



**12 Meter
Add-On Kit
for the Hustler
4/5/6-BTV
Vertical
Antennas**

DXE-AOK-12M
Patent Pending
DXE-AOK-12M-INS Revision 0

**DXE-AOK-12M Installed on a BTV
with optional Tilt Base
and Direct Coax Feedpoint**



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P.O. Box 1491 · Akron, OH 44309-1491
Phone: (800) 777-0703
Tech Support and International: (330) 572-3200
Fax: (330) 572-3279
E-mail: DXEngineering@DXEngineering.com

The DX Engineering **DXE-AOK-12M** kit adds 12 meter coverage to the Hustler BTV series of vertical antennas without giving up any existing band coverage. This kit will operate across the entire 12 meter band with an SWR of 1.5:1 or less and adds negligible wind loading to the antenna.

No disassembly of the existing antenna is required.

Simply install this kit, check the tuning (if needed, make some minimal tuning adjustments to the vertical) and you're on the air with an additional band.

If your BTV is installed on the roof or in an elevated position, four resonant radials for 12 meters should be added (9 ft., 4-5/8 inches each).

Included Materials

- Pre-assembled 14 ga stranded, tin coated, FLEX-WEAVE™ 12 Meter element wire with soldered ring terminals
- Three Stainless Steel Band Clamps with Threaded Studs
- Bottom Stainless Steel mounting bracket
- Upper Insulated Mounting Bracket
- Two 9 inch Hot Roz™ with black vinyl covers for one end
- Scotch-Brite® Pad for cleaning the BTV base lower aluminum element connection
- All Stainless Steel Hardware

