

Mechanism Kit

This kit has been designed to assist you in constructing a superior working mechanism for a specific model, as noted on the label attached to the header card.

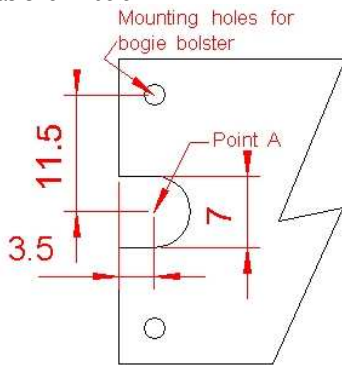
The kit comprises two completely finished drive bogies, a motor attached to a mounting plate with one or two flywheels according to space requirements, two 1.5mm diameter shafts, Universal Joint components, silicon sound absorbing sheet and a piece of 1.6mm thick fibre-glass sandwich board, plus all necessary wire and hardware.

The Chassis Board

Your first step should be to mark out and cut the chassis board to size. I recommend that you begin by marking the centre point for each bogie. To do this, you need to know the distance between the pivot point of each bogie, and determine the distance in scale millimetres.

Note that the Hollywood Foundry bogies are pivoted from a central point, irrespective of whether this is the case with the prototype or not.

The simplest method for fixing the bogies to the chassis board is to cut the end of the board and create a large notch in it for the top Delrin boss and screw as shown below:



Before drilling, determine the width of the nickel silver bolster attached to the top of the bogie. These bolsters have a number etched into the top surface. A 20mm wide bolster is marked 20 and the 26mm wide one is marked 26.

For a 26mm bolster, mark out two holes with a total spacing of 23mm or 11.5mm either side of the 7mm diameter hole. Now drill the 7mm and the two smaller holes at 2mm diameter.

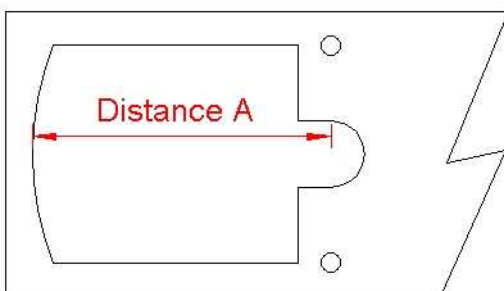
For a 20mm bolster, the hole spacing is 17mm or 8.5mm either side of centre. Once the holes are drilled, you can cut out the remaining part of the notch or simply leave it there, your choice.

Now mark the distance along the board from Point A, the bogie pivot point, to the other bogie pivot point, add 3.5mm extra and cut the board to length. Create a notch and the two bogie bolster mounting holes as per the previous instructions.

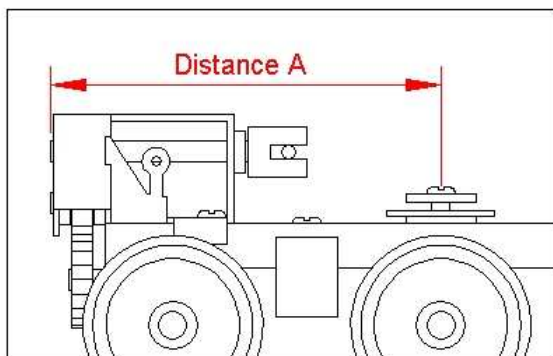
You may wish to have the chassis board extend past the bogies, so it will then be necessary to cut a hole in the board to allow the bogie gear tower to swing either side of the straight ahead position.

Note that in the following drawing, the sides are narrow, and the end of the cut-out has an arc to allow the gear tower on the bogie to swing, at the same time keeping the maximum amount of board for strength.

The disadvantage of this method is that it may restrict the swing of the bogie to an extent where it will not go around minimum radius curves. This will be something you need to determine before you cut the board.



The measurement shown above as 'Distance A' is from the pivot point of the bogie to the end of the gear tower, as shown below, taking care to include the shaft protrusion on the front of the gearbox. Then add a further 1mm for safety.



At this stage you should cut the chassis board to the correct width and fit it to the locomotive body. The fibre-glass board is easily filed, but try not to breathe the dust.

