

# Relay Replacement Ameritron AL82, AL1200, AL1500

June 28, 2023, CTR W8JI rev0

The AL12 series initially used one of three different types of open-frame relays. All are similar and interchangeable. All early relays, prior to around 2010, are 3-pole double throw 12Vdc open-frame and about 100mA.

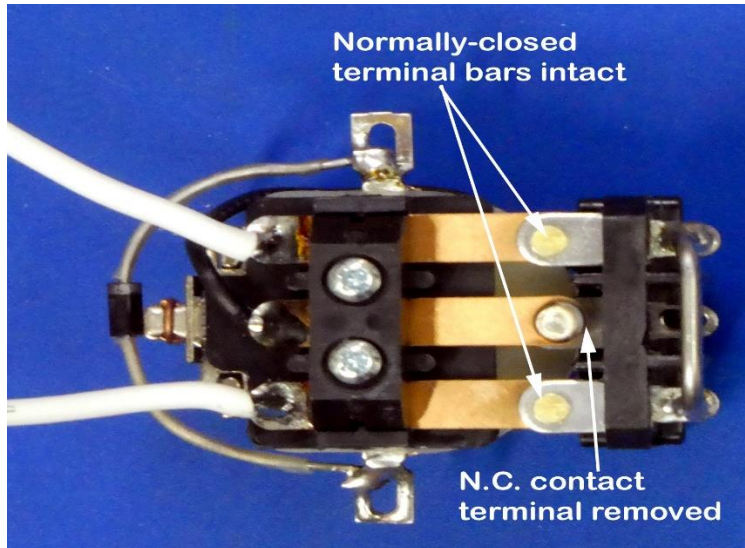
Later relays were a circuit board, which normally come with poor wiring from the factory.

CTR Engineering has two relay systems, a small board using cube-style relays available in 12Vdc or 24Vdc, and a direct OEM-style drop-in using original-type relays. We do not sell nor recommend the MFJ dual relay system, although it works fine if the wiring is cleaned up.

## Open Frame Relays

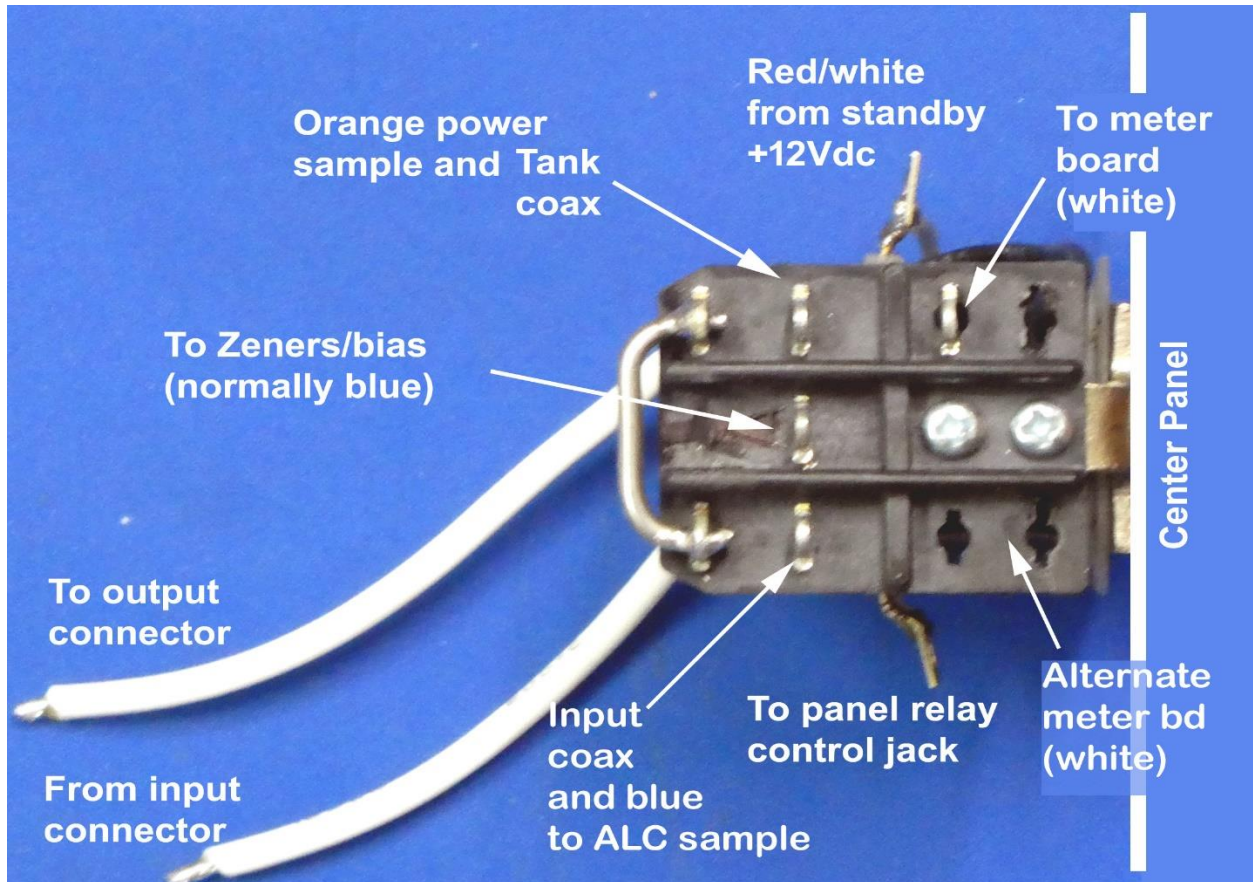
CTR Engineering has a direct bolt-in OEM-type relay. Like all of the variations over the years, the outer two contacts have high-flexibility flying leads and solder directly to the antenna and radio connectors. The coil is the same as all OEM relays, 12Vdc at 100mA. This is safe for virtually all radios without a relay buffer. The coil connections are on the coil itself in all relays used by Ameritron. The upper terminal is positive. The lower terminal goes to the relay jack with a short wire.

