

6, 9, 12, & 15 metre TELOMASTS

Installation Instructions

Warning: Telomast installation should not be undertaken by inexperienced persons. It is recommended that the mast be installed by a suitably qualified tradesperson. Safety precautions should be observed, including Working at Heights and the use of PPE. Beware of overhead electric cables. Local government authorities may require the submission of an application for building approval and/or a Safe Work Method Statement (SWMS) before installation can commence.

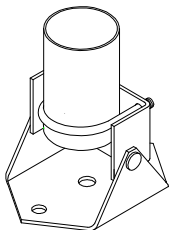


fig 2A sloping foot mount

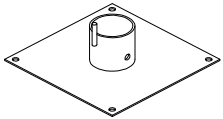


fig 2B level foot

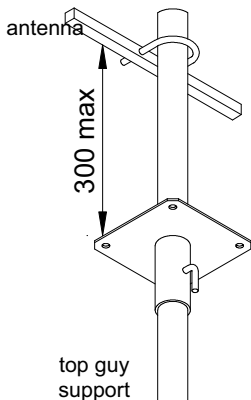


fig 4 antenna position

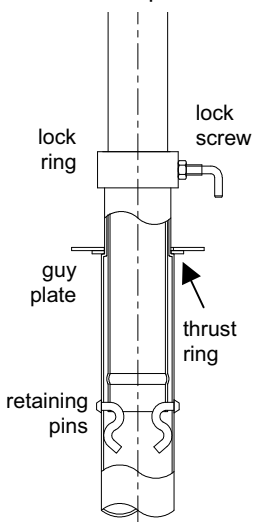


fig 6 joint detail

1. Select the site. For installation on a level surface, the staying diagram (fig 1) indicates the space required. For installation on pitched roofs, special guy lengths and loading conditions will apply. The base and guy anchor points must be capable of supporting the design loads from the mast. For standard installations the base and guy anchor loads are specified in table 2. Foot mounts are available for sloping (fig 2A) and level (fig 2B) surfaces.

2. Securely install the foot mount or base plate to the mast base fixing point. Attach turnbuckles to all guy anchor points. Note: to avoid possible over-stressing of the mast structure, it is important that the guy anchors be located no closer to the mast base than specified in figure 1.

3. Remove shipping pin (fig 3) from bottom of mast and the small screw from the top lock rings. Slide the top guy support and the top guy plate off the mast and replace them in opposite order. Screw the lock screws (from the accessory bag) into the lock rings, making sure that the lock screw just protrudes into the top hole in each mast section, except the top section which will have its lock ring tightened 300mm below antenna position (fig 4). Install thimbles in the guy plates and attach the guy wires with wire rope grips. Three wire rope grips should be used at each end of the guy wire. Fit the bridge of the wire rope grip to the loaded part of the rope (fig 7).

4. Stand mast in foot mount or base plate. Attach bottom set of guy wires to turnbuckles on anchors. Tighten and check for vertical with spirit level (fig 5).

5. Using an elevated work platform, attach antenna and feeder cable and line up the guy plates so that all fittings are facing in the same direction.

6. Extend top section of mast until stop is reached and tighten lock screw to hold it there. Extend next section of mast a few inches until the holes for the retaining pins are visible, clamp with lock screw, and insert the two retaining pins. Release lock screw holding the top section and allow it to drop down onto the retaining pins, then turn it until the notches engage on the pins (fig 6). Retighten the lock screw. Continue as above until mast is fully extended.

7. Attach the guy wires at the correct anchor points, but do not tighten fully. Turn the mast until antenna gives best results, and then tighten all guy wires evenly, ensuring that the mast remains straight and vertical. Guy pretension is to be 10% of the specified guy minimum breaking force. For the recommended 7/0.90 G380 guying strand, pretension is to be 140N. Pretension may be checked by attaching the lifting hook of a suitable spring balance to the lower guy thimble and applying sufficient force to pull the lower guy thimble out of contact with the lower anchor. For added security, wire turnbuckles to each other (fig 7).

