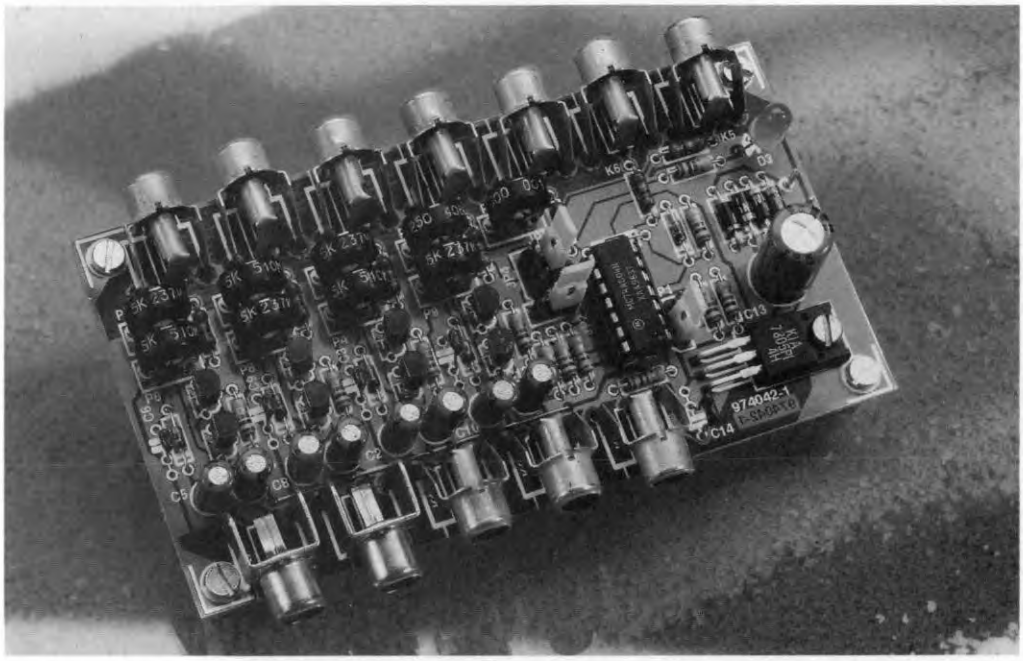
RGB video amplifier

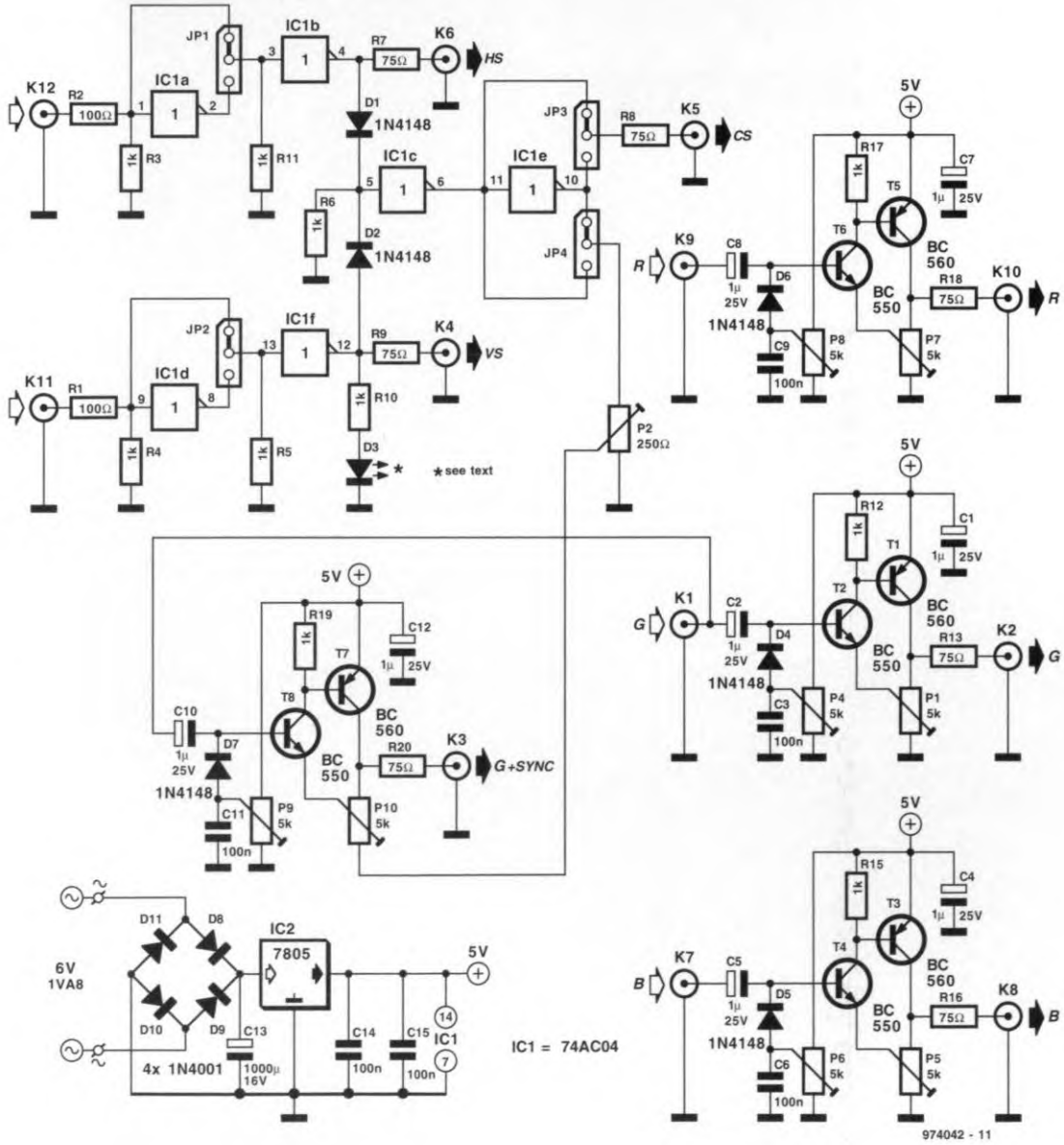


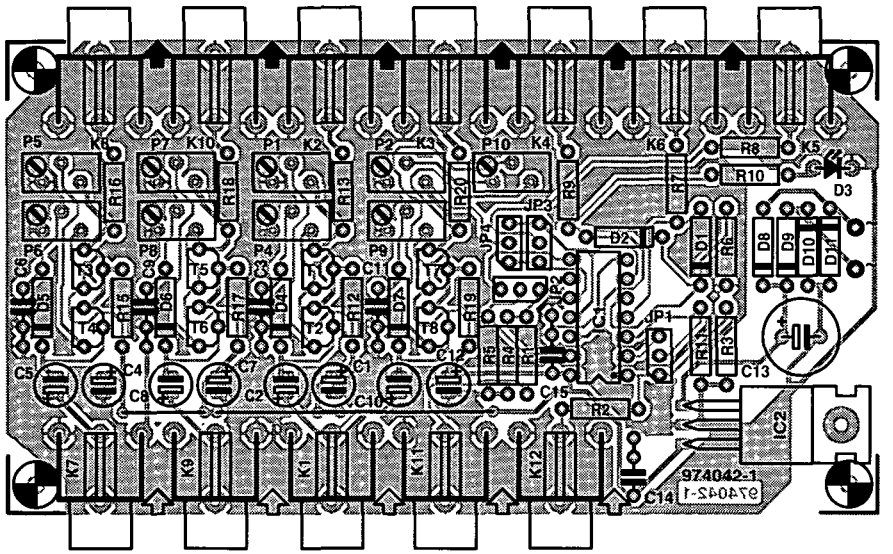
This amplifier board is aimed at those of you who want to experiment with RGB video connections between a PC and VGA monitor. Many up-market VGA monitors available today have separate RGB V/Hsync inputs besides the perhaps more familiar 15-way high-density sub-D input for a single cable connection to the VGA card.

