

BUILDING YOUR FIRST HF STATION

By Ed Berkowitz, N3US
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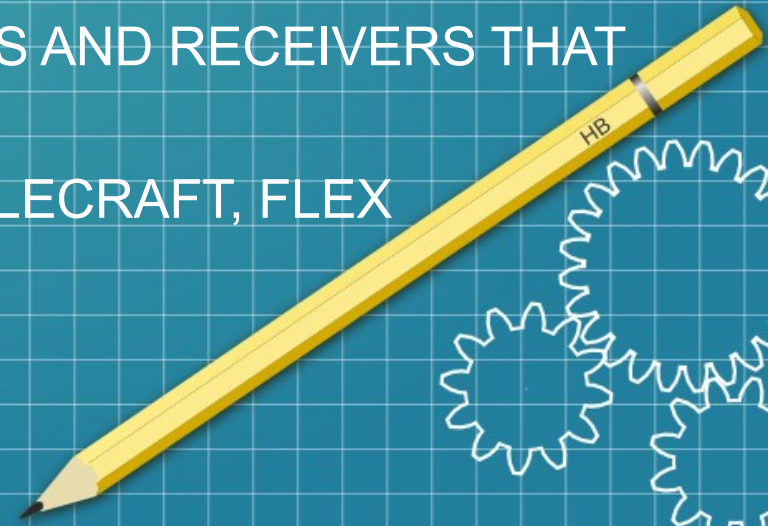


ALL STATIONS REQUIRE

- HF TRANSCEIVER
- POWER SUPPLY
- ANTENNA
- PROPER STATION GROUND

HF TRANSCEIVER

- COST VARIES FROM \$200 USED TO OVER \$5000 FOR NEW LATEST & GREATEST. MOST ARE 100 WATTS OUTPUT POWER; 160 – 10 METERS
- WE USED TO HAVE SEPARATE TRANSMITTERS AND RECEIVERS THAT WERE COSTLY IN TODAY'S DOLLARS
- MAJOR BRANDS: ICOM, YAESU, KENWOOD, ELECRAFT, FLEX
- EXAMPLES: YAESU FT-450D USED PRICE 500
- ICOM IC-7300 NEW PRICE \$1100







ICOM HF/50MHz TRANSCEIVER IC-7300



MENU FUNCTION M.SCOPE QUICK EXIT

MULTI RIT TX CLEAR SPLIT A/B V/M MPAD

XFC TX/RX AUTO TUNE

POWER SUPPLIES

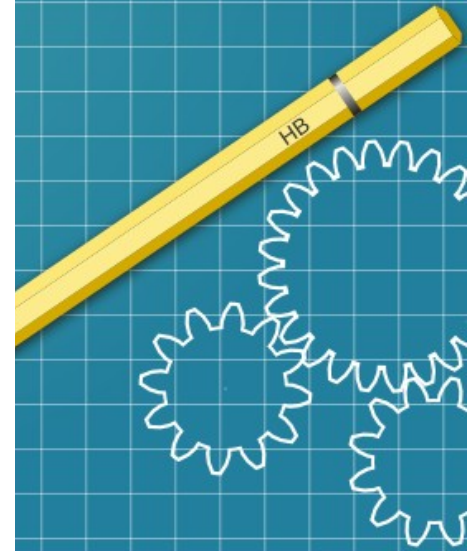
- PURPOSE IS TO CONVERT 110 VAC WALL VOLTAGE TO 13.8 VDC REQUIRED FOR MOST HF TRANSCEIVERS. NEED ABOUT 25 AMPS
- TWO TYPES:
 - LINEAR: CLASSIC DESIGN, HEAVY, EASY TO REPAIR
 - SWITCHING: LIGHTER, LESS EXPENSIVE, HARD TO REPAIR; REQUIRE INTERNAL FILTERING TO MINIMIZE EMITTING RF NOISE
 - TYPICAL NEW COST: LINEAR \$250; SWITCHING \$130
 - BRANDS INCLUDE ASTRON, SAMLEX, ALINCO, MFJ, OTHERS
 - MY OWN PREFERENCE IS ASTRON LINEAR POWER SUPPLIES, OFTEN AVAILABLE USED
 - POWER SUPPLIES PLACED ON FLOOR SHOULD NOT LIE DIRECTLY ON CARPET, USE BOARD UNDERNEATH TO ENSURE AIR CIRCULATION



ON
OFF

ASTRON CORPORATION RS-35M

DC OUTPUT



ANTENNAS

- ANTENNA IS MOST IMPORTANT PART OF STATION
- BASIC ANTENNA TYPES:
 - WIRE ANTENNA AS HIGH AS POSSIBLE, ENDS AND CENTER OFTEN SUPPORTED BY ROPES ATTACHED TO TREES. EXAMPLES: OCF DIPOLE AND FAN DIPOLE; COST WITH COAX ABOUT \$100
 - VERTICAL- GROUND MOUNTED, GREAT FOR DX BUT REQUIRE MANY GROUND RADIALS. \$350. ELEVATED VERTICAL JUST A FEW RADIALS
 - 60 FOOT TOWER WITH YAGI GAIN ANTENNA – SEVERAL THOUSAND INSTALLED
 - MY RECOMMENDATION FOR NEW HF OPERATOR: OFF CENTER FED (OCF) DIPOLE – COVERS MANY HF BANDS; CAN BUILD OR BUY



OTHER STATION CONSIDERATIONS

- WHERE TO LOCATE: IN BASEMENT OR IN A HIGHER FLOOR?
- ALL STATIONS REQUIRE SOUND BONDING AND GROUNDING. HARD TO HAVE A SHORT GROUND ROD CONNECTION IF STATION IS IN AN UPPER FLOOR.
- MY RECOMMENDATION: USE BASEMENT AND TIE YOUR EQUIPMENT GROUNDS, POWER PANEL GROUND AND STATION GROUND RODS TOGETHER.

