



TEREX | COMEDIL

H20 Tower

Erection

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Chapter 4

B

1

ERECTION AND DISMANTLING PROCESS

1.1 FOREWORD

The erection and dismantling of the crane shall be done by skilled technicians, who have attended a specific training course.



Crane users are advised to contact Comedil after-sales Service or Comedil agents for qualified erectors.

Should the user employ other erectors, their ability shall be verified before handling the crane.

In this case, Comedil declines any criminal and public liability.



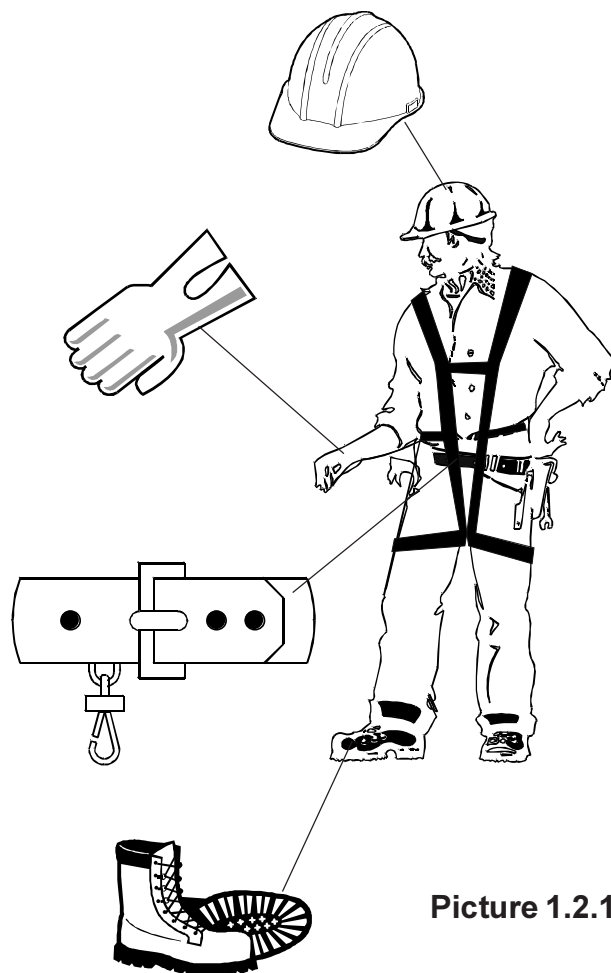
For the crane's erection and dismantling at least three skilled technicians are needed: two responsible for the assembly by mobile crane, one for the co-ordination of the operations on the ground.

1.2 SAFETY PRECAUTIONS



The erector shall observe the following safety precautions before starting the erection or dismantling of the crane:

- A) he shall not work in inclement weather conditions;
- B) he shall work in perfect psychophysical conditions and check that the individual and personal accident prevention devices are available and serviceable;
- C) he shall wear a type approved safety helmet which is integral;
- D) he shall wear a type-approved safety belt which is integral;
- E) he shall wear accident-prevention shoes;
- F) he shall use tools equipped with electric insulation;
- G) should the components pre-assembled on the ground be wet or damp, he shall be careful when carrying out the erection of the crane by mobile crane;
- H) for the safety of people and equipment, the erector shall check that barriers are placed around the assembly and disassembly area and that there are no unauthorized people inside the working area.



Picture 1.2.1



1.3 JOB SITE PREPARATION AND REQUIREMENTS



Before starting work, the crane erector shall inspect the job site for proper arrangement. The people in charge of the job site preparation shall be advised about any default found, thus allowing them to remedy it.

Erection of the tower shall start after the erector has checked that:

- A) the maneuvering area of the crane is free from obstacles (trees, buildings, electric lines, telephonic lines, etc.);
- B) the curing time of the concrete bed, of the base and of the ballast is adequate;
- C) base ballast and calibration weights satisfy the manufacturer's specifications;
- D) the electric connections are adequate;
- E) the hoisting equipment available at the job site is suitable for the work to be carried out;
- F) proper slings or other lifting attachments are being used.

MOBILE CRANE SPECIFICATIONS

The appropriate mobile crane for the crane tower erection shall be chosen according to:

- ⇒ the crane's installation type (stationary or travelling)
- ⇒ the tower height
- ⇒ the crane model (slewing upper part)



*For a correct choice refer, therefore, to **Chapters 4A** (Tower - Dimensions & Weights) and **5A** (Slewing Upper Part - Dimensions & Weights), as well as to the recommended assembly procedure illustrated in the following pages.*



The erector shall inform the mobile crane operator of the exact weight of the parts to be lifted.

The mobile crane operator shall see that the load is well secured and balanced in the sling before it is lifted.

2

ERECTION

2.1 GROUND ASSEMBLY



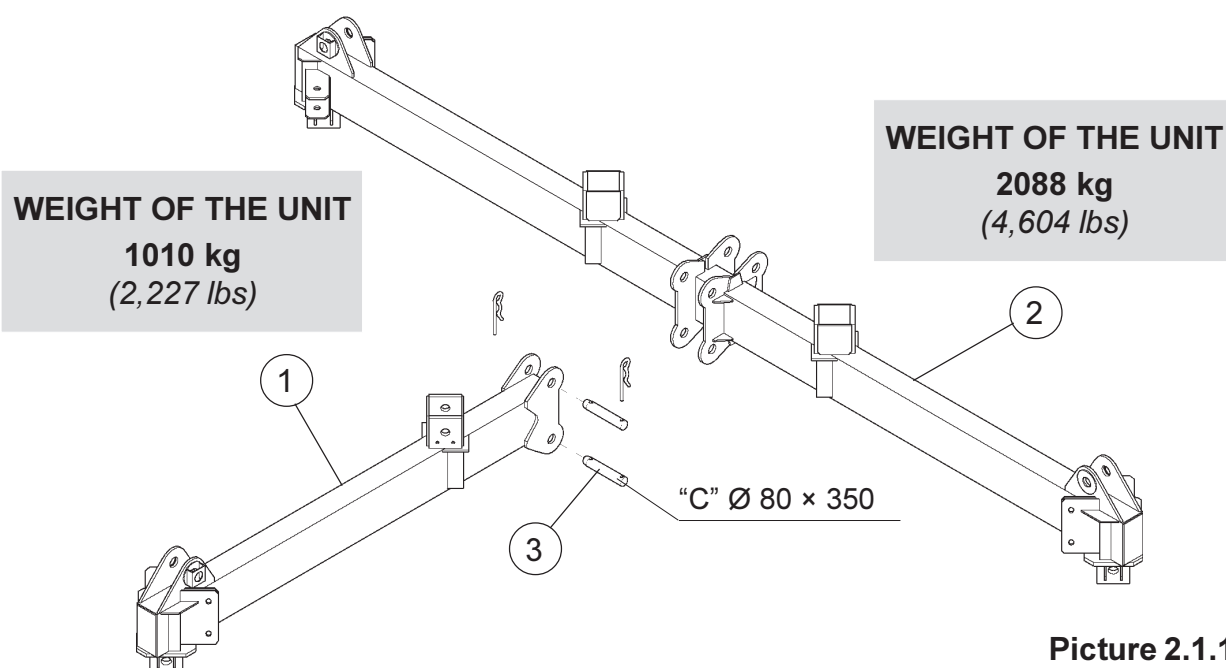
Pay attention to the mounting holes of the elements to be assembled which shall be visually inspected for impurity and possible paint traces. Pins and mounting holes shall be properly greased before assembly.

All pins shall be secured by the proper spring split pins.

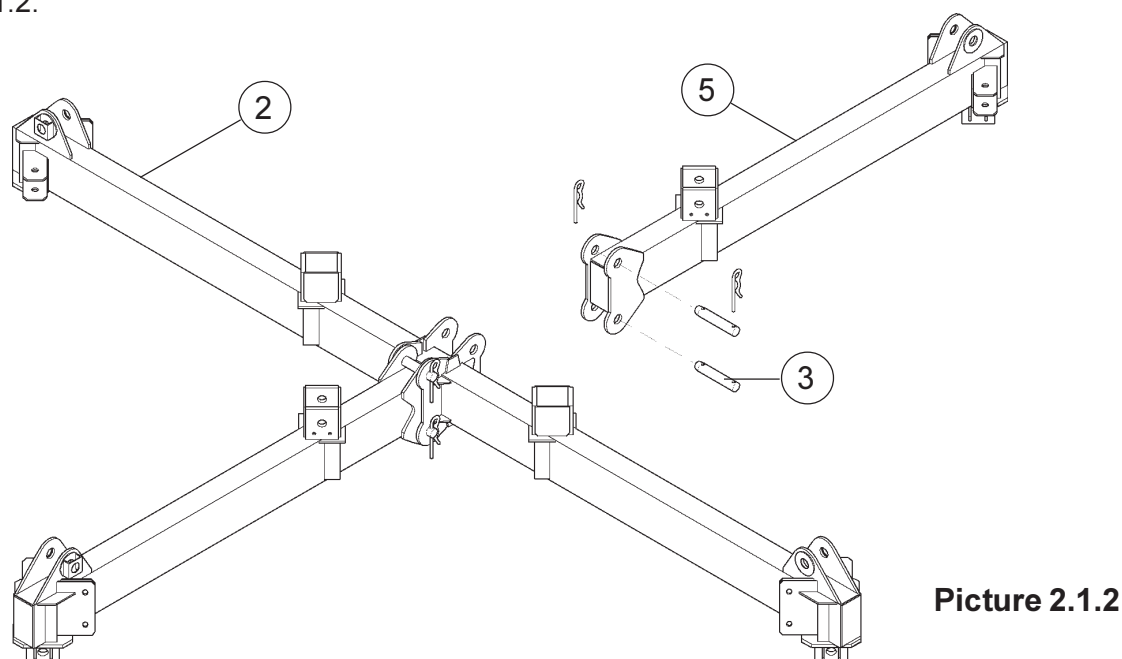
2.1.1 **Assembling 6×6 m [20×20 ft] undercarriage (stationary and travelling crane)**

Assemble the undercarriage according to the scheme shown in picture 2.1.1.

