

# skybeam®

temporary outrigger beam  
for suspended platforms

assembly manual  
for

**TRACTEL Inc. GRIPHOIST Div.**

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## PORTAFIX BEAM

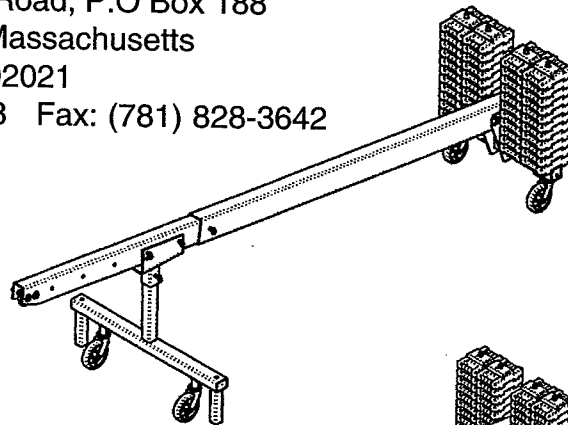
Models:

RBI2000D

RBI2100D

RBH2000D

RBH2100D

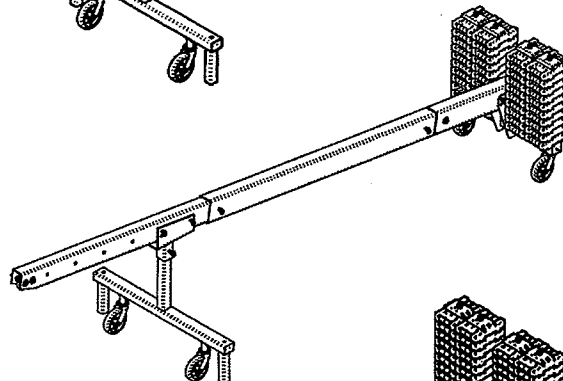


## PORTAFIX BEAM - SHORT

Models:

RBI4000D

RBH4000D



## PORTAFIX BEAM UNDERARM EXTENSION

Components:

URB1110C

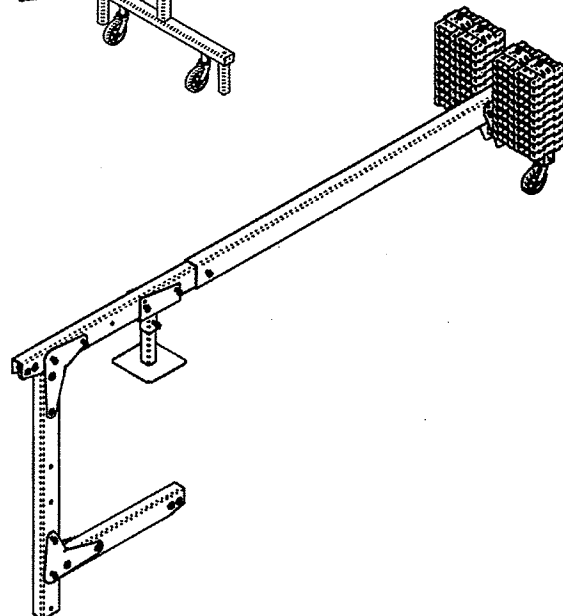
URB1120C

URB1130C

URB1140C

URB1150C

URB1220C



# skybeam®

## temporary outrigger beam for suspended platforms

### assembly and operating instructions

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## Explanation of Symbols used in this manual

### Safety advice

Symbol	Code word	Meaning	Possible consequence of non-compliance
	WARNING	IMMEDIATE or possibly imminent danger:	Fatal or serious injuries!
	CAUTION	possibly dangerous situation:	Minor Injuries to persons!
<b><u>Other Advice</u></b>			
	NOTE	possibly dangerous situation:	Damage to equipment or its surroundings
	(none)	Instruction for documentation in writing (i.e. record keeping)	(none)



# GENERAL WARNING



Read this general warning first.

**In suspended platform operations, safety is a matter of life or death for riggers, operators and by-standers. This warning is your share of duties for achieving safety.**

## YOUR DUTY TO UNDERSTAND AND COMPLY.

1. It is the responsibility of the employer that the rigger's and the operators, strictly conform to the following warnings.
2. It is imperative for safety and efficiency of operations that this manual be **read and fully understood** by the rigger and the operator before rigging or operating the platform. **All instructions contained herein must be carefully and strictly followed, including applicable Tractel safety guidelines.**
3. Should you hand over a skybeam under any conditions conditions, to any party operating out of your control, you must attach a clean copy of this manual and draw to other party's attention that strictly following all the instructions therein is a matter of life or death.
4. Before using the skybeam, the rigger and the operator must become aware of all the requirements of federal, state, provincial and local safety regulations, not only applicable to the skybeam, but also to the entire suspended scaffold system or any component of it.
5. Never use the skybeam for any job other than lifting personnel on suspended scaffold according to the instructions of this manual.
6. Never load the skybeam above its rated load.

## YOUR DUTY TO INSPECT AND MAINTAIN.

7. Keep this manual available at all times for easy reference whenever required. Extra copies are available from Tractel and/or your equipment supplier.
8. Carefully take notice of all the labels affixed to the skybeam. Never rig or operate the skybeam if any label, normally fixed on it is obscured or missing. Replacement labels are available from Tractel and/or your equipment supplier.
9. Every time the skybeam is to be rigged or used, check that the skybeam, platform, hoists, wire ropes and other components of the suspended scaffold system are complete and in good working condition, prior to proceeding.
10. A careful and regular inspection of the platform hoists, wire ropes and other components of the installation is part of the safety requirements. If you have a question, call Tractel and/or your equipment supplier.
11. Maintenance may only be carried out by personnel authorized by Tractel. A signed and dated inspection record should be maintained.

12. After each de-rigging and before re-rigging, the skybeam must be inspected by a competent person familiar with the skybeam and professionally trained for the purpose.
13. Inspection by persons authorized by Tractel is to be carried out once every six months. To spot check the condition of the beam and it's components and that rigging is being done correctly. A signed and dated inspection record should be maintained for these purposes.
14. The manufacturer declines any responsibility for consequences of repairs or modifications brought out of its control to the product, specially by replacement of original parts or repairs by another manufacturer.



## YOUR DUTY TO TRAIN AND CONTROL PEOPLE.

Compliance with safety rules extends to rigging operations which must be carried out only after securing safe conditions of operation as per safety regulations and requirements.

15. An operator must not be assigned to a suspended job or to rigging for a suspended job, or to de-rigging after the job, if that person is not:
  - a) mentally and physically fit for the purpose, especially at heights.
  - b) competent for the job to be performed.
  - c) familiar with the scaffold equipment as rigged.
  - e) professionally trained for working under the above requirements.Except for the operations described in this manual, the maintenance of the skybeam, as wells as repairs, must be exclusively done by repairers authorized by Tractel. Spare parts used for all equipment must be in accordance with the product, no substitutions are allowed.
16. Never let the skybeam or other components of a suspended scaffold system be managed or operated by any person other than authorized and assigned to the job. Keep the equipment, either rigged or unrigged, out of reach of unauthorized persons, while out of operation.
17. Training operators and riggers includes setting up rescue procedure should a scaffold be brought to a standstill during a job. Such procedure must be set up by a competent person of the user, or its technical consultant, according to the working conditions, prior to putting the equipment into operation.
18. Every suspended job must be placed under the control of a person having the required competence and authority for checking that all the instructions prescribed by this manual be regularly and efficiently carried out.

## YOUR DUTY TO SAFETY BEYOND THE PLATFORM

As being only one piece of a scaffold system, the skybeam can contribute to the required safety only if:

19. Compatibility of other brands has been verified & approved by Tractel engineering department.
20. It is fitted on compatible equipment.
21. Other components meet the requirements of the applicable safety regulations and requirements, are of the proper quality, assembled to form a safe and efficient suspended scaffold system and are approved by Tractel engineering department
22. Every upper support of the scaffold is stable, sufficiently strong and properly tied back to the structure, according to the load either static or dynamic.
23. Supporting structure and tie-backs provide the required to withstand every load to be applied, either static or dynamic, during rigging or operating the scaffold equipment.
24. All the requirements in strength and resistance are obtained with the necessary safety coefficients (see regulations and professional standards).
25. All the calculations, design and subsequent work necessary to meet the above requirements have been made by a competent person on the basis of proper technical information regarding the site.

## YOUR DUTY TO AVOID TAKING CHANCES.

26. Once the suspended platform has been lifted off its initial support (ground or any other level), it is imperative not to release, remove, alter or obstruct any part of the equipment under load.
27. **NEVER** allow any condition which would result in a suspension wire rope becoming **SLACK** during the operation unless:
  - a) the suspended platform is safely supported on a safe surface giving a safe access to the operator in compliance with safety regulations.
  - b) another suspension wire rope has been safely rigged to the suspension platform.
28. Never operate a platform and its accessories, especially electric ones, in a potentially explosive atmosphere.
29. For any job to be performed on the suspended equipment, consider and control the specific risks related to the nature of the job.
30. Should you decide that this skybeam is no longer to be used, take precautions in disposing of it so that it cannot be used any more.
31. **The manufacturer declines any responsibility for any special rigging or structural combinations beyond the descriptions of this manual.**
32. **The manufacturer declines any responsibility for any other use of the skybeam, than described in this manual.**

## AN ULTIMATE RECOMMENDATION

Never neglect means to improve safety. Due to the risks inherent in the use of suspended scaffolding, it is strongly recommended that every installation be equipped with secondary wire rope(s) fitted with a separate fall arrest system, anchored to a safe separate point of the building structure.

**This manual is neither a regulations compliance manual nor a general training guide on a suspended scaffold operations. You must refer to proper instructions delivered by manufacturers of the other pieces of equipment included in your suspended scaffold installation. Whenever calculations and specific rigging and handling are involved, the operator should be professionally trained to that end and secure relevant information prior to commencing such work.**

## 2. TRANSPORT AND HANDLING

Components	Weight	
	lbs.	kg.
Inclined Roof Beam Portafix Counterweight Version - Max Reach 5ft.	RBI2000D 345	156.8
Inclined Roof Beam Extended Beam Portafix Counterweight Version - Max Reach 8ft.	RBI2100D 425	193.2
Inclined Short Section Roof Beam Portafix Counterweight Version - Max Reach 5ft.	RBI4000D 334	151.8
Horizontal Roof Beam Portafix Counterweight Version - Max. Reach 5 ft.	RBH2000D 282	128.2
Horizontal Roof Beam Extended Beam Portafix Counterweight Version - Max.Reach 8ft.	RBH2100D 362	164.5
Horizontal Short Section Roof Beam Portafix Counterweight Version - Max. Reach 5 ft	RBH4000D 271	123.2
Under Roof Extension 3 ft. - Vertical Extension	URB1110C 46	20.9
Under Roof Extension 6 ft. - Vertical Extension	URB1120C 64	29.1
Under Roof Extension 9 ft. - Vertical Extension	URB1130C 82	37.3
Under Roof Extension 12 ft. - Vertical Extension	URB1140C 100	45.5
Under Roof Extension 15 ft. - Vertical Extension	URB1150C 118	53.6
Under Roof Extension 4 ft. - Horizontal Extension	URB1220C 52	23.6
Counterweights*	3348 55	25

\*Counterweights not included with beams.

**Handle equipment with care, do not drop equipment during loading or unloading. Impose loads on Skybeam gently and without impact.**

### 3 TECHNICAL SPECIFICATIONS OF THE SKYBEAM

#### 3.1 TABLE OF COUNTERWEIGHTS FOR SPECIFIC RATED LOADS

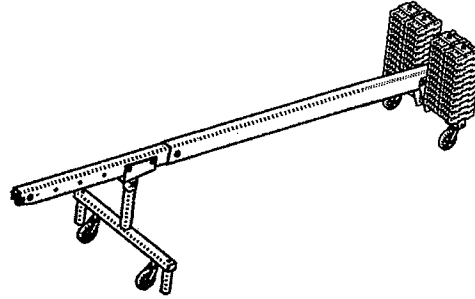


Table 1

RBI2000D – INCLINED ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	8	440	10	550
2 FT	14	770	20	1100
3 FT	20	1100	30	1650
4 FT	26	1430	N/A	
5 FT	32	1760	N/A	

1000 LBS. MAX REACH IS 5 FT.  
1500 LBS. MAX REACH IS 3 FT.

\*CWT. = 55 LBS.

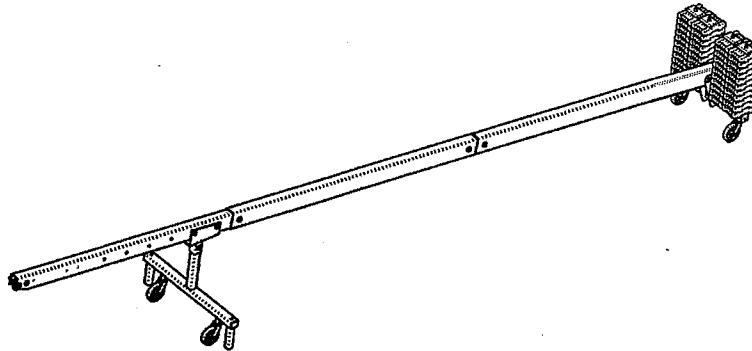


Table 2

RBI2100D – EXTENDED INCLINED ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	4	220	6	330
2 FT	8	440	10	550
3 FT	10	550	16	880
4 FT	14	770	20	1100
5 FT	16	880	24	1320
6 FT	20	1100	N/A	
7 FT	24	1320	N/A	
8 FT	26	1430	N/A	

1000 LBS. MAX REACH IS 8 FT.  
1500 LBS. MAX REACH IS 5 FT.

\*CWT. = 55 LBS.

