

## DC WELDING on an AC MACHINE

There are an abundance of 225 amp. AC welding machines on the market today. Hardware stores, farm supply stores, and welding suppliers all sell them. Many home shop craftsmen are drawn to them because they are affordable. They can do very good work in the hands of a skilled welder. On the down-side there are the problems of not sticking and excessive weld splatter. Many who have bought one have later wished that they had spent the extra for an AC - DC machine. These plans are for the craftsman who has an AC machine that he would like to improve by making it produce DC welding power.

The only difference between a 225 amp AC and a 225 amp AC - DC welder is that the AC - DC has a diode rectifier bridge. This is easy to construct and add to an AC machine.

Four diodes are needed to build the rectifier, two positive and two negative. On two separate pieces of aluminum or brass flat bar fabricate one pos. and one neg. diode. These flat bars are then mounted parallel to each other on some kind of non-conductive base. The rectifier in photo # 1 has aluminum 1 1/2" by 2" flat bars secured to some 2 1/2" by 2" Tuffloc blocks. The leads that you are connected between the pos. and neg. diode come from the output of the AC power source. One is from the work (ground) terminal and the other is from the line (hot/phase) terminal. (In the case of a Lincoln 225-AC welder which does not have a low and high range you must not exceed 100 amps while using DC power.) As you can see in photo # 1 the two pos. diodes and the two neg. diodes are connected together, pos. to pos., neg. to neg. The lead wire that is connected to the neg. union goes to the DC neg. terminal. The lead wire that is connected to the pos. union goes to the pos. terminal.

You will also note from photo # 1 that the diode rectifier bridge is mounted as close to the cooling fan as is possible. This is important, diodes do not like heat. If you cannot mount the diode rectifier bridge close to the cooling fan you must add one (just for it).

This equipment could of course be put together as a small self-contained unit. It would have two short leads that would connect to the AC output, and either its own welding cables or plug/rosettes. It would also need a 110 volt cord coming out of it to power a cooling fan.

### PARTS LIST

for

#### Diode Rectifier Bridge

- 2- positive diodes - part no. CYMA # 2N-1000
- 2- negative diodes - part no. CYMA # 2N-10MT
- 2- 1 1/2" x 2" aluminum or brass flat bar 1/2" to 10" long
- 4- 2" x 2" Tuffloc blocks
- 1- 2 1/2" x 2" x 4" Tuffloc blocks (or some other type of non-conductive material)



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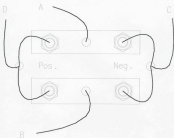
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## Diode Rectifier Bridge



A - From work terminal (ground)

B - From low (electrode) terminal

C - To negative terminal

D - To positive terminal

Photo-1



Photo-2

