



Jaybeam Limited

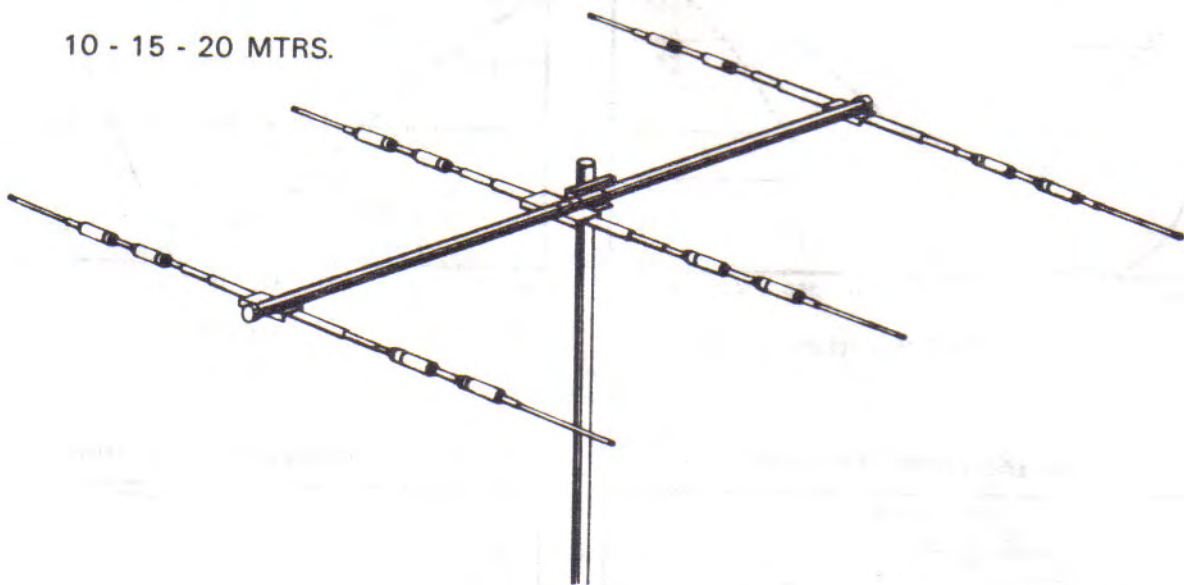
**Assembly &
Installation
Instructions**

**Antennas & Electronics
Division**

JAYBEAM TRIBANDER

Model TB3

10 - 15 - 20 MTRS.



IMPORTANT — Read this Instruction Manual completely before assembling the Antenna

Description

Jaybeam's TB3 Triband three element yagi antenna offers superb performance with high gain and excellent back to front ratio on all three bands 10, 15 and 20 metres. Broad bandwidth with very low VSWR makes the TB3 the ideal antenna for use with equipment using valve or solid state output stages.

Quality workmanship by skilled Jaybeam engineers using highly selective materials and modern manufacturing techniques, combined with the overall rugged construction, gives the no-compromise TB3 the edge over other triband antennas and makes it the ideal antenna for any location.

These assembly instructions have been carefully prepared to cater for all aspects of amateur operation on 10 - 15 and 20 metres and offer a choice of three separate settings for individual preference of optimisation.

Broadband Settings

The broadband settings give superb overall performance with extremely low VSWR over the entire band width of each band and is the ideal setting for the operator who wishes to use all modes.