3.1 CONTINUED - TABLE OF COUNTERWEIGHTS FOR SPECIFIC RATED LOADS

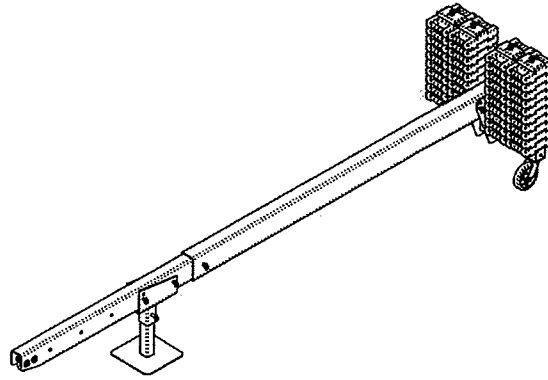


Table 3

RBH2000D – HORIZONTAL ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	8	440	10	550
2 FT	14	770	20	1100
3 FT	20	1100	30	1650
4 FT	26	1430	N/A	
5 FT	32	1760	N/A	

1000 LBS. MAX REACH IS 5 FT.  
1500 LBS. MAX REACH IS 3 FT.

\*CWT. = 55 LBS.

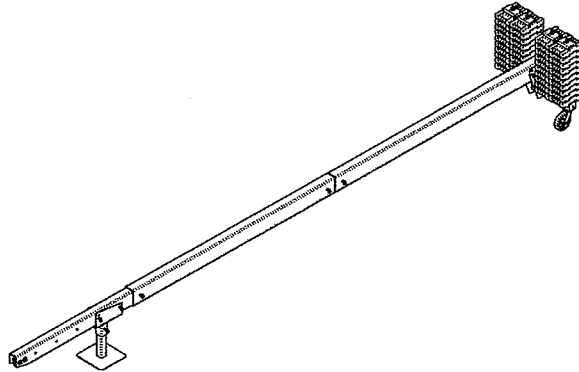


Table 4

RBH2100D – EXTENDED HORIZONTAL ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	4	220	6	330
2 FT	8	440	10	550
3 FT	10	550	16	880
4 FT	14	770	20	1100
5 FT	16	880	24	1320
6 FT	20	1100	N/A	
7 FT	24	1320	N/A	
8 FT	26	1430	N/A	

1000 LBS. MAX REACH IS 8 FT.  
1500 LBS. MAX REACH IS 5 FT.

\*CWT. = 55 LBS.

**3.2 CONTINUED - TABLE OF COUNTERWEIGHTS FOR SPECIFIC RATED LOADS FOR THE SHORT SECTION ROOF BEAM**

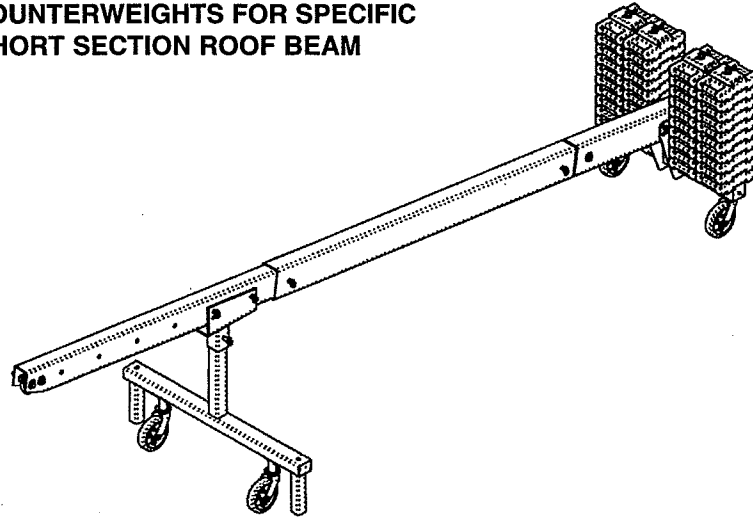


Table 5

RBH4000D - HORIZONTAL SHORT SECTION ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	8	440	10	550
2 FT	14	770	20	1100
3 FT	20	1100	28	1540
4 FT	26	1430	N/A	
5 FT	30	1650	N/A	

1000 LBS. MAX REACH IS 5 FT.  
1500 LBS. MAX REACH IS 3 FT.

\*CWT. = 55 LBS.

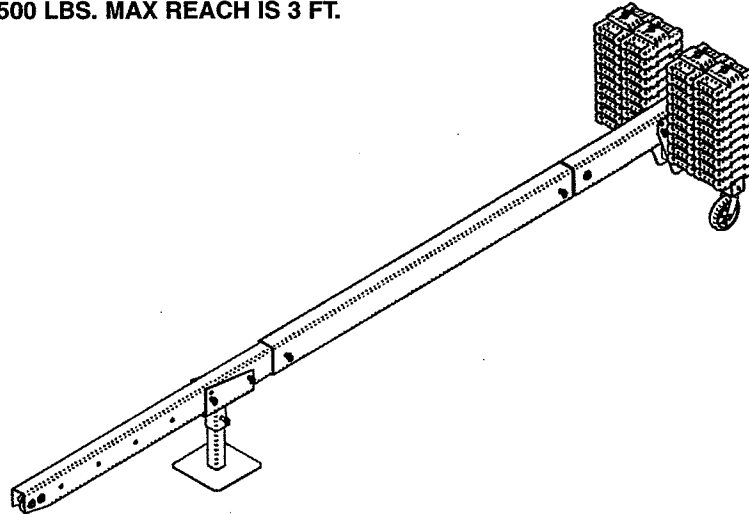


Table 6

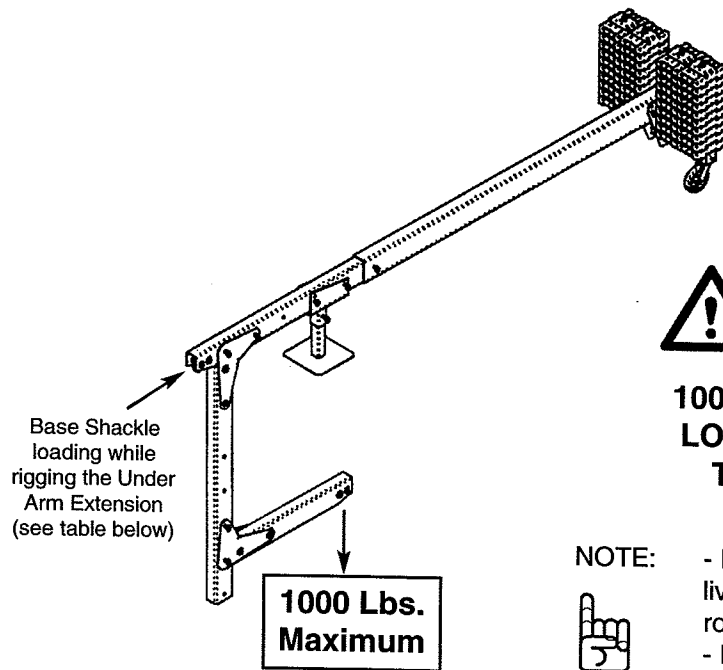
RBH4000D - HORIZONTAL SHORT SECTION ROOF BEAM - PORTAFIX				
RATED LOAD	1000 lbs.		1500 lbs.	
	TOTAL NO. OF CWT*	WT TOTAL LBS	TOTAL NO. OF CWT*	WT TOTAL LBS
1 FT	8	440	10	550
2 FT	14	770	20	1100
3 FT	20	1100	28	1540
4 FT	26	1430	N/A	
5 FT	30	1650	N/A	

1000 LBS. MAX REACH IS 5 FT.  
1500 LBS. MAX REACH IS 3 FT.

\*CWT. = 55 LBS.



**3.3 CONFIGURATION TABLES AND ALLOWABLE RATED LOAD AT THE BASE SHACKLES WITH 1000 Lbs. RATED LOAD SUSPENDED ON THE 4' RETURN UNDER ROOF EXTENSION ARM.**



**WARNING**



**1000 LBS. IS THE MAXIMUM ALLOWABLE LOAD THAT CAN BE SUSPENDED FROM THE UNDER ROOF EXTENSION ARM**

**NOTE:**



- Rated load represents 2/3 of total load (dead load & live load) of the platform to be used with the specified roof beam configuration
- For the use of the standard and extended roof beam it is necessary to have the maximum 32 counterweights on the counterweight beam.
- For the mounting configuration of the roof beam base please refer to 4.2 page 14.

**This table shows the reach and capacity of the base shackles while rigging the under arm roof extension with the maximum number of counterweights on the counterweight**

Table 7

URB2100D – EXTENDED HORIZONTAL ROOF BEAM - PORTAFIX		
REACH	STANDARD BEAM WITH 32 COUNTERWEIGHTS	EXTENDED BEAM WITH 32 COUNTERWEIGHTS
RATED LOAD ON BASE SHACKLES (LBS)		
1 FT	1500	1500
2 FT	1500	1500
3 FT	1000	1500
4 FT	1000	1500
5 FT	750	1500
6 FT	500	1000
7 FT	N/A	750
8 FT	N/A	500

#### 4.1 ASSEMBLY OF ROOF BEAM - PORTAFIX COUNTERWEIGHT VERSION

The SKYBEAM must be pre-assembled in accordance with these instructions. The counterweights are assembled on the counterweight beam and all roof loads must be confirmed in accordance with this manual.

Install guide channels on structure to guide the casters. Two channels are required, one for the front support and one for the counterweight beam. See Fig. 3

- Block the end of guide channels with end stops.
- Always use a guide channel on roofs to distribute bearing load.
- Guide channels to run parallel to building face.
- Rigidly secure both ends of guide channels to the structure.

To assemble the Outrigger Beam System, first calculate the counterweight formula as to the maximum capacity of the hoist to be lifted and the out reach required from the building. See the calculation of counterweights Section 4.4, page 17. Be sure the supporting structure can withstand these applied loads.

#### PORTAFIX BEAM

Pin the front beam (1) and rear beam (2) together via the 3/4" locking pin (3) and secure the locking pin with the hair pin (7) provided. See Fig. 2.

For reaches beyond 4 ft use the middle beam (4) and extension link (5) (Attached at the factory). Join the front beam (1) to the middle beam (4) and the extension link (5) to the rear beam (2) using 3/4" locking pins (3) and secure the locking pins with the hair pin (7) provided. See Fig. 2.

Fig. 1

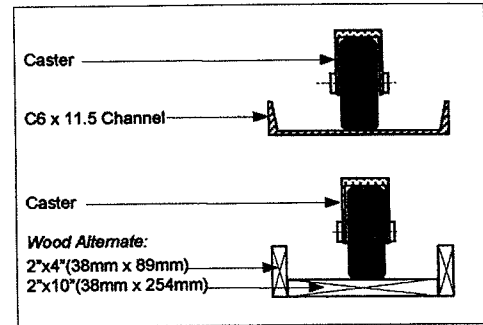
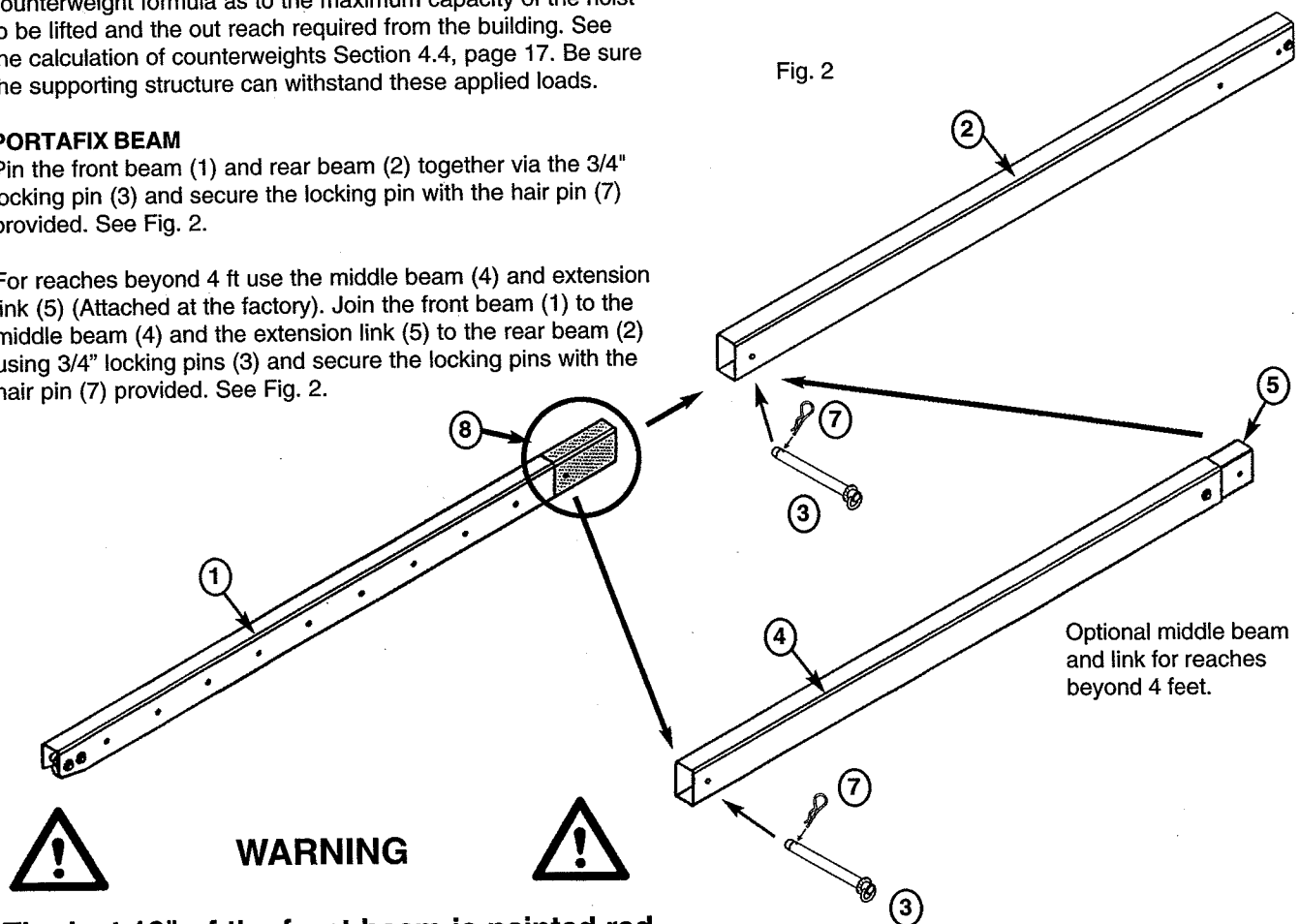


Fig. 2



Optional middle beam and link for reaches beyond 4 feet.