MY STATION INTERNAL GROUND BUS

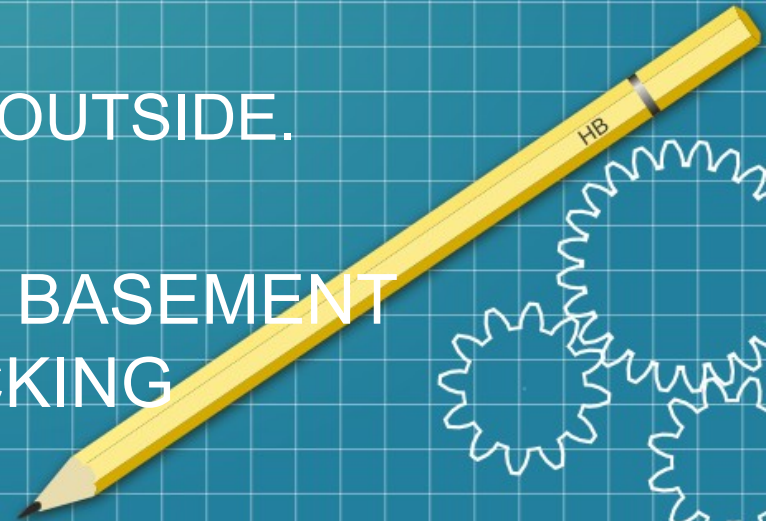


MOUNTED 48" COPPER PIPE ($\frac{1}{2}$ ") BACK OF OPERATING TABLE

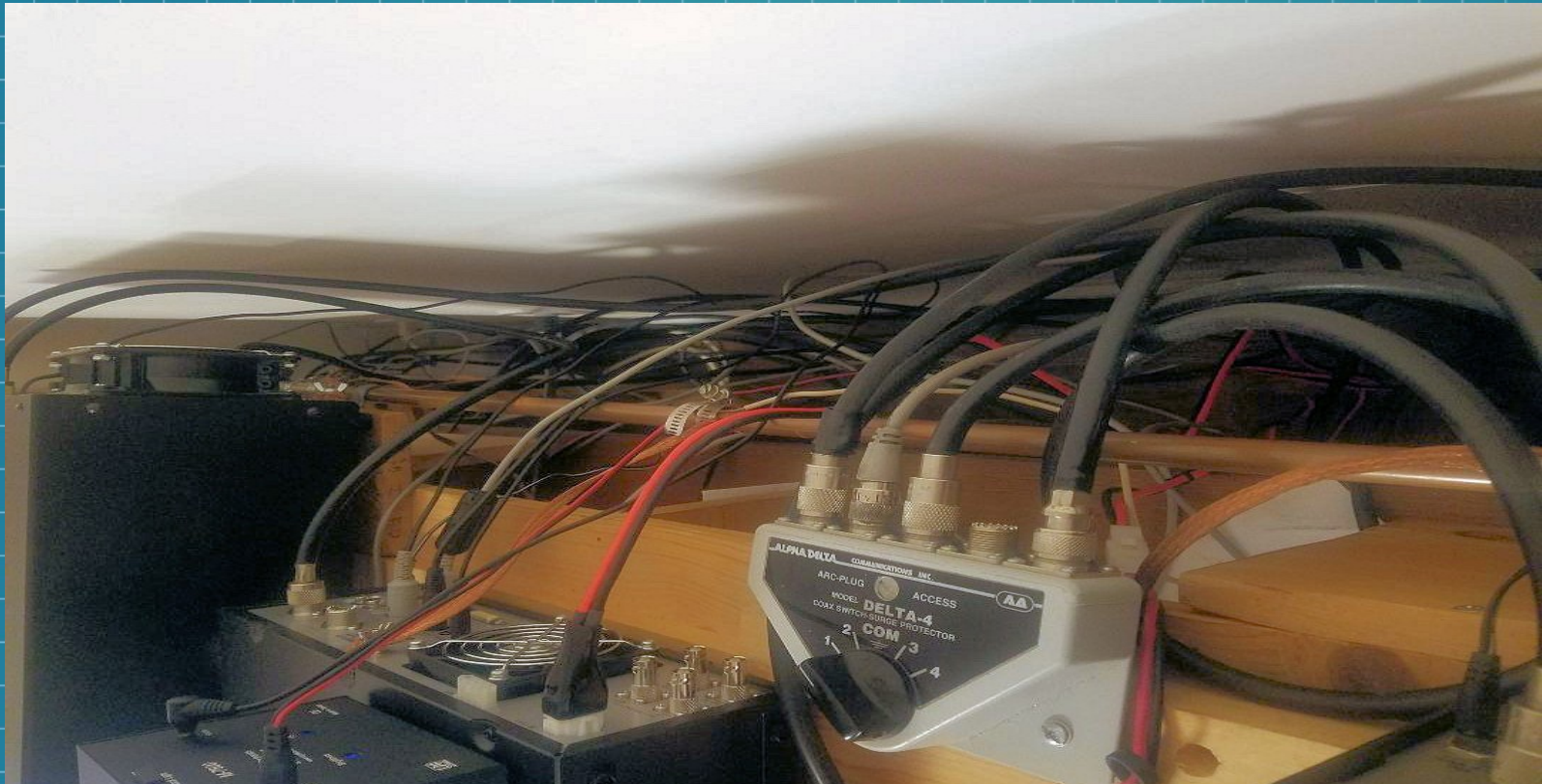
CONNECT EACH EQUIPMENT GROUND TERMINALS TO THIS GROUND BUS BAR

USE 6 AWG WIRE TO GROUND ROD OUTSIDE.

