

**TM**

# **TET-Emtron**

## **Antenna Systems**

### **INSTRUCTION MANUAL**

# **TE-53**

## **TET-EMTRON.**

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# TET-Emtron™

## YAGI BEAM ANTENNA FOR 10, 15, AND 20 METER BAND

### MODEL TE-53

#### Description

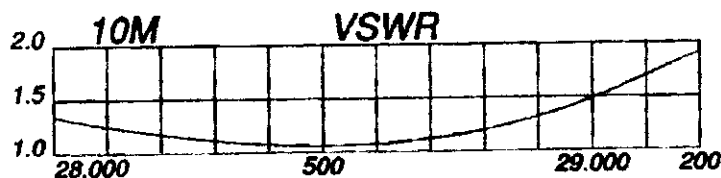
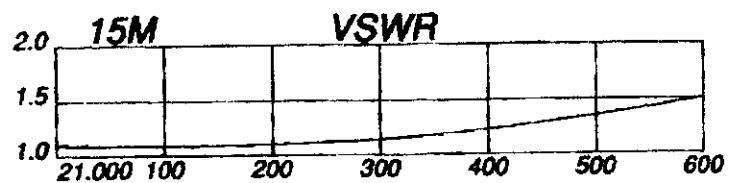
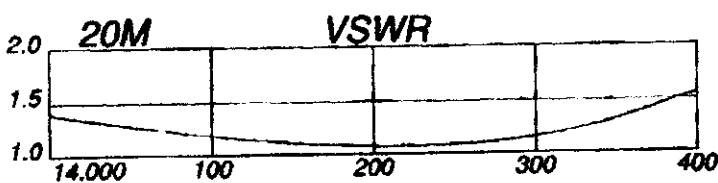
The "TET-Emtron™" model TE-53 is an optimum performance 5 element HF Beam Antenna. Built with high efficiency traps, all stainless steel hardware and rugged aluminium construction, guarantee a long and trouble-free operation. As trap type antennas are generally considered narrow banded, the TE-53 gives an SWR of 1.5 or less across the entire operating band, and therefore does not need any re-adjusting for PHONE or CW band.

This antenna is made from Marine Grade 6000 Series Aluminium, all predrilled and partly pre-assembled components – THIS ANTENNA IS MADE TO LAST!

By following the instruction, you will find that the antenna is simple to assemble and when correctly installed, a top performer.

#### Specifications

FREQUENCY	14, 21, 28 MHz
ELEMENT LENGTH	7.58 m
BOOM LENGTH	8.3 m
GAIN dBi	12
FRONT TO BACK RATIO	25/ 20/ 20 dB
FEED IMPEDANCE	50 OHM
TURNING RADIUS	8.3 m
WEIGHT	18 kg
SWR	Better than 1.5 across the band



## **ASSEMBLY PROCEDURE**

It is recommended that you familiarise yourself with instructions, diagrams and parts list.

In order to make assembly of the antenna as simple as possible, carefully follow the instructions below. Proper preparation will help you to avoid later disruptions and inconvenience.

1. Check parts list and make sure that nothing is missing
2. Assemble the boom as per FIG. 2
3. Assemble the element clamp assembly for radiator as per FIG. 3.
4. Completely assemble the driven element (Radiator) as per FIG. 3 and attach it to the element clamp assembly as per FIG. 3 and FIG. 6. Your driven element is now complete and ready to be attached to the boom.
5. Assemble the Reflector and Director elements as per FIG. 4.
6. Assemble the element clamp assembly for the Reflector and Director as per FIG. 4 and FIG. 7.
7. Attach the assembled Reflector and Directors to the element clamp assemblies as per Fig. 4 and FIG. 7. Your Reflector and Director elements are now complete and ready to be attached to the boom.
8. Accurately mark the position of Reflector, Radiator and Directors on the Boom Assembly and attach all four elements to the boom as per FIG. 1, 2 and 4.
9. Now make sure that all elements lie in the same horizontal plane and the U-bolts are tightened.
10. Your antenna is now completely assembled.