**WARNING**

The last 18" of the front beam is painted red as a warning of incorrect installation to the rear beam or middle beam. If any of the red is showing the beam is not installed correctly (8). THIS MUST BE CORRECTED BEFORE USE!

#### 4.1 CONTINUED - ASSEMBLY OF ROOF BEAM - PORTAFIX COUNTERWEIGHT SHORT VERSION

The SKYBEAM must be pre-assembled in accordance with these instructions. The counterweights are assembled on the counterweight beam and all roof loads must be confirmed in accordance with this manual.

Install guide channels on structure to guide the casters. Two channels are required, one for the front support and one for the counterweight beam. See Fig. 3

- Block the end of guide channels with end stops.
- Always use a guide channel on roofs to distribute bearing load.
- Guide channels to run parallel to building face.
- Rigidly secure both ends of guide channels to the structure.

To assemble the Outrigger Beam System, first calculate the counterweight formula as to the maximum capacity to be lifted and the out reach required from the building. See the calculation of counterweights Section 4.4, page 17. Be sure the supporting structure can withstand these applied loads.

#### SHORT BEAM

Pin the short front beam (1) and the short middle beam (2) together with the provided 3/4" locking pin (3). Secure the locking pin (3) with the hair pin (4) provided. Then attach the short middle beam (2) to the short rear beam (5) with the provided 3/4" locking pin (6). Secure the locking pin with the hair pin (7) provided. See Fig. 4.

Fig. 3

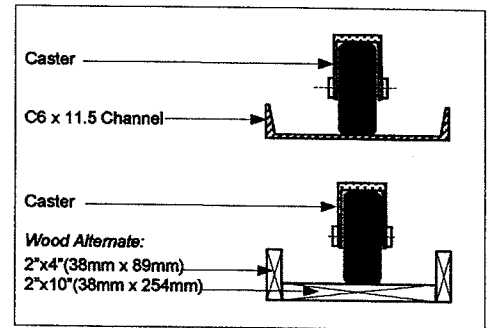
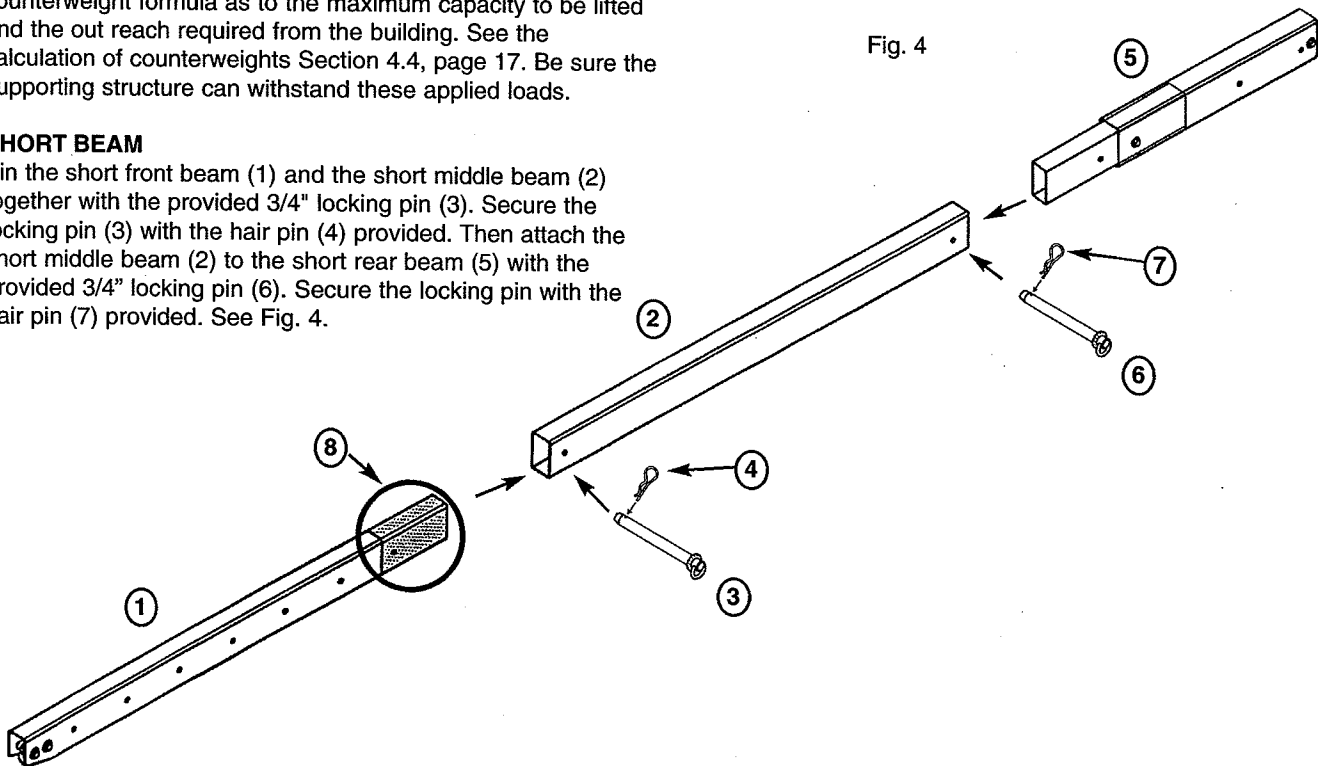


Fig. 4



**WARNING**



The last 18" of the front beam is painted red as a warning of incorrect installation to the rear beam or middle beam. If any of the red is showing the beam is not installed correctly (8). THIS MUST BE CORRECTED BEFORE USE!

## 4.1 CONTINUED - ASSEMBLY OF ROOF BEAM - PORTAFIX COUNTERWEIGHT VERSION

### FRONT FRAME

Set the reach and connect the front support (1) to the front beam (2) with two 3/4" dia. locking pins (3) onto the 'U' shaped Top Ledger of the front support, through aligned holes\* on the frame and beam. Be sure to lock the pins with the hair pins (4) provided. When attaching the front support (1) ensure you do not exceed the maximum extension of the front beam (2) based on your load weight calculations. See Section 4.6

\*Note: The front support (1) has three holes in total, always face the side with two holes toward the front of the beam. These two holes are dependent on the configuration being used. The top is used when the beam configuration is for inclined position and the bottom used for the horizontal position.

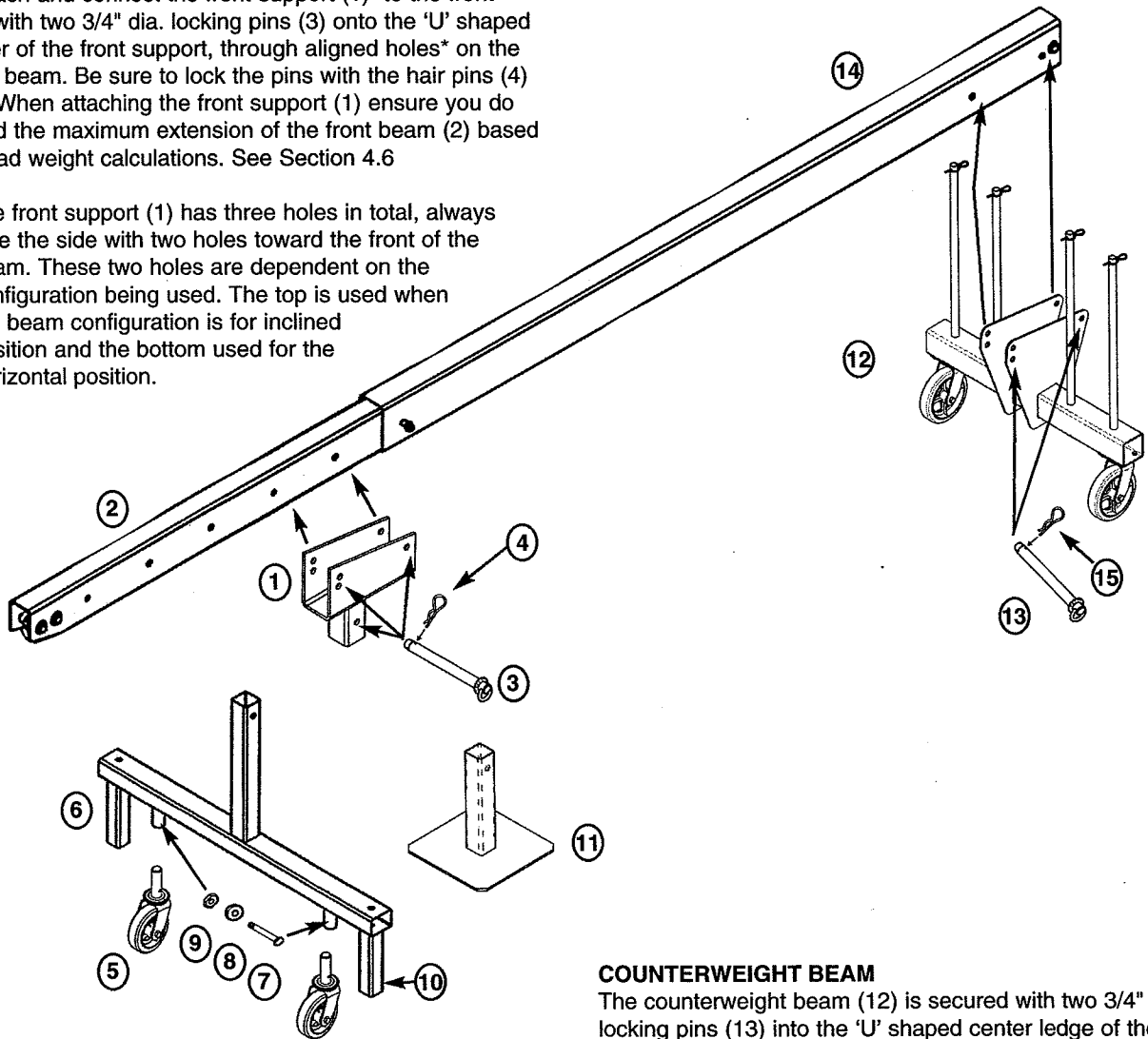


Fig. 5

### INCLINED BEAM

Attach casters (5) to the front leg (6) by aligning holes in the leg with those of the casters and connect with the 0.375" bolt (7), washer (8) and nut (9). Then slip the front leg into the front support and align the holes and connect using a 3/4" locking pin (3) and secure with the hair pin (4).

**For bigger loads/reaches than 1000lbs. /5 Ft. use wood plates under the two vertical extensions (10) of the inclined front support, to unload the wheels.**

### HORIZONTAL BEAM

Attach the front support (1) to the front leg (11) by slipping the Leg into the front support and aligning the holes and connect using the 3/4" locking pin (3) and secure with the hair pin (4).

### COUNTERWEIGHT BEAM

The counterweight beam (12) is secured with two 3/4" dia. locking pins (13) into the 'U' shaped center ledge of the rear beam (14), through aligned holes\*\* on the frame and the tail end of the beam. Be sure to lock the pins with the hair pins provided (15). See Fig. 5

Note: The casters are already attached to the counterweight beam.



\*\*Note: The counterweight beam (12) has three holes in total, always face the side with two holes toward the front of the beam. These two holes are dependent on the configuration being used. The top is used when the beam configuration is for inclined position and the bottom used for the horizontal position.



**4.1 CONTINUED - ASSEMBLY OF ROOF BEAM  
- PORTAFIX COUNTERWEIGHT VERSION**

Level the outrigger beam and support assembly. Attach the thimble end of the suspension wire rope to beam using a 5/8", 3-1/4 ton shackle (1). See fig 6. Once the ropes are attached, set the assembly into working position. **For beams with casters, apply the brakes on all of the casters.** Once in position install taut tieback to the rear shackle (Fig. #9) as shown on Page 15 & 16 Fig. 11 & 12.

**Note: The primary and secondary wire rope may attach to either the inside or outside shackle (one per shackle) depending on the hoist orientation on the platform below.** The secondary wire rope tieback must be shackled to the secondary wire rope attachment point on the Skybeam



**Note: The secondary wire rope anchoring must be connected to a tieback. See Fig. 7**

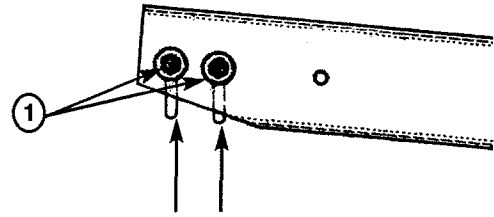


Add the counterweights (#3348) (up to 32 max.) to the counterweight beam (See fig 8). Check once again the maximum admissible load (see Section 4.4 page 17 – Calculation of counterweight) related to the reach and the number of counterweights on the counterweight beam. Install all required counterweights on the counterweight beam by lowering them over the extension pole, starting with the two inside poles. Distribute the weight as equally as possible on each side of the frame. See Fig. 8.

When all weights are in place install the locking pin to prevent removal. See Fig. 9

**Attach the tieback wire rope at the back of the rear beam, to the rear shackle inside. Always insure the tieback has equivalent strength to the hoisting rope and they must be installed without slack. See Fig 9. See Section 4.4 Fig. 11 & 12 for proper tie back instructions.**

Fig. 6



Primary and Secondary (if used) rope(s) attach here

Fig. 7

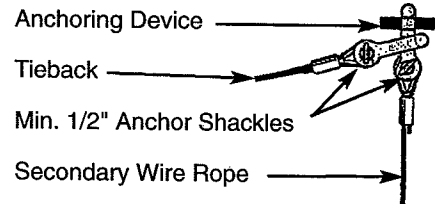


Fig. 8

Insert weights over the post, starting on the inside and evenly distributing from side to side.

