



1 **Figure E.32**



2 **Figure E.33**

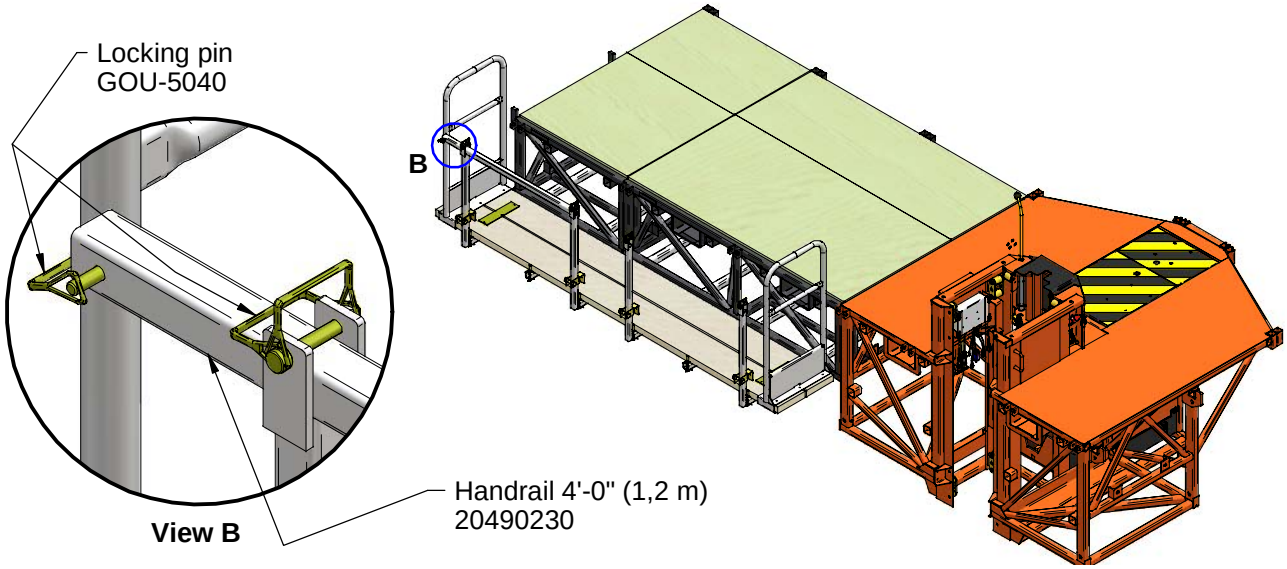
INSTALLATION OF WORK AREA GUARDRAILS (CONTINUED)

Step 3 (see Figure E.34)

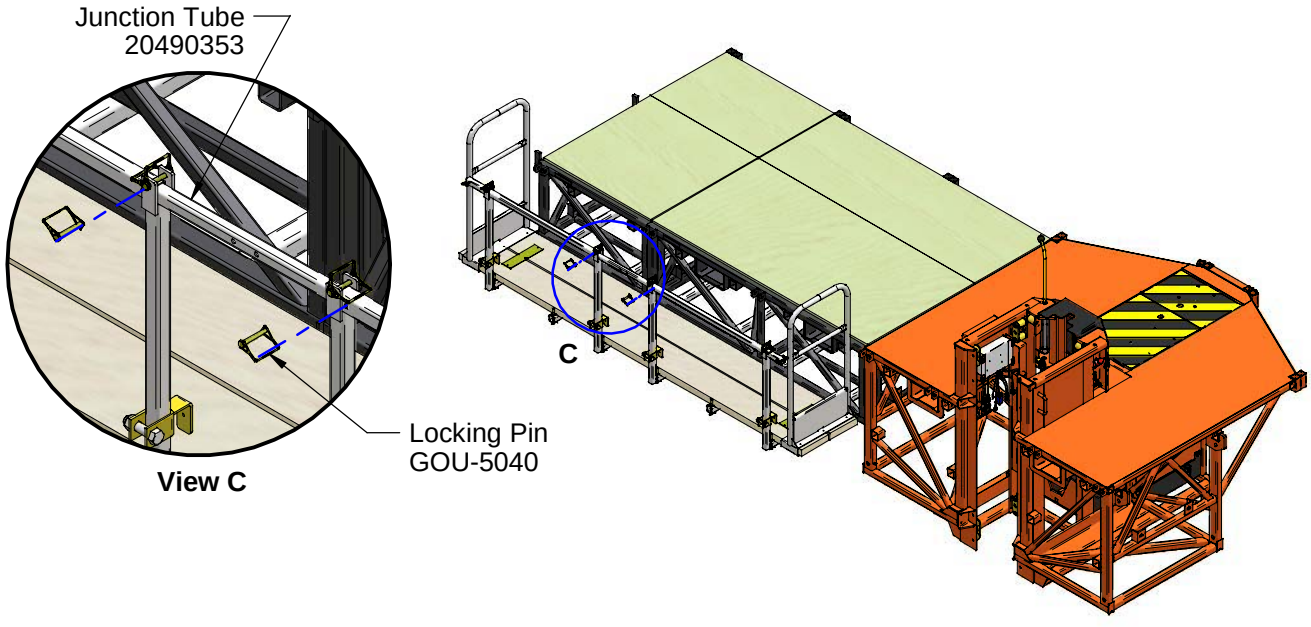
56- Place the handrails on the work area guardrails.
57- Lock the handrails with the locking pins. (see View B)
58- You can also use 8'-0" (2,4 m) handrails.