Bring short beam (1) up to long beam (2) and connect them with "C" pins Ø 80×350 (3).



Bring short beam (5) up to long beam (2) and connect them by "C" pins Ø 80×350 pins (3), as in picture 2.1.2.

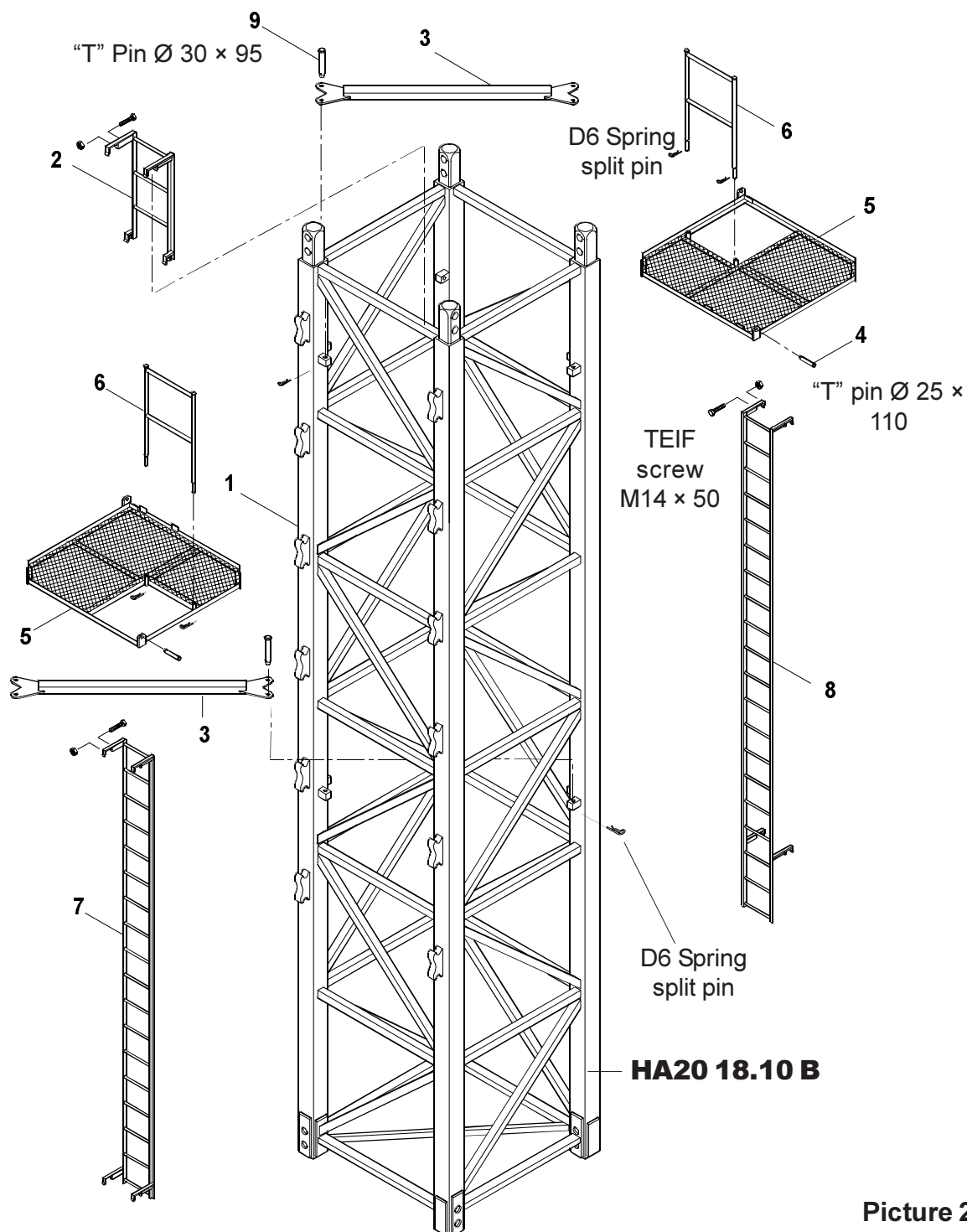


2.1.2 Assembling “HA20 18.10 B” (10 m / 33 ft) tower section

Assemble HA20 18.10 B tower element and mount all the portrayed elements as shown in picture 2.1.3.

WEIGHT OF THE UNIT

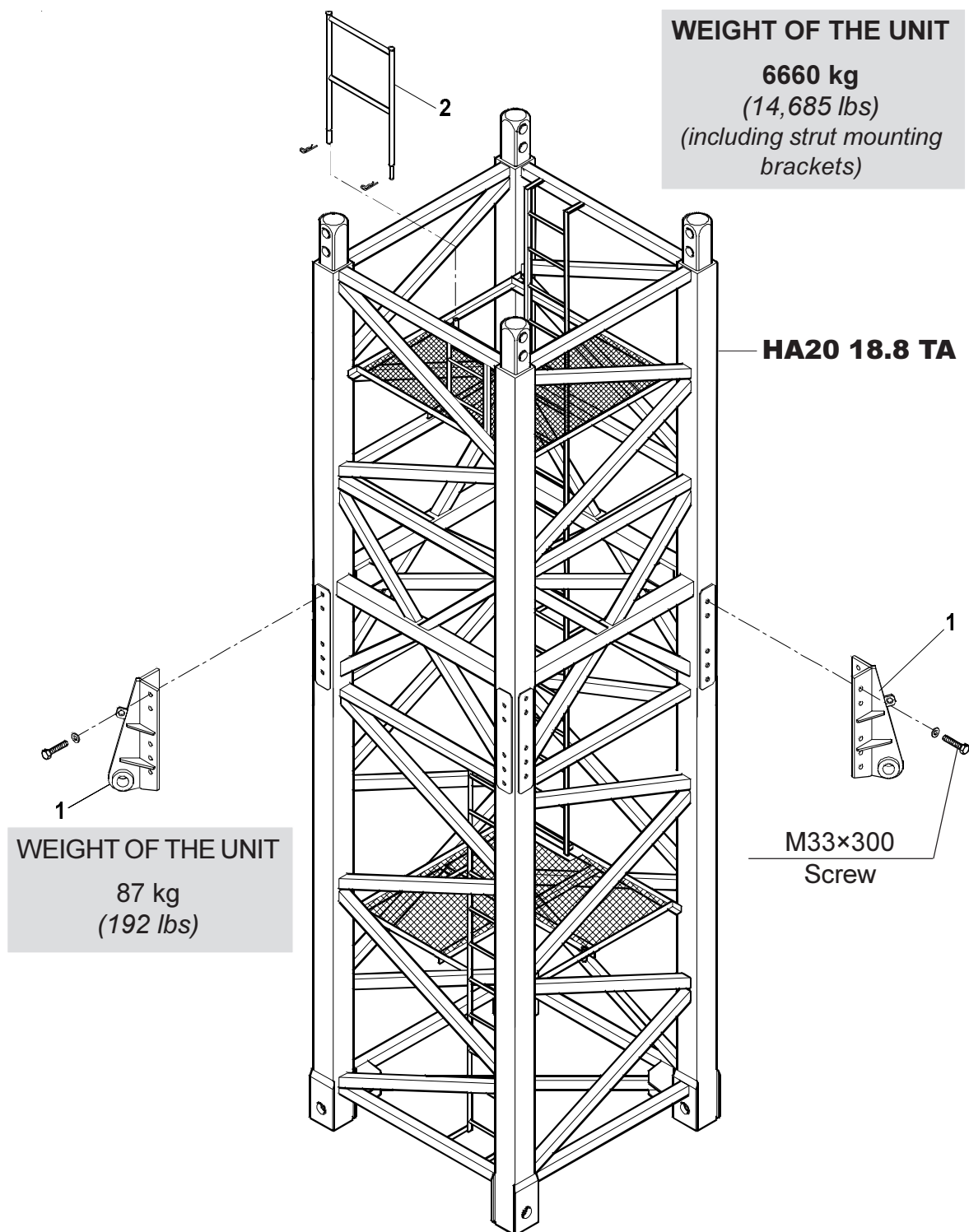
7000 kg
(15,435 lbs)



Picture 2.1.3

2.1.3 Assembling “HA20 18.8 TA” (7.5 m / 25 ft) strut mount tower section

Place strut mounting brackets (1) on the **HA20 18.8 TA** tower section and secure them with the special TEPF ZINC M33 × 300 10.9 screws (torque wrench setting 2200 Nm / 1623 lbs.ft). Position also the safety rail (2) (picture 2.1.4).