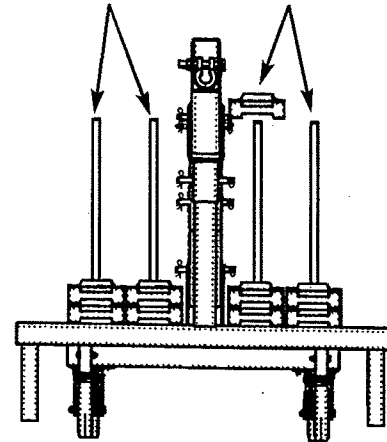
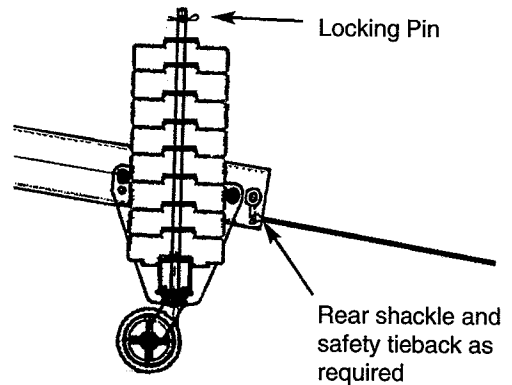


Fig. 9



Locking Pin

Rear shackle and safety tieback as required

## 4.2 ASSEMBLY OF THE UNDER ROOF EXTENSION

- 1) The UNDER ROOF EXTENSION is to be used with the **Horizontal Roof Beam only**. (standard 4 ft, short 4' and extended 8')
- 2) Attach the vertical assembly at the last two free holes at the front end of the beam only.
- 3) For a proper load of the **SKYBEAM ROOF BEAM BASE** please refer to **TABLE 7** on the **UNDER ROOF EXTENSION ONLY ON PAGE 9. DO NOT USE ANY OTHER TABLE.**
- 4) Adjust and attach by means of the locking pins provided the horizontal beam to the vertical beam of the under roof extension for the specific job for which it is to be used.

For the use of the platforms with the Under Roof Extension please refer to the GENERAL INSTRUCTION LABELS on the platforms.

### MOUNTING INSTRUCTIONS

With workers using fall arrest/fall restraint equipment and safety lines to secure anchorages, the under roof extension can be assembled near the roof edge. The extension must be held by lines to insure that it does not fall during the assembly process.

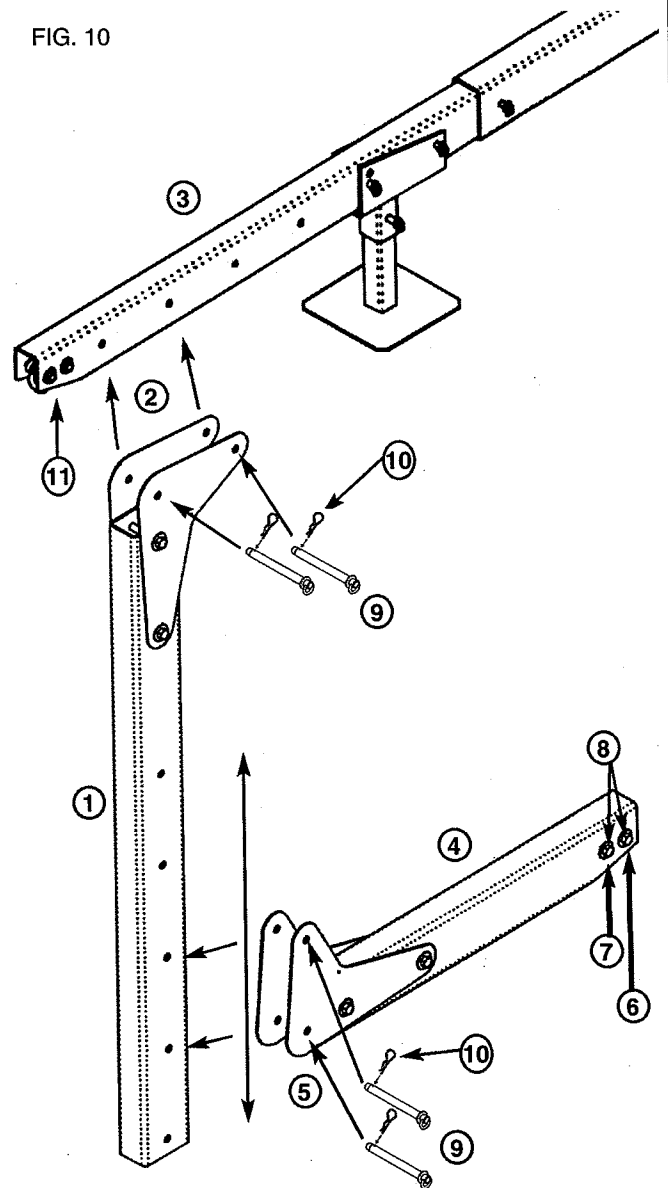
Another method is to rig a platform from the end shackles (11) at the end of the front beam and transport the under roof extension from the ground or other safe level up to the beam for attachment to the skybeam. To attach the under roof extension:

- 1) The vertical beam (1) is bolted to the top plates (2) at the factory by 3/4" bolt, washer and nuts. Mount the top plates (2) to the front beam (3) at the last two free holes with two 3/4" locking pins (9). (Ensure you lock with the hair pin provided (10). See Fig 10
- 2) The horizontal beam (4) is bolted to the Plates via 3/4" bolt, washer and nuts. Mount the horizontal beam plates (5) to the vertical beam (1) with two 3/4" locking pins (9) at the necessary vertical reach to position along the vertical beam where needed for the job (between 3 and 6 feet). Secure the locking pins with the hair pins provided (10). See Fig. 10
- 3) Attach the lifting ropes (primary (6) and secondary (7) (if being used) at the Under Roof Extension shackles (8) (one rope at each shackle). See Fig. 10
- 4) Repeat steps 1,2 and 3 for the other roof extension, at the other end of the platform.
- 5) Lower the platform and change the lifting ropes with the newly mounted ones. (If the extension was transported from the ground
- 6) Pull up the rigging ropes used to raise the platform and coil and store on the roof, to be used later for de-rigging the under roof extension.

Note: The primary and secondary wire rope may attach to either the inside or outside shackle (one per shackle) depending on the hoist orientation on the platform below. The secondary wire rope tieback must be shackled to the secondary wire rope attachment point on the Skybeam.



FIG. 10



Note: After loading the Under Roof Extension, the platform suspended at the roof beam base can be still used for lifting materials, but after consulting the chart on the Under Roof extension, providing the maximum load limits on the platform.



**WARNING**

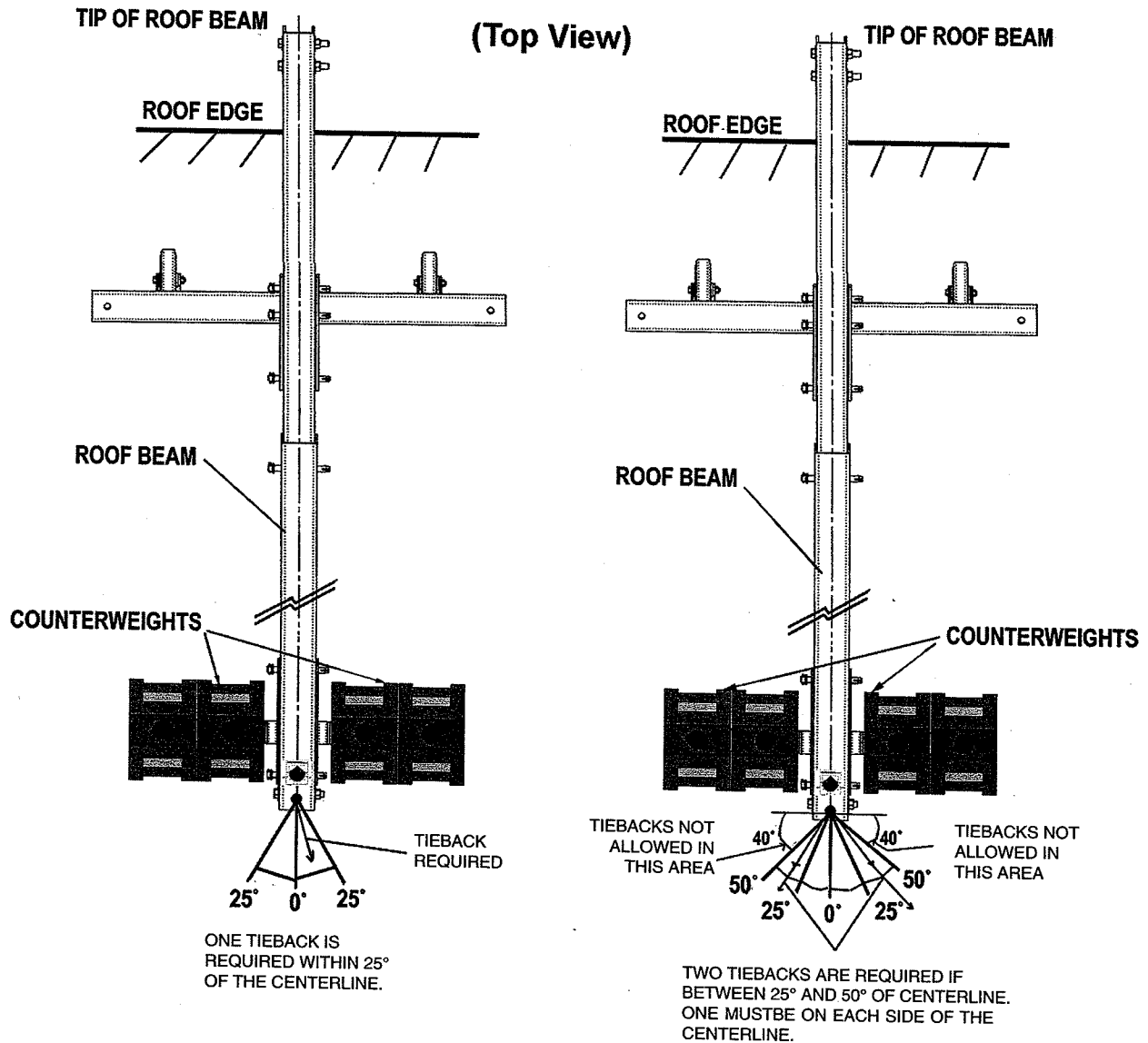


**IT IS ABSOLUTELY NECESSARY TO REFER TO THE CONFIGURATION CHART AND MAXIMUM ADMISSIBLE LOAD ON SKYBEAM ROOF BEAM END SHACKLES. WITH 1000 LBS. LOAD ON UNDER ROOF EXTENSION SHACKLES.**

### 4.3 INSTALLATION OF OUTRIGGER TIEBACKS

**Installation of outrigger tiebacks is mandatory!**

Fig. 11



Secure tieback to rear shackle on the roof beam, and to the tieback anchor on the roof. Tieback wire ropes must have the equivalent strength to the hoisting ropes and must be installed without slack.

- NOTE: 1) Tie back may also be installed from the tip of the roof beam.  
 2) These Tie back angles also apply to lifeline Tie Backs.  
 3) When using the two tiebacks, one must be on each side of the beam.

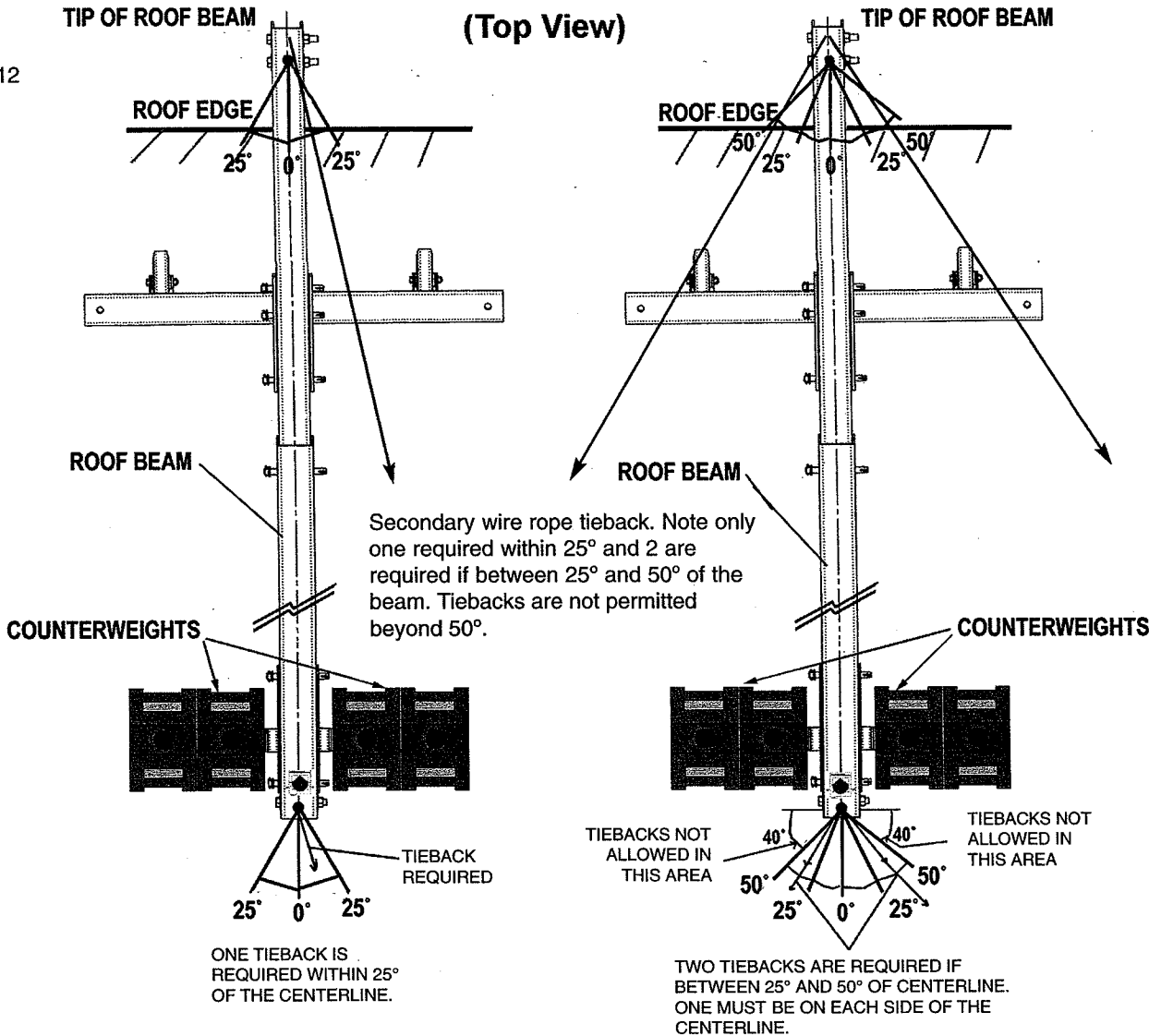


### 4.3 CONTINUED - INSTALLATION OF OUTRIGGER TIEBACKS

Tieback instructions for the secondary wire if installed.