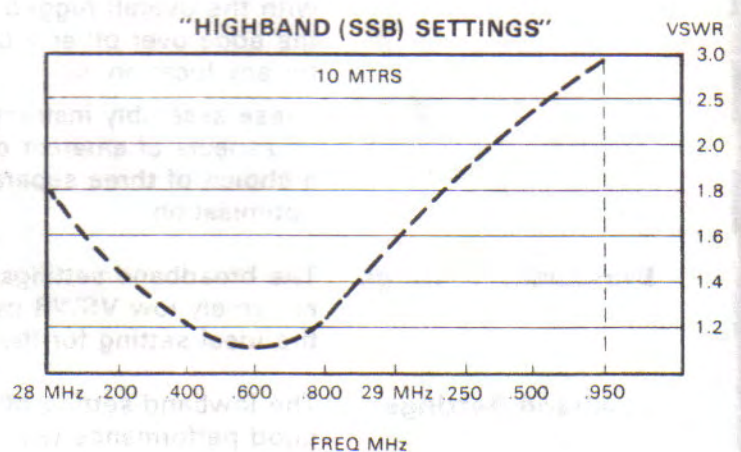
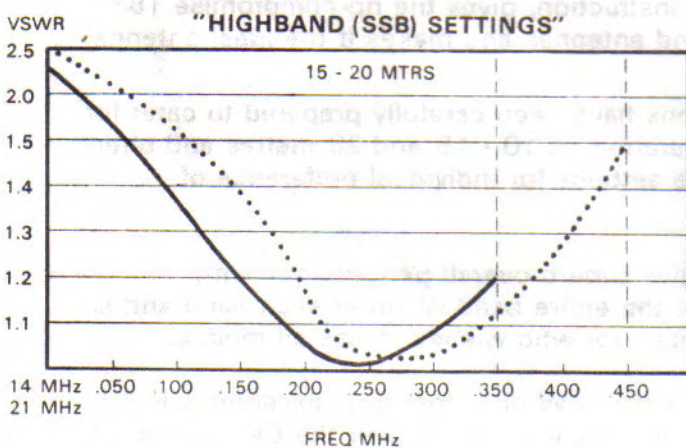
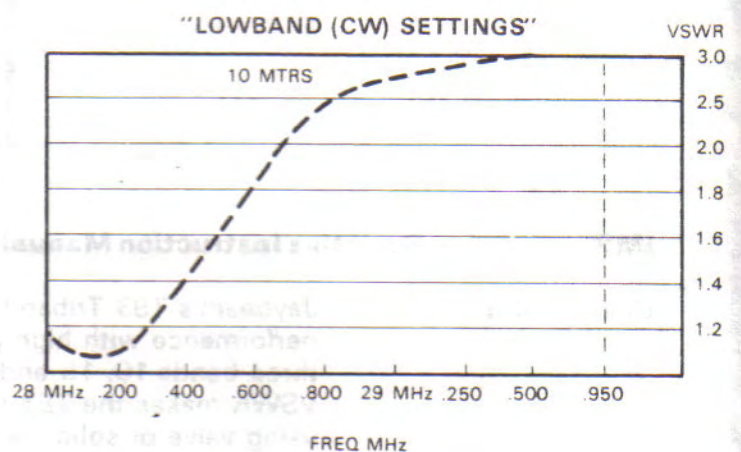
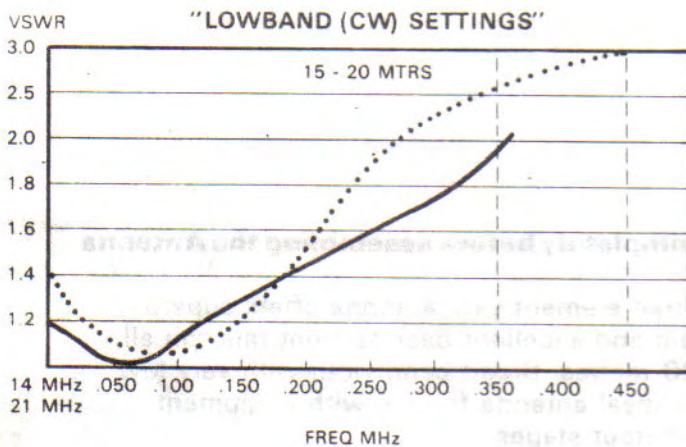
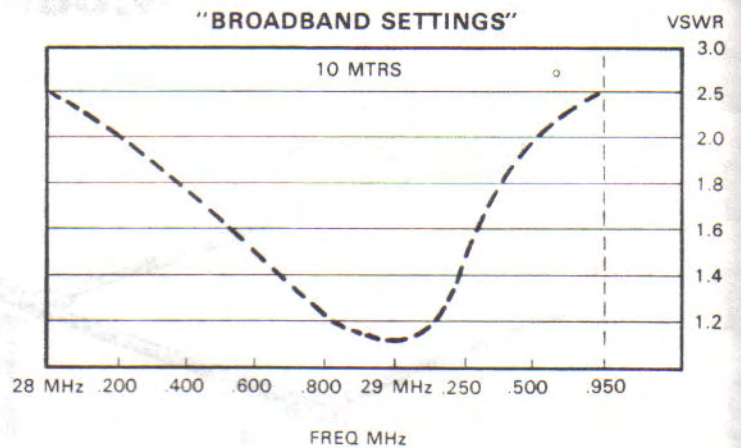
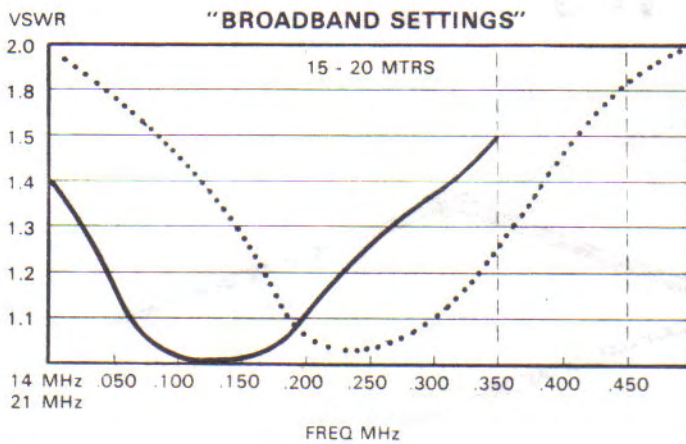
Lowband Settings

The lowband setting offers the "CW only" operator exceptionally good performance with incredibly low VSWR over the CW section of each band with the antenna being optimised at the centre of the CW sections.

Highband Settings

The highband setting offers the "phone band only" operator exceptionally good performance over the entire phone section of each band with extremely low VSWR, the antenna being optimised in the centre of each phone band section.

Typical VSWR Curves



KEY:-
 = 15 MTRS
 ————— = 20 MTRS
 - - - - - = 10 MTRS

Typical VSWR curves obtained from TB3 on our Northampton test site with antenna at a height of 30 ft. above ground in "free space".

SPECIFICATION

FREQUENCY	10.15.20 MTRS
VSWR	Less than 1.5:1 all bands
DESIGN IMPEDANCE	50 OHMS
GAIN (PEAK)	8 dbd
POWER RATING (PEAK)	2 KW
FRONT TO BACK RATIO	25
LONGEST ELEMENT	7.86 MTRS
TURNING RADIUS	4.5 MTRS
BOOM LENGTH	4.2 MTRS
BOOM DIAMETER	51 mm
MAST DIAMETER	47-51 mm
WINDLOADING AT 80 MPH	52 Kg
WEIGHT	17.3 Kg

Jaybeam Three Element Triband Antenna (10, 15 20 Metres) Type TB3 MKII

Assembly Instructions

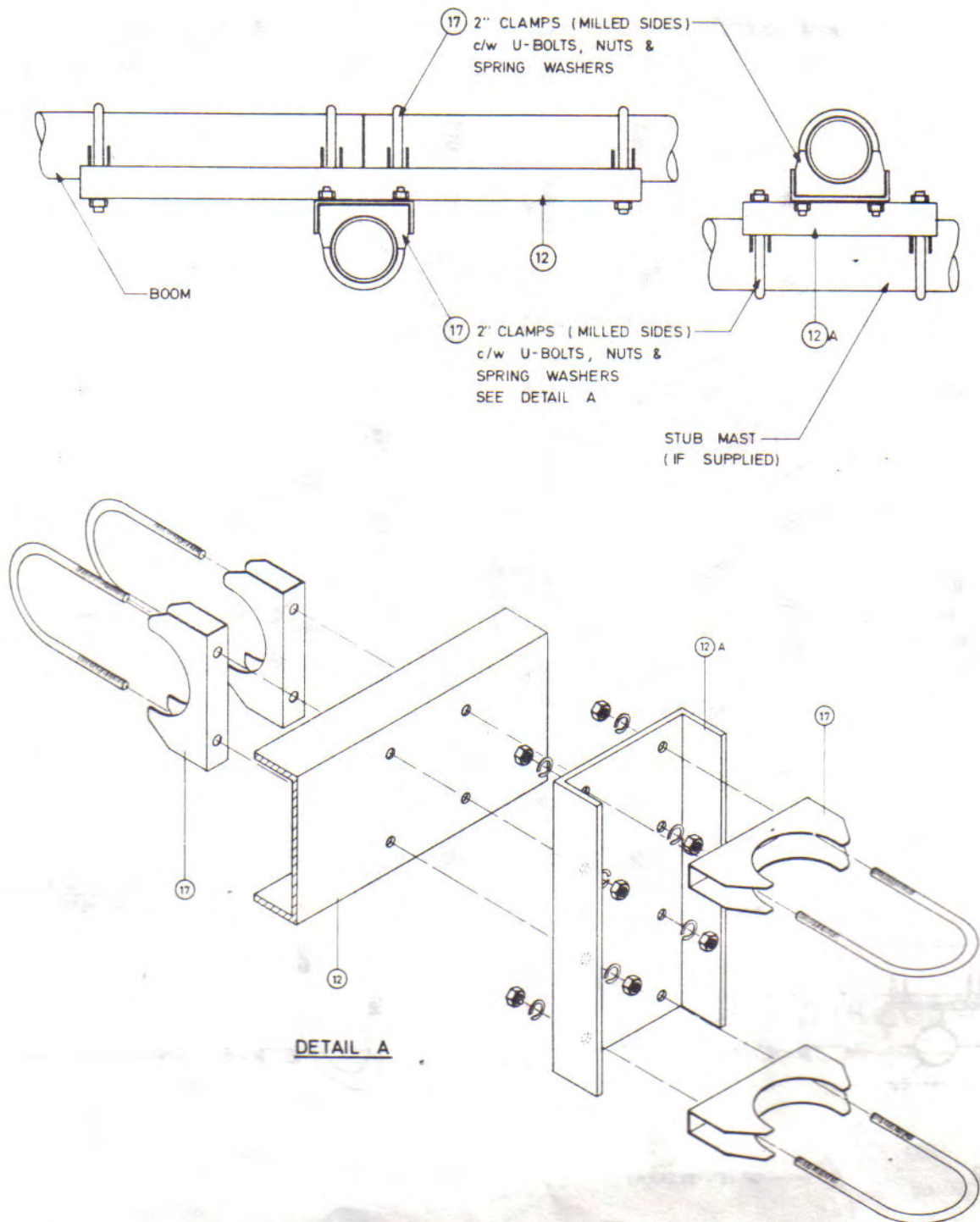
Read instructions completely before assembling the antenna.

1 Boom

Assemble the two halves of the boom, as shown in Fig. 1.

- (a) Insert the two boom sections to boom channel 12
- (b) Tighten all nuts on 2" boom clamps 17

