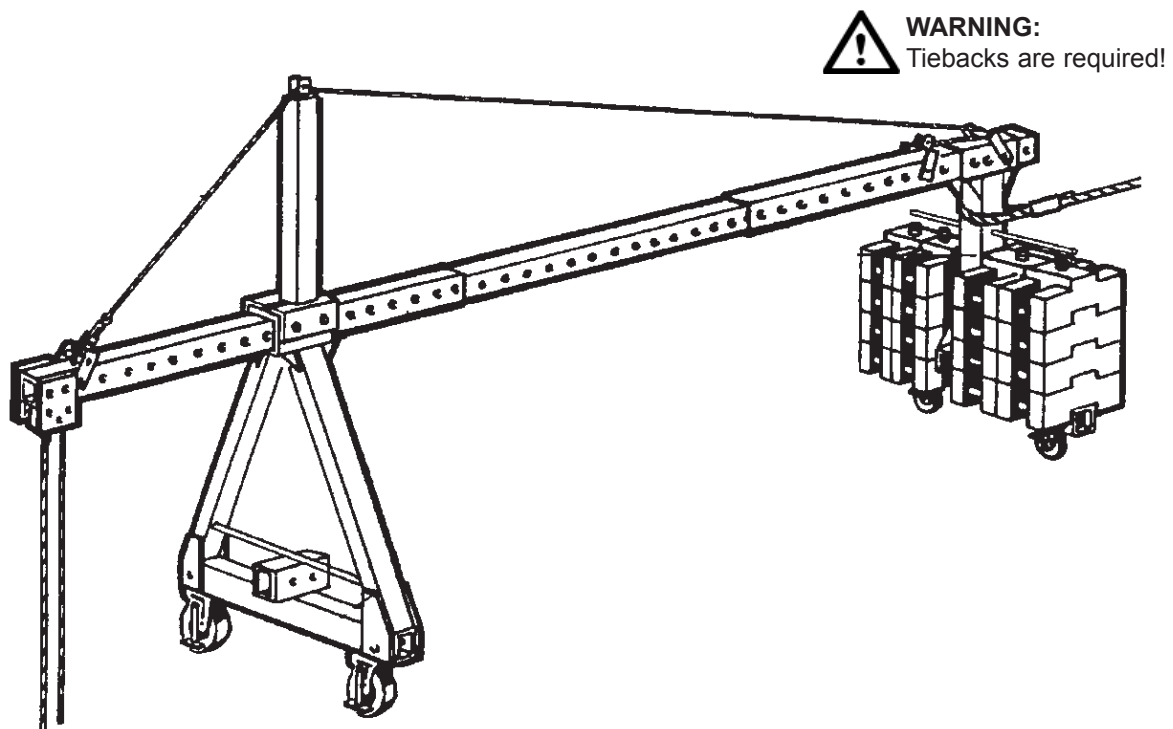


portafix[®]

mobile suspension beams



Date: 04/09/04
Version:2

assembly and
operating
instructions

Table of Contents

	<u>Page</u>
1) GENERAL	5
2) ASSEMBLY	6
2.1) Standard assemblies	6
2.2) Overhang/Outreach	7
2.3) Spare Parts	8
2.4) Assembly Instructions (PORTAFIX I, II, III, IV)	9
2.5) Tieback Installation	13
2.6) Formula for Calculating Counterweight	15
3) LABELS AND TAGS	16
4) WARRANTY INFORMATION	17
4.1) Parts Depot & Service	



GENERAL WARNING



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 rigger's and the operator's, and their employer's responsibility, if they operate under an employer's control, to 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. **All instructions contained herein must be carefully and strictly followed, including applicable TRACTEL safety guidelines.**
3. Should you hand over a mobile suspension beam under whatever 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 rigging and operating this mobile suspension beam, 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 mobile suspension beam but also to the entire suspended scaffold system and any component of it.
5. Never use the scaffold mobile suspension beam for any job other than lifting personnel on suspended scaffold according to the instructions of this manual. Consult TRACTEL for special applications
6. Never load the mobile suspension beam or the beam system 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.
8. Carefully take notice of all the labels affixed to the mobile suspension beam. Never rig or operate the platform or beam system 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 mobile suspension beam is to be rigged or used, check that the mobile suspension beam, 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 mobile suspension beam, 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 mobile suspension beam must be inspected by a competent person familiar with the mobile suspension beam and professionally trained for the purpose.
13. Inspection by persons authorized by Tractel is to be carried out once every six months or every 200 hours. A signed and dated inspection record should be maintained.
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 repair 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.
 - d) professionally trained for working under the above requirements.
16. Except for the operations described in this manual, the maintenance of the mobile suspension beam unit, as well as repair, must be exclusively done by repairers authorized by TRACTEL.
17. Spare parts used for all equipment must be exclusively in accordance with the serial number of each product. No substitutions are allowed.
18. Never let the mobile suspension beam 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.
19. 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.
20. 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 MOBILE SUSPENSION BEAM

The PORTAFIX equipment has been specially designed to be fitted with Tirak hoists.

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

21. Compatibility of other brands of hoists has been verified & approved by Tractel engineering department.
22. It is fitted with compatible equipment.
23. 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.
24. Every upper support of the beam is stable, sufficiently strong and properly tied back to the structure, according to the load either static or dynamic.
25. The supporting structure and tie-backs, are required to withstand every load to be applied, either static or dynamic, during rigging or operating the scaffold equipment.
26. All the requirements in strength and resistance are obtained with the necessary safety coefficients (see regulations and professional standards).
27. 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.