Step 4 (see Figure E.35 and View C)

59- Join the handrails together with a junction tube and also two (2) locking pins.



3 **Figure E.34**



4 **Figure E.35**

INSTALLATION OF ACT DESCENT LIMITING DEVICE (OPTIONAL)

ACT Descent Limiting Device (see Figure E.36)

- To the positon you want to stop the machine, place the ACT descent limiting device into the mast section. The bumper must be pointed upwards.
- Lock the ACT descent limiting device with the pins. (see View A)

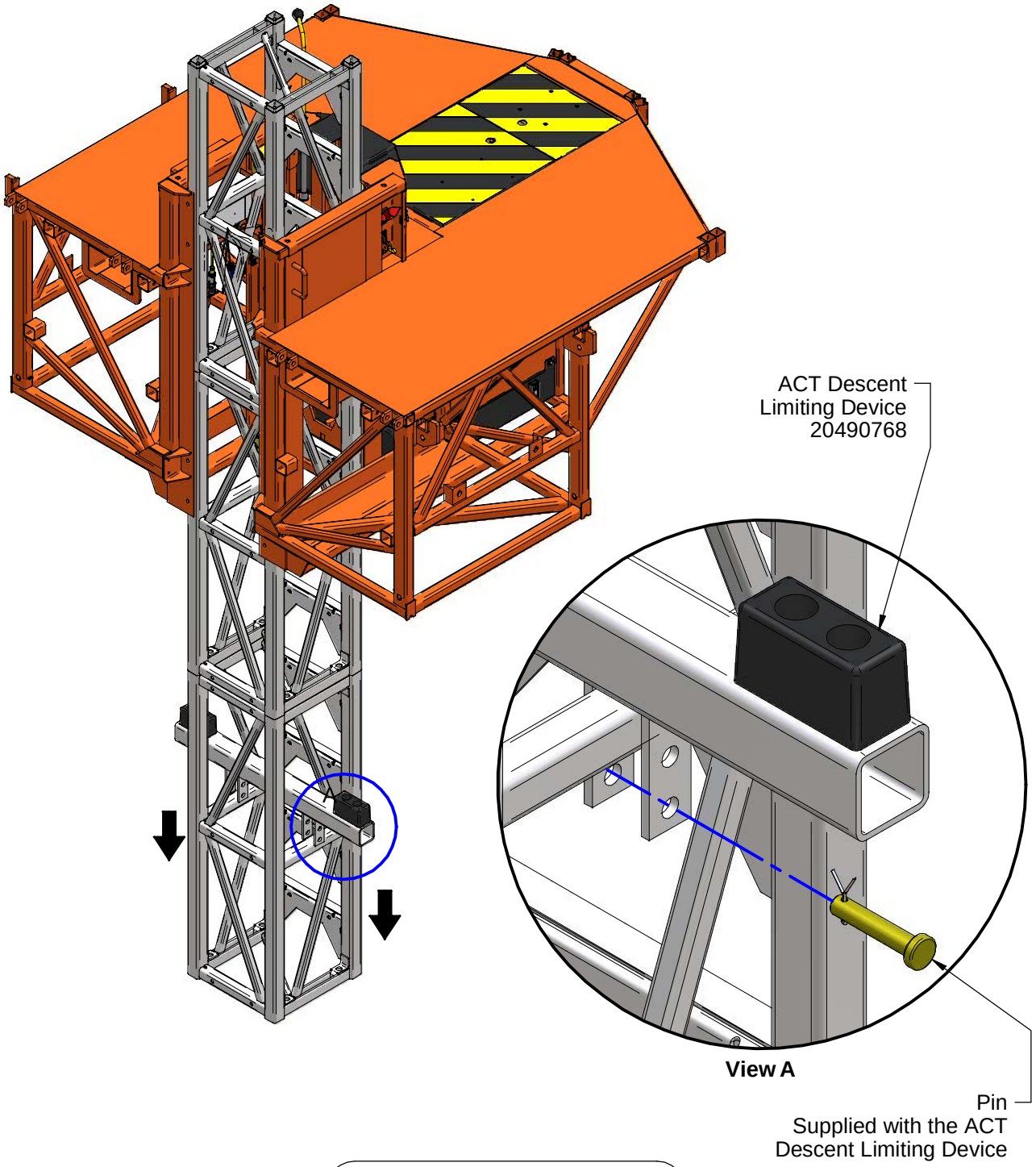


Figure E.36
ACT Descent Limiting Device