Now make a final inspection and note:

- a) When screwing parts together, there must be a spring washer under every nut and self-tapping screw.
  - b) Tighten firmly but do not over tighten nuts, bolts and self-tapping screws.
  - c) Double check all dimensions as per FIG. 1 and make sure the antenna is correctly assembled.
11. Now assemble the boom to mast clamp. See FIG. 5 and attach it to the boom as close as possible to the centre of gravity or point of balance.
  12. Now attach 50 OHM Coaxial Line directly to the Radiator Terminal and make sure that the Coaxial shield end is connected via the earth strap directly to one of the "U" bolts by the additional 8mm nut and washer.

13. Now install the antenna on a mast or tower. It is recommended that the height of the antenna is at least ONE HALFWAVE at the lowest frequency.

PLEASE NOTE: All screws and trap drain holes must be positioned at the bottom of the element. If you wish to utilise a BALUN, the EMTRON EB-11 is recommended.

## **WARNING!**

**Installation of this product near power lines is dangerous for your safety.**

If you are installing an antenna for the first time, please for your safety as well as others, seek professional assistance. Your dealer should be able to explain available mounting methods for your particular antenna.

Select your installation site with SAFETY as well as performance in mind. REMEMBER: ELECTRIC POWER LINES AND PHONE LINES OFTEN LOOK ALIKE. FOR SAFETY ASSUME THAT ANY OVERHEAD LINES CAN KILL. The minimum recommended safe distance from powerlines is TWICE the OVERALL height of your antenna. If you are unable to maintain this distance, STOP!! GET PROFESSIONAL HELP!

Plan your installation procedure carefully before you begin. Successful raising of a mast or tower is largely a matter of coordination. Each person should be assigned to a specific task and should know exactly what to do and when to do it. One person should be designated as the "boss" of the operation to call out instructions and watch for signs of trouble.

**"IN GENERAL, BE CAREFUL!"**

## TE-53 PARTS LIST

CODE	DESCRIPTION	QTY
TE391	Boom Section 2m x 48mm	4

### 1. Boom Joiner Kits x 2.

TE392	Boom Joiner .....	1
TE034	M6 x 55mm SS Bolt .....	2
TE004	M6 SS Nut .....	2
TE014	M6 SS Lock Washer .....	2

### 2. Boom Extender kit.

TE393	Boom Extender .....	1
TE034	M6 x 55mm SS Bolt .....	2
TE004	M6 SS Nut .....	2
TE014	M6 SS Lock Washer .....	2

### 3. Boom to Mast Mounting Kit.

TE397	Al. Extrusion 160mm.....	1
TE396	Al. Extrusion 100mm.....	1
TE091	M8 SS "U" Bolt.....	4
TE005	M8 SS Nut .....	8
TE015	8mm SS Lock Washer .....	8

### 4. Radiator Mounting Kit.

TE398	Al. Extrusion 70mm.....	1
TE602	Insulator BR25 .....	2
TE654	Centre Insulator 380 mm .....	1
TE091	M8 SS "U" bolt .....	1
TE005	M8 SS Nut .....	3
TE015	8mm SS Lock Washer .....	3
TE093	M6 SS "U" Bolt 64mm x 42mm .....	2
TE004	M6 SS Nut .....	4
TE014	6mm SS Lock Washer .....	4
TE033	M4 x 40mm SS Bolt .....	2
TE002	M4 SS Nut .....	4
TE012	4mm Lock Washers .....	4
TE653	Earth Strap.....	1
TE021	M4 Flat Washers.....	4

### 5. Reflector/ Director Mounting Kits x 4.

TE395	Al. Extrusion 55mm.....	1
TE091	M8 SS "U" Bolt.....	1
TE005	M8 SS Nut .....	2

TE015	8mm SS Lock Washer .....	2
TE092	M6 SS "U" Bolt 44mm x 33mm .....	2
TE004	M6 SS Nut .....	4
TE014	M6 Lock Washer .....	4
TE070	Element Joiner 380mm x 22mm .....	1

## 6. Radiator Kit.

TE361	Main Element 1748mm x 25.4mm .....	2
TE352	Sub-Element 900mm x 22mm .....	2
TE250	Rad. Trap Assembly .....	2

## 7. Reflector Kit.

TE362	Main Element 1998mm x 25.4mm .....	2
TE351	Sub Element 835mm x 22mm.....	2
TE253	Ref. Trap Assembly .....	2

