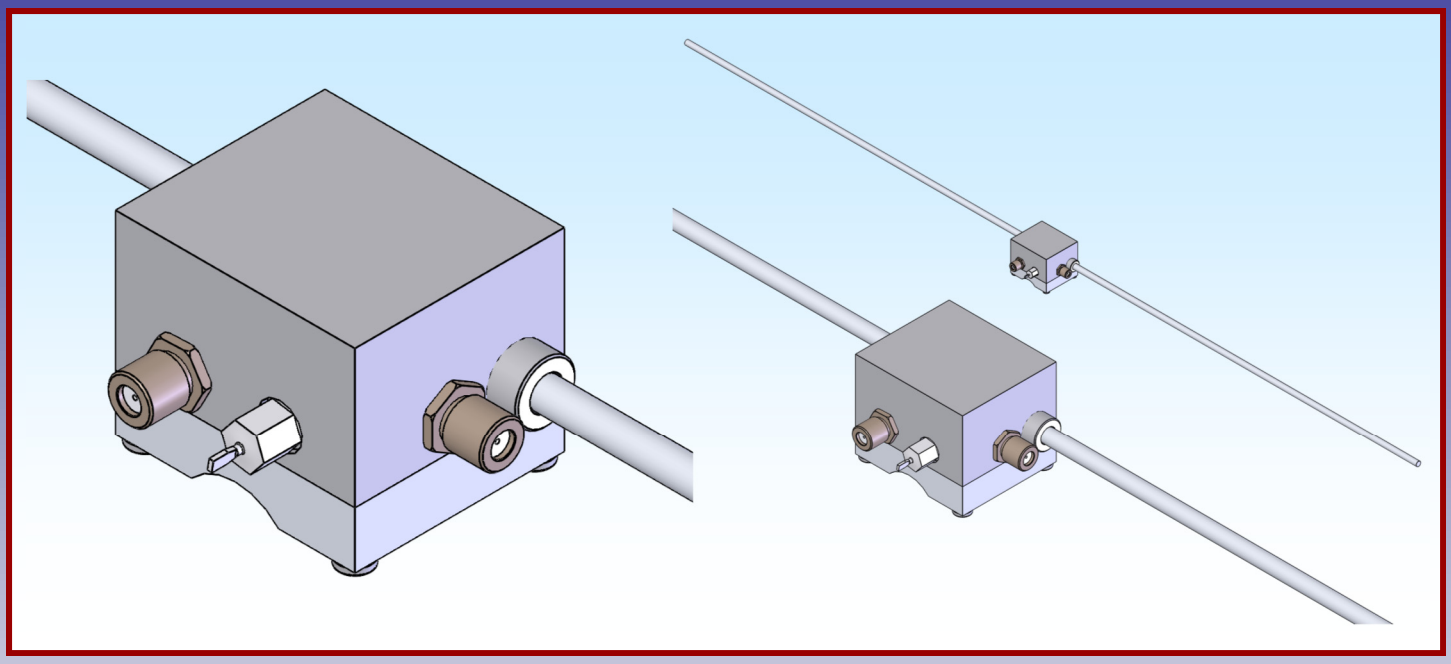
# M2 Antenna Systems, Inc.
# Model No: PS-2M



## SPECIFICATIONS:

| | |
|---|---|
| Model | PS-2M |
| Frequency Range | 100 to 250 MHz |
| Isolation, 2M / 440 | 50 dB / 40 dB |
| Feed Impedance. | 50 Ohms Unbalanced |
| VSWR | 1.2:1 or better |
| Connectors | "F" Females |
| Ins. Loss, 2M / 440 | 0.1 / 0.2 dB |
| Switch Time, In / Out | 20ms / 15ms |
| Power Handling 2M / 440 | 200 W / 150 W |
| DC power req. | 12 VDC @ 80mA |
| Block size / Rod Dia | 2" X 2" X 1-1/4" / 1/4" |
| Maximum Element Length | 50" |
| Operating Temp range | -50°c to 150°c |
| Weight / Ship Wt. | 2.0 Lbs. / 4 Lbs. |

***Subtract 2.14 from dBi for dBd**

## FEATURES:

The PS-2M polarity switch kit is designed to work with the 2MCP14 and 2MCP22. The PS-2M is not compatible with the 2MCP8A or LEO-Pack. It allows instantaneous selection of right or left hand circularity. Originally designed for Nasa for many of their 100 to 500 MHz satellite and space craft applications, the PS-2M is now used by many amateur VHF enthusiasts to performance flexibility to both terrestrial and satellite applications.

The heart of the unit is a small, low loss coaxial switch carefully designed into the driven element block. Only one PS-2M per antenna is required to achieve full right hand and left hand selection. The PS-2M can handle 250W of continuous RF transmission power. Losses are less than 0.2 dB.

