Stab ITALY

ROTOR SAT
HH100 - HH120

Rotor sat instructions manual
without interface use

CONTENTS

- INTRODUCTION ..... page 1
- ROTOR TECHNICAL DATA ..... page 2
- MOUNTING INSTRUCTIONS ..... page 3

1. Where to install the sat dish ..... page 3
2. Rotor's installation ..... page 3
3. Connections ..... page 4

3.1 Specifications of the recommended coaxial cable ..... page 4
3.2 Map to determine the installation parameters - EUROPE MAP ..... page 5

NORTH AFRICA MAP ..... page 5a
MIDDLE EAST MAP ..... page 5b
SOUTH EAST ASIA MAP ..... page 5c

4. How to find out the elevation angle of the Rotor ..... page 6
5. How to find out the elevation value of the dish ..... page 6
6. Dish pointing ..... page 6
10. EAST - WEST limits (only for enabled receivers) ..... page 9
11. Recalculation function ..... page 9
12. Return to the 0° position of the rotor (only for enabled receivers) ..... page 10
13. Autofocus (only for enabled receivers) ..... page 10

- PROBLEMS SOLVING GUIDE ..... page 11
- WARRANTY CONDITIONS ..... page 12
- HOW TO CONTACT US ..... page 13

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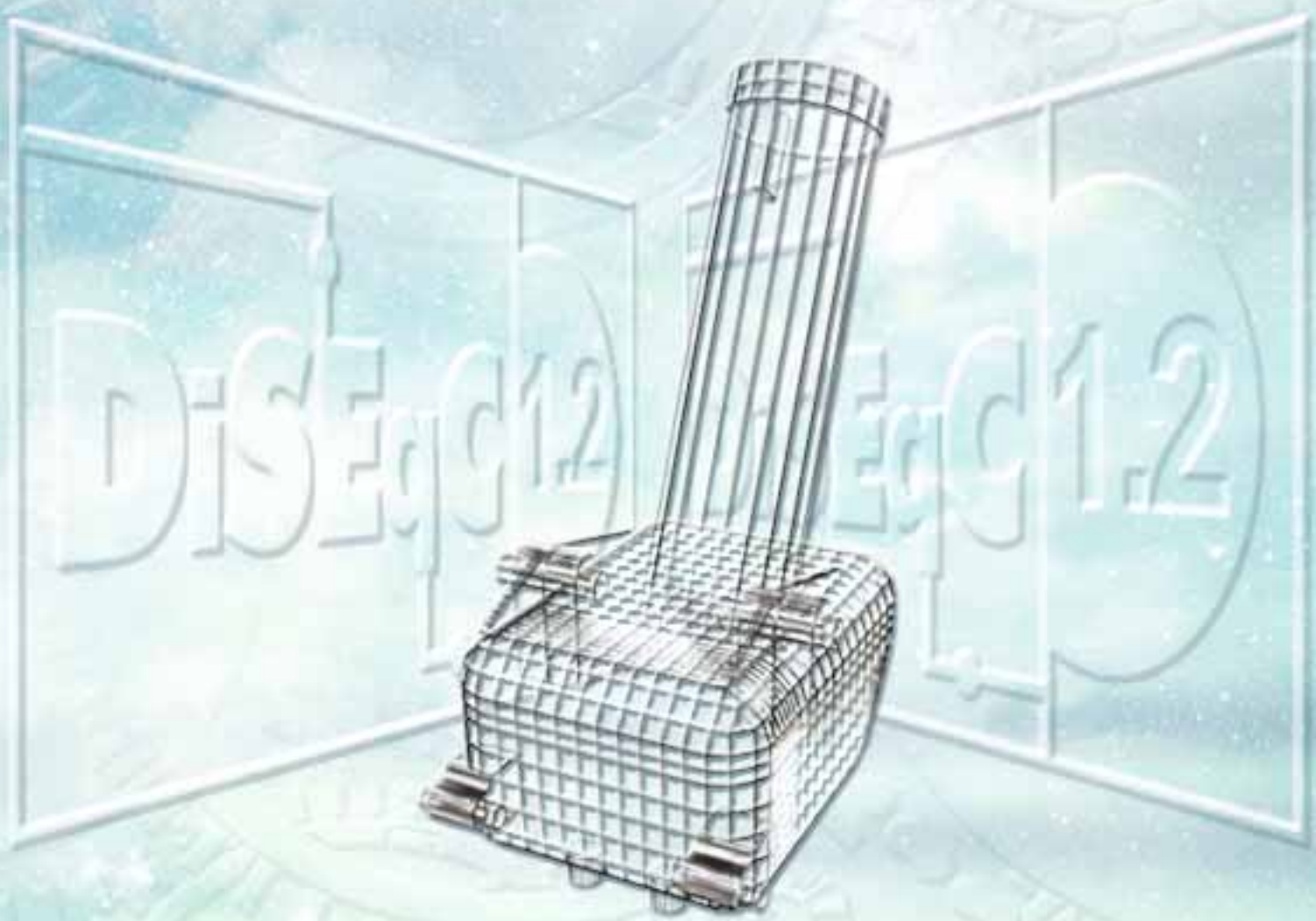
DEAR CUSTOMER,

Congratulations! You are now the owner of STAB ROTOR SAT.
This is the first sat motor developed by STAB in cooperation with EUTELSAT in order to define the DiSEqC™ 1.2 standard.

ROTOR SAT HH100 - HH120

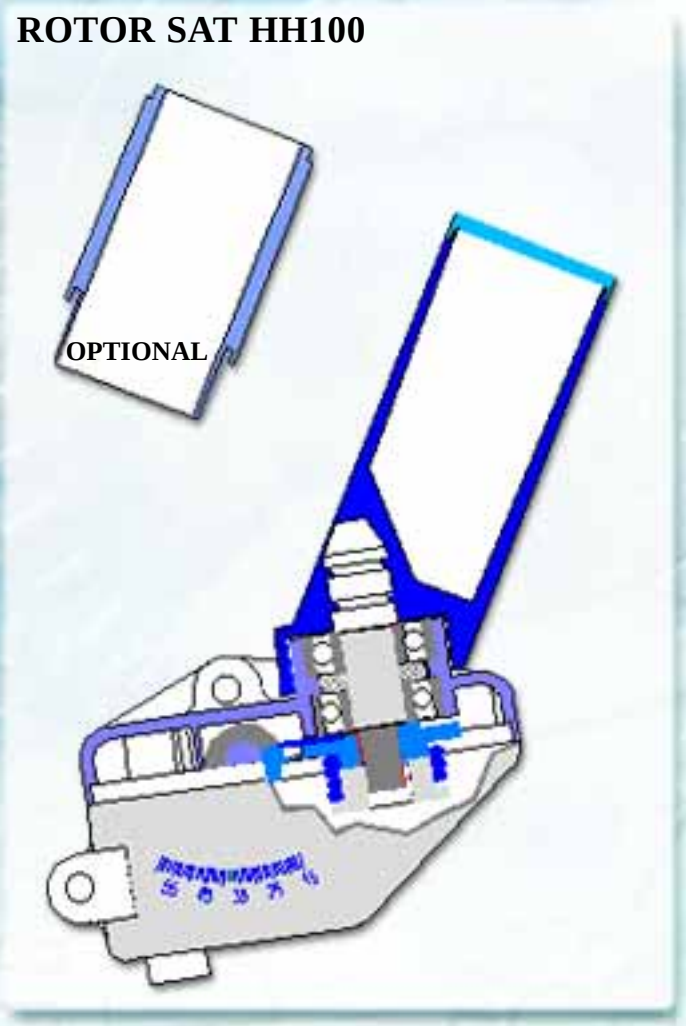


Attention:

- **To connect the motor without interface it is necessary that your receiver includes DiSEqC™ 1.2 protocol.**
- **Please read carefully this instructions manual before installing and using it.**
- **For the movement and memorization commands, see the receiver's instructions manual.**

ROTOR TECHNICAL DATA

ROTOR SAT HH100



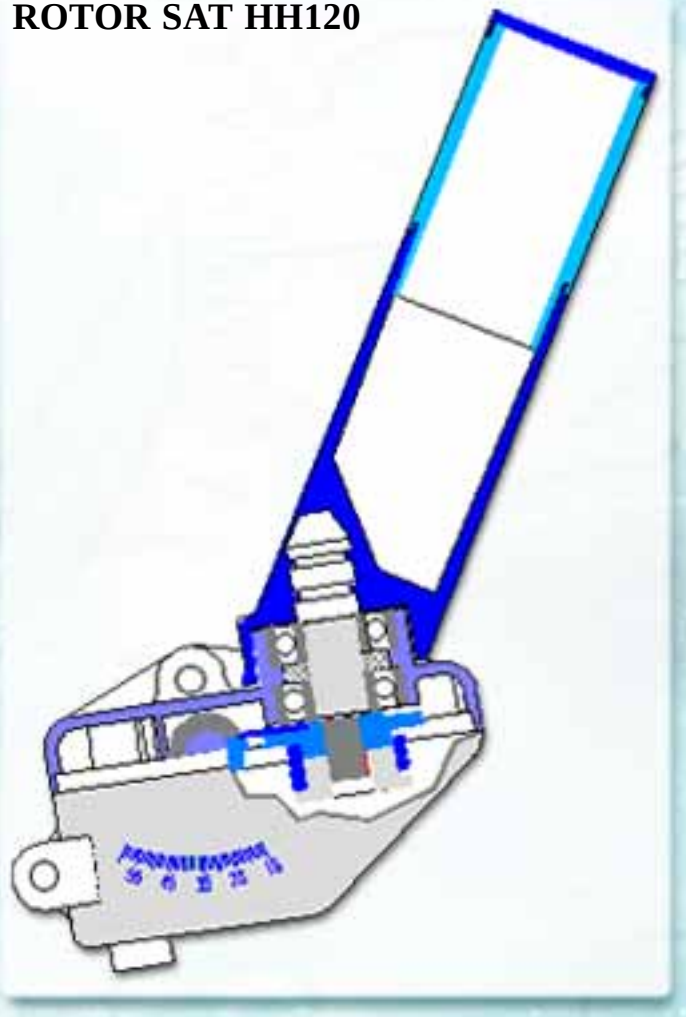
SPECIFICATIONS

- Operating protocol DiSEqC™	1.2 Level
- Maximum antenna diameter	100 cm
- Maximum antenna weight	12 Kg
- Antenna support length	125 mm
- Rotation angle	±62°
- Rotation speed	1,8°/s(18V) 1,2/s(13V)
- Operating power supply	13 / 18 Vdc
- Consumption in stand-by mode	30mA
- Consumption in operating mode	190mA
- Starting consumption	max 350mA
- Operating temperature	-40°C +80°C
- Maximum relative humidity	100%
- Programmable positions	49 satellites
- Preset positions	26 satellites
- Connectors	F type
- Connections	Sat coaxial cable
- Mechanical limits	±70°
- Software programmable limits	from 5° to 62°
- Fine tuning	impulse 0,1°
- Inclination	max 70°
- Weight	3 Kg

OPTION

- Extension for antenna support

ROTOR SAT HH120



SPECIFICATIONS

- Operating protocol DiSEqC™	1.2 Level
- Maximum antenna diameter	120 cm
- Maximum antenna weight	17 Kg
- Antenna support length	180 mm
- Rotation angle	±62°
- Rotation speed	1,1°/s(18V) 0,8/s(13V)
- Operating power supply	13 / 18 Vdc
- Consumption in stand-by mode	30mA
- Consumption in operating mode	190mA
- Starting consumption	max 350mA
- Operating temperature	-40°C +80°C
- Maximum relative humidity	100%
- Programmable positions	49 satellites
- Preset positions	26 satellites
- Connectors	F type
- Connections	Sat coaxial cable
- Mechanical limits	±70°
- Software programmable limits	from 5° to 62°
- Fine tuning	impulse 0,1°
- Inclination	max 70°
- Weight	3,2 Kg

MOUNTING INSTRUCTIONS

1. Where to install the sat dish

1.1 Choose a position from where the dish can see the SOUTH without any impediments or obstructions. Buildings, trees, water-pipes etc. can block partially or completely the sat reception.

2. Rotor's installation

2.1 Fix the supporting pole (ø 50 ÷ 83 mm diameter) in a perfectly vertical position.

2.2 Use the provided support to fix the rotor to the pole (fig. 1).
It is strictly forbidden to install the motor upside-down.

2.3 Point the rotor position to the south using a compass (fig. 2).

2.4 Assemble the dish according to the manufacturer's instructions.

2.5 Fix the dish to the rotor's antenna support with the provided brackets (fig. 1).

2.6 Align the dish to rotor's pole indicator (fig. 2 - 3).

2.7 On a coax cable approximately 1,5 m long, set up two F-connectors (fig. 4) and connect the LNB to the rotor's LNB plug (fig. 5 - cable 1).

2.8 Fit an F-connector on each end of the cable going to the receiver (fig. 4) and connect the rotor's REC plug to the plug of your receiver (fig. 5 - cable2).
Warning: - See cable specifications on page 4.

