



ASSEMBLING MANUAL

CM - 10

Antenna Crank-up Mast

10 m

ANTENNA CRANK-UP MAST ACOM CM-10

Assembly and exploitation MANUAL

1. GENERAL INFORMATION

ACOM OOD manufactures a range of HF antennas and antenna masts for them, designed and produced to ensure maximum efficiency and reliable long-term service.

This manual describes the assembling of the semi-telescopic antenna crank-up mast ACOM CM-10, designed for mounting and directing HF antennas with weigh up to 40 kg (88 lbs).

Owner assistance

If assistance or service is needed, your local dealer should be contacted first. In the unlikely event you need further information, you may get in touch with ACOM OOD by fax, telephone, electron or ordinary mail: Fax (+359 2) 920 9656; telephone (+359 2) 920 9655; e-mail: acom@mail.orbitel.bg; ordinary mail: ACOM OOD, Blvd Nikola Mushanov 151, 1330 Sofia, Bulgaria.

Components

The Antenna mast CM-10 consists of the following basic elements:

- Framework stand
- Lifting gear – hand winch with an automatic brake
- Mast segments - 10 p/s

Optional:

- Framework guys - a set of 4 ropes and hardware for mounting and adjustment.
- Mast guys – 2 sets of 3 guy ropes each and mounting hardware stabilizing the middle and top of the mast

Technical specifications

- Mast height..... 10 m (32,8')
- Mast weight..... 95 kg (210 lbs)
- Framework base size..... 290x290 mm (11,4"x11,4")
- Framework height 1,85 m (6')
- Minimum mounting area..... Equilateral triangle, side 13 m (42,6') / inscribed in a circle with a radius of 7,5 m (24,6').
- Maximum antenna weight..... 40 kg (88 lbs)
- Wind survivor (no ice) up to 120 km/h (74.56 mph)

Safety first!

Get acquainted with and observe strictly the requirements and instructions of your local legislation. Direct grounding of the mast structure is essential as protection from lightning strikes and static electricity. The entire earth-connection system must meet your local standard requirements.

Install the antenna mast in cloudless and quiet weather, when there is no danger of lightnings.

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Do not work alone! At least one helper must be engaged in the processes to provide mutual aid in case of hazardous situations. If you have doubts concerning the safety, please consult your dealer or engage a professional company for installation of your mast.

Prior to mast assembly, the site must be rendered safe and marked.

Use the needed personal safety means while installing the antenna mast.

Location

The antenna mast must be located in the clear, away from trees, power installations, buildings, other masts, antennas etc. Such objects can be dangerous and they can reduce the antenna efficiency or cause interference.

Your first steps

The first step to installation is to fully read this manual. Then, carefully inspect the shipping cartons for any physical damage. ACOM ships antenna masts in highly protected containers, but it cannot assure that mistreatment by shippers will not occur. If there is any such damage, notify your ACOM dealer immediately. Failure to do so may invalidate your warranty.

The ACOM production uses metric (European) system of measuring units. Make sure that you have got all necessary tools, such as sets of wrenches, screwdrivers, pliers etc. and they are in good shape.

2. ASSEMBLING.

An overall view of the antenna mast is shown in **Fig.1**.

For the installation, the site must be marked according to **Fig.1**. On the spots shown, strong supporting anchor points of high grade materials must be provided for fixing the framework base and mast guy ropes.

During installation all mechanical joints must be tightened securely with appropriate tools.

While lifting the mast with antenna attached to its top, the guy ropes should be stretched simultaneously so that the mast is not put to lateral pressures.

Assembly and lifting sequence

Place the mast framework on the preliminary prepared foundation consistent with framework's base (**Fig. 1**), and make sure that it is vertical by means of a plumb line. Provide four anchor points for framework's guy ropes (minimum 1.25 m from base center).

Attach the framework guy ropes to the upper framework plate and to the respective anchor points; stretch them tight and evenly by means of the turnbuckles (**Fig.2**).

After the framework is fixed firmly, attach to it the hand winch, upper pulley and lifter. Fix the rope to the hand winch following the winch instructions (supplied with mast) and pass it in the way as shown. Tighten the thread end to the middle framework plate using a washer and nut M8.