28. 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.
29. **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) or unless another suspension wire rope has been safely rigged to the suspension platform.
30. Never operate a mobile suspension beam and its accessories, especially electric ones, in a potentially explosive atmosphere.
31. For any job to be performed on the suspended equipment, consider and control the specific risks related to the nature of the job.
32. Should you decide that this mobile suspension beam is no longer to be used, take precautions in disposing of it so that it cannot be used any more.
33. **The manufacturer declines any responsibility for any special rigging or structural combinations beyond the descriptions of this manual.**

34. The manufacturer declines any responsibility for the use of beams, other than those described in this manual.

35. Use of beams within 10 feet of high voltage areas is prohibited.

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.

1) GENERAL

- Fall protection is required on all suspended platforms.
- Only persons familiar with the rigging techniques and the equipment are authorized to assemble our PORTAFIX Suspension Beams.
- Check daily the condition of the various components Use only original TRACTEL supplied parts.
- Before assembling the counterweighted beams, always make sure that the roof and the parapet are capable of carrying the loads applied by the suspended loads. If necessary, refer to static calculations.
- On all roofs, place planks or channel under the wheels to safeguard the roof to obtain better load distribution.
- Space permitting, extend the telescopic beams up to its maximum length in order to reduce the required number of counterweights and ease assembly and dismantling.
- For calculation of counterweights refer to the formula on Page 15.
- When the assembly is finished, lock the brakes of the castor wheels.
- Before moving the beams around on the roof, lower the platform to ground level and slacken all wire ropes.



WARNING



Tiebacks are required on all PORTAFIX suspension beams.



CAUTION



Tiebacks having strength equivalent to the hoisting ropes shall be installed without slack at right angles to the building and be firmly secured to a structurally sound portion of the structure. This structure shall have the capability of supporting the maximum suspended load with a safety factor of no less than 4:1. In the event that the tieback cannot be installed at right angles to the structure face, two tiebacks, without slack, shall be attached at opposing angles to the beam to prevent movement in any direction.
See Pages 13 & 14 for details.



CAUTION



Almost 80% of all accidents occurring during work on suspended scaffolds are caused by incorrectly installed SUSPENSION SYSTEMS or incorrectly calculated counterweights.

Remember this and take all necessary precautions.

2) ASSEMBLY

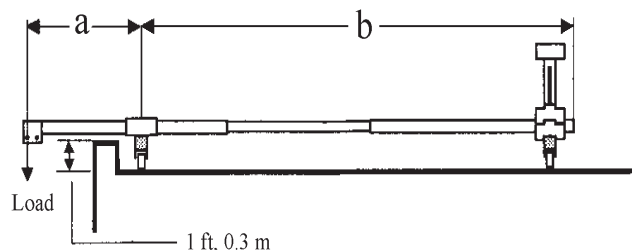
2.1 Standard Assemblies

Portafix Suspension Beams have been designed specifically for use with TRACTEL Suspended Scaffolds. They can be used equally well for suspending any other type of suspended scaffold that consist of standard elements thus permitting the following basic assemblies:

PORTAFIX 1 (Figure 1) -

Telescopic beam mounted directly on front (001) and rear (002) crossbars can be moved on castor wheels (014).

This assembly is to be used where parapet height does not exceed 1 foot (0.3 m).




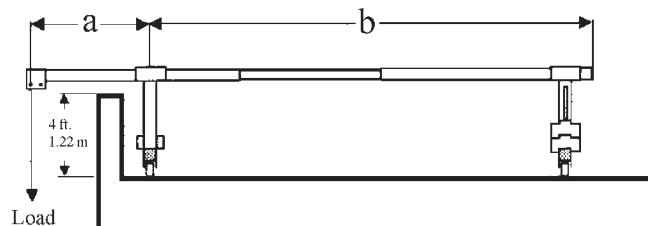
 **WARNING:**
Tiebacks are required!

Figure 1

PORTAFIX II (Figure 2) -

A height adjuster (003) fitted to the front crossbar (001) lets the overhead telescopic beam pass over a 4 ft (1.22 m) high obstacles (chimneys, ventilation shafts, parapets, etc.).




 **WARNING:**
Tiebacks are required!

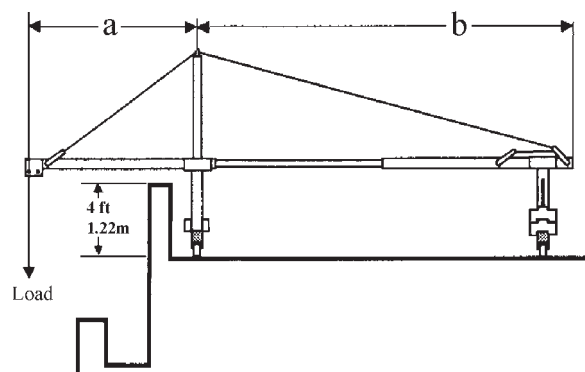
Figure 2

PORTAFIX III (Figure 3) -

Fitted with reinforcement brace (005) and tensioning wire rope (010), this model is recommended for longer overhangs or very heavy suspended loads (e.g pulley-block mounted on suspension wire rope, etc.).



NOTE:
Figures are not to scale

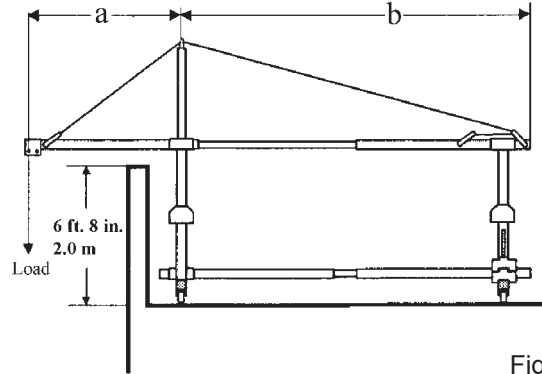


 **WARNING:**
Tiebacks are required!

Figure 3

PORTAFIX IV (Figure 4) -

Fitted with 2 additional rear height adjusters (004), crossbar extension and lower telescopic beam for high parapet clearance up to 6 ft. 8 in. (2.0 m) and heavy loads or longer overhangs.



