

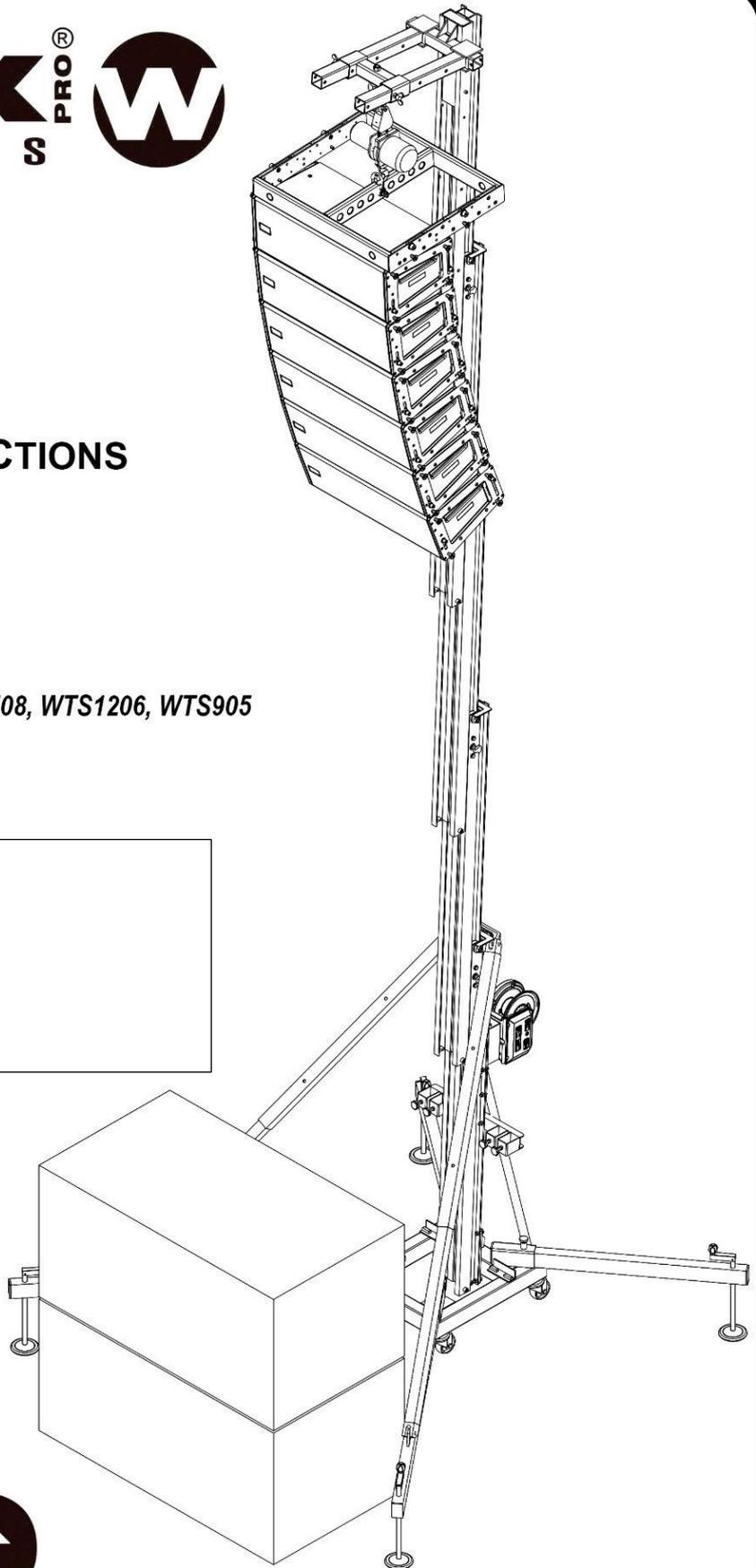


## LIFTING SYSTEMS

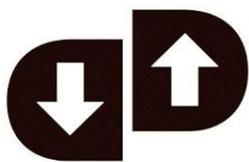
## OPERATING INSTRUCTIONS

### FOR MODELS:

*WTS375, WTS256, WTS506, WTS708, WTS1206, WTS905*



**DYNSYS**



**DYNAMIC OVERLAP**



## IMPORTANT

Carefully read and understand all points and aspects of this manual. Lifting loads irresponsibly can cause lethal accidents. Installation of lifting systems and proper use are only responsibility of the user.

It is recommended to attach this manual with the tower system used.

In case of doubt, consult the technical department of Work Lifters.

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## CONTACT

Internet: [www.worklifters.com](http://www.worklifters.com)

e-mail: [support@equipson.es](mailto:support@equipson.es)

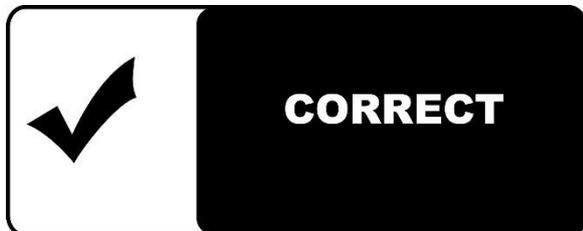
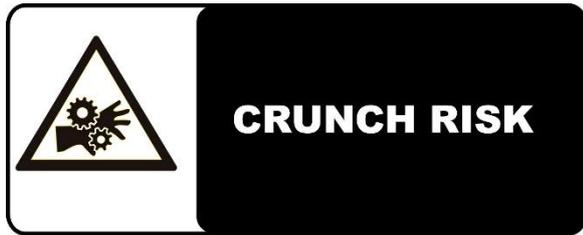
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## WARNING ICONS



## RULES AND SAFETY USE

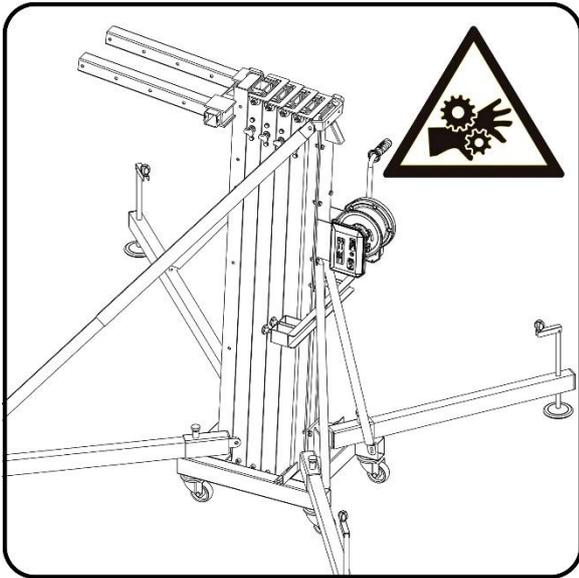


Figure 1

Keep hands and fingers away from moving parts of the tower.

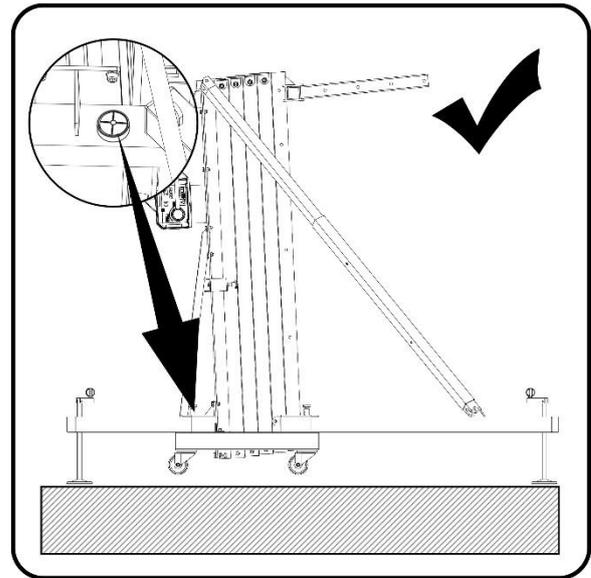


Figure 3

Do not lift the tower without proper leveling. To lift a load, the tower must always be stabilized.

**The wheels must not touch the ground.**

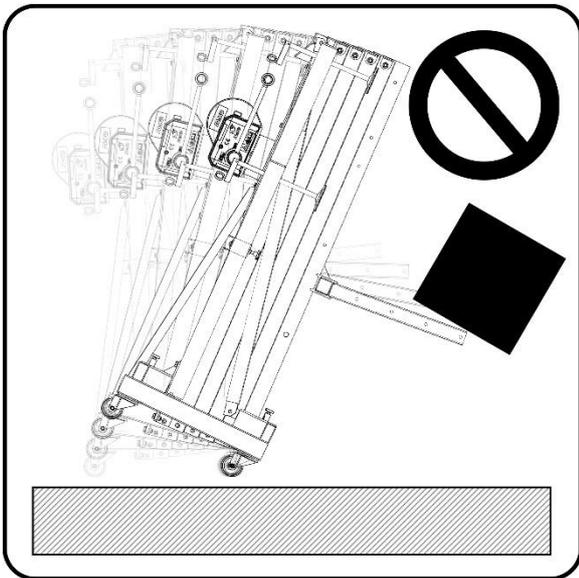


Figure 2

Not charge the tower without the stabilizer legs.

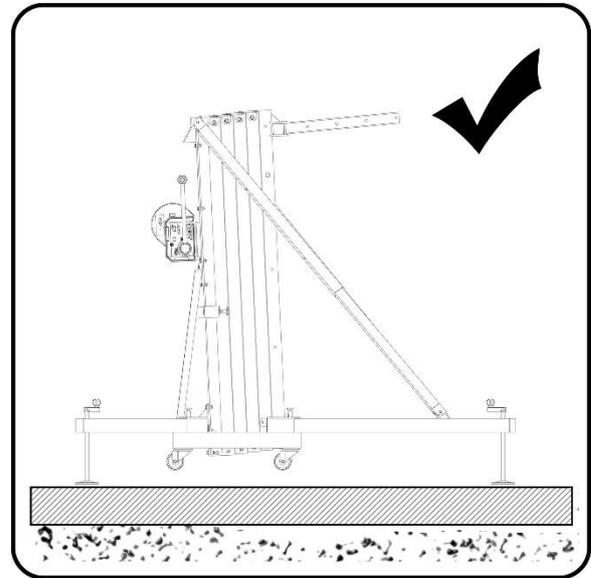


Figure 4

Place the tower on a stable surface.

If the ground has a low degree of compaction (earth, gravel, etc..) consult the section of load data.

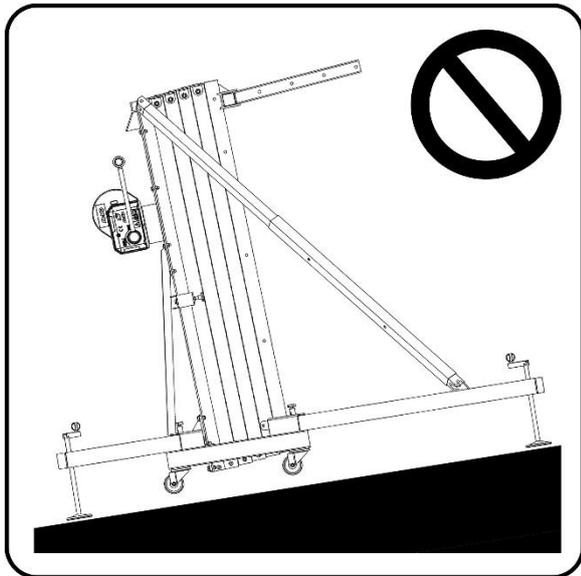


Figure 5

Do not use the tower on inclined surfaces that require pieces to level the tower.

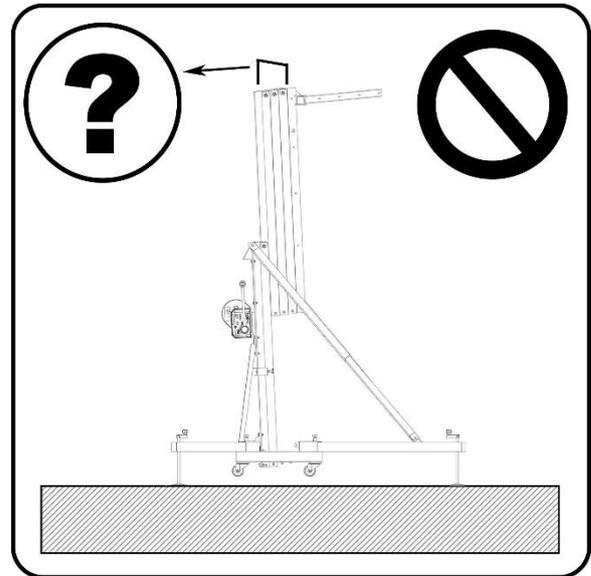


Figure 7

Lift the mast in the correct order.

Lift the mast of the tower starting always with the carriage. The last mast lifted must be the next to the section where the winch is placed.

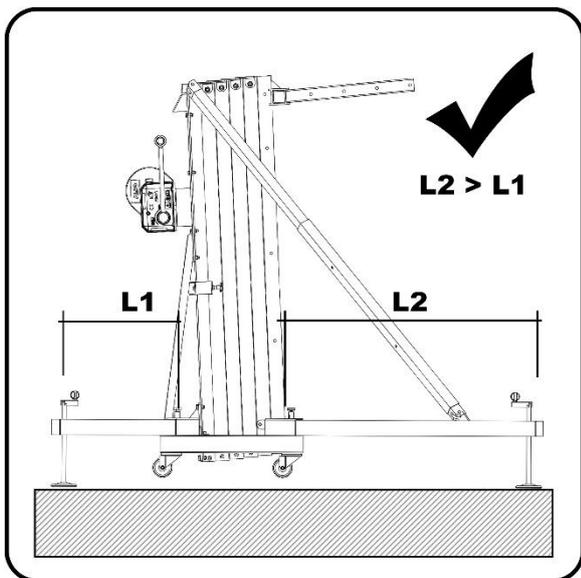


Figure 6

Mount the longest stabilizer legs in the part of the horns. Safety pins must lock the stabilizers.

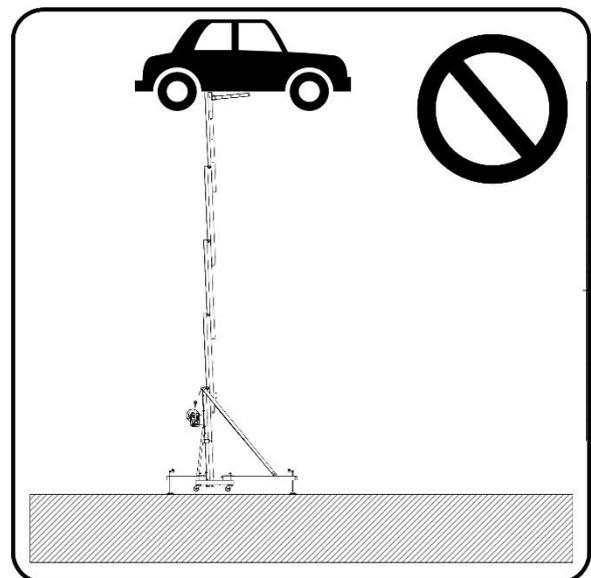


Figure 8

Before placing a load, make sure that the load never exceeds the maximum allowed. Consult the section of load data.

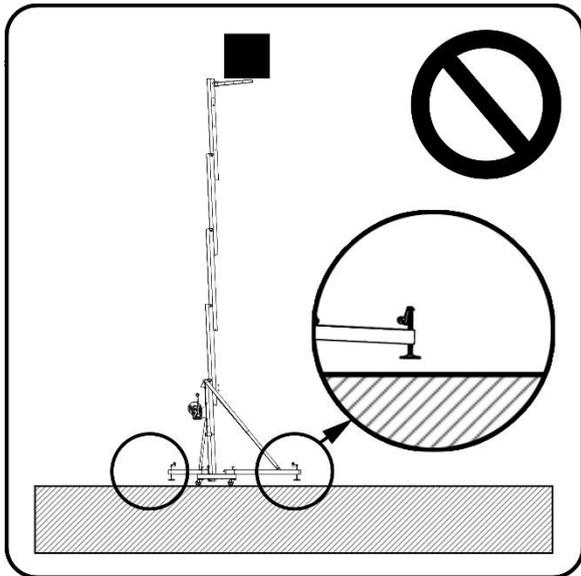


Figure 9

Never move a load without leveling the tower before.

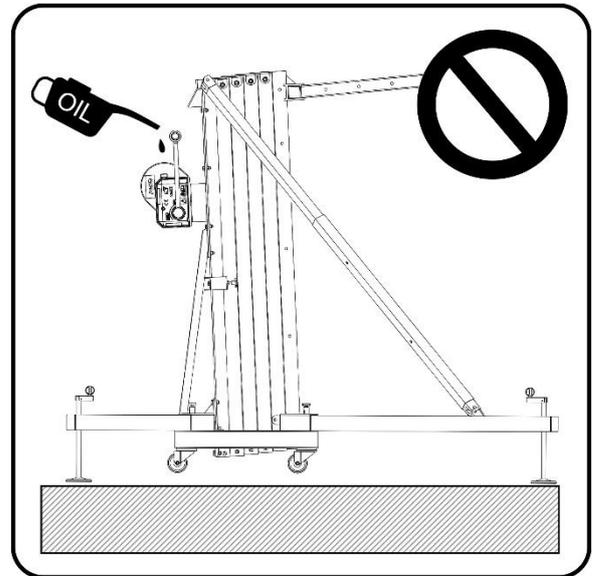


Figure 11

Not grease or lubricate the mechanism of the winch and the pulleys of the masts.



Figure 10

Do not use ladders on the tower or leaning against it.

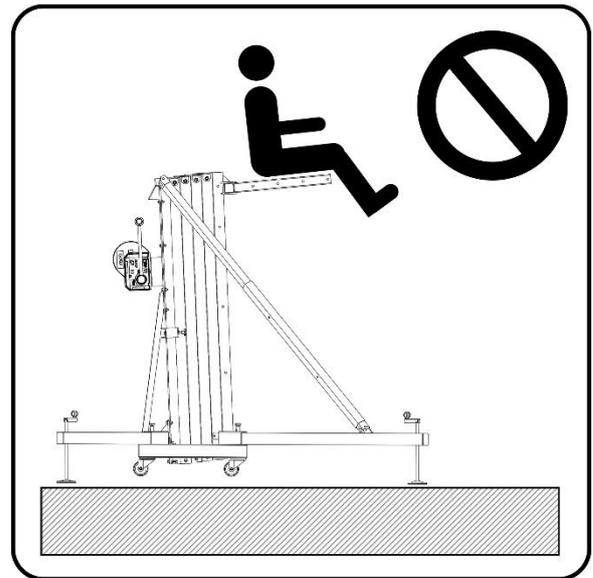


Figure 12

Not allowed to lift people or animals.

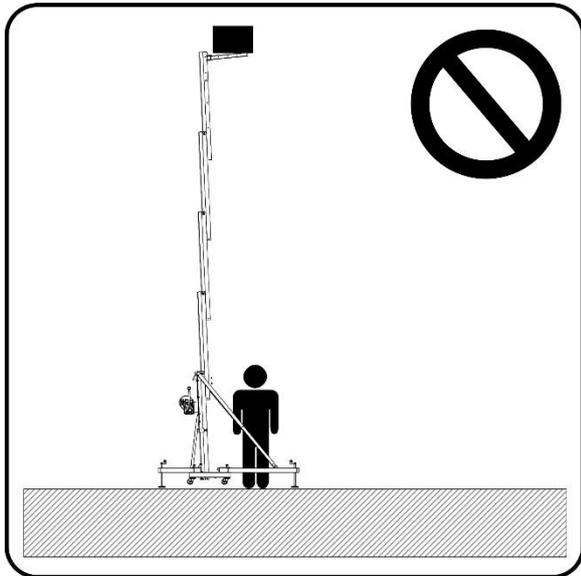


Figure 13

Do not stand under the load. The load must be secured to the tower in order to prevent that it cannot fall down.



Figure 14

Verify that the tower is beyond the reach of power lines.

The tower is not electrically insulated and can transmit currents of power lines.

On the following table is recommended the average length between the highest part of the structure and the power lines.

Voltage	Min. distance	
	Meters	Feet
0 a 230v	1.5	4.92
230v a 400v	2.8	9.19
400v a 50Kv	3.4	11.15
50Kv a 200Kv	4.9	16.08
200Kv a 350Kv	6.5	21.33
350Kv a 500Kv	8.2	26.90
500Kv a 750Kv	11.3	37.07
750Kv a 1000Kv	14.2	46.59

Figure 15

Not use the tower as welding mass.

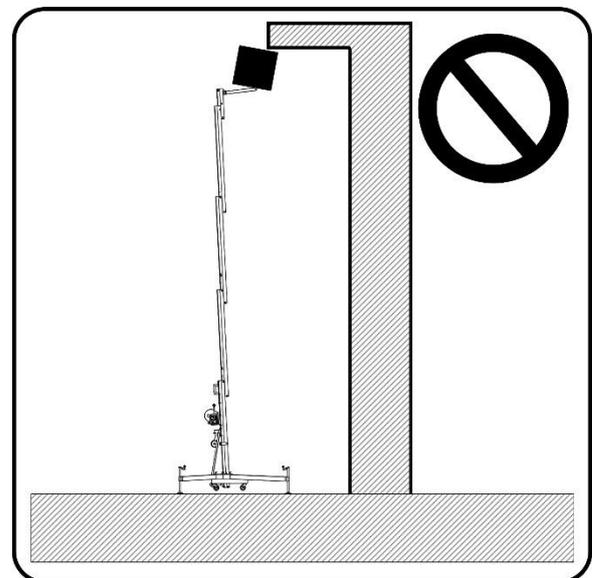


Figure 16

Not lift a load if there is danger of collision. Take at least 1.5 meters on any direction to lift the load safely.

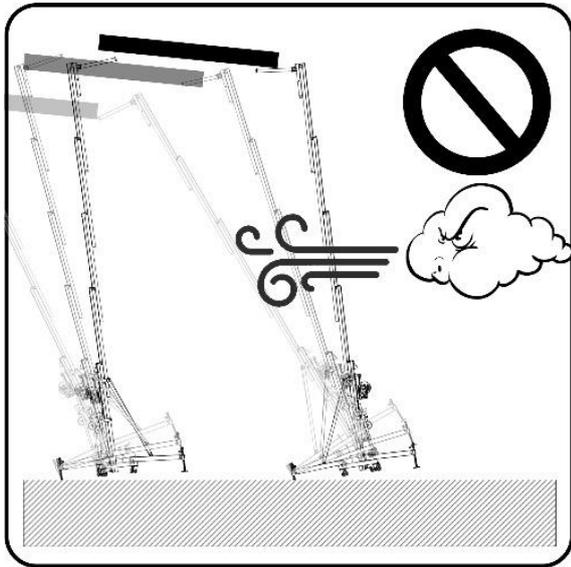


Figure 17

The tower can be used outdoor, **only in structural mode but with the loads corresponding to mechanism mode (for security purposes)**, if the wind speed is low and if it doesn't put the installation at risk. The installation is always under the responsibility of the owner.