## 8. Director Kit.

TE365	Main Element 1748mm x 25.4mm .....	2
TE353	Sub Element 690mm x 22mm.....	2
TE251	Dir. 1 Trap Assembly .....	2

## 9. Director 2 Kit.

TE365	Main Element 1748mm x 25.4mm .....	2
TE353	Sub Element 690mm x 22mm.....	2
TE252	Dir. 2 Trap Assembly .....	2

## 10. Director 3 Kit.

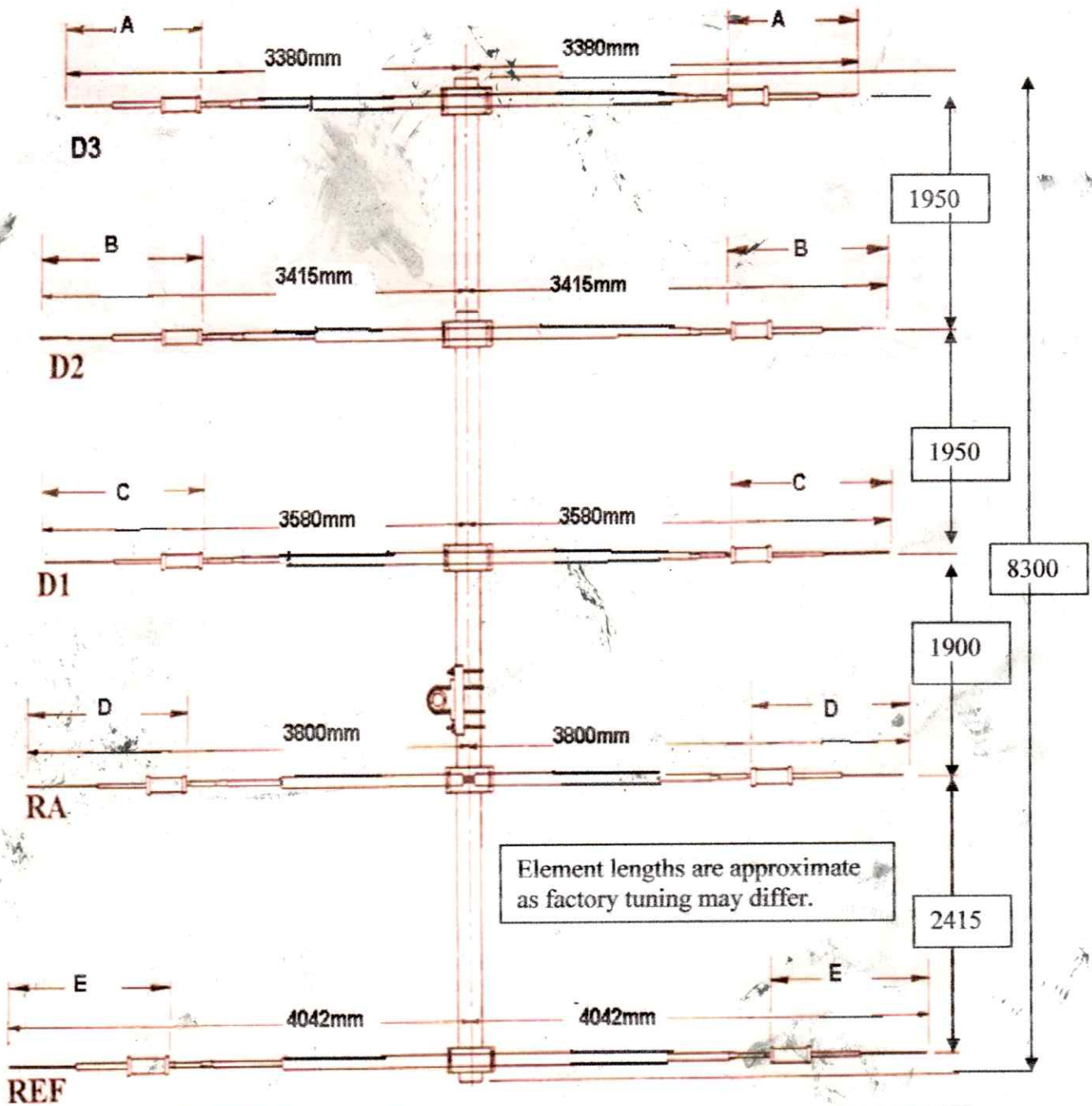
TE365	Main Element 1748mm x 25.4mm .....	2
TE374	Sub Element 655mm x 22mm.....	2
TE261	Dir. 3 Trap Assembly .....	2

