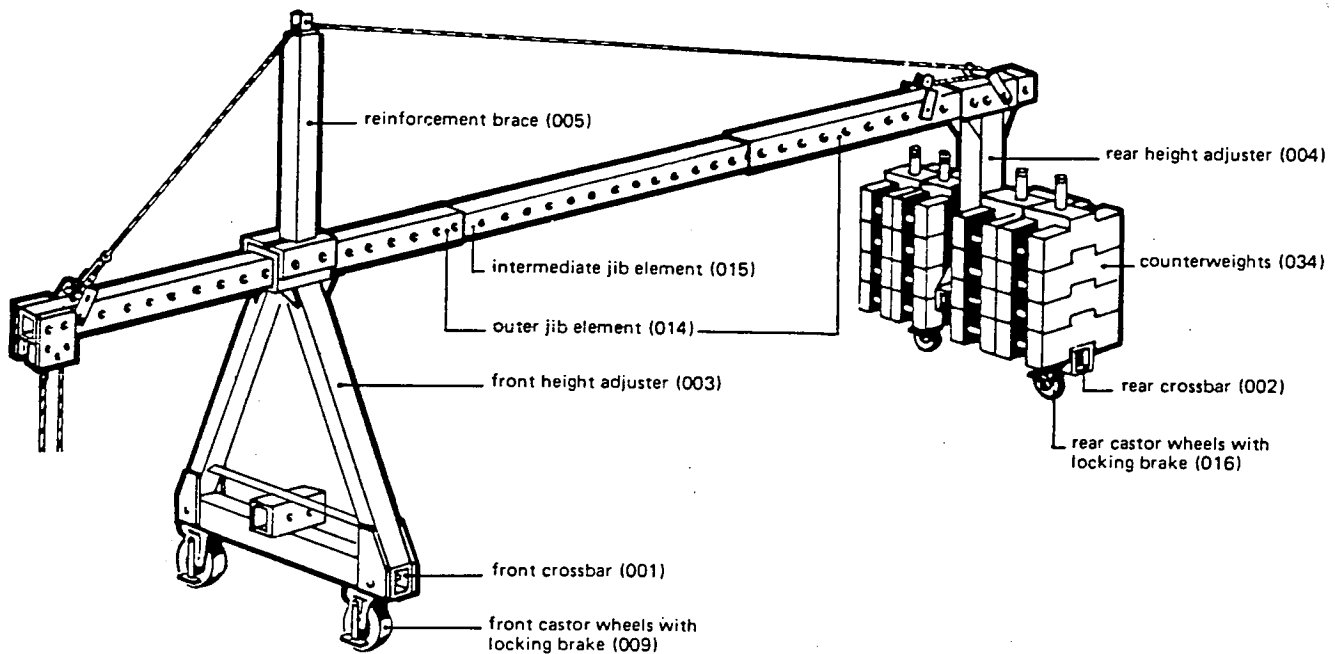


delta

mobile suspension jibs

assembly and operating instructions



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1. GENERAL

- Only persons familiar with the present ASSEMBLY AND OPERATING INSTRUCTIONS MANUAL and the equipment are authorized to assemble our DELTA Suspension Jibs.
- Check daily the condition of the various components. Use only original parts and wire ropes.
- Before assembling the jibs, always make sure that the roof and the parapet are dimensioned to bear the stresses caused by the suspended loads. If necessary, refer to static calculations.
- On asphalted roofs, place planks or channel bars under the wheels to safeguard coating and insulation and to obtain better load distribution.
- Space permitting, extend the telescopic jibs up to its maximum in order to reduce the required number of counterweights and facilitate assembly and dismantling.
- For calculation of counterweights refer to the formula on Page 7 and/or the tables on Pages 9 to 11.
- When the assembly is finished, lock the brakes of the castor wheels.
- Before moving the jibs around on the roof, lower the platform to ground level and slacken all wire ropes.
- **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 not 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 to each rope supporting device to prevent movement in any direction.

CAUTION!

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

Remember this and take all necessary precautions!