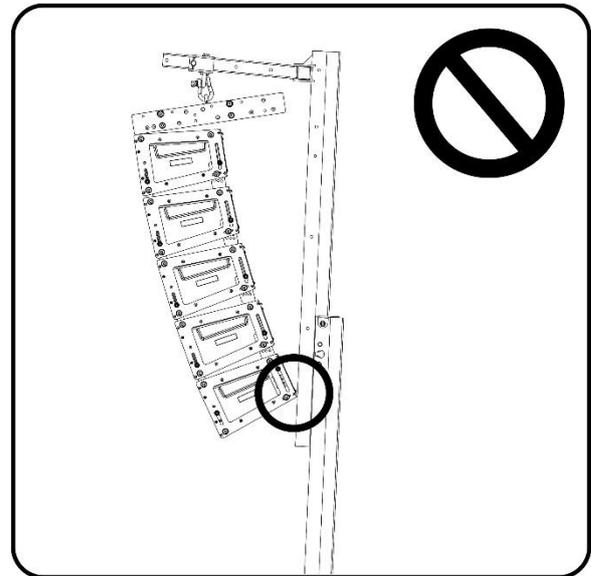


Figure 19

Prevent that the load do not touch the tower

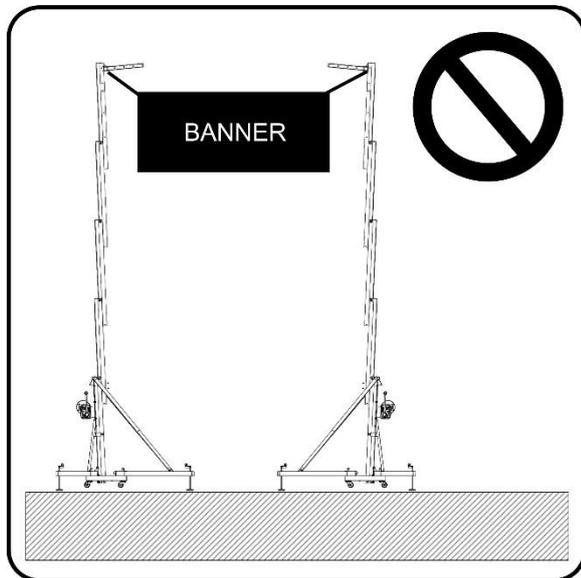


Figure 18

Do not use the tower as a support of banners or another type of decoration with strong wind that can destabilize the tower and make it falls down.

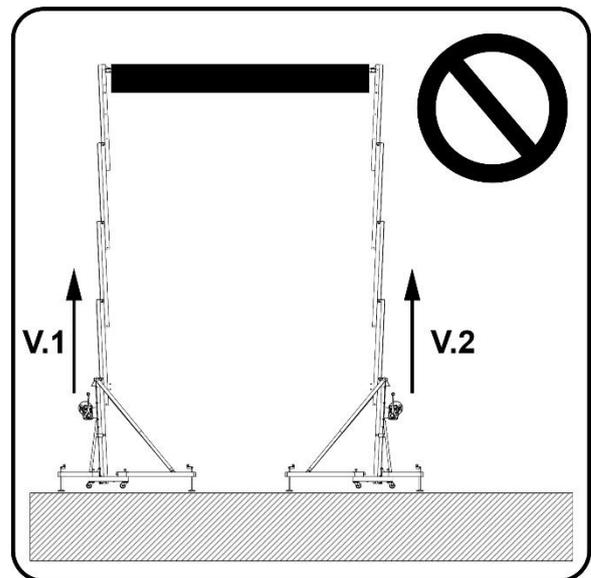


Figure 20

Do not lift structures that require more than one tower at different speeds

$V1 \neq V2$  No lift

$V1 = V2$  Ok

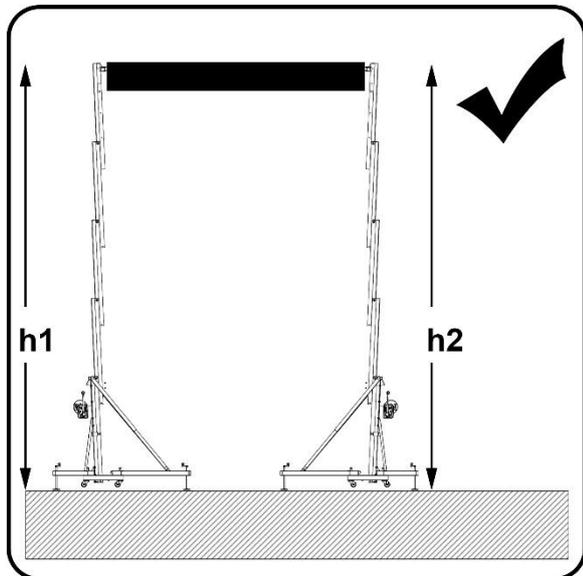


Figure 21

The structure must be levelled correctly. If not, the structure can fall.

Always  $h1 = h2$

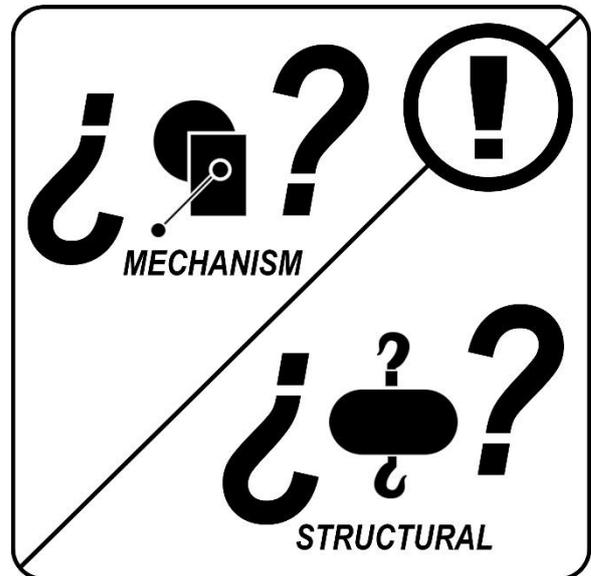


Figure 23

Never use structural loads in mechanism mode. It can result in a dangerous use and can break internal parts of the tower.

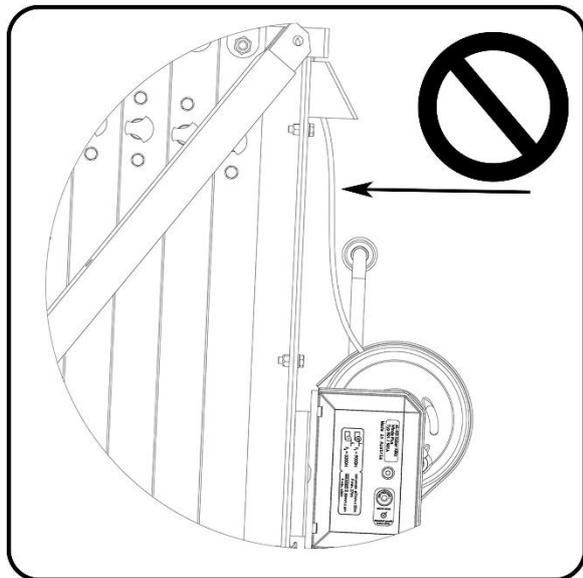


Figure 22

Under no circumstances should the tower be descended if the cable does not have sufficient tense. The cable should **ALWAYS** be tensioned in order to release the safety systems.

## PARTS IDENTIFICATION

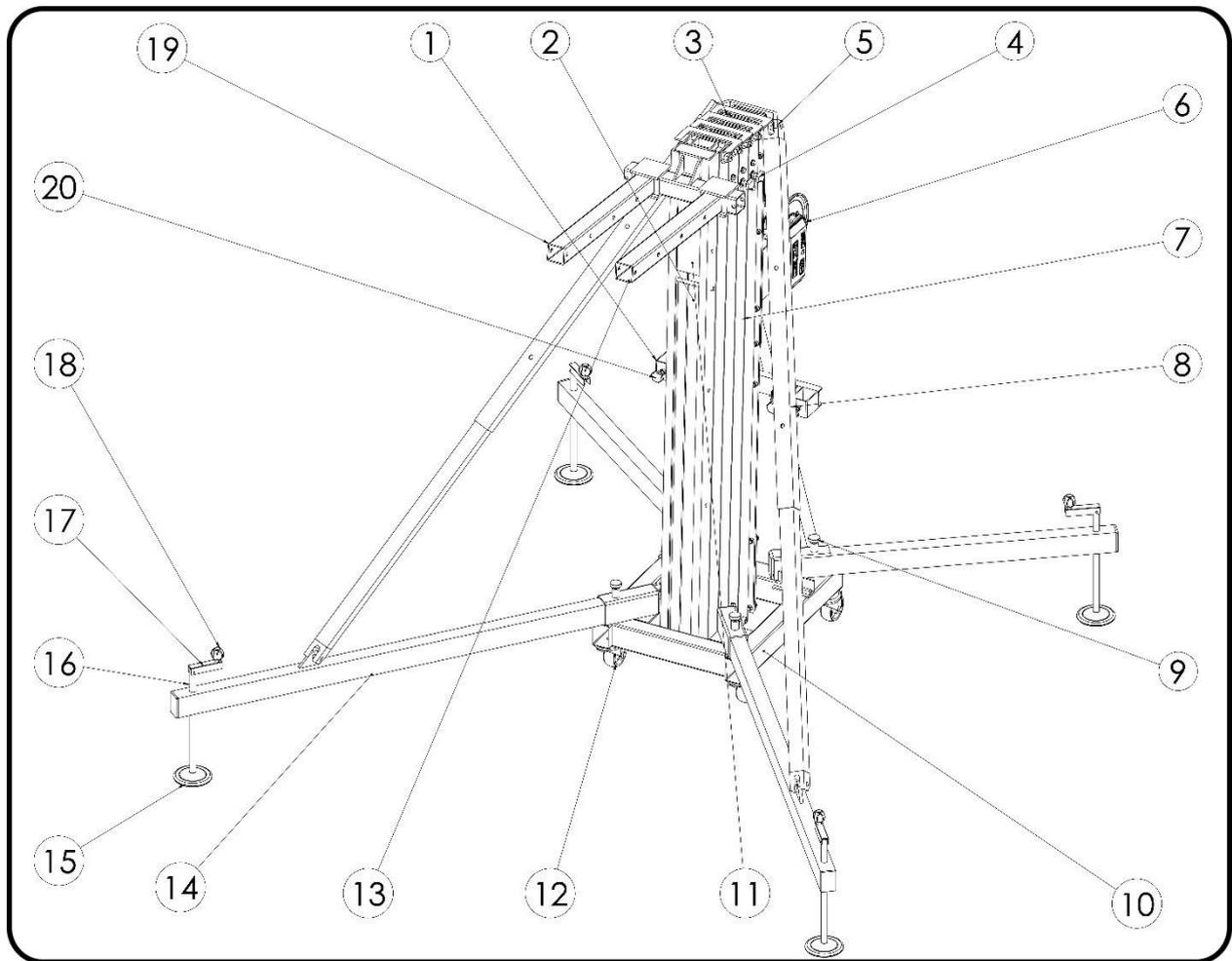


Figure 24.

1	Support stabilizer legs carrier	11	Steel carrier
2	Steel cable	12	Base wheel
3	Top boost reinforcement	13	Pin horn
4	Red knob mast security system	14	Frontal leg
5	Strut reinforcement mast support	15	Steel carrier
6	Winch	16	Leveler screw
7	Tower mast	17	Leveler brace
8	Steel reinforcement strut	18	Leveler knob
9	Red knob base security system	19	Forks
10	Tower base	20	Leg carrier knob

## OPERATING MODES

### OPERATING MODE AS MECHANISM (MECHANISM MODE)

This mode involves lifting the load with the help of the winch. That is, the winch is driven and the pulleys and cables are in charge of engaging and finally raising the load.

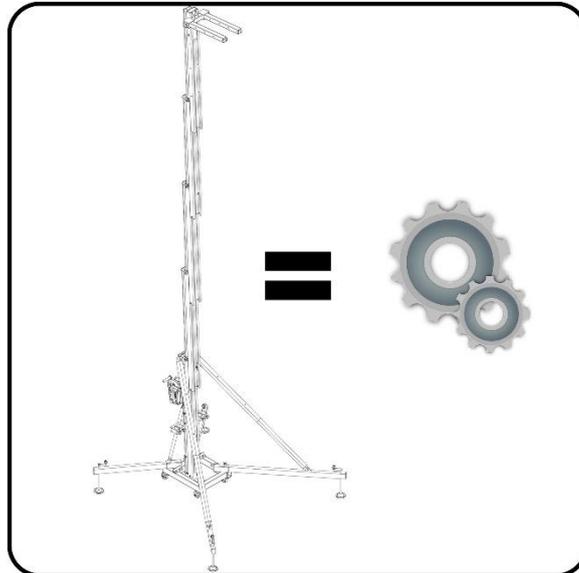


Figure 25

### OPERATING MODE AS STRUCTURE (STRUCTURAL MODE)

This mode involves lifting the load with the help of a manual or electric hoist. That is, the tower is used as a structure that is all locked to the required working height. Once the tower is raised to this desired height, the load must be raised with the hoist.

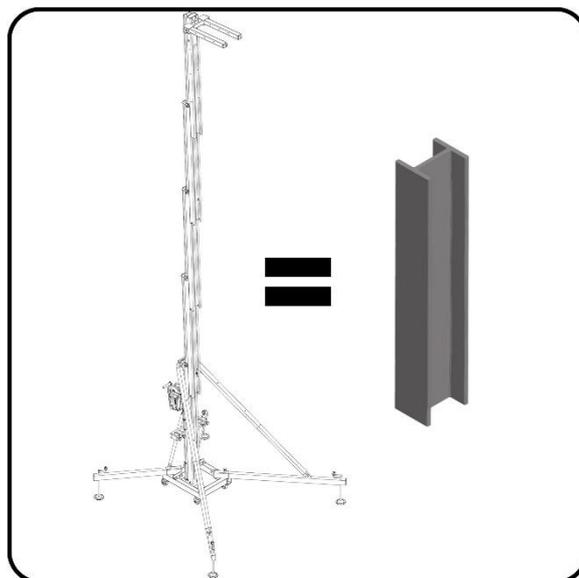


Figure 26

# HOW TO USE STEP BY STEP

## LINE ARRAY ELEVATION IN MECHANISM MODE

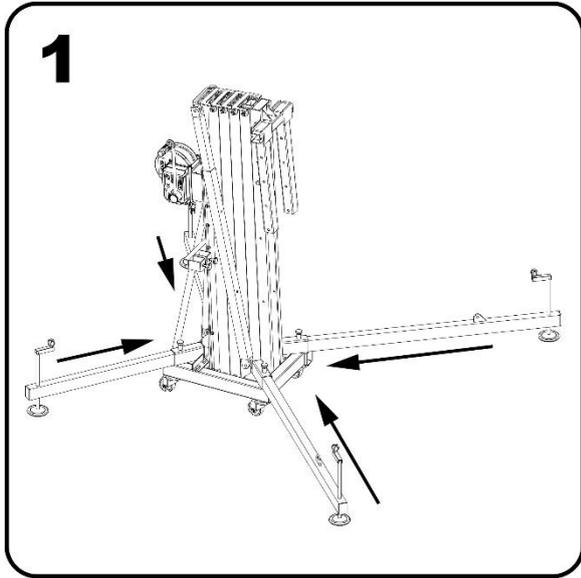


Figure 27

Fix and secure the stabilizer legs to the base.

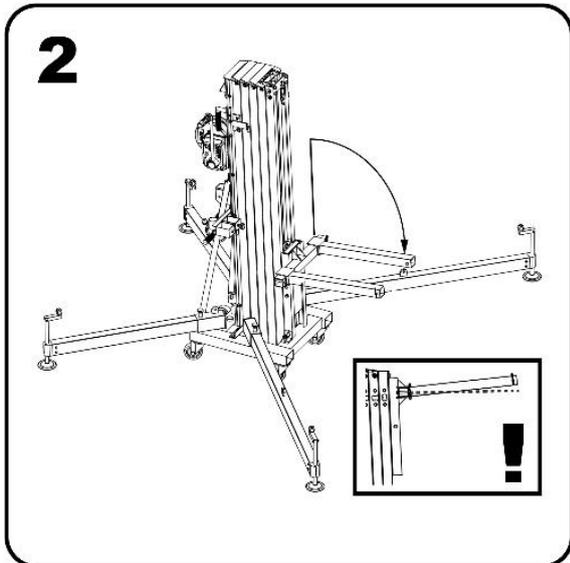


Figure 28

Turn the forks and adjust to the desired width. Ensure it with the pins.

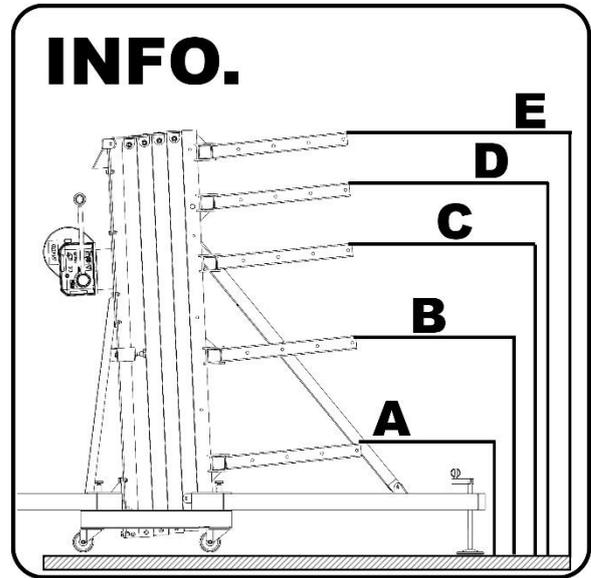


Figure 29

WTS towers have the option of changing the position of the carriage. Therefore, depending on the use, the load can be raised from different heights. The carriage can be rotated to obtain the required height.

WTS	A	B	C	D	E
256	435	695	1105	1315	1505
375	435	695	1105	1315	1505

Dimensions in mm.

Figure 30

WTS	A	B	C	D	E
256	17,13	27,36	43,5	51,77	59,25
375	17,13	27,36	43,5	51,77	59,25

Dimensions in inches.

Figure 31

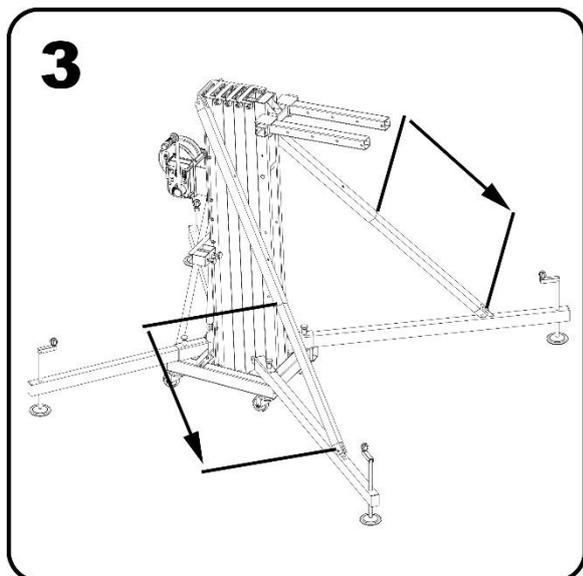


Figure 32

Place the reinforcement bars and fix them with its pins to the frontal legs.

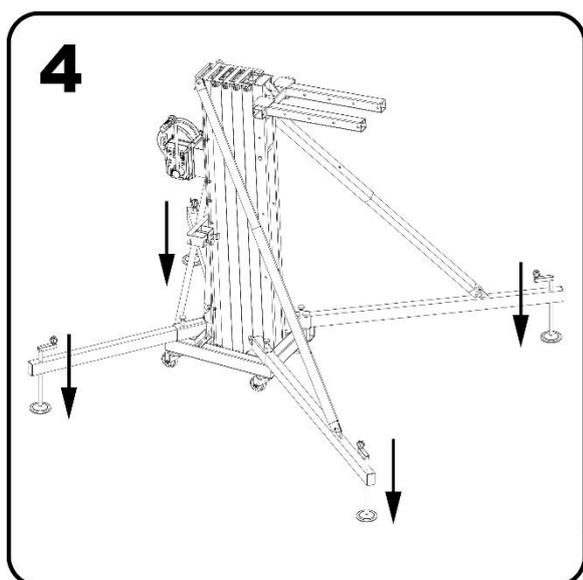


Figure 33

Place the tower in its working position and level until the bubble level is centered. Wheels should not come into contact with the ground.

Calculate the load to be lifted with the tower. An example of basic load calculation is attached.

ITEM	WEIGHT (kg)	QUANTITY	TOTAL (kg)
line array accessory	5,5	1	5,5
Bumper	35	1	35
Loudspeakers	28	4	112
Cables	20	1	20
			172,5

Figure 34

In this example we have obtained a weight of 172,5 kg.

With that load, see what position the load should have on the forks of the tower. Take into account that the inclination of the loudspeakers and the bumper should not support any part of the tower.



WTS	UNIT	AS MECHANISM				
		P1	P2	P3	P4	P5
905	lbs	992	970	926	895	
	kg	450	440	420	406	
1206	lbs	1213	1168	1146	1124	1080
	kg	550	530	520	510	490
708	lbs	992	970	948	926	882
	kg	450	440	430	420	400
506	lbs	1124	882	772	661	
	kg	510	400	350	300	
256	lbs	573	482	419	353	
	kg	260	220	190	160	
375	lbs	772	639	529	507	
	kg	350	290	240	230	

Figure 35

Choose the WTS tower model. Check for the value immediately above the load you need. With this value, take the farthest position to which the accessory for flying must be placed. It is recommended that this position is always as close to the carriage as possible.

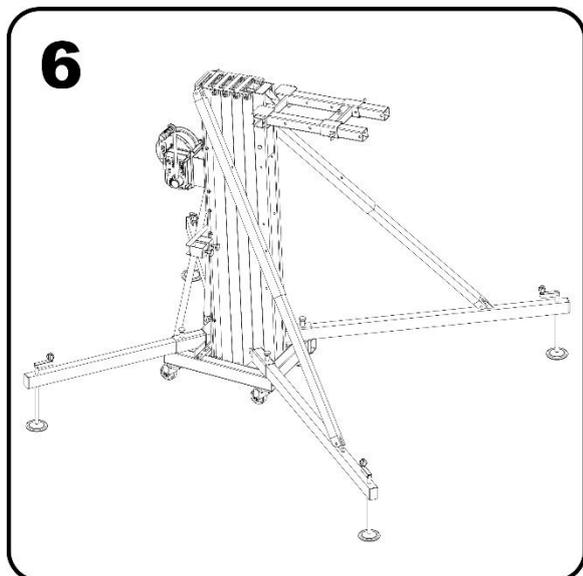


Figure 36

Place the accessory in the calculated position. Block it making sure that the screws are inserted into the hole of the fork position.

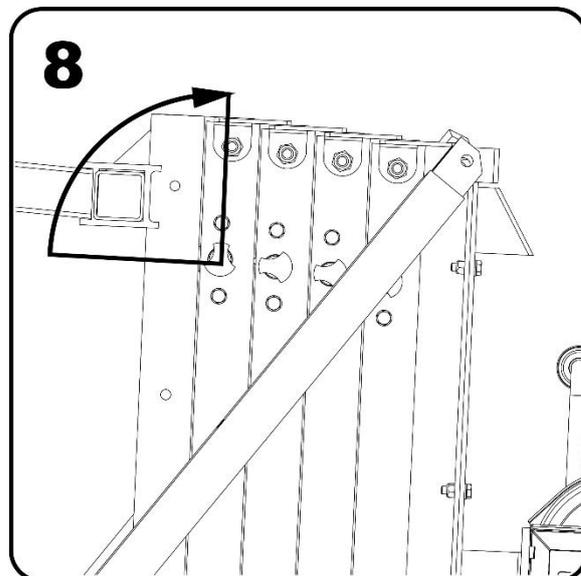


Figure 38

Unlock the mast safety system. Operate the winch handle to raise the load.

