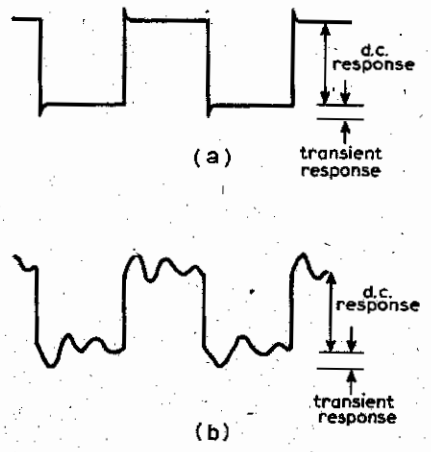
## Transient response testing

The accompanying circuit offers a simple means of testing transient response in regulated power supplies.

The multivibrator is modified by the addition of a diode and a second load resistor on one side to isolate the compound emitter follower stage from the capacitor charging voltage and thus give a sharp front to the waveform. Two series diodes in the base circuits protect the transistors from excessive voltage swings in the switching cycle. The 1kΩ resistor and 1,000μ F capacitor decouple any transients produced by the power supply. The square wave is also taken out to a terminal for oscilloscope synchronization. An emitter follower stage switches the selected load resistor across the output. The transients generated by the supply may be observed on an a.c.-coupled oscilloscope. A good transient response will be similar to that shown in (a), whilst any tendency towards instability would give a response more like that of (b). The d.c. response is the output voltage change between loaded and unloaded states.

Because the transistors are used in a switching mode the dissipation is low, a 2-in square piece of 16 s.w.g. aluminium being sufficient heatsink for the 2N3055, no heatsink being required for the 2N3053. With the values given a 12V supply may be tested at either 100mA or 1A loading. Other voltages and/or currents may be catered for by altering the load resistors.

H. Macdonald,
Ashford,
Middlesex.




*Any tendency to instability degrades a good transient response (a) to that of (b).*