

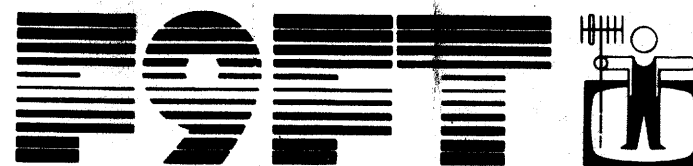
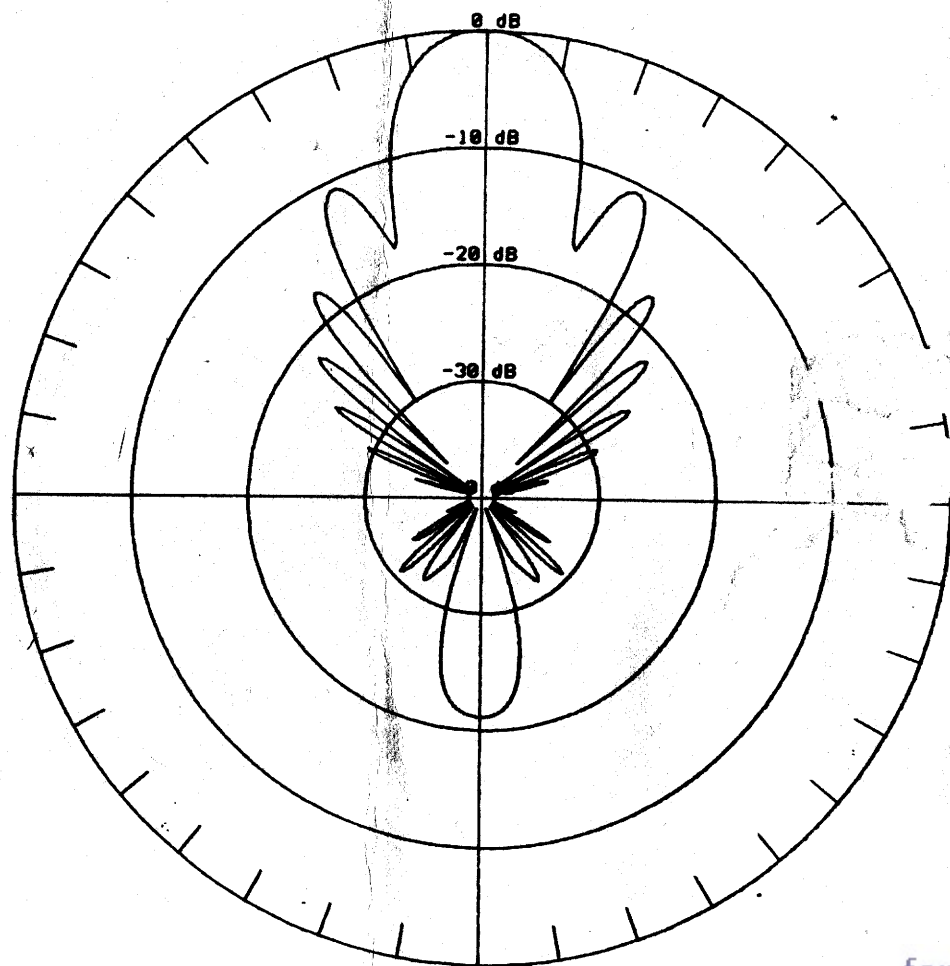
ANTENNES TONNA S.A. 132 Boulevard Dauphinot 51100 REIMS FRANCE

