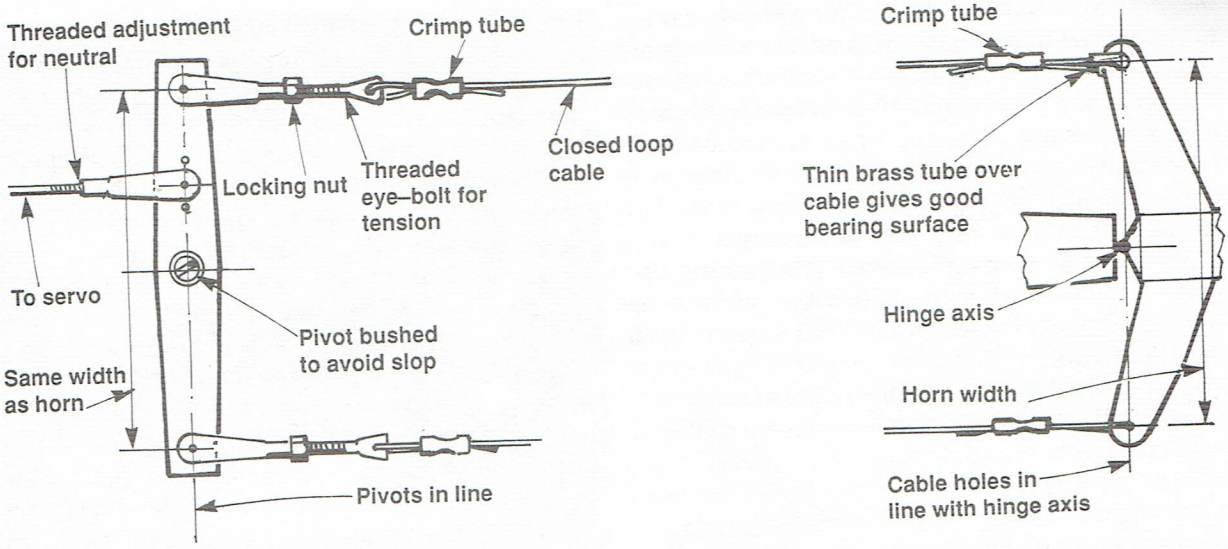

Fig. 10.6: Closed loop linkage via bellcrank.

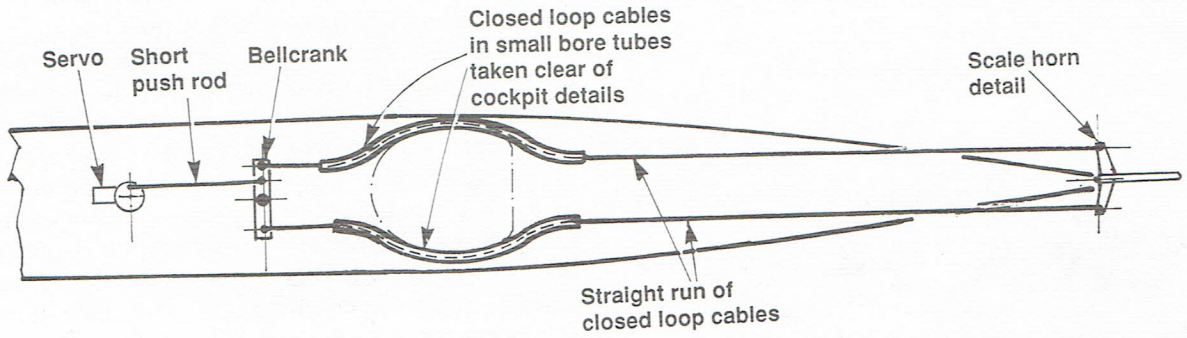

Fig. 10.7: Small diameter plastic tubing for control cable diversions.

any great lateral movement, unless they are over a very large unsupported span.

The geometry of the closed loop linkages are, in theory, fairly critical, the span (width) of the take-off points for the cables at the servo and control horn ends should be equidistant (i.e. parallel cable runs) and the cable/horn connections should be in alignment with the hinge. In this way, the cables will remain equally taut – with any other arrangement one cable will always go slack. I say in theory because, if you look at some full-size examples (Tiger Moth, for instance) they do not follow this 'ideal' practice and you will notice that as the rudder is moved in one direction the cable on the opposite side is slack. It would appear that the rudder control horn take-off points are behind the hinge line.

However, we do not want to take the slightest risk of putting any extra strain on the servo output shaft bearing as these are already taking a side load (and one reason why ballraced servos should be used). Direct cable connections can be used, from the servo to the rudder for instance, providing that the spacings are equal. Most servos give a movement of around 45° on either side of neutral and this will obviously be excessive for most control movements, if your transmitter has adjustable end stops then the direct connection will be OK. Most cable runs will probably make use of an intermediate control horn a short distance from the servo, this will allow for spacing of the cable take-off points to be the same as the (scale) control horns and allows for varying the control throws – by adjusting the radius connection of the pushrod from