

LSWR ADAMS T3 VALVE GEAR KIT - 4mm SCALE

This kit is designed to accurately produce, in 4mm scale, a working model of 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

Drill the holes in part M1, 0.8mm for the valve rod and .45mm for the wire which represents the studs. Use the outer holes for P4 & EM or the inner holes for OO.

Solder part V1 in place on part M1 using .45mm wire to help alignment and represent the studs.

MOTION PLATE

Select the appropriate part F6, and check 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 guides.

Clean up the valve rods and check their fit in the valve chest and motion plate.

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 V2) 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 V2) and expansion link (part V3) 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 horn blocks 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

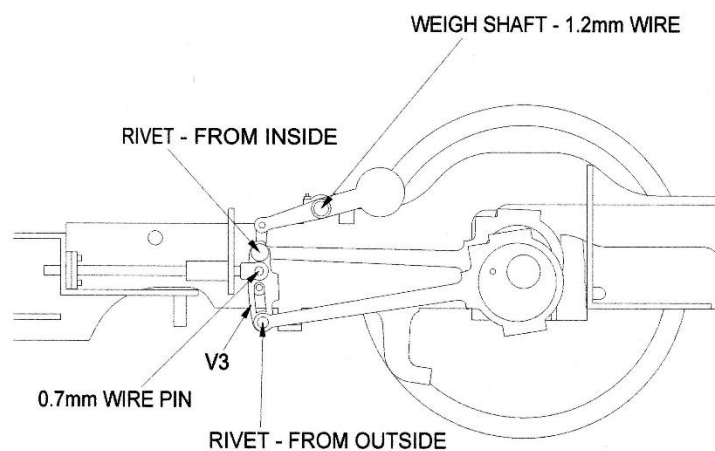
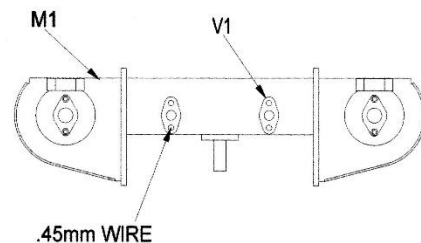
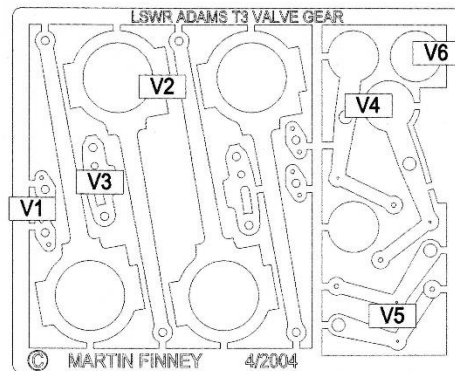
When satisfied, finally assemble and fix the weigh shaft and reversing mechanism, using the diagrams as a guide.

ETCHED COMPONENTS

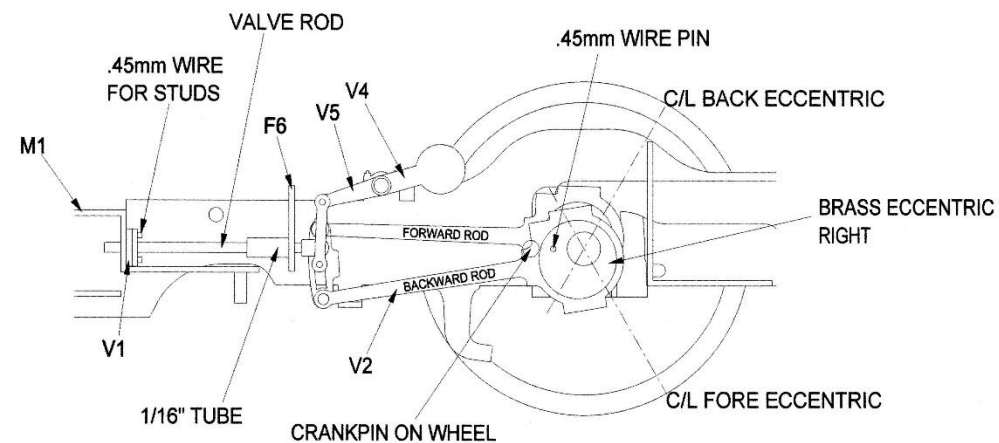
- V1. Valve rod gland lamination - (4)
- V2. Eccentric rod / sheath - (4)
- V3. Expansion link - (2)
- V4. Reversing arm / lifting link / balance weight - (2)
- V5. Reversing arm / lifting link - (2)
- V6. Balance weight overlay - (2)

OTHER COMPONENTS

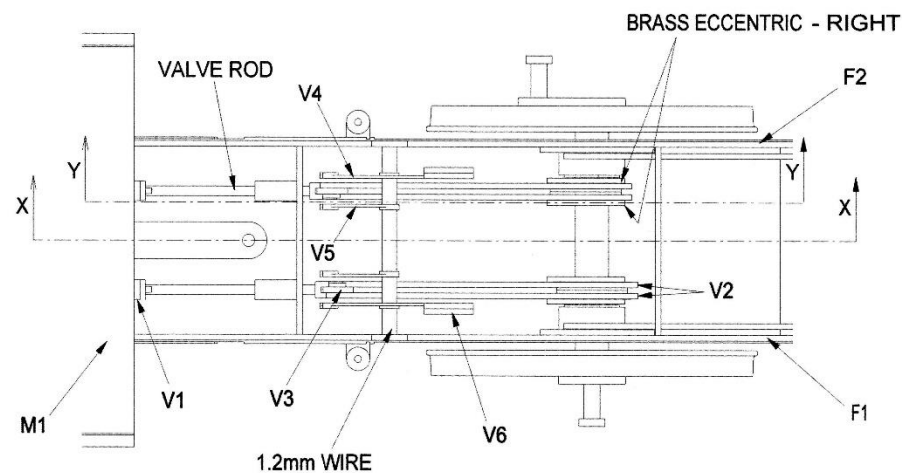
- Brass tube - 1/16" outside diameter - for valve rod bearing
 - Brass wire - 0.45mm - for pinning eccentrics to cranks and stuffing box studs
 - Brass wire - 0.7mm - for valve rod pin
 - Rivets - (4)
 - Brass eccentrics - left - (2)
 - Brass eccentrics - right - (2)
 - Valve rod - (2)
-



SECTION ON XX



SECTION ON YY



LSWR ADAMS T3 - VALVE GEAR