Installation is easy and involves the removal of one of the original Driven Element assemblies and then mounting the PS-2M in its place. M2 Antennas has polarity switches available for our commercial antennas for popular frequencies. Polarity switches can also be designed for any of our custom antennas based on your requirements. Please contact us with your requirements.

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Rev.02

# PS-2M POLARITY SWITCH ASSEMBLY MANUAL

**NOTE: THIS SHEET IS USED ON 2MCP14 AND 2MCP22 ANTENNAS**

TOOL REQUIRED FOR ASSEMBLY: screwdriver and / or 11/32 nut driver or wrench, a 7/16" and 1/2" end wrench

REFER TO THE ENCLOSED DIMENSION SHEET.

1. Loosen the set screws in the shorting bars in the rear driven element. WD40 lubricant will aid in loosening the set screws in the shorting bars if they have been in a hostile environment for some length of time. Remove the shorting bars from each side so the rear driven element can be completely removed from the antenna.

2. FOR THE 2MCP22 ONLY: Loosen the cables on the 'T' block and remove the screw holding the "T" block. Place the "T" block on the other side of the boom and re-attach using the same screw. Retighten the connectors.

3. Attach the new switching rear driven element with the 8-32 x 1-1/4" screw in the REAR hole. Orient the driven element so it matches the DIMENSION SHEET. The driven element blocks should be mounted as shown or the RHC, default circularity may be reversed.

4. Attach the original 1/4 wave phase line and the 1/2 wave balun as shown. Tighten the connectors gently with a 7/16 end wrench.

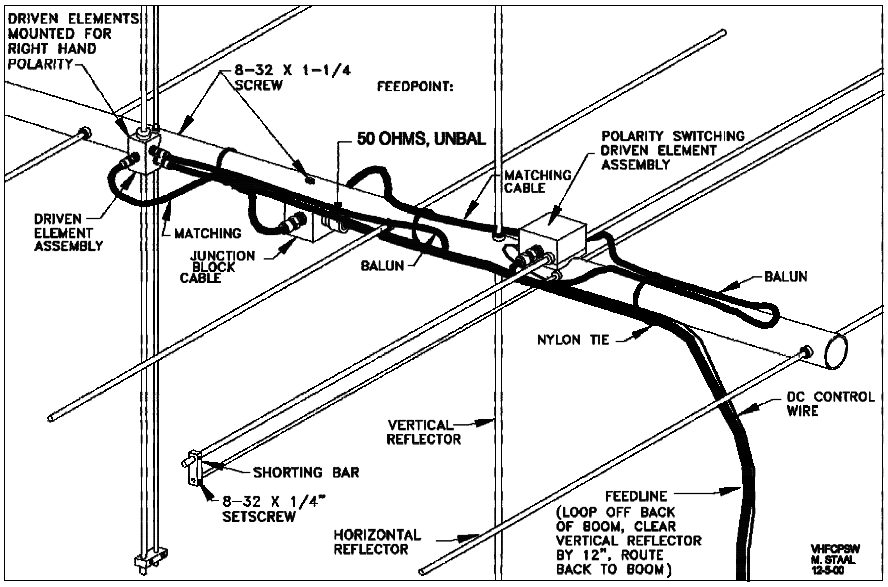
5. Re-install the shorting bars on the rear driven element. Set the bars at the dimension shown on the "ANTENNA DIMENSIONS" sheet . NOTE: ON THE 2MCP22, THE REAR DE SHORTING BARS ARE AT A DIFFERENT DIMENSION THAN THE FRONT DRIVEN ELEMENT SHORTING BARS.

6. Attach #22 AWG or larger wire to the feed through bypass terminal on the new D.E. block and route it to the rear. Attach MAIN FEED LINE AGAIN and secure it and the dc control wire to the rear boom section. Route all cables as shown and keep them close against the boom using the cable ties provided.

