3. Fault Finding

No movement in the locomotive whatsoever?
Most likely no power is reaching the track. Check that the transformer is switched on at the wall socket. Check that the plug from the transformer to controller is properly plugged in. Check that the direction switch on the controller is switched to the left or right (not in a middle position). Check that the plug from the controller to the power clip is properly plugged in. Check that the power clip is making proper electrical contact with the rails. If your layout has points, check that the points are switched in the correct direction to supply power to that part of the track where the locomotive is standing – refer to the instructions for Points section. It is also possible that you have a "short circuit". See "If the train does not start" section for an explanation.

Locomotive always stops at a certain point on the track?
Check the connections between rails at that point on the track. If this happens on an oval track, there must be at least two poor electrical connections somewhere on the loop - find them both. If the fishplates are all properly located, it may be that one or more fishplates are a loose fit. Disconnect the track at that point and tighten up the fishplate by squeezing it gently with a pair of pliers. Replacement fishplates (reference no. HN8029) are available should you need them, from your Arnold stockist.

Train regularly derails at a certain point on the track?
Again, check the fishplates between rails in that part of the track. If it derails at a set of points, check that the points are fully switched in one direction or the other and check that nothing is caught in the point mechanism to prevent this from happening.

Locomotive runs in a hesitant erratic fashion?
It could be a poor connection in the track, but most likely the track and/or the wheels of the locomotive are dirty. Wipe the track with a clean, soft, non-fluffy cloth and clean the metal rims of the pick-up wheels. Stubborn deposits can be cleaned o by using a Hornby Track Cleaning Rubber, R8087. If the locomotive is well used, it may be that the brushes in the motor (or the motor itself) have worn – refer to the locomotive's Operation and Maintenance instructions.

Locomotive seems to lack power?
Are the wheels of the wagons/coaches all properly on the track? Remember also that, as in life, a small light locomotive is not built to haul a long heavy train and gradients require extra power. Check axles for trapped hairs or fluff and remove it with tweezers. If the locomotive still runs stiffly, or you hear any squeaking, refer to the Locomotive's Operation and Maintenance instructions. Ensure wheels and tracks are kept clean. If you have any problems that you cannot solve, contact your local Arnold stockist or contact the Helpline for advice. Spare parts are available to cover most types of mechanical or electrical problem. You can fit the parts yourself or ask your local stockist for assistance. Radio and TV interference may occur if the layout runs very close to an aerial cable (move layout away). Check also that the track and the locomotive's pick-up wheels are kept clean.

Locomotive Operation and Maintenance

1. Introduction

Arnold locomotives are precision built and, if treated with reasonable care, will give many years of good service. Whilst there are many different types of locomotives, there are common aspects in their use and handling so please read through the following notes carefully as most, or all of them may apply to your locomotive:

1.1 Warning: On certain locomotive models, electrical connectors and handrail fittings have functional sharp edges and points. Please handle with care.

1.2 Important: The electric motors of Arnold locomotives are designed to be operated from a variable 12 volts, DC, power supply. This is obtained from the domestic mains electricity supply by using a Hornby transformer and a Train Controller. Never connect a locomotive directly to the mains electricity supply.

1.3 The 12 volt DC supply is picked up from the track through the wheels on one side of the locomotive and returned by the wheels on the other side. It is therefore essential that the running surface of the rails, and the metal tyres of the pick-up wheels, are kept absolutely clean (see notes on track cleaning, item 5).

1.4 The current drawn by locomotives varies between 0.2 amp and 0.6 amp depending on type of locomotive, load and track gradient. There will be a current surge on starting locomotives.

1.5 Motor and chassis mechanisms may pick up fluff, carpet fibres and pet hairs which can get entangled in the gears and around axles. It is important to check periodically and remove any such debris with tweezers.

2. Running Hints

If a locomotive does not respond normally to the power controller, or runs badly, check the following points:

2.1 All electrical connections made correctly and the power socket is switched "ON".

2.2 The Power Track is correctly inserted into a suitable section of track.

2.3 All track sections correctly fitted together and all fishplates (rail-joiners) fit tightly onto adjoining metal rails.

2.4 All locomotive wheels positioned correctly on track.

2.5 Direction control switch on the train controller is set to operate in one direction or the other, and not in the central "OFF" position.

3. Lubrication

3.1 Although locomotives are lubricated before despatch from the factory, the lubricant can dry out during storage. Lubrication should be carried out at approximately 6-monthly intervals, or every 100 hours of running time. DO NOT OIL THE MOTOR.

3.2 A light machine oil such as "3 in 1" can be used. PLEASE USE CAUTION, as mineral oils of this type can cause deterioration to the plastic from which some locomotives bodies are manufactured. Immediately wipe off, with a cotton rag, any oil which gets onto a locomotive body.

3.3 An oil dropper can be made by straightening a paper clip and sticking one end into a cork. Fill a small container with oil so that the smallest possible drop can be "picked up" by the dropper and carefully applied to the correct place. Immediately wipe off any excess oil. IMPORTANT – Apply oil only to moving parts. Keep oil away from wheel rims and track.

