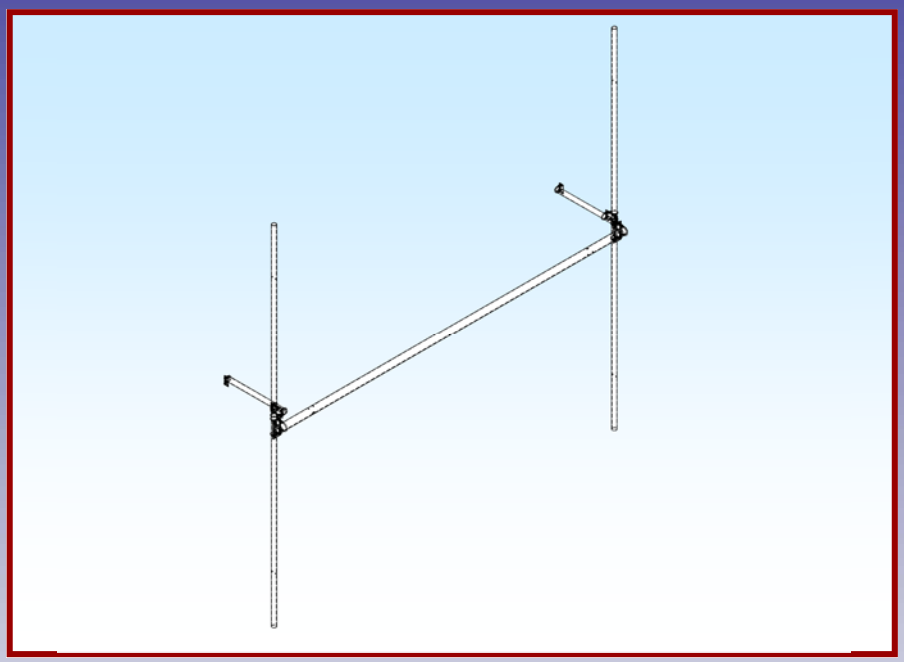
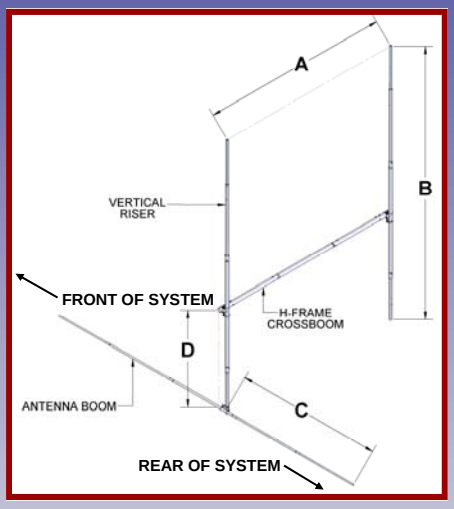
M2 Antenna Systems, Inc.
Model No: HF2MHD-2X2





SPECIFICATIONS:

Model	HF2MHD-2X2
Band	2M
Antenna	N/A
T-Brace	N
Cross Boom Dia	3.0 “
Wind Load w/o Ant.	6.42 SQ FT.

Weight	60 LBS
A Dim	176”
B Dim	180”
C Dim	100”
D Dim	90”

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FEATURES:

M2 has been a leader in high performance antennas since it started back in 1984. In addition to specialized antenna designs, we also developed a diverse line of multiple antenna support structures (loosely referred to as H frames) to maintain that high level of performance. Just like the antenna, the support structure becomes nearly as complex and varied. All antennas have a defined near field size and shape and in order to achieve maximum “array performance”, the support structure must accommodate the careful coupling of these near fields.

In many cases the support structure, has to meet special customer requirements like size, weight, wind speed or area, and weather issues. Our standard H frames then are a composite of these features that should satisfy most customer needs. We enjoy discussing your needs and offering our opinion regarding what best can meet your situation.

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07/22/2015
Rev.00

HF2MHD-2X2 ASSEMBLY MANUAL

All installations are unique in some way, which means it's OK to preassemble certain hardware, or rearrange the assembly process to meet specific site requirements. A quick review of the assembly notes and drawings should help firm up the appropriate strategy. Please remember to double-check all hardware for tightness BEFORE it becomes inaccessible.

These notes assume an assembled cross boom of adequate dimensions and U-bolts of the same size for attaching H-frame plates. Unless you ordered a COMPLETE M2 'H' FRAME. If you just ordered the vertical booms and specified a cross boom U-bolt size when ordering, some drilling or other fabrication may be necessary. Stainless locknuts or nuts and lock washers are supplied for all kit U-bolts. All other assembly hardware is stainless steel unless otherwise noted. Forged steel parts are galvanized.