**TUNE UP AND OPERATION NOTES**

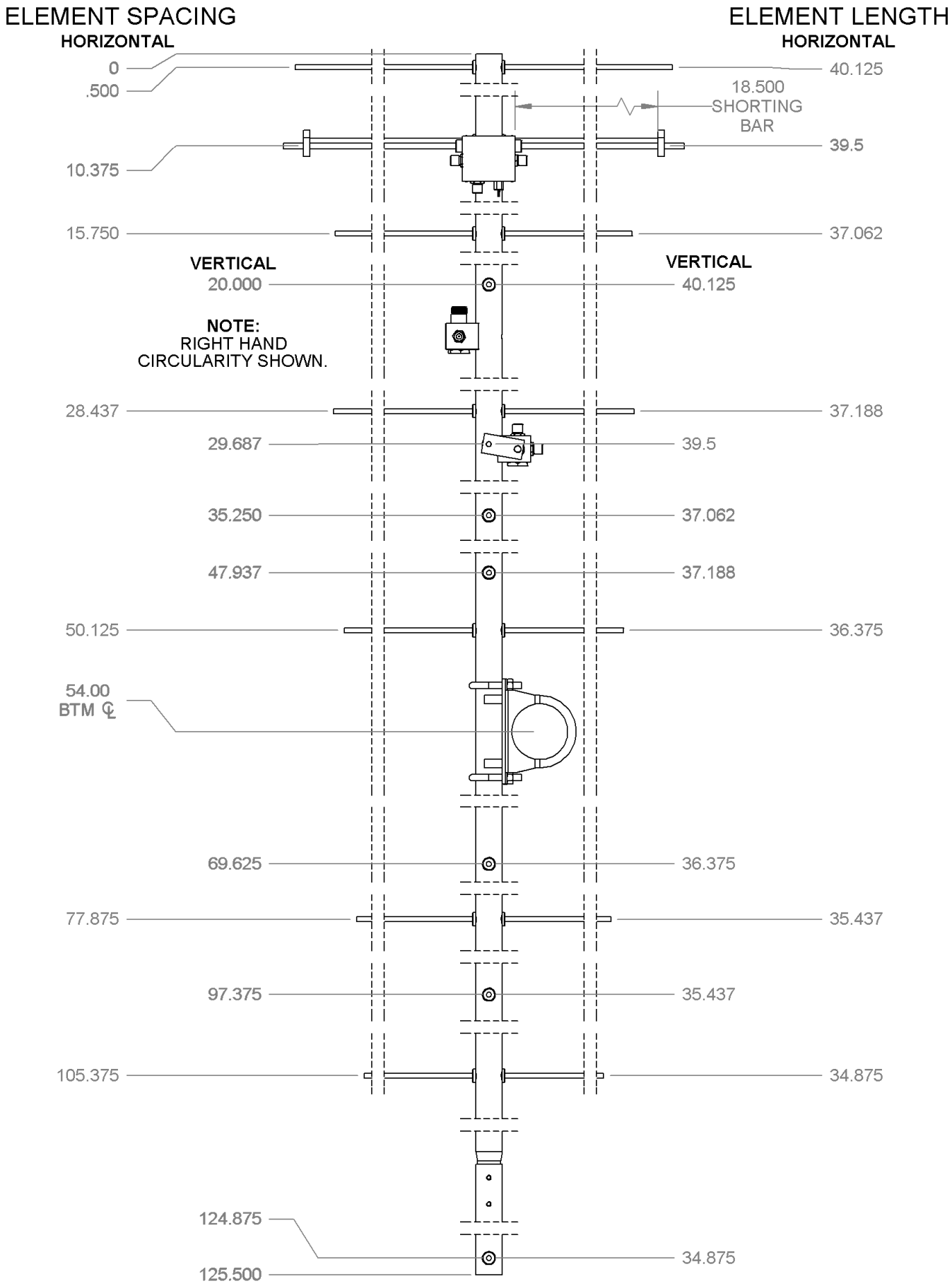
When +12 vdc is applied to the control wire the internal coax relay switches the center conductor of the feed line from one side side of the REAR driven element to the other. This inverts the phase of the rear driven element by 180 degrees and subsequently reverses the circularity from RHC TO LHC. Because there are small lead length differences from one phase to the other, you may see a slight change in VSWR when the circularity is reversed. $M^2$ has tried to minimize this change by adjusting the rear driven element length and shorting bar position. Your system may differ slightly and you may have to adjust the shorting bars slightly. You may also note a slight overall VSWR change after you do this upgrade. This is normal but again the match change in the satellite band should be minimal and typically under 1.4:1. The change might be greater on either side of the satellite band.
Again some adjustment can be done depending on what modes and frequencies you intend to use your antenna.