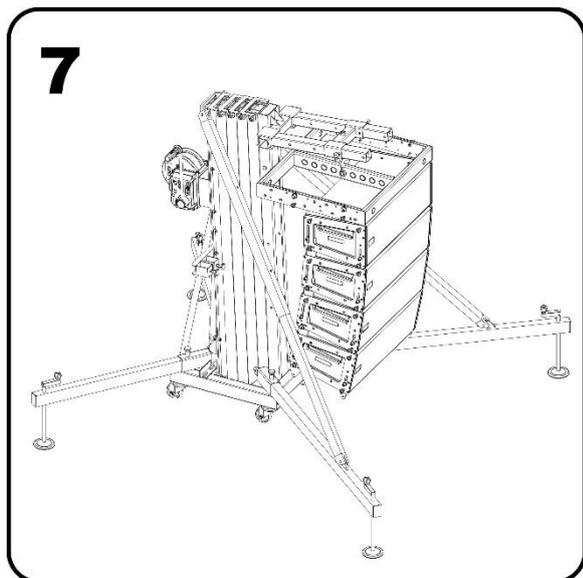


Figure 37

Join the line array equipment to the tower.

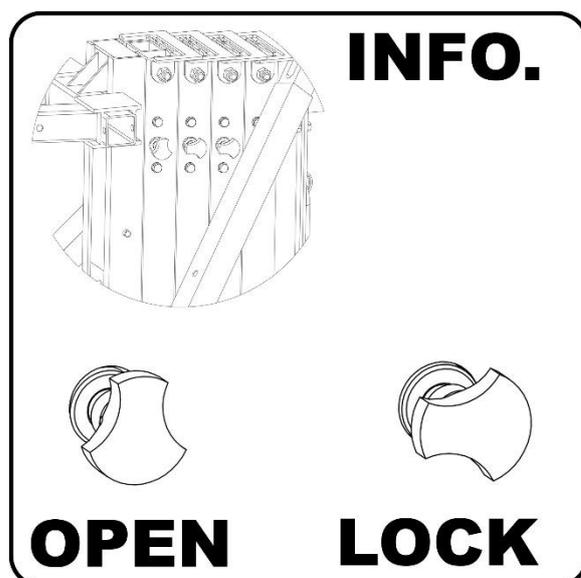


Figure 39

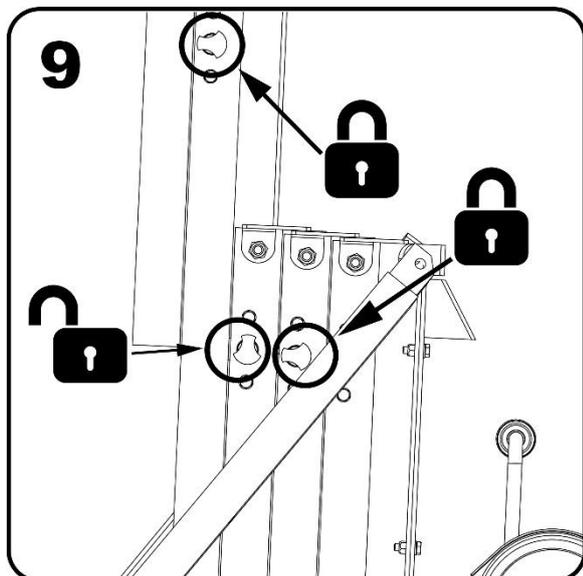


Figure 40

When the section reaches its limit, lock with the security system and unlock the following security system to lift the next mast. Do the same operation until you reach the required height.

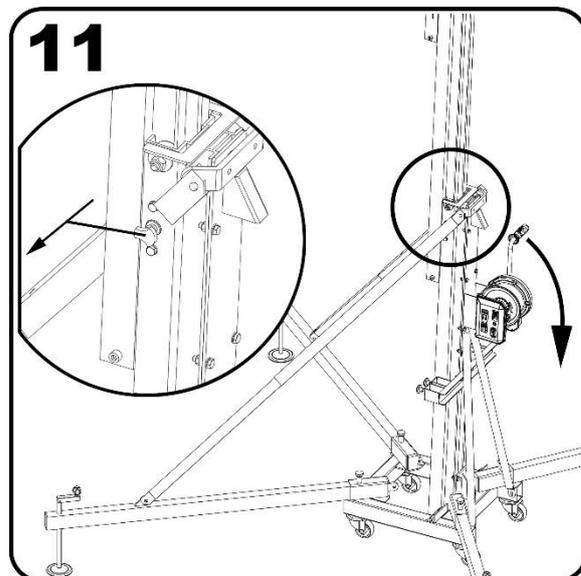


Figure 42

To descend the load. **Tense the cable and unlock the first security system.** Turn the winch while keeping the safety system unlocked with your other hand. If the safety system is not operated with one hand, the tower will lower until it is locked.

**WARNING!** If the tower is attempted to go down without tension in the cable and any of the safety systems are activated, a dangerous situation will occur because the load will descend very abruptly, being able to destabilize the whole installation and incurring in a serious accident.

Once the load is descended, block all sections and follow steps 4 to 1 (in that order).

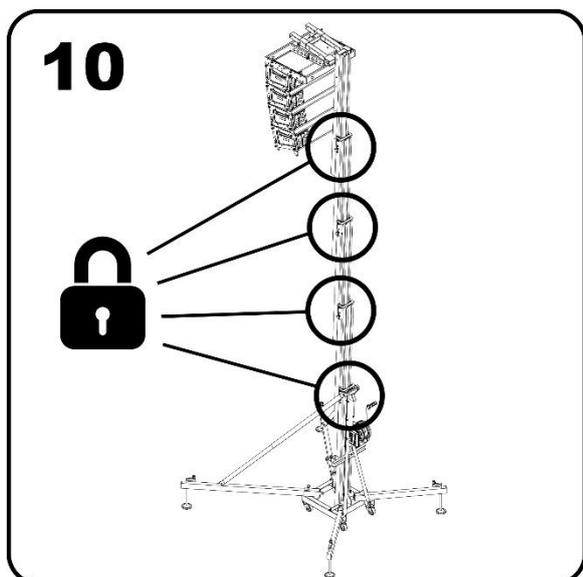


Figure 41

All security systems must be in locked position. Slack the cable of the winch so that the system can stabilize correctly.

# LINE ARRAY ELEVATION IN STRUCTURE MODE

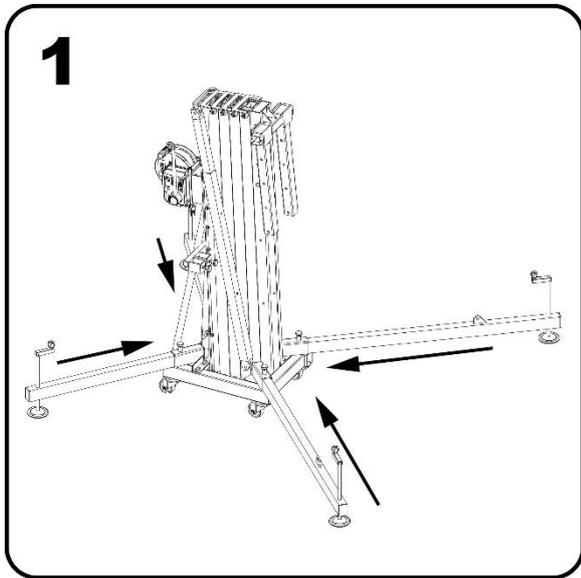


Figure 43

Fix and secure the stabilizer legs to the base.

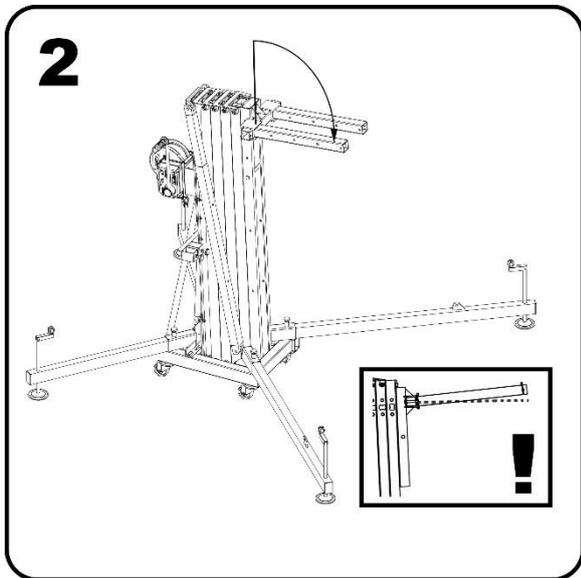


Figure 44

Turn the forks and adjust to the desired width. Ensure it with the pins.

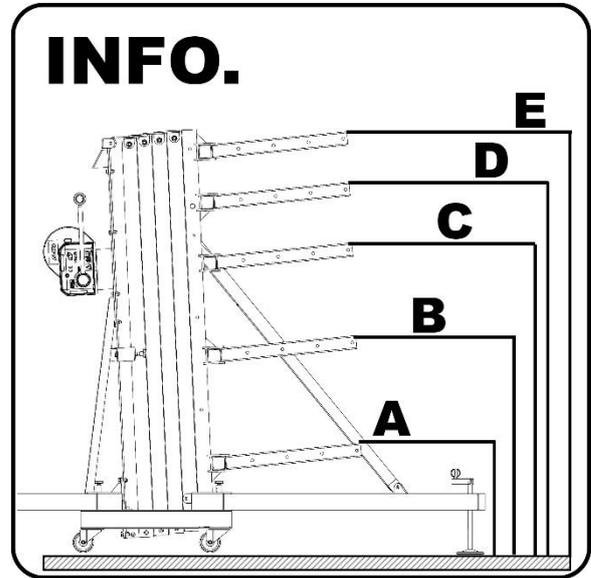


Figure 45

WTS towers have the option of changing the position of the carriage. Therefore, depending on the use, the load can be raised from different heights. The carriage can be rotated to obtain the required height.

WTS	A	B	C	D	E
256	435	695	1105	1315	1505
375	435	695	1105	1315	1505

Dimensions in mm.

Figure 46

WTS	A	B	C	D	E
256	17,13	27,36	43,5	51,77	59,25
375	17,13	27,36	43,5	51,77	59,25

Dimensions in inches.

Figure 47

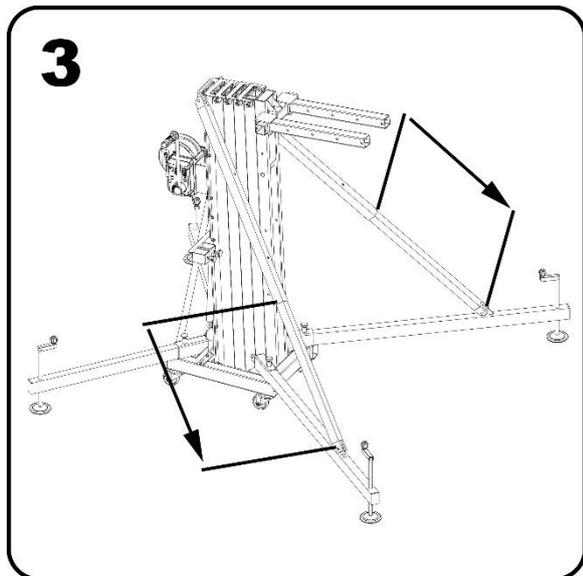


Figure 48

Place the reinforcement bars and fix them with its pins to the frontal legs.

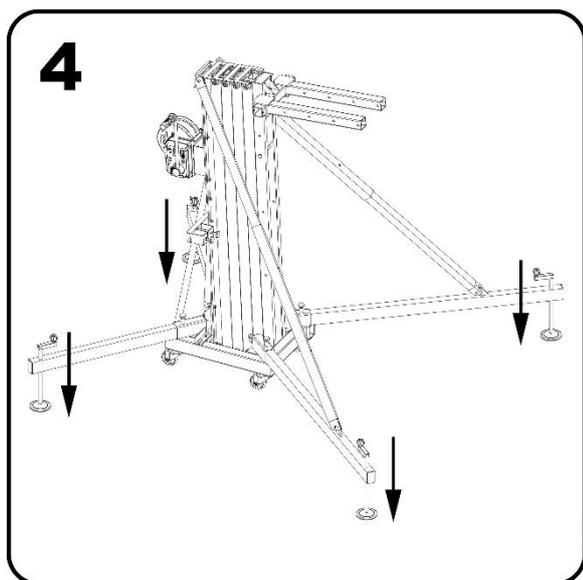


Figure 49

Place the tower in its working position and level until the bubble level is centered. Wheels should not come into contact with the ground

Calculate the load to be lifted with the tower. An example of basic load calculation is attached.

ITEM	WEIGHT (kg)	QUANTITY	TOTAL (kg)
Line array accessory	5,5	1	5,5
Bumper	35	1	35
Loudspeakers	28	6	168
Cables	30	1	30
			238,5

Figure 50

In this example we have obtained a weight of 238,5 kg.

With that load, see what position the load should have on the forks of the tower. Take into account that the inclination of the loudspeakers and the bumper should not support any part of the tower.



WTS UNIT	AS STRUCTURE					
	P1	P2	P3	P4	P5	
905	lbs	1984	1653	1433	1336	
	kg	900	750	650	606	
1206	lbs	2646	2425	2094	1808	1543
	kg	1200	1100	950	820	700
708	lbs	1543	1367	1213	1047	882
	kg	700	620	550	475	400
506	lbs	1124	882	772	661	
	kg	510	400	350	300	
256	lbs	573	482	419	353	
	kg	260	220	190	160	
375	lbs	838	705	573	507	
	kg	380	320	260	230	

Figure 51

Choose the WTS tower model. Check for the value immediately above the load you need. With this value, take the exact position to which the accessory for flying must be placed.

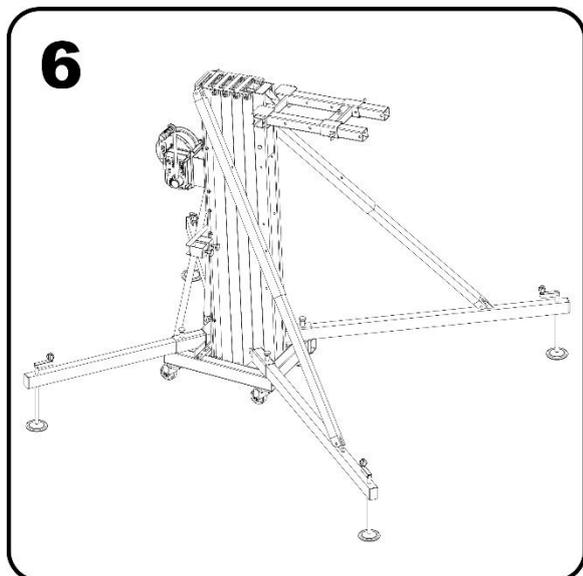


Figure 52

Place the accessory in the calculated position.

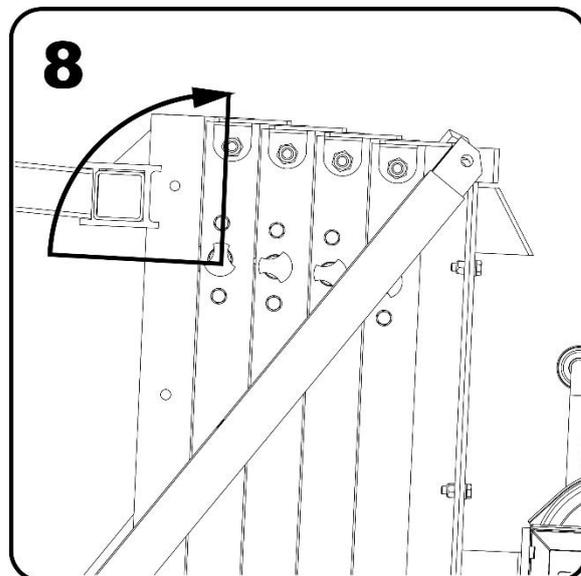


Figure 54

Unlock the mast safety system. Operate the handle of the winch to raise the load.

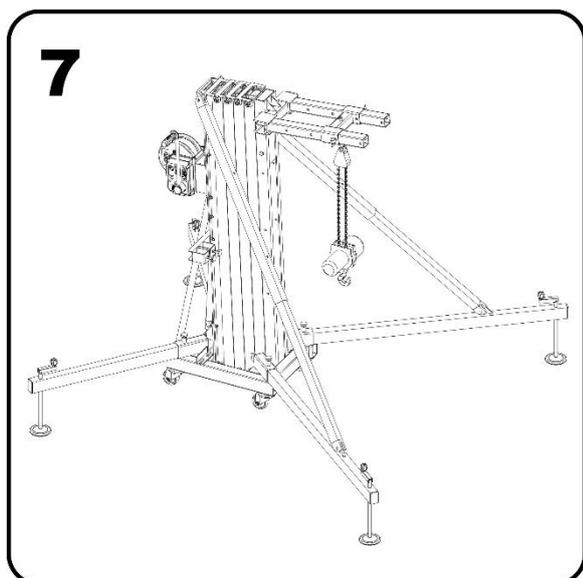


Figure 53

Hung the hoist of the tower support. The hoist must have a path equal to or greater than the maximum height of the tower.

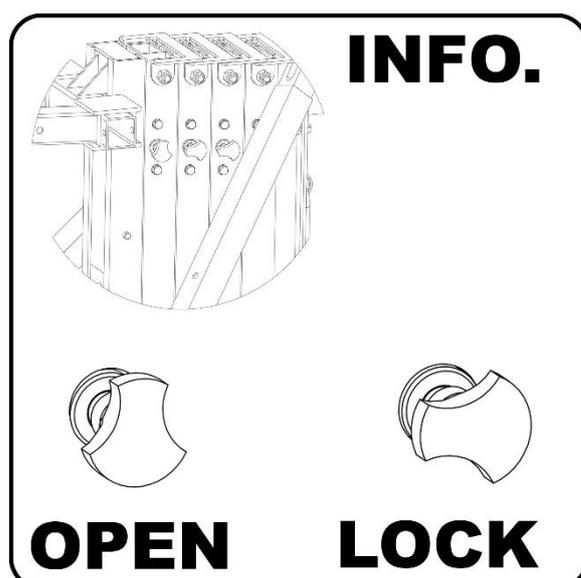


Figure 55

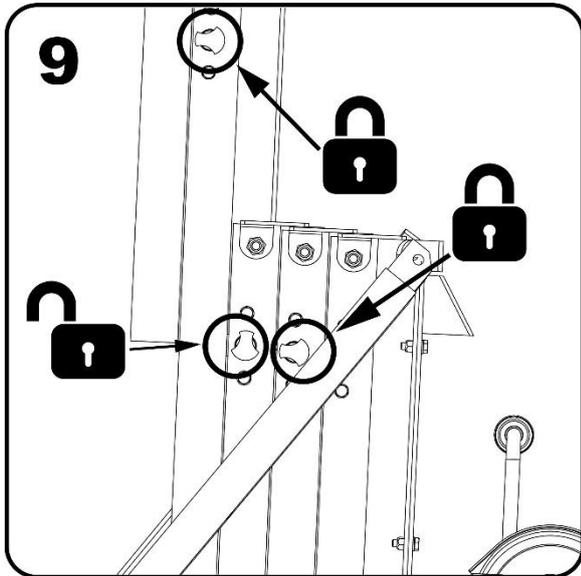


Figure 56

When the section reaches its end of path, lock with the safety system and unlock the next safety system to raise the next mast. Perform the same operation until you reach the required height.

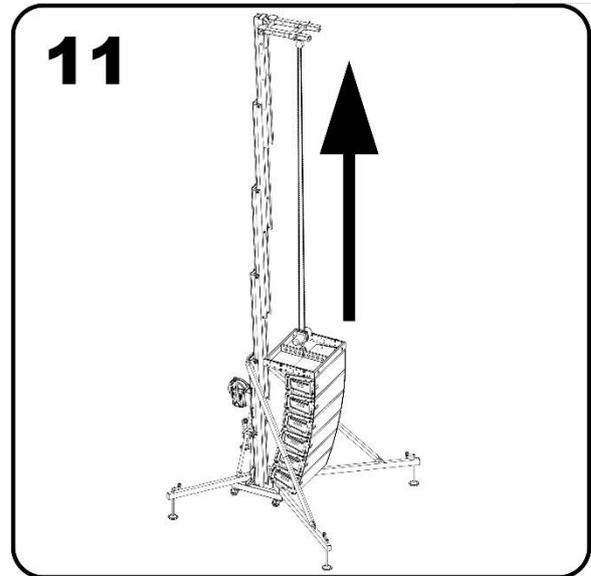


Figure 58

Raise the load with the hoist to the required height.

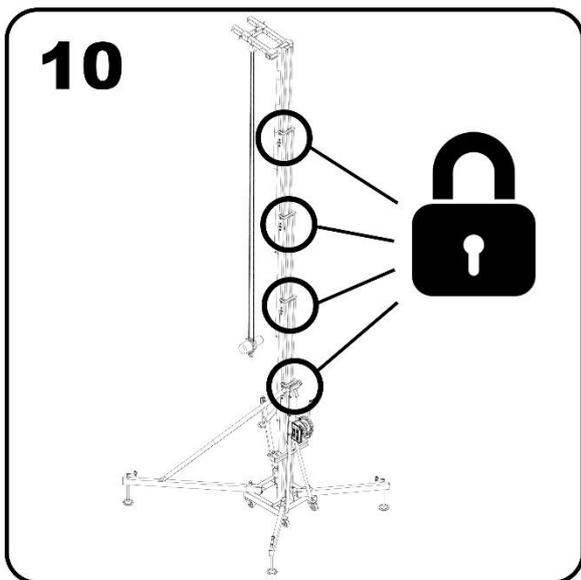


Figure 57

All security systems must be in locked position. Slacken the cable of the winch so that the system can stabilize correctly.

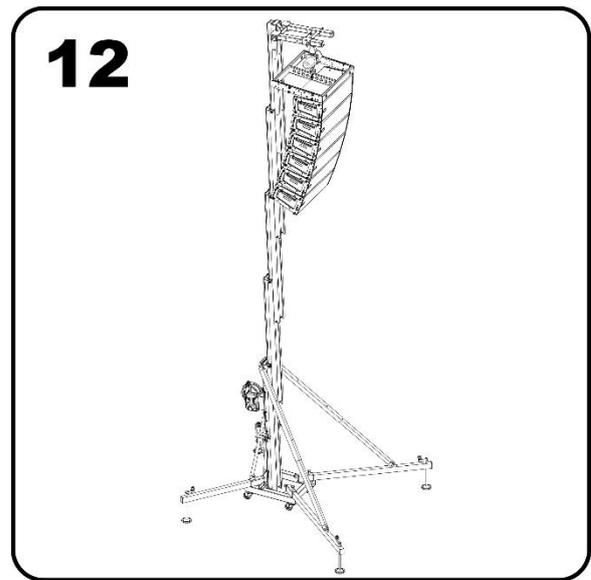


Figure 59

Take into account the space of the hoist. This dimension causes that the maximum height of the tower to be reduced.

