

Choosing the Right Mast for your Application

Presented by
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Presentation Outline

- What is a Telescoping Mast?
- Why do I Need One?
- How do I select the Correct One?
- What Accessories do I Need?
- What About Operator Safety?

Pneumatic Telescoping Mast Basics



- Consists of a series of tubes nested one inside the other
- Air pressure is applied to the bottom port, and the tubes begin to extend
- Non-Locking Masts require constant air pressure to remain extended
- Locking Masts do not require any air pressure after being extended and locked
- Release of air pressure allows mast to retract by gravity

Telescoping Mast Applications



- Antennas - Omni and Directional (Wireless, Broadcast, Public Safety, Military)
- Cameras and Surveillance Suites (Security, Public Safety, Military)
- Test Equipment (Meteorological)
- Lighting (Public Safety, Military)

Application #1 – Light Duty



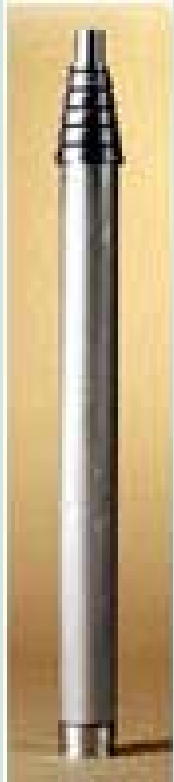
- **User Info:** Radio Broadcaster, occasional use, limited budget
- **Mast Height:** 25'
- **Payload:** yagi antenna (5 lbs), 30' RG214 cable (10 lbs)
- **Vehicle:** SUV or Minivan
- **Suggested Solution:** Manually-Raised Mast

Solution: Manually Raised Mast



- Standard model 6-25
- Payload capacity is 20 lbs
- Free-standing (no guying required)
- Quick lock/release collars to extend mast manually by pushing up sections and fixing them in position
- Mounting is a "drive on" plate with reinforced vertical holding tube
- Vehicle mounting kit is also available

Application #2 – Medium (Standard) Duty



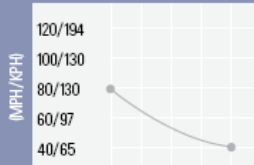

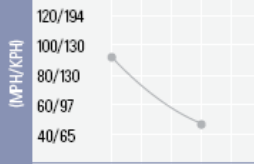
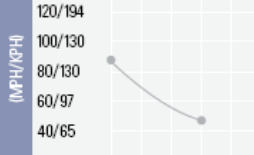
- **User Info:** Radio Broadcaster, occasional use, moderate budget
- **Mast Height:** 34'
- **Payload:** yagi antenna (5 lbs), 30' RG214 cable (10 lbs)
- **Vehicle:** Winnebago
- **Mast Location:** Internal Mount
- **Suggested Solution:** Standard duty Pneumatically-Raised Non-Locking Mast

Standard Duty N.L. Pneumatic Masts



- Available in Non-Locking Only
- Models 5-20, 6-27, 7-34, 8-30
- 20 PSI max
- Light duty seals okay for occasional use
- Payload capacities range from 40 to 100 lbs
- Most economical group of the pneumatic masts

Standard Duty N.L. Application Data

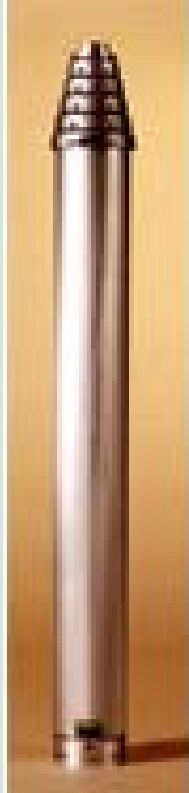
	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Max. Operating Pressure	SURVIVAL WIND SPEED UNGUYED*
									2/1.2 4/1.4 6/1.6 8/1.7 10/1.9
5-20	70 lb (32 kg)	20' (6.1 m)	5' 4" (1.6 m)	45 lb (21 kg)	6	5-2.5" (127-64 mm)	Non-locking	20 PSIG (1.4 bar)	
6-27	40 lb (18 kg)	26' 10" (8.2 m)	6' 0" (1.8 m)	54 lb (25 kg)	7	5-2" (127-51 mm)	Non-locking	20 PSIG (1.4 bar)	
7-34	40 lb (18 kg)	33' 10" (10.3 m)	7' 0" (2.1 m)	67 lb (31 kg)	7	5-2" (127-51 mm)	Non-locking	20 PSIG (1.4 bar)	
8-30	100 lb (45 kg)	29' 11" (9.1 m)	8' 0" (2.4 m)	64 lb (29 kg)	5	5-3" (127-76 mm)	Non-locking	20 PSIG (1.4 bar)	