Picture 2.1.4

2.1.4 Assembling “HA20 18.4” (3.75 m / 12 ft) tower section

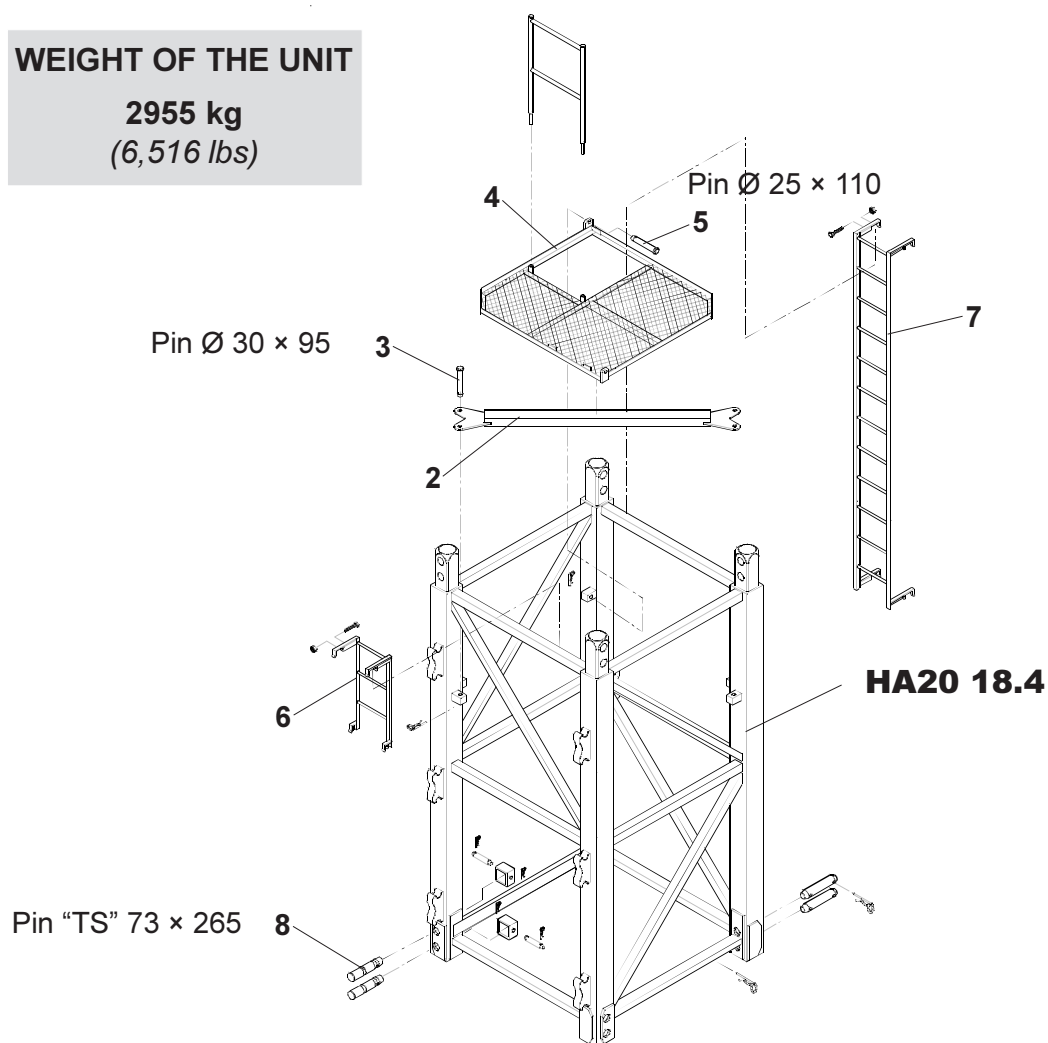
Assemble antitorsional diagonal (2) on **HA20 18.4** tower section (picture 2.1.5) securing it with pins $\varnothing 30 \times 95$ (3); pin platform (4) to the mast section with “T” pins $\varnothing 25 \times 110$ (5).

Assemble the ladders (6) and (7).

Secure the tower sections with pins “TS” 73×265 (8).

WEIGHT OF THE UNIT

2955 kg
(6,516 lbs)



Picture 2.1.5

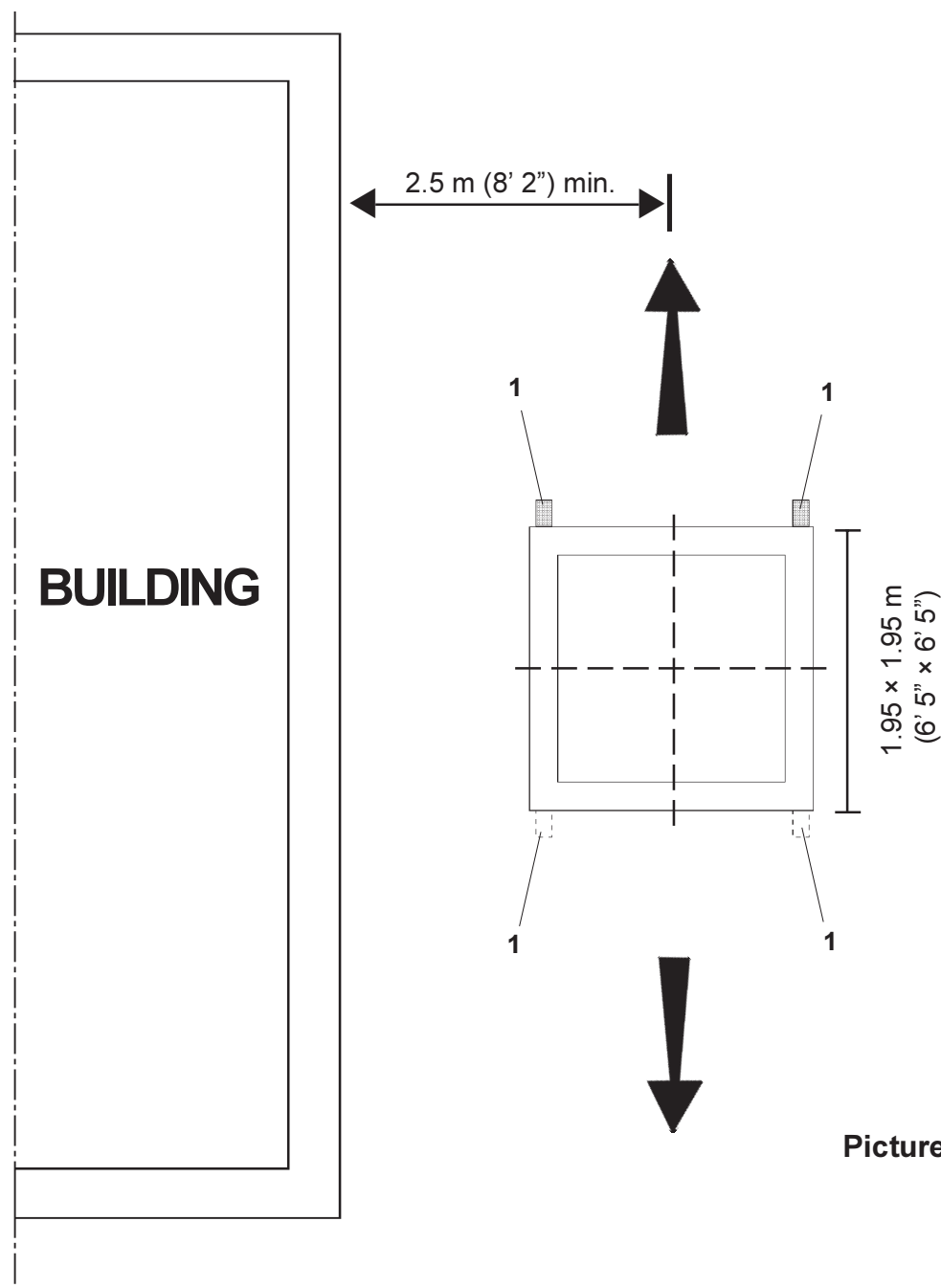
2.2 ERECTION BY MOBILE CRANE

IMPORTANT ADVICE FOR ERECTION OF THE SUPPORTS

(ERECTION BY TOP CLIMBING UNIT)



When top climbing (raising the tower by telescoping section), make sure that the tower lugs (1) are positioned as in picture 2.2.1.