2. ASSEMBLY

2.1. Standard Assemblies

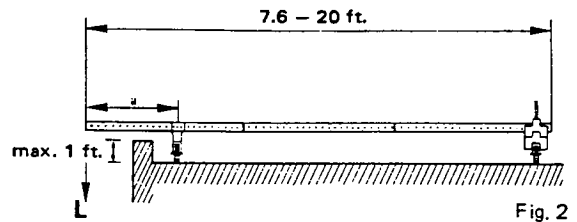
DELTA Suspension Jibs have been designed specifically for use with our PINTA and ALTA Suspended Scaffolds.

They can be used equally well for suspending any other type of scaffold.

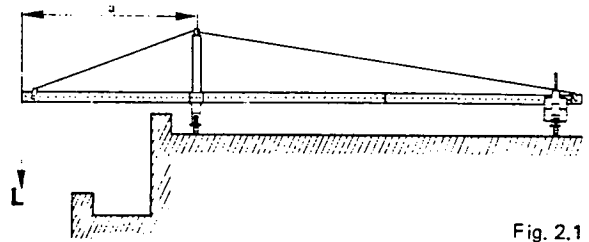
They consist of standard elements permitting the following basic assemblies:

DELTA I — Telescopic jib mounted directly on front (001) and rear (002) crossbars can be moved on castor wheels (009/016).

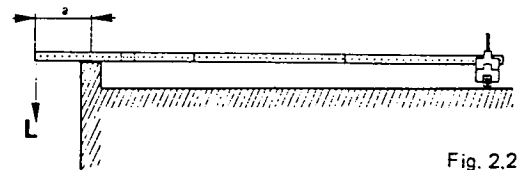
This assembly to be used only on parapets not exceeding a height of 1 foot.



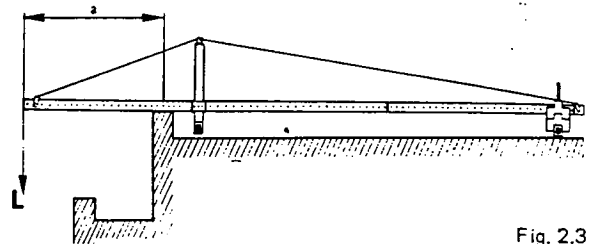
DELTA Ia — DELTA I assembly with reinforcement brace (005).



DELTA Ib — Telescopic jib fitted only with a rear counterweight crossbar (002), resting on the roof slab.



DELTA Ic — Telescopic jib fitted with front and rear crossbars (001 and 002 resp.) and reinforcement brace (005), resting on the roof slab.



DELTA II — Height adjusters (003/004) fitted to the front and rear crossbars (001 and 002 resp.) let overhead telescopic jib pass over up to 4 feet high obstacles (chimneys, ventilation shafts, parapets, etc.).

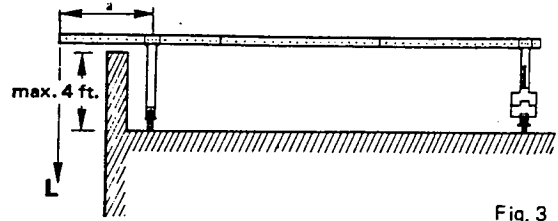


Fig. 3

DELTA III — Fitted with reinforcement brace (005) and tensioning wire rope (001), this model is recommended for longer overhangs or very heavy suspended loads (e.g., pulley-block mounted on suspension wire rope, etc.).

