

TUNABLE WAVE MASER WEAPON (1.01A)

WHAT IS IT?

MASER IS AN ACRONYM WHICH STANDS FOR MICROWAVE AMPLIFIED STIMULATED EMISSION OF RADIATION. IT IS VERY SIMILAR TO LASER BUT THE OUTPUT FREQUENCY IS DIFFERENT. A LASER HAS A GENERAL FREQUENCY OF AROUND 250-350 TRILLION HERTZ, A RED BEAM LASER HAS A WAVELENGTH OF AROUND 633nanometers. A MASER HAS A GENERAL FREQUENCY OF AROUND 250-350 BILLION HERTZ, A MICROWAVE HAS A WAVELENGTH OF AROUND 3centimeters. A LASER'S OUTPUT IS GENERALLY A COLLIMATED BEAM OF CONCENTRATED LIGHT. A MASER'S (MAGNETRON OUTPUT) OUTPUT IS ALSO A MILDLY COLLIMATED BEAM OF CONCENTRATED MICROWAVES.

AS YOU KNOW FROM YOUR MICROWAVE OVEN, IT CAN COOK, IT CAN SPARK, IT IS NOTHING TO MESS AROUND WITH. MOST HOUSEHOLD MICROWAVES CONTAIN A 1000-3000WATT MAGNETRON. SOME INDUSTRIAL UNITS CONTAIN 3000-5000WATT MAGNETRONS, THIS IS POWERFUL. MICROWAVES ARE SET TO REACT MAILY WITH THE WATER MOLECULE. AS YOU MIGHT ALREADY KNOW, YOU CONTAIN A LOT OF WATER IN YOUR BODY. WOOD EVEN CONTAINS ABOUT 10% WATER. A MICROWAVE OVEN HAS TO TAKE APART THE "BEAM" OF MICROWAVES IN ORDER TO COOK FOOD EVENLY. HAVE YOU EVER PLACED A FORK IN THE MICROWAVE BY ACCIDENT? IT PROBABLY SPARKED OR GOT REALLY HOT, THIS IS BECAUSE THE LARGE WAVELENGTH OF THE MICROWAVE ALMOST ACTS LIKE LINES OF WIRES REACHING OUT WITHIN THE OVEN, WHEN THE MICROWAVE HITS A METAL OBJECT THAT IS BETWEEN ITS CAVITY AND ITS MAGNETRON IT WILL CONDUCT A LOT OF POWER INTO THE METAL AND WILL ALSO BOUNCE OFF AT ANY ANGLE.