WARNING:
Tiebacks are required!

WARNING:
The PORTAFIX IV system can only be used in the configuration shown in Figure 4.

Figure 4

2.2 Outreach/Overhang (Table 1)

This table shows the maximum permissible outreach/overhang (a) vs. the maximum permissible load (L). By max. permissible load is meant the rated load capacity of the hoist and not the actual suspended load. The loads indicated correspond to the rated load capacities of our hoists.

Max. Permissible load (L) per beam		Max. Permissible overhang/outreach (a)			
		PORTAFIX I - II		PORTAFIX III - IV	
lbs.	kg	ft.	m	ft.	m
700	318	4.5	1.4	6.5	2.0
1000	454	3	0.91	5.5	1.7
1500	682	-	-	4	1.2
2000	908	-	-	3	0.91
2200	1000	-	-	3	0.91

Table 1

2.3 Spare Parts (Figure 5)



WARNING:
Tiebacks are required!

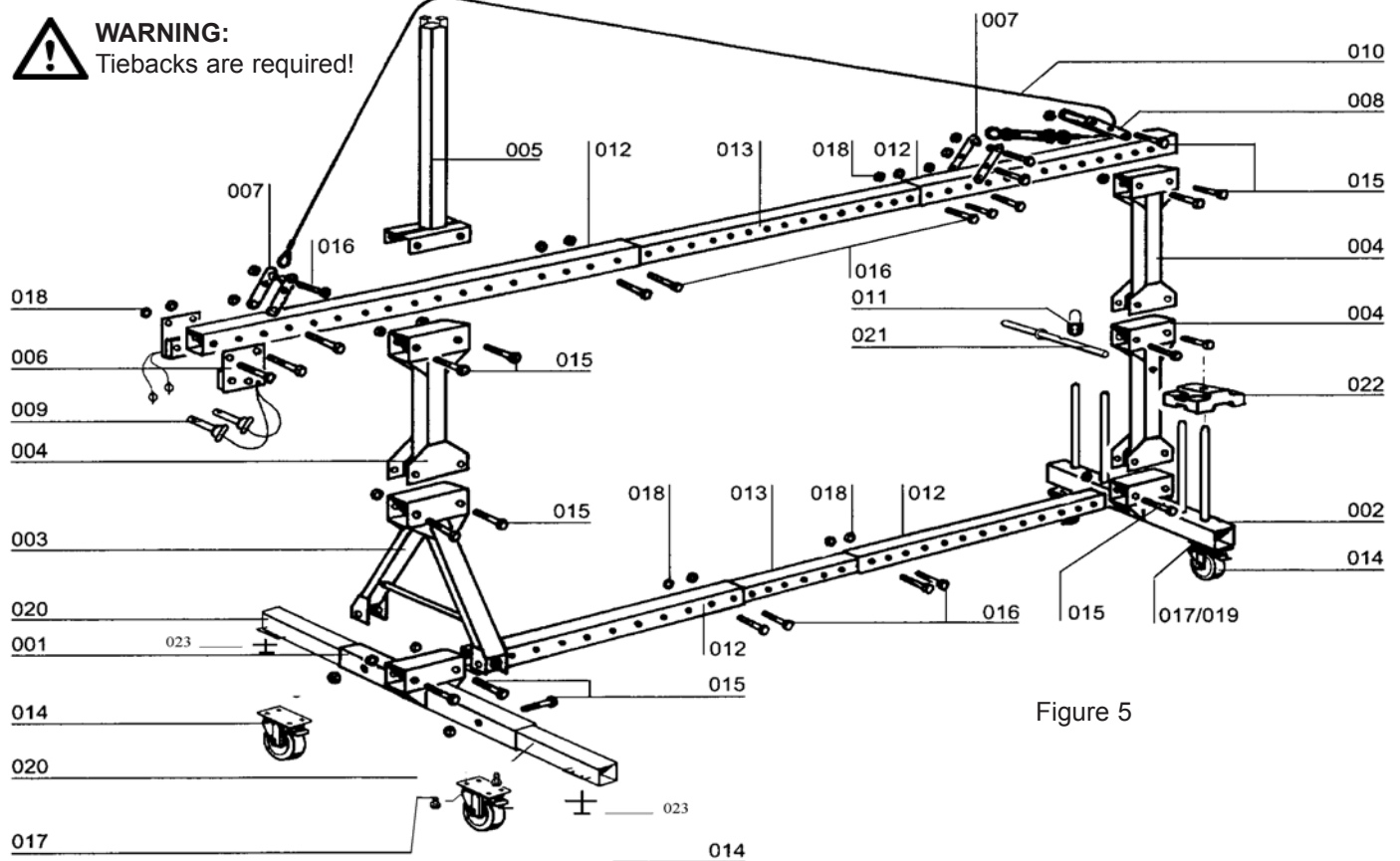


Figure 5

Item	Code	Description	PORTAFIX I	PORTAFIX II	PORTAFIX III	PORTAFIX IV	Weight		
							lbs	kg	
001	7787	Front Crossbar	1	1	1	1	27.8	12.6	
002	7767	Rear counterweight crossbar	1	1	1	1	37.9	17.2	
003	7807	Front height adjuster	-	1	1	1	41.4	18.8	
004	7797	Rear height adjuster	1	1	1	3	29.3	13.3	
005	7827	Reinforcing bracket	-	-	1	1	19.6	8.9	
006	17497	Rigging stirrup	2	2	2	2	1.1	0.5	
007	7847	Anchor stirrup	-	-	4	4	4.9	2.2	
008	17477	Reversing stirrup	-	-	1	1	5.3	2.4	
009	19387	Anchor pin + spring clip	2	2	2	2	1.1	0.5	
010	7817	Wire rope tensioner (turn buckle)	-	-	1	1	15.2	6.9	
011	35806	Padlock	1	1	1	1	-	-	
012	35345	Outer beam section	2	2	2	4	42.3	19.2	
013	35325	Intermediate beam section	1	1	1	2	49.6	22.5	
014	20096	Castor w/wheel brake	4	4	4	4	8.8	4.0	
015	10806	Bolt TH M18 x 140 DIN 931 8.8 Z	6	10	11	17	-	-	
016	10786	Bolt TH M18 x 120 DIN 931 8.8 Z	4	4	9	13	-	-	
017	3566	Bolt TH M10 x 25 DIN 933 8.8 Z	17	17	17	17	-	-	
018	10796	Nut NYLOC M18 DIN 985 Z	10	14	20	30	-	-	
019	8006	Nut NYLOC H M10 DIN 985 Z	17	17	17	17	-	-	
020	RBT0013B	Front crossbar extension	0	0	0	2	20.0	9.0	
021	19937	Counterweight locking bar	1	1	1	1	2.0	0.9	
022	3378	Cast iron counterweight	as a function of the load (max. 36)					55.1	25.0
023	RBILJ1080B	Screw Jack Stabilizer	0	0	0	2	35	16	

2-4 Assembly Instructions

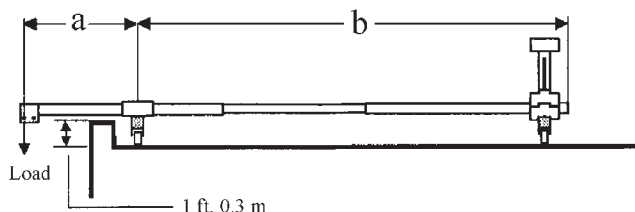


WARNING



Always wear fall protection equipment when assembling PORTAFIX beams.

PORTAFIX I



Proceed as follows:

- 1) Bolt 2 scaffold rigging strirrup(s) (006) to one of the outer beam elements (012).
- 2) Insert this piece into the front crossbar (001). Let it project forwards for the overhang (outreach) "a" needed and calculated. Bolt the beam to the crossbar using 2 bolts (015) and 2 nuts (018).
- 3) Complete the telescopic beam by adding the intermediate beam (013) and the other outer beam (012). Space permitting, extend telescopic beam up to it's maximum length (but never beyond 20 ft.) to reduce the number of required counterweights.