**THIS COMPLETES THE UPGRADE**

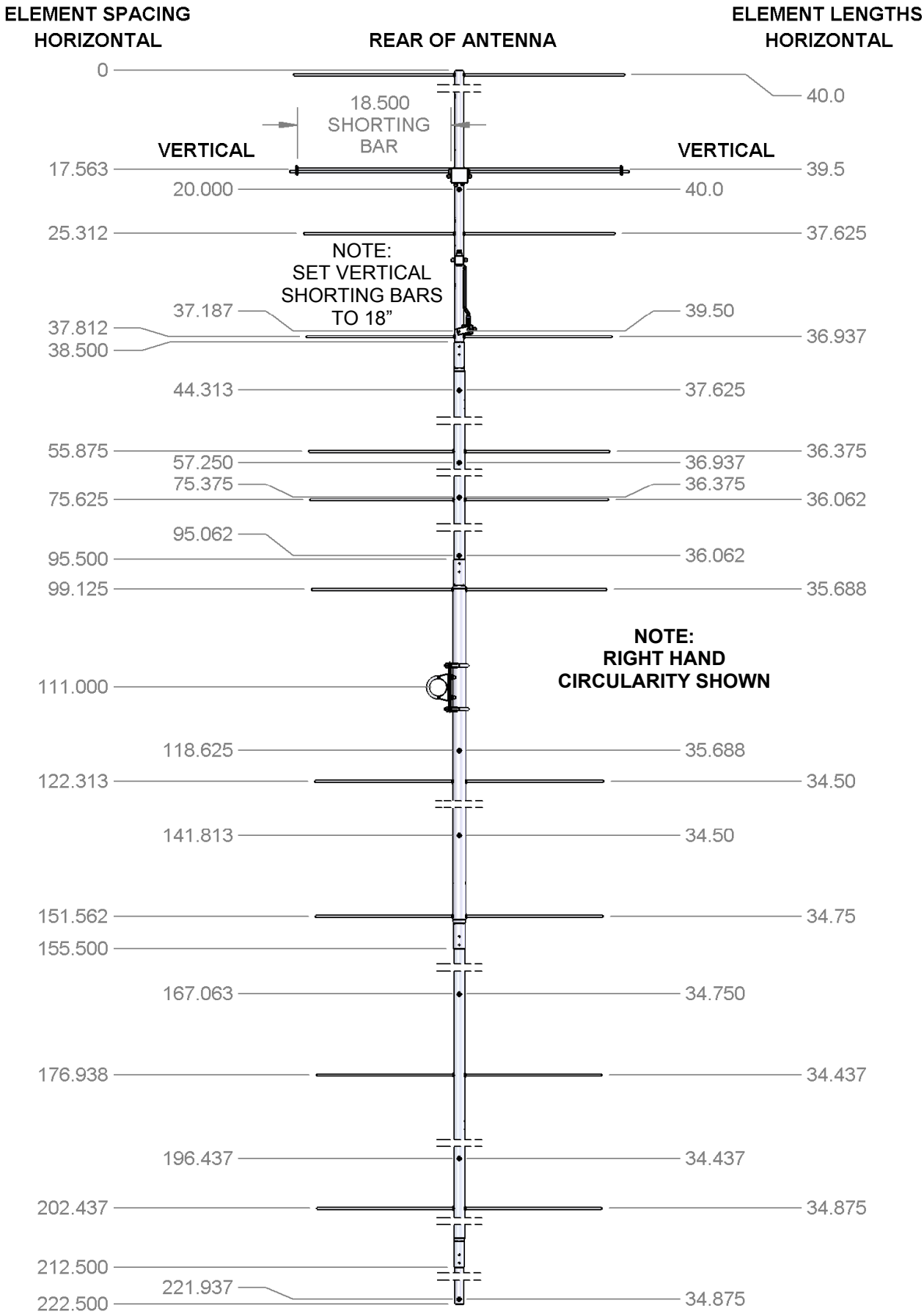



The 2MCP14 and 2MCP22 are circular polarized antennas and create a field in all planes or polarities. Performance and VSWR can DETERIORATE SIGNIFICANTLY if they are mounted on a metal (conductive) mast or crossboom. A mast or crossboom of any NON-CONDUCTIVE material must be used. Fiberglass is the best choice for its strength and weather resistance. Try to keep the cable run to under 100 ft. to prevent excessive transmit power loss. Using a good low noise switching preamp at or near the antenna is highly recommended. The preamp will prevent the feedline loss from reducing your overall receive sensitivity. ARR and SSB Electronics both make good 160 watt + power handling relays. To maintain proper phasing when stacking two or more antennas, mount each with the same orientation of Driven Element Blocks. DO NOT MOUNT MIRROR IMAGE.

# PS-2M DIMENSION SHEET (2MCP14)



# PS-2M DIMENSION SHEET (2MCP22)



# PS-2M ASSEMBLY TIPS / PARTS & HARDWARE

| DESCRIPTION..... | QTY |
|---|---|
| VHF DE BLOCK ASSEMBLY W / RELAY | 1 |
| SCREW, 8-32 X 1-1/4” | 1 |
| SET SCREW, 8-32 X 1/4” | 4 |
| CABLE TIES, SMALL | 4 |
| ALLEN WRENCH, 5/64” | 1 |
| ASSEMBLY / UPGRADE SHEET | 1 |

CAREFULLY MANUFACTURED BY:

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