Place tube marked No10 (it will be mast's uppermost segment) into the framework's apertures and secure it with the supporting pin (**Fig. 3**). Mount on it the guy rope straps, mast tip, fixing bushing and relevant mounting hardware, as shown in Fig.3. Bolt M10x100 must pass through tube No10 and the hole at the tip. In such a way the tip is secured against turning.

Place the next tube (No 9) under the first one so that the lifter's fixing pin gets into the tube's fixing hole of tube No 10 (**Fig. 4**). In the same manner orientate the two tubes toward the lifter. After they are aligned,

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lower the winch so that lower tube and the lifter get in the pivot at the mast base, and the rope of the winch gets into the lifter pulley. By means of the winch lift the lifter together with the lower tube until the fixing pins enter the fixing holes.

Attach the upper guy ropes to the upper guy strap and orientate them toward the guy ropes anchor points. When you use a rotator, cut the tube at the tip so that you can mount the rotator. Pay attention that the antenna should be mounted on the fixing bushing as close as possible and by no means more than 400 mm from it including rotator (**Fig. 3**).

Mount your antenna on the so orientated mast tip. The antenna must be fixed at the desired azimuth as precisely as possible. No azimuth corrections can be made later.

By means of the hand winch the mast lifting is continuing until the next hole for the support pin passes through the upper strap. Insert the support pin into it, let the mast settle on it, and remove the lifter.

Insert the two M10x100 bolts into the respective holes (**Fig. 5**) in order to fix the two tubes together. Tighten well both nuts, paying attention not to overdo and damage the bolts threads. After the bolts are placed, put the next tube (No 8) in the way described above.

Place like-wise tubes No 7, No 6, and No 5. When you start lifting tube No 5 and remove the securing pin from tube No 6, put bolt M10x100 into the hole so that it supports the lower strap as shown in **Fig. 5**.

Attach the lower set of guy ropes to the strap and orientate them toward the anchor points.

After you have mounted the lower strap and the guy ropes, put the two M10x100 bolts that fix tube No 5 and tube No 6 together.

Continue mounting of tubes No 4, No 3 and No 2 similarly as described above.

After that place the last tube (No 1), remove the support pin from tube No 2, and lower the mast until the lifter settles on the base. Then mount the respective fixtures as shown in **Fig. 6**.

Adjust all mast guy ropes so that the mast is vertical, remove the upper pulley, rope and winch and store them to prevent them from damage and corrosion.

Dismantling of the mast is carried out in reverse sequence of the described above.

3. OPERATION IN NORMAL CONDITIONS

No other structures should be attached to mast and antenna.

4. OPERATION IN EXTREME CONDITIONS

No mast operation is allowed in conditions beyond the technical characteristics.

If severe aggravation of operating conditions is anticipated, measures should be taken to prevent accidents in case of structure crash, including partial or full folding or uninstalling.

5. MAINTENANCE

In order to keep the structure in good technical shape and avoid faults during operation, annual maintenance is required.

The minimum maintenance includes:

- Inspection of all structure parts for absence of faults and deformations.
- Inspection of all guy ropes and re-adjustment of their strain if necessary.

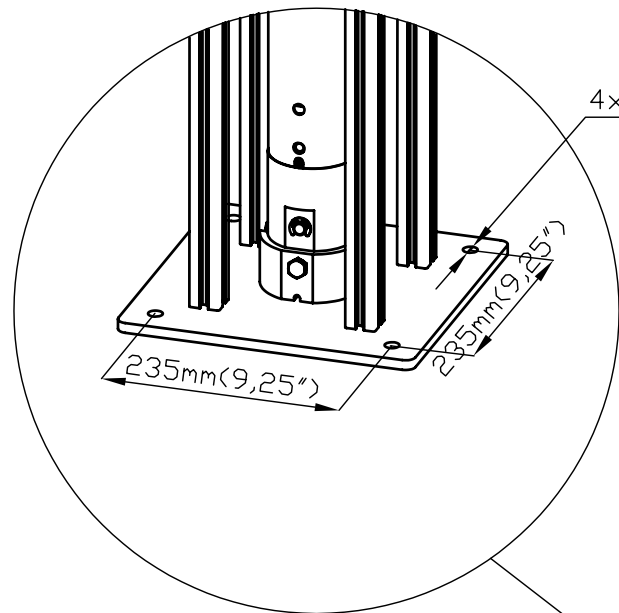
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- Inspection of the framework's base and all anchoring elements.
- Check-up of the grounding circuit electric and mechanic parameters.