- 4) Insert rear outer beam into the rear counterweight crossbar (002).
- 5) Place rear height adjuster (004) on the rear counterweight crossbar and along with beam secure assembly with 2 bolts (015) and 2 nuts (018).
- 6) After determining overhang (outreach) "a" and adjusting backspan length "b", bolt the telescopic beams together using 2 bolts (016) and 2 nuts (018).
- 7) Tighten all nuts.
- 8) Distribute counterweights (022) on the four shafts of the rear crossbar (002) and secure by means of locking bar (021). Note that 36 cast iron counterweights (max =1980 lbs) can be placed on the rear crossbar. If required for any reason whatsoever, a second counterweight crossbar can be installed.
- 9) Attach tieback(s) to structurally sound anchorage.
- 10) When assembly is completed and the beam positioned, lock brakes on front and rear castor wheels (014).
- 11) Before moving beams around on the roof, lower scaffold to ground level and slacken all wire ropes.



WARNING

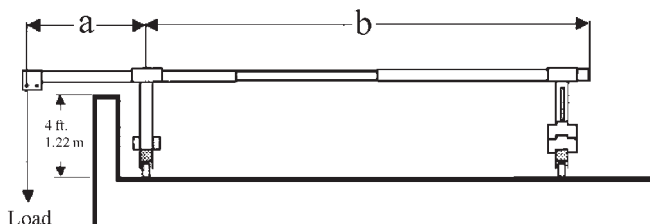


Never move a suspended platform and beam system while personnel are on the platform!

PORTAFIX II

Proceed as follows:

- 1) Place front height adjuster (003) on front crossbar (001) and secure with 2 bolts (015) and 2 nuts (018).



WARNING



Make sure that 2 bolts connect each outer beam (012) to the intermediate beam (013).

- 2) Place rear height adjuster (004) on rear counterweight crossbar (002) and secure with 2 bolts (015) and 2 nuts (018).
- 3) Bolt 2 scaffold rigging stirrups (006) to one of the outer beam elements (012).
- 4) Insert this element into the top guide on the front height adjuster (003). Let it project forwards for the overhang (outreach) "a" as needed and calculated. Bolt into position using 2 bolts (015) and 2 nuts (018).
- 5) Complete the telescopic beam by adding the intermediate beam (013) and the other outer beam (012). Space permitting, extend the telescopic beam up to it's maximum length (but never beyond 20 ft.) to reduce the required number of counterweights.
- 6) Insert the outer beam element (012) into the top guide of the rear height adjuster (004).
- 7) Adjust the backspan length "b" and fit the 3 telescopic beam elements (012/013) together by using 2 bolts (016) and 2 nuts (018).



WARNING



Make sure that 2 bolts connect each outer beam (012) to the intermediate beam (013).

- 8) Tighten all nuts.
- 9) Distribute counterweights (022) on the four shafts of the rear crossbar (002) and secure by means of locking bar (021). Note that 36 cast iron counterweights (max =1980 lbs) can be placed on the rear crossbar. If required for any reason whatsoever, a second counterweight crossbar can be installed.
- 10) Attach tieback(s) to structurally sound anchorage.