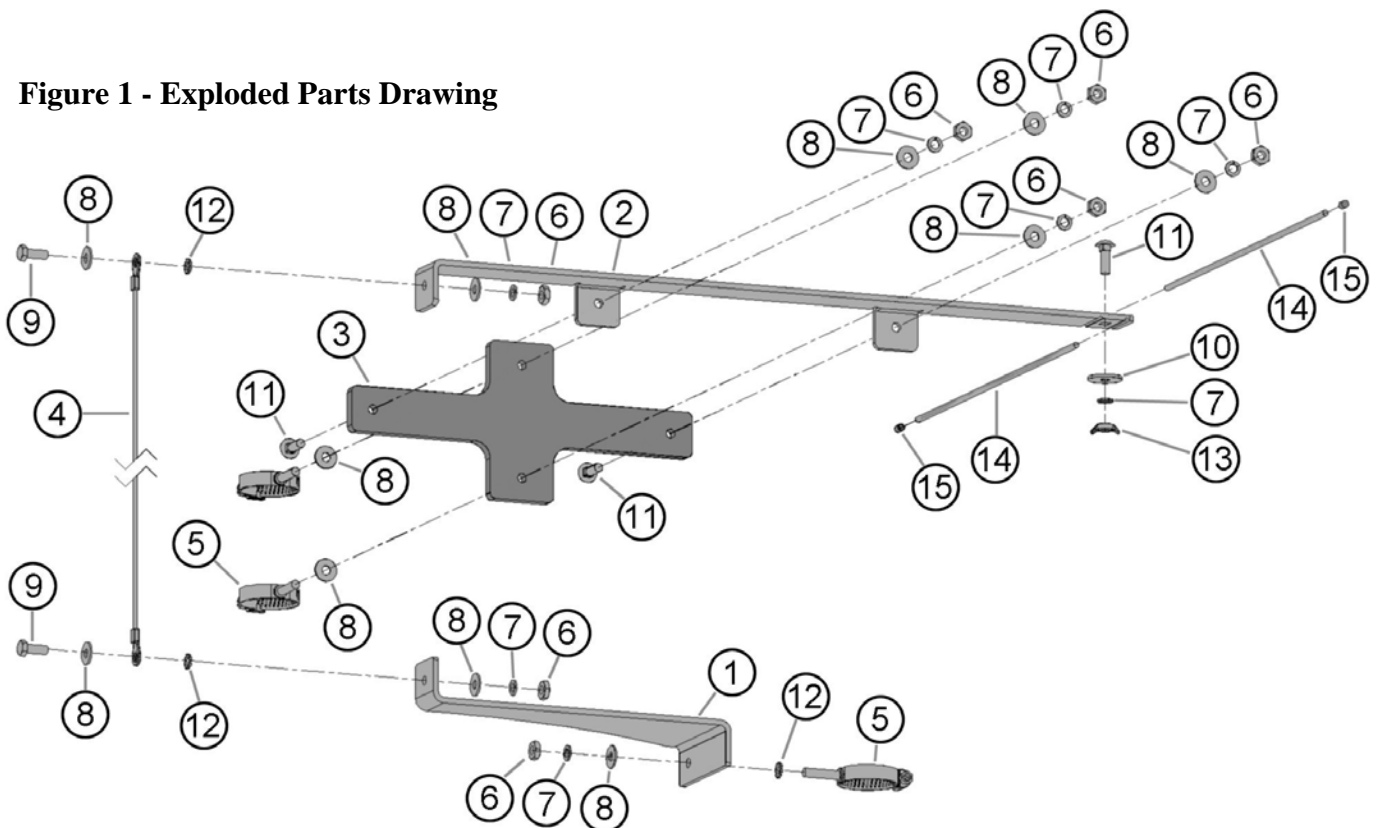


DXE-AOK-12M shown installed on a Hustler 6 BTV with optional DXE-TB-3P Tilt Base and optional DXE-AOK-DCF Direct Coax Feed

Parts List

Item # Figure 1	Description	Quantity
①	12 M Add On Kit - Bottom Bracket	1
②	12 M Add On Kit - Top Bracket	1
③	12 M Add On Kit - Mounting Plate	1
④	FLEX-WEAVE™ Wire assembly, 14 ga. with soldered terminals	1
⑤	1-1/4" Stainless Steel Studded Clamp	3
⑥	# 10-24 Stainless Steel Hex nut	7
⑦	# 10 Stainless Steel Split washer	8
⑧	# 10 Stainless Steel Flat washer	11
⑨	# 10-24 x 1/2" Stainless Steel Hex Head Bolt	2
⑩	# 10 x 1" Stainless Steel Fender washer	1
⑪	10-24 x 5/8" Stainless Steel Carriage Bolt	3
⑫	# 10 Stainless Steel External Star Washer	3
⑬	# 10-24 Stainless Steel Wing Nut	1
⑭	1/8" Diameter x 9" Stainless Steel Hot Rodz™	2
⑮	1/8" Black Vinyl Cap	2
	Scotch-Brite® Pad	1

Figure 1 - Exploded Parts Drawing



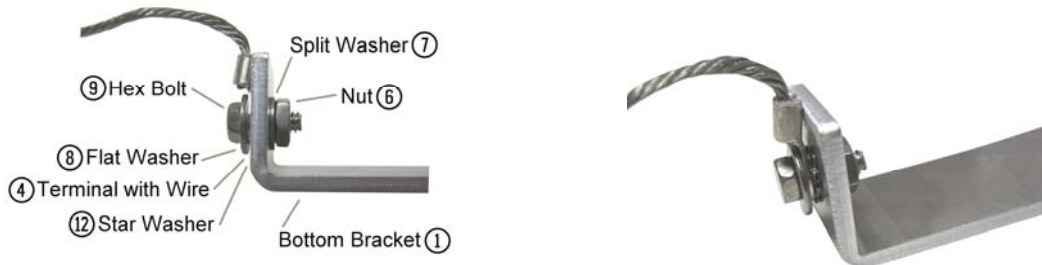
Assembly

Before you start installation, measure the low SWR frequencies of your Hustler BTV on each band and record those measurements. This will assure your antenna is working properly before adding the 12 meter kit, and aid in making minor adjustments afterwards, if needed.

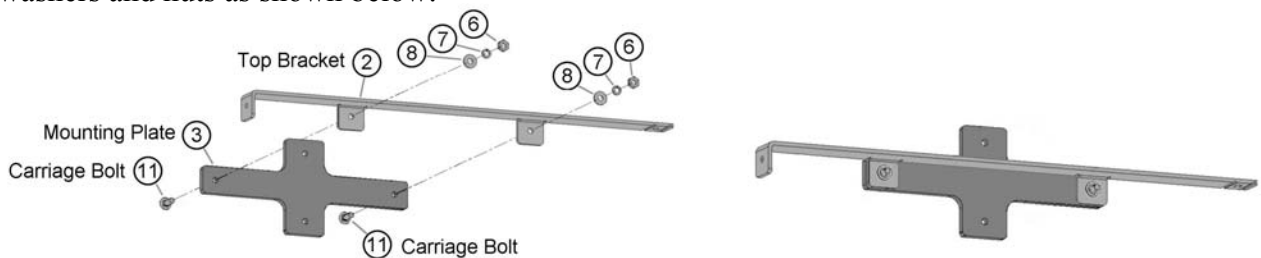
1. Assemble one of the studded band clamps to the wide end of the bottom bracket using a star washer, flat washer, split washer and nut as shown below.



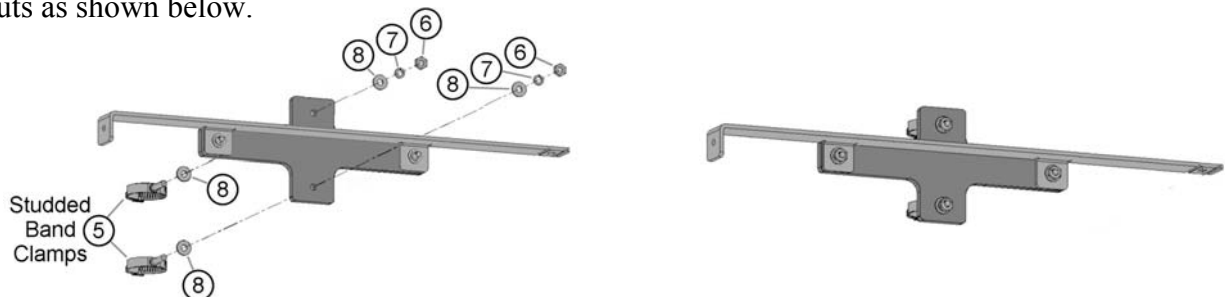
2. Install the FLEX-WEAVE™ Wire Assembly to the narrow end of the bottom bracket using a hex bolt, flat washer, star washer, split washer and nut as shown below.



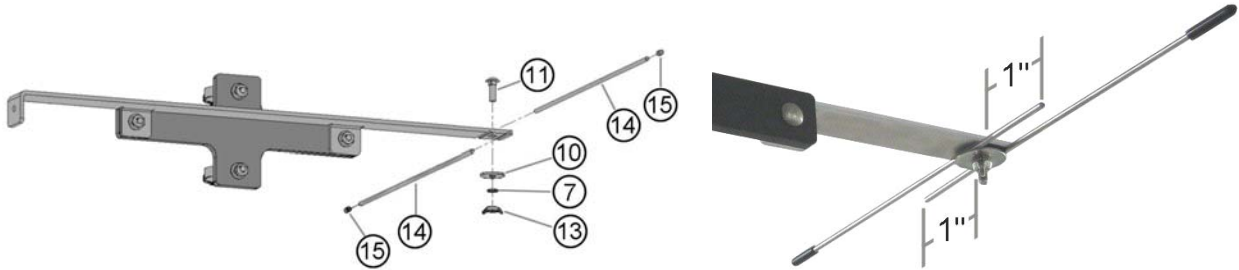
3. Assemble the top bracket to the mounting plate using two carriage bolts, flat washers, split washers and nuts as shown below.



4. Install the two studded band clamps to the mounting plate using flat washers, split washers and nuts as shown below.



5. Install the Hot Rodz™ to the top bracket using a carriage bolt, fender washer, split washer and wing nut. The Hot Rodz™ fit in the grooves on the bottom side of the bracket. Adjust the length of the Hot Rodz™ to approximately 2 inches as shown below. Hand tighten the wing nut to the Hot Rodz™ are held firmly in place. Install the black tips on the longer ends as shown below.



Attaching to the Hustler Vertical

The orientation of the 12m kit on the Hustler BTV is important. The positioning of the 12 meter kit must be such that it does not interfere with the tilting of the antenna. If you are using a DX Engineering Tilt-Base, tilt the antenna down to make installation of this kit to the Hustler BTV.

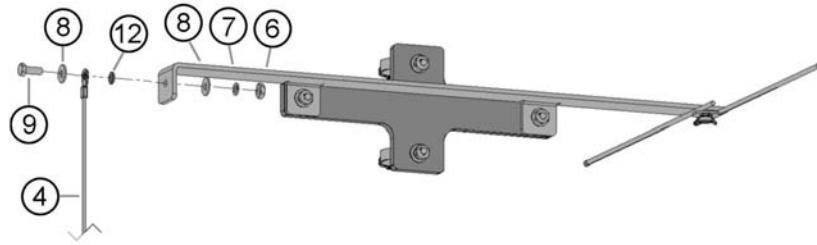
No matter which Hustler BTV model you have, installation of the 12m kit is identical. The kit upper mounting plate attaches directly to the vertical just below the 10m trap as shown using the stainless steel studded band clamps. Final Adjustment of this upper assembly will be done after you connect the FLEX-WEAVE™ 12 meter wire from the lower mounting bracket.