LET'S GET OUR MATERIALS NEEDED TO BUILD A TUNABLE MASER

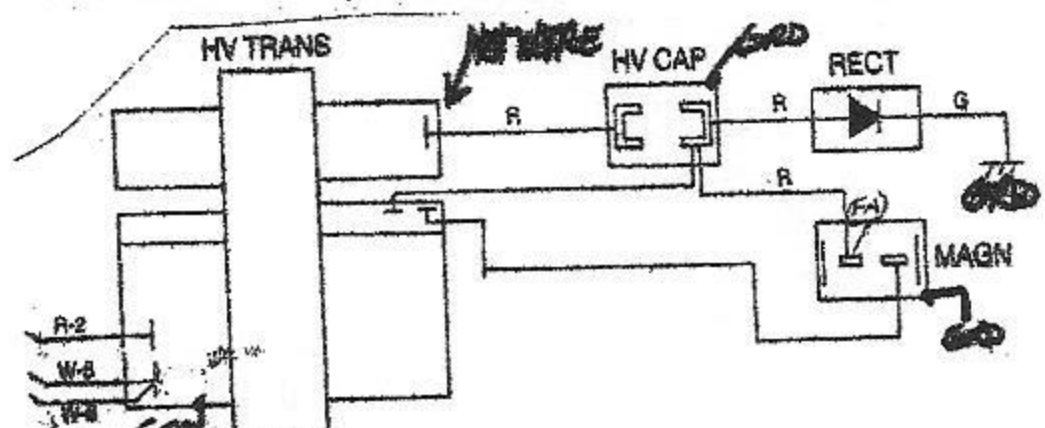
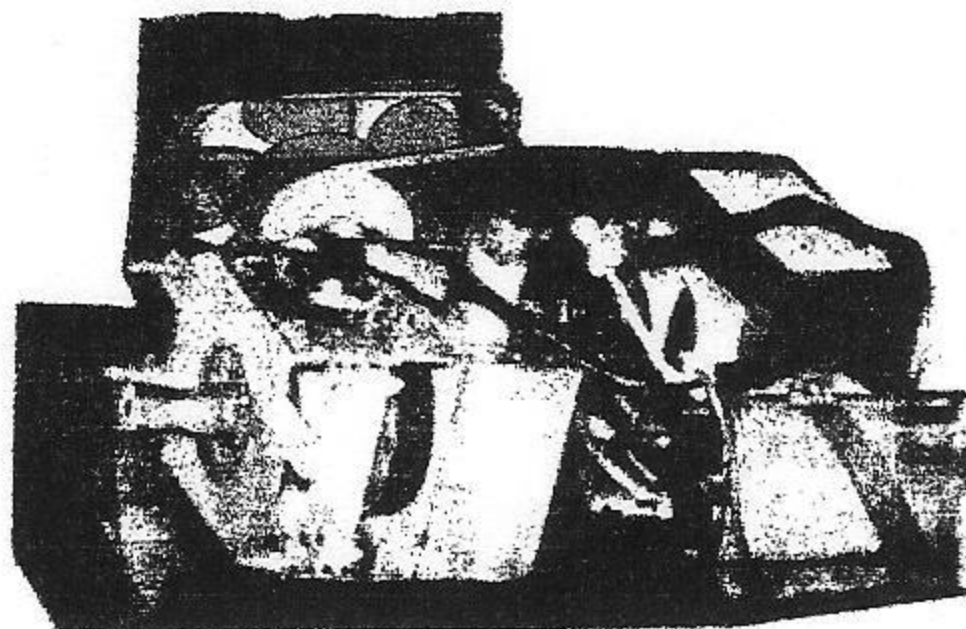
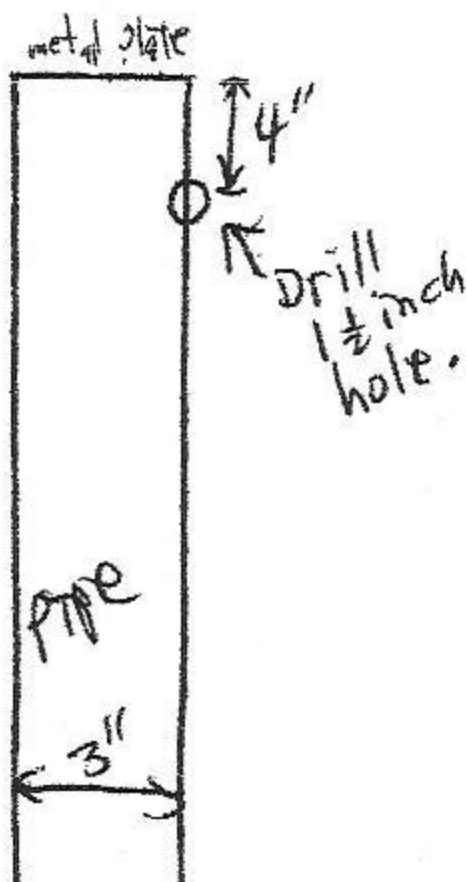
HERE IS YOUR LIST:

1. INDUSTRIAL MAGNETRON & POWER SUPPLY. (TRY TO GET A 5000WATT MAGNETRON) FIG MAG1.
2. THIN WALLED, SMOOTH INNER WALLED PIPE. METAL PIPE (2 1/2-3 INCH DIAMETER) MAKE SURE THE INSIDE WALLS OF THE PIPE ARE VERY SMOOTH. GET A 3 1/2 FT LENGTH PIECE. FIG P1.
3. FOUR DONUT MAGNETS. (VERY, VERY STRONG DONUT MAGNETS) SOMETIMES YOU CAN OBTAIN THESE OFF OLD MAGNETRONS. THE INSIDE DIAMETER OF THE MAGNETS SHOULD FIT OVER THE PIPE.FIG M1.
4. HEAVY DUTY TOGGLE SWITCH. RATED 220VOLTS AT 20AMPS. FIG S1.
5. YOU WILL NEED SIX(1 1/2FT X 1 1/2FT X 3/4INCH) PIECES OF PLYWOOD. FIG W1.
6. GET SOME THIN 1 3/4-2 INCH LONG FINISHING NAILS. AND SILICON GLUE.
7. ALUMINUM FOIL, ONE ROLL.
8. A LARGE ROLL OF DUCT TAPE.
9. A ROLL OF ALUMINUM SCREEN, FROM THE LOCAL HARDWARE STORE.
10. YOU WILL NEED TWO SMALL CABINET DOOR HINDGES AND A CABINET DOOR MAGNET CATCH.
11. YOU NEED A 10FOOT LONG, THREE PRONG HIGH POWER EXTENSION CORD.
12. COOLING FAN ABOUT (4-5INCH X 4-5INCH) FIG F1.
13. 20 GAUGE MAGNET WIRE, TEFLON COATED OR HEAT RESISTANT. ABOUT 4 FEET.

LETS BUILD IT

1. FIRST CUT OUT THE ALUMINUM SCREENING SO THAT YOU HAVE SIX 1X1½ PIECES OF ALUMINUM SCREEN. DO THE SAME WITH THE ALUMINUM FOIL, USE SCOTCH TAPE TO HOLD THE FOIL TOGETHER. DUCT TAPE THE FOIL ON EACH PIECE OF WOOD. DUCT TAPE THE SCREEN ON EACH PIECE OF WOOD. THE FOIL AND SCREEN SHOULD NOT BE ON THE SAME SIDE. YOU MAY WISH TO COVER THE ENTIRE FOIL SIDE WITH DUCT TAPE SO THE FOIL WILL NOT GET RIPPED OR CUT UP.
2. THEN YOU WILL NEED TO FASTEN THE POWER SUPPLY COMPONENTS TO A PIECE OF PLYWOOD. SCREW DOWN THE TRANSFORMER ON THE SCREEN SIDE. USE SILICON OR EPOXY TO FASTEN DOWN THE MAGNETRON, YOU WANT THE ENTIRE DEVICE CONTAINED WITHIN THE BORDERS OF THE PLYWOOD.
3. YOU WILL NEED TO PLACE THE FAN SO IT IS FORCING AIR THROUGH THE FINS OF THE MAGNETRON. YOU WILL ALSO NEED TO CUT THE WOOD ON BOTH SIDES OF THE MAGNETRON TO ALLOW FOR THE EXTREMELY HOT AIR TO PASS OUTSIDE THE ENCLOSURE AND COOL AIR TO PASS BACK IN. FASTEN THE FAN DOWN WITH SILICON, THIS HELPS CUT DOWN ON NOISE.
4. MAKE SURE NONE OF THE BARE WIRING IS TOUCHING THE SCREENING OR YOU WILL HAVE SERIOUS PROBLEMS. INSULATE ALL WIRING WITH ELECTRICAL TAPE AND SILICON.
5. WHEN YOU CONNECT THE SWITCH, DRILL A HOLE FOR THE SWITCH IN THE WOOD. MAKE SURE YOU FASTEN THE SWITCH DOWN GOOD AND GROUND THE CASING OF THE SWITCH TO PROTECT YOU IN CASE MICROWAVES BOUNCE ONTO THE SWITCH.

SEE THE PICTORAL DIAGRAM OF HOW YOU SHOULD LAY OUT THE PARTS ON THE BOARD.