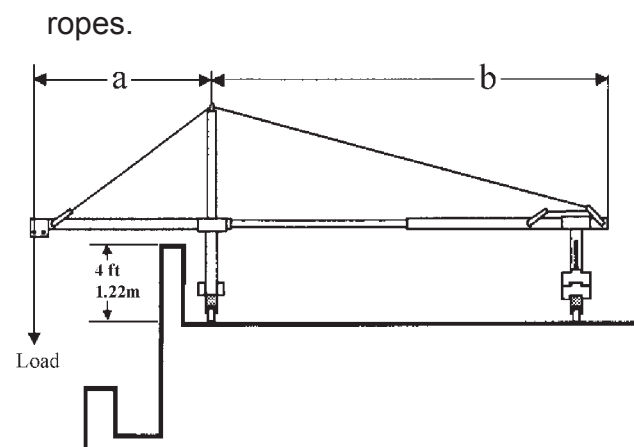
- 11) When assembly is completed and the beam positioned, lock brakes on front and rear castor wheels (014).
- 12) Before moving beams around on the roof, lower scaffold to ground level and slacken all



WARNING



Never move a suspended platform and beam system while personnel are on the stage!



PORTAFIX III

Proceed as follows:

- 1) Place front height adjuster (003) on front crossbar (001) and secure with 2 bolts (015) and 2 nuts (018).
- 2) Proceed in the same manner for rear height adjuster (004) and rear crossbar (002).
- 3) Bolt 2 scaffold rigging stirrups (006) to one of the outer beam elements (012), and...
- 4) Insert this element into front height adjuster guide (003). Let it project forwards for the overhang (outreach) "a" needed and calculated.

- 5) Complete telescopic beam by adding intermediate beam (013) and other outer beam (012). Space permitting, extend telescopic beam up to its maximum (but never beyond 20 ft.) to reduce the required number of counterweights.
- 6) Insert outer beam element (012) into the top guide of the rear adjuster guide (004).
- 7) After determining overhang (outreach) “a” and backspan length (b) position reinforcement brace (005) and bolt it together with telescopic the beam, to front height adjuster (003) by using 2 bolts (015) and 2 nuts (018).
- 8) Fit the 3 telescopic beam elements (012/013) to each other by using 2 bolts (016) and 2 nuts (018).



WARNING



Make sure that 2 bolts connect each outer beam (012) to the intermediate beam (013).

- 9) Attach 2x2 tensioning wire rope anchoring stirrups (007) to both ends of tensioning wire rope (011) by means of bolts (016) and nuts (018), and fix turnbuckled-end of rope to the very end of the back beam element.
- 10) Pass tensioning wire rope (010) over brace (005) and through reversing stirrup (008). Bolt it, together with telescopic beam, to rear height adjuster (004). Pass a second bolt through beam and height adjuster.
- 11) Stretch wire rope by hand and bolt rear anchoring stirrup (007) to telescopic beam. Use turnbuckle for final tensioning of wire rope.
- 12) Tighten all nuts.

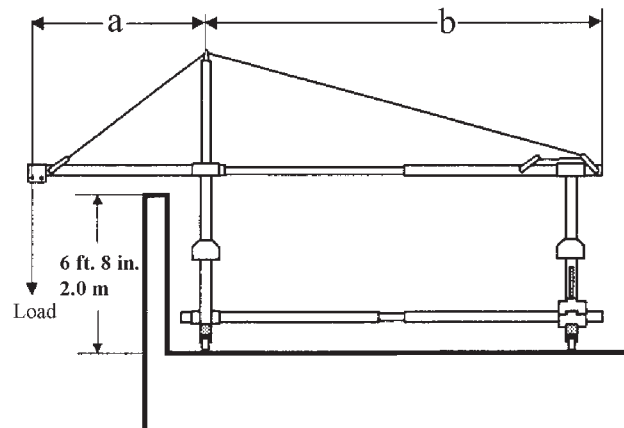
- 13) Distribute counterweights (022) on the four shafts of the rear crossbar (002) and secure by means of locking bar (021). Note that 36 cast iron counterweights (max =1980 lbs) can be placed on the rear crossbar. If required for any reason whatsoever, a second counterweight crossbar can be installed.
- 14) Attach tieback(s) to structurally sound anchorage.
- 15) When assembly is completed and the beam positioned, lock brakes on front and rear castor wheels (014).
- 16) Before moving beams around on the roof, lower scaffold to ground level and slacken all ropes.



WARNING



Never move a suspended platform and beam system while personnel are on the stage!



PORTAFIX IV

Proceed as follows:

- 1) Insert an outer beam element (012) into the front crossbar guide. Bolt it to the crossbar using 2 bolts (015) and 2 nuts (018).
- 2) Insert another outer beam element (012) into the rear counterweight crossbar guide. Place the rear height adjuster (004) on the

rear counterweight crossbar and along with beam secure assembly with 2 bolts (015) and 2 nuts (018).

- 3) Insert the intermediate beam (018) into the 2 outer beams and adjust the backspan length “b” between front and rear to needed and calculated distance. Bolt the 3 telescopic beam elements together by using 4 bolts (016) and 4 nuts (018).



WARNING



Make sure that the 2 bolts connect each outer beam (012) to the inner beam (013).

- 4) Place front height adjuster (003) on front crossbar (001) and secure with 2 bolts (015) and 2 nuts (018).
- 5) Bolt 2 scaffold rigging stirrups (006) to one of the outer beam elements (012).
- 6) Place a rear height adjuster (004) on top of the front height adjuster (003) and secure it with 2 bolts (015) and 2 nuts (018).
- 7) Place a rear height adjuster (004) on top of the rear height adjuster (004) and secure it with 2 bolts (015) and 2 nuts (018).
- 8) Insert the outer beam element (012) with scaffold rigging stirrups (006) through the top guide of the front assembly. Let it project forwards for the overhang (overreach) “a” needed and calculated.
- 9) Complete the upper telescopic beam by adding an intermediate beam (013) and outer beam (012). The outer beam slides into the top most guide of the rear height adjuster (004).
- 10) Bolt the upper telescopic beams together using 4 bolts (016) and 4 nuts (018).



