

## IDEA OF THE MONTH

### Transformerless voltage doubler

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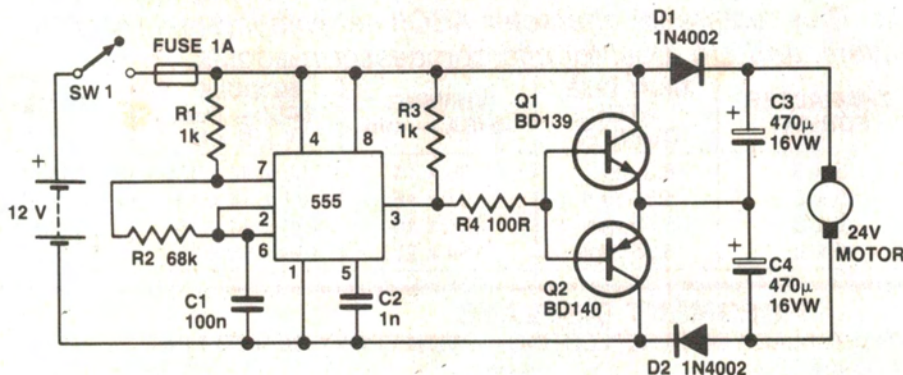
This circuit shows a convenient method of supplying a 24 V motor from a 12 V battery.

The 555 timer operates in astable mode to produce a square wave at about 1 kHz. When pin 3 of the 555 goes high Q1 con-

ducts and charges C4 to just under 12 V, whilst D1 prevents C3 from discharging. When pin 3 goes low Q2 conducts and similarly charges C3, while D2 prevents the discharge of C4.

The resultant voltage across

C3 and C4 supplies the motor. Output is around 22 V with no load, dropping to about 20 V with a motor drawing its maximum of 200 mA. The transistors should be heat sunk.



### ETI 265 Modification

The relay can be fitted into the existing holes if you drill out two new ones in the middle of the mains land. You will need to scrape away a portion of the land to insulate the new pins from the 240 V.

Then replace PB1 with a DPDT such as the DSE 1220. One pole can be left to perform its normal function. The other is wired across the extra pole on the relay. When the switch is depressed it applies power to the transformer primary and thus allows power up.

The ETI-265 power down mains appliance timer was designed to switch off equipment attached to it after a predetermined period. It uses a DSE 2851 transformer for its control circuitry. T. Hollyhead of Liverpool NSW 2170 made a few tests on this transformer and discovered that even when the secondary is open circuited it still draws 10mA. Over a year this amounts to 20 KWhrs.

The solution is to disconnect the mains from the transformer itself during power down. This can be achieved by using a DPDT relay, such as the DSE 57130.