FIG. 1

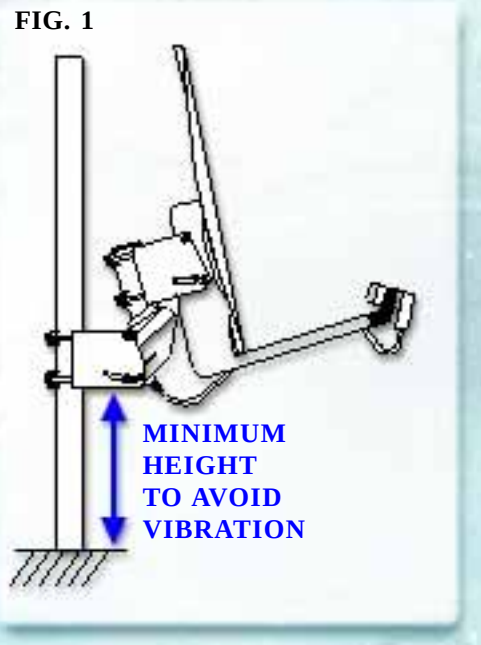


FIG. 2

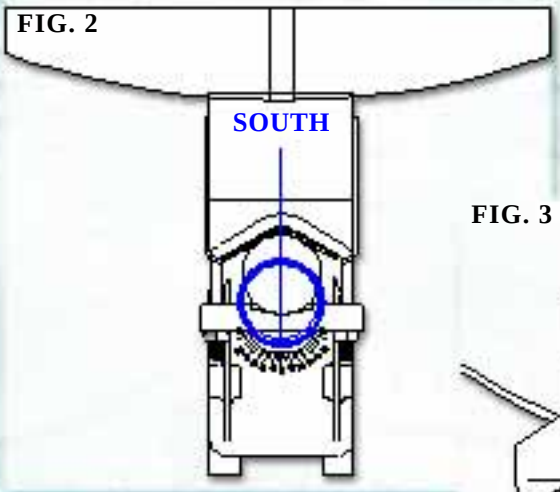


FIG. 3

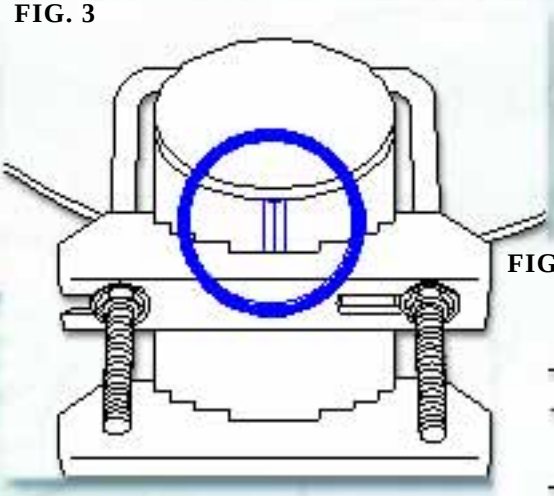
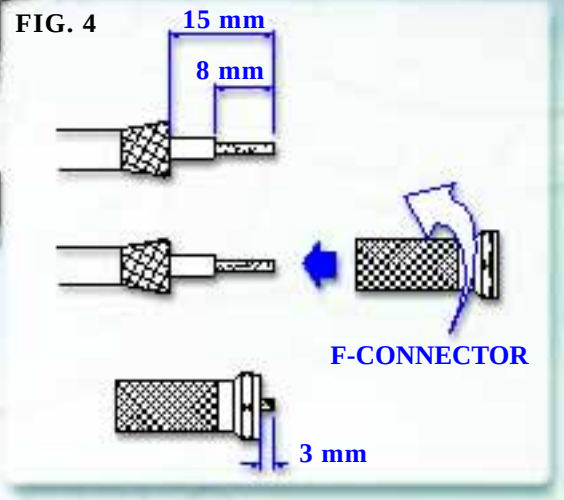
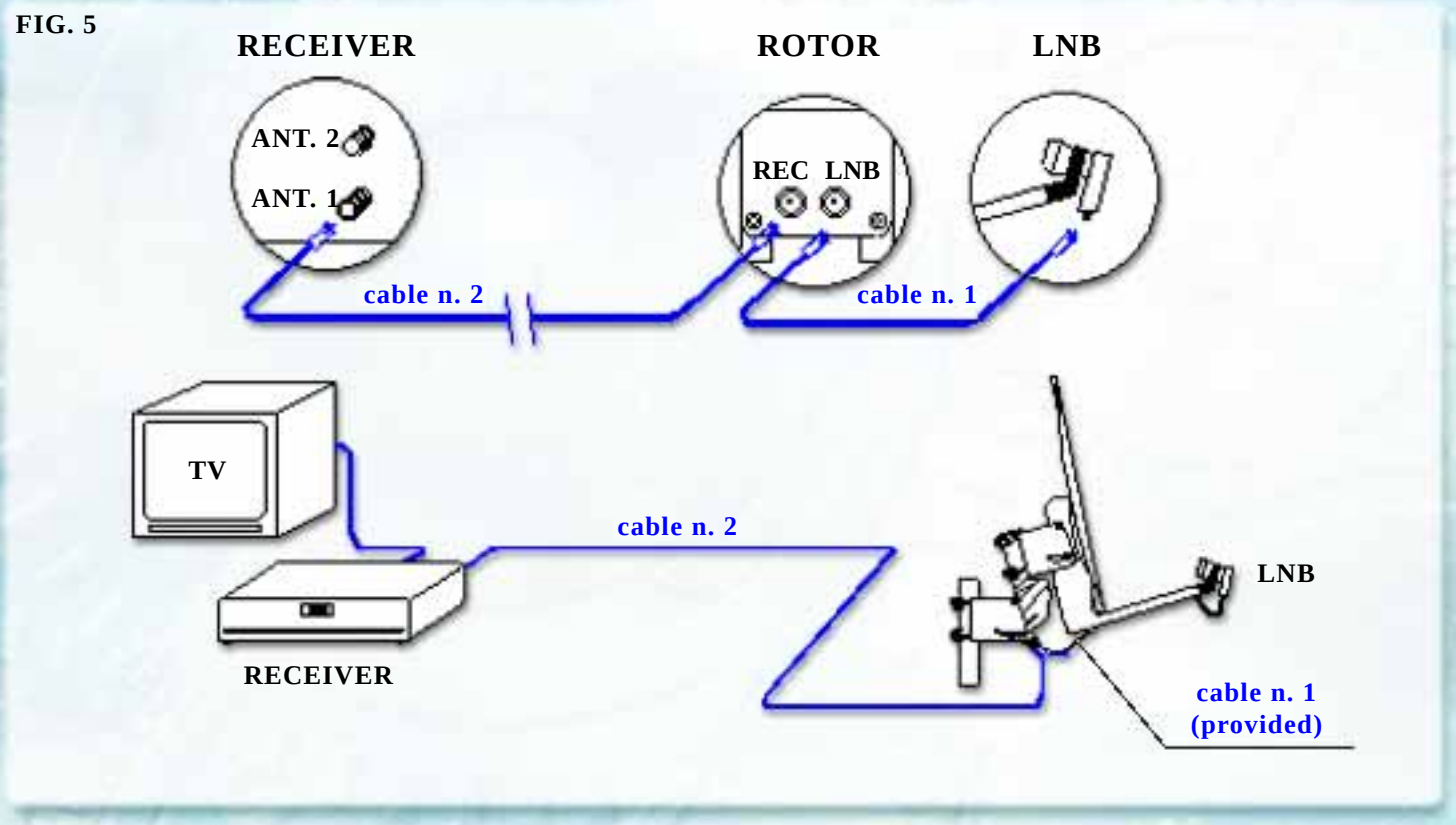