**Installation of outrigger tiebacks is mandatory!**

Fig. 12



Secure tieback to rear shackle on the roof beam, and to the tieback anchor on the roof. Tieback wire ropes must have the equivalent strength to the hoisting ropes and must be installed without slack.

NOTE: 1) The secondary wire rope may attach to either the inside or outside shackle depending on the hoist orientation on the platform below. The secondary wire rope tieback must be shackled to the secondary wire rope attachment point on the Skybeam.



2) Secondary wire rope tieback(s) must be taut and to a different anchorage point than the beam tieback.



**4.4 CALCULATION OF COUNTERWEIGHTS**  
**COUNTER WEIGHT FORMULA – PORTAFIX COUNTERWEIGHT BEAM**

Fig. 13

WARNING! USE OF BEAM WITHIN 10FT OF HIGH-VOLTAGE LINES IS PROHIBITED

maximum load (L) per beam	maximum permissible reach
1000 Lbs	5 Ft
1500 Lbs	3 Ft

Formula for calculating counterweight & length of back span

$$W = \frac{(La)4}{b}$$

$$b = \frac{(La)4}{W}$$

W = counterweight (in pounds)  
 L = load (in pounds)  
 a = reach (ft.)  
 b = back span (ft.)

TIEBACK CABLES ARE REQUIRED BY OSHA ON ALL RIGGING DEVICES

Formula for calculating COUNTERWEIGHT & LENGTH of back beam

$$W = \frac{(La)4}{b} \quad \text{or} \quad b = \frac{(La)4}{W}$$

- W = Counterweight in Pounds
- L = Load in Pounds. (Rated load of Hoist)
- a = Reach (from front support to the shackles in feet)
- b = Back Span - (Distance between front support and back frame in feet)
- 4 = Safety Factor

**Note:** Counterweights must be a nonflowable material, and they must be attached to the outrigger beam.



Always use tiebacks wire ropes capable of holding the full load.



WARNING



Severe injury or death can result from improper use or assembly. Assemble in accordance to assembly instructions. Check and recheck counterweight chart and formula. Minor changes could cause complete system failure. Consult your TRACTEL dealer for additional information.

See pages 6 through 8 for Table of counterweights.

**Example Calculations:**

W = ?      L = 1000 lbs.  
 a = 4 feet    b = 11' 6"

$$W = \frac{(1000 \times 4) \times 4}{11.5}$$

**W = 1391 lbs of Counterweights (26 pcs.) or more, must be added.**

Only have 990 lbs. in counterweights then

W = 990      L = 1000 lbs.  
 a = 4 feet    b = ?

$$b = \frac{(1000 \times 4) \times 4}{990}$$

**b = 16' 2"** Therefore the distance between A and B must be 16 feet and 2 inches or greater.

**4.5 CALCULATION OF COUNTERWEIGHTS  
COUNTER WEIGHT FORMULA – SHORT PORTAFIX COUNTERWEIGHT BEAM**

Fig. 14

**WARNING! USE OF BEAM WITHIN 10FT OF HIGH-VOLTAGE LINES IS PROHIBITED**

maximum load (L) per beam	maximum permissible reach
1000 Lbs	5 Ft
1500 Lbs	3 Ft

rated load based upon a safety factor of 4.

**Tractel Ltd.**  
Swingstage Division

**TIEBACK CABLES ARE REQUIRED BY OSHA ON ALL RIGGING DEVICES**

Formula for calculating counterweight & length of back span

$$W = \frac{(La)4}{b}$$

$$b = \frac{(La)4}{W}$$

W = counterweight (in pounds)  
L = load (in pounds)  
a = reach (ft.)  
b = back span (ft.)

Formula for calculating COUNTERWEIGHT & LENGTH of back beam

$$W = \frac{(La)4}{b} \quad \text{or} \quad b = \frac{(La)4}{W}$$

W = Counterweight in Pounds  
L = Load in Pounds. (Rated load of Hoist)  
a = Reach (from front support to the shackles in feet)  
b = Back Span - (Distance between front support and back frame in feet)  
4 = Safety Factor

**Note:** Counterweights must be a nonflowable material, and they must be attached to the outrigger beam.



Always use tiebacks wire ropes capable of holding the full load.



**WARNING**



Severe injury or death can result from improper use or assembly. Assemble in accordance to assembly instructions. Check and recheck counterweight chart and formula. Minor changes could cause complete system failure. Consult your TRACTEL dealer for additional information.

**Example Calculations:**

W = ?      L = 1000 lbs.  
a = 4 feet    b = 11' 6"

$$W = \frac{(1000 \times 4) \times 4}{11.5}$$

W = 1391 lbs of Counterweights  
(26 pcs.) or more, must be added.

Only have 990 lbs. in counterweights then

W = 990      L = 1000 lbs.  
a = 4 feet    b = ?

$$b = \frac{(1000 \times 4) \times 4}{990}$$

b = 16' 2" Therefore the distance between A and B must be 16 feet and 2 inches or greater.

See pages 6 through 8 for Table of counterweights.

#### 4.6 SET UP OF PRIMARY AND SECONDARY WIRE ROPES

- Use only wire ropes as specified by the hoist manufacturer.
- Before setting up the wire ropes, ensure that the suspension points are capable of supporting the hoist, platform and its rated load with the required safety factors according to regulations.
- Ensure that the distance (a) between the suspension points is equal to the distance (b) between the platform stirrups. The wire ropes must be vertical and parallel to each other for proper operation of the platform. (see Fig. 15).
- Unreel the wire ropes at ground level, and pull them to the top of the building using a transfer line. **Never unreel or throw a wire rope from the top of the building.**
- Attach each wire rope to an independent suspension point.
- If using 2 ropes check that the distance between the dual wire ropes of the hoist is the same at both the top and bottom ends.
- Operator must be independently tied off to a separate vertical lifeline when using a 1 rope system.

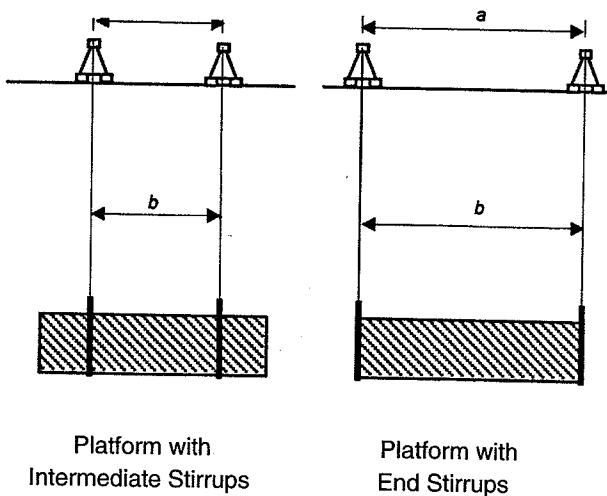


**WARNING:**



On counterweight suspension systems, it is essential for safety that all the counterweights be marked with their weight, solid in weight and secured on the suspension structure. Total amount and location of counterweight must be calculated by a professionally competent person according to applicable regulations and checked before each use, at least daily.

Fig. 15



#### 4.7 SET UP OF OUTRIGGERS AND COUNTERWEIGHT SYSTEM



**CAUTION:**



Always ensure that the floor or roof structure can safely sustain the loads of the necessary counterweights, beams and scaffold, including reactions at the building edge. If in doubt ask!

**Note #1:** All anchoring devices must be secured to a structurally sound anchorage on the building or structure by a tieback having strength equivalent to or greater than that of the hoisting rope. If tiebacks cannot be perpendicular to the face of the building or structure, opposing angle tiebacks shall be used. One tieback is required within 25° of the centerline. Two are required if between 25° and 50° of the centerline, with one being used on each side of the centerline. Tiebacks are not permitted beyond 50° of the centerline.



**Note #2:** The use of any suspended scaffold is unsafe without:



- Guardrails, midrails and toeboards on all sides of the scaffold platform in accordance with OSHA regulations, State, Provincial and Local codes. It is of the utmost importance to include these components when using suspended scaffold.
- Personal fall arrest systems in use that comply with OSHA regulations, State, Provincial and Local codes.



**WARNING:**



Never exceed the allowable reach as per the counterweight chart. Consult the supplier or manufacturer for such conditions which must be treated on an individual basis and may involve different materials or methods.

## 5. CHECKS BEFORE USING THE SKYBEAM

Before starting use on a new site, make a general review, of every place where an obstacle or dangerous items, (especially electrical equipment or lines) may be located in the possible way of the platform or of the suspension system. Before using the platform, the following checks must be carried out by a qualified person.



**WARNING:**



**Ensure that the load does not exceed the rated load of the platform, hoist or rigging. See load rating tables on pages 6, 7, 8 and 9.**

### 5.1 Suspension points and support equipment

- Check that all connectors, pins, nuts and bolts are securely installed and fastened and that the skybeam is structurally intact.
- Check security of skybeam and ensure that the required number of counterweights are safely fitted and locked in place. (see Fig. 8 & 9 page 13)
- Ensure the safety Tiebacks are installed without slack. See 5.2
- Check that suspension points of wire ropes used with each platform (primary, and secondary wire ropes if any) have been properly attached.
- Ensure that the skybeam is directly above the hoist in order to avoid excessive lateral forces on the support equipment. (see Fig. 15 – page 19).

### 5.2 Tiebacks - ARE MANDATORY!

Tieback wire ropes with strength equivalent to the hoisting ropes must be installed without slack. Tiebacks are to be at right angles to the building and firmly secured to separate safety tieback anchors, which meet or exceed load capabilities of all local safety codes. In the event that the tieback cannot be installed at right angles. See Section 4.3 (see Fig. 11 & 12 pages 15 & 16)

### 5.3 Platform

- Refer to the manual of the platform manufacturer.
- Check that all connectors, pins, nuts and bolts are securely installed and fastened.
- Check the mounting connections of the hoists.
- Ensure that the platform is structurally intact.
- Ensure that the load does not exceed the rated load of the platform, hoist or skybeam.
- Ensure that the platform is clear of any snow, ice, debris or other material.

### 5.4 Wire ropes

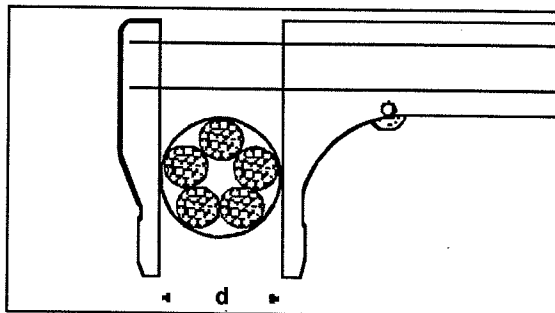
- Visual check of wire ropes.



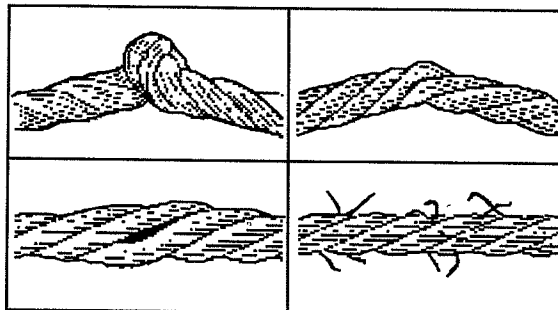
**NOTE:** Only wire ropes specified by the hoist manufacturer should be used. Regularly lubricate the wire ropes. Wire ropes must be replaced if any of the following defects are found:

- more than 7 wires broken on a length of 1 foot (300 mm).
- kinking, crushing, birdcaging or any other distortion of the wire rope construction.
- corrosion.
- heat damage.
- reduction of nominal diameter of more than 10%.
- refer to wire rope manufacturer if in doubt.

Fig. 16



- Correct method of measuring wire rope diameter



- Examples of damaged wire ropes

### 5.5 Hoists

- Refer to the manual of the hoist manufacturer.
- Check if the power supply is compatible with the requirement of the hoist.
- Check if the cable size of the power cord is sufficient.
- Check that the hoists, blocstop and emergency switches function properly.
- Check that power cord has strain relief to avoid damage.