Irregularities must also be sought for in the following cases:

- After experiencing extreme conditions.
- After performing in the close proximity of repair, construction or other works that could have caused deliberately or inadvertently damage to the structure.

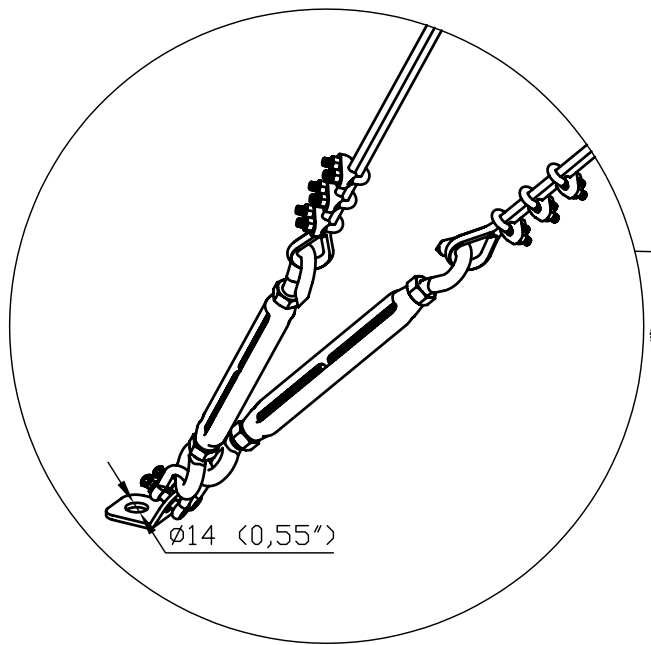
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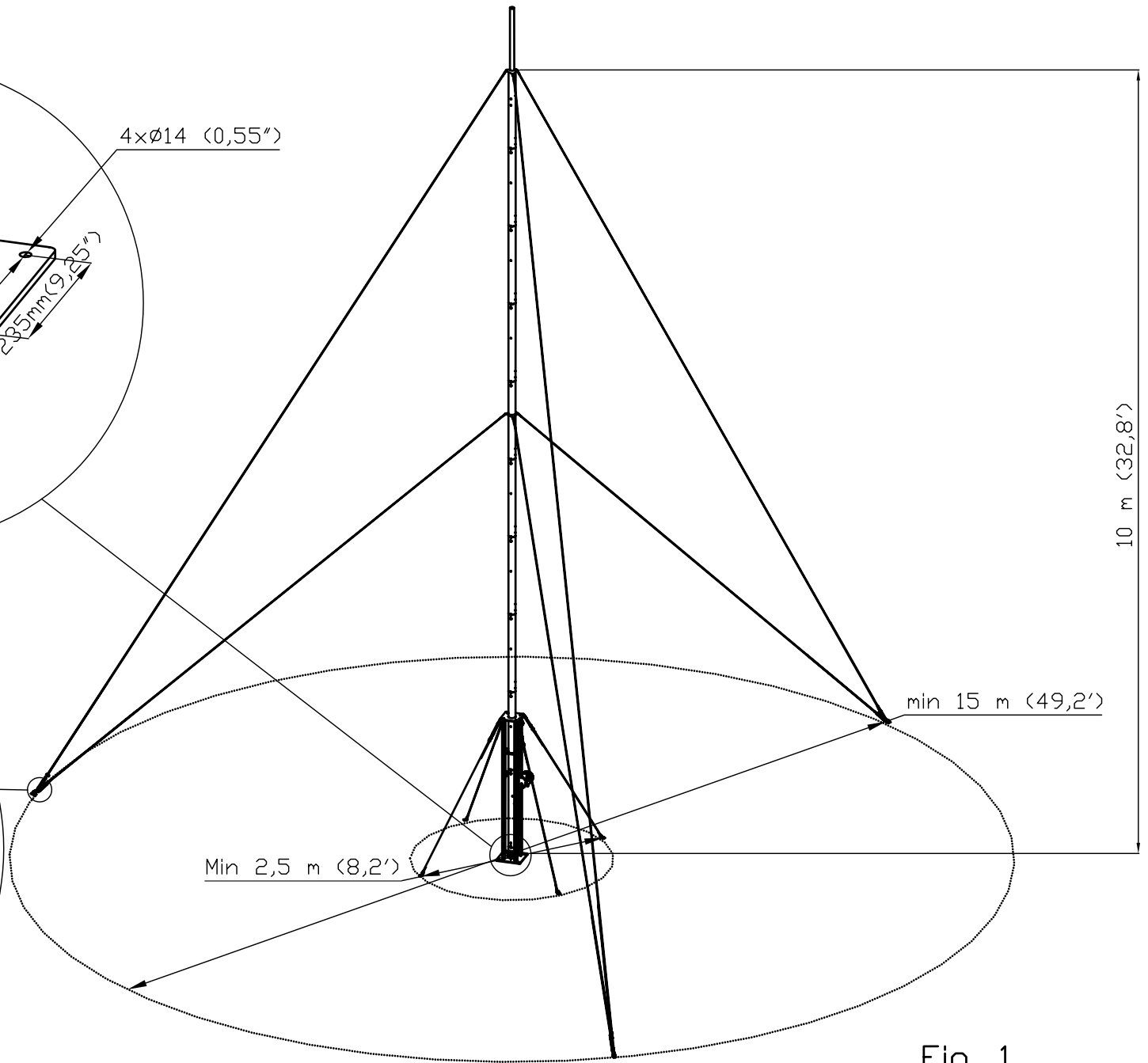
4xØ14 (0,55")