WARNING



Make sure that the 2 bolts connect each outer beam (012) to the intermediate beam (013).

- 11) Place the reinforcing bracket (005) on the top of the front assembly. Secure it to the height adjuster using 2 bolts (015) and 2 nuts (016).
- 12) Attach 2x2 tensioning wire rope anchoring stirrups (007) to both ends of tensioning wire rope (011) by means of bolts (016) and nuts (018), and fix turnbuckled-end of rope to the very end of the back beam element.
- 13) Pass tensioning wire rope (010) over brace (005) and through reversing stirrup (008). Bolt it, together with telescopic beam, to rear height adjuster (004). Pass a second bolt through beam and height adjuster.
- 14) Stretch wire rope by hand and bolt rear anchoring stirrup (007) to telescopic beam. Use turnbuckle for final tensioning of wire rope.
- 15) Tighten all nuts.
- 16) Distribute counterweights (022) on the four shafts of the rear crossbar (002) and secure by means of locking bar (021). Note that 36 cast iron counterweights (max =1980 lbs) can be placed on the rear crossbar. If required for any reason whatsoever, a second counterweight crossbar can be installed.
- 17) Attach tieback(s) to structurally sound anchorage.
- 18) When assembly is completed and the beam positioned, lock brakes on front and rear castor wheels (014).
- 19) Before moving beams around on the roof, lower scaffold to ground level and slacken all ropes.

2.5) TIEBACK INSTALLATION (Figures 6, 7, 8 and 9)



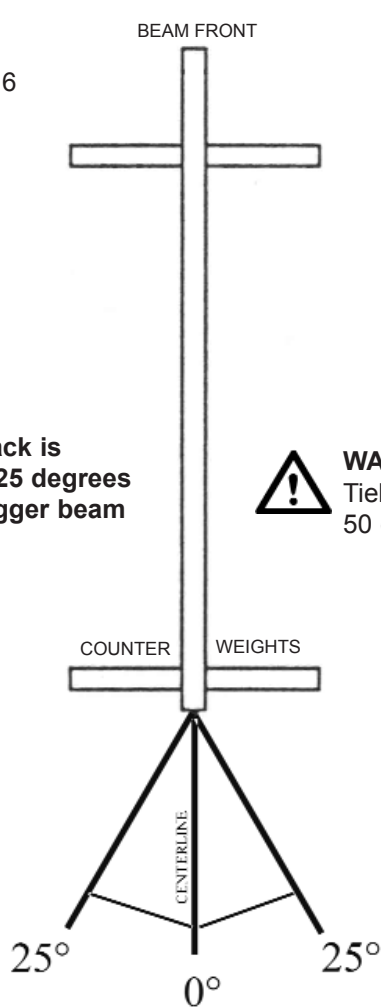
WARNING:
Installation of tiebacks is mandatory!



NOTE:

- 1) Only one tieback is required with 25 degrees from the outrigger beam centerline.
- 2) Two tiebacks are required if the tieback is 25 to 50 degrees of the outrigger beam centerline.
- 3) Tiebacks are not permitted beyond 50 degrees from the outrigger beam centerline.

Figure 6

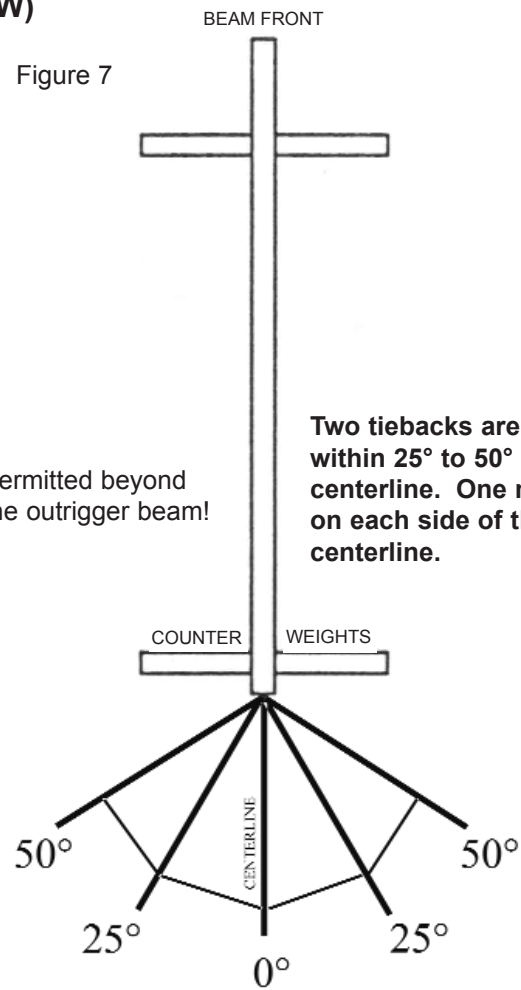


Only one tieback is required with 25 degrees from the outrigger beam centerline.



WARNING:
Tiebacks are not permitted beyond 50 degrees from the outrigger beam!

Figure 7



Two tiebacks are required within 25° to 50° of the centerline. One must be on each side of the centerline.

Secure the tieback(s) to the rear of 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) Tieback may also be installed from the tip of the roof beam.
- 2) These tieback angles also apply to lifeline tiebacks.
- 3) When using the two tiebacks, one must be on each side of the beam.



WARNING:
Installation of tiebacks is mandatory!