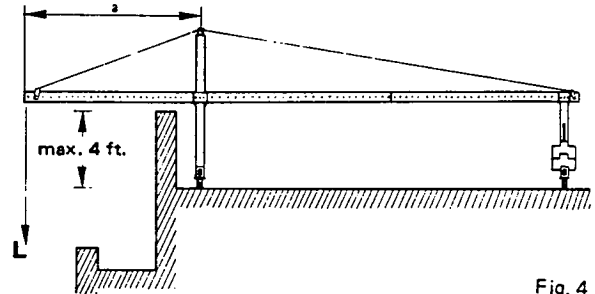


Fig. 4

2.2. OVERHANG

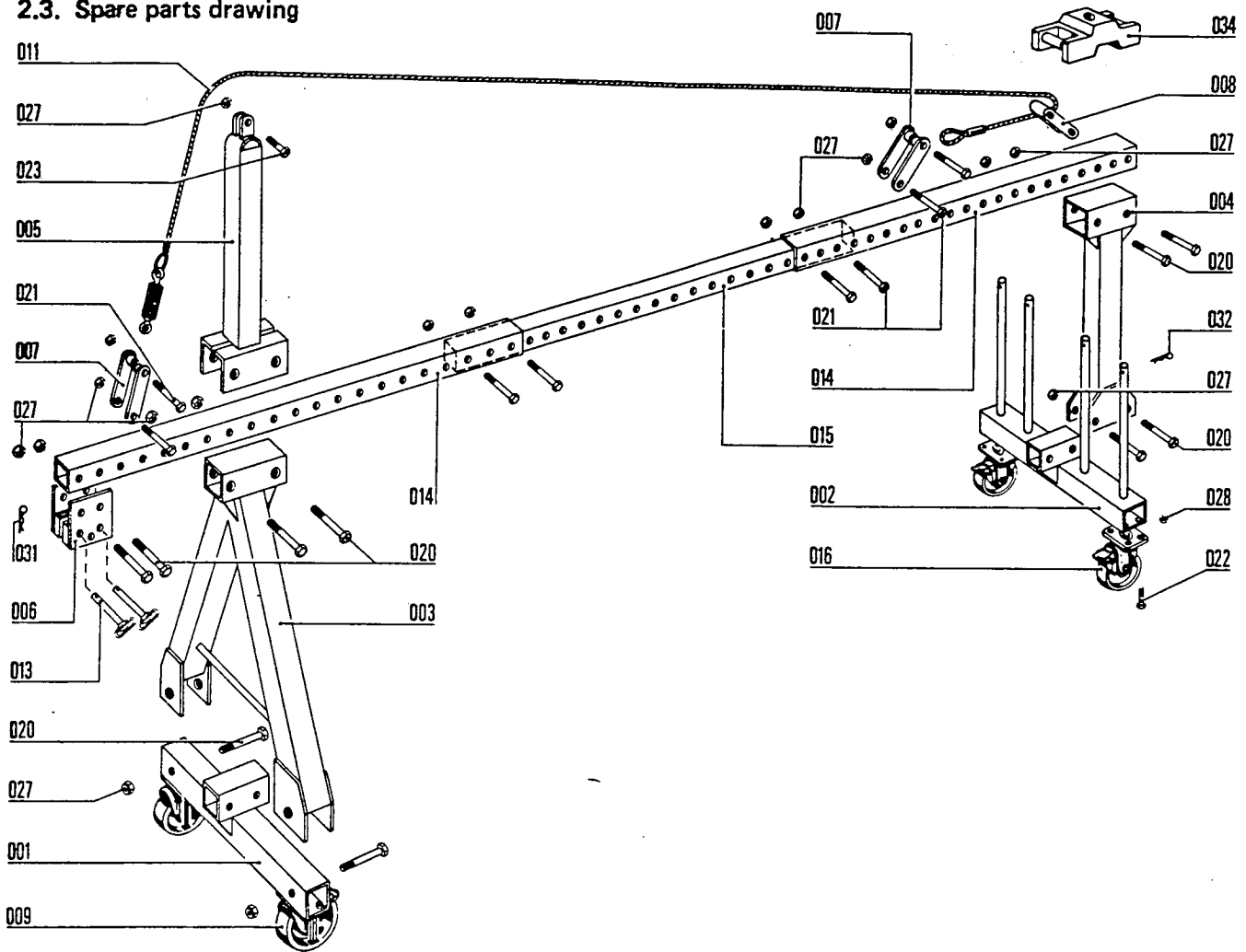
The table on the right shows the maximum permissible overhangs (a) vs. the maximum permissible loads (L).

By max. permissible load is meant the **nominal hoisting capacity** and not the actual suspended load.

The loads indicated correspond to the capacities of our Motorized TIRAK Hoists, T-400 & T-1000 series.

	max. permissible overhang (a)	
max. permissible load (L) per jib	DELTA I - Ib - II	DELTA Ia - Ic - III
1,000 lbs	3 ft.	5.5 ft.
1,500 lbs	—	4 ft.
2,000 lbs	—	3 ft.