235mm (9,25")

235mm (9,25")



Ø14 (0,55")



10 m (32,8')

min 15 m (49,2')

Min 2,5 m (8,2')

Fig. 1

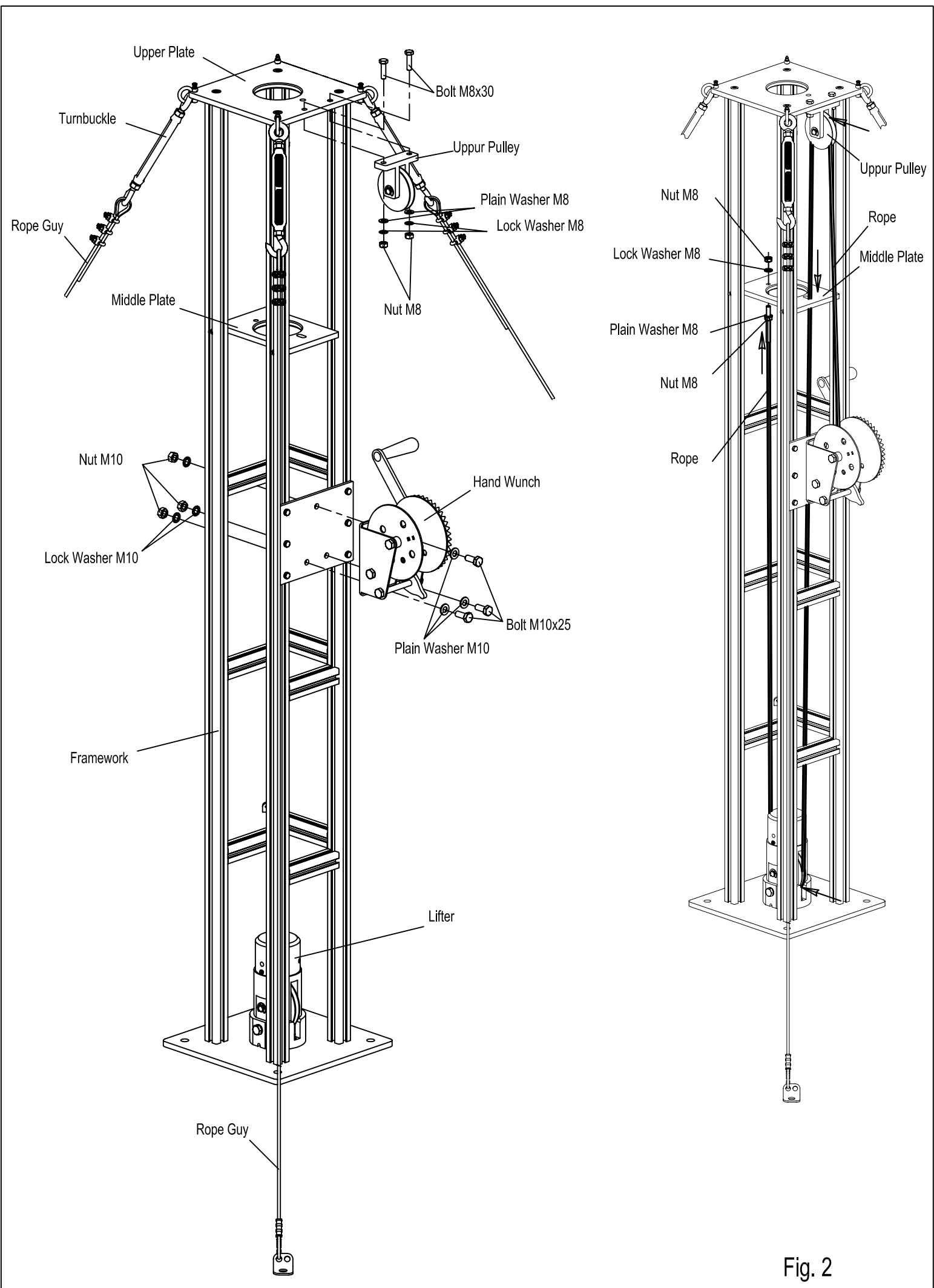