Clean the BTV base section using the included Scotch-Brite® pad to ensure a good connection. The bottom mounting bracket is attached to the BTV base section using the stainless steel studded band clamp as shown.

Note: *Be sure that the connection between the lower mounting bracket and the BTV base section tubing is clean and the studded band clamp is tight. Some surface film may have developed on the BTV tubing over-time. Poor connections here can cause erratic readings. Clean the area using the included Scotch-Brite® pad and use a small amount of Penetrox A for good electrical connection between the band clamp and the antenna base element.*



Connect the FLEX-WEAVE™ 12 meter wire assembly to the top bracket using the hex bolt, flat washers, star washer, split washer and nut as shown below.



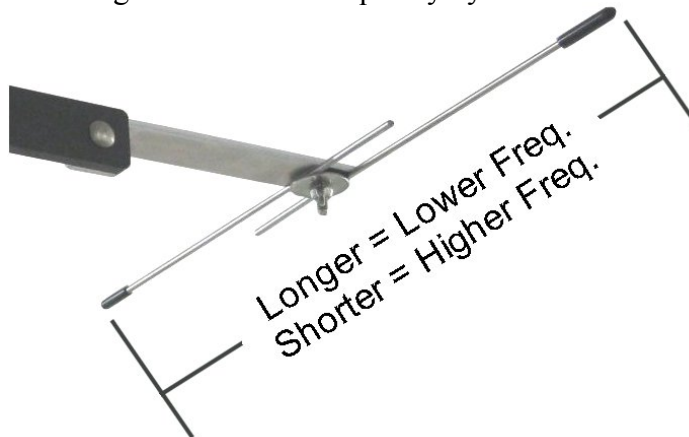
Final positioning of the top and bottom brackets should be done so the FLEX-WEAVE™ 12 meter wire is parallel to the Hustler BTV lower element. The Top and Bottom Brackets are in line and the wire running between the brackets should be snug, but not so tight that it puts strain on the antenna element.



Tuning

An antenna analyzer is the best way to adjust the low SWR frequency of the antenna. Measurements should be made at the antenna using a short (5 or 6 ft) piece of 50Ω coax between the antenna and the analyzer. If you are too close to the antenna your presence can affect the tuning, if you are too far, the coax length may act as a radial and resonate. Taking readings close to the antenna also eliminates the possibility of a long or marginal feedline influencing the tuning or causing erratic readings. If necessary, tune the antenna for low SWR on 24.930 MHz. Normally, the SWR readings go down somewhat and the bandwidth readings increases once the feedline is reconnected and you measure the SWR at the operating position.

Adjustment of the low SWR frequency is done by slightly loosening the wing nut holding the Hot Rodz™ and adjusting the length of the Hot Rodz™. Adjust both Hot Rodz™ longer to go lower in frequency or shorter to go higher in frequency. Both Hot Rodz™ should be adjusted equally and should not need to be adjusted more than a couple of inches. Make adjustments in small steps. 1/2 in. of adjustment should change the resonant frequency by about 75 kHz.



Notes on Tuning the Vertical

The 12m add-on kit electrically couples to the rest of the vertical and does have some influence on the tuning of adjacent bands. If retuning is required make minor adjustments as necessary. Refer to the DX Engineering BTV Installation and Assembly Guide available from DX Engineering at: www.dxengineering.com

In some installations, particularly those with very good soil conditions or a very good radial system, the traps themselves may have been changed from factory dimensions during the initial installation of the vertical to resonate the vertical in each band. In those cases where the traps have already been adjusted, leave them as-is for now.

Check the vertical for low SWR on each band and note those frequencies. This will help determine what adjustments are needed. After installation and tuning of the 12m kit, the BTV will likely be tuned to about the same frequency in the 10 meter band and a little higher in the 15 and 20 meter bands. No difference is likely on 30, 40 or 80 meters. In most cases, re-tuning to the desired frequencies for each band can be accomplished by adjusting the tubing dimensions of each section as described in the DX Engineering Hustler BTV Installation and Assembly Guide.

Technical Support

If you have questions about this product, or if you experience difficulties during the installation, contact DX Engineering at (330) 572-3200. You can also e-mail us at:

DXEngineering@DXEngineering.com

For best service, please take a few minutes to review this manual before you call.

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