

Switching for Older RF Amps

Connect your old amp to your new HF rig.

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Several months ago I wrote an article that gave instructions for building a relay switching adapter inside the Heathkit SB-200 linear amplifier so that it could be used with modern solid state transceivers. (See "Modernizing the SB-200," in the August issue of 73.)

Since then, many readers have asked me if it is possible to adapt that scheme to older amplifiers. The answer is yes, and the instructions follow.

Why the Need?

At most hamfests, and in the ham classified ads, you will find older linear amplifiers at bargain prices. Such examples are Hallcrafters, Bandit, SBE, Swan, and National. Many use the popular 3-500 tube(s), but most are not directly compatible with modern transceivers. These older amplifiers have keying circuits using voltages much higher than the allowable low-current 12-volt DC relays found in today's solid state transceivers. If you attempt to directly key an older amplifier with a new transceiver, you most likely will damage that internal relay (mechanical or solid state). Repair will cost at least fifty dollars.

Building an External Relay

Here's how to build a small external relay interface box that will connect any solid state HF transceiver to an old amplifier. The interface box is built of parts from Radio Shack. Part numbers are given in the Parts List.

The unit not only controls the keying of the amplifier, but includes status lights and a bypass switch as well. You can build it for

less than twenty dollars in a single evening. If you have some of the items in your junk box, the project will be even cheaper. If you have 12 volts DC available, you will not need the 12 volt DC adapter. This would save you \$10.95.

Construction Details

Open and disassemble the interface unit's plastic case. Mark the positions for the pilot lamps (2) and the switch (1) on the face plate. The lamps should be 1" horizontally from each side, and centered vertically. The switch is centered in both directions. Drill $\frac{1}{2}$ " holes for the lamps and a $\frac{1}{4}$ " hole for the switch.

Install the lamps and the switch, being careful not to mar the case front. Hold the terminal strip in the center of the rear panel and mark the positions of the mounting holes. Using a drill of the same diameter as the strip's holes, drill holes into the panel to match those on the strip. Mount the strip with suitable nuts and bolts. An alternate method of attachment is to use epoxy glue or hot glue.

Drill a $\frac{1}{2}$ " hole immediately above the terminal strip.

Mount the relay on the inside of the rear panel with epoxy glue or hot glue.

Wire the unit as indicated in the schematic or pictorial diagrams. Pass the wires from the lamps, switch, and relay through the rear panel ($\frac{1}{2}$ " hole) to the terminal strip and attach them to the upper screws of each terminal. You will use the lower screws for power and radio or amplifier connections.

Testing Instructions

Hook up 12 volts DC to terminals 3 and 4. Terminal 3 is negative and terminal 4 is positive.

Push the switch to the right. The green light should come on, indicating the unit has power. If not, recheck your wiring.

Short terminals 1 and 2 together. You

should hear an audible click as the relay closes, and the red light should come on. If not, recheck your wiring.

Using a VOM, or continuity checker, check terminals 5 and 6 for open circuit when only the green light is on; check them for closed circuit when the red light is also on. If not, recheck your wiring.

Using the Interface

Turn your interface box, transceiver, and amplifier off before proceeding.

Connect a pair of wires from terminals 1 and 2 to the control outputs of your transceiver. Refer to your operator's manual for information specific to your rig. The connections will be NO (normally open) and closed when the PTT line or VOX is activated. Terminal 2 of the interface's terminal strip is the circuit ground, if your transceiver uses a grounded/shielded type of plug. In most cases polarity is not a consideration.

Connect a pair of wires from terminals 5 and 6 to the keying inputs (relay control) of your amplifier. Polarity is not a consideration.

Turn your transceiver and amplifier on. After the equipment has warmed to operating temperature, key the transmitter. The amplifier should not key and no lights should be lit on the interface.

Turn the interface on and the green lamp will light, indicating power on. Press the transceiver's PTT (transmit) switch and the red lamp will light, indicating relay closure. At the same time the amplifier will key.

Follow your amplifier's tuning instructions before keying it for more than a couple of seconds at a time.

When you don't wish to use your amplifier, turn the interface off.