Fig. 2

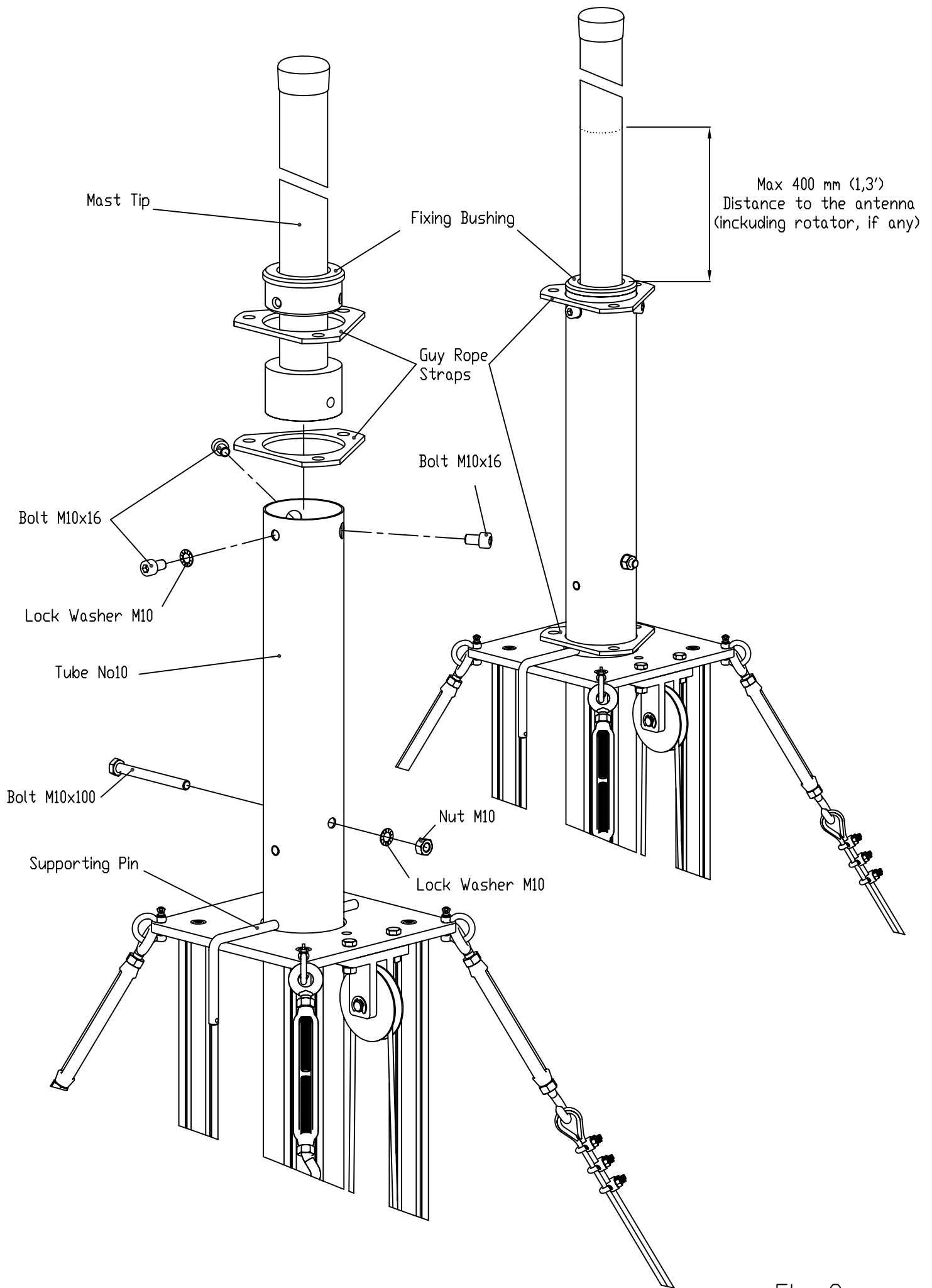


Fig. 3