## 6. USE AND OPERATION OF THE SKYBEAM



### CAUTION!



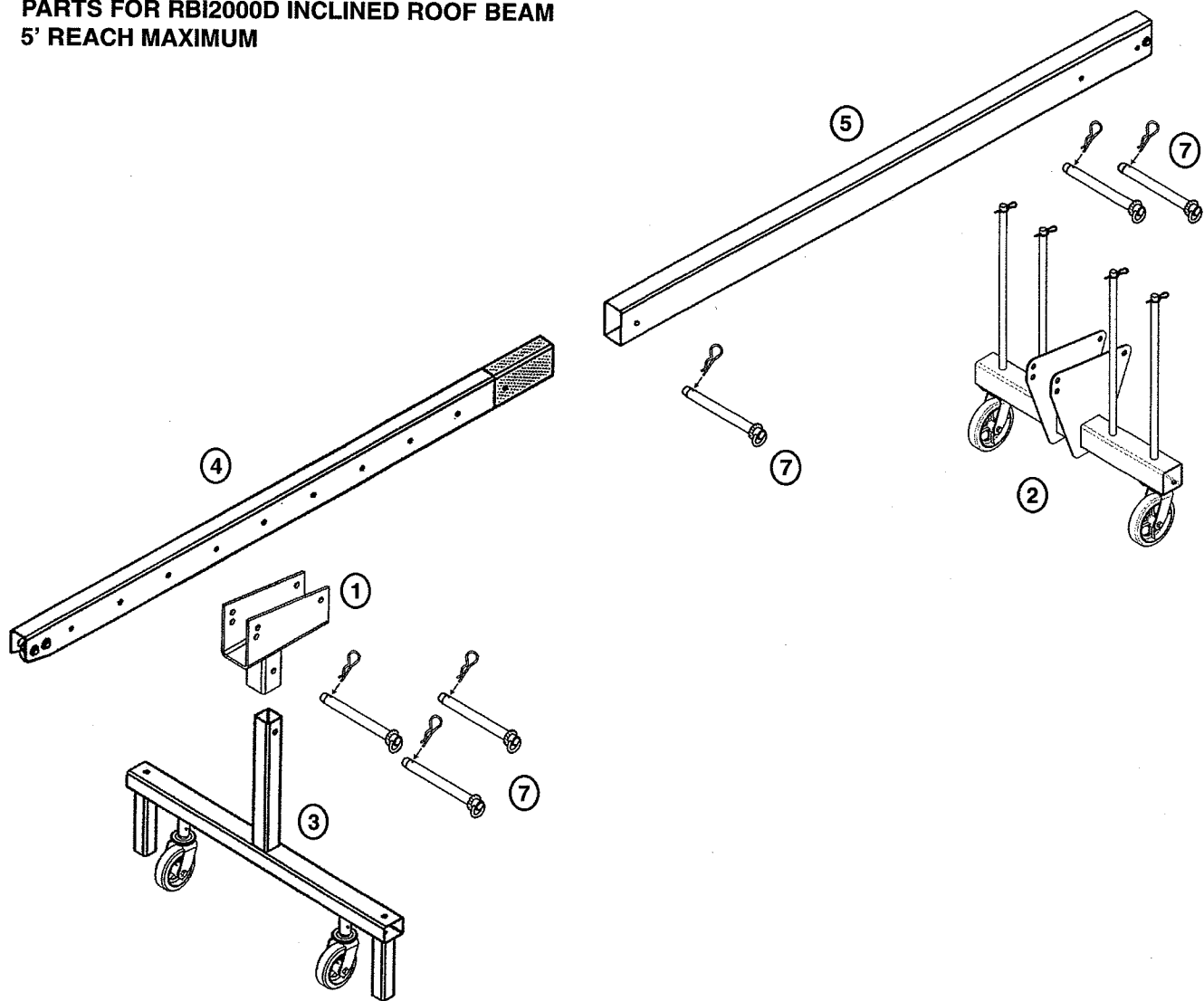
- Never operate the platform supported by the Skybeam without a personal fall arrest system in use.
- Barricade the area below the platform whenever possible.
- Maximum allowable wind speed in service is 25 mph. (40kph)
- Tie or secure the suspended scaffold to prevent it from swaying as sudden gusts of wind may occur in some areas, as determined to be necessary by a competent person. Tie and secure the equipment and disconnect power when it is left unattended. Refer to applicable regulations. Never leave unattended suspended platform fitted with weather enclosure
- Each electric hoist is controlled independently using a push button control, fitted with up and down buttons and an emergency stop button. While air hoist are controlled by a directional control instead of push buttons.
- Raise and lower the platform a small height at the start of each day to check its operation and braking mechanisms.
- Press the up button. The platform should lift. If not, call an electrician to check the power supply. Never operate the platform if lifting is through the down button.
- Keep the platform level. To level the platform back in its horizontal position only operate one of the two hoists.
- Take a first aid kit, radio and fire extinguisher for emergency.
- Never stand on the railing!
- Set the platform down on a safe support and remove tension from wire rope before moving the Skybeam or platform.
- Have a rescue plan ready in case of emergency.
- Operating people should have been trained on rescue procedures before use.

## 7. INFORMATION FOR MAINTENANCE

- Maintenance may only be carried out by personnel authorized by Tractel.
- Inspection is to be carried out by a competent person before each rigging of the platform.
- Inspection by persons authorized by Tractel is to be carried out once every six months. To spot check the condition of the beam and its components and that the rigging is being done correctly. A signed and dated inspection record should be maintained.
- Operating life of platform depends on number of hours in service, operating and weather conditions.

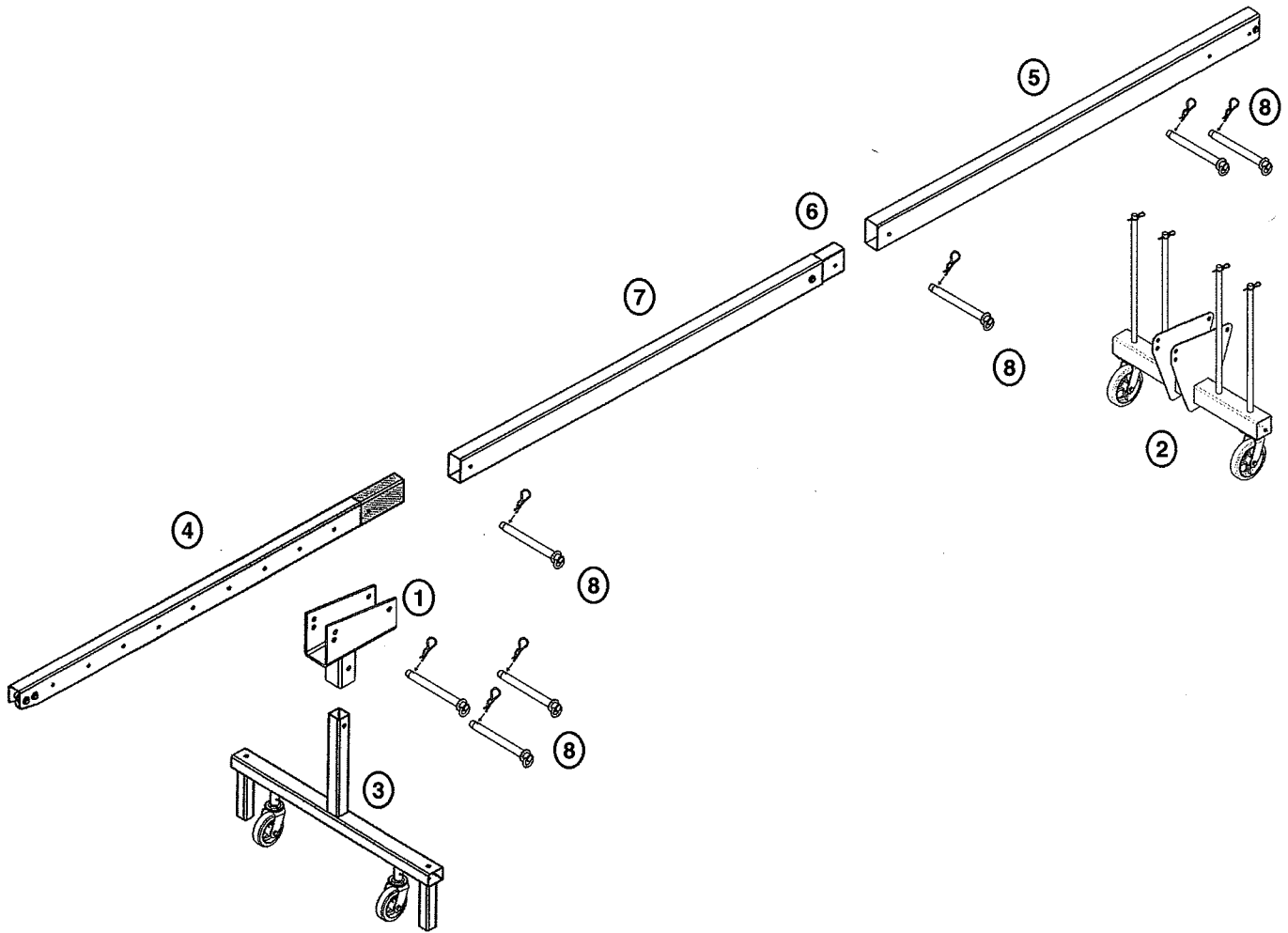


**8. SKYBEAM COMPONENTS - PORTAFIX BEAM**  
**8.1 PARTS FOR RBI2000D INCLINED ROOF BEAM**  
**5' REACH MAXIMUM**



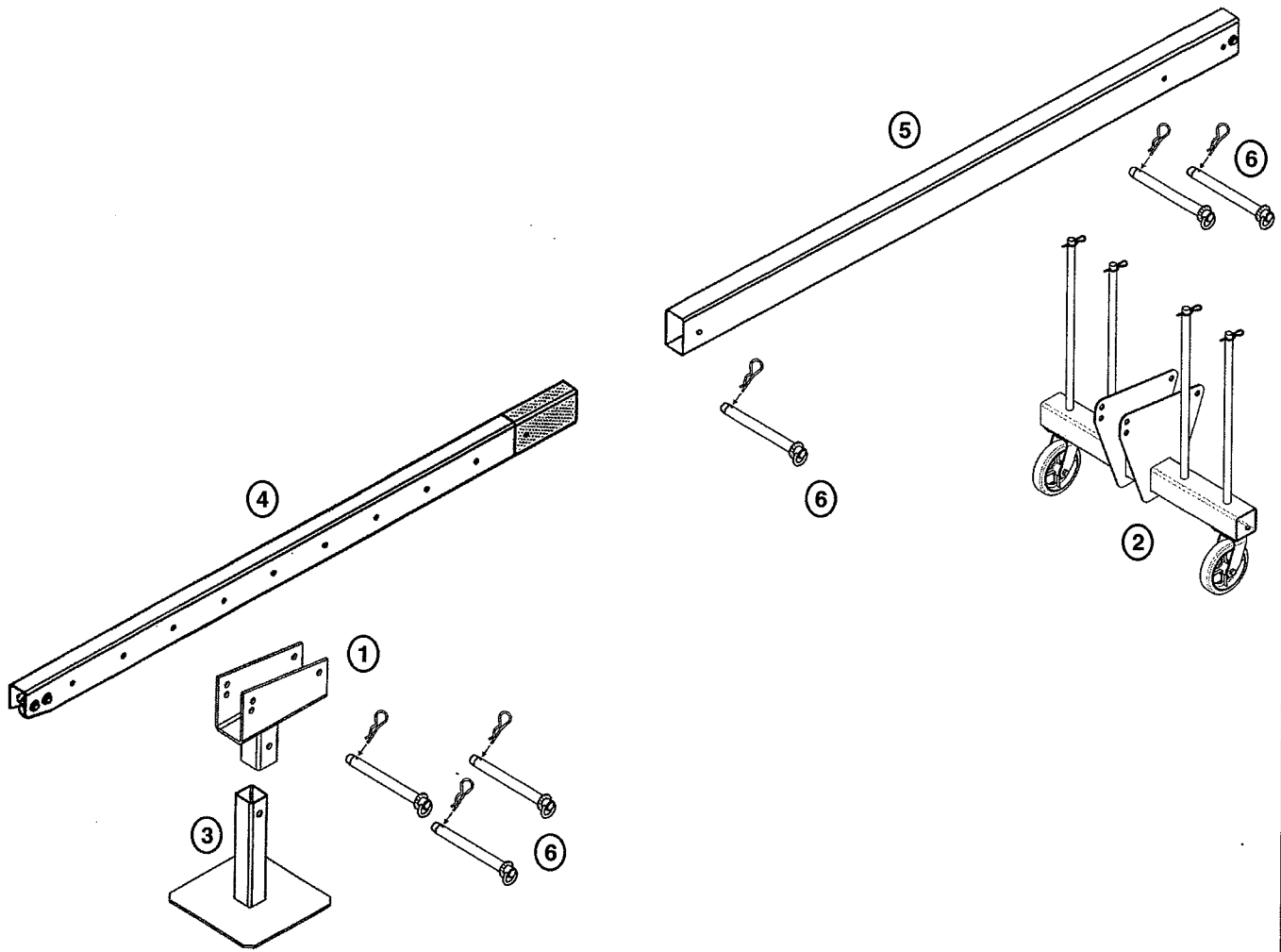
RBI2000D		INCLINED PORTAFIX SKYBEAM - 5' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBI1070B	PORTAFIX FRONT LEG	92	41.8	1
4	RBC1040B	FRONT BEAM	70	31.8	1
5	RBC1050B	REAR BEAM	78	35.4	1
7	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			6

**8.2 PARTS FOR RBI2100D INCLINED EXTENDED ROOF BEAM  
8' REACH MAXIMUM**



RBI2100D		INCLINED EXTENDED PORTAFIX SKYBEAM - 8' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBI1070B	PORTAFIX FRONT LEG	92	41.9	1
4	RBC1040B	FRONT BEAM	70	31.8	1
5	RBC1050B	REAR BEAM	78	35.4	1
6	RBC1060	EXTENSION LINK	10	4.5	1
7	RBC1070B	EXTENSION BEAM	70	31.8	1
8	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			7