Picture 2.2.1



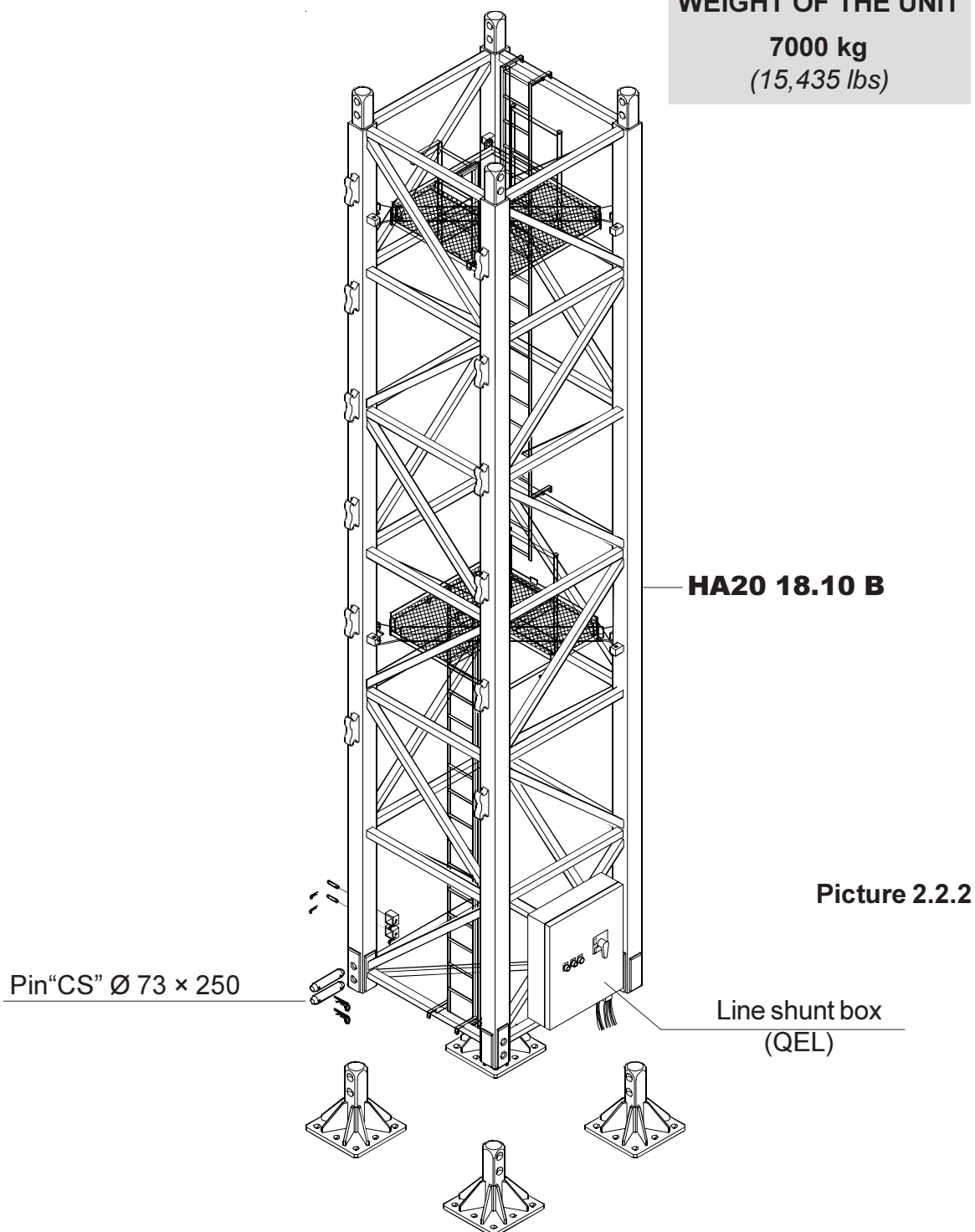
During this phase the technician in charge of the crane erection shall strictly observe the provisions stated in the 92/58/EEC standards as for signalling and safety on the working site. Therefore, he shall keep continuous visual contact with the crane operator.

2.2.1 Assembling “HA20 18.10 B” base tower section

Assemble HA20 18.10 B base tower section on the anchored plates using the proper pins “CS” Ø 73× 250 (picture 2.2.2).

WEIGHT OF THE UNIT

7000 kg
(15,435 lbs)



2.2.1.1 Leveling control



On completing the assembly of the tower section, check its leveling in all directions using a level.

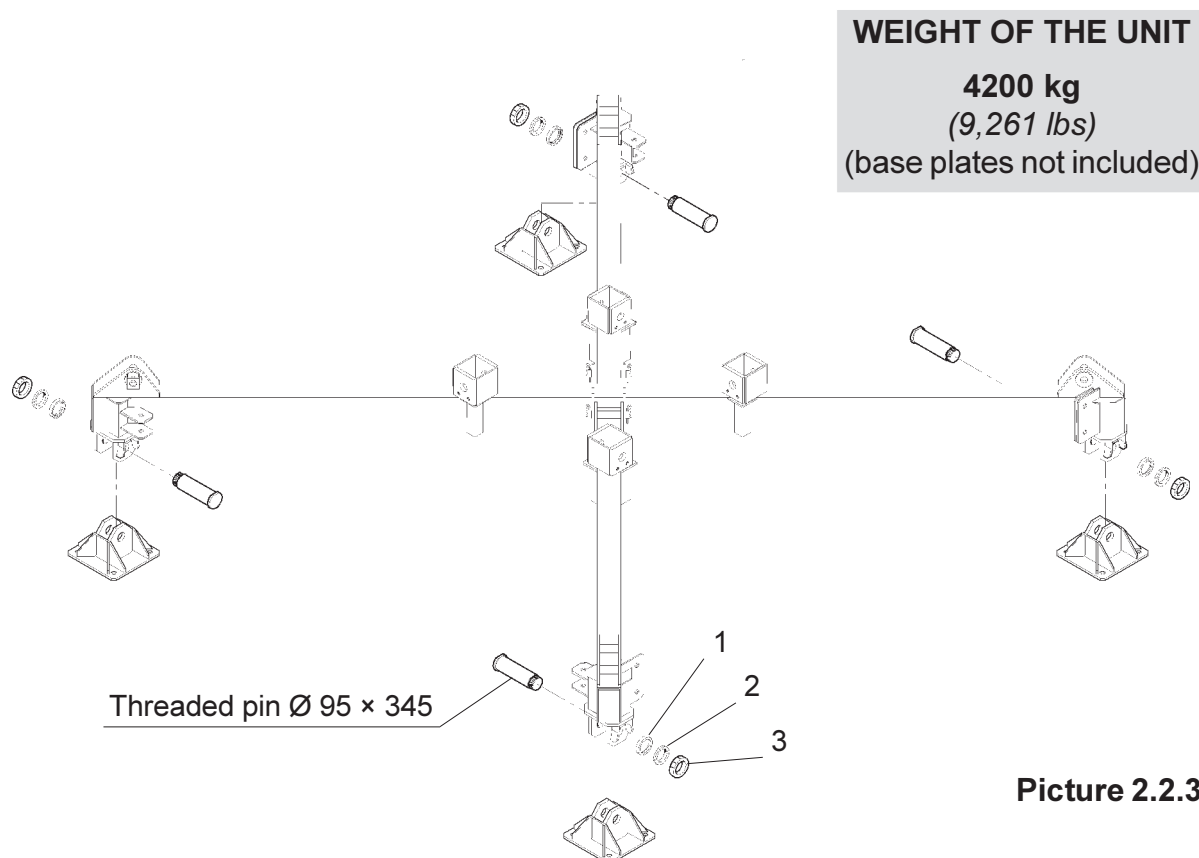
Tower shall be erected plumb to a tolerance of 1:500 (about 1/4 in. in 10 ft).

In case of deviation from the prescribed value, contact Comedil Engineering Department.

2.2.2 Assembling 6×6 m / 20×20 ft undercarriage (stationary crane)

Sling, lift and position the undercarriage on the base plates; pin-connect it by threaded pins Ø 95 × 275.

Secure the pins with bush (1), safety washer (2) and M 85 × 2 ring nut (3) as in picture 2.2.2.



Picture 2.2.3



For the connection of the base plates using anchor bolts, consult **chapter 3C** of the crane's operation manual.

2.2.2.1 Leveling control (stationary crane installation)



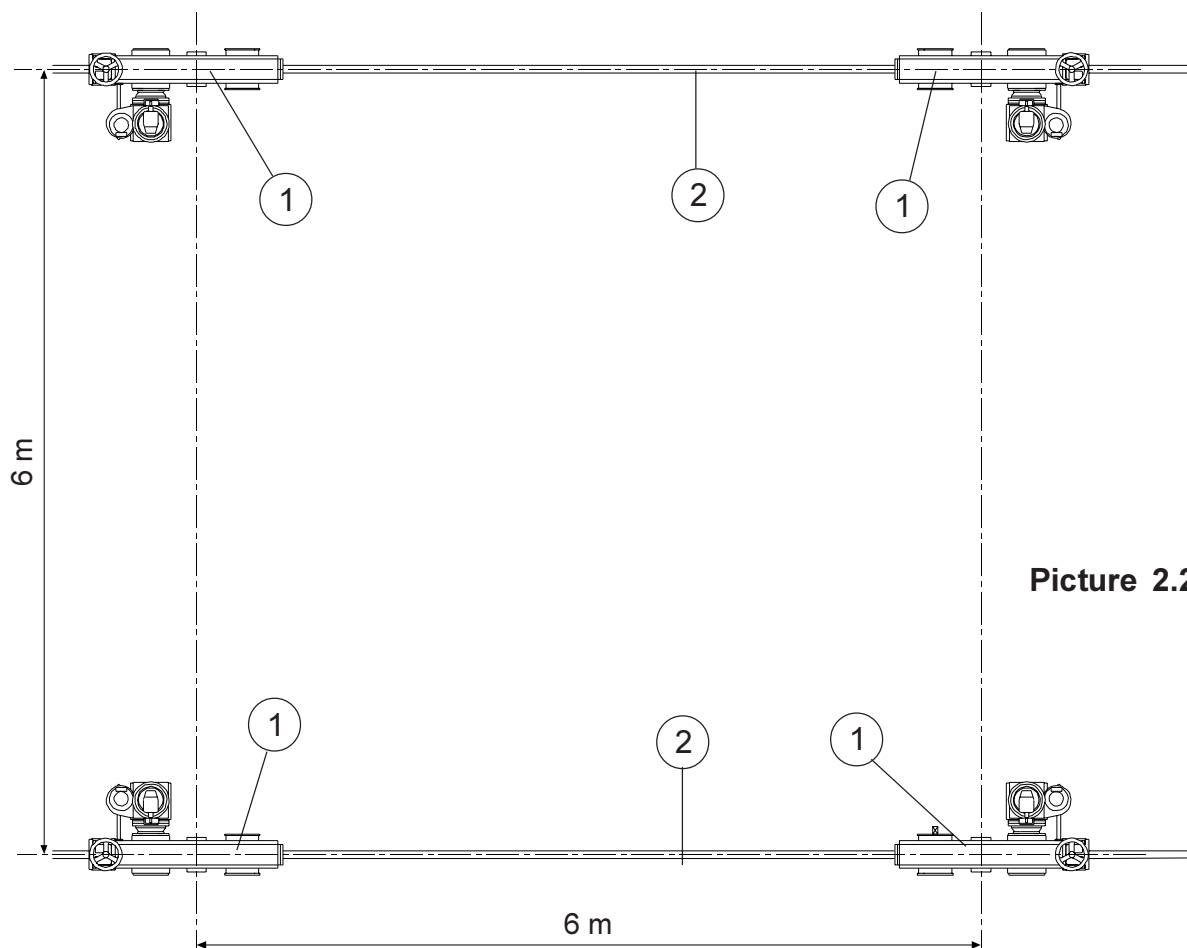
Once completed the assembly of the undercarriage, check its leveling in both directions using a level.