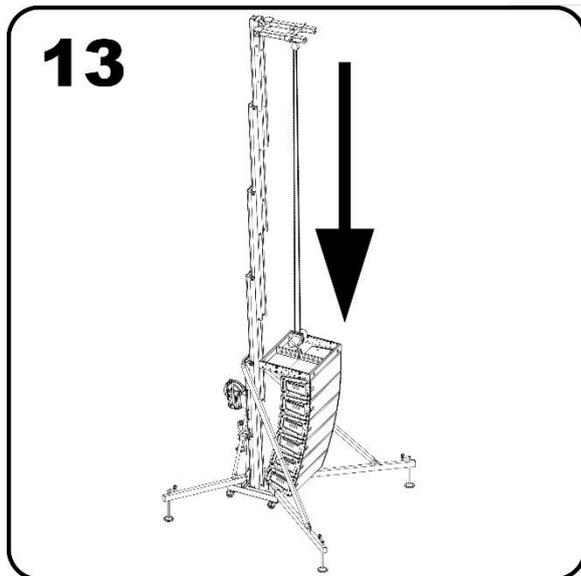


Figure 60

**To descend the load.** Descend the load with the hoist until it is just above the ground. **The load should never be descended with the tower winch.**

**WARNING!** If the tower is attempted to go down without tension in the cable and any of the safety systems are activated, a dangerous situation will occur because the load will descend very abruptly, being able to destabilize the whole installation and incurring in a serious accident.

Once the load is descended, block all sections and follow steps 4 to 1 (in that order).

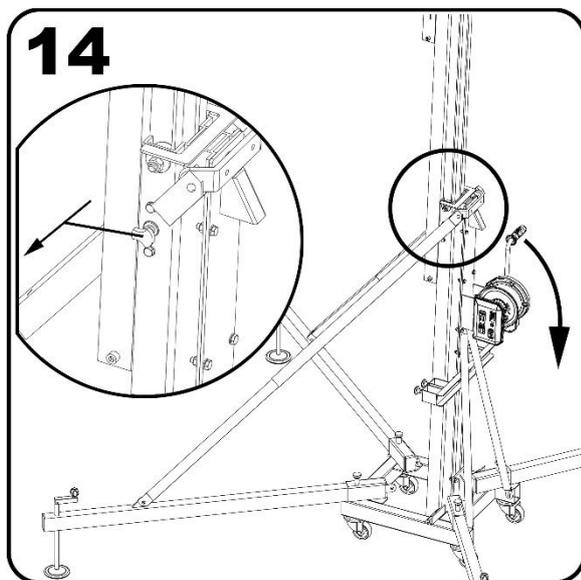


Figure 61

To descend the load. **Tense the cable and unlock the first security system.** Turn the winch while keeping the safety system unlocked with your other hand. If the safety system is not operated with one hand, the tower will lower until it is locked.

# TRUSS SYSTEM ELEVATION IN MECHANISM MODE

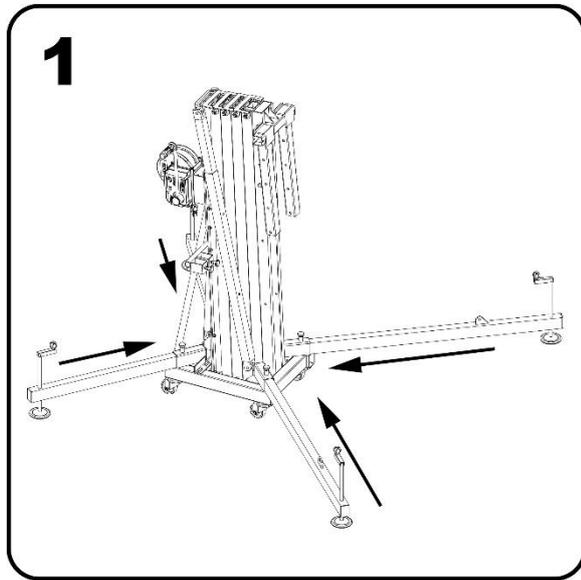


Figure 62

Fix and secure the stabilizer legs to the base.

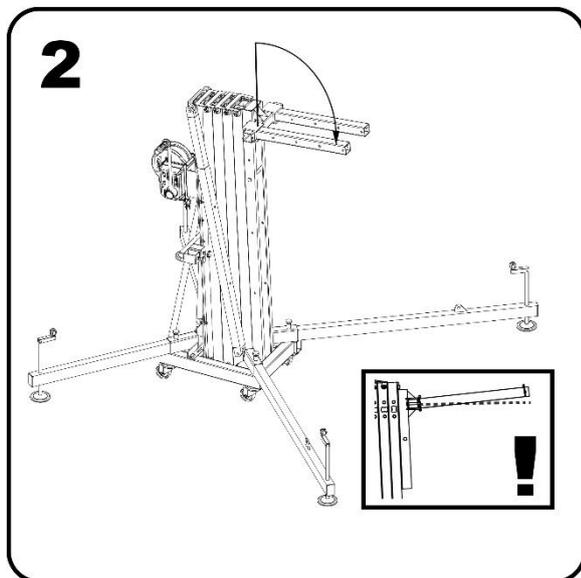


Figure 63

Turn the forks and adjust to the desired width. Ensure it with the pins.

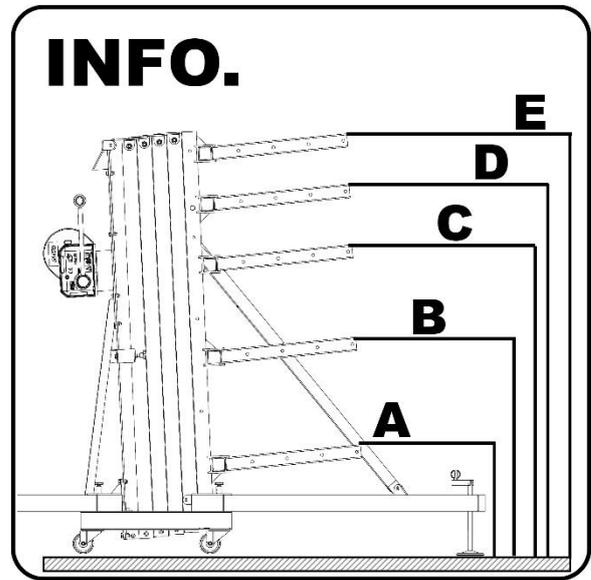


Figure 64

WTS towers have the option to change the position of the carriage. Therefore, depending on the use, the load can be raised from different heights. The carriage can be rotated to obtain the required height.

WTS	A	B	C	D	E
256	435	695	1105	1315	1505
375	435	695	1105	1315	1505

Dimensions in mm.

Figure 65

WTS	A	B	C	D	E
256	17,13	27,36	43,5	51,77	59,25
375	17,13	27,36	43,5	51,77	59,25

Dimensions in inches.

Figure 66

In case of using the tower in its positions A and B. Raise the load until reaching the position C and then follow steps from 3 onwards.

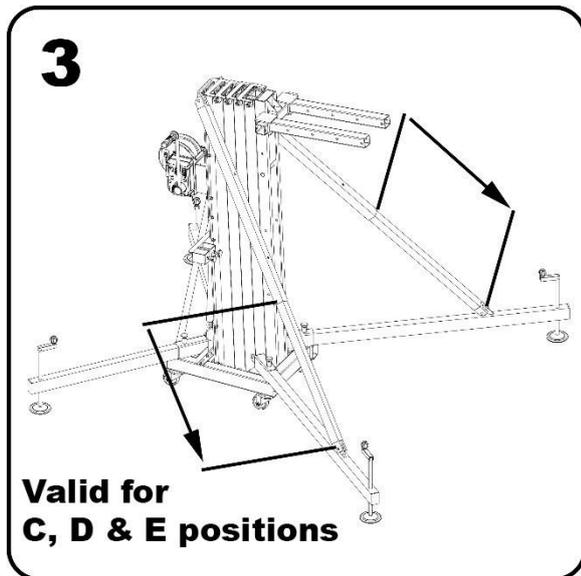


Figure 67

Place the reinforcement bars and fix them with its pins to frontal legs.

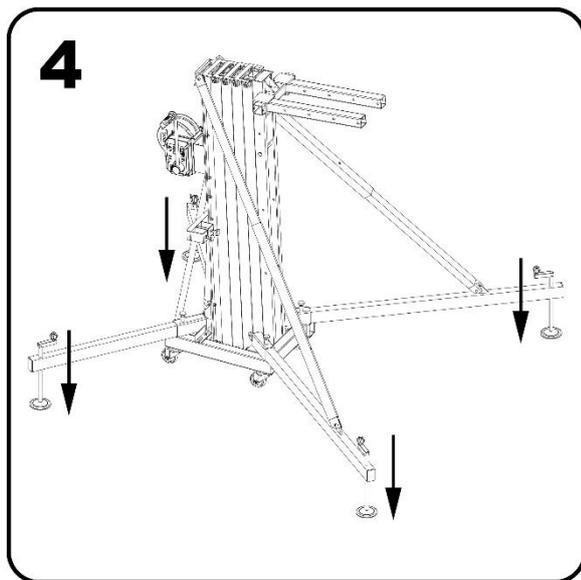


Figure 68

Place the tower in its working position and level until the bubble level is centered. Wheels should not take into contact with the ground

Calculate the load to be lifted with the tower. An example of basic load calculation is attached.

ITEM	WEIGHT (kg)	QUANTITY	TOTAL (kg)
Truss accessory	0,75	2	1,5
Complete truss system	53,3	0,5	26,65
Loads	368	0,5	184
Cables	38	0,5	19
			231,15

Figure 69

In this example we have a weight of 231,15 kg.

With that load, check what position the load should have on the tower fork. Take into account that the truss is supported by two points of the fork. To find out which is the largest load, take the farthest position from the base of the fork.



WTS	UNIT	AS MECHANISM				
		P1	P2	P3	P4	P5
905	lbs	992	970	938	895	
	kg	450	440	430	406	
1206	lbs	1213	1168	1146	1124	1080
	kg	550	530	520	510	490
708	lbs	992	970	948	926	882
	kg	450	440	430	420	400
506	lbs	1124	882	772	661	
	kg	510	400	350	300	
256	lbs	573	482	439	353	
	kg	260	220	190	160	
375	lbs	772	639	529	507	
	kg	350	290	240	230	

Figure 70

Choose the WTS tower model. Check for the value immediately above the load you need. With this value, take the exact position to which the accessory for fixing the truss must be placed.

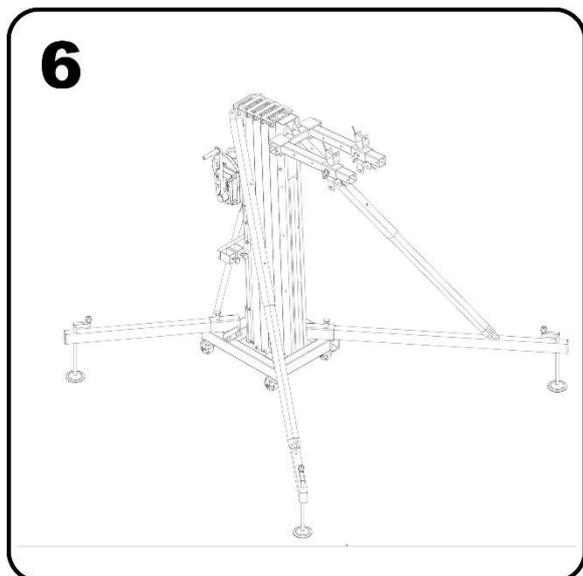


Figure 71

Place the accessory in the calculated position.

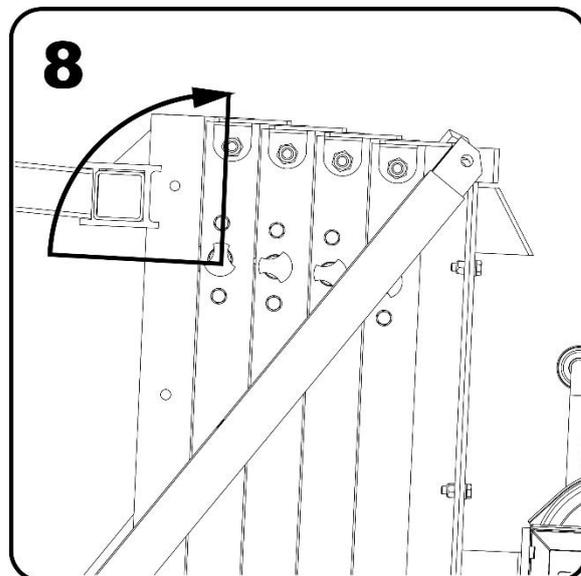


Figure 73

Unlock the mast safety system. Operate the winch handle to raise the load.

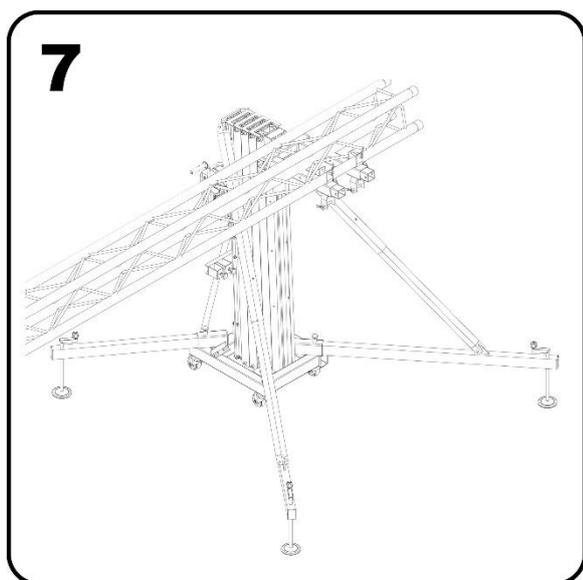


Figure 72

Join the truss system to the tower.

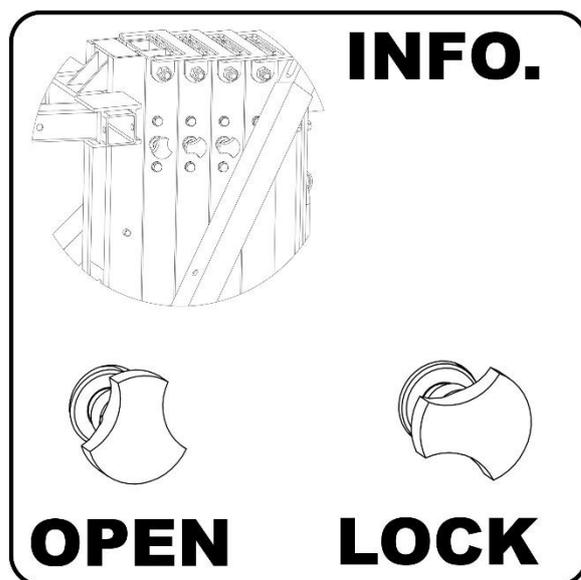


Figure 74

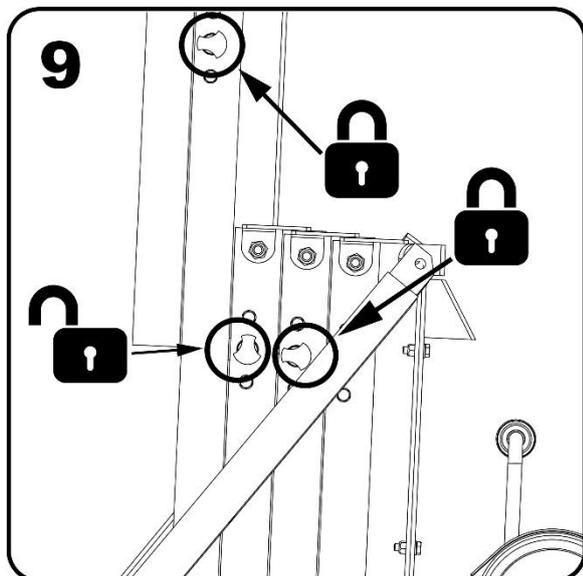


Figure 75

When the section reaches its end of path, lock with the safety system and unlock the next safety system to raise the next mast. Perform the same operation until you reach the required height.

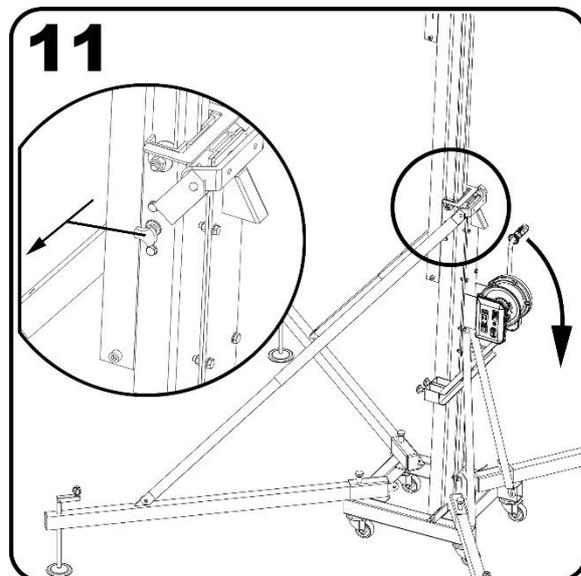


Figure 77

To descend the load. **Tense the cable and unlock the first security system.** Turn the winch while keeping the safety system unlocked with your other hand. If the safety system is not operated with one hand, the tower will lower until it is locked.

**WARNING!** If the tower is attempted to go down without tension in the cable and any of the safety systems are activated, a dangerous situation will occur because the load will descend very abruptly, being able to destabilize the whole installation and incurring in a serious accident.

Once the load is descended, block all sections and follow steps 4 to 1.

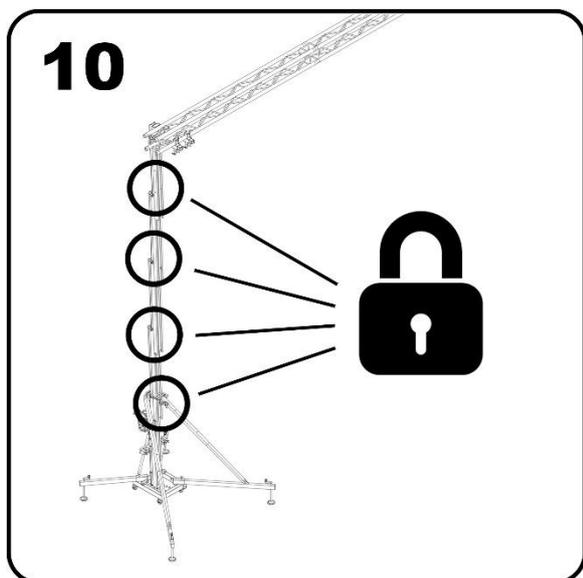


Figure 76

All safety systems must be in their locked position. Slack the cable from the winch so that the system is seated.

**WARNING!** The rate of rise and descend should be similar. If the structure rises or descends faster at one end, a destabilization of the entire facility can occur, causing a serious accident.

# TRUSS SYSTEM ELEVATION IN STRUCTURE MODE

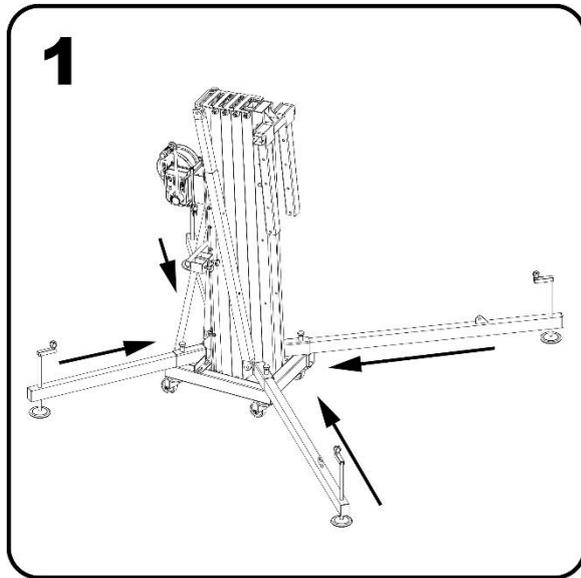


Figure 78

Fix and secure the stabilizer legs to the base.

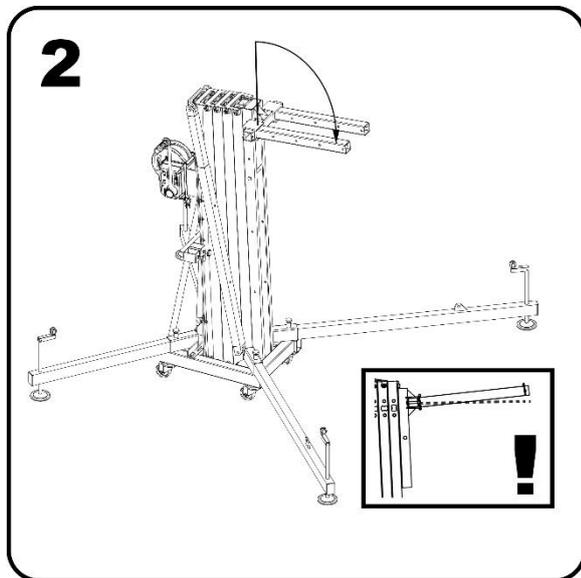


Figure 79

Turn the forks and adjust to the desired width. Ensure it with the pins.

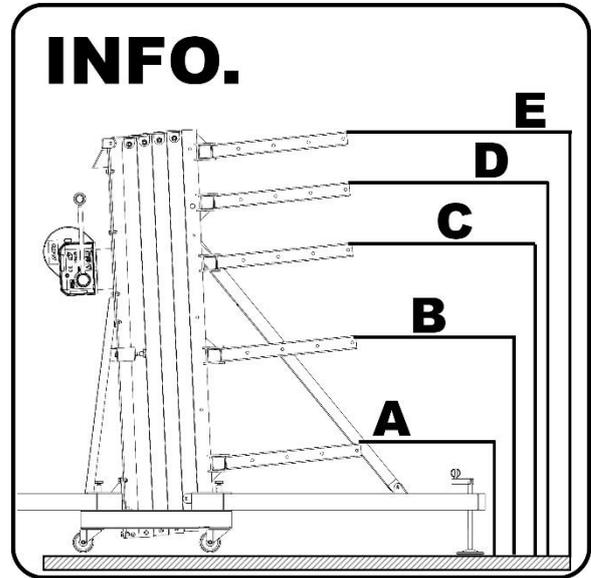


Figure 80

WTS towers have the option to change the position of the carriage. Therefore, depending on the use, the load can be raised from different heights. The carriage can be rotated to obtain the required height.

WTS	A	B	C	D	E
256	435	695	1105	1315	1505
375	435	695	1105	1315	1505

Dimensions in mm.

Figure 81

WTS	A	B	C	D	E
256	17,13	27,36	43,5	51,77	59,25
375	17,13	27,36	43,5	51,77	59,25

Dimensions in inches.

Figure 82

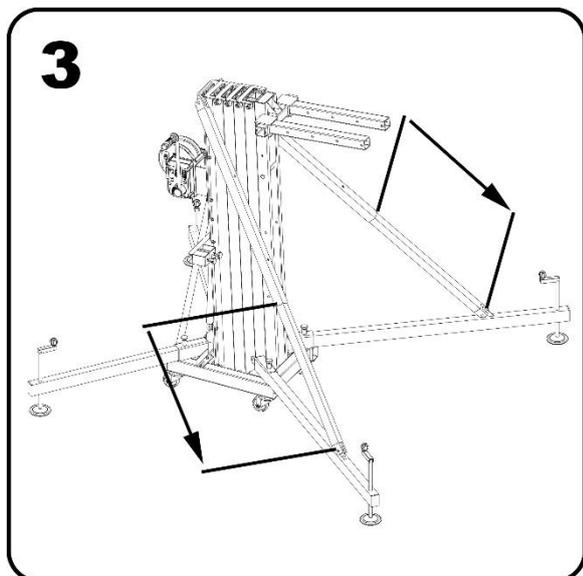


Figure 83

Place the reinforcement bars and fix them with its pins to the frontal legs.

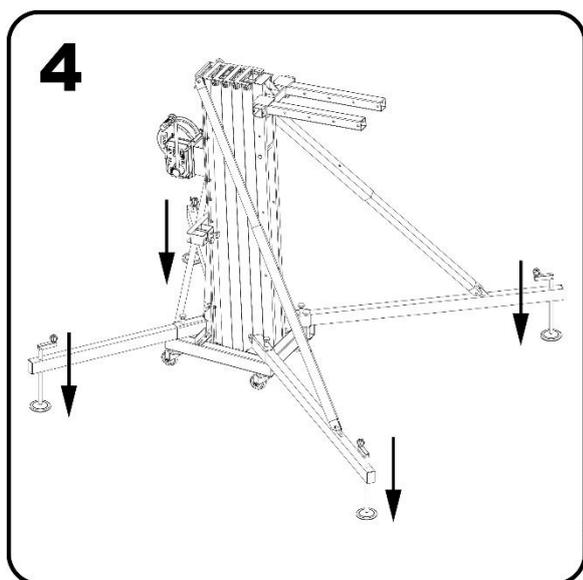


Figure 84

Place the tower in its working position and level until the bubble level is centered. Wheels should not take into contact with the ground.

Calculate the load to be lifted with the tower. An example of basic load calculation is attached.

ITEM	WEIGHT (kg)	QUANTITY	TOTAL (kg)
Truss accessory	0,75	2	1,5
Complete truss system	53,3	0,5	26,65
Loads	368	0,5	184
Cables	38	0,5	19
			231,15

Figure 85

In this example we have a weight of 231.15 kg.

With that load, see what position the load should have on the tower fork. Take into account that the truss is supported by two points of the fork. To find out which is the largest load, take the position farthest from the base of the fork.



WTS	UNIT	AS STRUCTURE				
		P1	P2	P3	P4	P5
905	lbs	1534	1653	1433	1336	
	kg	900	750	650	606	
1206	lbs	2646	2425	2094	1808	1543
	kg	1200	1100	950	820	700
708	lbs	1543	1367	1213	1047	882
	kg	700	620	550	475	400
506	lbs	1124	882	772	661	
	kg	510	400	350	300	
256	lbs	573	482	419	353	
	kg	260	220	190	160	
375	lbs	838	705	573	507	
	kg	380	320	260	230	

Figure 86

Choose the WTS tower model. Check for the value immediately above the load you need. With this value, take the exact position to which the accessory for fixing the truss must be placed.

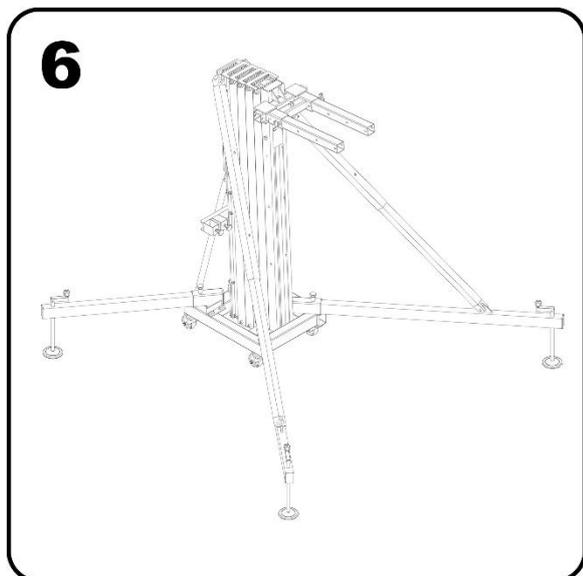


Figure 87

Place the accessory in the calculated position.

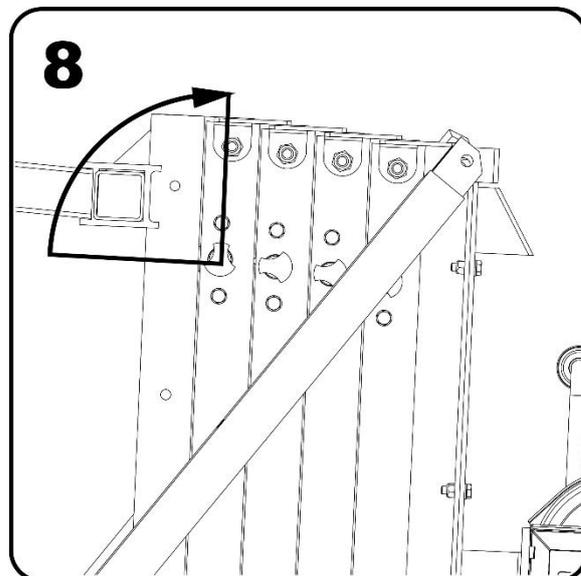


Figure 89

Unlock the mast safety system. Operate the winch handle to raise the load.

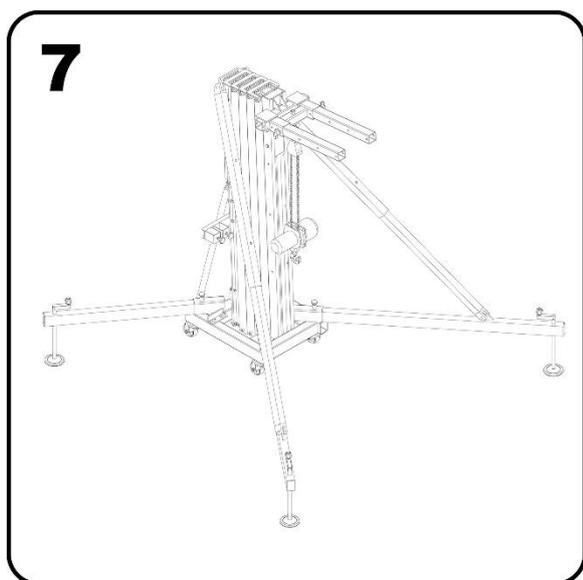


Figure 88

Join the truss system to the tower.

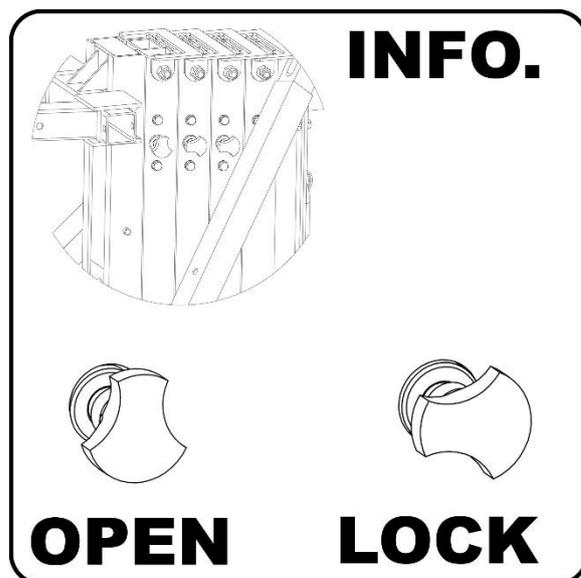


Figure 90

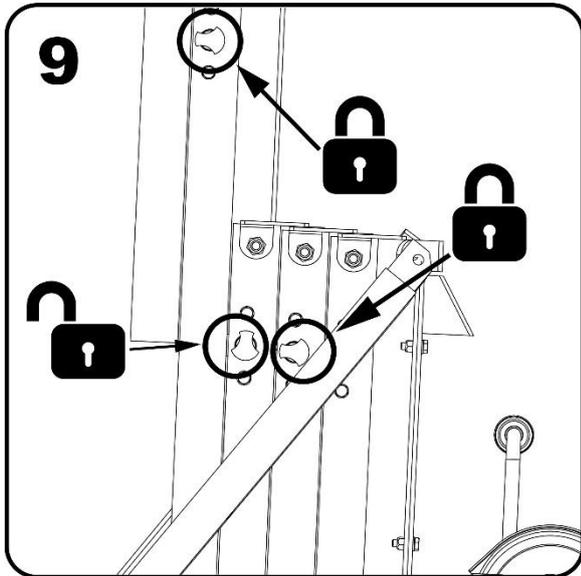


Figure 91

When the section reaches its end of path, lock with the safety system and unlock the next safety system to raise the next mast. Perform the same operation until you reach the required height.

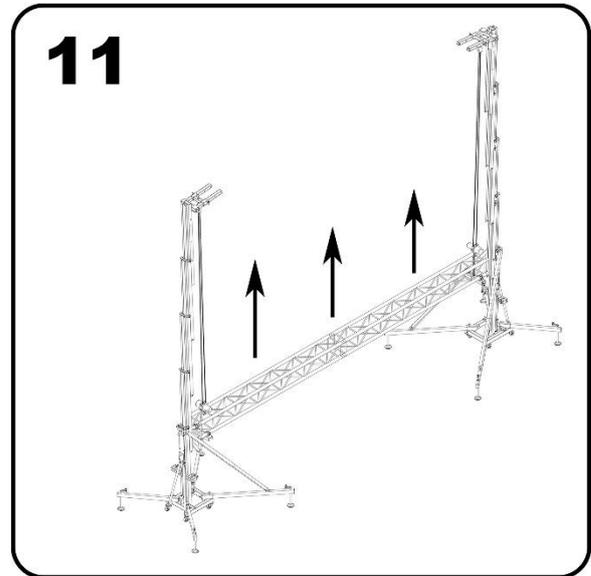


Figure 93

All safety systems must be in their locked position. Slack the cable from the winch so that the system is seated.

**WARNING!** The rate of rise and descend should be similar. If the structure rises or descend faster at one end, a destabilization of the entire facility can occur, causing a serious accident.

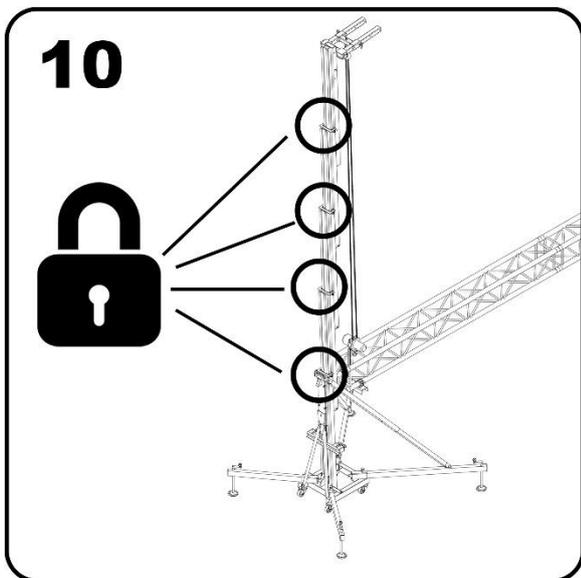


Figure 92

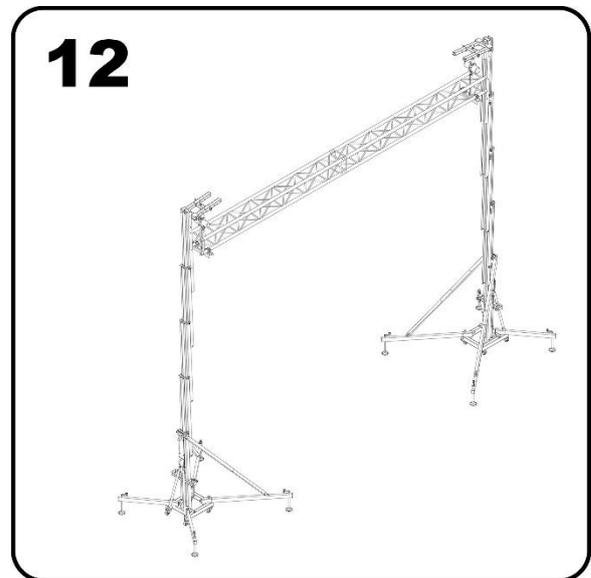


Figure 94

To descend the load. **Tense the cable and unlock the first security system.** Turn the winch while keeping the safety system unlocked with your other hand. If the safety system is not operated with one hand, the tower will descend until it is locked.

Once the load is descended, block all sections and follow steps 4 to 1 (in that order).

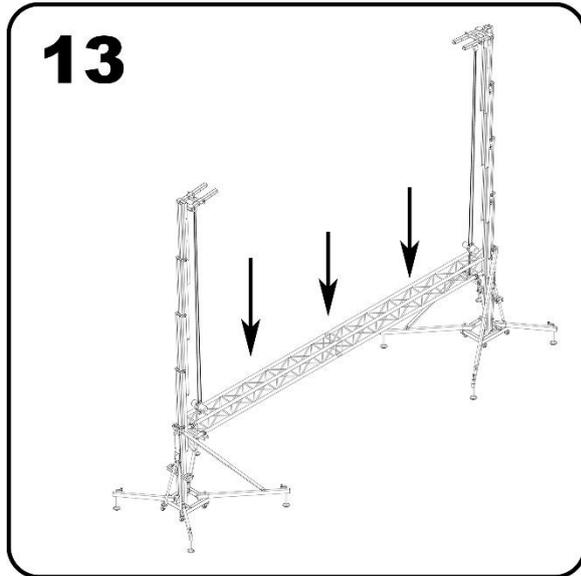


Figure 95

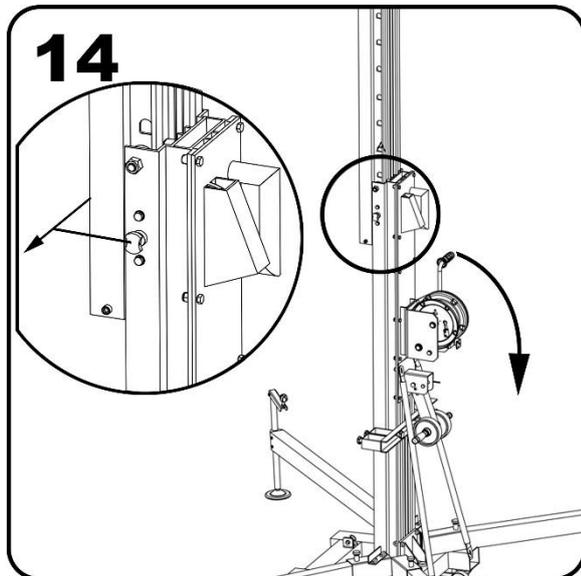


Figure 96

**WARNING!** If the tower is attempted to go down without tension in the cable and any of the safety systems are activated, a dangerous situation will occur because the load will descend very abruptly, being able to destabilize the whole installation and incurring in a serious accident.

## USING THE TOWER IN STRUCTURE MODE (WIND CONDITION)

The towers used in the structure mode form a column type system that can withstand higher loads than the mechanism mode.

In order to be able to use the towers outdoors and subjected to bursts of wind, you should contact an engineer in the area or our technical department to study the case

In outdoor use many factors must be taken into account, the most important are:

- Wind gusts
- Total exposed area
- Working height
- Angle of the braces
- Weights and distance to the tower
- Rigging of all joints
- Etc ...

As an operating guide, the towers involved in this manual can be used outdoors as long as they are in structural mode and the maximum loads are those of the mechanism mode.

This is because the loads transmitted by the winds are transmitted vertically from the tower to the ground, adding an overload that depends on several factors. This overload is added to the maximum load of the tower.

**If it is not calculated in each specific case of use, it is possible to take as base the data contained in the load chart (figure 105) operating the tower as mechanism for security purposes.**

# ACCESSORIES

The P.A. towers has the following accessories.

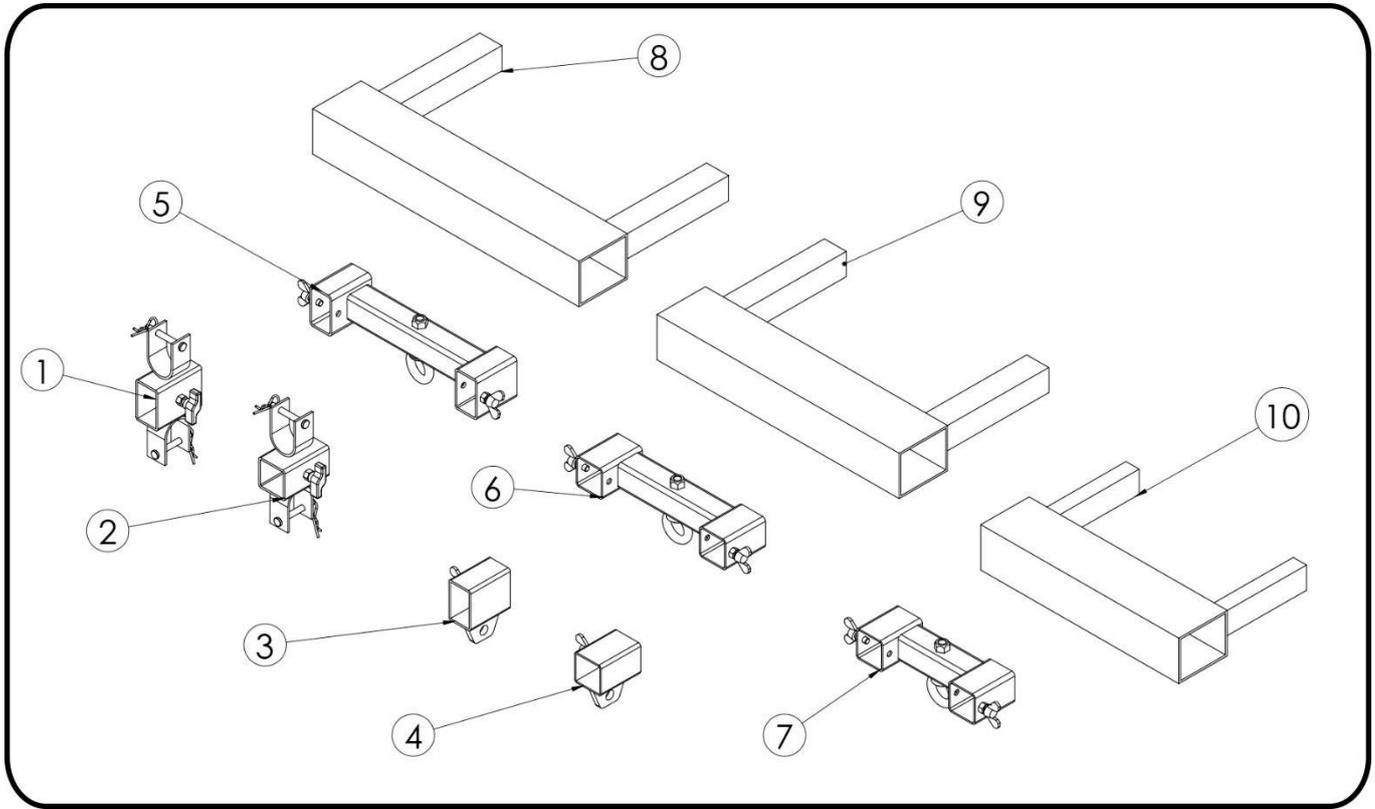


Figure 97

1	AWS301	4	AWS401	7	AWS403	10	AWS413
2	AWS302	5	AWS502	8	AWS512		
3	AWS501	6	AWS402	9	AWS412		

Figure 98

PART.	905	1206	708	506	256	375
AWS301	X	X	X			
AWS302				X	X	X
AWS501	X	X	X			
AWS401				X	X	X
AWS502	X	X	X			
AWS402				X		
AWS403					X	X
AWS512	X	X	X			
AWS412				X		
AWS413					X	X

Figure 99

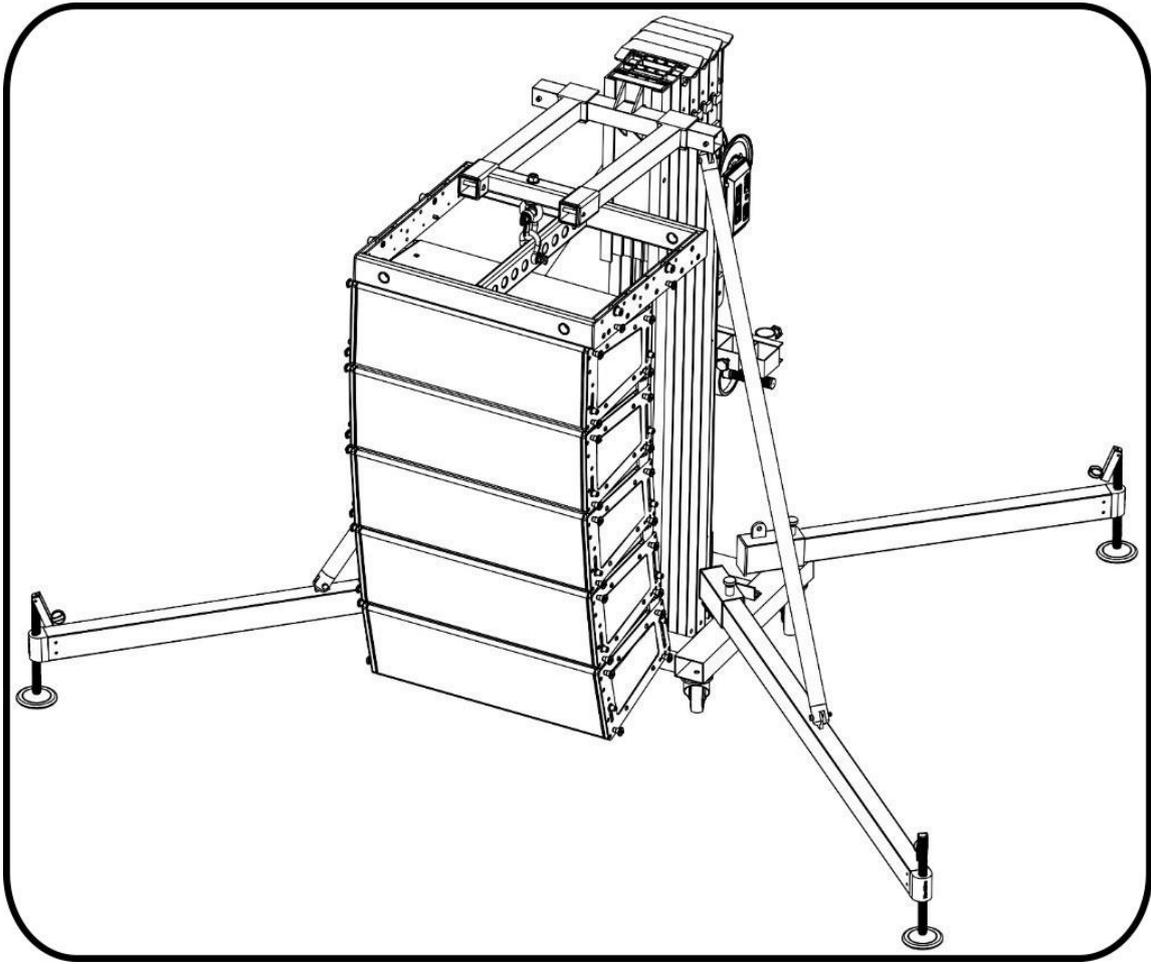


Figure 100

Example of WTS 256 tower with AWS403 accessory.