The center relay contact is the variation between relays. Initially, the center contact was a standard double throw. Receive is better maintained by removing the unused normally closed pole. Removal of the unused normally-closed pole contact, or carefully bending it upward out of the way, increases spring pressure. This improves wiping of the RF carrying poles and provides better weak signal receiving reliability.



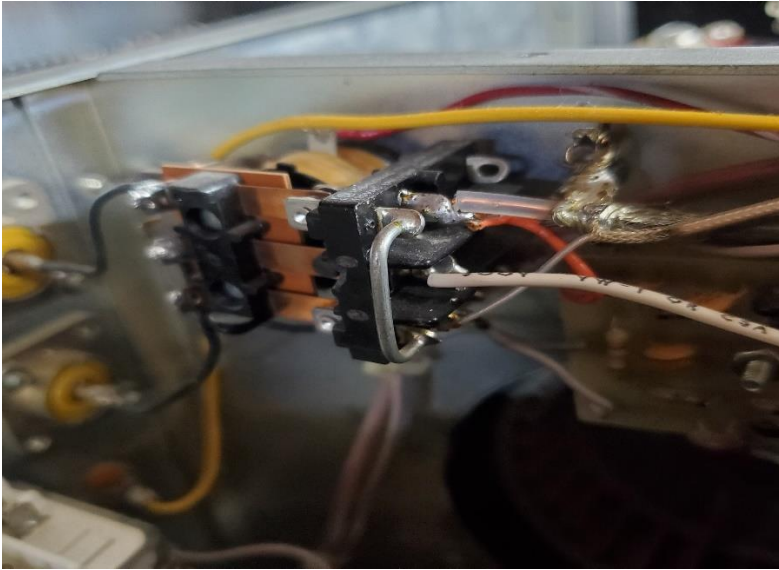
## Connections

Ameritron/MFJ unfortunately changes wire color from time-to-time. These are the most common wire colors, and the colors used and shown on early amplifier schematics. The wiring function label is correct.