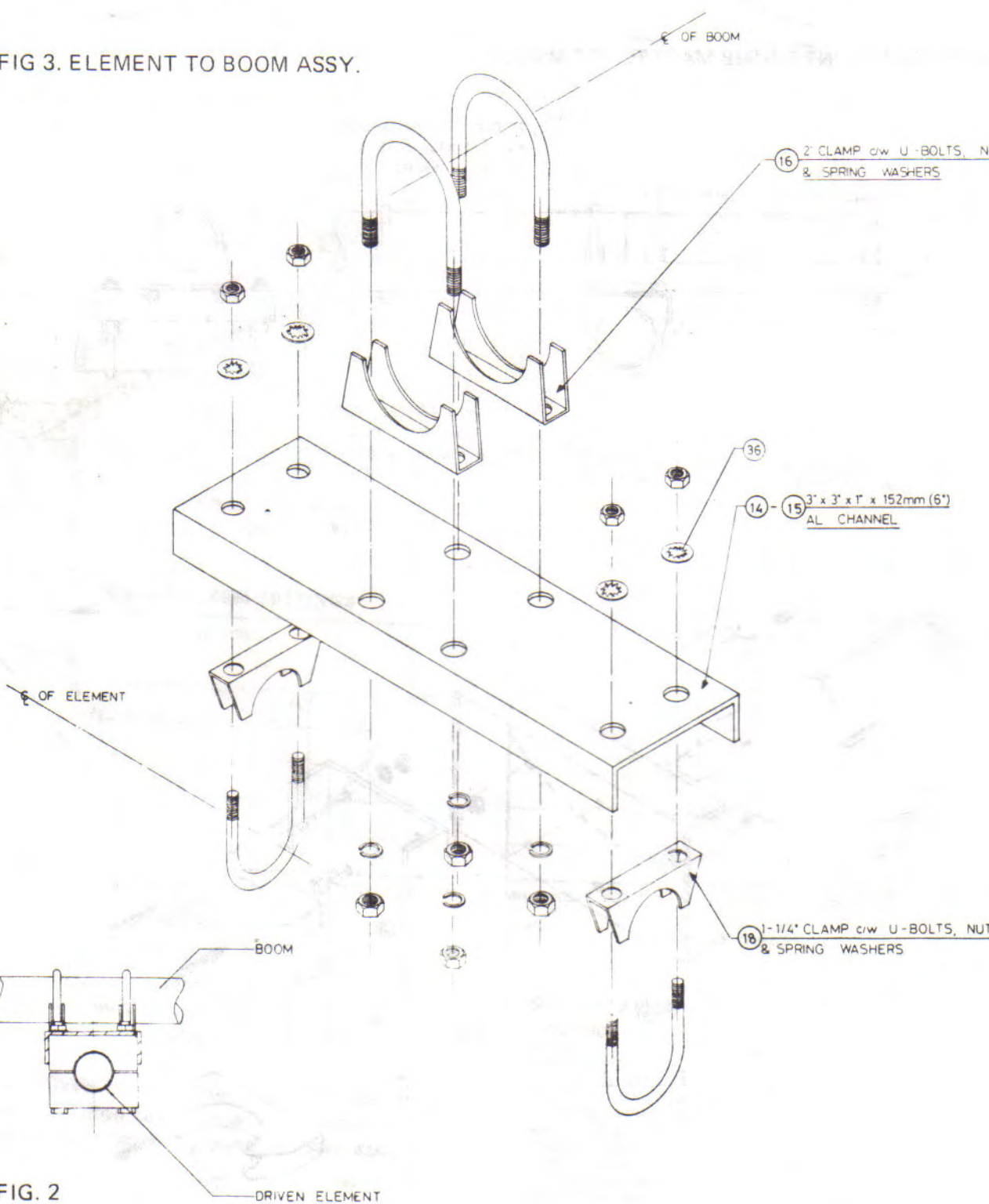
FIG. 1 BOOM JOINT & STUB MAST TO BOOM ASSY.



2. Reflector, Driven Element and Director Mounting Clamp Assembly

- (a) Assemble the 2" clamps (16) to the reflector and director mounting channels (14, 15). Fig. 3. The 2" clamps (16) are fitted in a similar manner to the driven element (13) except that the earth strap (27) should be connected underneath one nut (see Fig. 5).
- (b) Slide each mounting channel on to the boom and secure in the positions, as shown in Fig. 4. Ensure that all brackets are parallel before tightening nuts.
 - (i) This is most easily done by securely clamping the driven element bracket to the boom and lifting the director end of the boom. Rotate the director clamp until it is parallel with the driven element clamp.

FIG 3. ELEMENT TO BOOM ASSY.



Note:- Insulated moulding assemblies (see Figs. 5, 6) replace the 1/4" clamps (18) used on the driven element.

- (c) Insert a short piece of 1 1/4" or 2" tube into the mast mounting bracket and rotate the whole boom joining channel until the mast is at right angles to the driven element. Securely tighten the clamps holding the boom halves to the channel.
- (d) Repeat procedure as outlined (i) to align the reflector.

Select the two lengths of 1 1/4" (3.17cm) x 250 cm aluminium tube and assemble them centrally in the reflector and director clamps, as shown in Fig. 4.