Be Considerate

For the sake of the rest of us using the ham bands—please, only use your amplifier when necessary to maintain communications. When you need the extra few dB, though, rest assured you can safely drive your older amp with your newer rig! **73**

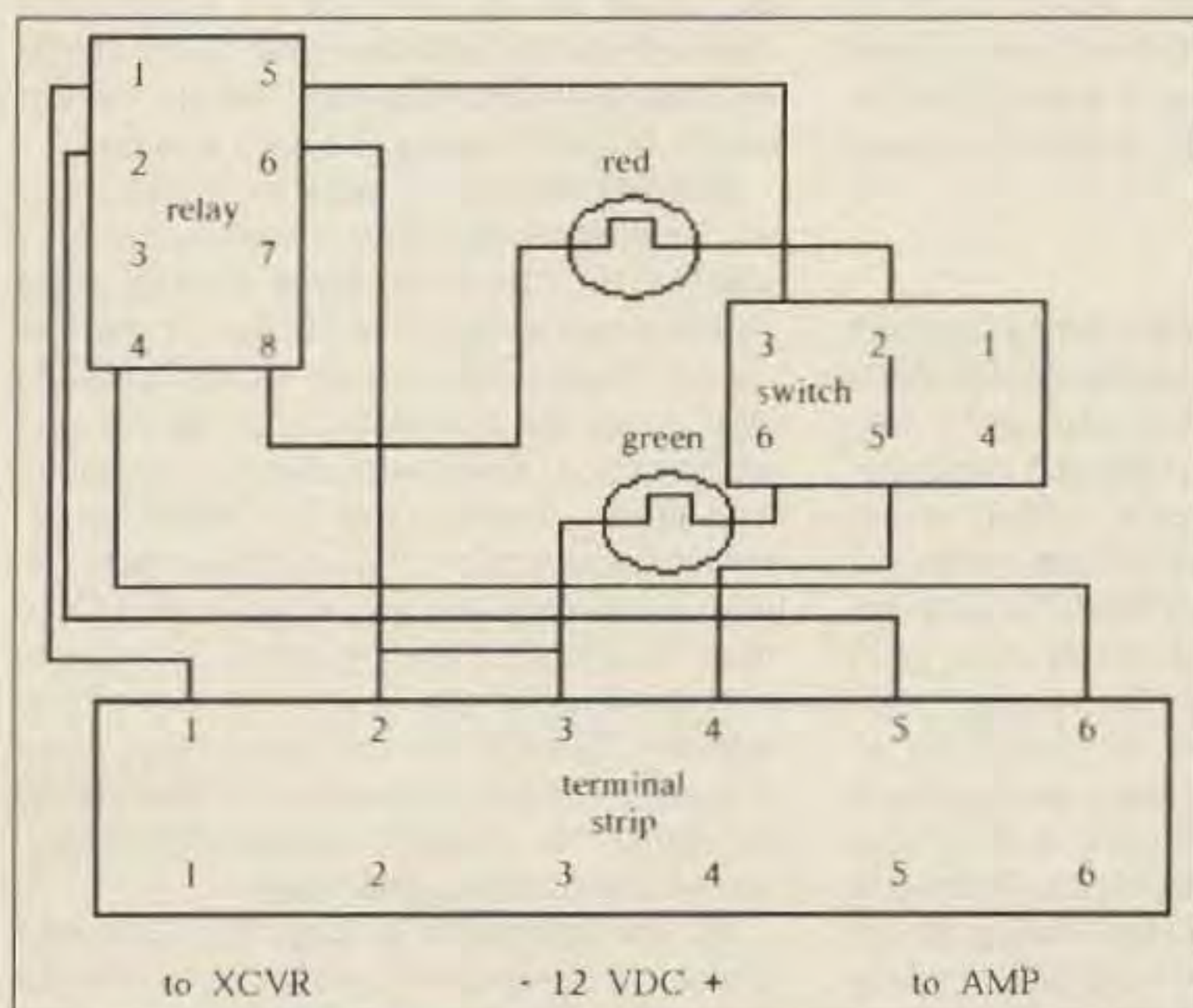


Figure 1. Pictorial diagram of the interface unit.

PARTS LIST

Part#	Part	Price
275-213	relay	\$3.99
275-662	switch	\$3.19
272-332	red lamps	\$1.69
272-337	green lamps	\$1.69
274-659	6 position terminal strip	\$1.59
270-250	plastic case	\$4.99
273-1652	12 VDC adapter (optional)	\$10.95