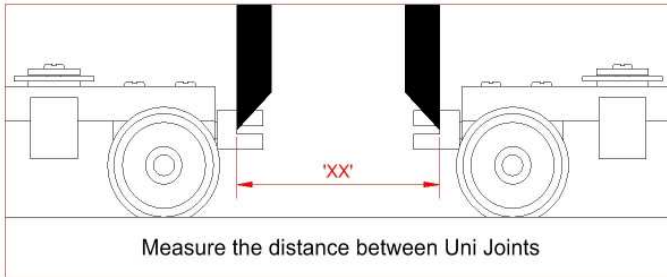




Assembly of Telescopic Cardan Shaft Kit

PLEASE NOTE: The cardan shaft design has changed, the retaining cage has been dropped in favour of a spring loaded design.

The Cardan shaft kit comprises a length of square brass tubing, two machined connectors, half a set of universal joints, two springs and a length of Evergreen # 153, .06" x .06" styrene. The first task is to determine the correct length for the cardan shaft.



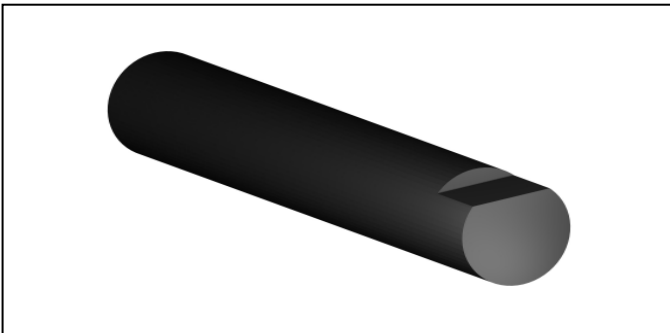
Firstly place the bogies in their correct position, preferably mounted on the model. Align them so they are straight. Using a set of callipers, measure the distance between the outer edges of the universal joint cups, as shown in the diagram above.

From the value 'XX' so obtained, deduct 11.0 millimetres or 0.433" in imperial measurements. This is the correct length for the square section brass tube. Write this value down, you will need it again later. Cut the tube to length and dress the ends to remove burrs.

Only one end of the Cardan shaft needs to telescope, so one of the machined connectors can be soldered or glued into place inside the square tube end. Fix the connector into the tube with the shouldered section flush with the end of the square tube, so that only the round part protrudes.

Now take the piece of Evergreen styrene and cut it to length. The correct length is the value you wrote down earlier, minus 26 millimetres, or 1.024". Insert the styrene strip into the square brass tube so that it rests against the stop formed by the fixed connector.

Note that there is a small flat machined onto the ends of the round part of the connector. This is to engage in a corresponding flat moulded into the horned ball part of the universal joint. Do not trim off this flat section.



If you plan to solder the connector into the tube, do so before fitting the horned ball. Make certain that the square section of the connector is an easy sliding fit into the brass tube. Now fit the horned balls onto the ends of the connectors. A small amount of Loctite 601, 609 or 638 should be applied to the connector end when fitting the horned ball to keep it in place. Apply some light machine oil to the sliding connector and check that it slides easily.

Remove the sliding connector and carefully insert the two tiny springs one after the other. Again check that the sliding connector slides freely against the spring pressure.

If you are unlucky enough to lose any of the small springs, they are easily obtainable, as they are the knuckle springs used in Kadee Couplers.

Short Shafts

If your shaft is quite short, 26mm (1.024") or less, then the Evergreen packing piece will not be needed, and you may have to trim the square section ends of the connectors to suit. The idea is to shorten them so that there is a 2mm space inside the finished shaft for the springs when they are fully compressed.

Fitting the Completed Shaft

The shaft is fitted into the model by inserting the fixed connector end into the universal joint cup of the bogie (truck) then gently compressing the sliding end against the springs and locating it in the other uni joint cup.