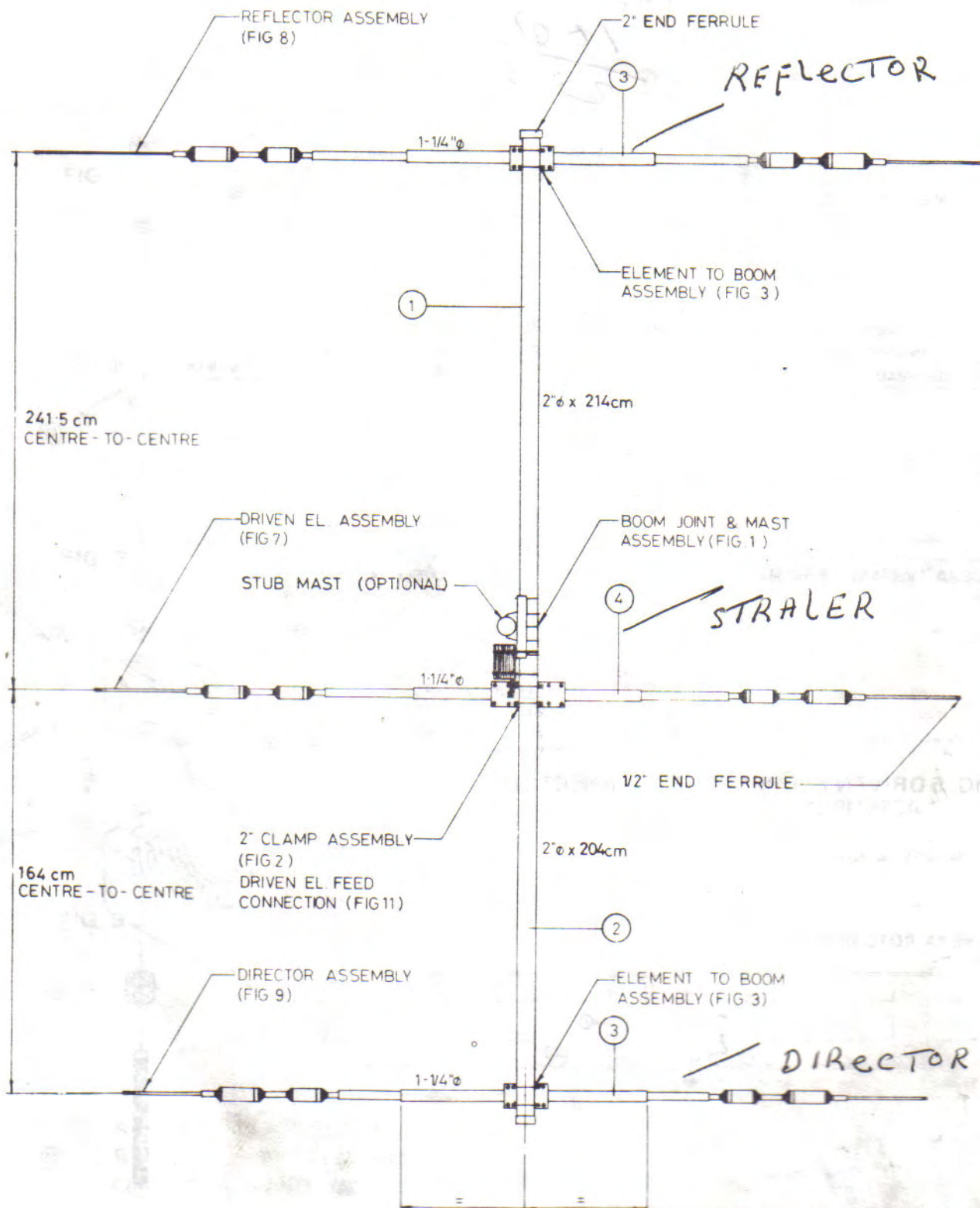
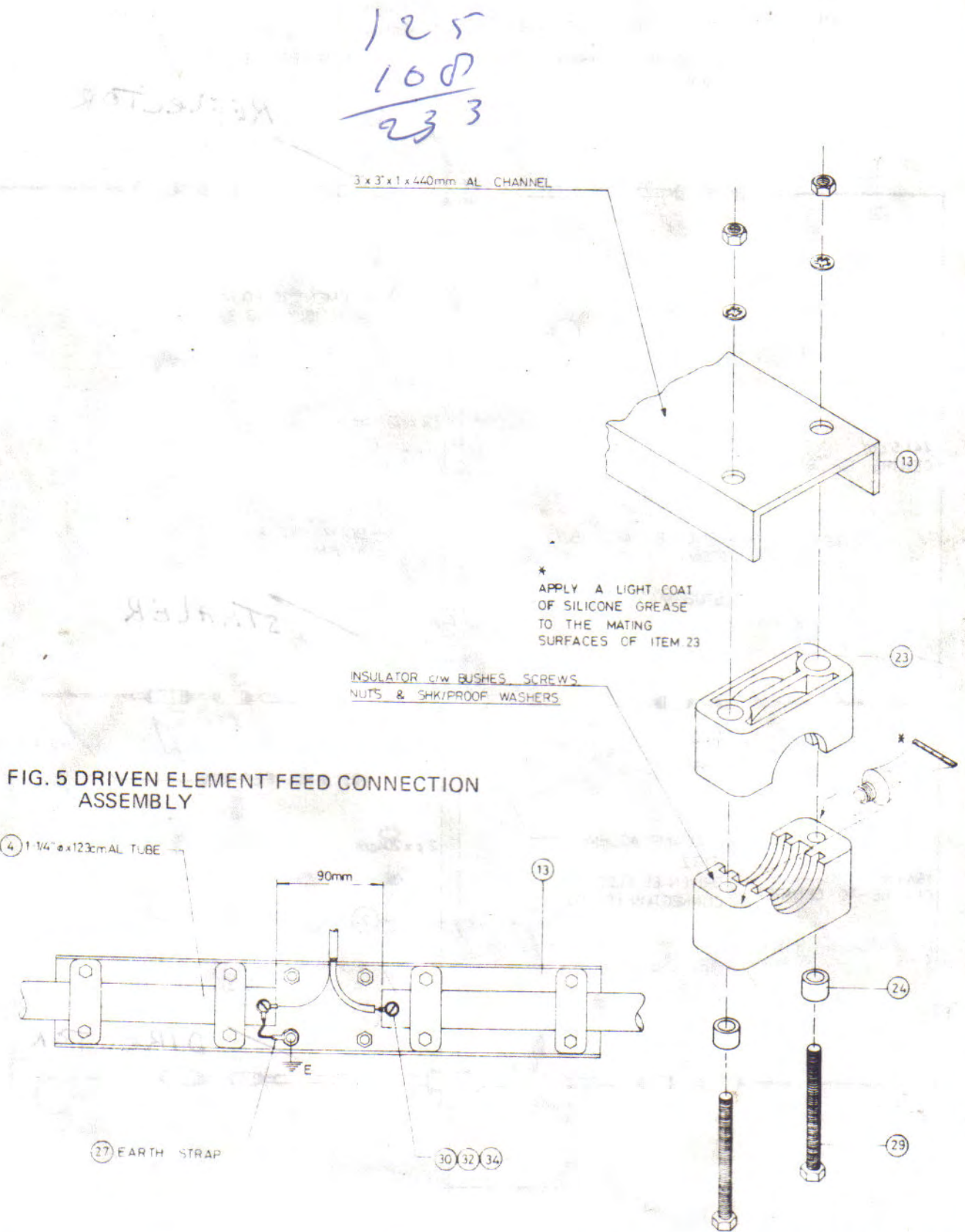