REFER TO THE 'H' FRAME DRAWING AND THE 'T' BRACE KIT DRAWING FOR PLACEMENT AND HARDWARE CALLOUT.

VERTICAL BOOM ASSEMBLY.

1. Mark the center of each 2" x 180" vertical leg with a marker pen or equivalent. Attach a 1/4" X 4 X 8" VERTICAL BOOM MOUNTING PLATE at the center of each vertical leg. NOTE: IF YOU HAVE THE M2 'T' BRACE KIT, Also install the two (2) 4" OR 3" U-bolts in each plate that will attach each vertical leg to the MAIN BOOM.

3" MAIN BOOM PREPARATION

1. When using a 3" MAIN BOOM, over head guy support of the MAIN BOOM is important. If You are using an M2 MT-1000 Elevation Mechanism, Slide the 3" x 180" tube into the MT-1000 and center. Mount the two RISER BRACKETS (welded) on top of the MAIN BOOM use the MT-1000 as a guide to the location of the two RISER BRACKETS on each side . Slide the 4 RISERS into the RISER BRACKET plugs and secure with 1/4-20 x 1 3/4 Bolts and locknuts. Bolt each pair of RISERS together with the RISER BAR, using 1/4-20 x 1 3/4 Bolts and locknuts. This will determine spacing of the two RISER BRACKETS. One set of risers point at the horizon when the array is pointed at the horizon and the other set of risers points straight up when the array is pointed at the horizon (0 degrees).

2. Install two 3/8" eye bolts in each end of the main boom. Install a cable eye in each eyebolt. Attach the 1/8" cord. (HPTG 1200) at each eyebolt using two 1/8" clips. Install the turnbuckles to the RISER BAR and install cable eyes in the eye end of the turnbuckle. Attach the 1/8" cord to turnbuckles using Two 1/8" clips. Tension the turnbuckles evenly until main boom has no droop.

MOUNTING VERTICAL BOOM

1. Attach the VERTICAL BOOM assemblies to each end of the MAIN BOOM, noting the correct spacing for the antennas in the array. NOTE THE ANTENNAS MOUNT ON THE OUTSIDE OF THE VERTICAL BOOMS. Align the vertical booms with the overhead riser in the middle of the main boom. Also and more important, align each vertical boom with the other so when all the antennas are mounted, the left side of the array will point at the same point as the right side. Some tweaking of all alignment and balancing will probably be necessary once the whole array is assembled and in place on the main boom.

HF2MHD-2X2 ASSEMBLY MANUAL

PHASE LINE STANDARDS

1. As a standard, all phase lines produced by M2 are phase matched as a set and are even or odd 1/2 wave multiples at a specific frequency.
2. Lengths are determined by the individual antenna, and the recommended spacing for that antenna. An accepted practice for shortening of phase lines for decrease line loss can be achieved by cutting corners at the point where the antenna attaches to the vertical riser boom and where the vertical riser boom attaches to the main cross boom. How aggressive the corner is cut is up to the individual user or M2.
3. Routing of phase lines on linear arrays is normally run down the booms of the antennas and down the vertical risers to the main cross boom to the power dividers. When exiting the phase line from the boom you should always exit the phase line perpendicular to the elements.
4. Routing of phase line on circular or cross polarized arrays is normally routed off the rear of the booms, sometimes not supported on smaller arrays. As a standard routing of the rear of the booms require phase line supports or **"T" Brace kits.** Contact M2 for options on H-Frames, "T" Brace kits, And Phase kits.