FIG. 4



3. Connections (fig. 5)

FIG. 5



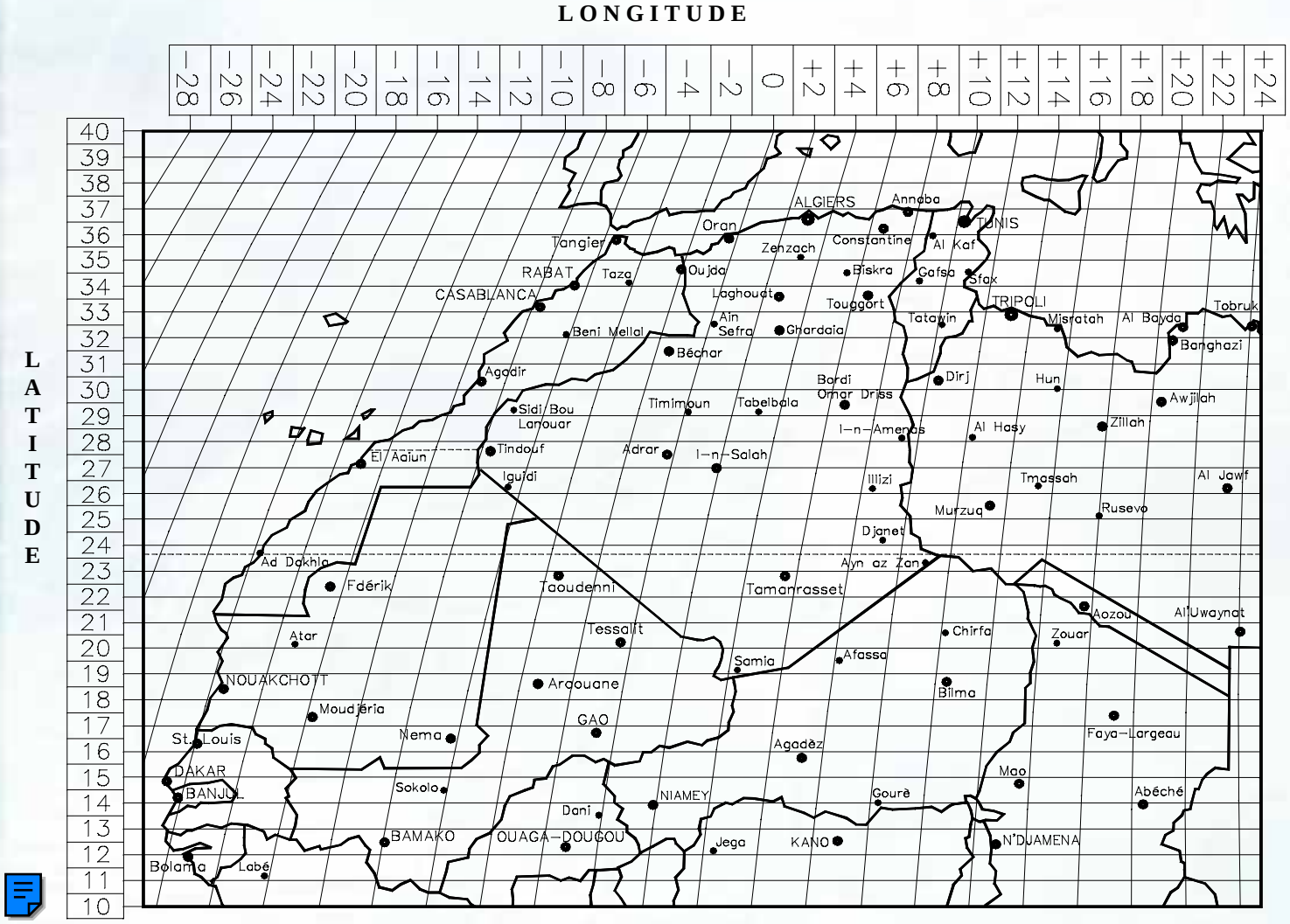
3.1 Specifications of the recommended coaxial cable

A bad quality cable can prejudice the motor correct working!
Please follow the next specifications:

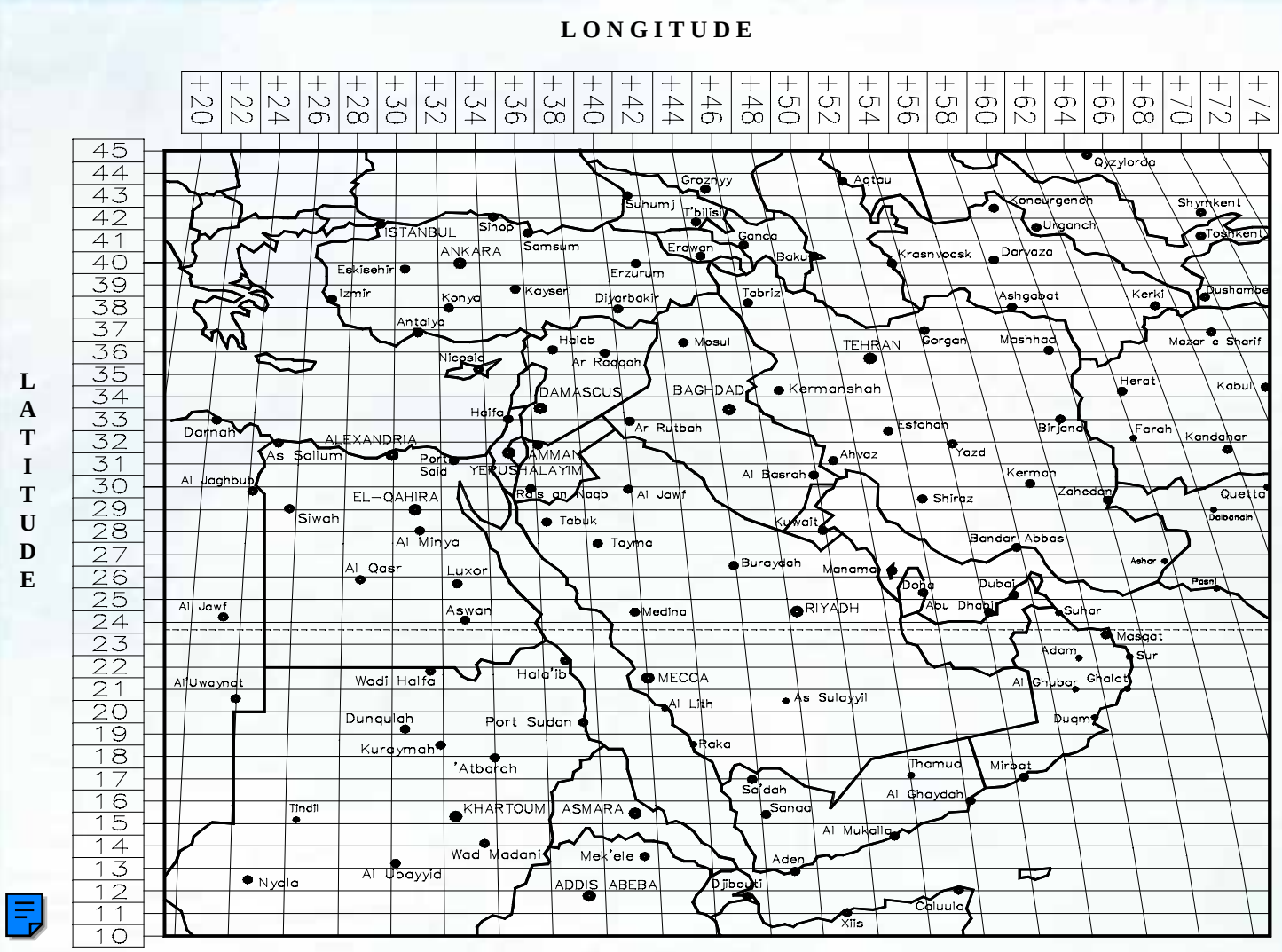
CABLE LENGTH	TO 30 M (to 98.4 feet)	FROM 30 TO 60 M (from 98.4 to 196.8 feet)
Cable type	sat coaxial cable	sat coaxial cable
Inner conductor	CU ø=1,02 mm	CU ø=1,13 mm
Inner conductor resistance	22 ohm/Km	18 ohm/Km
Outside conductor resistance	22 ohm/Km	10 ohm/Km

3.2 Map to determine the installation parameters - EUROPE MAP

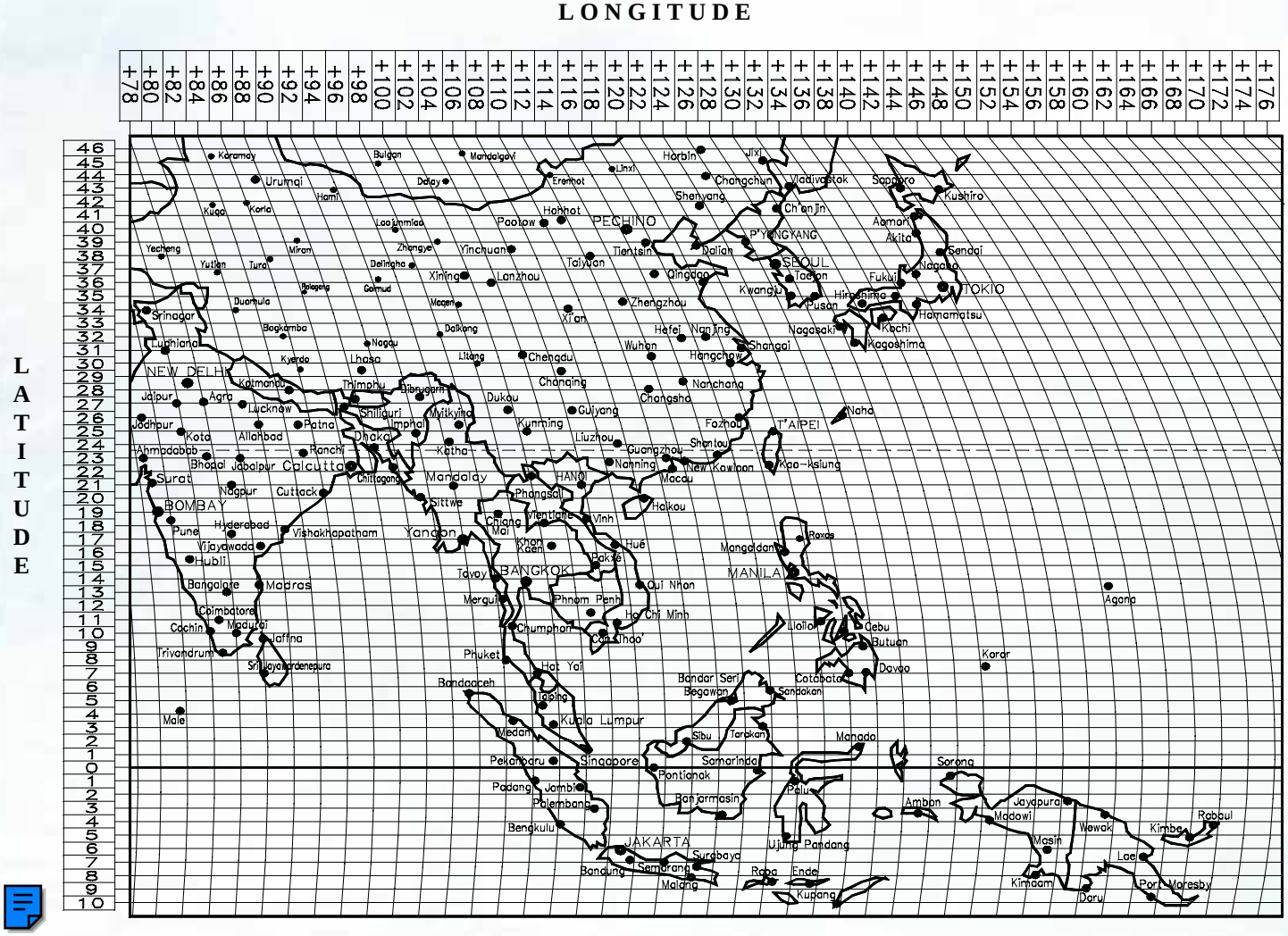
3.2 Map to determine the installation parameters - NORTH AFRICA MAP



3.2 Map to determine the installation parameters - MIDDLE EAST MAP



3.2 Map to determine the installation parameters - SOUTH EAST ASIA MAP



4. How to find out the elevation angle of the Rotor

4.1 Find out your own geographical position on the map on page 5, 5a, 5b, 5c, note the latitude value and set the rotor angle to this value (fig. 6).