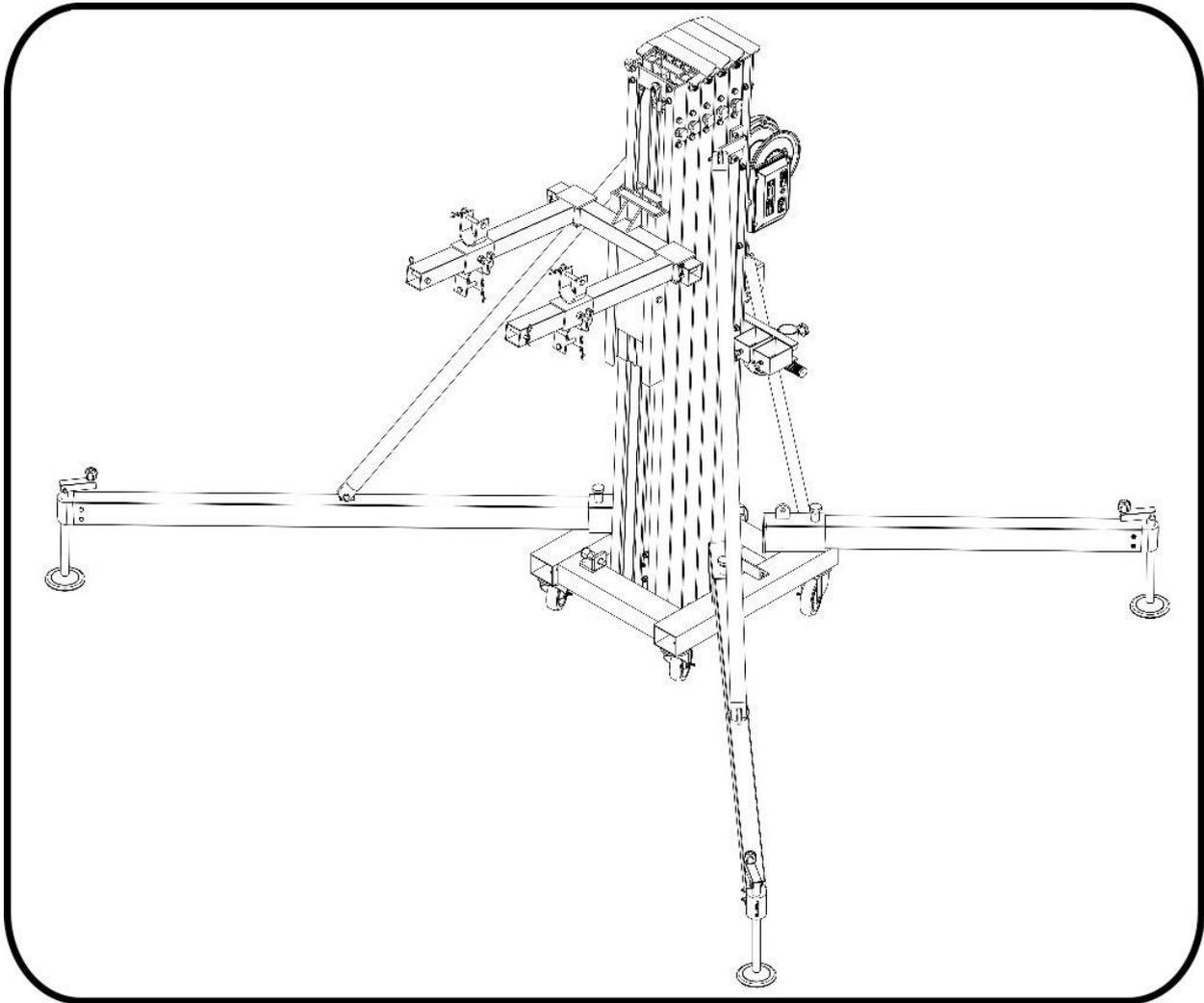


Figure 101

*Example of WTS 256 tower with AWS302 accessories.*

# STANDARDS TAKEN INTO ACCOUNT

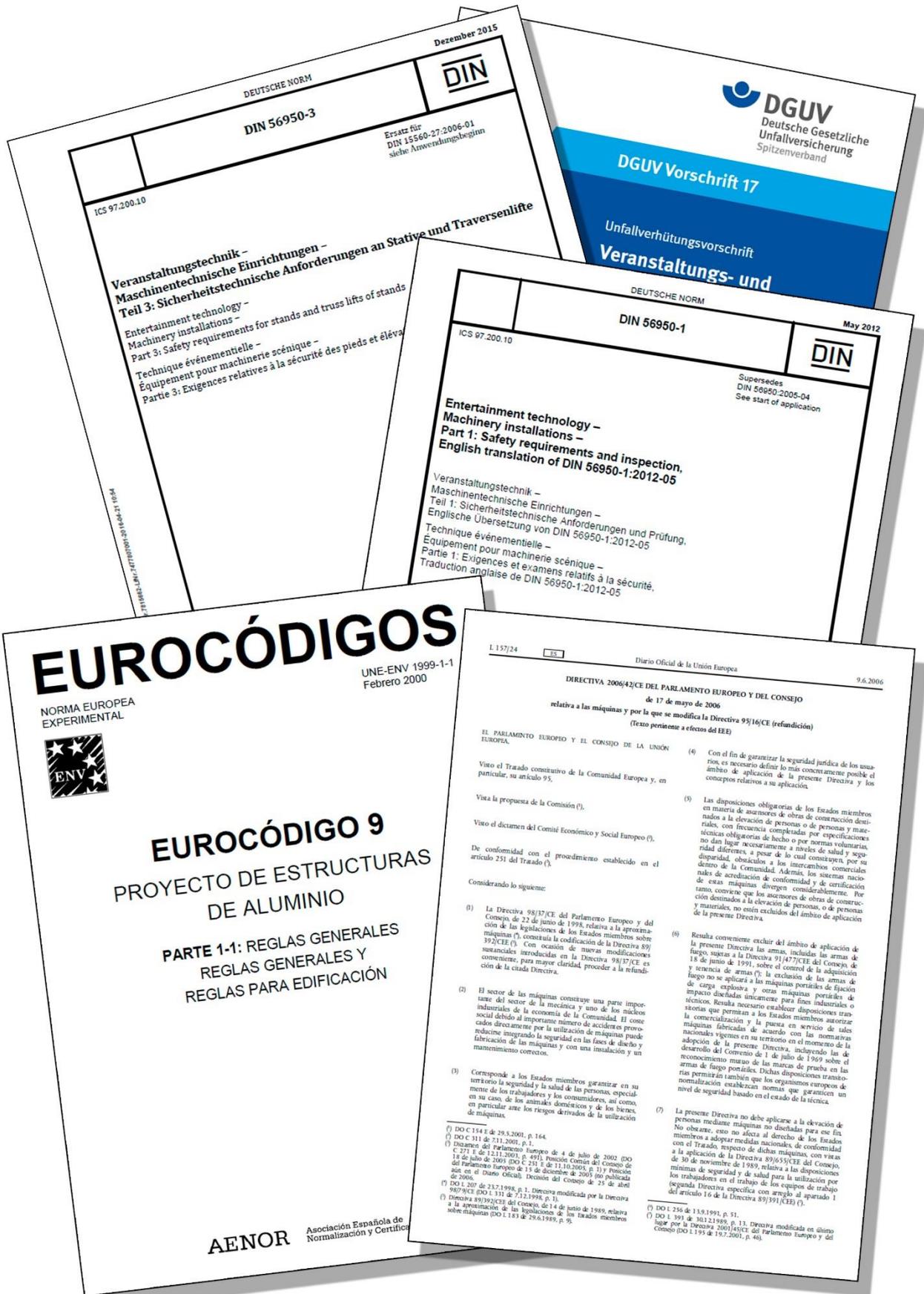


Figure 102

## PLACING THE LOAD

1. Determine the position where the load will be placed and consult the tower capacity. Never exceed it.
2. The "X" distance between the load is taken from the carriage to the end of the horns.
3. When possible, place the load as close to the carriage as possible. This prolongs the life of the tower.

TOWER	X in P1 (mm / inch)	X in P2 (mm / inch)	X in P3 (mm / inch)	X in P4 (mm / inch)	X in P5 (mm / inch)
WTS1206	85	270	450	635	820
WTS905 WTS708	3.34	10.63	17.72	25	32.33
WTS506	100	260	425	580	
	3.93	10.23	16.73	22.83	
WTS375	95	225	355	485	
WTS256	3.74	8.85	13.97	19.1	

Figure 103

Detail of the position of all points of load.

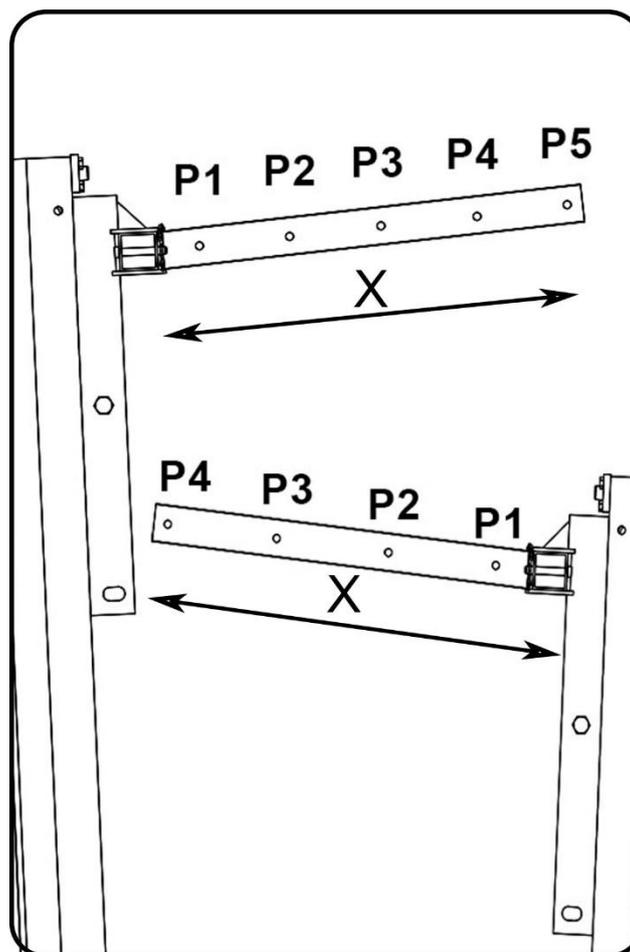


Figure 104

Detail of load positions.

## LOAD CHART

The maximum loads supported by each tower model, for its maximum working height, can be consulted below:

### USING THE TOWER AS MECHANISM.

The tower behaves like a machine when lifting a load making use of the winch as a lifting element. In this case all the parts of the tower behave like a mechanism that uses pulleys, cables and guides to be able to execute the elevation of a load at a certain height.

### USING THE TOWER AS STRUCTURE.

The tower behaves like a structure when all the sections are blocked in such a way that the cable is without tension. In this case the locking system together with the profiles, base and legs act as a support column from which loads can be hung using some support elements such as manual or electric hoists.

WTS	UNIT	AS MECHANISM					AS STRUCTURE				
		P1	P2	P3	P4	P5	P1	P2	P3	P4	P5
905	lbs	992	970	926	895		1984	1653	1433	1336	
	kg	450	440	420	406		900	750	650	606	
1206	lbs	1213	1168	1146	1124	1080	2646	2425	2094	1808	1543
	kg	550	530	520	510	490	1200	1100	950	820	700
708	lbs	992	970	948	926	882	1543	1367	1213	1047	882
	kg	450	440	430	420	400	700	620	550	475	400
506	lbs	1124	882	772	661		1124	882	772	661	
	kg	510	400	350	300		510	400	350	300	
256	lbs	573	482	419	353		573	482	419	353	
	kg	260	220	190	160		260	220	190	160	
375	lbs	772	639	529	507		838	705	573	507	
	kg	350	290	240	230		380	320	260	230	

Figure 105

## LOAD DATA

Before placing a load, make sure that it can be raised to the maximum height of the tower. Otherwise it could cause an accident or damage the tower.

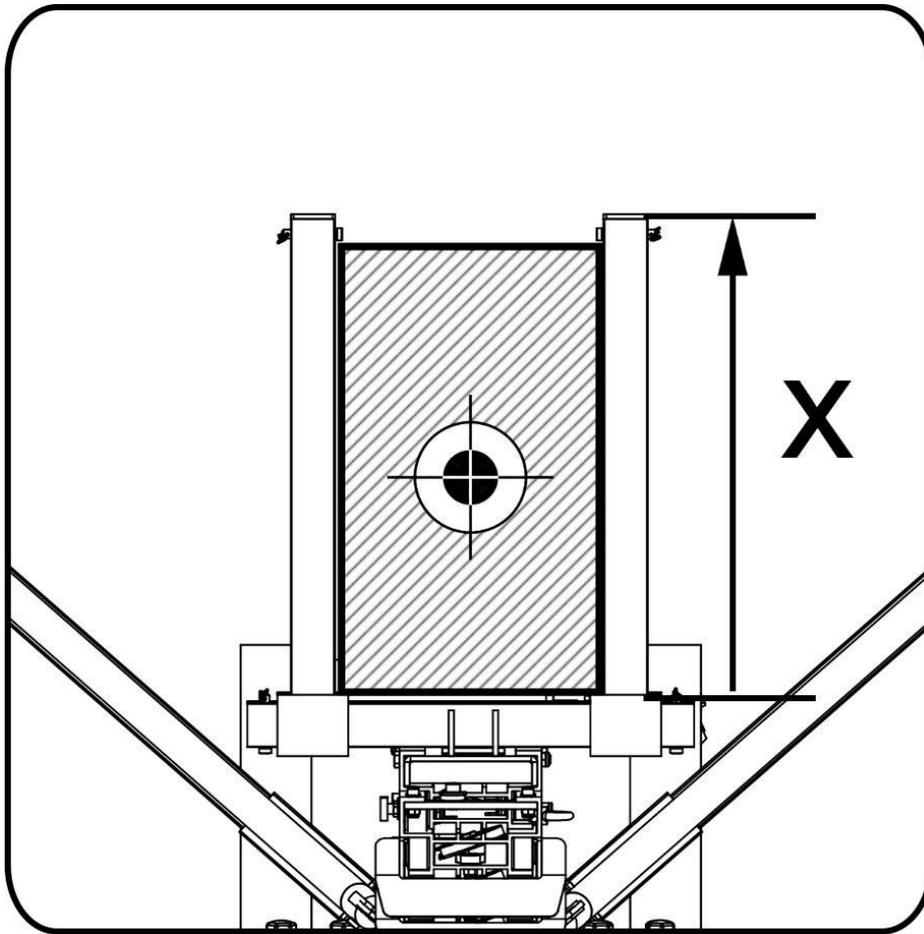


Figure 106

*Place and position detail of the load.*

## GROUND COMPACTION DEGREE

Surfaces such as hard ground or gravel can vary in strength depending on the relative humidity. This relative humidity varies throughout the day, so the resistance of the ground to absorb the stress of the tower loaded also varies. Positioning a tower in these conditions can result in the ground falling under the tower supports, being able to cause a serious accident.

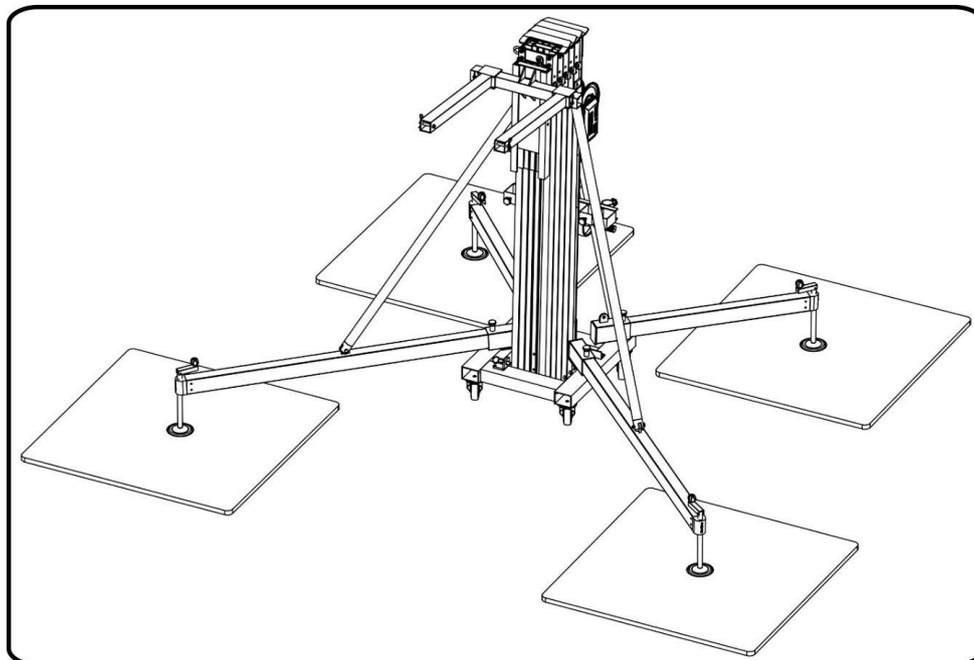


Figure 107

*Detail of plates place. Support must be centered with respect to the plate.*

To avoid this, it is advisable to put bases in the support, to facilitate uniform distribution on the ground, expanding the contact surface of each support. The following table lists the minimum area of these surfaces.

WTS TOWER MODEL	Side length of the plate in meters, and kg/m <sup>2</sup> that can support the ground.		
	150 Kg/m <sup>2</sup>	250 Kg/m <sup>2</sup>	350 Kg/m <sup>2</sup>
905	1,4	1	0,9
1206	1,5	1,2	1
708	1,3	1	0,8
506	1,1	0,8	0,7
256	0,8	0,6	0,5
375	0,9	0,7	0,6

Figure 108

## DYNSYS SYSTEM

Dynsys system is an optional solution for the control of the maximum load in lifting systems.

Dynsys limits the maximum load of the tower avoiding to raise a higher load than the specified (see Figure 105) when the tower is used as mechanism. For more information about the maximum load, consult the load chart (Figure 105).

In case of raising a load higher than the maximum, Dynsys detects the increase in load and prevents it from being raised, allowing only the descent of the load.

In case of limiting the load, Dynsys generates a completely perceptible sound, which avoids the rise of the load and warns that the load is higher than the maximum allowed.

Dynsys system works as a preventive maintenance element. In case the tower has some internal damage and forces the system to operate in a forced manner, Dynsys system will limit its use, preventing that the internal components (cable, pulleys, profiles, etc ...) may deteriorate further. If this happens, contact the technical department or your nearest distributor.

The system allows the disassembly of the crank, thus allowing the blocking of the tower. In this way it is avoided that personnel outside the installation can manipulate the tower by raising or lowering it. Only the two Allen screws should be removed.

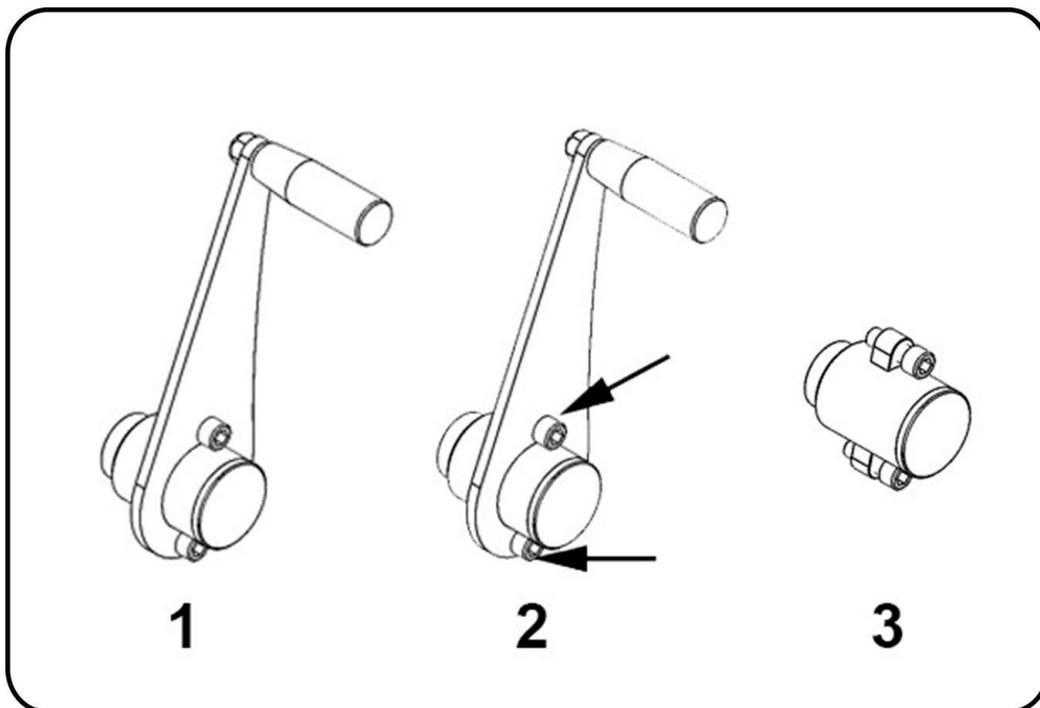


Figure 109

## DYNAMIC OVERLAP



Thanks to the continuous development of new solutions for the lifting towers, Work Lifters has developed and patented an innovative solution that increases the resistance of the towers and reduces their deflection. Dynamic Overlap makes that each tower section overlap with the previous one at different distances, as with trees in nature. This means that all efforts are concentrated in the same way in all the sections of the tower. Thanks to this, the tower can withstand greater efforts with less deflection.

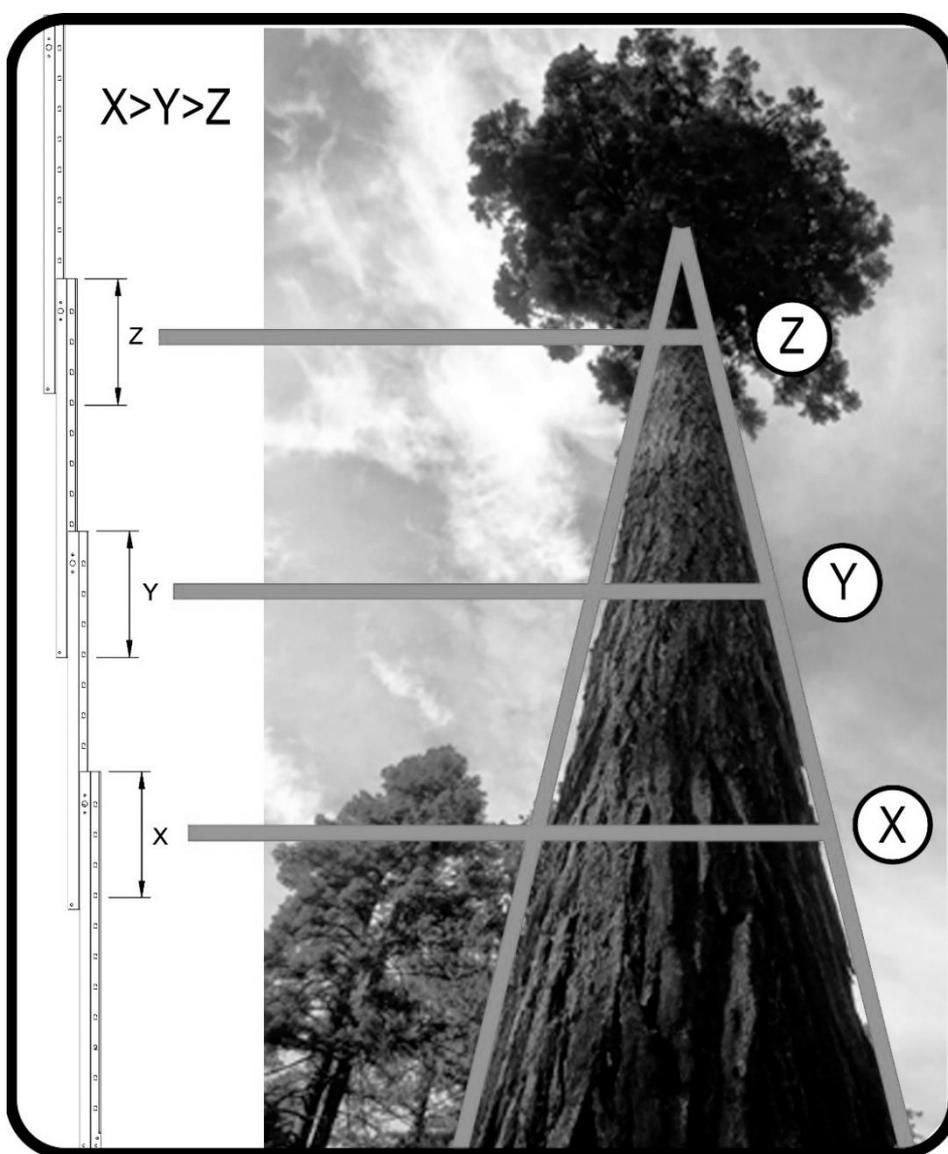


Figure 110

## MAINTENANCE

A review of the tower is recommended by the specialized staff of Work Lifters once a year.