2.2.3 Assembling 6×6 m / 20×20 ft undercarriage (travelling crane)

2.2.3.1 Assembling the travelling bogies on the rail track

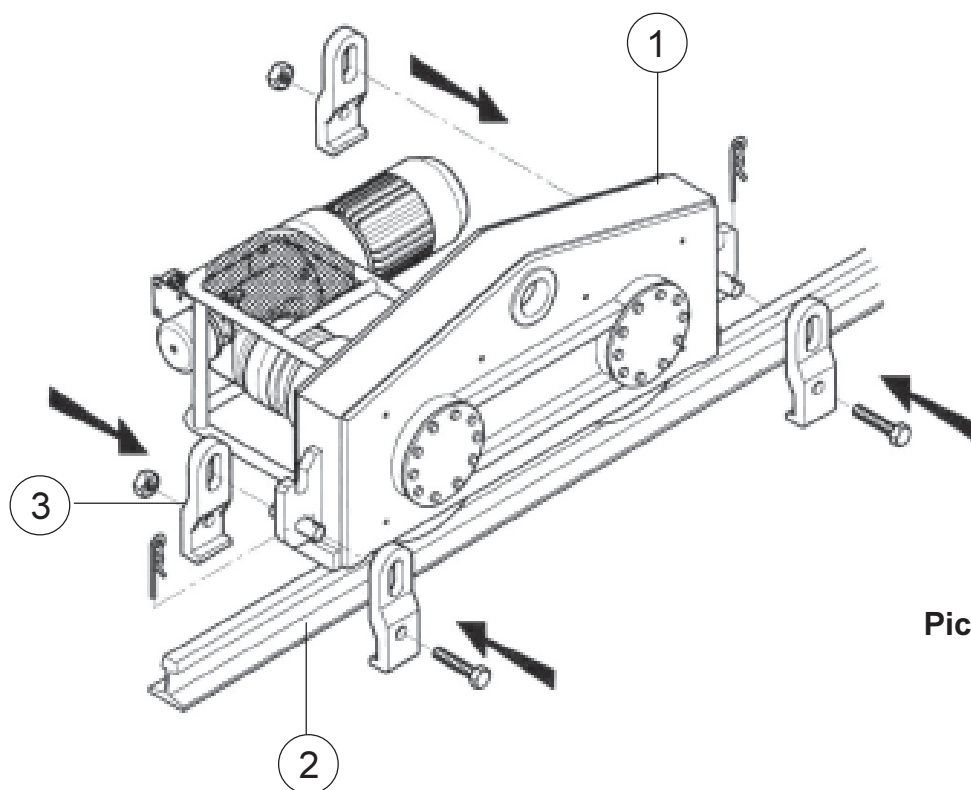
Position travelling bogies (1) on rail track (2) as shown in picture 2.24.



Picture 2.2.4

2.2.3.2 *Securing the travelling bogies on the rail track*

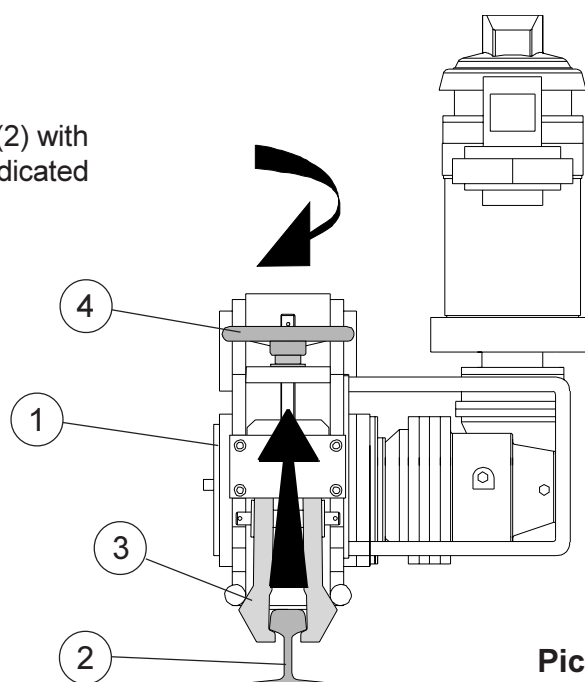
Secure travelling bogies (1) to rail track (2) with anchor clamps (3).



Picture 2.2.5

For travelling installation with handwheels, operate as in picture 2.2.6.

Secure travelling bogies (1) to rail track (2) with anchor clamps (3) by handwheel (4) as indicated in picture 2.2.6.



Picture 2.2.6

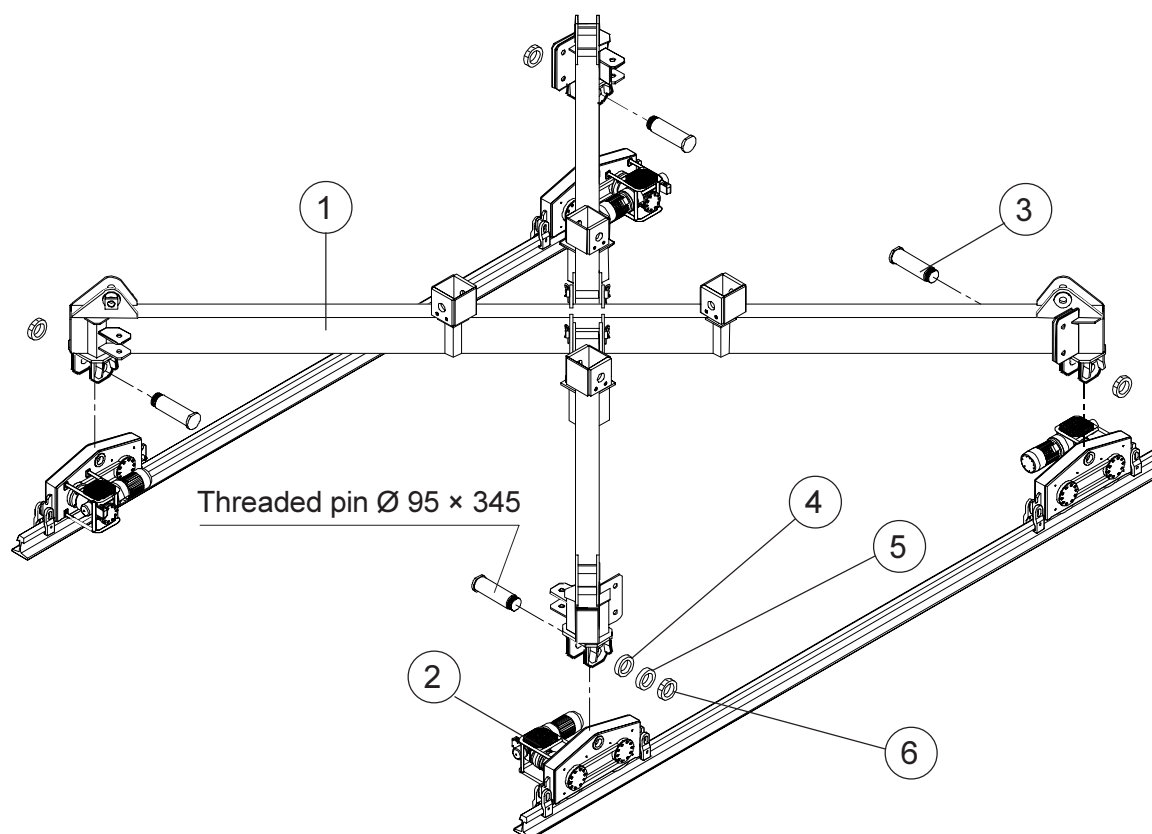
2.2.3.3 Assembling 6×6 (20×20 ft) undercarriage on the travelling bogies

Position undercarriage (1) in correspondence of the proper mounts placed on travelling bogies (2) and fix them with Ø 95 × 275 threaded pins (3).

