Car accessories timer

This timer was designed to switch on the "accessories" supply in a motor car for a ten minute period. It avoids the frustration of your passengers having no radio simply because you need the car keys to open to boot or petrol cap.

A single pushbutton serves three functions. With the relay off, it starts the timer and switches on the relay. With the relay on, it resets the timer to give a further full ten minutes delay. And by holding the button in for about one second, it switches the relay off.

Here's how the circuit works. Pressing the pushbutton generates a 40 millisecond pulse via monostable IC3d. This clears the counter (IC4) and sets the flipflop (IC2a/IC2b), thus turning on the relay via Q1 and enabling the oscillator, IC3b. Also the LED lights, to indicate that the circuit is on.

IC3b clocks the counter at about 3Hz. The Q12 output of IC4 thus goes high after approximately 680 seconds, resetting the flipflop. The relay turns off and the oscillator stops.

Holding the pushbutton in causes C1 to charge via R1. This provides a delay so that the counter has time to clear. If C1 is still charged when Q3 of IC4 goes high (about 1.3 seconds later), the flipflop is reset.

Exact timing depends on the hysteresis levels of the 4093, and may require tuning by adjusting the timing resistor on IC3b. Shorter time delays can be provided by selecting a different output from IC4.

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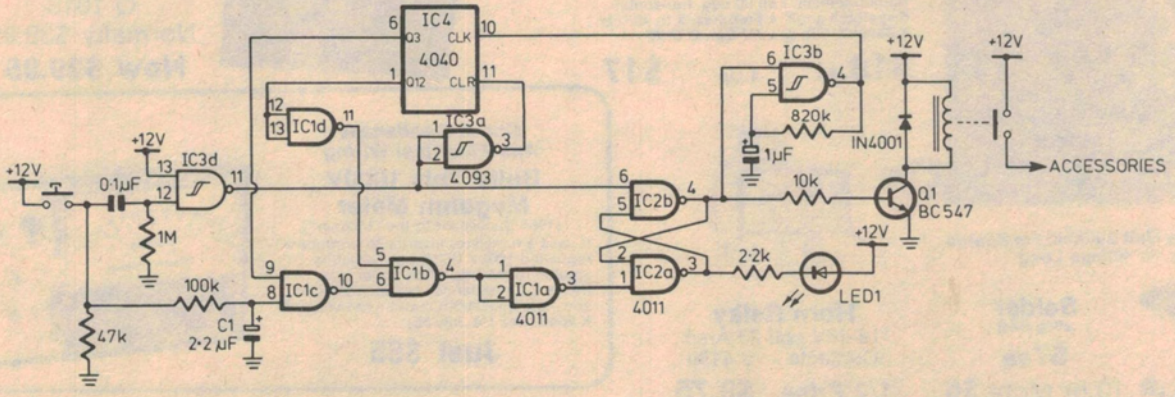
IC4
4040
Q3
Q12
CLK
CLR
IC1d
IC3a
4093
IC3d
IC3b
820k
1µF
IN4001
+12V
+12V
+12V
ACCESSORIES
0·1µF
1M
IC2b
10k
Q1
BC547
IC1b
IC1a
4011
IC2a
4011
2·2k
LED1
100k
IC1c
47k
C1
2·2 µF