DIAGRAMME DE RAYONNEMENT CALCULE: 23 ELEMENTS LONG YAGI

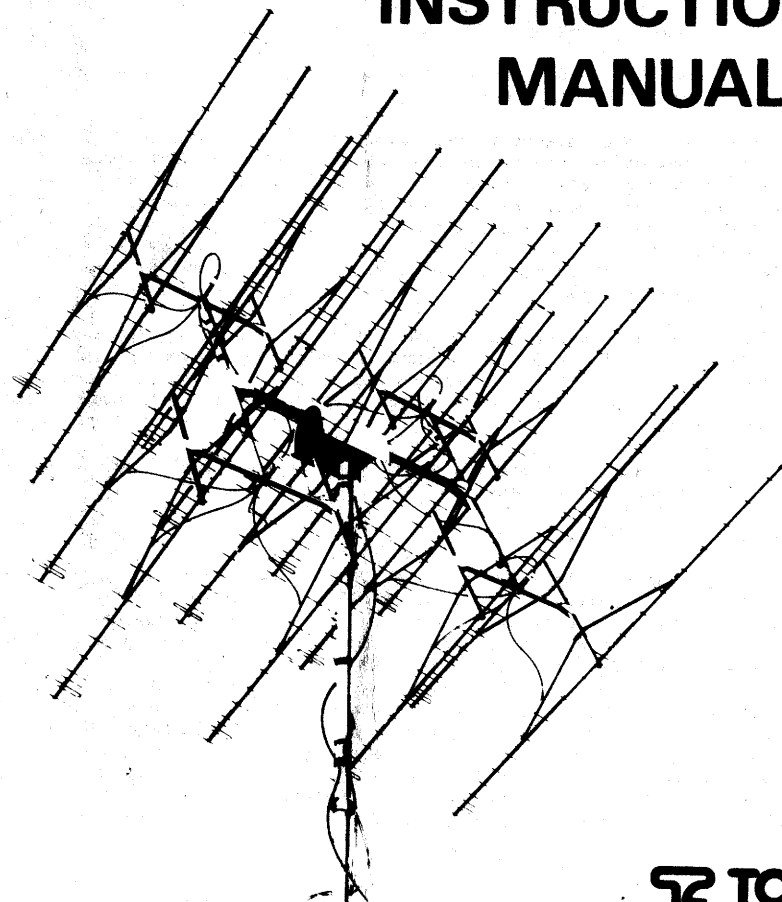
FREQUENCE: 1296.0 MHz PLAN: E

GAIN CALCULE : 18.49 dB iso RAPPORT ARR./AU.: -21.07 dB

ANGLE D'OUVERTURE A -3dB : 2 x 10.05 deg.



23 éléments 1296 MHz INSTRUCTION MANUAL



for free by
IW1AU web site

ASSEMBLY INSTRUCTIONS

1296 MHz 23 ELEMENT ANTENNA

IMPORTANT

When opening the package, check and compare all parts and hardware with enclosed part list.

ELEMENT ASSEMBLY

For best efficiency, it is necessary to keep the elements at some distance from the boom (refer to medalion #2).

- 1) Place element in stand-off (#11 on general antenna diagram). With a small hammer, gently knock the free tip of the element, to thrust the element through the hole (2A and 2B).
- 2) Slide the element until proper centering is reached (2C). Operation must be carried out with utmost care, to avoid unwanted bending of elements.

ANTENNA ASSEMBLY

The red end indicates the front of the antenna, the black end, the rear. Directors are counted up from rear to front.

- 1) Boom assembly: join the two boom sections together (medalion #3). Use M5 screw #6 and clamps #9 and #10.

- 2) Element to boom assembly: each element is marked with a color (see general diagram and color code in element table). Refer to medalion #3 for proper mounting of stand-off on boom. Make sure the bump of the stand-off correctly fits into the positioning hole. CAUTION: The reflector is the longest element; each successive director is either the same, or shorter than the prior director. Make sure all directors are correctly mounted by checking the color order, according to color code. If the elements are not properly mounted, performance of the antenna may be drastically reduced.

- 3) Driven element assembly: A short piece of coax cable (RG213/U) is factory mounted and cut to proper length for stacking purposes (see "stacking" clause, further in text). Do not change this length! Run the coax through the 11 mm (7/16") hole and attach the driven element with the special screws #7 (medalion #1).

- 4) Bracket assembly: mount the supporting bracket #5 on boom, using screw #8, and clamps #9 and #10 (medalion #5).

ATTACHING THE FEED LINE

A very high quality, professional type, coax cable must be used. Remember the RG213/U exhibits a loss of 29 dB/100 m (8.8 dB/100 feet) at 1300 MHz. If better coaxial cable is available, use it. A type N connector (UG21B/U) must be mounted at the end of the short length of coax, running out of the driven element. CAUTION: the connector must be mounted ONLY ONCE the coax line has been run through the 11 mm (7/16") mounting hole!! For stacking purposes, this length is an integer number of electrical half-wavelengths, and is the same on all manufactured antennas; make sure not to cut this length!!

For proper assembly of the coax connector, refer to connector mounting instructions, for the UG21B/U. On the main feed-line (RG213/U or better), a type N female connector (UG23B/U) must be used. If bigger coax line is used, use a special connector matched to this cable, with same nozzle as UG23B/U.

MOUNTING OF ANTENNA TO MAST

CAUTION: no piece of mast or tubing must run through the element plane; performance may be reduced! It is recommended to mount the antenna on top of the mast, or, if not possible, along the mast using an auxiliary supporting mast, about 1.5 wavelength long minimum, and also to keep the antenna at least 1.5 wavelength (35 cm, 14") away from nearest body. Masts up to 54 mm (2" 1/8) diameter are accepted by the attaching clamp set (medalion #6).

