

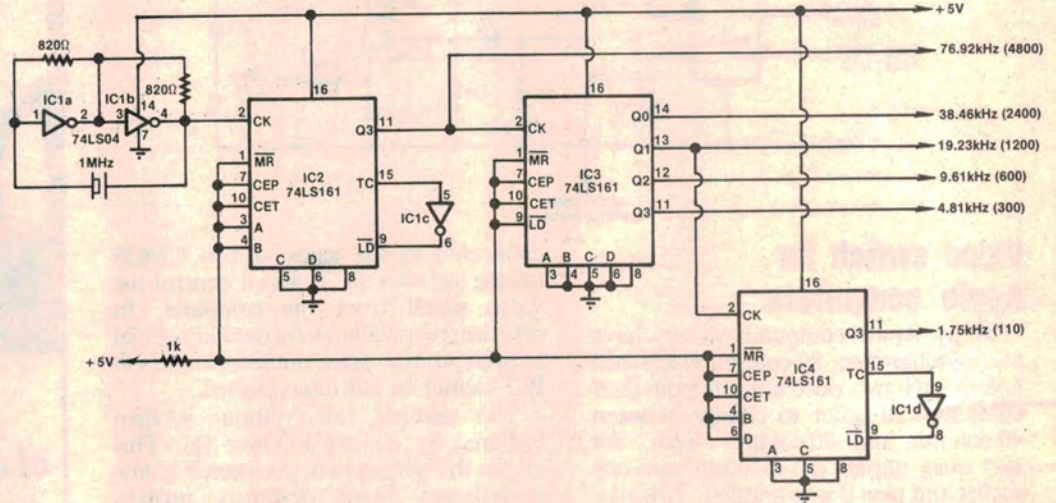
Circuit & Design Ideas

Simple baud rate generator

This simple baud rate generator can be used with most serial communication devices such as UARTs and ACIAs. It provides the necessary clock frequencies at 16 times the baud rate.

Six standard baud rates are catered for and these are 110, 300, 600, 1200, 2400, and 4800 baud. The 4800 and 110 baud signals, at 76.92kHz and 1.75kHz respectively, do not have 50% duty cycles, but this should not present problems with most serial devices.

A 1MHz crystal oscillator is formed by inverters IC1a and



IC1b. This is divided by 13 with IC2 to derive the 4800 baud signal. IC3 further divides this frequency by 2, 4, 8 and 16 to provide the 2400,

1200, 600 and 300 baud rates respectively. IC4 divides the 1200 baud rate signal by 11 to derive the 110 baud signal.

The unit operates quite well

in conjunction with the DATUM microprocessor trainer.

S. Sidoti,
Lilyfield, NSW.

\$15

50Hz frequency indicator

The need for this unit was brought about by problems arising from the use of portable alternators run at the wrong speeds. This can cause difficulties when the load consists of induction motors or other frequency dependent devices. As the use of a frequency counter is hardly justified for this type of situation, this circuit was developed.

The unit is powered from the circuit to be checked, using a small multi-

tapped transformer, bridge rectifier and 3-terminal regulator. The heart of the circuit is an LM565 phase locked loop (IC1) which compares a sample of the input frequency with an internal oscillator. An error voltage, which depends on the difference in frequency between the two oscillators, is amplified by a 741 op amp (IC2).

The output from the op amp is filtered and used to drive IC3, an LM3914 bar-graph driver. Only 9 of the available 10 outputs of the LM3914 are used, to maintain a symmetrical

display consisting of a central green LED, with a yellow LED on either side, followed by 3 red LEDs on either side. With the component values shown, the resolution is within 2Hz per LED, a figure which enables the speed of the driving motor to set, with sufficient accuracy.

Calibration is easily carried out by using the mains as a reference, and adjusting VR1 to illuminate the green LED.

T.J. Whitlow,
Rangiora, New Zealand.

\$18