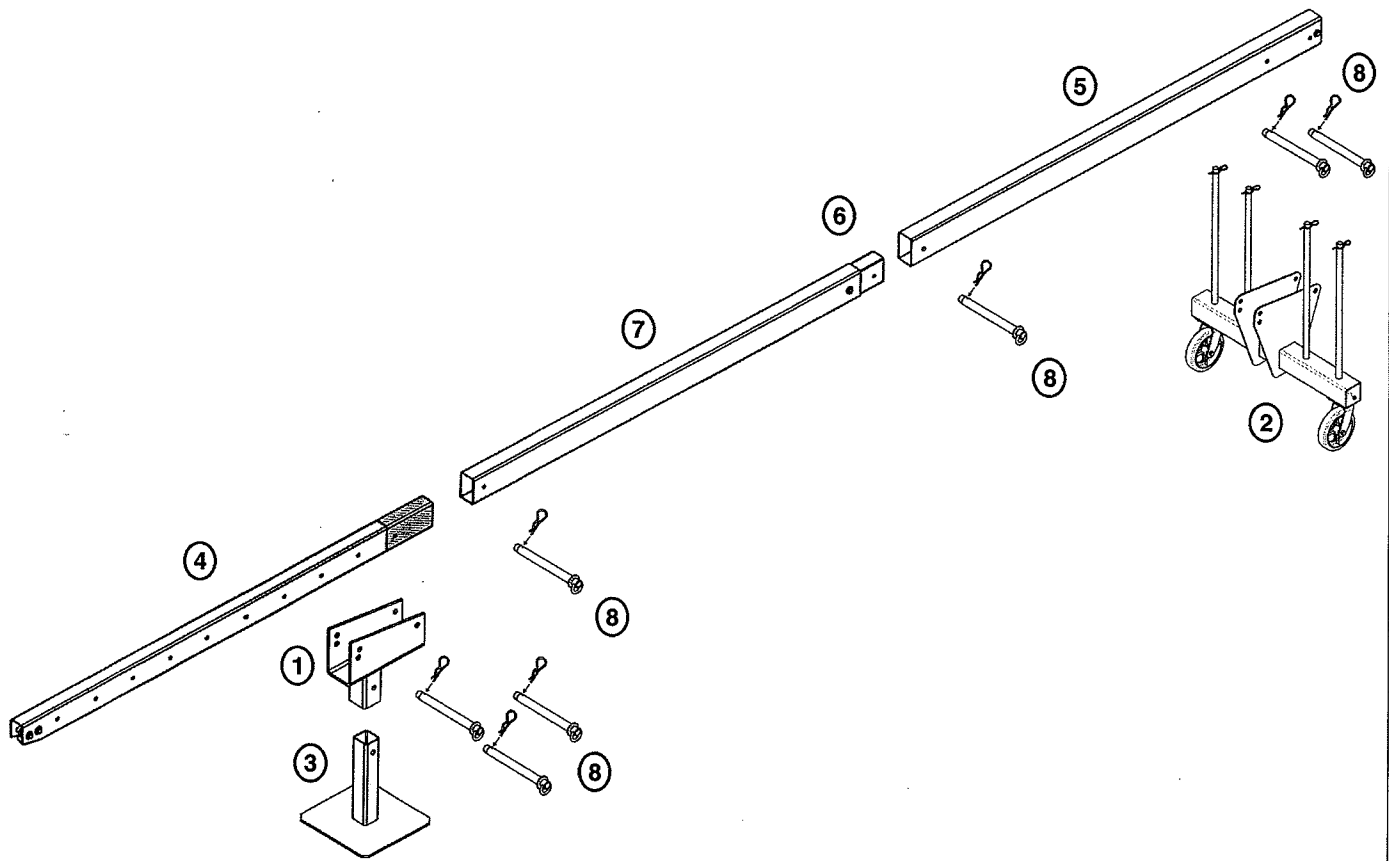
**8.3 PARTS FOR RBH2000D HORIZONTAL ROOF BEAM  
5' REACH MAXIMUM**



RBH2000D		HORIZONTAL PORTAFIX SKYBEAM - 5' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBH2070B	PORTAFIX FRONT LEG	29	13.2	1
4	RBC1040B	FRONT BEAM	70	31.8	1
5	RBC1050B	REAR BEAM	78	35.4	1
6	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			6

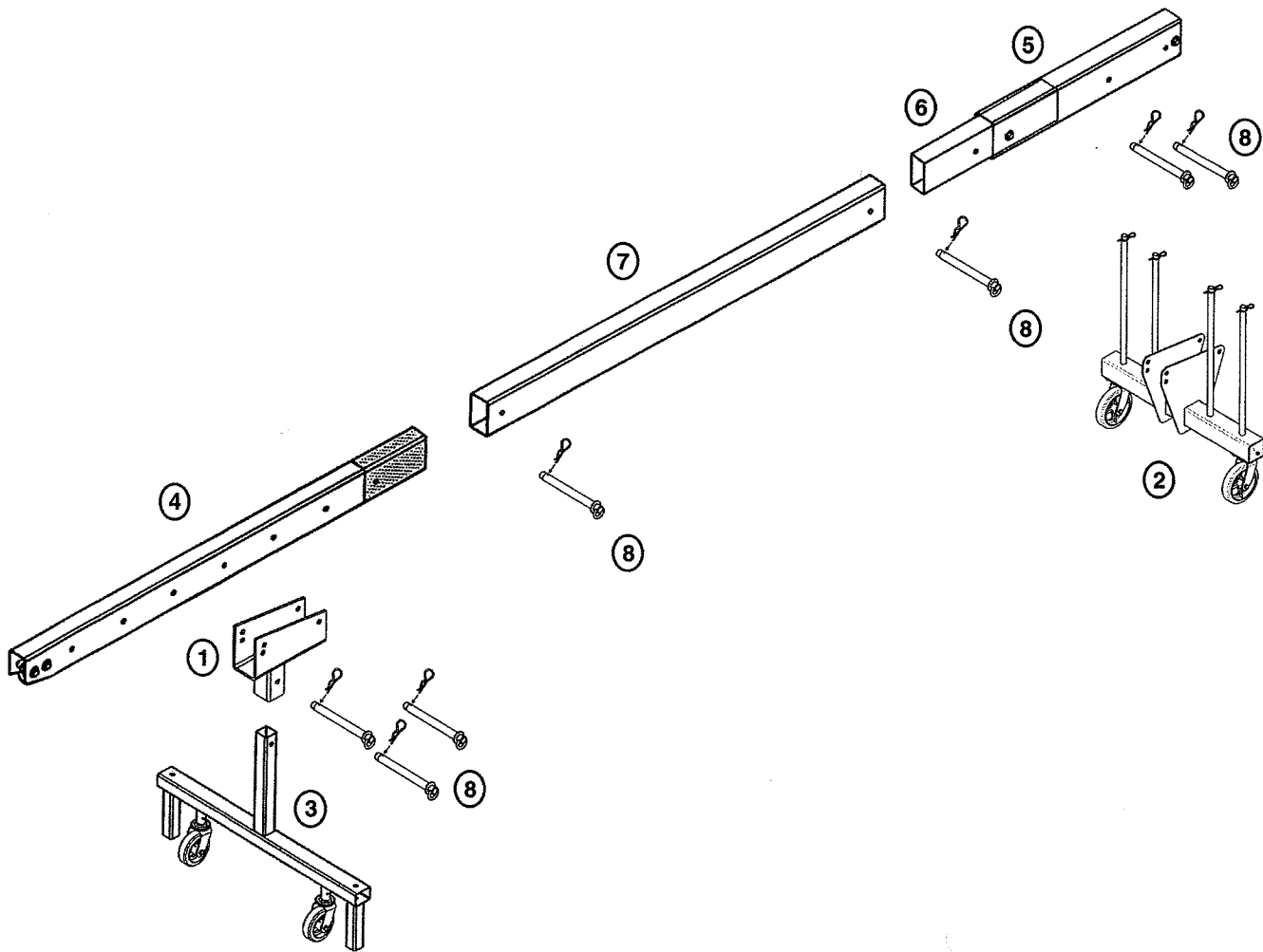


**8.4 PARTS FOR RBH2100D EXTENDED HORIZONTAL ROOF BEAM  
5' REACH MAXIMUM**



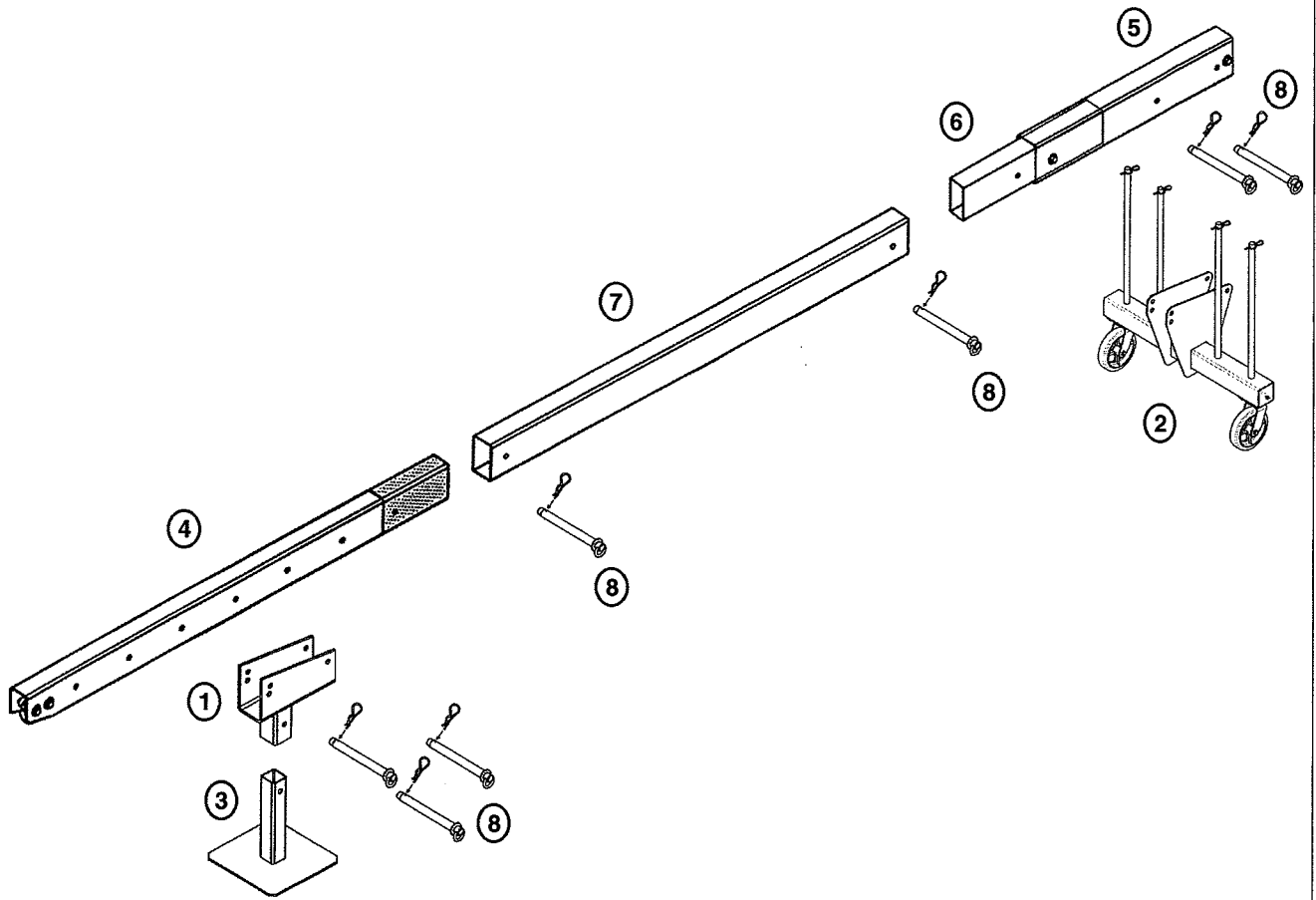
RBH2100D		EXTENDED HORIZONTAL PORTAFIX SKYBEAM - 8' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBH2070B	PORTAFIX FRONT LEG	29	13.2	1
4	RBC3040B	FRONT BEAM	70	31.8	1
5	RBC3050B	REAR BEAM	78	35.4	1
6	RBC1060	EXTENSION LINK	10	4.5	1
7	RBC1070B	EXTENSION BEAM	70	35.4	1
8	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			7

**8.5 PARTS FOR RBI4000D SHORT SECTION INCLINED ROOF BEAM  
5' REACH MAXIMUM**



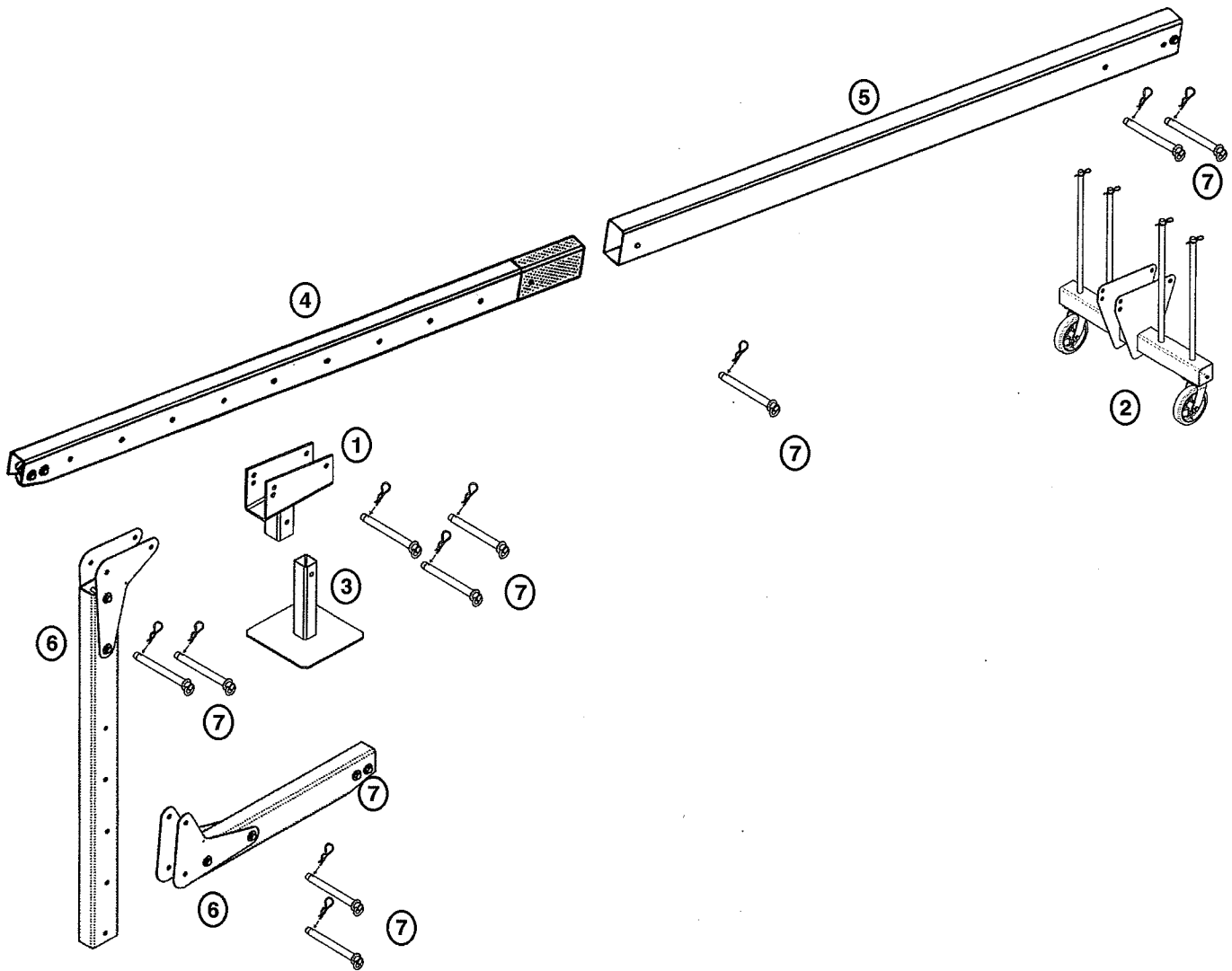
RBI4000D		SHORT SECTION INCLINED PORTAFIX SKYBEAM - 5' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBI1070B	PORTAFIX FRONT LEG	92	41.7	1
4	RBC3040B	SHORT FRONT BEAM	47	21.4	1
5	RBC3050B	SHORT REAR BEAM	26	11.8	1
6	RBC1060	EXTENSION LINK	10	4.5	1
7	RBC3070B	SHORT MIDDLE BEAM	54	24.5	1
8	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			7