USE 8 FOOT GRD ROD 18" FROM BASEMENT WALL -REDUCES CONCRETE WICKING MOISTURE AROUND GND ROD



MY STATION INTERNAL GROUNDING BUS



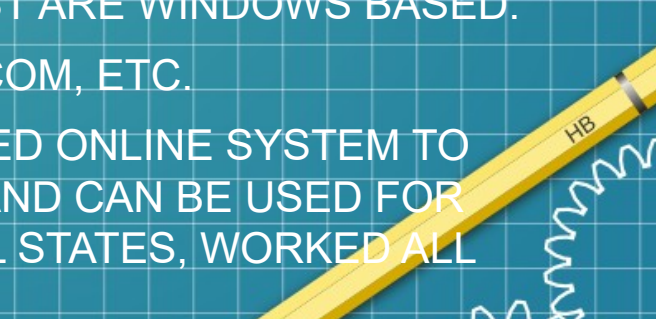
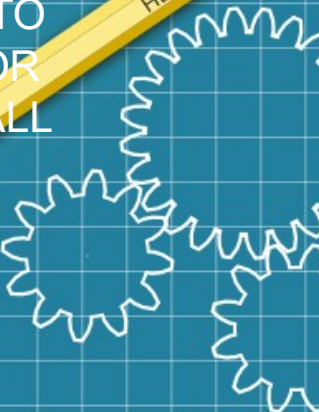


ADDITIONAL ACCESSORIES

- INCLUDES WATT AND SWR METERS, ANTENNA TUNERS THAT HAVE EXTENDED TUNING RANGES FROM THOSE BUILT INTO MODERN TRANSCEIVERS, ANTENNA SWITCHES, ETC.
- NOTE THAT MOST TRANSCEIVERS HAVE BUILT IN SWR AND WATT METERS.