Drill any necessary fixing holes for attaching the chassis to the model, and mount any couplings to the chassis. You may need to make adjustments to the height of the coupler mounts. If you need to attach details to the underside of the body, this is the time to create fixing holes for them.

It is advisable to screw items such as air or fuel tanks to the chassis board rather than glue them in place. It takes a bit more work, but allows the model to be taken apart if necessary. Glue tends to be too permanent.

Assembly

Now attach the bogies to the chassis using the 2mm screws provided. The screws should pass up from underneath the bogie nickel silver bolster, through the chassis board and be fastened in place using a 2mm nut on the top surface of the chassis board.

Motor Mounting

The motor should be close to central between the two bogies, however internal space may mean you have to offset the motor to make room for sound equipment or other features.

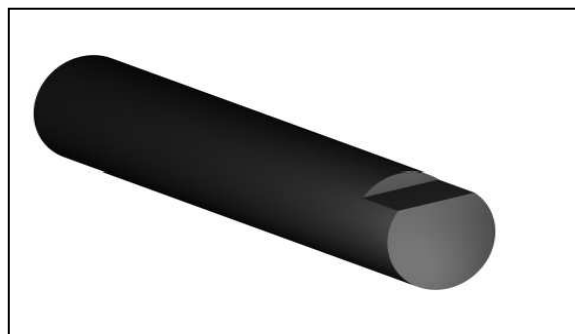
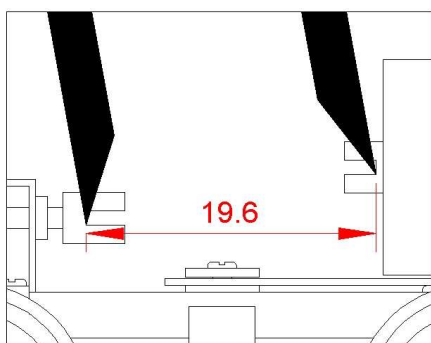
Position the motor where you want to fix it, and using the mounting plate as a template, mark the positions of the four holes. Drill these holes to 1.0mm diameter.

Attach the motor assembly to the top of the chassis board using the small 1.4mm self tapping screws provided. Take care to insert the silicon sound absorbing sheet in place between the motor mount and the chassis board. Do not fasten the screws too tightly or you will destroy the sound absorbing effect of the silicon sheet.

Note that the red and black wires from the pickups on each bogie end up on the same side. If you are using a DC system, connect the two red wires to the motor tag on that side of the chassis and similarly, the two black wires. Give the wires enough room to move around the bogies and trim any excess length that could get tangled in the drive shafts. For DCC operation, see the section later on.

Drive Shaft Fitting

The next task is to correctly determine the length of the shafts connecting the universal joint cups on the flywheel to those on the bogies. Measure the distance between the far end of the slot in each UJ cup using a set of callipers or similar, as shown below.



In the example shown above, the distance is 19.6mm, so you then take half a millimetre off that to arrive at the correct length for the shaft, or 19.1mm.

Cut the shaft to length, and remember, measure twice, cut once!

The silver steel shaft requires a small flat area to be created on each end where the horned ball part of the universal joint assembly is fitted. The horned ball has a corresponding flat moulded into it to help with positive engagement of the shaft.

The flat area on the end of the shaft need only be 2mm or 1/10" long and is best created using a carborundum cut-off disc in a Dremel tool. It can also be made using a file, but is a much more laborious task. The position of the flat around the shaft is not important.

Fit the horned ball to each end with a little Loctite to make sure it holds in place. Now fit the shaft to the model, it should have enough clearance to move back and forth in the cups slightly.

Now test run the chassis to make sure it works properly. It will need some running in as explained later on.

Side frame Mounting

Each bogie is fitted with two black polystyrene supports for the pick-ups and also for attaching cosmetic side-frames.