Circular payload area with base 6" (150 mm) above mast top. Shown in Sq. Ft./Sq. m

- Note permissible payload sail area vs anticipated operational wind speed

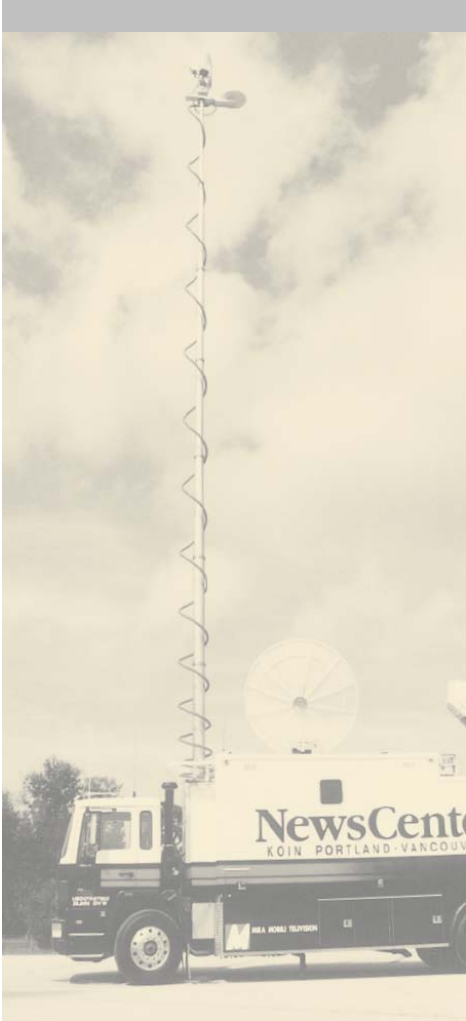
* Unguyed survival wind speeds are for reference only. Consult factory for specific survival and wind speed guidelines based on your requirements.

Application # 3 – Heavy Duty



- **User Info:** Television Broadcaster, heavy use, large budget
- **Mast Height:** 56'
- **Payload:** 2' m/w antenna, camera, lights, pan & tilt positioners, boom (75 lbs), 100' various cables (75 lbs)
- **Vehicle:** Ford van or "cab over" vehicle
- **Mast Location:** Internal Mount
- **Suggested Solution:** Heavy duty Pneumatically-Raised Non-Locking Mast

Heavy Duty N.L. Pneumatic Masts



- Non-Locking Models 6-25, 7-30, 7-42, 8.5-48, 8.5-52, 9.5-56
- Locking Models also available
- 35 PSI Max
- Heavy Duty seals okay for severe service
- Payload capacities range from 100-225 lbs