Secure pins with bush (4), safety washers (5) and M 85 × 2 ring nuts (6) (picture 2.2.7).

WEIGHT OF THE UNIT

4200 kg
(9,261 lbs)



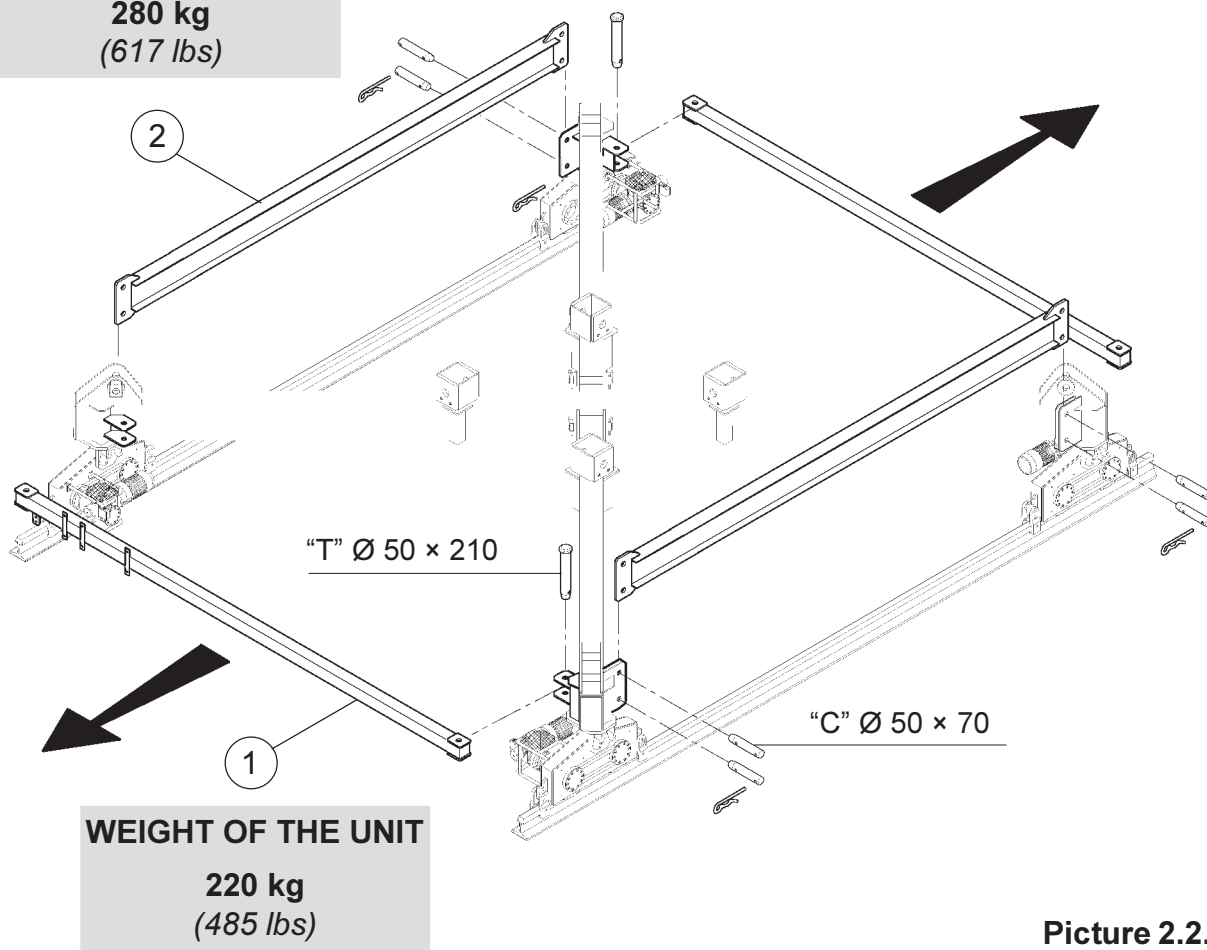
Picture 2.2.7

2.2.3.4 Assembling the sleepers on the undercarriage (travelling crane)

As per scheme in picture 2.2.8, assemble the joining sleepers (1) and (2) making sure that sleeper (1) is at a right angle about the travelling direction of the crane.

WEIGHT OF THE UNIT

280 kg
(617 lbs)



Picture 2.2.8

2.2.3.5 Leveling control (travelling crane)



Once completed the assembly of the undercarriage, check its leveling in both directions using a level.

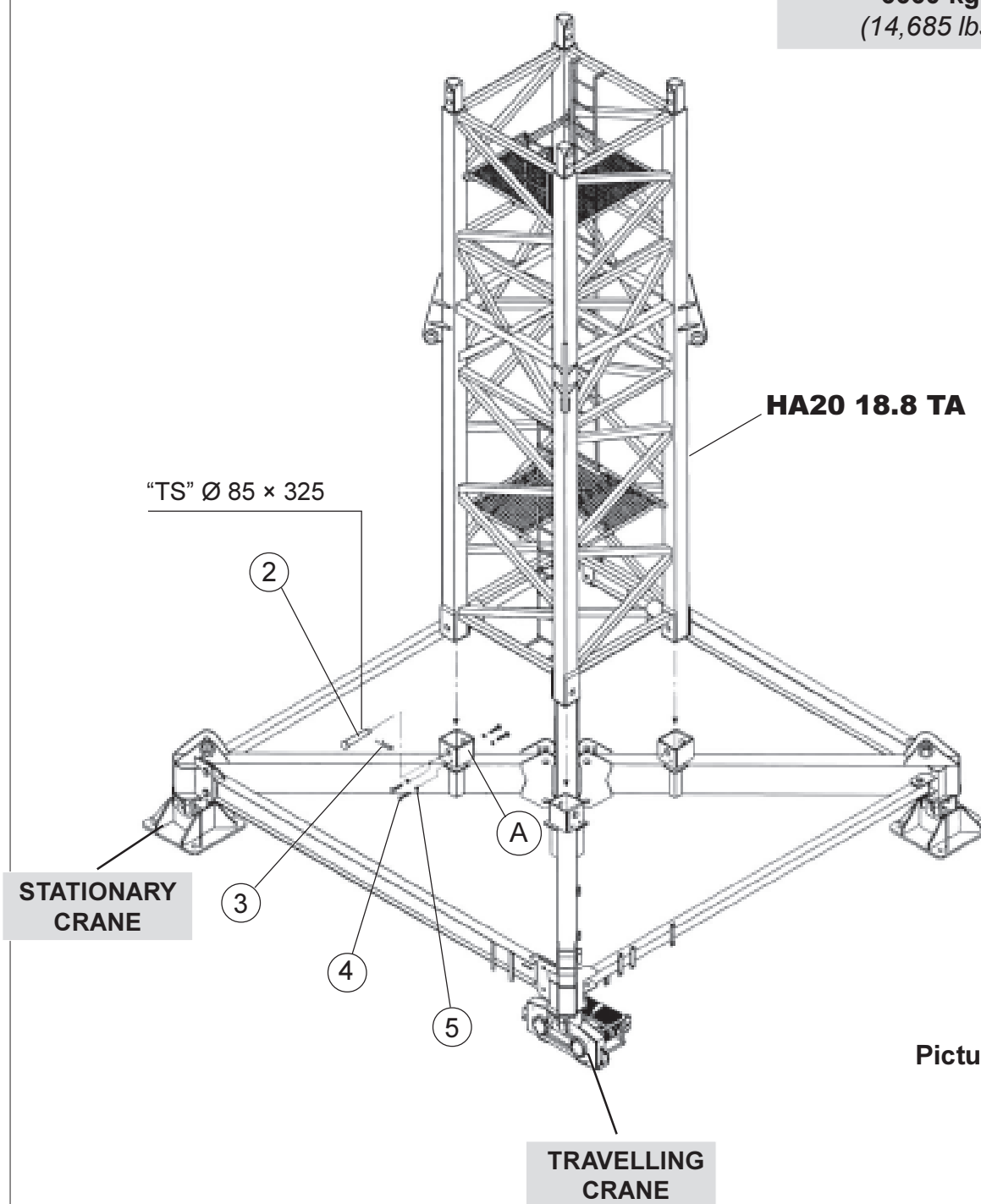


2.2.4 Assembling “HA20 18.8 TA” strut mount tower section (stationary and travelling crane)

Insert HA20 18.8 TA base tower section in the mounts (A) on the undercarriage, secure it with pins “TS” Ø 85 × 325 (2) and split pins (3); then secure screws (4) in the proper threaded holes blocking them with nuts (5) (picture 2.2.9).