## 11. Hardware Kit.

TE051	4mm (No.8) SS Self Tapping Screw .....	28
TE012	4mm SS Lock Washer .....	28

## 12. Accessories

TE711	Manual .....	1
TE901	Carton .....	1
TE576	Spares Kit.....	1



Note: 1 Total boom length is 8300.  
 2. Element clamps should be 40 mm from the end of the boom, u-bolts to the inside.  
 3. Parts A-E are factory assembled.

FIG.1

## BOOM ASSEMBLY

The boom consists of two sections. Insert the boom joiner into the end of one section, align the pre-drilled holes and secure with (M6x55) screw, (M6) nuts and (M6) washer.

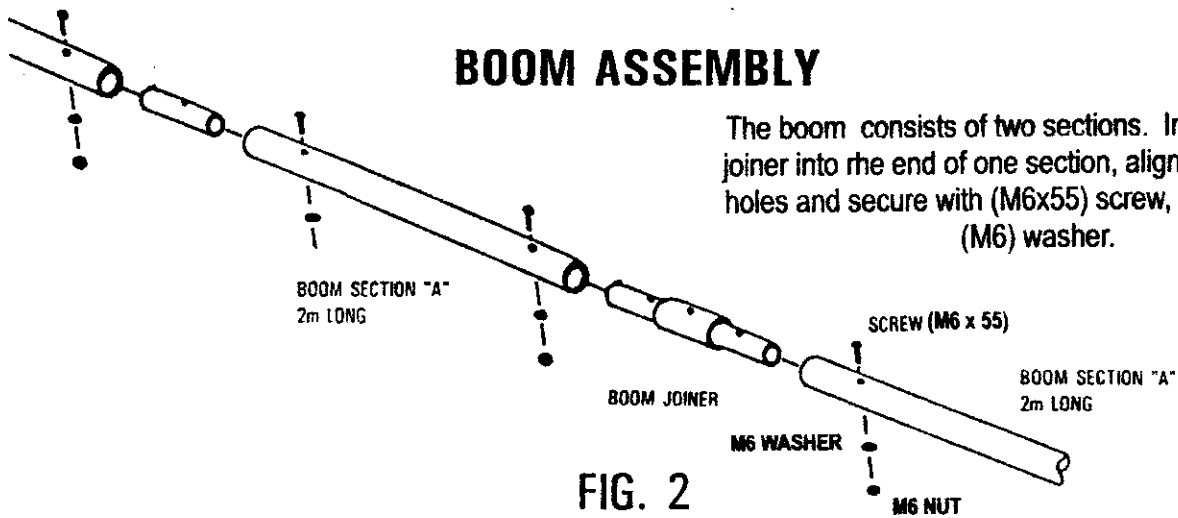


FIG. 2

Refer to fig 1. and Fig 3.

Using a felt tipped pen place marks on the boom where the ELEMENT CLAMP ASSEMBLY WILL BE FIXED. Measurements will be made beginning 20mm from the edge of the boom.

## RADIATOR ELEMENT ASSEMBLY & ELEMENT CLAMP ASSEMBLY

Insert each element and align pre-drilled holes. Secure with self-tapping screws and M4 Lock washers.