FIG. 4 OVERALL LAYOUT (VIEWED FROM ABOVE)

- (e) Assemble the insulated moulding clamps to the driven element channel (Figs. 5, 6). Do not tighten nuts and bolts at this stage.
- (f) Select the two lengths of 1/4" x 123 cm tube and securely mount in the insulated mouldings on the driven element channel. Ensure that the gap between the two halves of the driven element is 9 cm (Fig. 5).

After assembling the 1/4" tube into the insulated mouldings, complete the earth strap connection (Fig. 5).



3. Trap mounting and element assembly for TB3

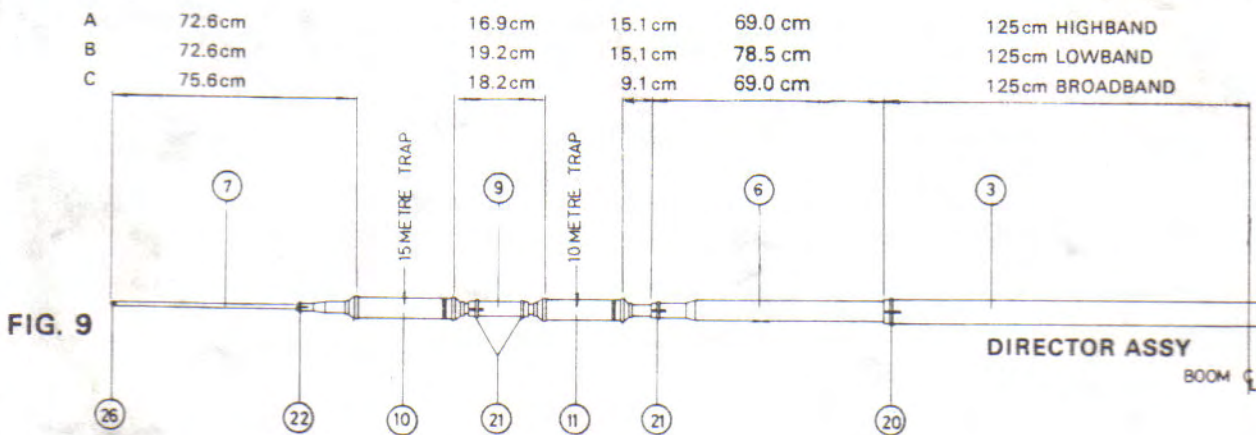
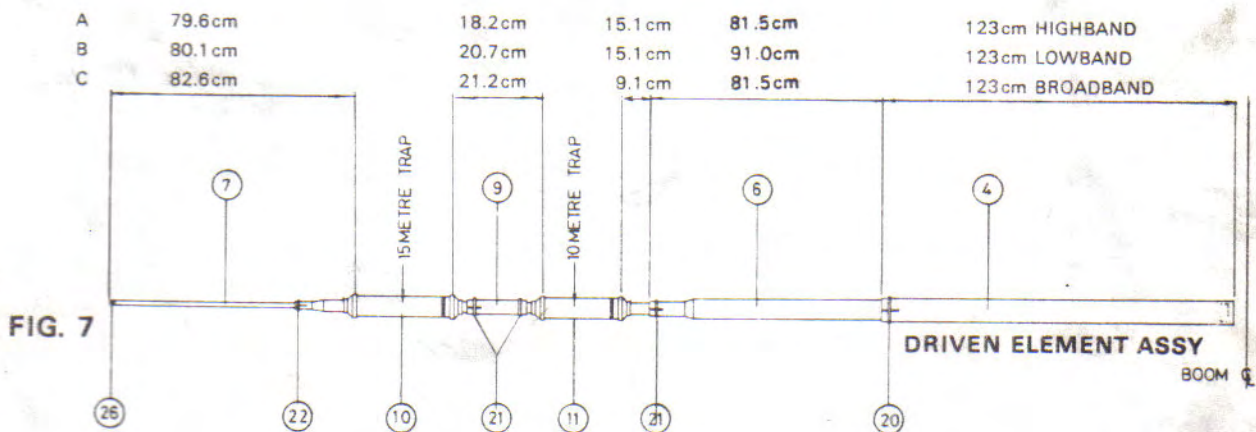
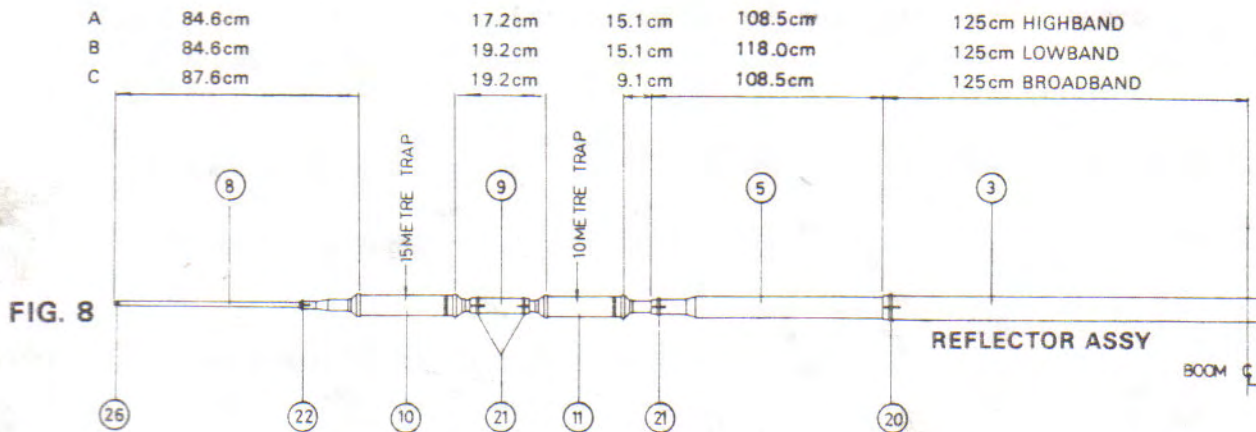
Assemble trapped element sections, as shown in Figs. 7, 8 & 9.