In case of replacement of parts, replace only genuine Work Lifters. Otherwise, the warranty is voided.

To order any spare parts, please include the part number that is included in the spare parts manual that can be requested from your nearest dealer.

## LEGS

- Check that the screw that joins plate and screwed bar is well attached.

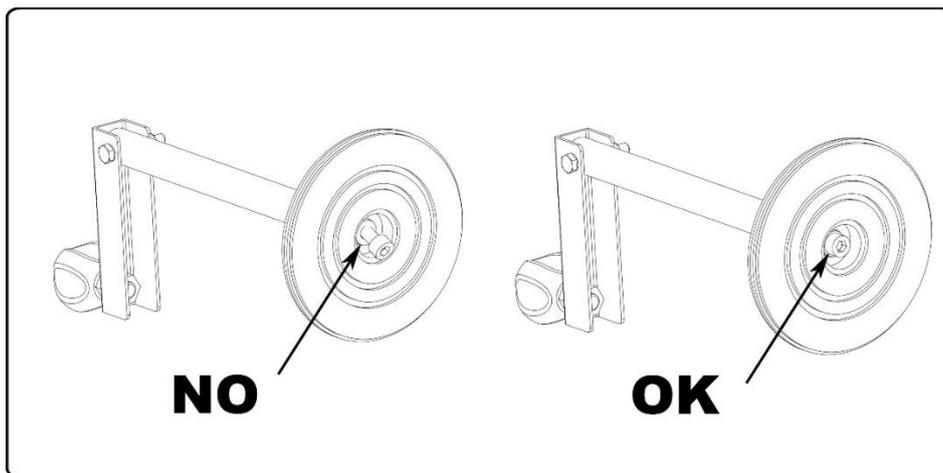


Figure 111

## BASE

- Check that there are no rust spots or paint chips in welds.

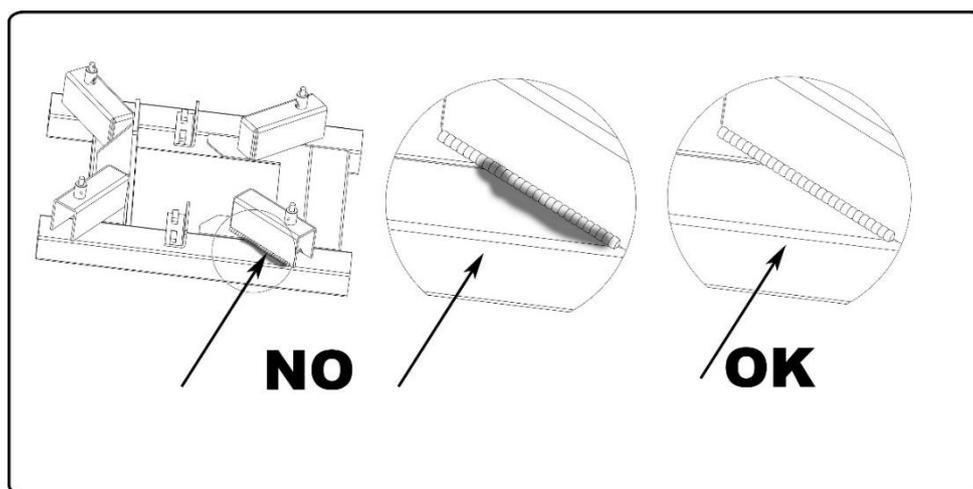


Figure 112

- Check that there are no cracks in welds.

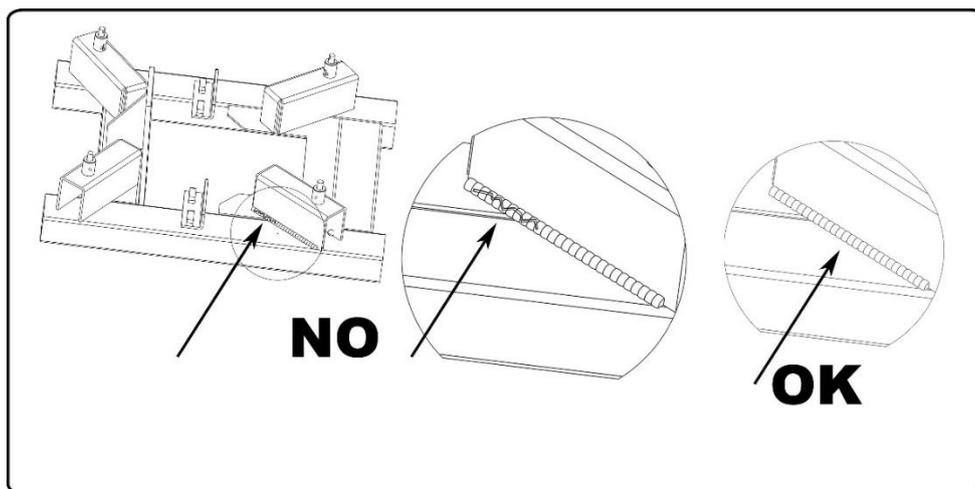


Figure 113

- Check that there is no paint stripping.

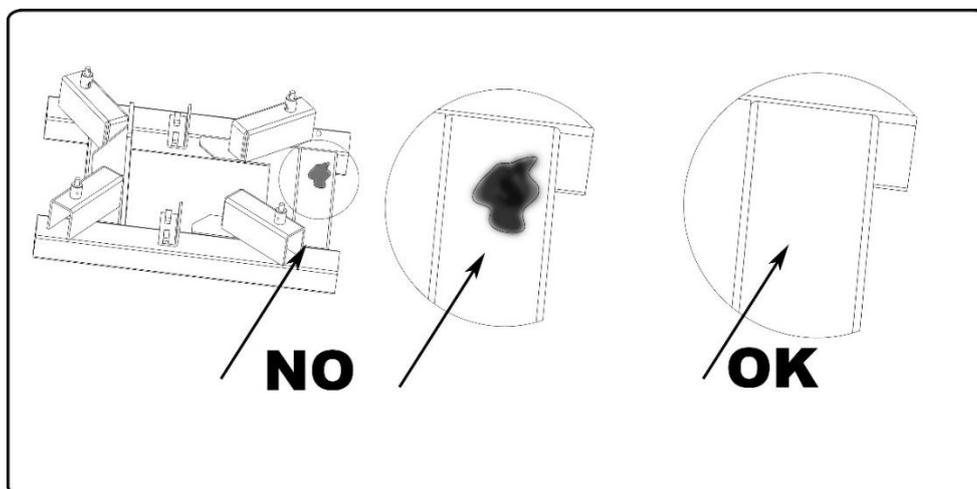


Figure 114

Check that the wheels maintain their tread in optimum conditions to be able to transport the tower.

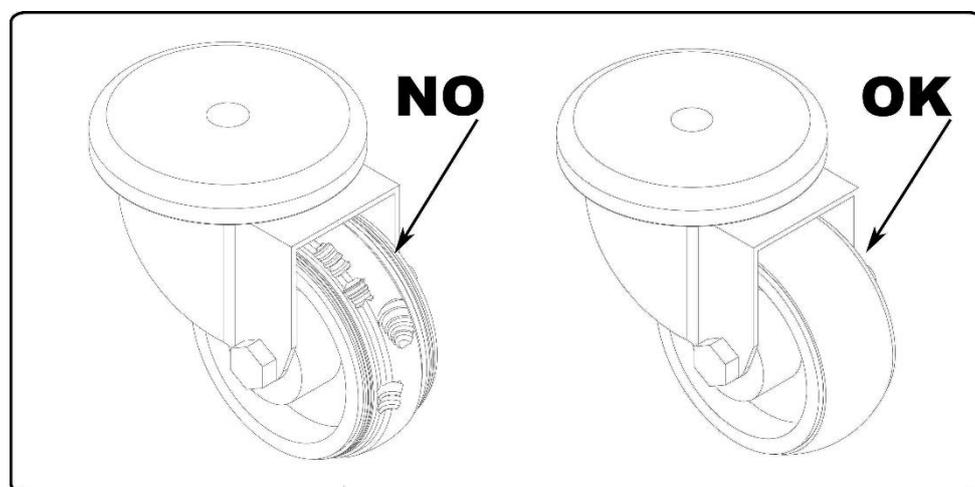


Figure 115

## ALUMINIUM PROFILE

- Check that there is no paint stripping.

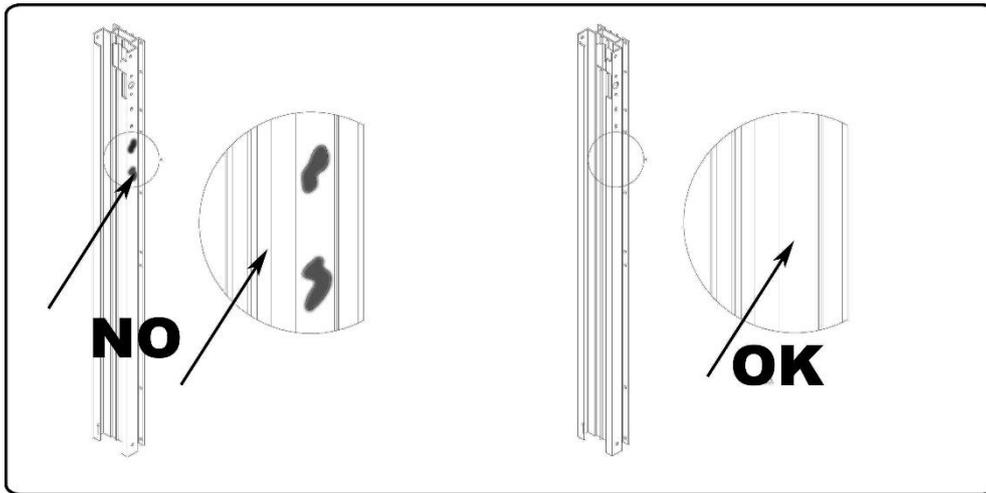


Figure 116

- Check that the screws are tight.

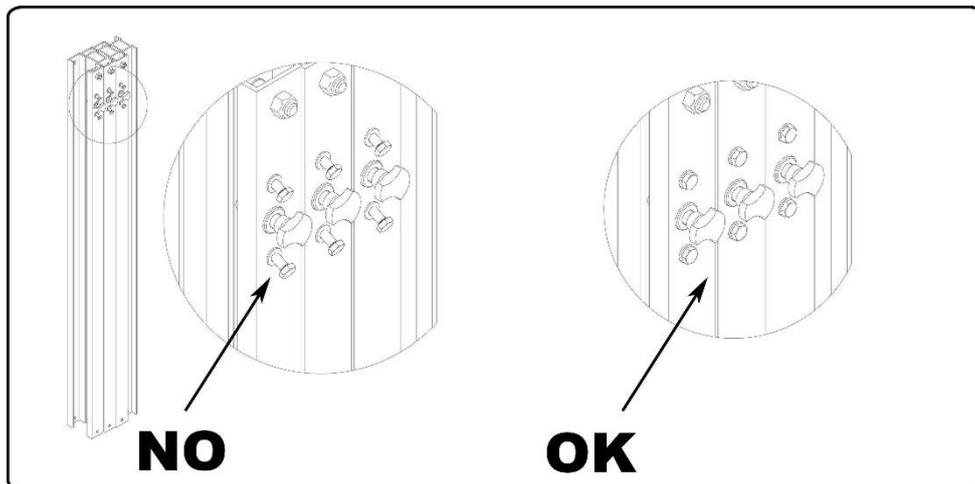


Figure 117

- If you need to lubricate the pulleys, **USE LOW DENSITY OIL.**

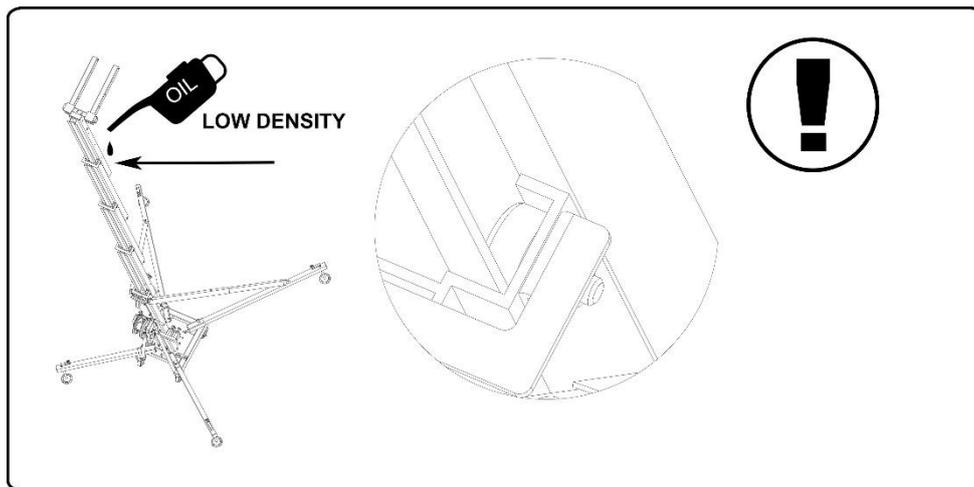


Figure 118

- Check that the knob turns smoothly.

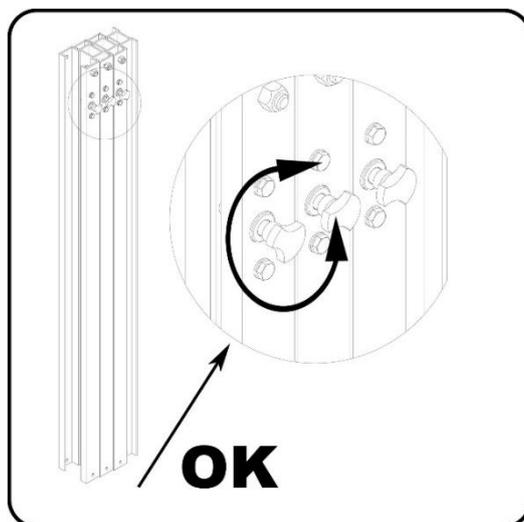


Figure 119

## WINCH

- Check that the handle describes a perfect circular path when rotating. If the handle rotates erratically, the use of the winch should be avoided because the axle may be damaged, which could lead to a fall in load.

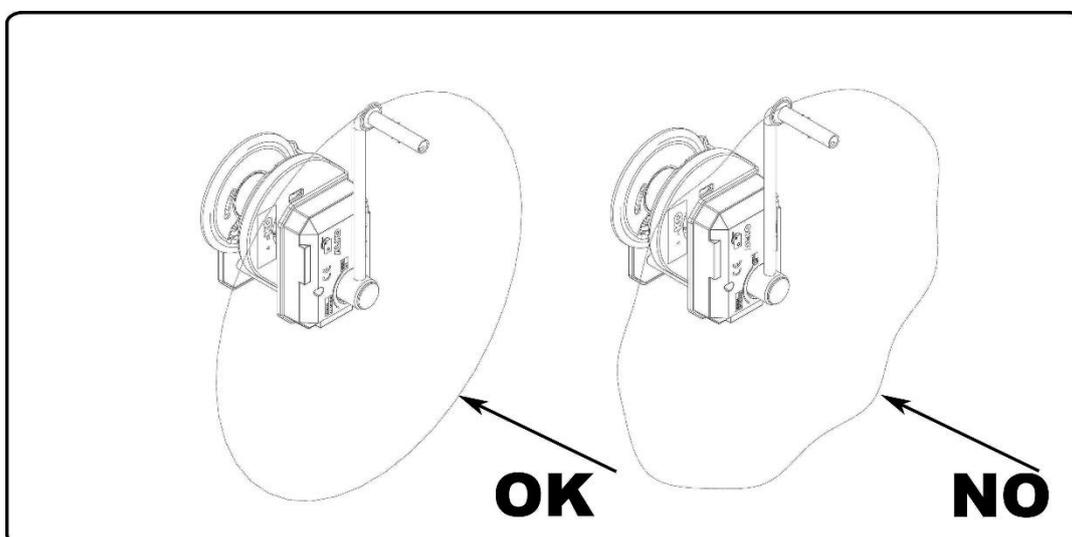


Figure 120

- Check that there is no continuous noise when lowering the load. This is due to the fact that the clutch remains semi-blocked, which causes the tower to come down with a lot of force applied to the handle.

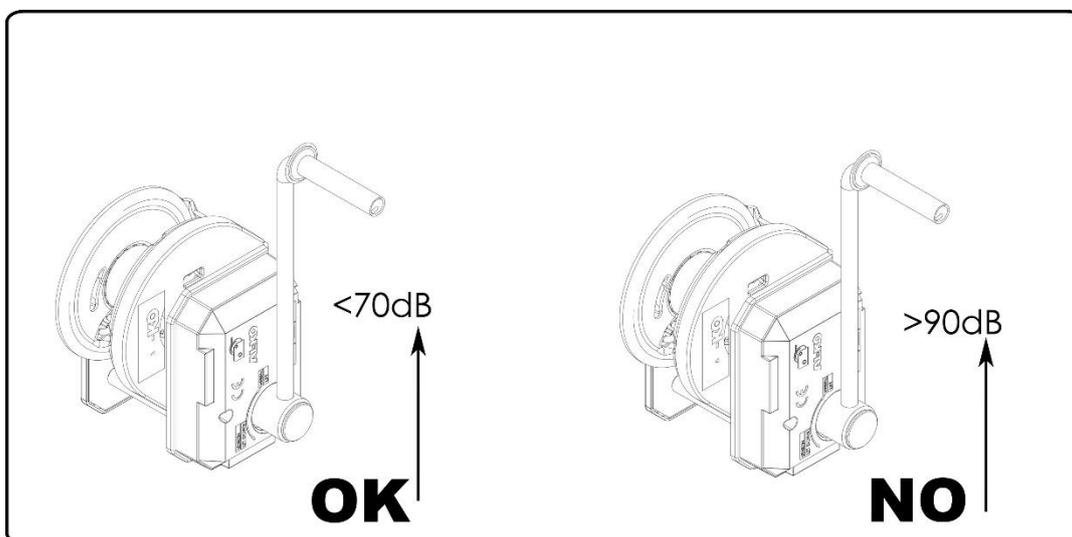


Figure 121

## CABLE

- The cable should not have distortion in its section, or crushing. If you have cut wires, replace the cable immediately.

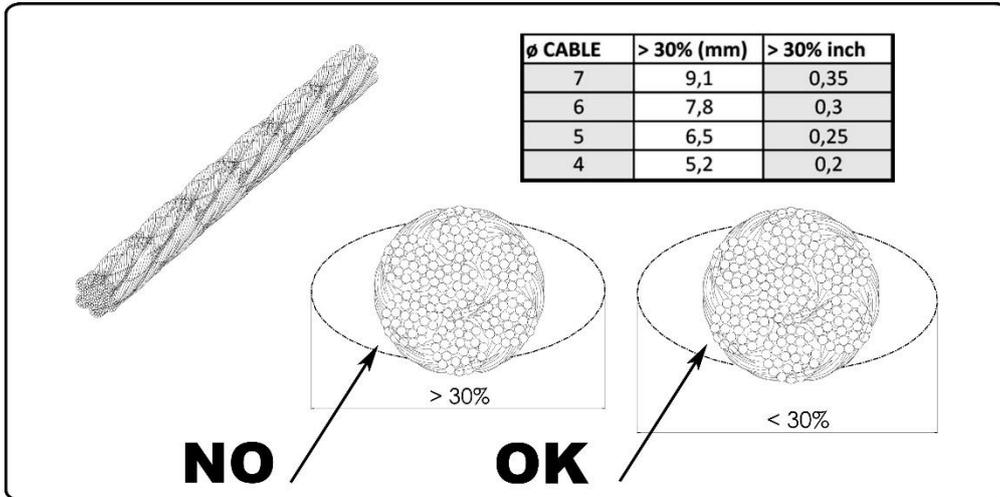


Figure 122

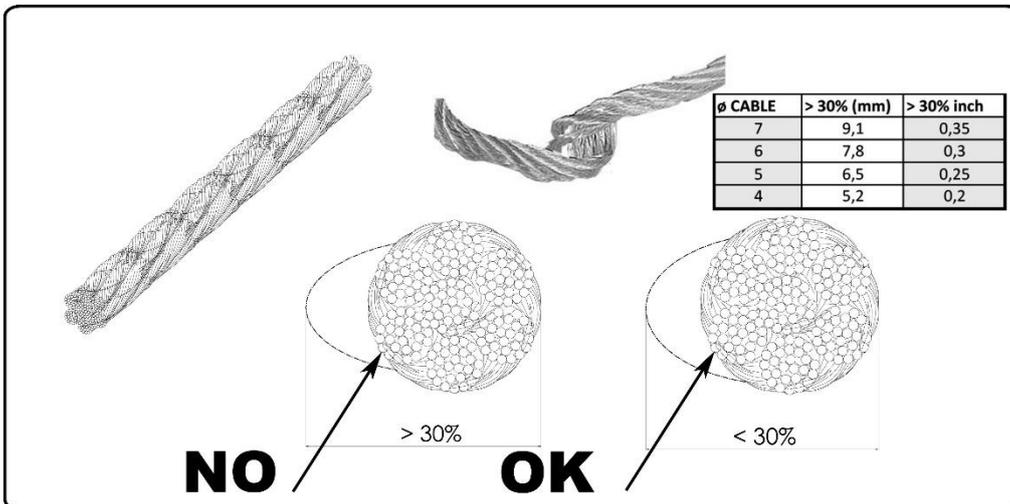


Figure 123

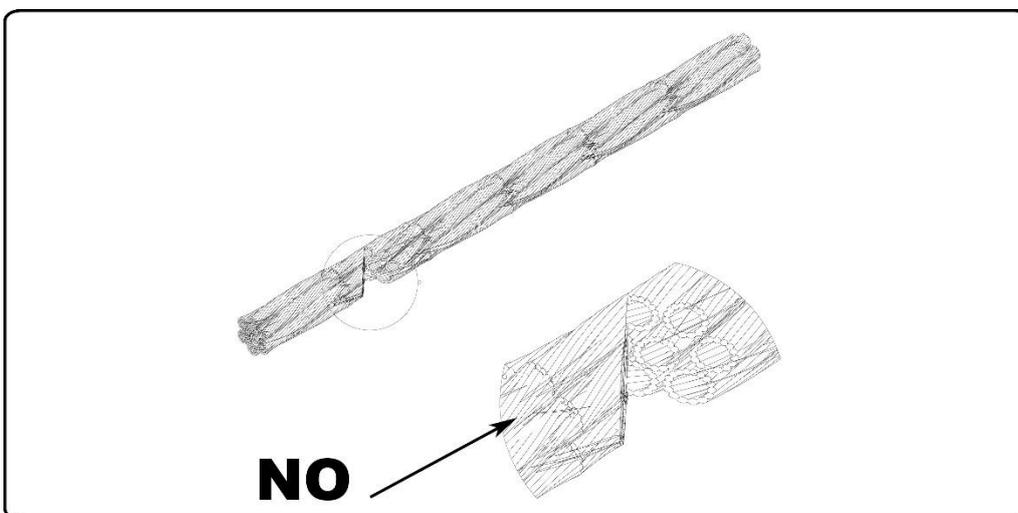


Figure 124

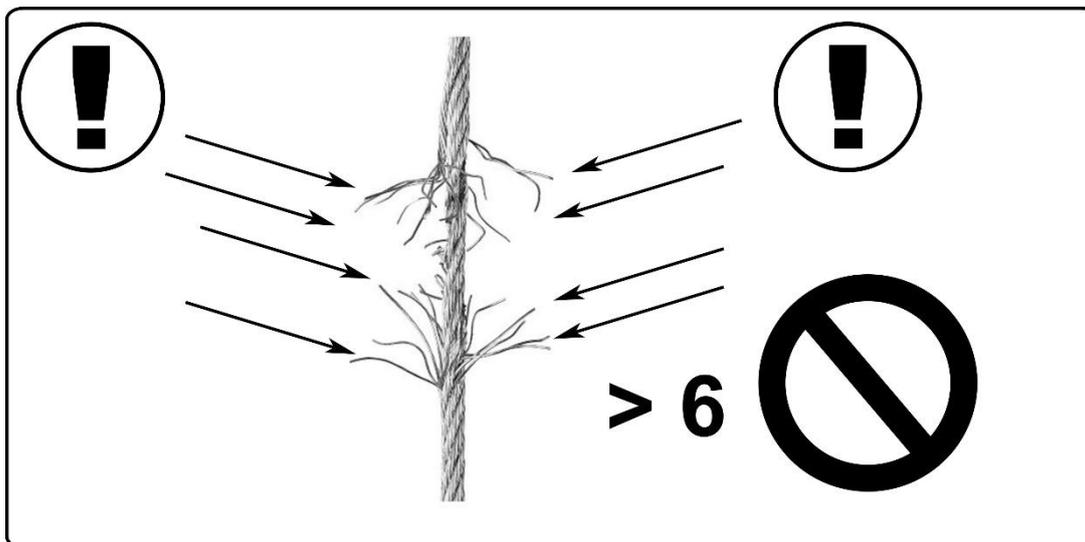


Figure 125

Cable damaged (detail).

