

## ADAMS RADIAL TANK INSIDE VALVE GEAR

This kit is designed to accurately produce a working model of Stephensen'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.

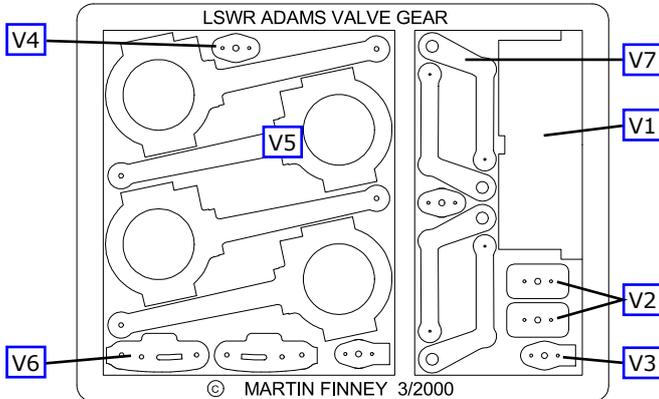
Please study the assembly diagrams carefully and note that, as for the coupling rod crankpins, the right side eccentrics lead the left by 90° and that the left side of the motion is a mirror image of the right.

### 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 - 3/32" outside diameter for valve rod bearing
- Brass wire - 0.7mm for pinning eccentrics to cranks
- Brass wire - 0.8 mm for stuffing box studs
- Brass wire - 1.2mm for valve rod pin
- Rivets (4)
- Brass eccentrics left (2)
- Brass eccentrics right (2)
- Valve rod (2)



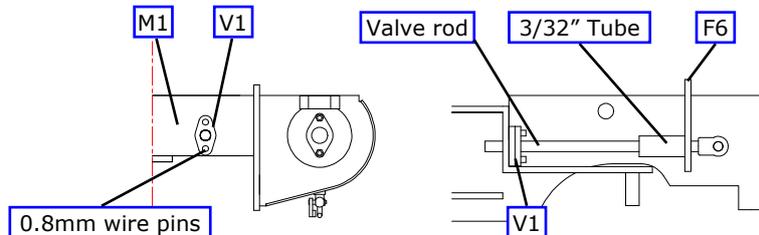
### VALVE CHEST

If you are modelling in Finescale file back the width of the valve chest (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 the other valve chest components. Drill the outer holes in the valve chest to be 1.6mm for the valve rod and 0.8mm for the wire which represents the studs. Solder the valve chest locating plates (V2), the valve rod gland inner and outer laminations (V3 & V4) in

place on the valve chest using 0.8mm wire to help alignment and represent the studs.

### MOTION BRACKET

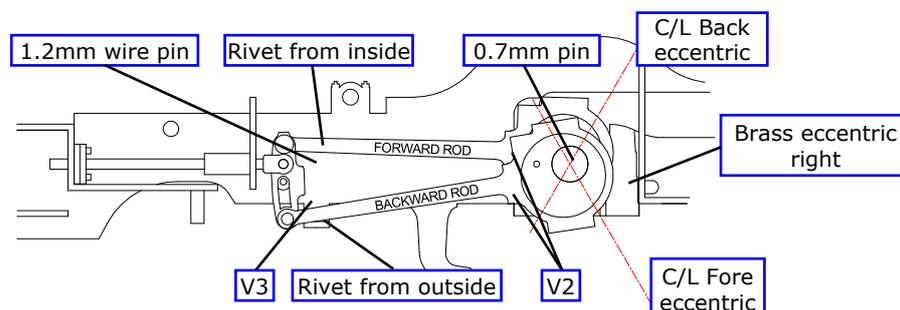
File back the tabs on the motion plate so that it can be sprung into and out of its position between the frames. It is not fixed in position to make the valve gear removable. Fit lengths of 3/32" diameter brass tube (7mm long) for the piston rod glands. Clean up the valve rods and modify the base of the slot as shown in the drawing.



### ECCENTRICS AND- EXPANSION LINKS

Using a 3/16" 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 0.7mm wire. Check the fit of the eccentric sheaths (V2) on the eccentrics. The cranks and pair of eccentrics can now be pinned together with a short piece of 0.7mm 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 1.2mm rivet holes in the eccentric rods (V2) and expansion links (V3). Rivet the eccentric rods and expansion link together paying particular attention to the direction of the rivets as shown in the diagram. The rivet for the forward rod has the head on the inside on the expansion link and the backward rod has the head on the outside. Pin the valve rod to the expansion link using 1.2mm 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 horn bocks 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 solder the weighshaft weight (V6) to the outer surface of the combined reversing arm & lifting links (V4). Ensure that the 2mm weighshaft can thread through the frames, the combined reversing arm & lifting links and the lifting links (V5) and place these components in place as shown below. Solder the weighshaft in place and then solder the lifting links in place as shown, just clear of the valve rods which must be clear to move freely.