It is recommended to keep the antenna in direction of dominant winds when not in use.

STACKING

To simplify stacking set-up, the short length of coaxial cable is part of the phasing harness itself. In order to put the antennas in phase, make sure the plastic injection studs, on the driven element case, ALL FACE to the SAME SIDE.

A special quarter wave power splitter is available in two versions:
Two antenna stacking: two 50 Ohm inputs, one 50 Ohm output: part # 29223.
Four antenna stacking: four 50 Ohm inputs, one 50 Ohm output: part # 29423.

Combination of those splitters allows phasing of 8, 16, or more antennas.

Optimum spacing distance is three wavelengths (70 cm, 27"), in both planes.

A stacking kit, including four antennas part # 20623, a four port power splitter part # 29423 and a stacking frame part # 20016, is available complete: part # 20696.

PART LIST

Diagram #	Description	Quantity
1	Rear boom section	1
2	Front boom section	1
3	Black plastic cap (rear)	2
4	Red plastic cap (front)	2
5	Supporting bracket	1
6	Screw M5x25	1
7	Driven element mounting screw	2
8	Screw M5x40	2
9	Short clamp, smooth hole	5
10	Short clamp, tapped hole (M5)	3
11	Element supporting stand-off	22
12	Mounting U-clamp, M6 thread	1
13	Tightening clamp	2
14	"Alligator" clamp	1
15	Nut M6	2

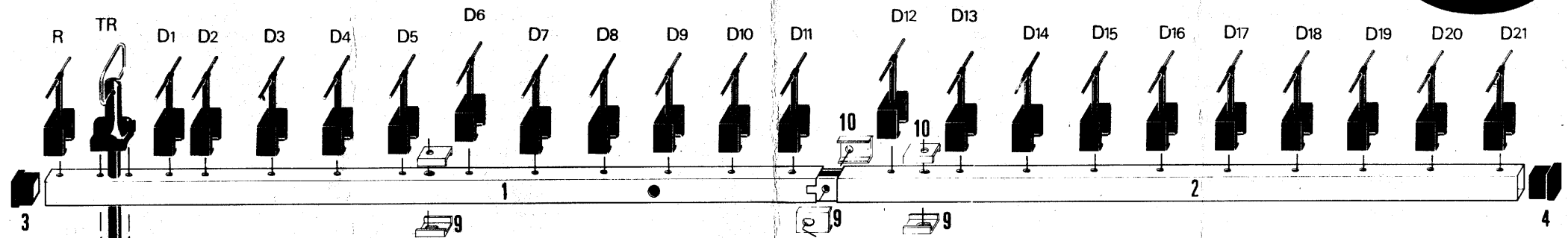
BAG CONTENTS

First bag contains all the elements, the 2 driven element mounting screws and the N connector (UG21B/U).

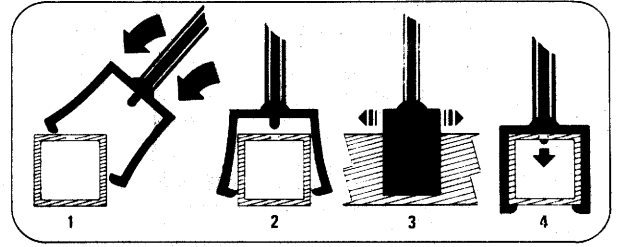
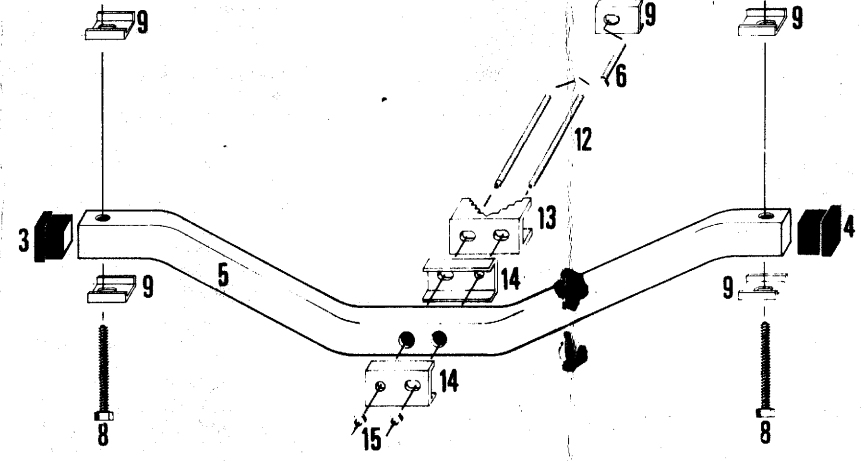
Second bag contains all the element stand-offs, 22 in total.

