3 WHEEL AND FLYCRANK INSTALLATION

1. FIT the wheels to the remaining two driving axles, gauging them correctly, then carefully spring the chassis mainframes apart and insert the axles through their bearings.
2. Check from a frontal view that the chassis folds are 90° before temporarily clipping the folded-up cylinder assembly (11) to its slots in the chassis.
3. Similarly clip the running plate in place so that on a flat surface such as a glass plate, downward pressure using a finger onto the running plate will allow you to check that all is square and true before fitting the rear chassis crossmember (12).
4. Remove the running plate assembly and check the chassis for free running. All the wheelsets should revolve without any form of binding whatsoever before proceeding. From now on, every part of the valvegear must be inspected after it is assembled, eliminating any trace of binds as construction proceeds. A 0.7mm wire crossbrace slid through the holes in the chassis and the corresponding holes in the gearbox frame orientates the gearbox correctly in position.
5. Prepare six flycranks (13). This involves tapping the cast holes 14BA to accept the 14BA countersunk crankpin screws. Fib the-screw heads flush with the rear of the cast cranks once the screws are fixed in place.
6. Check the axle holes in the cranks for casting debris, and ensure the holes fit cleanly and squarely onto the axles.
7. The three left cranks can be fitted to the axles, ensuring the axle ends are flush with the outer faces of the cranks. No quartering is necessary at this stage; merely fit the cranks without worrying. I recommend soldering the flycranks in place using 145° detailing solder which flows very easily with plenty flux and obviates the need to linger with the iron - essential in view of the injection moulded plastic wheel centres. To further protect the moulded wheel centres, flow a brush load of water between the mainframe and the wheel in question whilst soldering on the cranks. Works every time.
8. Once the cranks are secured, wash off all traces of flux deposits in warm soapy water, then ensure the outer crank faces are flat and free from any excess solder traces.
9. Identify the left coupling rod (14) and carefully enlarge the crankpin holes with a 1.6mm drill used in a pin vice (it's all too easy to allow the drill to cut off-centre if used with a powered minidrill). Rub the coupling rod on fine wet and dry paper to remove any burrs before checking that the crankpin bushes are an easy fit in the holes. File each bush until it is only just thicker than the 0.020" nickel coupling rod.
10. Place a half etched brass washer (15) over each crankpin, then add the left side coupling rod over the pins. We are using the crankpin bushes inverted as retaining collars on the crankpins, so pop these in place in order to check that the coupling rod doesn't bind on the crankpins during rotation. If necessary very slightly enlarge any tight crankpin hole in the coupling rod if any trace of binding occurs. Once free running is achieved, fit the first and second crankpin bushes permanently using either 145° solder or a tiny drop of Superglue to attach the bushes to the crankpins. Snip off any excess protruding first and second crankpin and file flush with the outside of the bushes. The third bush is not yet fitted permanently, this being treated differently when the con rod and return crank are eventually installed on the third crankpin.
11. Fit the right side leading flycrank loosely to its axle, advancing it approximately 90° from its left side counterpart. For example, if the left flycranks have their crankpins in the six o'clock position, adjust the right side crank until its pin is at the three o'clock position. It doesn't matter if it isn't advanced exactly 90°, near enough will do just fine. Solder the right leading flycrank in place on its axle.
12. Loosely fit the two remaining right side flycranks, using the right side coupling rod - with its holes correspondingly enlarged to accept the crankpin bushes as per the left rod - to position them correctly. Rolling the chassis on a glass plate should automatically position the two unsecured cranks. Once this is determined, the coupling rod and bushes can be carefully removed and the cranks permanently fixed in place one at a time, checking after each is fitted.

After washing off any flux residue and removing any excess solder, the coupling rod and bushes can be permanently fitted as per the left side. The quartering is completed.

13. To recap, of the six flycranks present per chassis, only two require careful adjustment to ensure perfect quartering, not half as difficult as it apparently seems when you tackle it in this fashion.