4. Routine Maintenance

Important – After a long running time, the non-replaceable motor brushes may be worn out, resulting in the locomotive's speed being reduced or it not responding well to the train controller. If this happens, it will be necessary for the motor to be replaced. For locomotives with replaceable brushes you only need to change the brushes. The instructions relate to fairly straight forward processes for owners used to working carefully with small tools. Please read right through the instructions before attempting any of the processes. If you do not feel absolutely confident in undertaking them yourself, please contact your Arnold stockist for advice. You might damage the small models.

5. Track Cleaning

In normal operation, model railway layouts may accumulate dirt on the running surfaces of the rails, some of which will be transferred to the locomotive's pick-up wheels. This will have two adverse effects:

(a) loss of locomotive traction and, if allowed to build up, (b) reduction or total loss of power to the locomotive motor. It is therefore essential that the track and wheels, are kept absolutely clean. This can usually be done by wiping the surfaces with a clean, non-fluffy cloth or using a Hornby R8087 Track rubber. More stubborn deposits can be removed by using a small piece of "Scotch" washing-up pad which can be obtained from the "Household" section of most supermarkets.

6. Locomotive Bodywork

Arnold locomotives and tender bodies are spray-painted overall. The rest of the decoration is applied by a printing process and not transfers. Please do not use any solvent-type agents to clean bodies. If necessary, use a dry, soft, non-fluffy cloth to keep the body clean.

7. Television Suppression

Arnold locomotives incorporate radio and television interference suppressors. Should interference occur despite these precautions, it may be due to the close proximity of the layout to receivers, or aerials and their "downlines". In this case, please move the layout further away from aerials and receivers. It is most important that track, and pick-up wheels are kept absolutely clean.

Owner's manual
Your train set

Enjoy your Arnold train set – it will last for years if you treat it with reasonable care.
This broadsheet contains detailed instructions on the operation of your new set.
Please read them carefully.

Safety notes

Arnold train sets are not suitable for children under 8 years of age because of small parts which can present a choking hazard. Some components have functional sharp points and edges – handle with care.

This product is intended for indoor use only. The transformer is not a toy. It is a "Transformer for Toys". Before use, check that the transformer is the correct voltage for your mains electricity supply. This set is only to be used with the recommended transformer. The transformer should be examined regularly for damage to the casing, plug pins and cables. In the event of such damage, the set should not be used until the transformer is replaced with a new Hornby recommended unit. Never attempt to open the transformer yourself.

This set must not be connected to more than the recommended number of power supplies. The output terminals of the transformer must not be connected directly, or indirectly, to the output of any other AC circuit derived from a transformer or mains power supply. Before cleaning any part, disconnect the transformer from the mains electricity supply. Do not use liquid for cleaning.

Please retain these details and address for future reference.

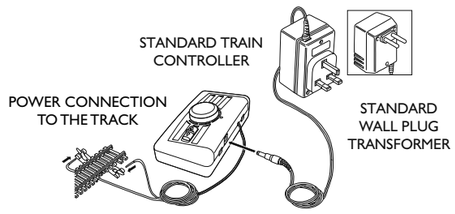
Service Warranty

Arnold Products are guaranteed against defects in materials or workmanship for a period of two years from purchase. If any such defect occurs during the period of warranty, please contact your stockist for advice. Alternatively, the product, or component, may be forwarded to your corresponding Hornby subsidiary or distributor, carefully packed, with a note enclosed giving full details to the corresponding Hornby subsidiary or distributor in your country (addresses see below). Please note that not prepaid parcels cannot be accepted. Proof of postage should be obtained on despatch and retained. The product will be repaired or replaced, free of charge, if the problem is found to be due to either workmanship or materials.

1. Connecting the Power

Three items go together to supply power to the train on the track (every set includes these three items):

- A Standard Wall Plug Transformer that plugs into a 13 Amp household socket (output from the transformer is a safe 19V DC).
- A Standard Train Controller by which you control the speed and direction of the train. The controller also has a separate power output for powered accessories that you may add in the future.
- Power connectors to the track which connect the power from the controller to the track.



1. Plug the transformer into any 13 Amp socket.

2. Plug the jack plug from the transformer into the matching socket on the controller.

3. For the fitting of link wires you need to clip both connection clips that come with this set to the tracks first. Clip them to the underside of the tracks in a way one connects the "left" rail and the other one the "right" rail.

4. To insert the link wires in the track clips you need to push them into the clips parallel to the rails while you gently push down the centred tongue of the clip. If the cable is inserted and the tongue is released the clip should clamp the cable in position.