**8.6 PARTS FOR RBH4000D SHORT SECTION HORIZONTAL ROOF BEAM  
5' REACH MAXIMUM**



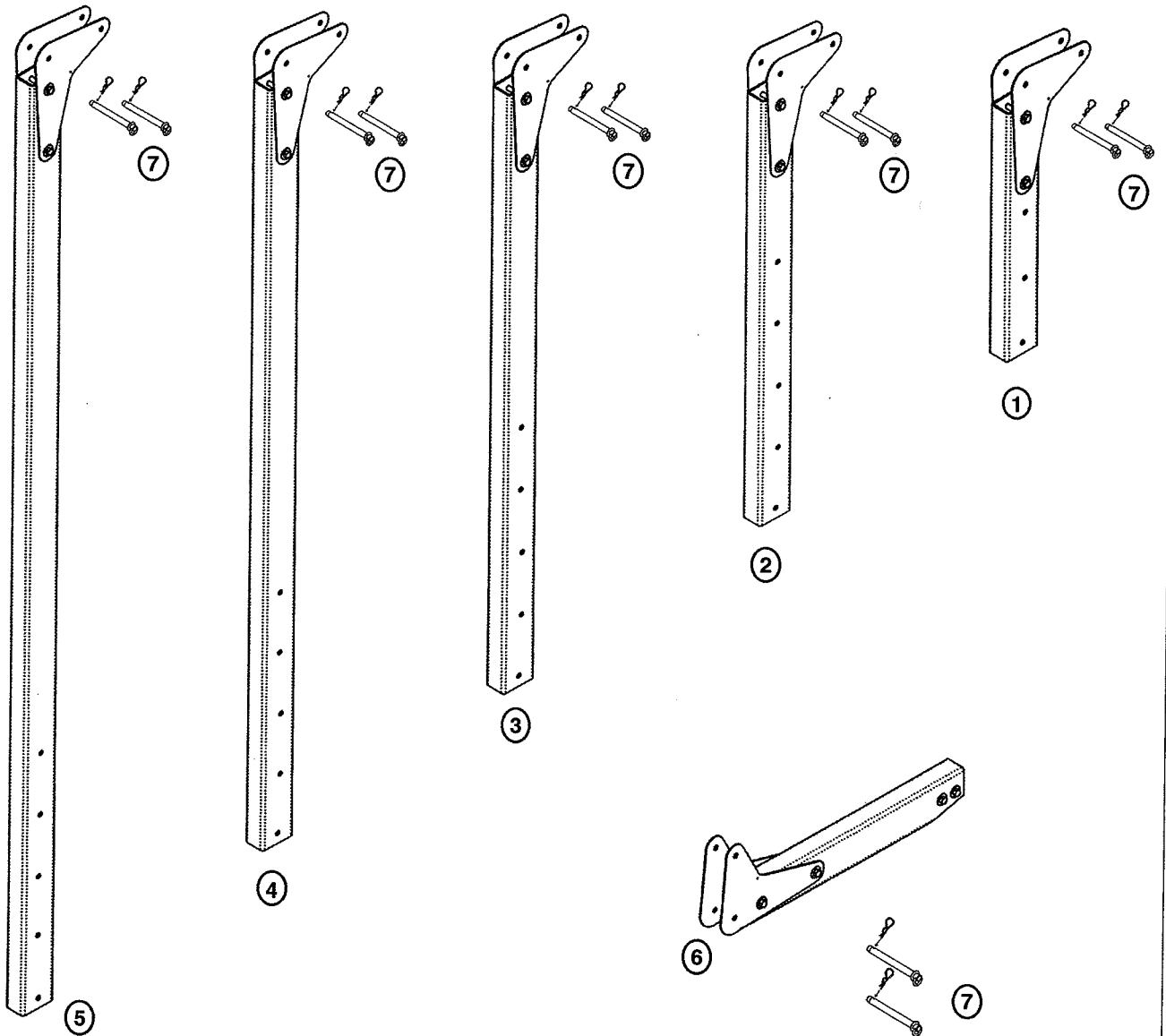
RBH4000D		SHORT SECTION HORIZONTAL PORTAFIX SKYBEAM - 5' REACH			
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBH2070B	PORTAFIX FRONT LEG	29	13.2	1
4	RBC3040B	SHORT FRONT BEAM	47	21.4	1
5	RBC3050B	SHORT REAR BEAM	26	11.8	1
6	RBC1060	EXTENSION LINK	10	4.5	1
7	RBC3070B	SHORT MIDDLE BEAM	54	24.5	1
8	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			7

8.7 PARTS FOR STANDARD UNDER ROOF SKYBEAM



UNDER ROOF PORTAFIX SKYBEAM (URB1120C, URB1220C + RBH2000D)					
ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	RBC1010B	FRONT SUPPORT	35	15.9	1
2	RBC2010B	PORTAFIX - COUNTERWEIGHT BEAM	70	31.8	1
3	RBH2070B	PORTAFIX FRONT LEG	29	13.2	1
4	RBC1040B	FRONT BEAM	70	31.8	1
5	RBC1050B	REAR BEAM	78	35.4	1
6	URB1120C	6 FEET VERTICAL EXTENSION	64	29.1	1
7	URB1220C	4 FEET HORIZONTAL EXTENSION	52	21.8	1
8	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6"			10

## 8.8 PARTS FOR UNDER ROOF BEAM



### COMPONENTS FOR UNDER ROOF EXTENSION

ITEM	PART #	DESCRIPTION	LBS	KG	QTY
1	URB1110C	VERTICAL EXTENSION - 3 FEET	46	20.9	1
2	URB1120C	VERTICAL EXTENSION - 6 FEET	64	29.1	1
3	URB1130C	VERTICAL EXTENSION - 9 FEET	82	37.3	1
4	URB1140C	VERTICAL EXTENSION - 12 FEET	100	45.5	1
5	URB1150C	VERTICAL EXTENSION - 15 FEET	118	53.6	1
6	URB1220C	HORIZONTAL EXTENSION - 4 FEET	52	23.6	1
7	FY8050004	PIN-LOCK HAIR PIN 3/4" Dia.x 6" (Included with extension)			2

\*Items shown are not to scale

## 8.9 LABELS AND MARKINGS FOR SKYBEAMS

**WARNING! USE OF BEAM WITHIN 10FT OF HIGH-VOLTAGE LINES IS PROHIBITED**

maximum load (L) per beam	maximum permissible reach
1000 Lbs	5 Ft
1500 Lbs	3 Ft

rated load based upon a safety factor of 4.

Formula for calculating counterweight & length of back span:

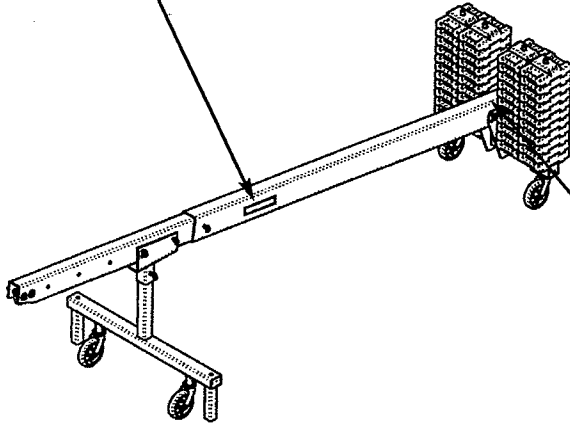
$$W = \frac{(La)^4}{b}$$

$$b = \frac{(La)^4}{W}$$

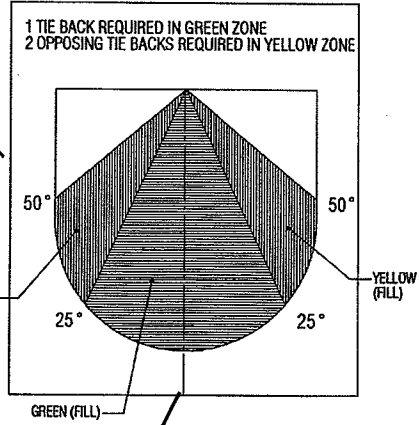
W = counterweight (in pounds)  
L = load (in pounds)  
a = reach (ft.)  
b = back span (ft.)

**TIEBACK CABLES ARE REQUIRED BY OSHA ON ALL RIGGING DEVICES**

Part # SPLB045A



Part # SPLB064A



**WARNING! USE OF BEAM WITHIN 10FT OF HIGH-VOLTAGE LINES IS PROHIBITED**

maximum load (L) per beam	maximum permissible reach
1000 Lbs	5 Ft
1500 Lbs	3 Ft

rated load based upon a safety factor of 4.

Formula for calculating counterweight & length of back span:

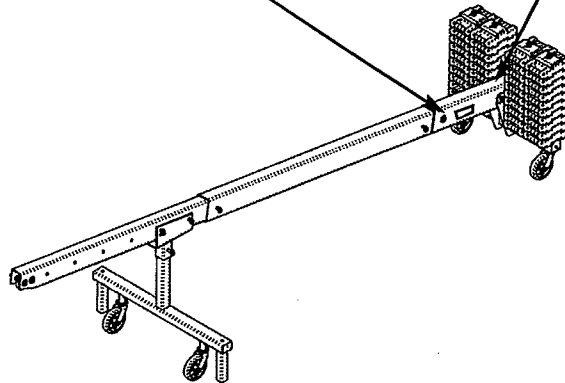
$$W = \frac{(La)^4}{b}$$

$$b = \frac{(La)^4}{W}$$

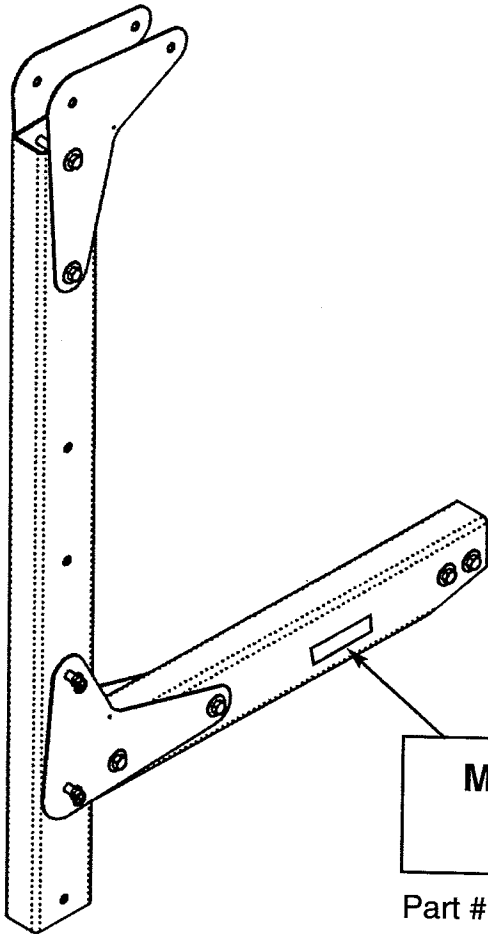
W = counterweight (in pounds)  
L = load (in pounds)  
a = reach (ft.)  
b = back span (ft.)

**TIEBACK CABLES ARE REQUIRED BY OSHA ON ALL RIGGING DEVICES**

Part # SPLB060A



8.10 LABELS AND MARKINGS FOR THE UNDER ROOF EXTENSION ARM



**MAXIMUM CAPACITY: 1000LBS**  
Tractel Ltd.

Part # SPLB035B

## **Contact us at:**

**Tractel Inc.  
Griphoist Division  
110 Shawmut Road  
Canton, MA 02021  
Toll Free 1-800-421-0246  
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**Tractel Inc.  
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315 Cloverleaf Drive, Unit E  
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**Tractel Ltd.  
Griphoist Division  
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Toll Free 1-800-561-3229  
Tel: (514) 493-3332  
Fax: (514) 493-3342**

As we are dedicated to continuous improvement of our products, the TRACTEL GROUP reserves the right to modify the specifications of the equipment described in this manual. As a result, illustrations may not represent exactly the product you receive: components and/or design may differ.

The companies of the TRACTEL GROUP and their agents or distributors will supply on request descriptive documentation on the full range of TRACTEL products: lifting and pulling machines, permanent and temporary access equipment, safety devices, electronic load indicators, accessories such as blocks, hooks, slings, ground anchors, etc.

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