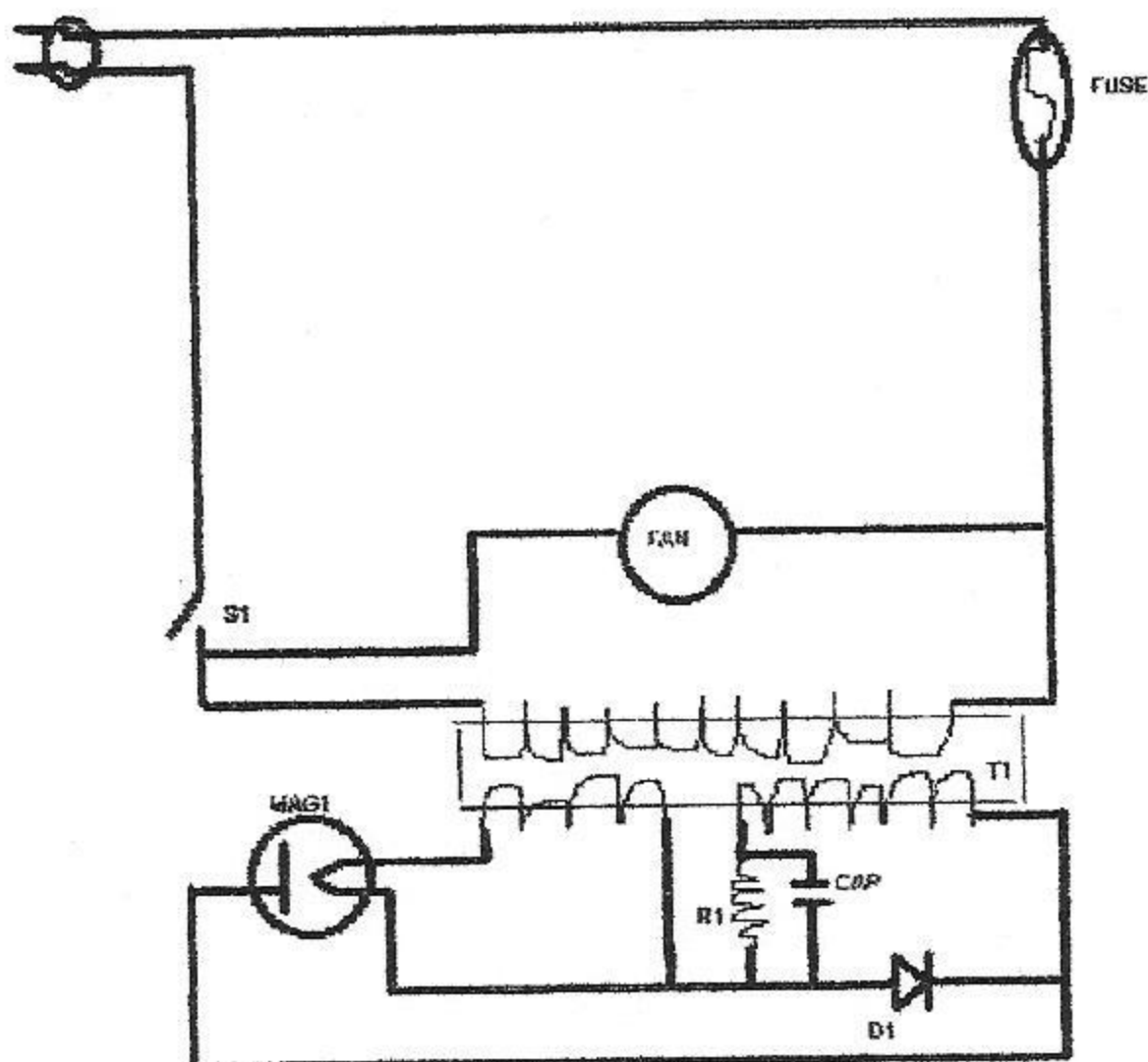


PICTORAL PARTS LAYOUT.

AFTER YOU HAVE PLACED ALL PARTS ON THE BOARD YOU ARE READY TO PLACE THE PIPE, COLLIMATOR ASSEMBLY TOGETHER.