2.3. Spare parts drawing



2.4. — Spare Parts List

Pos.	Code	Designation	number of pieces					
			DELTA I	DELTA Ia	DELTA Ib	DELTA Ic	DELTA II	DELTA III
001	7787	Front crossbar	1	1	—	1	1	1
002	7767	Rear counterweight crossbar	1	1	1	1	1	1
003	7807	Front height adjuster	—	—	—	—	1	1
004	7797	Rear height adjuster	—	—	—	—	1	1
005	7827	Reinforcement brace	—	1	—	1	—	1
006	7837	Scaffold rigging stirrup	2	2	2	2	2	2
007	7847	Tensioning wire anchoring stirrup	—	4	—	4	—	4
008	7857	Tensioning wire reversing stirrup	—	1	—	1	—	1
009	7777	Front castor wheel with brake	2	2	—	—	2	2
011	7817	Tensioning wire rope	—	1	—	1	—	1
013	7747	Winged binding pin	2	2	2	2	2	2
014	19535	Outer jib element	2	2	2	2	2	2
015	19545	Intermediate jib element	1	1	1	1	1	1
016	20096	Rear castor wheel with brake	2	2	—	—	2	2
020	10806	Hex bolt M18 x 140 DIN 931	6	6	4	6	10	10
021	10786	Hex bolt M18 x 120 DIN 931	4	8	4	8	4	8
022	3566	Hex bolt M10 x 25 DIN 933	16	16	—	—	16	16
023	23166	Hex bolt M18 x 60 DIN 931	—	1	—	1	—	1
027	10796	Nut NILOC H M18 DIN 985	10	16	8	14	14	19
028	8006	Nut NILOC H M10 DIN 985	16	16	—	—	16	16
031	5356	Cotter pin BETA dia. 4	2	2	2	2	2	2
032	5366	Cotter pin BETA dia. 6.3	4	2	4	4	4	4
034	3378	Cast iron counterweight (55 lbs)						

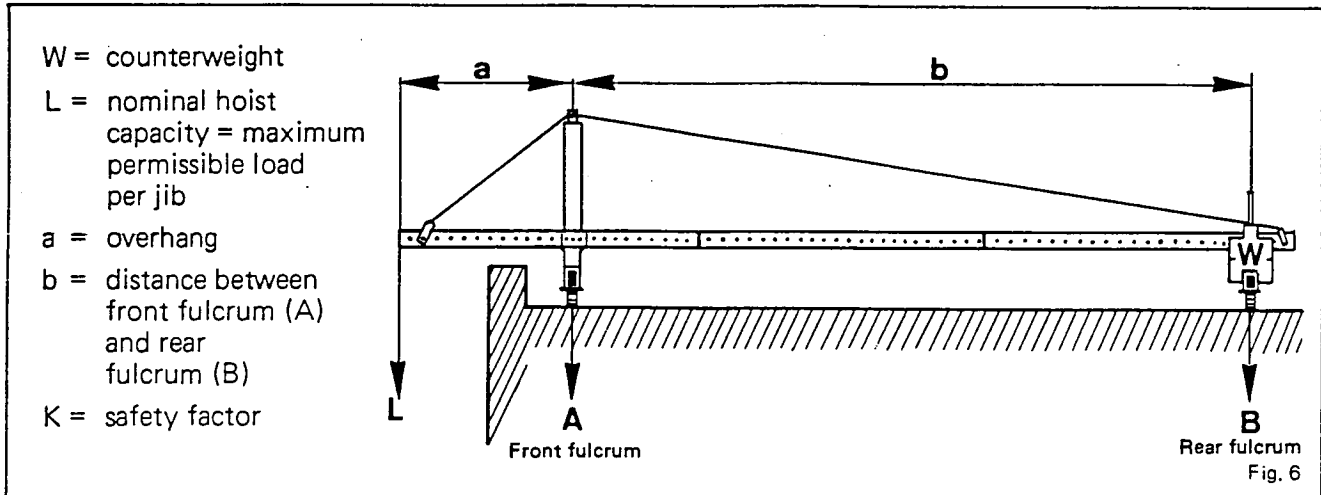
see 2.6 and 2.7

2.5. Assembly of DELTA III Jibs

Proceed as follows according to order:

- Place front height adjuster (003) on front crossbar (001) and secure with 2 bolts (020) and 2 nuts (027);
- Proceed in the same manner for rear height adjuster (004) and rear crossbar (002);
- Bolt 2 scaffold rigging stirrups (006) to one of the outer jib elements, and
- Insert this element into front height adjuster guide (003). Let it project forwards for calculating overhang;
- Complete telescopic jib by adding intermediate element (015) and other outer element (014). Space permitting, extend telescopic jib up to its maximum (but never beyond 20 ft.) to reduce required counterweight;
- Insert rear jib element into rear height adjuster guide (004);
- After determining overhang (a) and length (b) (see 2.6.), position reinforcement brace (005) and bolt it, together with telescopic jib, to front height adjuster (003) by using 2 bolts (020) and 2 nuts (027);
- Fit the 3 telescopic jib elements (014/015) to each other by using 2 bolts (020) and 2 nuts (027);
- Attach 2 x 2 tensioning wire rope anchoring stirrups (007) to both ends of tensioning wire rope (011) by means of bolts (021) and nuts (027), and fix turnbuckle-end of rope to the very end of the front jib element;
- Pass tensioning wire rope (011) over brace (005) and through reversing stirrup (008). Bolt it, together with telescopic jib, to rear height adjuster (004). Pass a second bolt through jib and height adjuster. Block wire rope at the top of the brace (005) by means of bolt (023) and nut (027);
- Stretch wire rope by hand and bolt rear anchoring stirrup (007) to telescopic jib. Use turnbuckle for final tensioning of wire rope;
- Tighten all nuts;
- Distribute counterweights (034) on the four shafts of the rear crossbar (002) and secure by means of cotter pins BETA (032). Note that 28 cast iron counterweights max. (= 1540 lbs) can be placed on the rear crossbar;
Concrete counterweights (55 lbs ea.) can be made locally on site by using the mold available from us as an option. Due to the fact that they are bulkier than cast iron counterweights, the 4 shafts on the rear crossbar can only hold 12 concrete counterweights max. (= 660 lbs). If required for any reason whatsoever, a second counterweight crossbar can be installed;
- When assembly is completed and the jib positioned, lock brakes on front and rear castor wheels (009 resp. 016);
- Before moving jibs around on the roof, lower scaffold to ground level and slacken all ropes.

2.6. Formula for Calculating Counterweight



First of all, calculate the following values:

L, in lbs = Nominal capacity of the hoist suspended on the jib:

This is the nominal load which the hoist can carry and not the actual suspended load which must always be inferior to the total nominal capacity of both hoists.

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

b, in ft = 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 to be placed on the rear crossbar of each suspension jib.

To summarize:

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

Example:

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

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

2.7. How to find the number of counterweights required by using the attached tables?

To make your job easier, we have prepared the attached tables (fig. 7 to 9) on which you can find the number of counterweights required for different overhangs (a) in relation to the distance (b).

In this tables the rear counterweight crossbar (51 lbs) and 1/2 the weight of the outrigger's (b) length has been deducted from the counterweight required to determine the number of weights needed per jib.

WARNING !

