

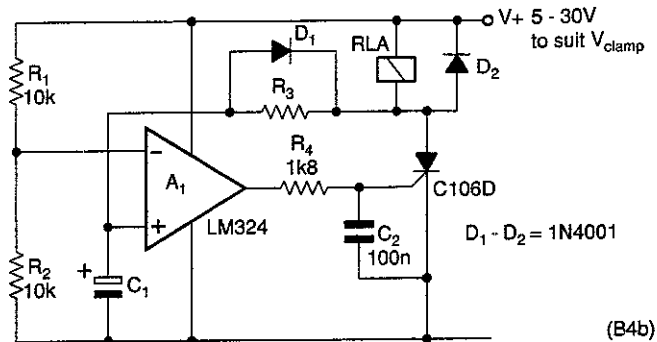
Inexpensive time-delay relay

Commercial time-delay relays, though easily obtainable, are expensive. This one is not and has the advantage that it can be immediately recycled. It was used to delay the application of ht to a valve amplifier until the heaters have warmed up, so avoiding valve cathode stripping.

At switch-on, C_1 charges through R_3 and RL_C until the voltage on the non-inverting op-amp input reaches that on the other input, at which point the op-amp output goes high, the thyristor fires and C_1 quickly discharges through D_1 and the thyristor, resetting the circuit.

A 324 op-amp output includes 0V, it is cheap and operates from 5-30V supplies. Time delay is $0.7C_1R_3$ seconds and may be up to two minutes.

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(B4b)

Object code for the callsign generator. The callsign used is G8DQQ and the NGR is SJ 703 107. To locate these in order to modify them, print out the listing as Ascii. Alternatively, send a £12 cheque payable to B. Olliver at 12 Fountain Drive, St Georges, Telford, Shropshire TF2 9DP for a preprogrammed PIC. Don't forget to add an SAE and your details.

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:10000000228022800000308B0083160F30810088
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PIC microcontroller replaces small-scale logic in an amateur television repeater controller, which is due to go into service in Shropshire.

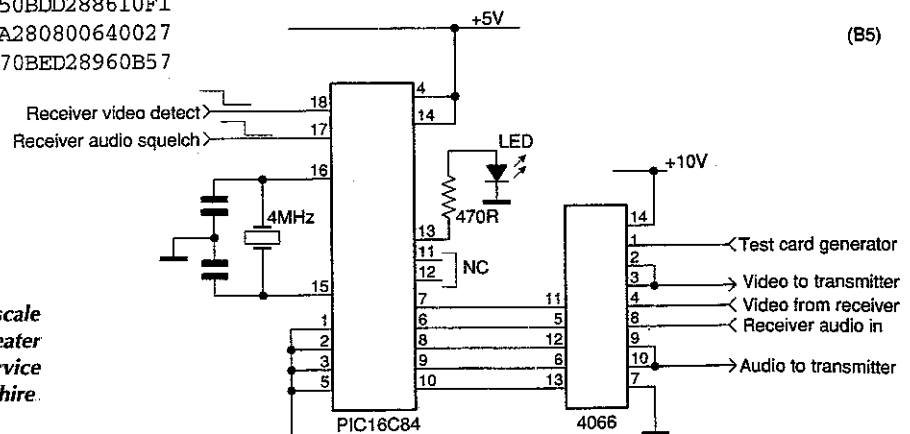
Control and callsign generator for amateur television

Instead of a collection of logic chips and diodes, I have used a PIC16C84 to monitor incoming signal status and control the operation of a repeater station, including the requirements of the Radio Communications Agency to send a timed callsign in morse regardless of conditions. The device will control the audio channel independently of video; should the audio fall below an acceptable level, it blocks it and switches to a tone between callsigns. When a suitable signal is received, the microcontroller and 4066 switch deselects the test card, connects the received video and reinstates audio.

I have programmed a morse code library into the PIC, so that any alphanumeric combination may be sent; in this system, the callsign, followed by the NGR and a "k" to indicate the end of text are sent, the maximum 15 minute gap being used with a led to indicate counts during the 15 minutes.

The internal watchdog timer reboots the program 2.5s after any glitch causing a lock-up and continuous input monitoring allows a 4s response to any change of input status. A 10V supply to the 4066 provides the best switching performance, although it might be useful to use one of the newer types of switch. Similarly, I used the PIC16C84 because I am used to it; a one-time-programmable type would be cheaper.

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