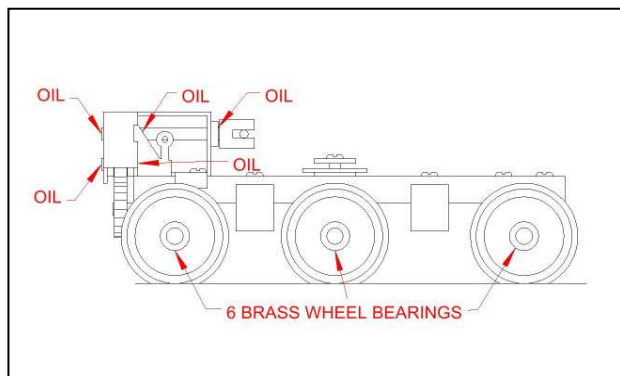
Running In

All Hollywood Foundry motor bogies and mechanisms require running-in. We use brass bearings on most rotating surfaces and these take time to bed in properly. The mechanism should be run at a moderate speed for a couple of hours. As it beds in, it will become smoother and quieter in operation.

Lubrication

By far the most common cause of mechanism faults is over-lubrication. Your mechanism has been lubricated and tested prior to delivery, so there should be no need to lubricate it for quite a long time. Lubrication should be performed approximately every 50 running hours. When it becomes necessary, please lubricate sparingly. Excessive lubrication creates areas that pick up and retain dirt, leading to increased wear.

Apply plastic compatible grease to the worm and worm gear through the small aperture in the bottom of each axle gear-case. A tiny drop of oil can be applied to the brass bearings on each axle. The gear tower on each bogie has 5 brass bearings that need a tiny drop of oil on each bearing. Two of these bearings are inside the casing.



Applying a small amount of grease to the spur gear train will help reduce noise, but please be aware that the speed of these gears can cause grease to fly off and cover the interior of the model. DO NOT lubricate the Delrin plastic universal joint cups or bones, this material does not need lubrication. A drop of oil on each motor bearing can be applied using a piece of thin wire to place in position.

Wheel cleaning is best carried out using a fibre-glass burnishing brush for nickel-silver wheels.

Motor Removal

If it is necessary to remove the motor, follow these steps. The rear flywheel, at the electrical connection end of the motor, is a force fit and will not come off without use of a tool, but the front flywheel has been fitted by hand and can be removed by rotating it and pulling it off, holding the rear flywheel in the process.

DCC Operation

Any decoder of 1 amp or greater capacity will suit this mechanism. The Digitrax DZ123PS or DZ143PS are ideal, the DZ143PS having Back-EMF speed stabilization. The NCE type N12SRP is another low cost decoder that is highly suitable as is the Z14SRP. The Lenz Silver Series are also very suitable, but do not choose the Silver Direct as it will not fit on the chassis. The red and black wires from the pickups can be wired directly to the same coloured wires on the decoder. With the chassis positioned such that the red pickup wires are on the right, the orange wire goes to the tag on the right of the motor, and the gray to the left.

Weighting

The mechanism is a bit on the light side for good traction. We would recommend adding a further 250 grams of weight to the model to arrive at an optimum weight for proper operation.

As lead is hard to find these days, one of the easiest sources to find it is in lead sinkers from a fishing shop. They can be hammered into the right shape to fit in the body of the model. Another method is to use 'Liquid Lead', although this is simply lead shot and can be obtained from gun shops, number 10 size being the best.

Pick-ups

The pick-ups are made from hardened phosphor bronze and do not like to be bent too sharply or too often, otherwise they will break off. If this should happen, contact us and we will provide free replacement.

We have found that the pick-ups work very well when lubricated slightly. A minute amount of WD-40 placed on the end of the pick-up helps lubricate it to reduce wear and also improves electrical conductivity.

Warranty

The component parts of this mechanism are warranted for 6 months against faulty parts or workmanship. Faulty units must be returned at purchaser's expense to Hollywood Foundry. Contact us for details. This warranty does not cover a mechanism that has, in the opinion of Hollywood Foundry, been damaged or modified in such a way that has compromised its reliability. This warranty shall not diminish the rights of the purchaser as granted by consumer laws in other countries.

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WARNING: THIS PRODUCT IS NOT A TOY. IT IS NOT TO BE SOLD TO OR USED BY CHILDREN UNDER 15 YEARS OF AGE. SOME SMALL PARTS PRESENT A CHOKING HAZARD.