Example: - Venice 45,5° Latitude NORTH (fig. 6)

FIG. 6

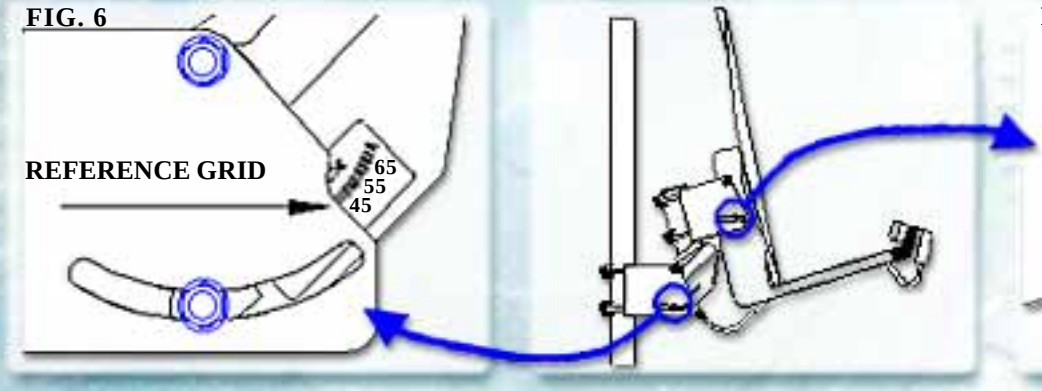
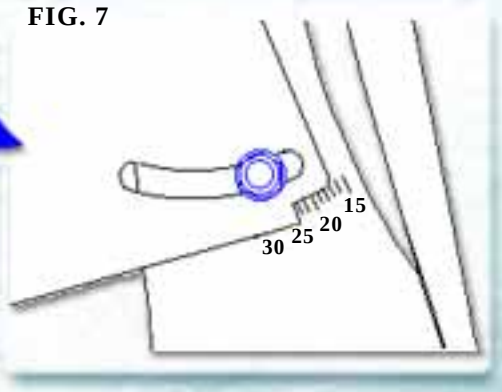


FIG. 7



5. How to find out the elevation value of the dish

5.1 With the same latitude value, calculate the elevation of the dish (fig. 7) according to the following formula:

Degrees of dish elevation = P – (60 – latitude)

P = degrees of dish elevation for fixed mount given by the manufacturer.

Example: - Latitude Venice = 45,5°

P (dish elevation given by the manufacturer) = 37°

Degrees of dish elevation = 37 – (60 – 45,5) = 22,5° (fig. 7)

6. Dish pointing

6.1 To point your dish easily, refer to the satellite the nearest to your longitude (see map on page 5).

6.2 Calculate the difference between the reference satellite and your position considering that:
positive values = Eastwards moving
negative values = Westwards moving

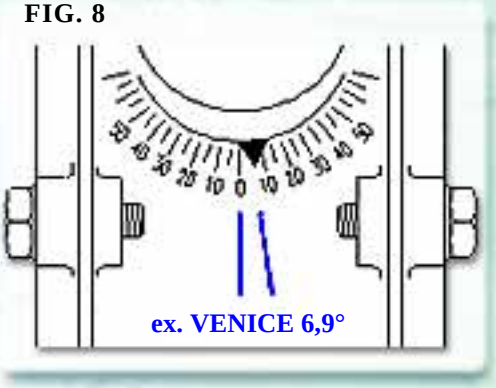
Example 1: Installation VENICE Longitude 12,3° EAST
Reference satellite ASTRA Longitude 19,2° EAST
19,2 – 12,3 = +6,9 The position of ASTRA at your location is 6,9° EAST (see fig. 8)

Example 2: Installation VENICE Longitude 12,3° EAST
Reference satellite EUTELSAT F2 Longitude 10°EAST
10 – 12,3 = –2,3 The position of EUTELSAT at your location is 2,3° WEST

6.3 With the receiver's remote control (see receiver's instructions manual - paragraph dedicated to the motor), move the rotor by short impulses Eastwards or Westwards to reach the calculated value. To coordinate this operation it is necessary that the receiver is near the dish or that somebody can assist you: while the first one uses the remote control near the receiver, the other one will inform when the dish has reached the correct position on the graduated scale of the rotor.

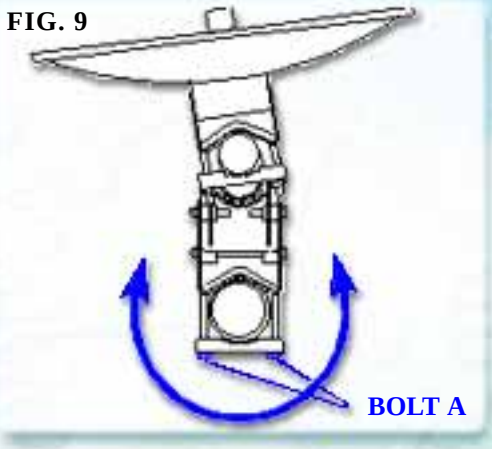
Example: VENICE - around 6,9° EAST - (fig. 8)

FIG. 8



6.4 **Disconnect the cable going to the receiver from the rotor and connect the field-strength meter. Unscrew the bolts that hold the rotor to the main pole and then rotate EASTWARDS or WESTWARDS both the rotor and the dish locked together (fig. 9 - Bolt A) until you obtain the best reception quality; tighten then again the bolts. If you cannot use a field-strength meter, you need anyway to place a TV near the dish to check the image definition. Connect the rotor again.**

FIG. 9



6.5 **Store the sat position (see receiver's instructions manual - paragraph dedicated to the motor), then operate a recalculation (see paragraph 11.2) (if your receiver enables this function); otherwise find out the other sat positions and store them one by one. If the previous steps have been correctly carried out, you should now be able to see all satellites including the lower East and West orbital ones.**
If this procedure was not carried out properly, you might experience imperfect reception of the satellites in the most eastwards and westwards positions. To correct this, you must proceed as follows: - select a non-crypted channel on the most Eastward satellite, then bend slightly the dish upwards / downwards without loosening any bolts and check if there is any picture improvement. Repeat the same procedure also with the most Westward satellite. In these conditions four possible cases could occur:

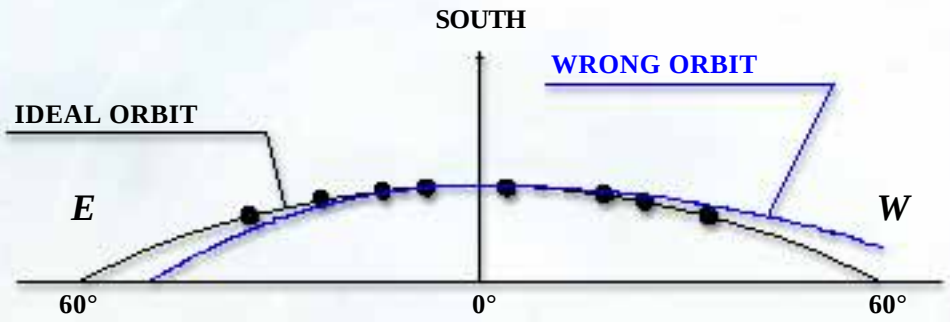
Case n. 1 **If there is a picture quality improvement while bending up the dish on the Eastward sat position and bending down on the Westward sat position unscrew slightly the bracket and rotate westwards (clockwise) the rotor and the dish locked together (fig. 11). Tighten the screws of the supporting bracket, then correct the dish orientation and go to the reference satellite by using the receiver's remote control (see receiver's instructions manual - paragraph dedicated to the motor). Find the best picture and store the new position. Now you can operate the recalculation (if your receiver gets the function). If not, you have to go back to each memorized position, check the best picture and store all positions one by one.**

Case n. 2 **If there is a picture quality improvement while bending up the dish on the Westward sat position and bending down on the Eastward sat position unscrew slightly the bracket and rotate eastwards (anticlockwise) the rotor and the dish locked together (fig. 12). Tighten the screws of the supporting bracket, then correct the dish orientation and go to the reference satellite by using the receiver's remote control (see receiver's instructions manual - paragraph dedicated to the motor). Find the best picture and store the new position. Now you can operate the recalculation (if your receiver gets the function). If not, you have to go back to each memorized position, check the best picture and store all positions one by one.**

Case n. 3 **If the picture quality improves while bending the dish Up/East on the Eastward sat position and Up/West on the Westward sat position, you should unscrew the motor support from the pole and lower slightly the elevation of the complete system (fig. 13). Find the best picture and store the new position. Now you can operate the recalculation (if your receiver gets the function). If not, you have to go back to each memorized position, check the best picture and store all positions one by one.**

Case n. 4 **If the picture quality improves while bending the dish downwards/both eastwards and westwards, you should loosen the rotor's fixing screws and increase slightly the elevation on the bracket (fig. 14). Find the best picture and store the new position. Now you can operate the recalculation (if your receiver gets the function). If not, you have to go back to each memorized position, check the best picture and store all positions one by one.**

FIG. 11



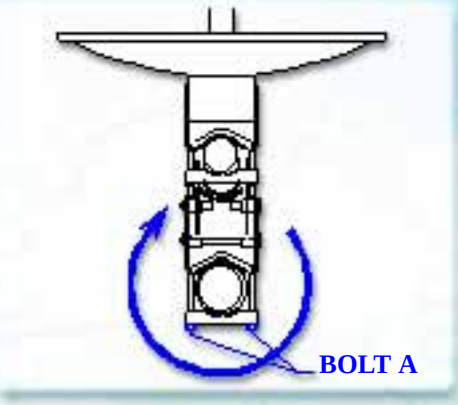
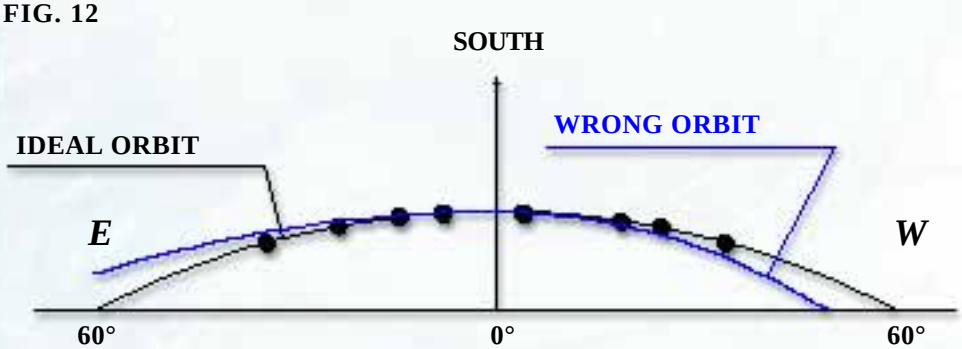


FIG. 12



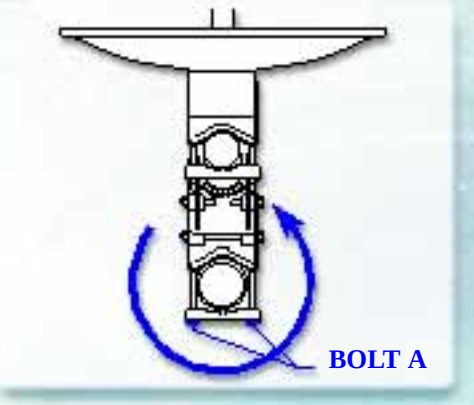
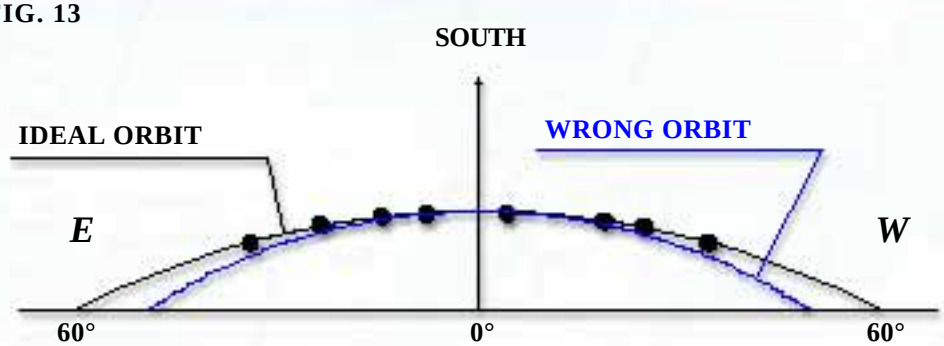


FIG. 13



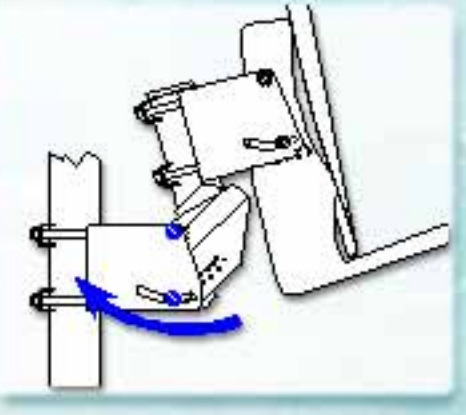
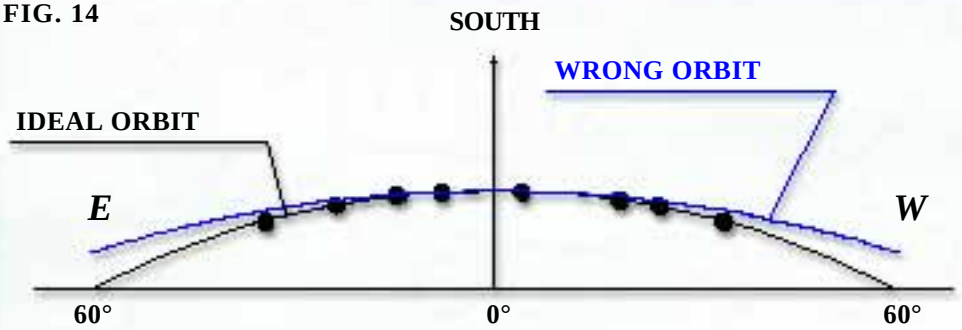
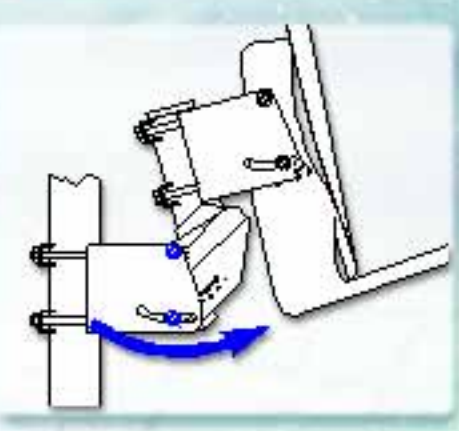


FIG. 14





10. EAST - WEST limits (only for enabled receivers)

10.1 **The rotor is designed to rotate from 62° EAST to 62° WEST.**

10.2 **Two limits are set electronically at ± 65° and mechanically at ± 70° to protect the maximum rotation. Within these limits you can though set two new electronic limits included between 5° ÷ 62° EAST and 5° ÷ 62° WEST; over these ranges the motor does not accept any memorization.**

10.3 **Setting the limits might become necessary if the rotor cannot perform the full rotation because of an obstacle.**

10.4 **To remove, to set and to store the limits, see the receiver's instructions manual on the paragraph dedicated to the limits.**

10.5 **If not really necessary, please maintain the limits in the pre-programmed positions at ± 50°.**

11. Recalculation function

11.1 **The rotor includes 49 satellites positions: 26 positions are pre-set, as shown on the table below, and 23 still available.**

Pos. nr.	Satellite	Posizione
1	HOT BIRD	13° E
2	ASTRA 1	19,2° E
3	EUTELSAT F3	16° E
4	EUTELSAT F2	10° E
5	EUTELSAT F4	7° E
6	SIRIUS	5° E
7	TELECOM-2C	3° E
8	INTELSAT 707	1° W
9	TELECOM-2B,2D	5° W
10	TELECOM-2A	8° W
11	INTELSAT 705	18° W
12	INTELSAT STAR	21° W
13	INTELSAT 803	27° W
14	HISPASAT	30° W
15	ORION	37° W
16	KOPERNICUS 3	23° E
17	ARABSAT 2A	26° E
18	ASTRA 2	28° E
19	KOPERNICUS 2	28° E
20	ARABSAT 2B	30° E
21	TURKSAT 1B	31° E
22	TURKSAT 1C	42° E
23	INTELSAT 601	34,5° E
24	PAS 1	45° W
25	AMOS	4° W
26	THOR	0,8° W

11.2 The recalculation function automatically calculates and sets all pre-programmed satellites positions with reference to the position of a single satellite. In other words after you have found and stored one satellite, the recalculation procedure enables the automatic re-positioning of the other satellites inside the rotor's memory to a pre-defined distance, as shown on the above table.

12. Return to the 0° position of the rotor (only for enabled receivers)

12.1 This function enables the rotor to return to the 0° position and to reset the inside counter. It is very important to re-align all satellite positions that can be slightly slided eastwards or westwards from the reference stored positions (bad picture or lost positions).

12.2 In the receivers' menu this function could be named as: "RE-ALIGN", "RESET", "GO TO POS 00", "REFERENCE". In some receivers this operation is automatic.

12.3 After this command, check if the satellite positions are correct.

12.4 If this function is not implemented in your receiver, you need to connect temporarily an interface and press the remote control buttons "FUNC and RESET".

13 Autofocus (only for enabled receivers)

13.1. The rotor is provided with a special function called "autofocus": this procedure allows the rotor to focus automatically the satellites before storing. Only some receivers are provided with this command.

PROBLEMS SOLVING GUIDE

WARNING! NEVER SWITCH OFF THE RECEIVER WHILE THE MOTOR IS MOVING TO AVOID THE LOSS OF ALIGNMENT.

PROBLEM	CAUSE	REMEDY
1. The rotor does not rotate.	• The receiver is blocked. • Oxidised connectors. . • Coaxial cable badly wired.	• Reset the receiver or disconnect it from the mains for 30 seconds. • Substitute connectors. • Check F connections on the cable (fig. 4).
2. The rotor slightly exceeds the stored sat positions (disturbed pictures). 3. The rotor lost all satellites positions (no picture). 4. The rotor is blocked at the extremes.	• The receiver has been switched off many times while the rotor was moving. • Electrical micro-interruptions. • The rotor received a command wrongly. • The receiver sent a wrong command.	• Send re-alignment command (par. 12). • Find a satellite and operate the re-calculation function (only for enabled receivers, par. 11), or store again all sat positions one by one.
5. The rotor does not rotate beyond a certain position.	• A limit has been set and stored on this position.	• Remove the limits and store them again in more appropriate positions (par. 10).
6. The rotor does not focus the sat positions even after the recalculation procedure (only for enabled receivers).	• The dish pointing procedure was not carried out correctly.	• Repeat dish pointing procedure following carefully the instructions on page 6 - parag. 6 “DISH POINTING”.
7. Extreme East/West satellites signals are not received. 8. Central satellites signals are not received.	• Wrong setting of rotor’s elevation angle.	• Repeat more carefully the procedures on page 6, paragraphs 4, 5, 6.

WARRANTY CONDITIONS

This rotor is produced and tested by our laboratory with extreme care and carries a warranty for 12 months from purchase date.

A copy of the shop receipt or the invoice represent the warranty document and must be sent together with the set when returned. This warranty covers all production defects and working faults, but excludes all damages caused by drops, incorrect use or external oxidations due to incorrect installation. Any repair made by unauthorised personnel will automatically cancel this warranty.

For further information and advices about installation and uses contact

YOUR LOCAL DEALER

or

STAB Technical Office:

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