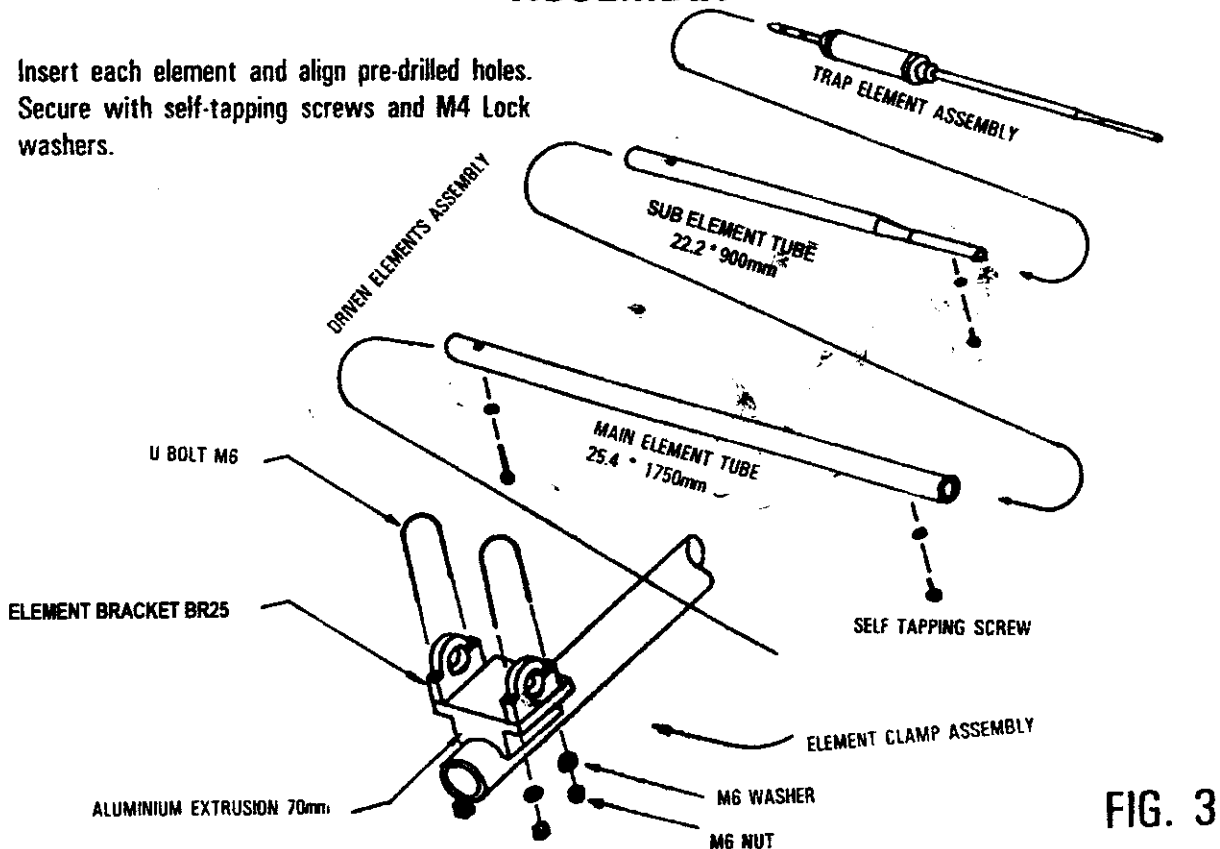


FIG. 3



# DIRECTOR ASSEMBLY & REFLECTOR ASSEMBLY

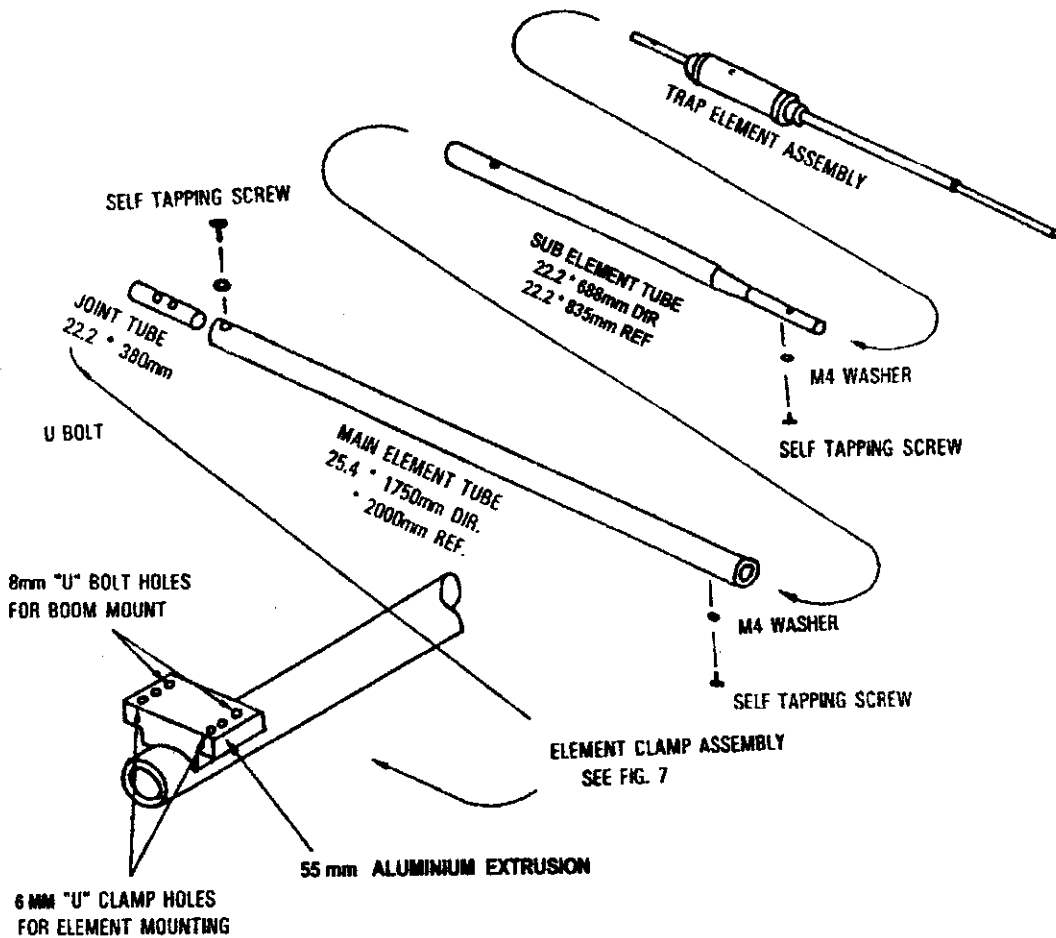


FIG. 4

## BOOM TO MAST ASSEMBLY

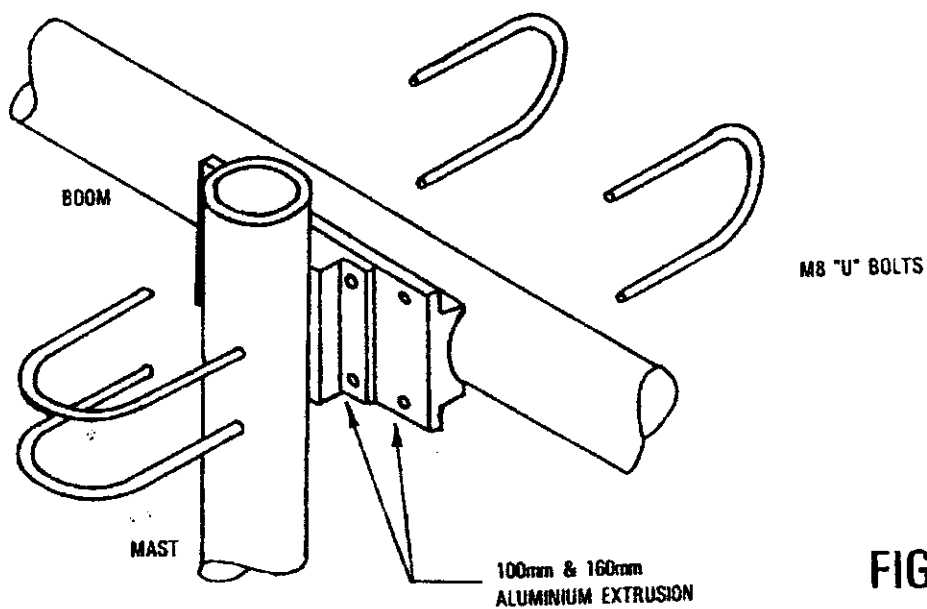


FIG. 5

## MOUNTING OF RADIATOR TO THE BOOM

Refer Fig. 6 for assembly details.

1. Insert the main element into the BR25 element bracket which is mounted on the rectangular tube.
2. Adjust the spacing between left and right main element the coax cable terminal.