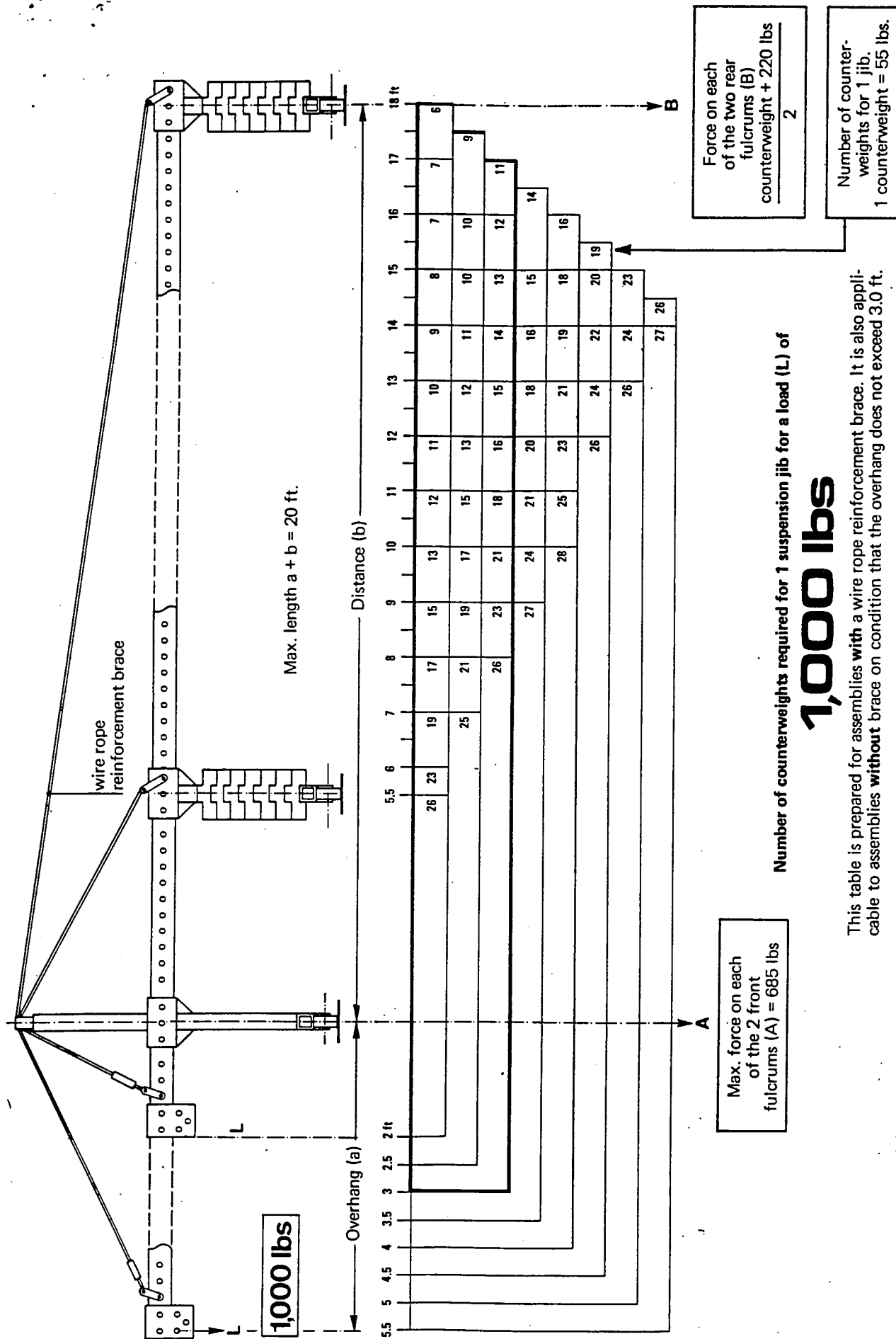
An error in reading can lead to disastrous consequences - it is a matter of life or death . . . Check and recheck the figures or calculate yourself by using the formula given on the preceding page.

It is a simple formula.

Instruction for finding the number of counterweights on the attached tables:	Example
1. Determine first of all which table corresponds to your application, i.e., to the capacity of your hoist.	Fig. 7 1000 lbs
2. Determine overhang (a)	= 2.5 ft.
3. Determine distance (b)*	= 15 ft.
On the left side of the table, locate the applicable overhang (a) and follow the line to the right to its intersection with the applicable distance (b). Just above the intersection of the two lines, you will find a figure indicating the number of counterweights required for your particular application.	= 10

* A study of the various tables reveals that it is always of advantage to extend the distance (b) to its maximum (if the space permits it) in order to reduce the number of required counterweights and facilitate assembly and dismantling.