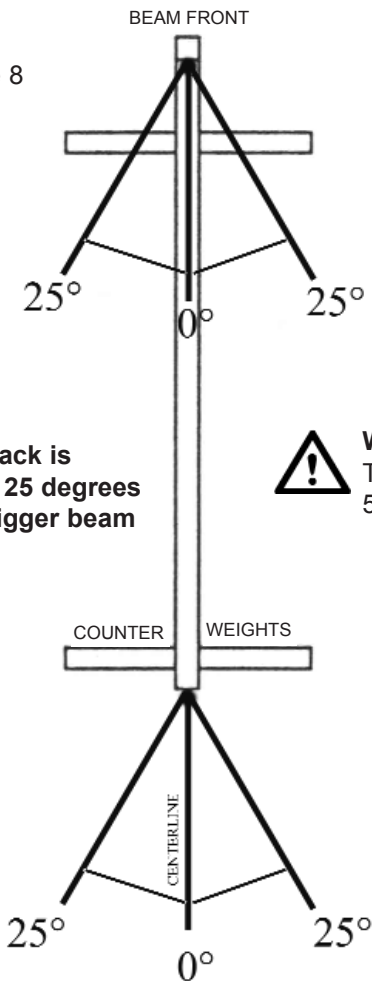
Tieback instructions for the secondary wire rope (if installed)



NOTE:

- 1) Only one tieback is required with 25 degrees from the outrigger beam centerline.
- 2) Two tiebacks are required if the tieback is 25 to 50 degrees of the outrigger beam centerline.
- 3) Tiebacks are not permitted beyond 50 degrees from the outrigger beam centerline.

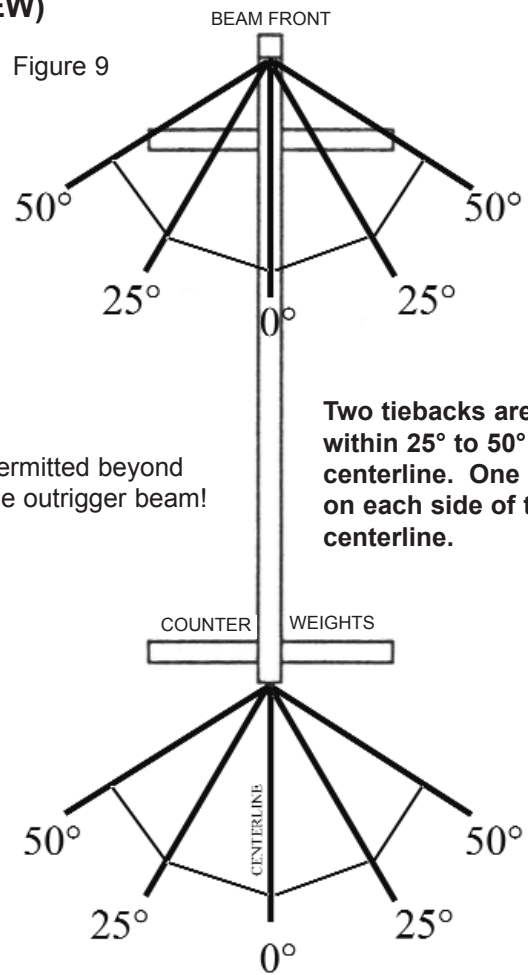
Figure 8



Only one tieback is required with 25 degrees from the outrigger beam centerline.

(TOP VIEW)

Figure 9



Two tiebacks are required within 25° to 50° of the centerline. One must be on each side of the centerline.



WARNING:
Tiebacks are not permitted beyond 50 degrees from the outrigger beam!

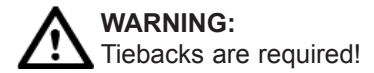
Secure the tieback(s) to the rear of the roof beam, and to the tieback anchor on the roof. Tieback wire ropes must have the equivalent strength to the hoisting ropes and must be installed without slack.



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

2.6 Formula for Calculating Counterweights (Figure 10)



W = counterweight

L = load in lbs.
(Rated load of hoist)

a = overhang/outreach

b = backspan (distance
between front fulcrum
"A" and rear fulcrum
"B")

K = safety factor

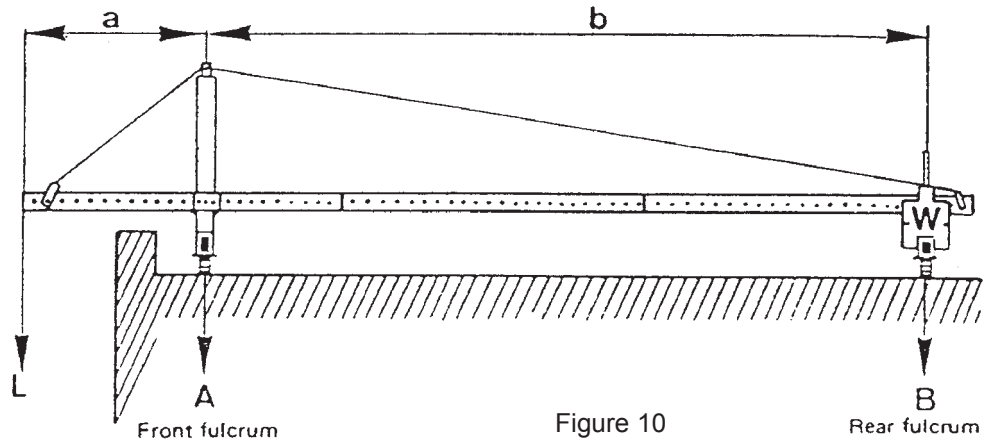


Figure 10

First of all, calculate the following values:

L, load in lbs = Rated load of the hoist suspended on the beam:

This is the nominal rated load of the hoist and not the actual suspended load which must always be less than the total rated load of the hoists.

a, in ft = Length of overhang/outreach = the distance between the suspension wire rope rigging point and the front fulcrum (A).

b, in ft = Backspan (distance between the two fulcrums "A" and "B")

After multiplying L by a, multiply again by the safety factor K = 4 and divide the sum by b.