1. PLACE ALL PIECES OF PLYWOOD AROUND THE BASE OF THE ORIGINAL PIECE. NAIL THEM INTO PLACE. LEAVE THE TOP AND SIDE PANEL OFF....THE SIDE PANEL WHICH IS SIDEWAYS TO THE OUTPUT OF THE MAGNETRON. YOU WILL NEED TO CUT OUT THIS SPOT USING A HOLE SAW, THE SAME SIZE AS THE PIPE. YOU MUST DRILL OUT A 1 1/2 INCH HOLE IN THE SIDE OF THE PIPE ABOUT 4 INCHES FROM THE END. THE PIPE HOLE SHOULD BE PLACED OVER THE MAGNETRON'S OUTPUT NIPPLE.
2. AFTER YOU HAVE DRILLED OUT THE HOLE IN THE PLYWOOD, PLACE THE 3 1/2 FT SECTION OF PIPE IN THE HOLE AND FASTEN IT TO THE MAGNETRON'S NIPPLE. PUSH IT ALL THE WAY ONTO THE NIPPLE. MAKE SURE IT IS SECURELY FASTENED TO THE SIDE OF THE PIPE. MAKE SURE BOTH THE MAGNETRON AND THE PIPE ARE GROUNDED.
3. PLACE THE PLYWOOD ON THE BOX AND NAIL IT IN PLACE. YOU SHOULD NOW HAVE A WOODEN BOX WITH NO LID WITH A LONG METAL PIPE STICKING OUT OF IT.
4. YOU MAY ALSO WANT TO ADD EXTRA SUPPORT FARTHER OUT FROM THE BASE WHERE THE PIPE PROTRUDES FROM THE PLYWOOD. ADD EXTRA BLOCKS OF WOOD AROUND THE PIPE AND EPOXY THEM IN PLACE. MAKE SURE THE PIPE IS STRAIGHT.
5. NOW YOU WILL NEED TO PLACE A DONUT MAGNET OVER THE PIPE EXACTLY 6 INCHES FROM THE NIPPLE. MAKE SURE THE CENTER OF THE DONUT IS ALIGNED PERFECTLY WITH THE CENTER OF THE PIPE. YOU MAY NEED TO WRAP TAPE AROUND THE PIPE TO FASTEN THE DONUT IN PLACE. THIS DONUT IS THE FIRST STAGE IN COLLIMATION. THE MAGNET MUST BE PERPENDICULAR TO THE BEAM. IF IT IS OFF EVEN A MILLIMETER, THE BEAM WILL ALSO BE OFF.
6. PLACE THE NEXT MAGNET 8 INCHES FROM THE FIRST. MAKE SURE THE NORTH POLARITY IS FACING THE MAGNETRON....IF YOU CANNOT TELL WHAT NORTH POLARITY IS, JUST MAKE SURE ALL MAGNETS HAVE THE SAME POLARITY FACING THE SAME DIRECTION...IN OTHER WORDS THEY SHOULD ALL FLOAT ON THE PIPE IF LEFT UNSECURED.
7. PLACE THE NEXT MAGNET 10 INCHES FROM THE SECOND, PLACE THE LAST MAGNET 12 INCHES FROM THE THIRD. THERE SHOULD NOW BE ROUGHLY 0 INCHES OF PIPE LEFT.

SCHEMATIC DIAGRAM OF UNIT.



T1=ROUGHLY 4000V TRANSFORMER.

MAG1=MAGNETRON.

CAP=CAPACITOR.

R1=USUALLY BUILT INTO OR ONTO THE CAP, USED AS A BLEEDER RESISTOR.

D1=HIGH VOLTAGE RECTIFIER DIODE.

FUSE=FUSE.

FAN=COOLING FAN FOR MAGNETRON.

