

LSWR ADAMS RADIAL TANK VALVE GEAR KIT - 4mm SCALE

This kit is designed to accurately produce in 4mm scale a working model of the Stephenson's link valve gear. For reasons of practicality two significant deviations from the prototype have been made.

Firstly there are no separate link blocks and the motion is permanently fixed in forward gear.

Secondly the lifting links are not attached to the link blocks. This allows the valve gear to be removed from between the frames.

Please study the assembly diagrams carefully and note that, as for the coupling rod crankpins, the right side eccentrics lead the left by 90° and that the left side of the motion is a mirror image of the right.

ASSEMBLY

VALVE CHEST

If you are modelling in EM or OO gauge file back the width of part V1 so that it will fit between the frames with the two tabs on the upper edge locating in the slots in the frames. The lower edge locates on top of the edge of the cylinders and is retained by parts V2, V3 & V4.

Drill the outer holes in part V1, 0.8mm for the valve rod and .45mm for the wire which represents the studs. Solder parts V2, V3 & V4 in place either side of part V1 using .45mm wire to help alignment and represent the studs.

MOTION BRACKET

File back the tabs on part F5 so that it can be sprung in to and out from its position between the frames. It is not fixed in position thus making the valve gear removable. Fit lengths of 1/16" diameter brass tube (4mm long) for the piston rod glands.

Clean up the valve rods and modify the base of the slot as showing in the diagram.

ECCENTRICS - EXPANSION LINKS

Using a 1/8" reamer, ream out the holes in the brass eccentrics so that they are a tight fit on the axle. Then carefully open out the small holes in the eccentrics to fit the .45mm wire.

Check the fit of the eccentric sheaths (part V5) on the eccentrics. The cranks and pair of

eccentrics can now be pinned together with a short piece of .45mm wire. Note the position of the small hole in the eccentrics means they are handed - each eccentric is paired with an identical eccentric.

Drill all the rivet holes in the eccentric rods (part V5) and expansion link (part V6) 0.8mm. Rivet the eccentric rods and expansion link together paying particular attention to the direction of the rivets. Pin the valve rod to the expansion link using 0.7mm wire. Make the left side a mirror image of the right.

TESTING

You are now ready to test the valve gear between the frames. Locate the cylinders and place the motion plate between the frames so that the tabs are not located and the rear face is angled downwards. Insert the axle with its bearings into the hornbocks whilst threading the valve rods through the motion plate and into the valve chest. Move the motion bracket so that it fits into the frame slots.

Space the eccentrics on the axle so that pairs of eccentrics are at the correct centres and they are in the correct position with respect to the crankpins on the wheels.

Now, very carefully, either Loctite or superglue the eccentrics to the axle.

If you have been careful in ensuring good, tight fits between all components you should now have a working valve gear, which does not flop about!

FINISHING

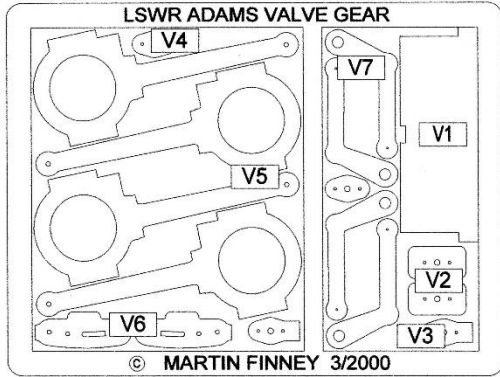
When satisfied, finally assemble and fix the weigh shaft and reversing mechanism, using the diagrams as a guide.

ETCHED COMPONENTS

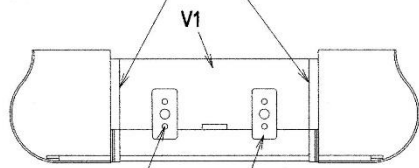
- V1. Valve chest
- V2. Valve chest locating plate - (2)
- V3. Valve rod gland - inner lamination - (2)
- V4. Valve rod gland - outer lamination - (2)
- V5. Eccentric rod / sheath - (4)
- V6. Expansion link - (2)
- V7. Reversing arm / lifting link - (4)