Heavy Duty N.L. Mast Application Data

	Payload Capacity	Extended Height	Retracted Height	Approx. Mast Weight	No. of Sections	Tube Diameter / Range	Collar Type	Max. Operating Pressure	Survival Wind Speed					
									UNDIFIED					
									2/2	4/4	6/6	8/8	9/9	
6-25	150 lb (68 kg)	25' (7.6 m)	5' 10" (1.8 m)	110 lb (50 kg)	6	6.75-3" (171-76 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65
7-30	150 lb (68 kg)	29' 1" (8.9 m)	6' 8" (2 m)	125 lb (57 kg)	6	6.75-3" (171-76 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65
7-42	150 lb (68 kg)	41' 2" (12.5 m)	7' 1" (2.1 m)	235 lb (107 kg)	9	9-3" (228-76 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65
8.5-48	200 lb (90 kg)	48' (14.6 m)	8' 6" (2.6 m)	275 lb (125 kg)	8	9-3.75" (228-95 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65
8.5-52	100 lb (45 kg)	52' (15.8 m)	8' 4" (2.5 m)	266 lb (121 kg)	9	9-3" (228-76 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65
9.5-56	200 lb (90 kg)	56' 2" (17 m)	9' 6" (2.9 m)	296 lb (135 kg)	8	9-3.75" (228-95 mm)	Non-locking	35 PSIG (2.4 bar)	IMPH/PH	120/194	100/160	80/130	60/97	40/65

* Unguyed survival wind speeds are for reference only. Consult factory for specific survival and wind speed guidelines based on your requirements.

Important Factors:

- Payload sail area
- Payload stability requirements
- Payload + cables total weight
- Mast payload capacity
- Mast retracted height
- Mast weight
- Mast extension duration
- Mast duty cycle

Where to Mount the Mast



Don't:

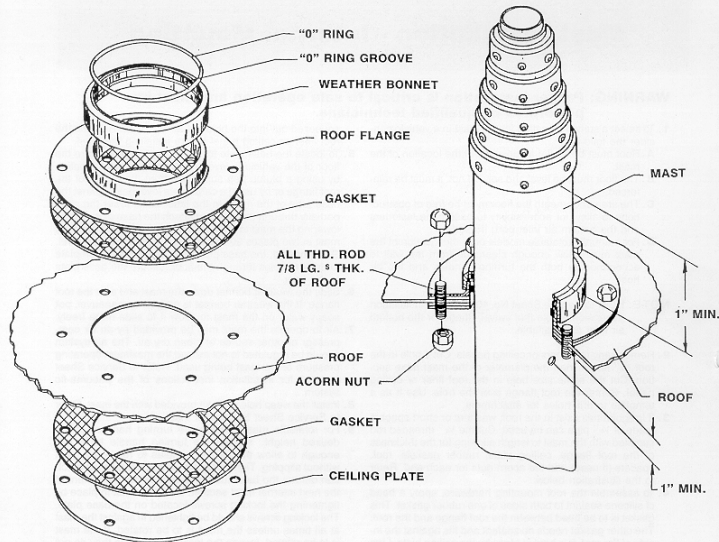
- Mount it anywhere near the front of the vehicle, particularly behind the driver

Do:

- Mount it as far back in the vehicle as possible, ideally behind the rear axle where a "well" can be fabricated to lower the retracted mast roof profile if needed

How to Mount the Mast

- Typical broadcast applications use an internally mounted mast
- Mast Base plate is bolted to the floor
- A hole is cut in the roof for the mast roof flange – sometimes plywood is required for additional reinforcing in light van roof deck



Pneumatic Systems



- Kits are available consisting of compressor and valving, or valving only
- Available with or without air tanks
- Compressors 1/8 HP through 3/4 HP
- Voltages 120 and 240 VAC, 12 and 24 VDC

Payload Cable Management



- Flexible Conduit to guide cabling to payload
- Can only be used with non-locking masts
- Available in ID ranging from 1/2" – 1-1/4"
- Lengths ranging from 30' – 100'
- Formula is 2X Difference between mast extended and retracted heights

Pan & Tilt Positioner



- For remotely aligning microwave antennas, cameras, lighting, etc
- Available in single speed and variable speed
- Voltage is 115 VAC
- Payload capacity is 90 lbs nominal

Mast Overhead Safety System



- Overhead AC Voltage (EMF) detection Starts at 110 VAC 60 Hz
- Anti-Collision SONAR Detects objects min 1mm diameter, 8 Feet Away
- Tilt Warning Sensor Warns if Mast Tilts Greater than 10 Degrees
- Unit Automatically Retracts Mast if any Dangerous Conditions are Sensed
- Sensing Sensitivity is Factory-Set
- Lookup Light Illuminates Objects Immediately Above Mast



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