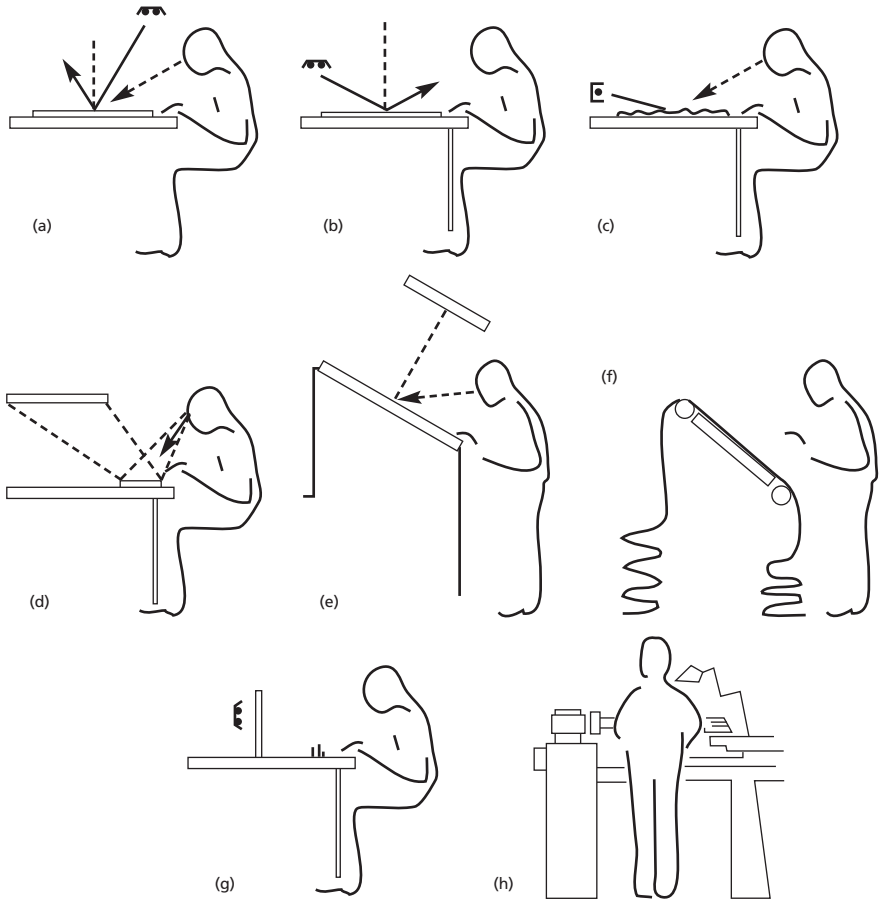
Figure 10.6 Examples of lighting for visual inspection



(a) To prevent veiling reflections, light must not coincide with angle of view.
(b) The observation of specular detail on a diffuse background is aided if reflected light does coincide with angle of view.
(c) Low-angle lighting used to emphasise surface irregularities.
(d) Reflected light from a source having a large surface area facilitates detection of blemishes in a polished surface.
(e) Diffuse lighting from an extended source aids typesetting.
(f) Irregularities in transparent materials are revealed using a transmitted light from a diffuse source.
(g) Silhouette is an effective means of checking contour.
(h) Directional lighting is needed to reveal form and texture.

10.4.5 Visual aids

There are some features of products that can be much more easily seen with the use of visual aids. Such aids include magnifiers, stroboscopes and ultraviolet lamps. Magnifiers can be head mounted or hand held. Magnifiers are useful for inspecting very fine detail but there is a trade-off to be made against field size. The greater the magnification, the smaller is the field size. The lowest magnification necessary to see the required detail should be used.

It is sometimes necessary to examine machined parts while they are in motion. A stroboscope will help with this by apparently stopping the motion. To do this is it is necessary for the frequency of the stroboscope to be adjustable so that it can be matched to the frequency of motion. Seals can be tested by placing a fluorescent dye in the sealed container and searching for leaks using an ultraviolet lamp.