15m traps are approximately 11.5" long (29.2cm)

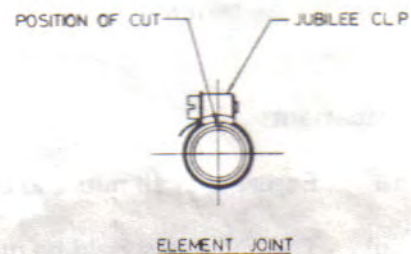
10m traps are approximately 10" long (24.4cm)

Note: The black band on each trap indicates the side of the trap facing the boom.

IMPORTANT – roll back PVC trap end covers measure settings for element spacings FROM END OF ALUMINIUM TRAP COVERS replace PVC



A = "HIGHBAND" SETTINGS
 B = "LOWBAND" SETTINGS
 C = "BROADBAND" SETTINGS



4. Triband in operation

It is recommended that coaxial cable type UR 67 or similar be used to feed the antenna. Terminate the coaxial cable as shown in Fig. 10. It is recommended that the braid be soldered to avoid fraying and the earth connection be made using the wire provided, as shown in Fig. 10. The joint should be waterproofed with material such as Denso tape, self-amalgamating tape, or other such material.

For optimum performance it is important that the coaxial cable feed is formed into an RF choke of approx. 10 - 12 turns and 6.5" in diameter (Fig. 10).

Using cable ties provided (35) strap the choke assembly securely to the antenna boom after installation to the top of the supporting mast. (See Fig. 10).