The result is the counterweight (W) in lbs(kg) to be placed on the rear crossbar of each suspension beam.

To summarize:

$$W = \frac{L \times a \times K}{b}$$

Example: *

L = 1000 lbs, a = 3 ft, b = 15 ft, K = 4

$$W = \frac{1000 \times 3 \times 4}{15} = 800 \text{ lbs}$$

Example: (metric) *

L = 454 kg, a = 0.914 m, b = 4.57 m, K = 4

$$W = \frac{454 \times 0.914 \times 4}{4.57} = 364 \text{ kg}$$



NOTE:

* Based on a 1000 lbs (454 kg) rated load hoist.

3) LABELS AND TAGS



Figure 11

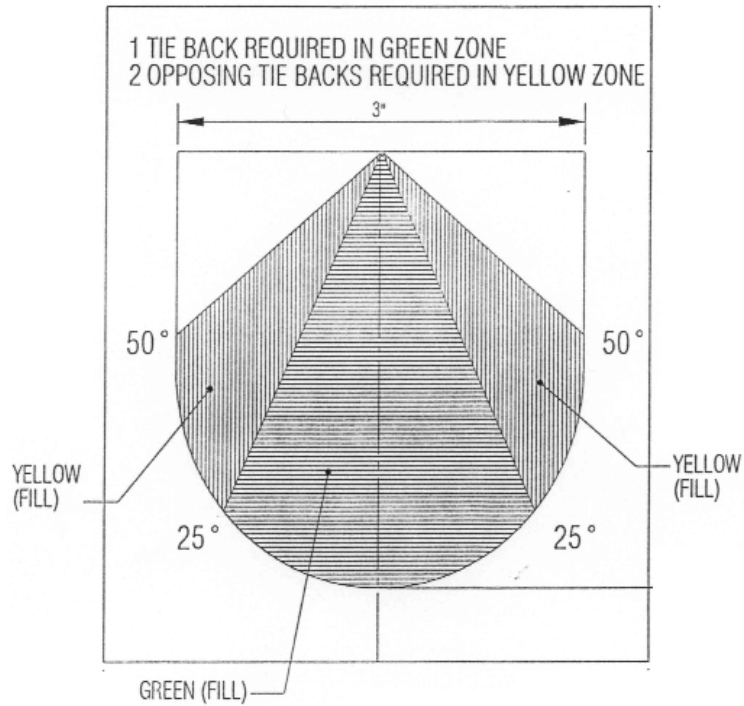


Figure 12

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

Figure 13

WARNING!
Use of beam within 10 ft of high-voltage is prohibited

Max. load (L)* per beam	max permissible overhang (a)	
	DELTA type VII	DELTA type III/IV
700 lbs	4.5 ft	6.5 ft
1,000 lbs	3 ft	5.5 ft
1,500 lbs	-	4 ft
2,000 lbs	-	3 ft

*rated load based upon safety factor of 4

Formula for calculating counterweight
 $W = \frac{(L \cdot a)^4}{b}$ or
 $b = \frac{4 \cdot (L \cdot a)}{W}$

W = counterweight (in pounds)
 L = load (lbs.)
 a = overhang
 b = distance between fulcrums A and B

Tractel Inc.
Griphoist® Division

Tractel, Inc., Griphoist Division P.O. Box 188, 110 Shawmut Rd. Canton, MA 02091 (800) 421-0246

Branch Office: 315 Cleveland Drive, Unit E, Redwin Park, CA 91706
Tel: (924) 937-6727
Fax: (924) 937-6730

Figure 14

4) WARRANTY INFORMATION

- 1) TRACTEL INC./LTD. warrants its equipment to be free from defects in material and workmanship under normal use and service.
- 2) TRACTEL's obligation under this warranty is limited to repairing or replacing, at our option, any part of the unit, which proves by examination to our satisfaction to be defective in material or workmanship. If the item in question is returned through a TRACTEL INC./LTD. distributor, transportation is prepaid within six (6) months from when the equipment is sold to the original purchaser. Return shipment must be prepaid.
- 3) Any parts proved to be defective upon our inspection will be repaired or replaced at no cost for the parts themselves.
- 4) The obligation under this warranty does not include labor, traveling costs, or consequential damages of any kind.
- 5) Any defect in this equipment must immediately be brought to attention of the distributor from whom the unit was purchased. The distributor will make arrangements with the factory for repairs or replacement of parts within the terms of the warranty.
- 6) TRACTEL INC./LTD.'s obligation is limited to replacing parts and does not include replacing the complete unit. This warranty is void on any unit that has been modified, tampered with, repaired by persons other than a factory representative or an authorized TRACTEL INC/LTD. distributor, repaired with other than TRACTEL INC/LTD. standard parts, or damaged by reasons of accident, alteration, misuse, or abuse.
- 7) This warranty is in lieu of all other warranties, whether express or implied. We do not authorize any person or representative to make other guarantees or to assume for us any liability in connection with the sale of our appliances other than those contained herein. Any agreement outside of or contradictory to the foregoing shall be void and of no effect.

4-1 Parts Depot & Service

Replacement parts and service for PORTAFIX suspension beams are available from any of the following locations for customers in North America:

United States		Canada
Main Office (MA)	Branch Office (CA)	Montreal
P.O Box 188 110 Shawmut Rd. Canton, MA 02021 Phone: (781) 401-3288 (800) 421-0246 Fax: (781) 828-3642	315 Cloverleaf Dr. Unit E Baldwin Park, CA 91706 Phone: (626) 937-6727 (800) 675-6727 Fax: (626) 937-6730	11020 Mirabeau St. Anjou (Montreal) QUEBEC H1J 2S3 Phone: (514) 493-3332 (800) 561-3229 Fax: (514) 493-3342

Table 3