OTHER CONSIDERATIONS

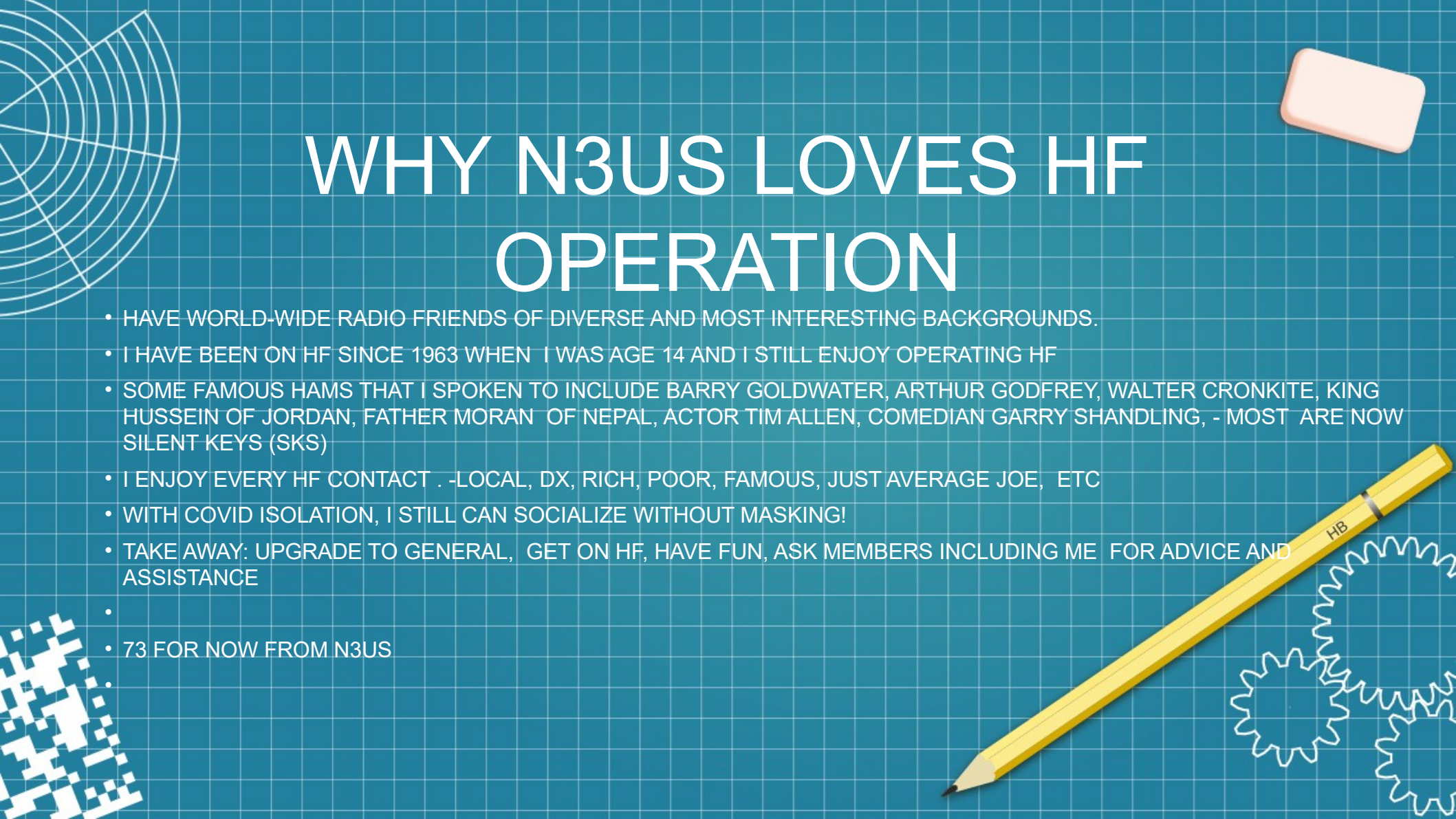


- LOGGING SOFTWARE – THERE ARE MANY PROGRAMS AVAILABLE FOR EITHER FREE OR LOW COST. N3FJP SOFTWARE SUITE (\$60) SEEMS TO BE AARC DEFACTO PROGRAM!
 - YOU CAN TRY ANY PROGRAM AND EASILY EXPORT DATA INTO ANOTHER SOFTWARE LOGGING PROGRAM.
 - OTHERS INCLUDE HAM RADIO DELUXE (\$100), XMLOG (FREE), DXLAB (FREE), ETC. A FEW ARE AVAILABLE FOR APPLE AND LINUX OS BUT MOST ARE WINDOWS BASED.
 - ALL LOGGING PROGRAMS CAN UPLOAD TO LOTW, QRZ.COM, ETC.
 - LOGBOOK OF THE WORLD (LOTW) IS ARRL ADMINISTERED ONLINE SYSTEM TO ELECTRONICALLY EXCHANGE CONFIRMATIONS (QSLs) AND CAN BE USED FOR APPLYING FOR VARIOUS AWARDS SUCH AS WORKED ALL STATES, WORKED ALL CONTINENTS, DXCC, ETC.
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WHAT MODES WILL YOU OPERATE

- SINGLE SIDEBAND – SSB – VOICE
- CW – MORSE CODE, GAINING POPULARITY DUE TO IT BEING CHALLENGING AND FUN
- DIGITAL MODES SUCH AS FT8 AND FT4 USING FREE WSJT-X SOFTWARE. CAN WORK STATIONS AROUND THE WORLD WITH VERY LOW SIGNAL TO NOISE RATIO, EVEN WHEN BANDS SEEM TOTALLY DEAD TO SSB AND CW



WHY N3US LOVES HF OPERATION

- HAVE WORLD-WIDE RADIO FRIENDS OF DIVERSE AND MOST INTERESTING BACKGROUNDS.
- I HAVE BEEN ON HF SINCE 1963 WHEN I WAS AGE 14 AND I STILL ENJOY OPERATING HF
- SOME FAMOUS HAMS THAT I SPOKEN TO INCLUDE BARRY GOLDWATER, ARTHUR GODFREY, WALTER CRONKITE, KING HUSSEIN OF JORDAN, FATHER MORAN OF NEPAL, ACTOR TIM ALLEN, COMEDIAN GARRY SHANDLING, - MOST ARE NOW SILENT KEYS (SKS)
- I ENJOY EVERY HF CONTACT . -LOCAL, DX, RICH, POOR, FAMOUS, JUST AVERAGE JOE, ETC
- WITH COVID ISOLATION, I STILL CAN SOCIALIZE WITHOUT MASKING!
- TAKE AWAY: UPGRADE TO GENERAL, GET ON HF, HAVE FUN, ASK MEMBERS INCLUDING ME FOR ADVICE AND ASSISTANCE
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- 73 FOR NOW FROM N3US