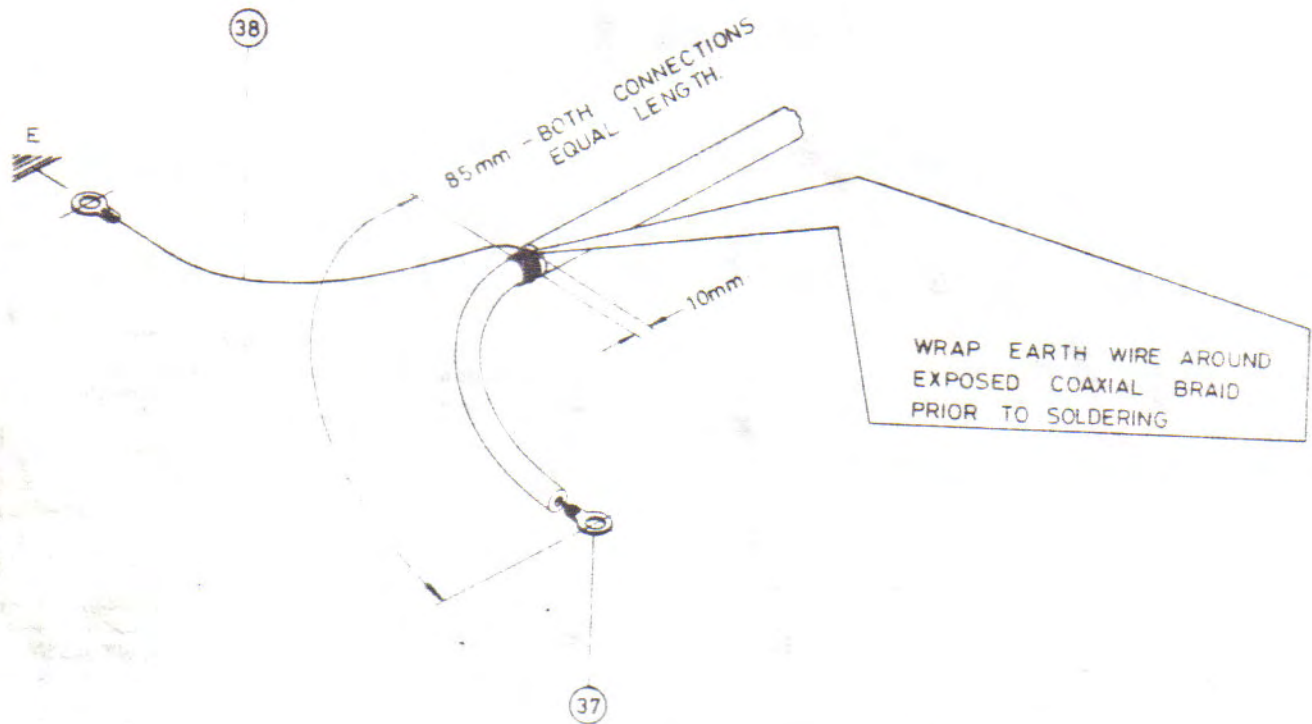
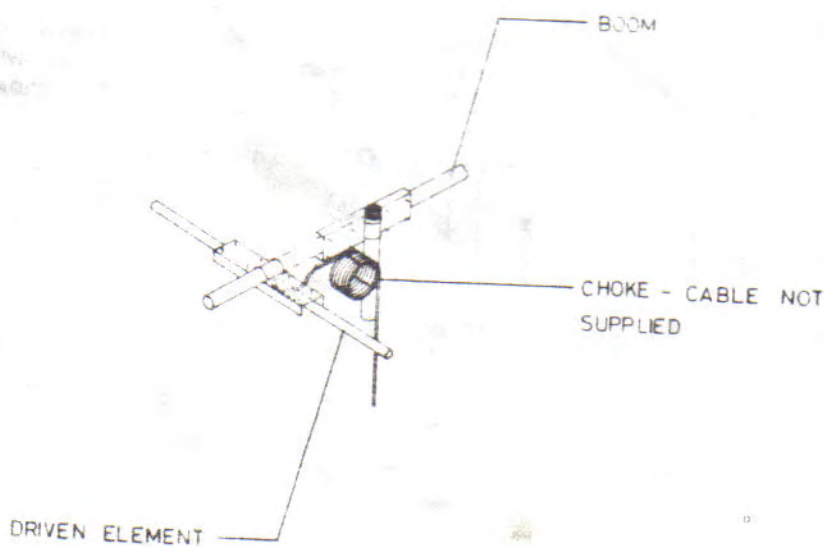


FIG. 10



Important:

- (i) Ensure that all nuts and bolts are securely tightened before installation.
- (ii) The antenna should be mounted with all the elements below the boom.

driven element.

PARTS AND PACKING LIST MODEL TB3 MKII

Code	Description	Number off
1	Boom Section 51mm dia. x 214cm	1
2	Boom Section 51mm dia. x 204cm	1
3	Element Section 32mm dia. x 250cm	2
4	Element Section 32mm dia. x 123cm	2
5	Element Section 28mm dia. x 130cm	2
6	Element Section 28mm dia. x 100cm	4
7	Element Section 12.5mm dia. x 71.5cm	4
8	Element Section 12.5mm dia. x 78.0cm	2
9	Trap Joining Section	6
10	15 Metre Trap Assy	6
11	10 Metre Trap Assy	6
12	Boom-Mast Channel 43.2cm x 7.62cm x 2.54cm	1
12A	Stub Mast Channel 15.2cm z 7.62cm x 2.54cm	1
13	Boom-Driven EL. Chennel 45.7cm x 7.62cm x 2.54cm	1
14	Boom-Director Channel 15.2cm x 7.62cm x 2.54cm	1
15	Boom-Reflector Channel 15.2cm x 7.62cm x 2.54cm	1
16	2" Clamp	6
17	2" Clamp (Milled Side)	6
18	1¼" Clamp	4
20	1¼" Jubilee Clip	6
21	1" Jubilee Clip	18
22	¾" Jubilee Clip	6
23	Insulator Moulding	8
24	EP Bushes	8
25	2" End Ferrule	2
26	½" End Ferrule	6
27	Earth Wire Assy	1
29	M6 x 75mm Hx. Hd. Screw	8
30	2BA x ½" Rd. Hd. Screw	2
32	2BA Full Nut	2
34	2BA Shake-proof Washer	2
35	Cable Ties	4
36	5/16" Shake-proof Washer	4
37	2BA Solder Tag	2
38	Choke Earth Wire	1
39	Instruction Book	1
40	Carton	1

Additional items required for assembly:

- 1/ Small tube of silicone grease
- 2/ Self amalgamating tape (or similar)



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K4XL's **BAMA**

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