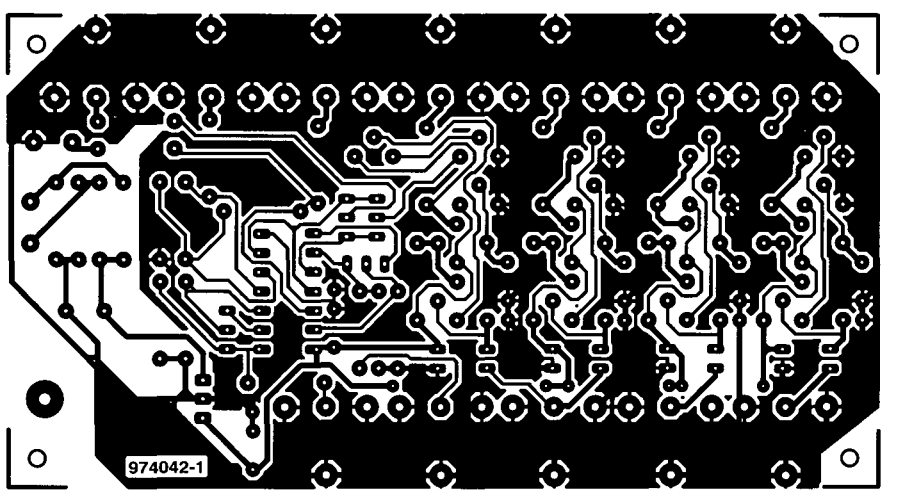
This circuit makes use of the solution with the better quality: separate (coax) RGB connections.

The two-transistor RGB (red, green, blue) amplifiers are identical, each containing adjustment points for the black (reference) level and the signal level. In the R(ed) amplifier, for example, the respective controls are presets P8 and P7.

Another, similar, amplifier, T8-T7, supplies a combined (G+CSYNC) signal. The CSYNC portion of this







COMPONENTS LIST

Resistors:
R1,R2 = 100Ω
R3-R6,R10,R11,R12,R15, R17,R19 = 1kΩ
R7,R8,R9,R13,R16,R18, R20 = 75Ω
P1,P4-P9 = 5kΩ multiturn vertical
P2 = 250Ω multiturn vertical
P10 = 500Ω multiturn vertical

Capacitors:
C1,C2,C4,C5,C7,C8,C10,C12 = 1μF 25V radial
C3,C6,C9,C11,C14,C15 = 100nF
C13 = 1000μF 16V radial

Semiconductors:
D1,D2,D4-D7 = 1N4148
D3 = LED
D8-D11 = 1N4001
T1,T3,T5,T7 = BC560C
T2,T4,T6,T8 = BC550C
IC1 = 74AC04
IC2 = 7805

Miscellaneous:
JP1-JP4 = 3-way jumper
K1-K12 = cinch socket, PCB mount
Printed circuit board, order code 974042-1 (see Readers Services page)

signal is adjusted to individual requirements using preset P2.

The RGB and (G+CSYNC) amplifiers have 75-Ω output resistors to ensure a good match to coax cable. Their drive capacity is such that relatively long coax cables may be used without running into bandwidth reduction problems. Do not go over 3 metres, however.

Jumpers JP1 and JP2 enable the HS (horizontal sync) and VS (vertical sync) signals to be output in inverted or true form as required by the monitor (RTFM). The VS and HS signals are also combined by diodes D1 and D2 to create a composite sync (CS) signal. This, too, is available in true and inverted form on socket K5, the polarity selection being made with jumper JP3. The output impedance of the CSYNC output is 75 Ω. The intensity of LED D3 indicates the polarity of the VS signal: bright means negative VS; weak means positive VS. Jumper JP4, finally, selects between true or inverted CSYNC for use in the (G+CSYNC) adder, T7-T8.

The amplifier board has its own power supply consisting of four 1N4001's (D8-D11), a smoothing capacitor (C13) and the customary voltage regulator (IC2). The board may be powered by a small 6-volt mains transformer.

(974042 - W. Foede)