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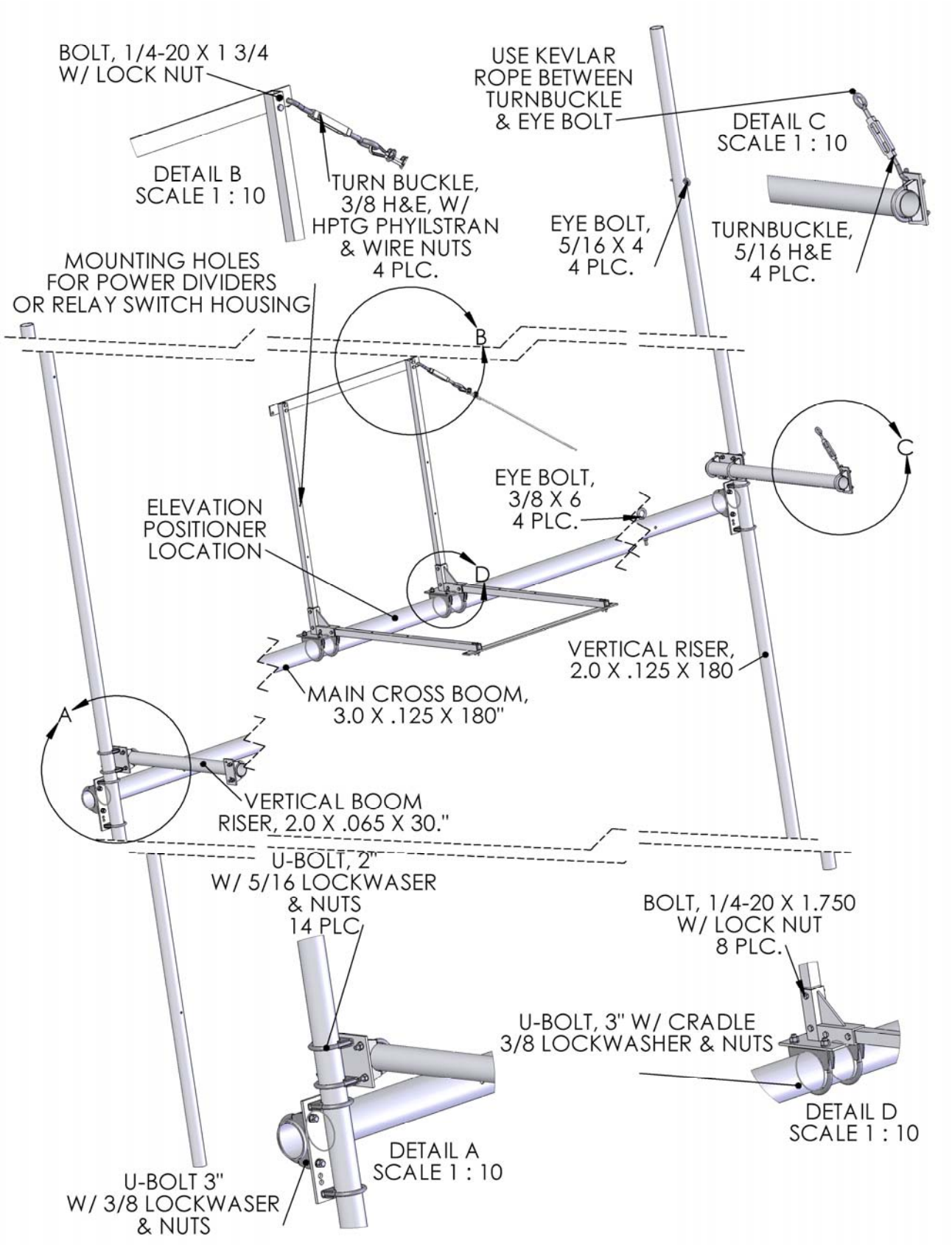
HF2MHD-2X2 ASSEMBLY DETAIL



HF2MHD-2X2 PARTS & HARDWARE

DESCRIPTION	QUANTITY

3” MAIN CROSSBOOM & OVER HEAD GUY COMPONENTS

CROSSBOOM TUBE 3” X .125 X 180”..... 1
RISER BRACKET, (WELDED) 2
RISER, 1.0 X 1.0 X .125 SQ ALUM TUBE..... 2
RISER BAR, 1/4 X 1.5 X 30”..... 2
U-BOLT & CRADLE, 3”..... 10
EYE BOLT, 3/8 X 5”..... 4
TURNBUCKLE, 3/8 (HOOK AND EYE)..... 4
PHYILISTRAN, HPTG-1200 ..... 33’

HARDWARE

WIRE CLIP, 1/8..... 16
CABLE EYE, 3/16 ZINK..... 8
ADEL CLAMP, # (1/4 HOLE) .....
NUT, 3/8-16 SS..... 24
LOCKWASER, 3/8 SS 24
BOLT, 1/4-20 X 1.750 SS 20
NUT, LOCKING 1/4-20 SS 20

VERTICAL BOOM COMPONENTS

BOOM, VERTICAL 2 X .125 X 180” ALUM TUBE..... 2
VERT BOOM RISER, 2 X .065 X 30” ALUM TUBE..... 2
PLATE, VERT. BOOM, 4 X 8 X.250" 6061-T6 (3 X 2 UB) 2
PLATE, VERT. BOOM RISER, 4 X 6 X .250 (2 X 2 UB).... 2
U-BOLT & CRADLE, 2" 14
TURN BUCKLE PLATE, 2 X 4 X .188..... 2
TURNBUCKLE, 5/16 (HOOK & EYE) 4
EYE BOLT, 5/16 X 4..... 4
KEVLAR ROPE, .125 DIA X 17’ 2

HARDWARE

NUT, 5/16-18 SS..... 32
LOCKWASHER, 5/16 SS..... 32