Third bag contains mast mounting set (hardware parts #12, 13, 14 and 15).

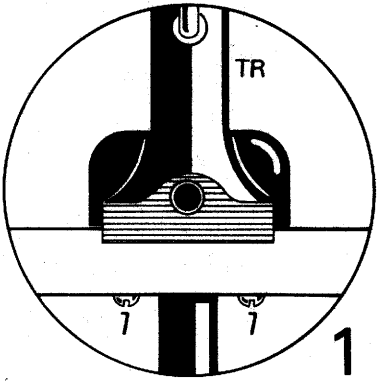
SIMPLIFIED MOUNTING DIAGRAM
not to scale



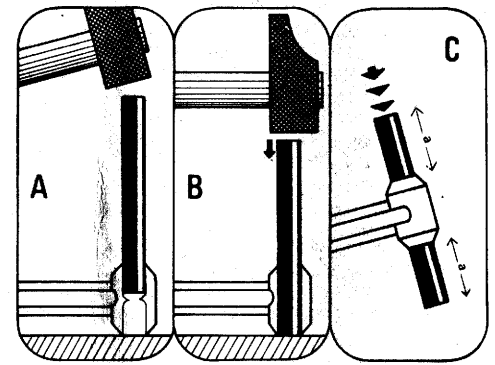
SCHEMA DE MONTAGE SIMPLIFIE
non à l'échelle



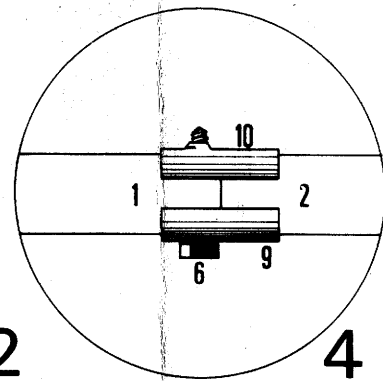
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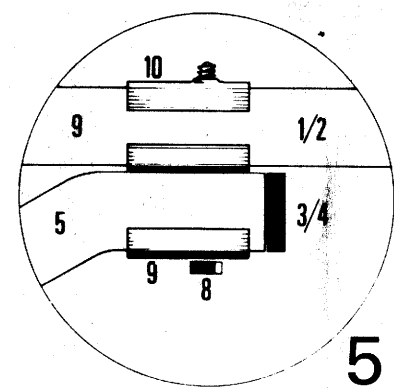
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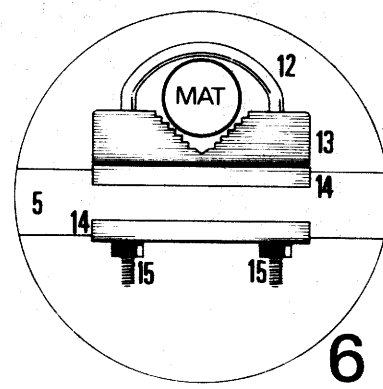
2



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5



6

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ACCESSORY

Type N 50 Ohm male connector UG21B/U

ELEMENT ORDER COLOR CODE

Element #	Color code
Reflector	Black
Driven element	no color
Director 1	Brown
Director 2	Red
Director 3	Orange
Director 4	Yellow
Director 5	Green
Director 6	Blue
Director 7	Violet
Director 8 thru 21	White

NOTE: The company ANTENNES TONNA S.A. reserves for itself the right for modifying its products without notice.

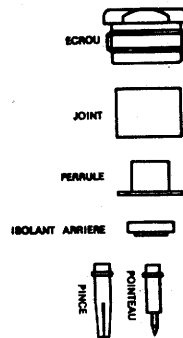
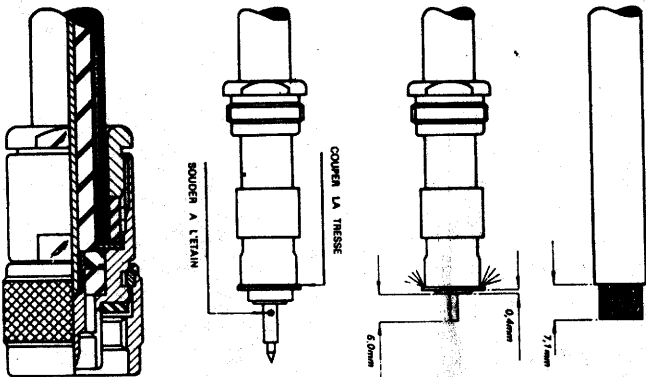


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