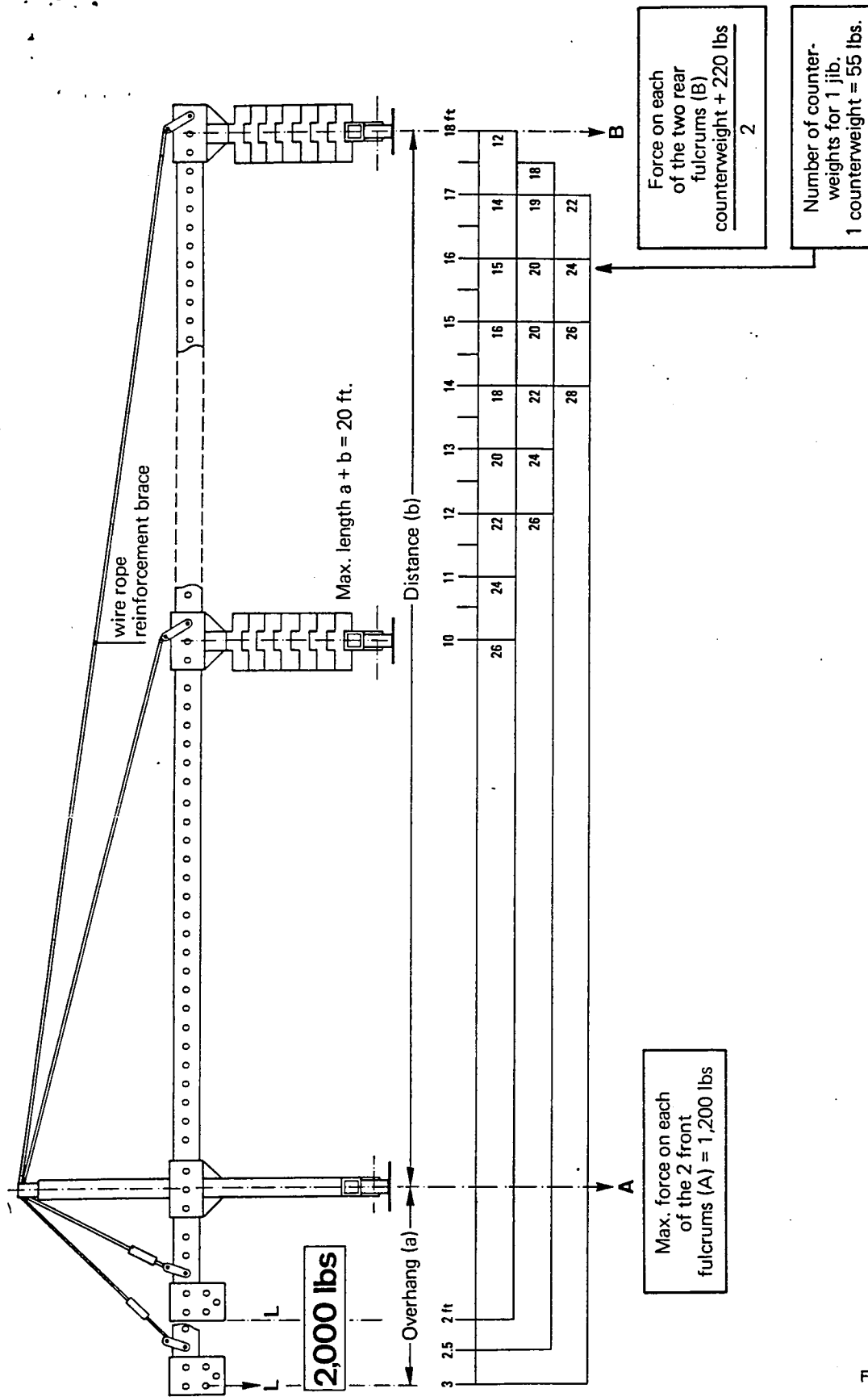
It is nevertheless essential that the total length of any jib (a + b) never exceeds 20 ft.



This table is prepared for assemblies with a wire rope reinforcement brace. It is also applicable to assemblies without brace on condition that the overhang does not exceed 3.0 ft.

Note: The counterweight bar (51 lbs) and 1/2 the weight of the outrigger's (b) length has been deducted from the counterweight required to determine the number of weights needed per jib.

Fig. 7



Number of counterweights required for 1 suspension jib for a load (L) of

2,000 lbs

For this load, the assembly must always be fitted with a wire rope reinforcement brace.

Note: The counterweight bar (51 lbs) and 1/2 the weight of the outrigger's (b) length has been deducted from the counterweight required to determine the number of weights needed per jib.

Fig. 9