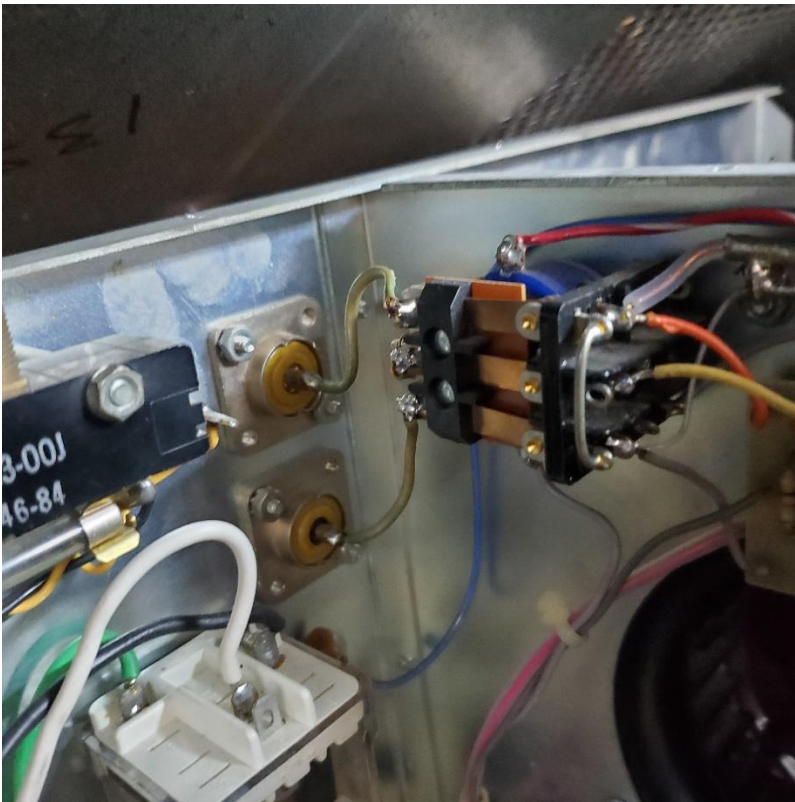


## Ameritron Original Examples

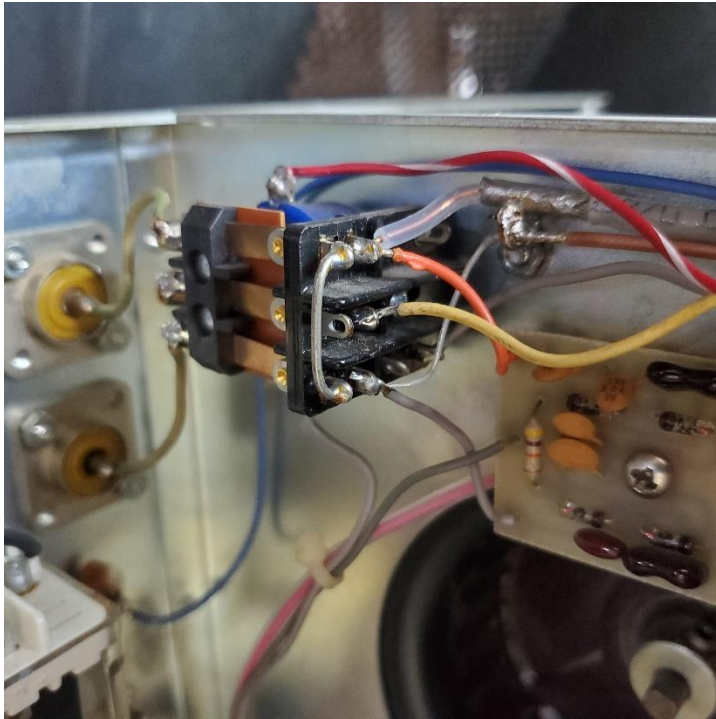
Example one below, although there are several variations. The wiring is not so neat:



Example 2 shown below:



Example 3 below is a 1983 model, but has a yellow replacement wire for the Zener lead:



Example 4 below. This is a properly cabled MFJ/Ameritron dual cube relay board. Note the coax shield to back panel is grounded at both ends on both cables:

