ANTENNA EXPERTS

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Model # AP-145019 1300 – 1600 MHz. 19 dBi. Gain

INSTALLATION MANUAL – GRID PARABOLIC ANTENNA

NOTICE:

Installation, maintenance or dismounting of the grid parabolic antenna system requires qualified and experienced personnel. Antenna Experts Installation instructions have been prepared and are meant for skilled personnel only.

Antenna Experts disclaims any liability or responsibility as a result of improper or unsafe installation practices.

MATERIALS AND FINISH:

Following materials are used for the fabrication of Grid Parabolic Antennas and its accessories.

Grid Parabolic Reflector:	6063T6 Aluminum, Military Color Powder Coating finish.
Mounting Hardware:	All stainless steel, Military Color Powder Coating finish.
Fasteners:	All Marine Grade Stainless Steel.
Dipole Feed:	All Aluminum with Military Color Powder Coating finish.
Insulator:	PTFE (TEFLON).

1 INTRODUCTION:

AP series grid parabolic antenna reflector consists of numbers of grid members to handle the maximum wind pressure and supplied in assembled condition for quick installation. When assembled, the antenna can be mounted on a vertical pipe having a outer diameter of 50-75 mm (2-3 Inches).

1.1 GRID PARABOLIC REFLECTOR:

Grid parabolic reflector is supplied complete in assembled condition for quick installation.

1.2 UPPER SUPPORT ARM:

Upper support arm is supplied to hold the antenna from top. Upper support arm includes “U” bolt hardware and locking nuts/bolts.

1.3 LOWER SUPPORT ARM:

Lower support arm is supplied with the antenna to hold the antenna from lower side. Lower support arm consists of elevation adjustment mechanism (2 sets of 6 inches long bolts and double nuts) along with “U” bolt hardware and locking nuts/bolts.

1.4 STOPPER:

A stopper is supplied with the antenna to hold the weight of the antenna during installation and adjustment/tracking for optimization of the signal strength of the radio link.

1.5 DIPOLE FEED:

Dipole Feed having N-Female termination is supplied with the antenna along with feed holder to mount the dipole feed on center of parabolic reflector using two studs fixed on the center plate.

2. PACKING LIST

Sl. No.	Item/Description	Quantity
01.	Parabolic Reflector in assembled condition.	1 Set.
02.	Dipole Feed complete with feed holder.	1 Each.
03.	Upper Support Arm complete with “U” bolt.	1 Each.
04.	Lower Support Arm complete with “U” bolt.	1 Each.
05.	Stopper to hold the Antenna on mounting pipe.	1 Each.
06.	Installation Instruction.	1 Each.
07.	Test Report.	1 Each.

3. PREPARATION:

It is recommended that the antenna is assembled in a flat clear area as close as possible to the final lifting point. Unpack all the materials and inspect for any shipment damage.

4. INSTALLATION OF DIPOLE FEED:

The Dipole feed is precision component, which should be handled with special care during installation. For instance, always carry the dipole feed supporting both ends using both hands. Any damage may degrade the antennas performance.

A center plate is fixed on the center of grid parabolic antenna with two studs fixed on it (facing front direction) to install the dipole feed on it. White color thread protecting caps are fixed on these studs to avoid any damage during transportation. Remove these thread protecting caps and Install the Dipole-Feed at the center of Parabolic Reflector using feed holder and nuts/bolts that are fixed on the center plate of grid parabolic reflector.

Position and orientation of the dipole feed is factory adjusted to get the optimized performance over specified frequency band. Don’t alter the position of dipole feed. Every care has been taken so that it can’t be mounted wrongly. A foolproof design has been implemented to avoid any cross-polarization between dipole feed and reflector.

5. PLANE OF POLARIZATION:

Initially the antenna is supplied in Horizontal polarization. Four aluminum blocks are welded on the support arc of antenna each having 2 holes at 90 degrees to each other. One set of these holes are used for horizontal polarization. To change the polarization from horizontal to vertical just rotate either the complete parabolic reflector or both (upper & lower) support arm and use another set of holes.