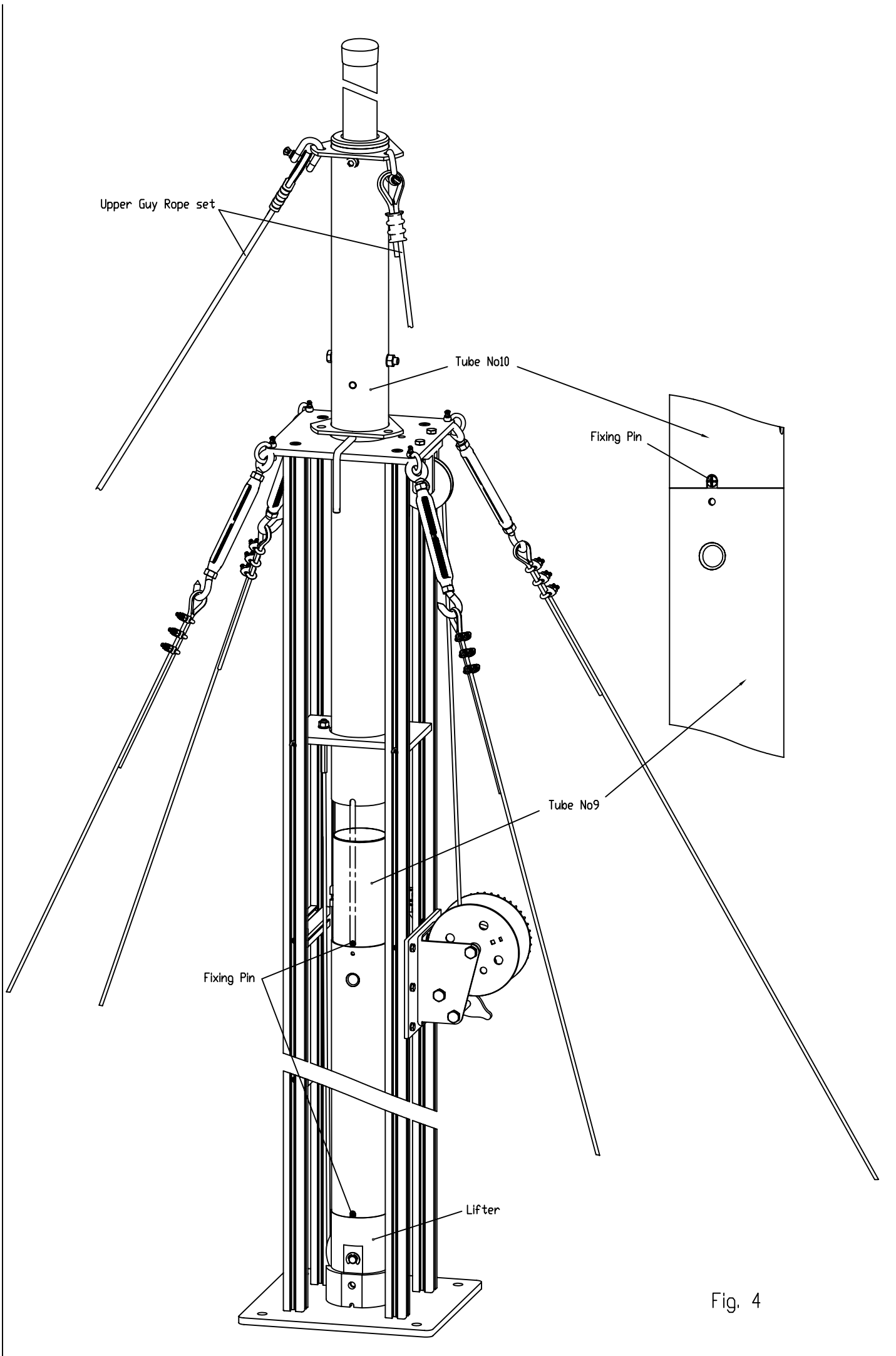


Fig. 4

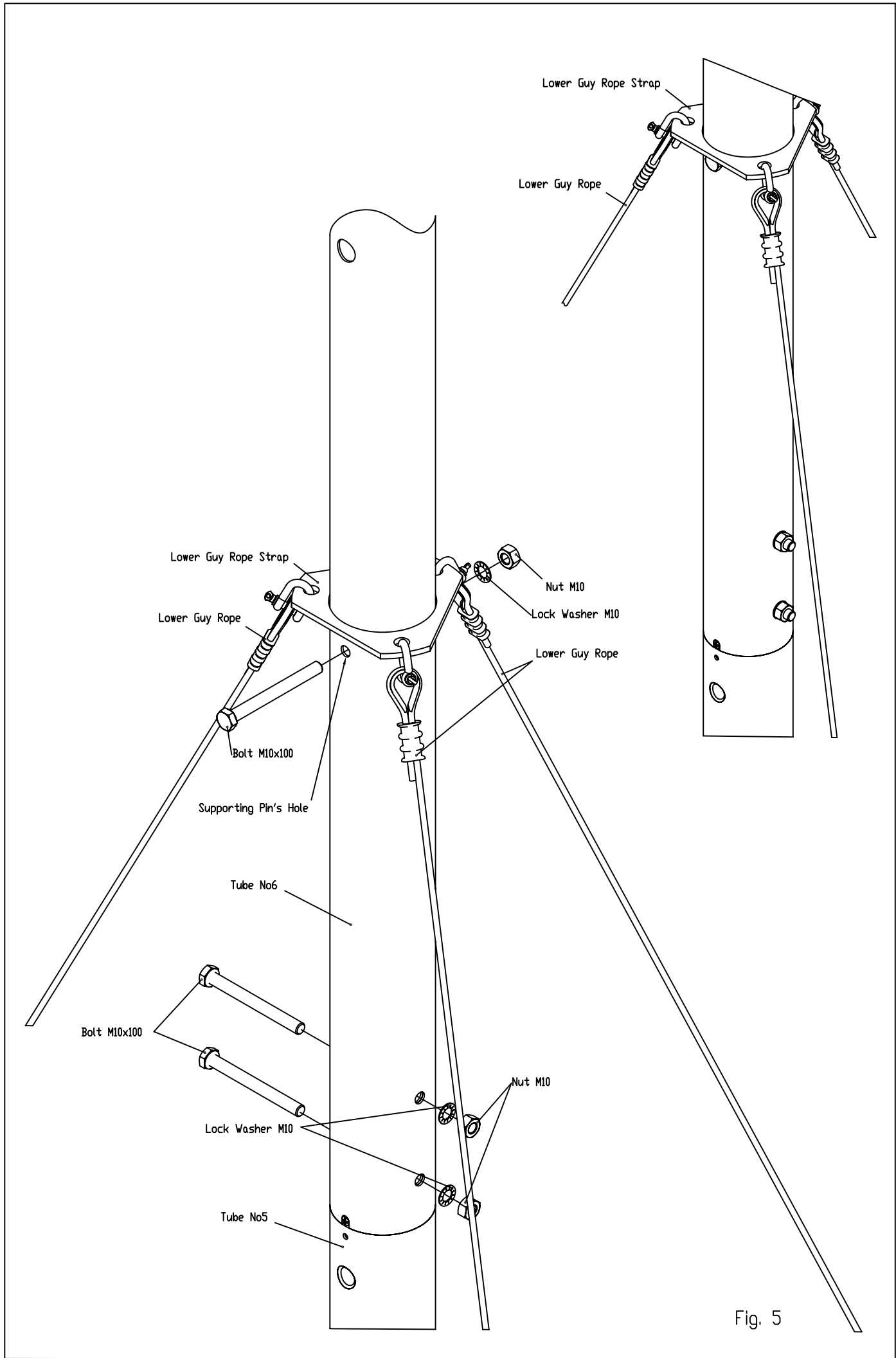