WEIGHT OF THE UNIT

6660 kg
(14,685 lbs)



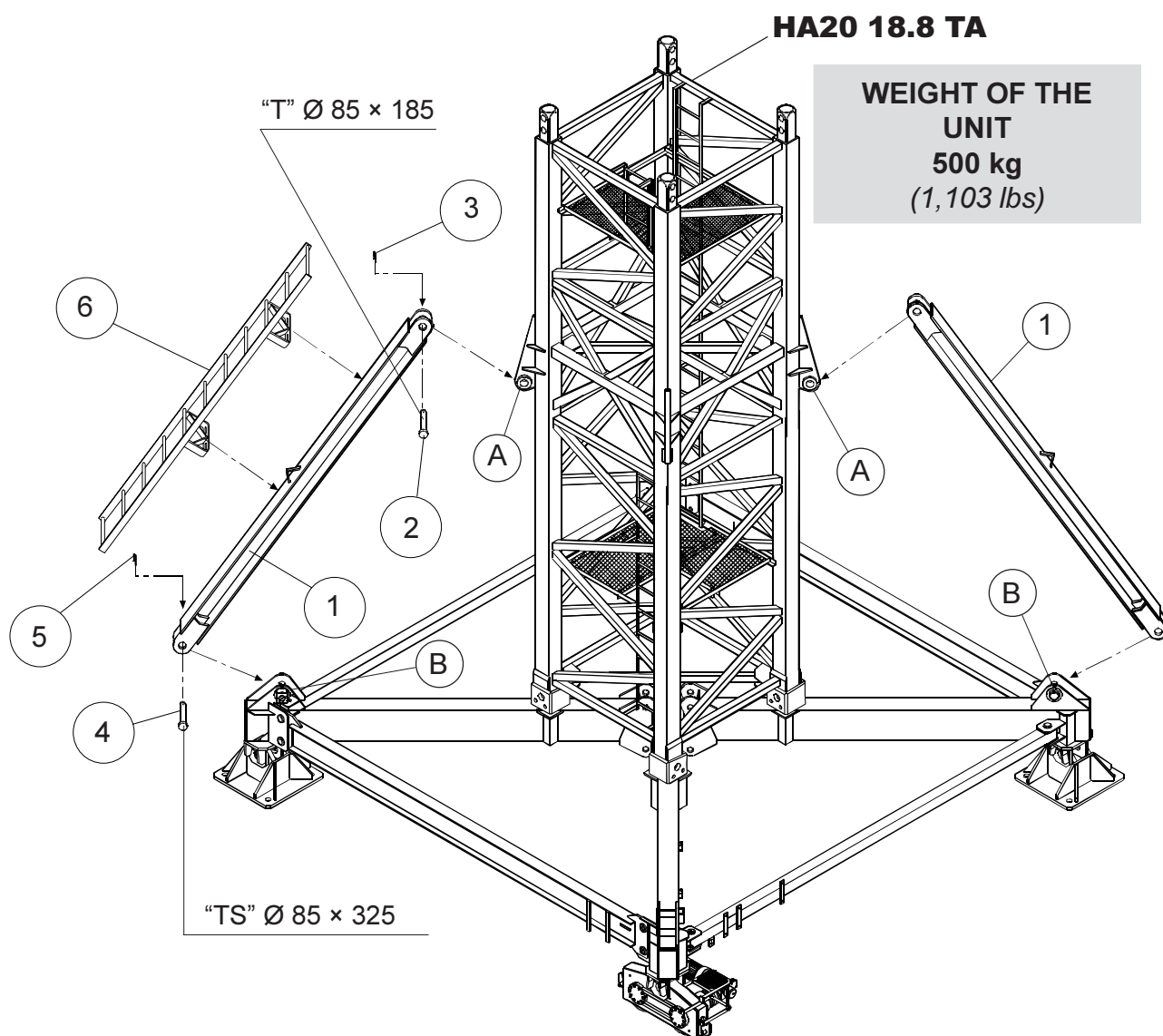
Picture 2.2.9

As per scheme shown in picture 2.2.10 assemble struts (1) securing them on "A" mounts by pins "T" 85 × 185 (2) and proper split pins (3); then on "B" mounts by pins "TS" 85 × 325 (4) and proper split pins (5).

Place ladder (6) on strut (1).



Pin-connect struts (1) to "A" mounts first, then to "B" mounts.



Picture 2.2.10

2.2.5 Base ballast assembly (Stationary and travelling crane)

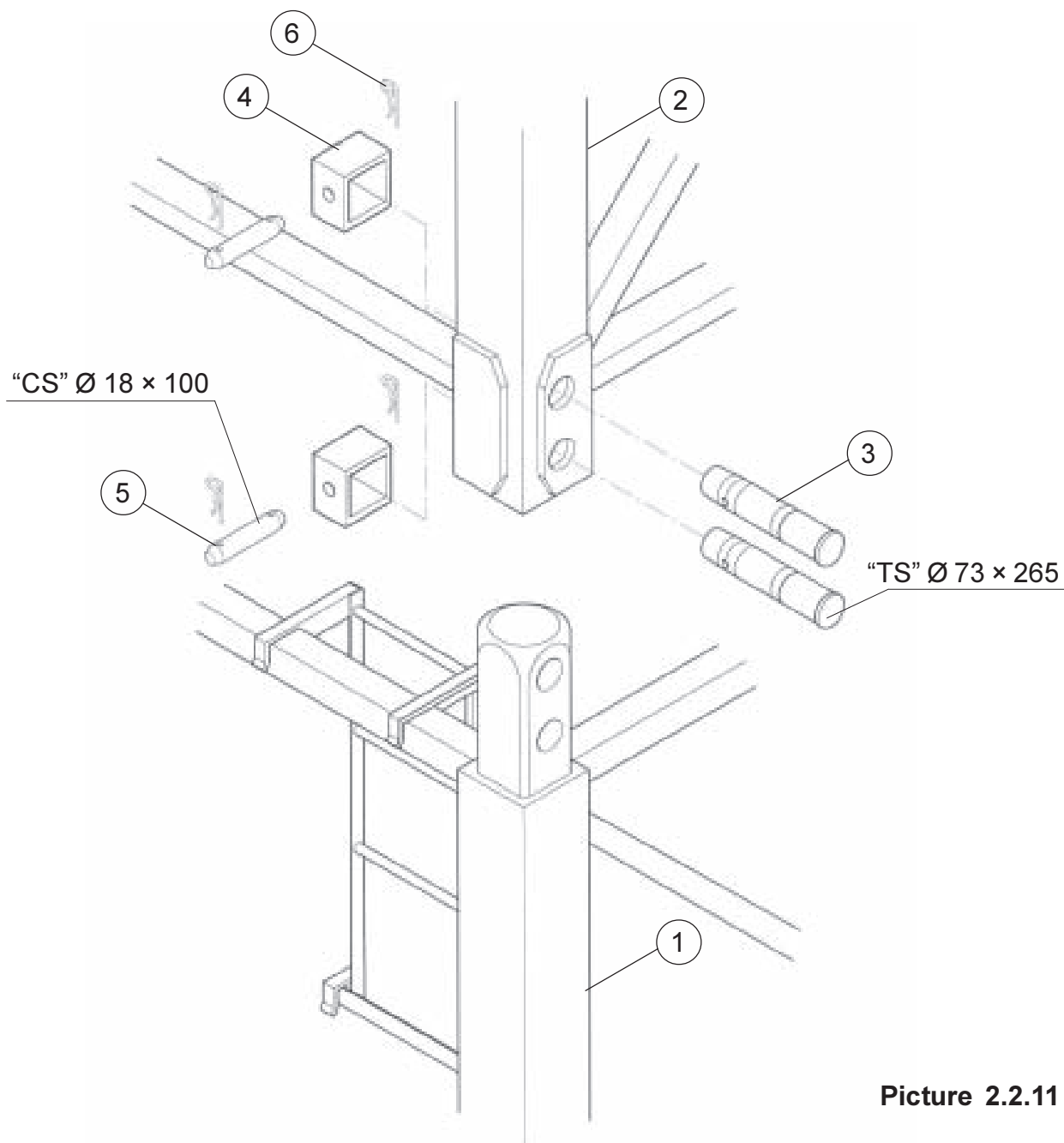


Consult **chapter 3C** of the crane operation manual for the positioning and quantity of the base ballast to assemble on the undercarriage.

2.2.6 Assembling HA20 tower sections

Pin connect HA20 tower sections with pins “TS” Ø 73 × 265 (3), inserting tower section (1) on tower section (2).

Secure “TS” pins with tubular bushes (4), pins (5) and split pins (6) (picture 2.2.11).



