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› Diamond Antenna A502HB 6m Yagi Beam Instruction Manual

Diamond Antenna A502HB

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INSTRUCTION MANUAL

Introduction

This manual provides detailed instructions for the assembly, operation, and maintenance of your Diamond Antenna A502HB 6m (50-54MHz) 2 Element Base Station Yagi Beam antenna. Please read these instructions carefully before proceeding with installation and operation to ensure optimal performance and safety.

Product Overview

The Diamond Antenna A502HB is a high-performance 2-element Yagi beam antenna designed for the 6-meter band (50-54 MHz). It features a UHF (SO-239) connector for easy integration into your radio system. This antenna is engineered for both base station and portable use, offering high gain and robust construction.

- **High Gain:** Provides 6.3 dBi gain for enhanced signal reception and transmission.
- **Easy Assembly:** Designed for straightforward setup, suitable for various applications.
- **Factory Adjusted:** No tuning is required after assembly, ensuring immediate operation.
- **Durable Construction:** Built for reliability and longevity in outdoor environments.
- **Versatile Use:** Ideal for both fixed base stations and temporary portable setups.

Antenna Components



Image: The Diamond Antenna A502HB 6m Yagi Beam antenna, showcasing its two elements and boom structure. This image illustrates the compact design suitable for base or portable use.

Setup and Assembly

The A502HB antenna is designed for easy assembly. Follow these steps carefully to ensure correct installation.

1. **Unpack Components:** Carefully remove all parts from the packaging and verify against the packing list (if provided).
2. **Identify Elements:** Distinguish between the driven element and the reflector/director elements.
3. **Assemble Boom:** Connect any boom sections if the antenna is supplied in multiple pieces.
4. **Attach Elements:** Securely attach the antenna elements to the boom using the provided hardware, typically wing nuts for ease of assembly. Ensure all connections are tight but do not overtighten.
5. **Mounting:** Attach the assembled antenna to a suitable mast or support structure. Ensure the mounting location provides clear line-of-sight and is free from obstructions.
6. **Coaxial Cable Connection:** Connect a 50-ohm coaxial cable with a UHF (PL-259) connector to the antenna's SO-239 connector. Ensure the connection is secure and weatherproofed.
7. **Grounding:** For safety and performance, ensure the antenna system, including the mast, is properly grounded according to local electrical codes. The center element is insulated from ground.

Note: While the antenna is factory-adjusted and requires no tuning, proper assembly and mounting are crucial for optimal performance.

Operating Instructions

Once the Diamond Antenna A502HB is correctly assembled and mounted, it is ready for operation within the 50-54 MHz frequency range.

- **Connect to Transceiver:** Ensure your coaxial cable is securely connected to your 6-meter transceiver.
- **Power Rating:** Adhere to the specified power ratings: 400 watts P.E.P. (Peak Envelope Power) and 130 watts FM. Exceeding these limits can damage the antenna or your radio equipment.
- **Directional Operation:** As a Yagi beam antenna, the A502HB is directional. Orient the antenna towards the desired communication path for best results.
- **SWR Check:** Although factory-adjusted, it is recommended to perform a Standing Wave Ratio (SWR) check with an SWR meter to confirm proper installation and minimal signal loss. An SWR of 1.5:1 or lower is generally desirable.
- **Environmental Considerations:** Avoid operating the antenna during severe weather conditions, especially lightning storms.

Maintenance

Regular maintenance will help ensure the longevity and optimal performance of your Diamond Antenna A502HB.

- **Periodic Inspection:** Annually inspect all mechanical connections, including element-to-boom and mounting hardware, for tightness and corrosion.
- **Cable Inspection:** Check the coaxial cable and connector for signs of wear, damage, or moisture ingress. Replace damaged cables or connectors promptly.
- **Weatherproofing:** Ensure all outdoor connections, especially the UHF connector, are properly weatherproofed using self-amalgamating tape or similar methods.
- **Cleaning:** Gently clean the antenna elements and boom with a soft cloth and mild detergent if dirt or grime accumulates. Avoid abrasive cleaners.
- **Wind Resistance:** While designed for up to 80 MPH wind resistance, inspect the antenna and mast after severe weather events for any structural damage.

Troubleshooting

Issue	Possible Cause	Solution
High SWR readings	- Loose or corroded connections - Damaged coaxial cable - Antenna elements not properly assembled - Proximity to metallic objects	- Check and tighten all connections. - Inspect and replace damaged cable. - Verify element placement and tightness. - Relocate antenna away from obstructions.
Poor signal reception/transmission	- Incorrect antenna orientation - Damaged antenna elements - Faulty transceiver or feedline	- Adjust antenna direction for optimal signal. - Inspect elements for bends or breaks. - Test transceiver and feedline independently.
Antenna instability	- Loose mounting hardware - Inadequate mast support	- Tighten all mounting bolts and clamps. - Ensure mast is securely anchored and guyed if necessary.

Specifications

Model	A502HB
Frequency Range	50-54 MHz (6m Band)
Elements	2 Element Yagi
Gain	6.3 dBi
Power Rating (P.E.P.)	400 Watts
Power Rating (FM)	130 Watts
Connector	UHF (SO-239)
Antenna Length	2.6 feet (approx. 0.79 meters)
Antenna Weight	3.75 lbs (approx. 1.7 kg)
Shipping Weight	9.6 pounds (approx. 4.35 kg)
Max Wind Resistance	80 MPH (approx. 129 km/h)
Special Feature	Center element insulated from ground
UPC	712265206775

Warranty Information

The Diamond Antenna A502HB is covered by the manufacturer’s standard warranty. For specific details regarding warranty terms, duration, and claims procedures, please refer to the documentation included with your purchase or visit the official Diamond Antenna website. Keep your proof of purchase for warranty validation.

Customer Support

Should you encounter any issues or have questions not addressed in this manual, please contact Diamond Antenna

customer support. Contact information can typically be found on the manufacturer's official website or on the product packaging. When contacting support, please have your product model number (A502HB) and purchase details ready.

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