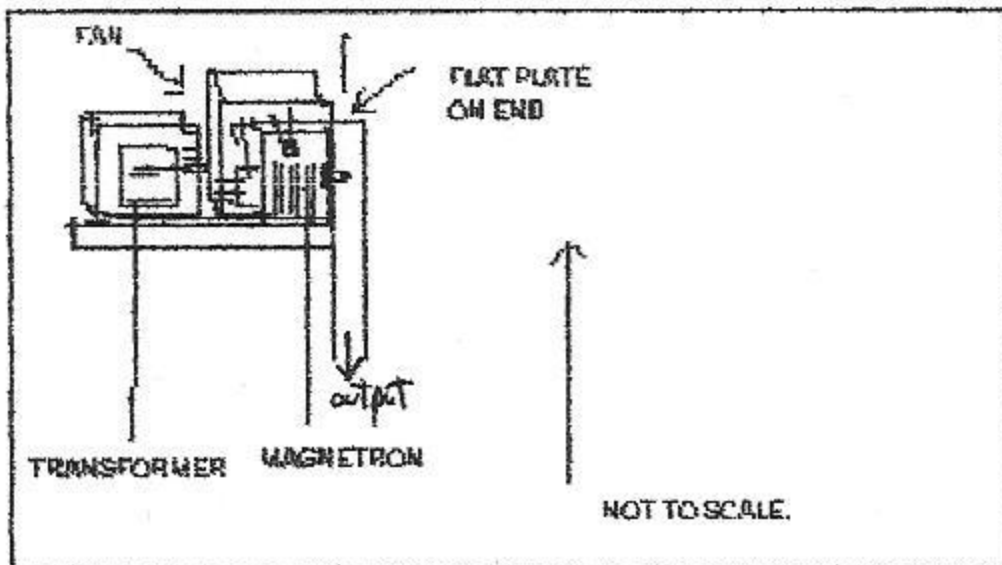
S1=SWITCH, TOGGLE.

ALL OF THESE PARTS SHOULD BE WITHIN YOUR MICROWAVE. THE POWER SUPPLY WILL CONSIST OF THE TRANSFORMER, DIODE, CAPACITOR AND SWITCH. THE MAGNETRON IS HARD TO MISS. THE FAN WHICH IS SUPPLIED IN THE OVEN IS USUALLY NOT SUFFICIENT FOR WHAT WE NEED. A SQUIRREL CAGE FAN WOULD BE THE BEST CHOICE.

BE CAREFUL WITH HIGH VOLTAGE, THIS POWER SUPPLY CAN KILL YOU.

THE THERMAL OVERLOAD SWITCH SENSOR ON TOP OF THE MAGNETRON SHOULD BE LEFT ON FOR PROTECTION. IF YOU USE A SQUIRREL CAGE FAN, YOU CAN BYPASS THE HEAT SENSOR.

FIGURE PIP1.



BE CAREFUL WITH THIS DEVICE.

LAST BUT NOT LEAST IF YOU WISH TO MAKE IT TUNABLE.....WRAP ABOUT 25 TURNS OF 20GAUGE WIRE AROUND THE PIPE, UNDERNEATH THE FIRST MAGNET. CONNECT ANY AMPLIFIED SIGNAL INTO THE WIRE AND WALLA.

WHAT YOU CAN DO WITH IT.

I WILL NOT TELL YOU WHAT TO DO WITH IT...WE WILL NOT BE HELD LIABLE FOR ANY DAMAGES INFLICTED BY ACTUAL CONSTRUCTION OF THIS DEVICE.

FOR EXPERIMENTAL PURPOSES YOU MAY WISH TO TRY DESIGNING A SIGHT SYSTEM USING A LASER POINTER OR SCOPE. THE BEST WAY TO CALIBRATE YOUR BEAM IS TO PLACE A WET SHEET ON A CLOTHES LINE AND SHOOT AT IT. THE SPOT THAT EITHER DRIES UP OR BURSTS INTO FLAME IS WHERE YOUR BEAM HIT. AFTER THAT YOU MAY WANT TO SET UP AN OLD BOOMBOX, TURN IT ON AND TRY TO FRY IT FROM A 100 TO 200 YARDS AWAY. TRY NOT TO SHOOT AT METAL OBJECTS, AS BEAMS OR STRAY MICROWAVES MAY BOUNCE BACK.

FOR HELP, PARTS OR MATERIALS OR FOR ADDITIONAL INFORMATION CALL OR VISIT OUR WEB SITE.

WE OFFER THE MAGNETRON AND TRANSFORMER/POWER SUPPLY SECTION FOR SALE... CALL FOR PRICING AND AVAILABILITY. 619-414-6631.