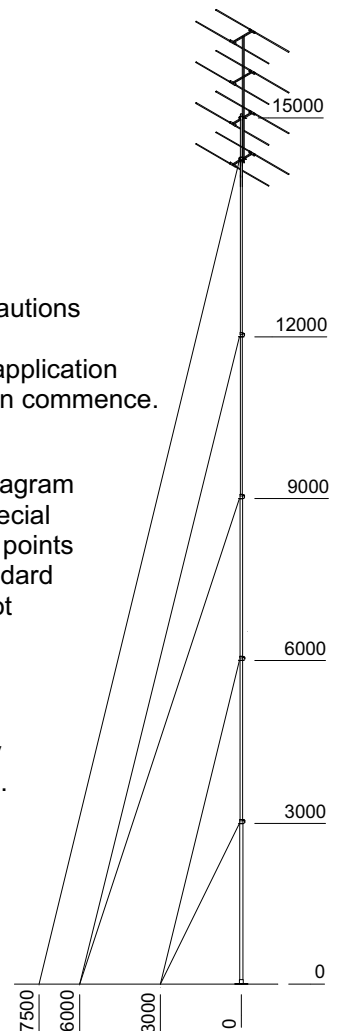


fig 1 15m Telomast arrangement

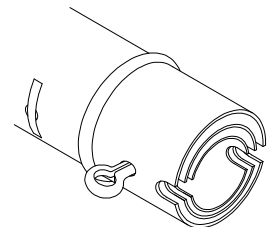


fig 3 shipping pin

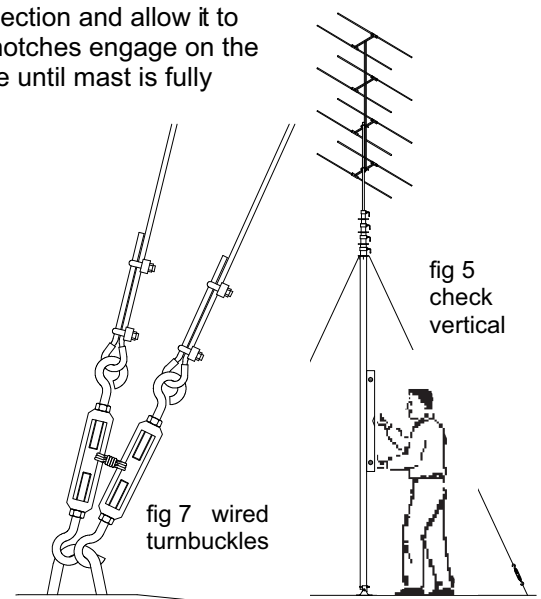


fig 5 check vertical

fig 7 wired turnbuckles

Telomast Maximum Design Loads

Hills Telomast has been designed to conform to the requirements of the relevant Australian Standards:

- AS 1170.1 1989 SAA Loading Code Part 1: Dead and live loads and load combinations
- AS 4055-1992 Wind loads for housing
- AS 1170.2-1989 SAA Loading Code Part 2: Wind loads
- AS 4100-1990 Steel structures
- AS/NZ 4600-1996 Cold-formed steel structures

Rationalised gust wind speeds have been used to simplify the determination of the maximum allowable head loads (antenna projected wind area and weight). Calculating the projected area of an antenna facing into the wind requires thinking of the three-dimensional shape as a two-dimensional surface. The Projected Area of an antenna is calculated on the wind direction impacting the front of the antenna surface.

Maximum Permissible Head Loading

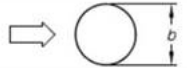
for wind classifications up to **W41**: **Maximum antenna $C_d \cdot Area^\dagger$ 0.30 m²**

Table 1. Typical Antenna Head Loadings:

Hills Part#	Antenna	Projected Area	$C_d \cdot Area^\dagger$	Weight
FB601308	CA16 VHF Antenna	0.23 m ²	0.28 m ²	6.2 kg
01DV314L	Band 3 VHF Yagi Antenna	0.13 m ²	0.16 m ²	3.8 kg
FB607083	TMX34 UHF Antenna	0.08 m ²	0.10 m ²	1.8 kg
01BUWX20L	Band 4 / 5 UHF Yagi Antenna	0.024 m ²	0.028 m ²	1.1 kg
FB608519	OMX400plus VHF/UHF Antenna	0.20 m ²	0.24 m ²	6.5 kg

[†] $C_d \cdot Area$ is the sum of the projected areas of each of the components of the antenna multiplied by a drag force coefficient in accordance with AS1170.2

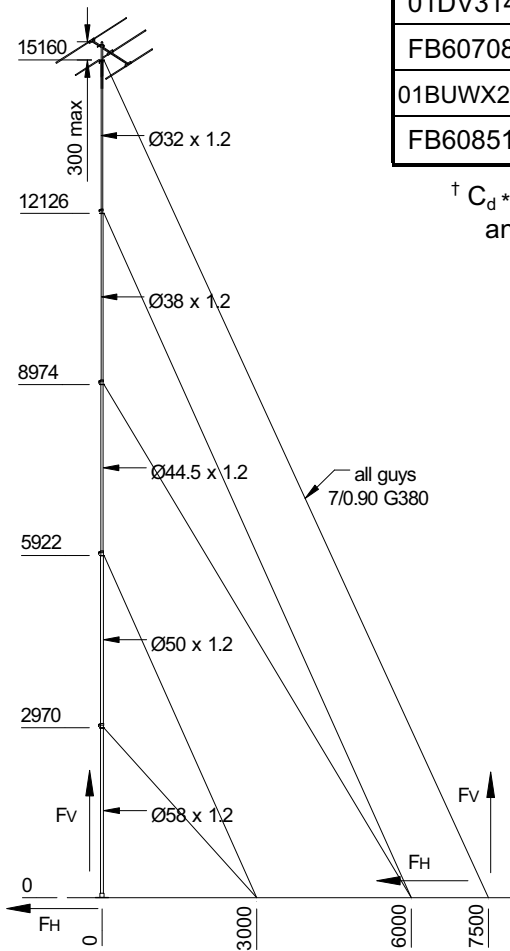
Drag Force Coefficients (C_d) for Rounded Cylindrical Shapes

Cross-sectional shape	Description	Drag force coefficient (C_d)
		$bV_{des,0} < 4m^2/s$
	Cylindrical	1.2

Extract AS1170.2

Table 2. Worst case ultimate limit state loads at mast base and guy anchor points resulting from maximum permissible head loading:

Load Direction	At 3m Guy Anchor		At 6m Guy Anchor		At 7.5m Guy Anchor	At Mast Base
	Mast Section E	Mast Section D	Mast Section C	Mast Section B	Mast Section A	
F_H	0.994kN	0.63kN	0.78kN	0.62kN	0.62kN	0.15kN
F_V	0.984kN	1.24kN	1.16kN	1.25kN	1.25kN	6.24kN



It is the responsibility of the installer to ensure that any structure to which the Telomast is fixed, as well as the fixing devices, are capable of supporting the design loads. The maximum ultimate limit state loads at the mast base and guy anchor points for the worst case loading situation are shown in the table above. The loadings are applicable to three and four way guying arrangements.

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