- Check the condition of the cable periodically. Always ensure that the first layer of cable is tightly and evenly wound on the winch drum. Do not use the tower with a poor cable. In case of doubt contact Work Lifters

**NOTE: If you detect a minimum of 6 frayed wires in the cable randomly located, REPLACE THE CABLE IMMEDIATELY.**

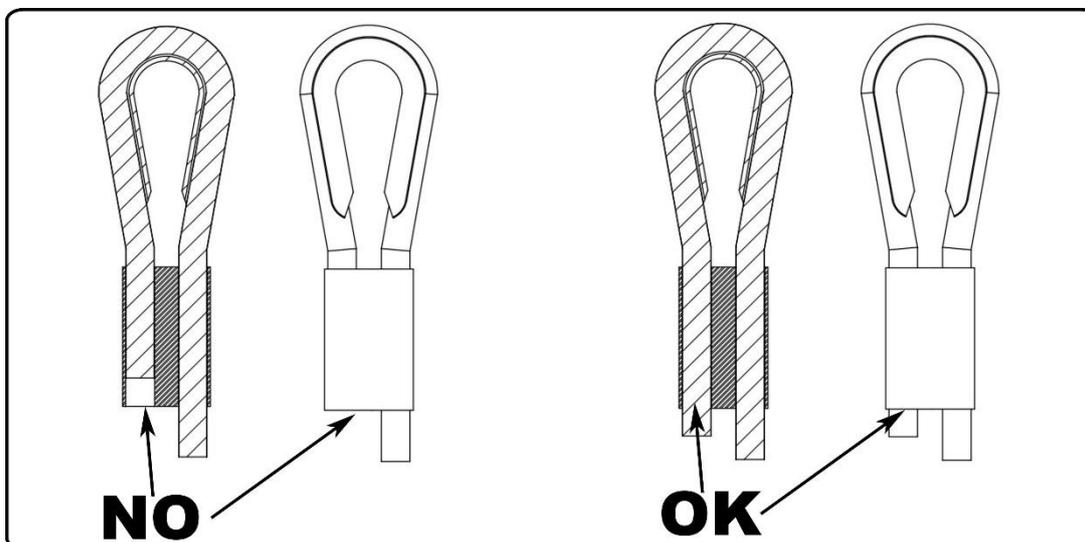


Figure 126

Eyebolt (detail).

- Check the eyebolt that fix the cable. Under normal and optimum conditions, the cable termination must protrude. **If not, PROCEED TO REPLACE THE CABLE**, due to the eyebolt pressure has been reduced and the cable could come off.

## FRONTAL SUPPORT

- Check the integrity of the union screw between the frontal support and the mast. It should not show any deterioration or deflection in its shape. If it occurs, **REPLACE THE SCREW IMMEDIATELY.**

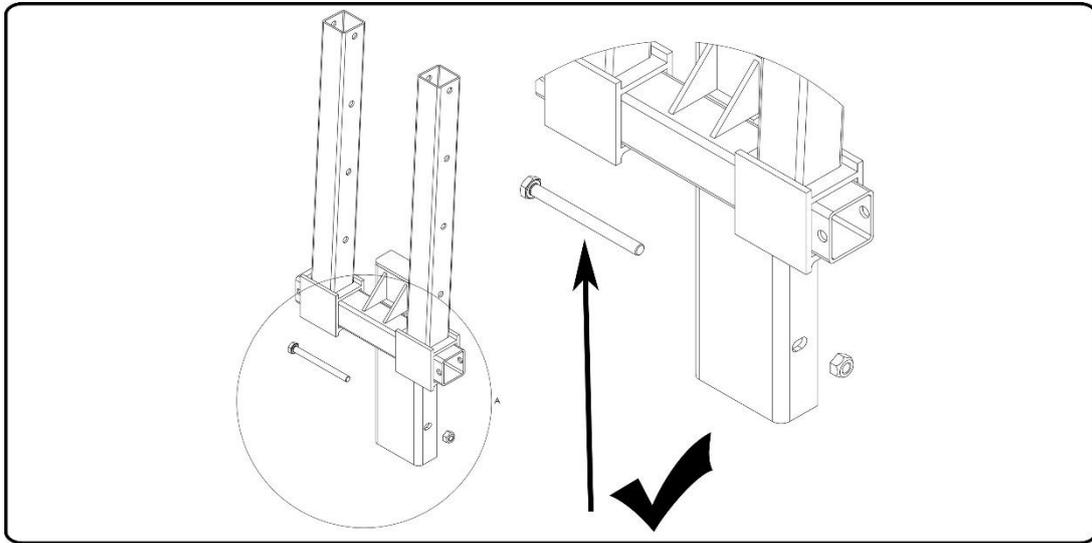


Figure 127

*Union screw (good conditions).*

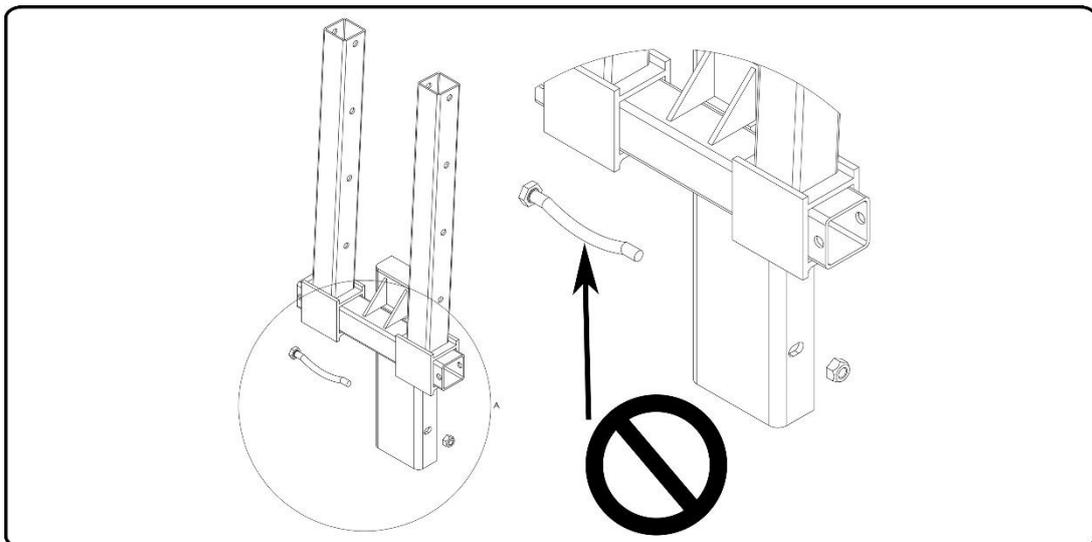


Figure 128

*Union screw (bad conditions) **REPLACE IT IMMEDIATELY.***

## PREVENTIVE MAINTENANCE

Some internal elements can become deteriorated over time and due to its use. Therefore, it is advisable to change certain parts from time to time to ensure the maximum performance of the tower. The following table specifies, in an orientative way, which pieces are advised to change and when.

PIECE	CHANGE FROM (WITHOUT DYNSSYS)	CHANGE FROM (WITH DYNSSYS)
Cable	4 years	6 years
Iron inner pulleys	4 years	6 years
Nylon inner pulleys	4 years	6 years
Inner screws	4 years	6 years

Figure 129



Figure 130

## TRANSPORT

To transport the towers:

- Check that the legs are firmly attached to the tower in their transport position and cannot be released.
- Check that the forks are securely fastened with the pins and cannot be removed.
- Check that the carriage is securely fastened with the car brake system.
- Check that all sections are blocked.

## WITH FORKLIFT

To transport the towers with a mechanism type forklift, the AWS 100 accessory is necessary. Follow the instructions of the machine operator transport manual. Consider the height of what is transported. Avoid sudden turns and braking.

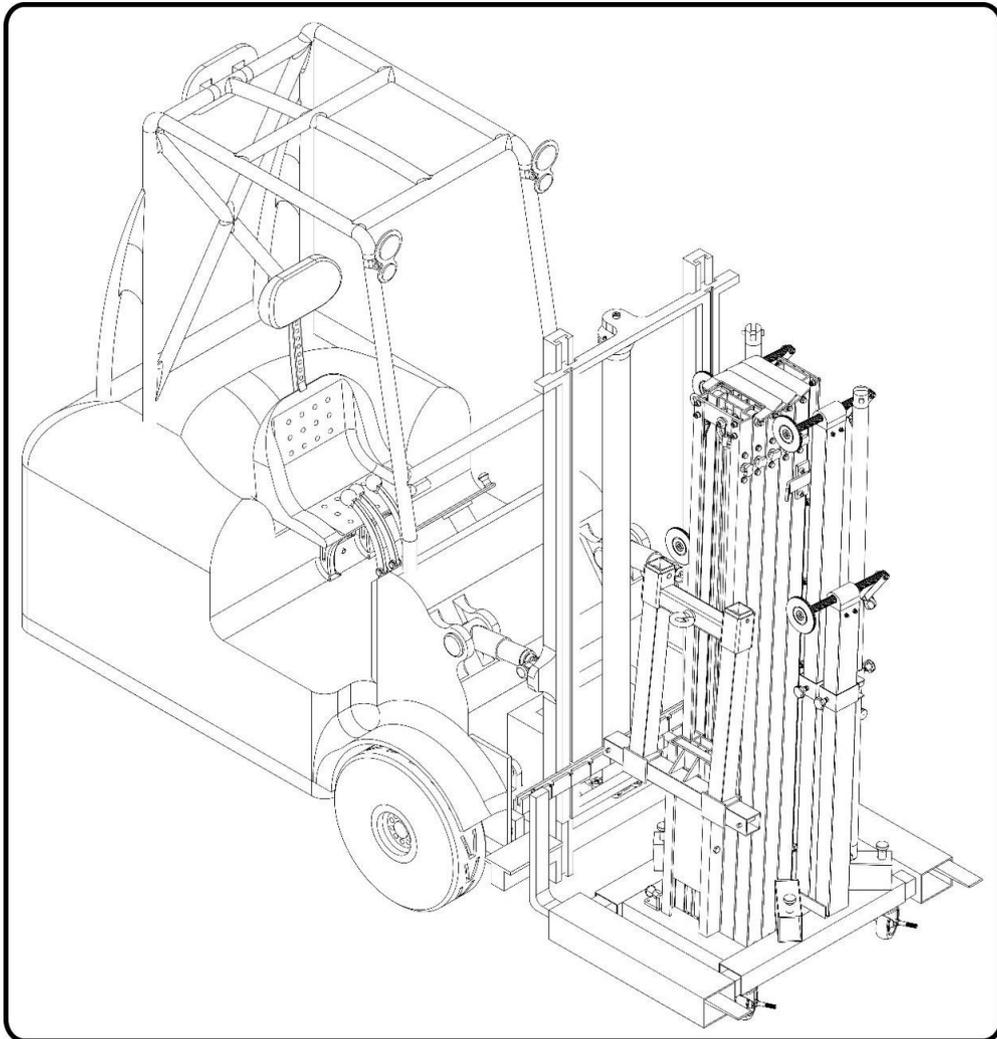


Figure 131

*Detail of transport with forklift.*

## WITH TRUCK OR CONTAINER

To transport the tower by truck or container always tie the tower by two points. Use ratchets not less than 1000 kg of force for the WTS 506, 256 and 375 models. Use ratchets no less than 2000 kg of force for the WTS 905, 1206 and 708 models.

Place ratchets so that the tower cannot move by inertia in curves or sudden braking.

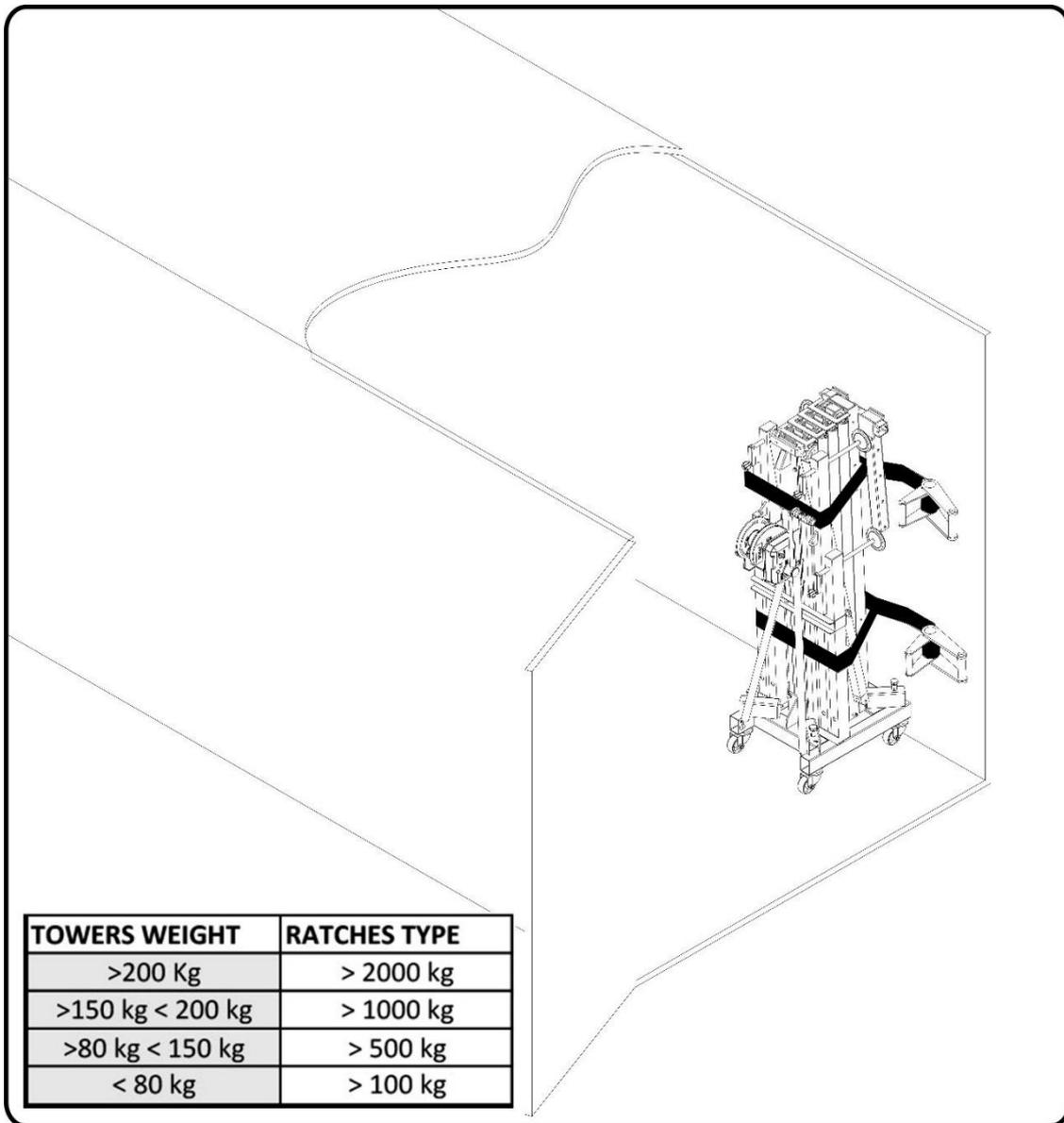


Figure 132

*Detail tower place and shape holding.*

## **DGUV V17/18 NORM REGULATION. Explanation**

**DGUV V17/18** is a norm that regulates the stage and production elements in the entertainment industry. Lifting equipment and rigging are part of this norm and cover structures and other technical elements.

Adopt **DGUV V17/18** is totally voluntary (except in Germany) but its adoption is required by insurance companies and indeed is becoming a norm in the industry

The application of this norm on lifter towers is vital because, in theaters, stages, etc., are used to move loads above artists, technical staff, etc... and in some cases, above viewers, representing a potential risk of fall.

### *NORM DGUV V17/18. Fields of application*

This standard is oriented in two ways:

On the one hand, lifting towers adopt designs and materials to achieve a high degree of safety in quantities such as supported load, equilibrium, resistance to friction, etc.

Thus, **WORK** lifter towers **DGUV V17/18** certified assure the user that they have passed strict controls during design, choice of materials or load checks and effort.

On the other hand, in order to achieve an optimal performance with these units, it is recommended, apart from a responsible use of the unit, (meeting basic norms such as obey the maximum load or balance), a periodic maintenance, which must be carried out by expert technicians, checking the condition of the steel cable and winch, the functioning of the security pins and the folding/unfolding of all sections.

All the above tests are only mandatory in those countries with specific regulations on the matter, applied through regulations or laws. As manufacturers, we recommend passing all tests in order to prevent damage and ensure proper operation of P.A. lift systems.

# SPECIFICATIONS

WTS Model	905		1206		708		506		256		375	
Folded height	1660	mm	2000	mm	2000	mm	1960	mm	1580	mm	1570	mm
	5,44	ft	6,56	ft	6,56	ft	6,43	ft	5,18	ft	5,15	ft
Maximum height	5200	mm	6000	mm	8190	mm	6080	mm	6320	mm	5140	mm
	17,06	ft	19,68	ft	26,87	ft	19,95	ft	20,73	ft	16,86	ft
Width	580	mm	580	mm	580	mm	500	mm	450	mm	450	mm
	22,8	in	22,8	in	22,8	in	19,7	in	17,7	in	17,7	in
Length	720	mm	720	mm	720	mm	640	mm	570	mm	570	mm
	28,3	in	28,3	in	28,3	in	25,2	in	22,4	in	22,4	in
Width- stabilizers lowered	2160	mm	2160	mm	2160	mm	2100	mm	1780	mm	1780	mm
	85	in	85	in	85	in	82,7	in	70,1	in	70,1	in
Length operating	2670	mm	2670	mm	2670	mm	2120	mm	1880	mm	1880	mm
	105,1	in	105,1	in	105,1	in	83,5	in	74	in	74	in
Ground clearance	50	mm										
	1,97	in										
Loading fork	945	mm	945	mm	945	mm	650	mm	500	mm	500	mm
	37,20	in	37,20	in	37,20	in	25,59	in	19,65	in	19,65	in
Minimum load capacity	25	Kg										
	55,12	Lb										
Max. load as machine	450	Kg	550	Kg	450	Kg	510	Kg	260	Kg	350	Kg
	992	Lb	1213	Lb	992	Lb	1124	Lb	573	Lb	772	Lb
Max. load as structure	900	Kg	1200	Kg	700	Kg	510	Kg	260	Kg	380	Kg
	1984	Lb	2646	Lb	1543	Lb	1124	Lb	573	Lb	838	Lb
Net weight	202	Kg	230,5	Kg	272	Kg	152	Kg	109,5	Kg	90,5	Kg
	445,3	Lb	508,2	Lb	599,7	Lb	335,1	Lb	241,4	Lb	199,5	Lb
Winch	1200	Kg	1200	Kg	1200	Kg	900	Kg	900	Kg	900	Kg
	2645,5	Lb	1984,2	Lb								
Cable diameter	7	mm <sup>2</sup>	7	mm <sup>2</sup>	7	mm <sup>2</sup>	6	mm <sup>2</sup>	6	mm <sup>2</sup>	6	mm <sup>2</sup>
Noise emissions	73	dB	73	dB	73	dB	71	dB	70	dB	70	dB

Figure 133



## DECLARATION OF CONFORMITY

The tower lifters described complies with all the specific requirements of Directive 2006/42 / EC of the European Parliament and of the Council of 17 May 2006 on the Machinery Directive.

The tower lifters described meet all the specific requirements in DIN56950: 1/3. If the Dynsys system is installed in the tower.

The tower lifters described meet all the specific requirements in DGUV V17/18

**Manufacturer:**

EQUIPSON, S.A.

**Person responsible of the technical data:**

José Vila Ortiz

**Address:**

Avda. El Saler, 14 Pol. Industrial  
L'Alteró. 46460 SILLA – Valencia  
(Spain)

Frontal load lifter

**Description:**

**MODEL WTS 905**

**MAX. LOAD: 900 kg**

**MODEL WTS 1206**

**MAX. LOAD: 1200 kg**

**MODEL WTS 708**

**MAX. LOAD: 700 kg**

**MODEL WTS 506**

**MAX. LOAD: 510 kg**

**MODEL WTS 256**

**MAX. LOAD: 260 kg**

**MODEL WTS 375**

**MAX. LOAD: 380 kg**



Jose Vila Ortiz, July 2016

# DGUV MARK

NUMERO DE SERIE:	SERIAL NUMBER:	LAUFENDE NUMMER:

Primer test en fábrica	First test in factory.	Erstprüfung im Werk.
Fecha/Date/Datum	Testado por/Tested by/Prüfer	

Examen a los cuatro años.	Four years test	UVV Prüfung (alle 4Jahre)
Fecha/Date/Datum	Testado por/Tested by/Prüfer	

Examen anual a partir del cuarto año.	Annual test after the fourth year.	UVV Jährlicher Test nach dem vierten Jahr.
Fecha/Date/Datum	Testado por/Tested by/Prüfer	

Fecha/Date/Datum	Testado por/Tested by/Prüfer
Fecha/Date/Datum	Testado por/Tested by/Prüfer
Fecha/Date/Datum	Testado por/Tested by/Prüfer
Fecha/Date/Datum	Testado por/Tested by/Prüfer

Fecha/Date/Datum	Testado por/Tested by/Prüfer