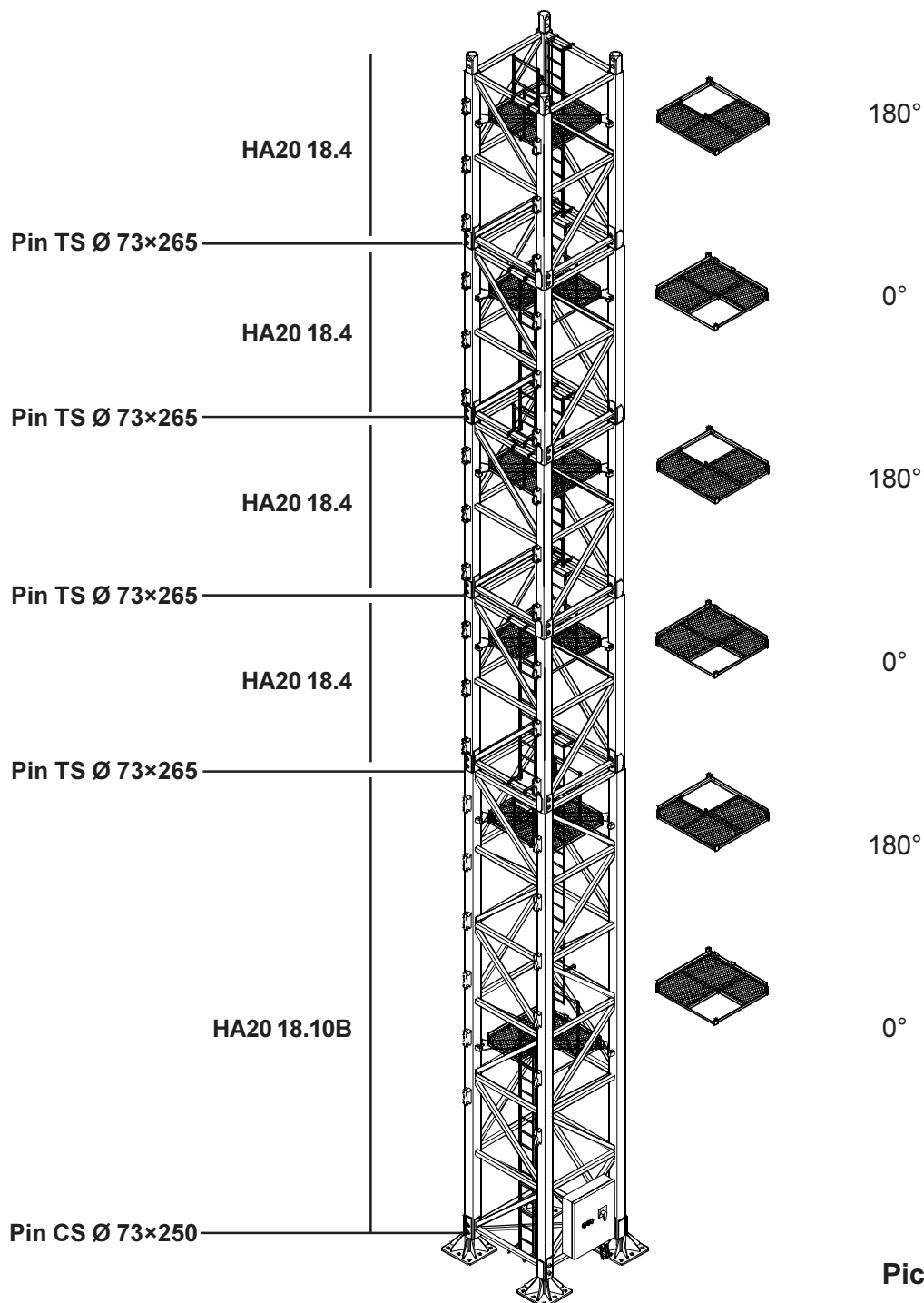
Picture 2.2.11

Note



The pin head shall face the outer side of the tower to avoid any interference with the top climbing unit.

Install the mast section (already preassembled on the ground) with the rest platforms turned 180° one about the other (picture 2.2.12).



Picture 2.2.12



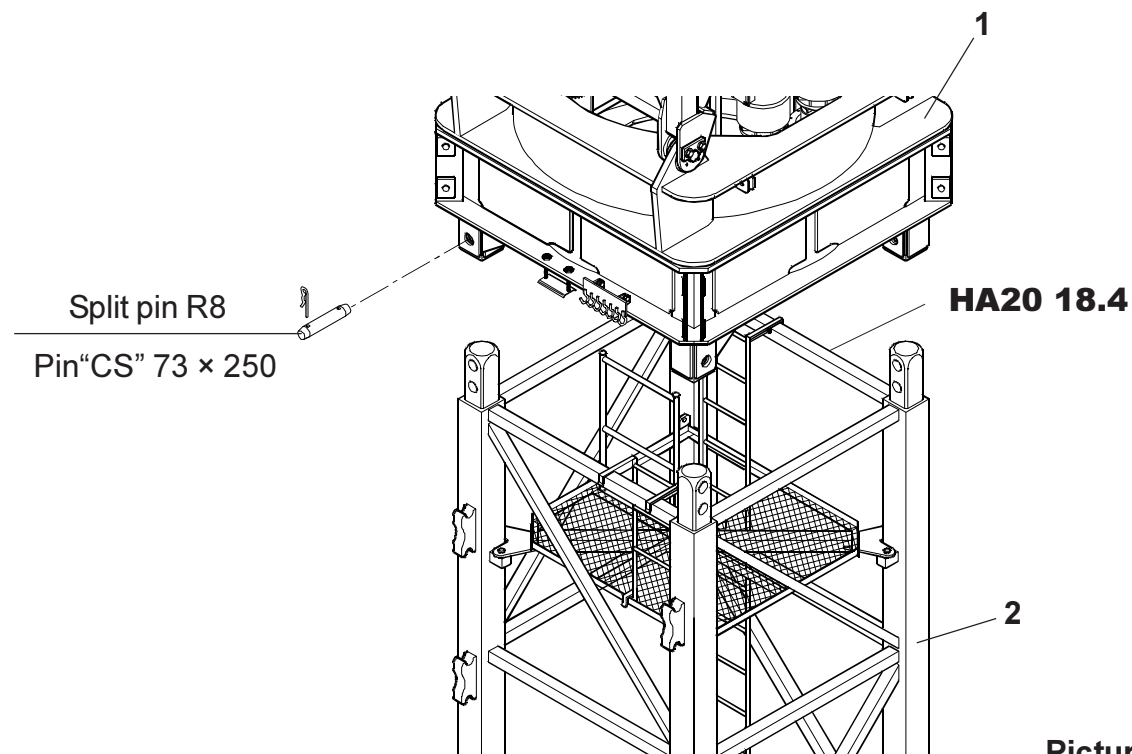
2.2.7 Connecting the lower slewing ring support to the top tower section

Sling the slewing unit and place it on the “HA20 18.4” top tower section, making sure that the access opening on the lower slewing ring coincides with the ladder of the top tower section (picture 2.2.13).



Consult **Chapter 5C** of the crane operation manual for the electrical connections and for the correct assembly procedures.

Connect the slewing unit (1) to the tower (2) with the proper pins “CS” 73 × 250 (picture 2.1.13).



Picture 2.2.13

2.2.8 Final checks



Check that all safety split pins are in their housings and accurately open.



3

DISMANTLING

3.1 REQUIREMENTS FOR DISMANTLING



- A) Establish an area inside the job site in which all components of the tower shall be stored. It is advisable to keep all the parts off the ground.
- B) Check that the tower is still structurally sound to carry out the disassembly in a safe manner.
- C) Ensure that there are no electric cables, overhead or ground systems which could interfere with the disassembly maneuvers.
- D) The person responsible for the job site shall check that there are no people within the crane's disassembly area.

Put barriers where feasible.

- E) Check that the hoisting devices supplied by the Customer meet the job specific criteria.

The appropriate mobile crane for the crane tower erection shall be chosen according to:

- ⇒ the crane installation type (stationary or travelling crane)
- ⇒ the tower height
- ⇒ the crane model (slewing upper part)

*For a correct choice refer, therefore, to **Chapters 4A** (Tower - Dimensions & Weights) and **5A** (Slewing Upper Part - Dimensions & Weights), as well as to the recommended assembly procedure illustrated in the previous pages.*

The erector shall inspect the conditions of the ropes, chains and slings which are to be used for hoisting the crane's components.



The erector shall inform the mobile crane operator of the exact weight of the parts that are to be hoisted.

The mobile crane operator is fully responsible, instead, for the slinging and hoisting of the loads.

- F) During the slinging phases, before removing the bolt-connections of the various crane components, verify that the center of gravity of the part to be lifted and the attaching point of the cable coincide.



3.2 DISMANTLING THE TOWER

- A) Sling with four shackles the top HA20 18.4 tower section;
- B) Disassemble the ladder components;
- C) Remove the connecting pins;
- D) Lower the tower section to the ground and place it in a horizontal position;
- E) Proceed according to the same disassembly sequence for the remaining tower sections.

3.3 DISMANTLING THE UNDERCARRIAGE (stationary and travelling crane)

- A) Remove all the ballast from the undercarriage.
- B) Remove the "QEL" electrical box carefully;
- C) Remove struts "1" (picture 2.2.10);
- D) Remove the pins connecting HA20 18.8 TA tower section to the undercarriage; then sling it with 4 shackles and place it on the ground (picture 2.2.8);
- F) Sling the undercarriage.

■ *Undercarriage for stationary crane*

- F1) Remove the pin-connections between the base plates and the undercarriage (picture 2.2.3);
- F2) Lift the undercarriage and take the base plates away from the undercarriage disassembly area.

■ *Undercarriage for travelling crane*

- F1) Remove the pin-connections between the travelling bogies and the undercarriage (picture 2.2.7);
- F2) Lift the undercarriage and move it to the disassembly area;
- F3) Remove the anchor clamps, sling the travelling bogies one at a time and place them in the storage area.
- G) Remove the joining members of the main beams (picture 2.2.8);
- H) Disconnect a short beam from the long beam, sling and place it in the storage area (picture 2.1.2);
- I) Disconnect the second short beam from the long beam, sling and place it in the storage area (picture 2.1.1);
- L) Sling the long beam and place it in the storage area.

3.4 CRANE STORAGE

Properly grease all the mounting holes and pins.

Protect the unpainted parts (close to the bolt-connections).

Protect all the electrical parts (motors included) against bad weather conditions by covering them with rainproof sheets.