Fig. 5

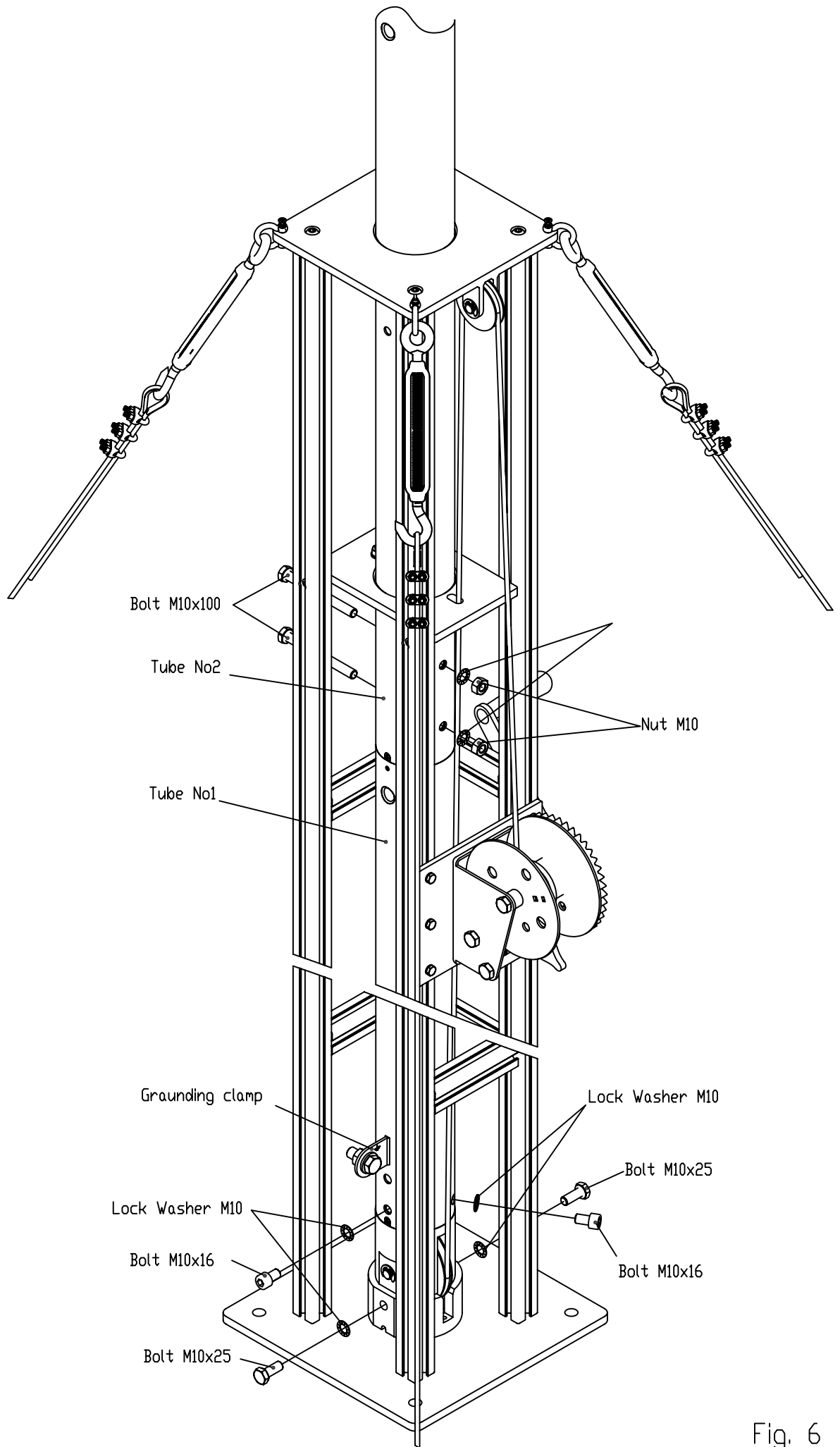


Fig. 6