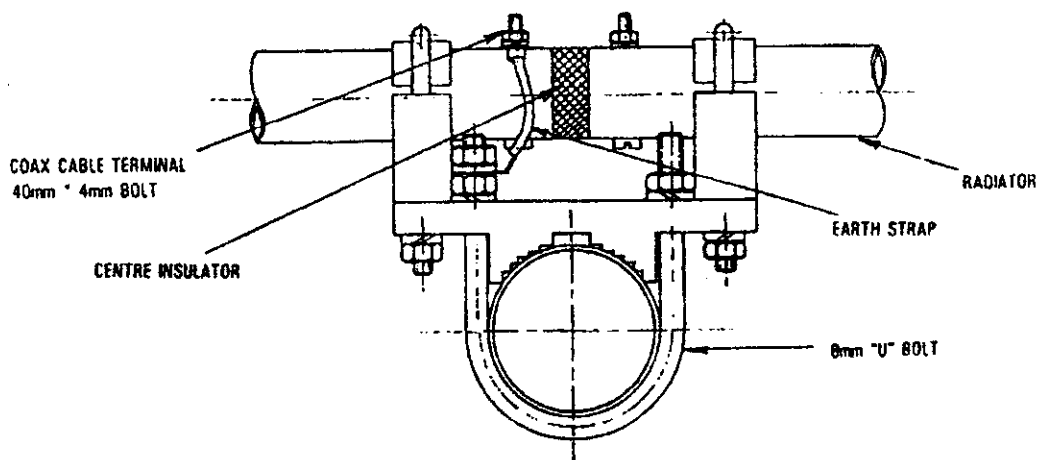


FIG. 6

NOTE: IF BALUN IS NOT USED, THE "SHIELD END" ON COAXIAL CABLE TERMINAL MUST BE CONNECTED TO EARTH VIA EARTH STRAP TO THE 8 MM "U" BOLT WITH A SEPERATE 8 MM NUT AND WASHER.

## MOUNTING OF REFLECTOR AND DIRECTOR TO THE BOOM

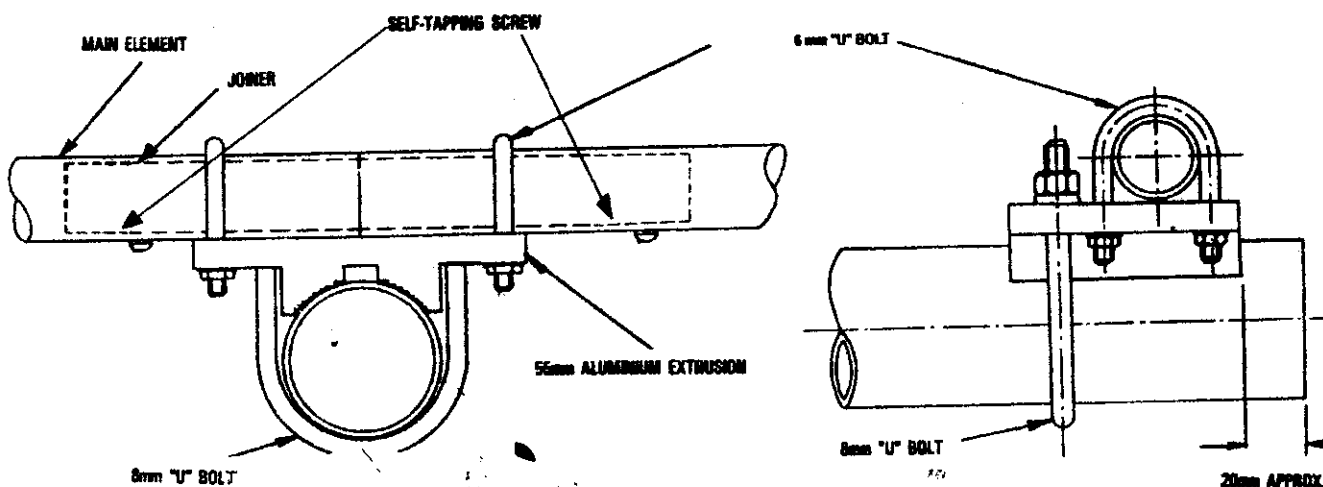


Fig. 7