OTHER COMPONENTS

- Brass tube - 1/16" outside diameter - for valve rod bearing
 - Brass wire - 0.45mm - for pinning eccentrics to cranks and stuffing box studs
 - Brass wire - 0.7mm - for valve rod pin
 - Rivets - (4)
 - Brass eccentrics - left - (2)
 - Brass eccentrics - right - (2)
 - Valve rod - (2)
-



REDUCE WIDTH FOR EM and OO



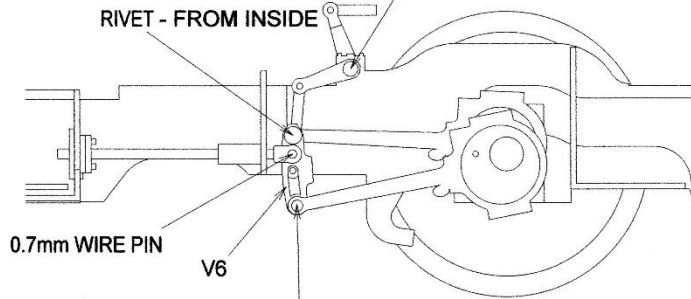
FROM FRONT

.45mm WIRE

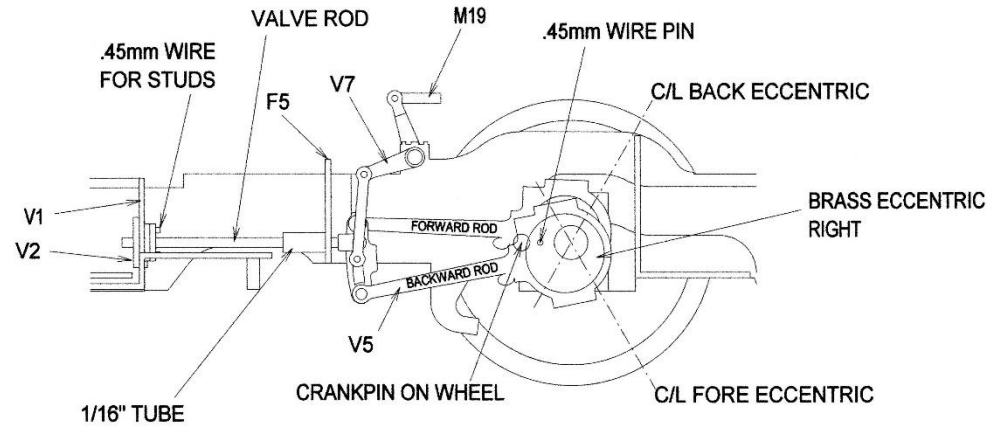
V2

WIEGH SHAFT - 1.2mm WIRE

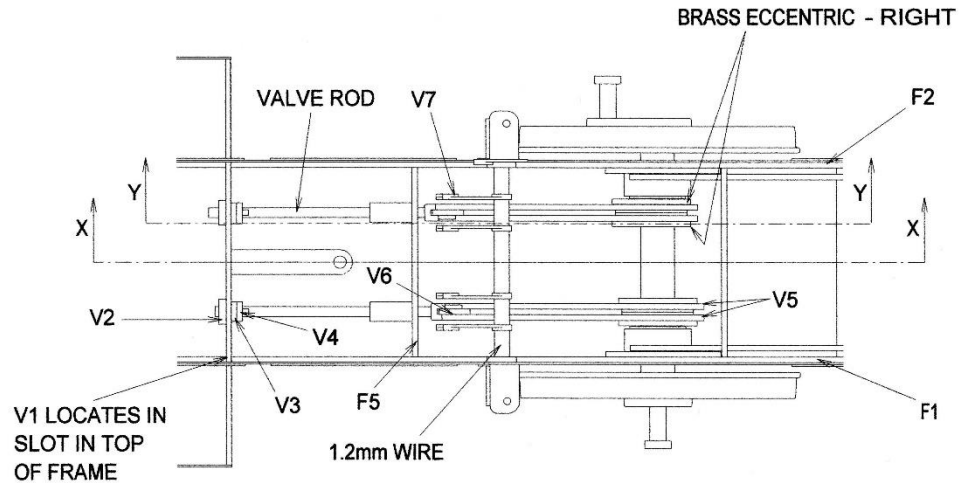
RIVET - FROM INSIDE



SECTION ON XX



SECTION ON YY



LSWR ADAMS RADIAL - VALVE GEAR