

TECHNICAL LITERATURE RSL STEEPER "AUTOMATIC" ELBOW UNIT & FOREARM (Mk. 14)

The RSL STEEPER MK14 is a cable operated prosthetic elbow system designed for rapid assembly and available in four colour finishes. Provision is made for socket attachment by glue in or laminated construction.

The system is supplied in three sizes, 2 3/4", 2 1/2" and 2 1/4" diameters. The principal components are; The Lateral ring, Elbow Mechanism and Forearm.

LATERAL RING: The lateral ring is chosen dependant on the application. Tapered rings are only available for the 2 3/4" size.

SYSTEM ASSEMBLY: The socket is finished off with the appropriate lateral ring glued or laminated in place. Holes are drilled in the positions on the posterior aspect as illustrated. Hole B is countersunk and threaded to accept a suitable screw (M3). The elbow mechanism is screwed into place and the M3 screw located and screwed home through the lateral ring and into the thread of the elbow unit. With the lateral movement unlocked the mechanism is rotated into the anterior-posterior plane. The forearm steels are fitted into the shoes of the elbow and secured with the two button screws, these are tightened with a suitable pin headed torque driver to 22.5 lbf in. Finally the wrist unit, operating system, flexion system, suspension and hand are fitted.

FOREARM: The forearm is laminated with two integral side steels. These steels engage the 'shoes' on the spindle of the elbow mechanism and are locked in place with button screws.

The forearm incorporates a parallel, cylindrical distal section which is shortened to its finished length during the fitting stage. Calculate the final forearm and outer socket measures, (see Figure 2). Ensure the measurement required is accommodated within the parallel section.

FLEXION SYSTEM: When an appropriate flexion system has been selected, the flexion lever is riveted in the appropriate position on the side steel, see R & M, (Figure 1). These positions are pre-drilled prior to lamination but fill with resin.

MAINTENANCE : Disassemble as follows:

- Remove the self tapping screws (20) from the elbow dome.
- CARE They are small and easy to lose.
- Slide the dome off (22) and take out the plastic slides (21).
- Unfasten the operating lever control spring (18).
- Remove the four M3 Aerotight nuts (19) which hold the bearing blocks in place and disassemble the clamp plates, lower bearing blocks, spindle and upper bearing blocks(16,17). This will expose the operating lever and cam assembly (13,14).
- Before reassembly ensure that all parts are thoroughly cleaned. Reassemble, in reverse order, using a light coating of Rocol 2000 grease on the cam and the bearing surfaces. Tighten the M3 nuts to 14 lbf/in with a torque nut driver.
- The plunger assembly (7) is reached by removing the plastic plunger cap (7a) in the central proximal turret.
- The tooth engagement can be reset by screwing the cap in to the appropriate depth, it can be fixed in position by putting a little anti-vibration compound on the threads.

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
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Figure 2

ELBOW MECHANISM: The mechanism is controlled with an operating cable tensioned by differential body movements. This lifts an operating lever against an internal spring. This in turn operates a unidirectional cam which controls the engagement of a tooth into a slotted quadrant. The quadrant is formed from the main spindle of the elbow unit. This has a 'shoe' at each end which accepts the forearm side steels. The mechanism is locked and unlocked by sequential operations of the cable. The elbow unit includes a humeral rotation unit. This is provided with a positive lock and is operated by twisting a reinforced plastic ring. When the lock is not engaged a spring loaded ball into a detent mechanism and an adjustable friction drum controls the freedom of rotation.

Figure 3

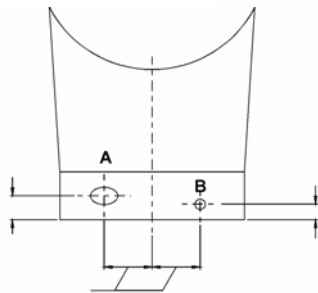
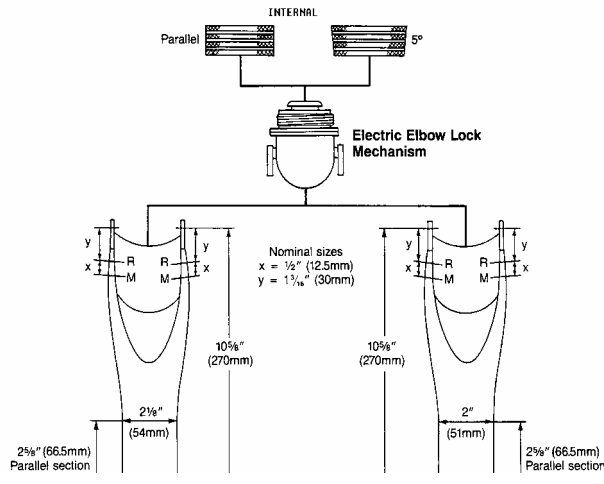
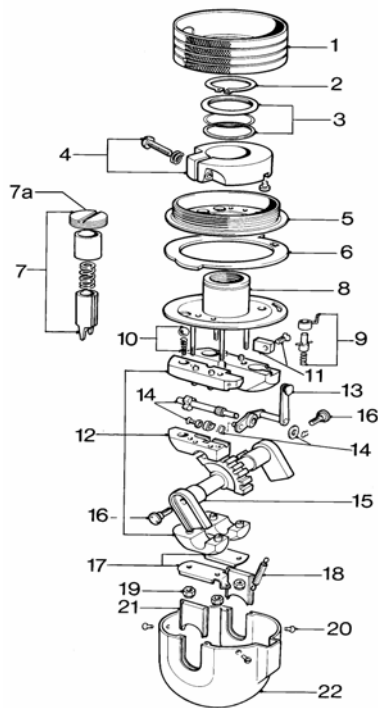


Figure 4



$$C = A - H - B + 1 \frac{1}{8} \text{ (35mm)}$$