6. INSTALLATION OF UPPER SUPPORT ARM:

Initially the upper support arm are supplied and fixed for horizontal polarization. To change the polarization fix the upper support arm at the upper aluminum square mounting blocks that are welded on the support arc, using the supplied fasteners and other set of holes. Tighten the first nut sufficiently to take up free up/down movements of the support, than tighten the second nut against the first. Assemble the “U” type bolt on mounting pipe to hold the antenna from upper side.

7. INSTALLATION OF LOWER SUPPORT ARM:

Initially the upper support arm are supplied and fixed for horizontal polarization. To change the polarization fix the lower support arm at the lower aluminum square mounting blocks that are welded on the support arc, using the supplied fasteners and other set of holes. Tighten the first nut sufficiently to take up free up/down movements of the support, than tighten the second nut against the first. Assemble the "U" type bolt on mounting pipe to hold the antenna from lower side.

8. HOISTING ON TOWER:

The following material is required to hoist the antenna on the tower, not supplied by Antenna Experts:

1. Ropes
2. Pulley
3. Compass
4. Map
5. Socket wrenches for Hexagon nuts and bolts
6. Tape measure

Fix the pulley where the grid parabolic antenna to be installed on the tower. A rope nearly double in length of the proposed height of antenna is required to lift the antenna. One end of this rope should pass through the pulley and attached one end of rope to the rim of parabolic reflector to lift the antenna upwards.

Fasten one rope to the lower portion of parabolic reflector. This rope is used for optimal balance of the antenna due to the wind and to avoid hitting the antenna with tower. Slowly lift the antenna with the top rope into upright position.

9. INSTALLATION OF ANTENNA ON THE TOWER:

When the antenna is hanging free in the hoisting rope, mount the stopper on the mounting pipe, at the required height and direction and carefully tighten the nuts/bolts of the U-bolts.

Position the antenna on Stopper and loosely mount the U-bolts of upper support arm just above the stopper so that the stopper can hold the weight of the antenna during installation and tracking. Now loosely mount the U-bolts of lower support arm.

Align the antenna as exactly as possible to the specified direction, using the compass & local map, so that later fine adjustment can be done.

10. ELEVATION ADJUSTMENT:

Using a tracking mechanism, which is fixed on the lower support arm, can do elevation tracking. Before attempting the elevation tracking, make sure that both "U" bolt hardware of Lower support arm and Upper support arm are fully tight and all the locking nuts/bolts are fully loose. Rotating the tracking mechanism (2 sets of 6 Inches long bolts and double nuts) clockwise results in up-tilt tracking, where as rotating the tracking mechanism counter clockwise results in down-tilt tracking.

11. AZIMUTH ADJUSTMENTS:

Before attempting the azimuth tracking, make sure that all the locking nuts/bolts and both the "U" bolts hardware of Upper and Lower support arms are fully loose. Rotate the parabolic reflector in desired direction to obtain the maximum signal strength. Please note that the antenna has +/-5.5 degrees half power beam-width so a very fine adjustment is required. Please be patience while doing azimuth adjustment as slightly more push lead to you out of link range.

12. FINAL ADJUSTMENTS AND LOCKING THE HARDWARE:

Carefully repeat the azimuth and elevation adjustments to get the maximum signal strength and lock all the locking nuts/bolts and all "U" bolts hardware.

13. FINAL CHECK:

When the installation of the antenna has been completed, it is necessary to ensure that the installation instructions have been followed in all aspects.

It is especially important to recheck that the all nuts/bolts are tightly locked.

All ropes may then be removed.

14. MAINTENANCE:

Qualified, skilled personnel to verify proper installation and maintenance should inspect antenna system once a year.

Take VSWR reading by using RF Network Analyzer. The VSWR should never exceed 1:1.5.

Keep the record of VSWR measurements for future reference.