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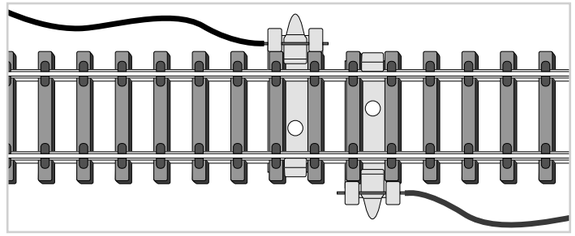
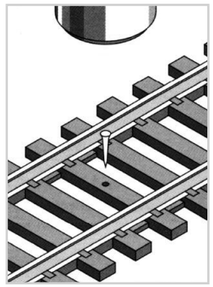


5. Assemble the track as per the track layout plan that's printed on the set's box. All track sections are fitted with push-t connecting clips called "fishplates". When you push sections together, make sure that both fishplates are properly fitted over the rail ends. If the joint between the rails does not feel smooth to the touch, then one fishplate has "missed its target" – try again. It is always best to lay sections on a surface when pushing them together. Fishplates are made from thin metal for edibility, so handle them gently. Check finally that all joints between sections are closed tight, with no apparent distortions in the line of the track. You are now ready to run trains on your layout.

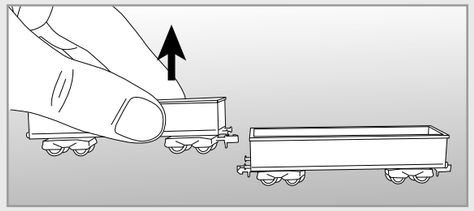
6. If you have a baseboard you can fix the track in place using track fixing pins. Do not hammer the pins down too hard or you may distort the track. Use double-sided adhesive tape to fix down trackside buildings and accessories. There are of course many ways that you can extend this first layout with extra track, trackside accessories buildings, figures and all types of landscape detail.



Running a Train

Place your locomotive and coaches/wagons on the track one item at a time (uncoupled). Locomotive and rolling stock couple automatically when you roll them (or drive them) together.

To uncouple and/or remove any coupled pair, lift them as shown in the diagram. The hooks will now separate easily.



2. Starting a Train and Trouble Shooting

The black round knob on the Controller controls the speed of the train and the sliding switch on the right side the knob sets the direction of travel (slide the switch to the left- or right-hand position). Please note that this switch can be changed only when the round knob is turned completely to the left (zero). If you try to change it anyway you may damage the Controller.

1. Check that the power is turned on at the wall socket.

2. Set the direction switch on the controller to left or right.

3. Turn the speed control knob gradually clockwise and the train should pull away smoothly, in one direction or the other. (Change the direction switch if necessary).

If your layout has points
Points divert a train from one track to another. Slide in the lever in the base of the point to switch the point's "switch rails" from track to track. As you do so, you also switch the electric current from track to track. The power flows through only in the direction you have set the point. You can use this feature to electrically isolate a siding or loop so you can leave one train standing while you run a second train on the mainline. You can then move the second train into a different siding or loop, switch the points and drive the first train while the second train remains stationary – all done with the same controller.

If you think there's some power problem, remember to check first that any points are set in the right direction, so the locomotive is not standing in an isolated section of track. For more detailed information, refer to Points section. When you slow the train to a stop (turning the speed control knob to its lowest setting) you may hear a slight "hum" from some locomotives. This is quite normal. Locomotives are designed for variable 12V DC power supply only. Never connect a locomotive direct to the mains supply. The current drawn by locomotives varies between 0.2 Amp and 0.6 Amp depending on the type of locomotive, the load and the gradient. A current surge when the locomotive starts is normal.

If the train does not start
Turn the speed control knob back to zero and check as follows:

- That you have turned the power on, at the wall socket and at the controller (direction switch in left- or right-hand position).
- That both power clips are making proper contact with the rails.
- That the wheels of the locomotive are properly on the rails.
- That all of the fishplates are fitted properly over the rail ends (you will feel a rough edge where two rails join if they are not).
- That there are no gaps at the rail ends and no obvious distortions in the shape of the track. If you have completed these checks and the train is still not running correctly, refer to the "Fault Finding" section on this page and also the locomotive's Operation and Maintenance leaflet supplied. It is most unlikely however that the locomotive will be the cause of a problem in a new set as they are tested before packing them into the set. Also check those fishplates again, and the Power Track.

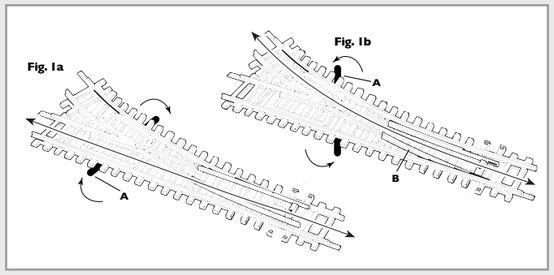
Short circuits
If a metal object lies across the two rails when power is to the track, a short circuit will occur. A derailed locomotive, for instance, could do this. The short circuit activates a safety cut-out which stops the supply of current to the track. (Transformer and controller both have safety cut-outs). If this happens, disconnect the power at the wall socket, trace the problem and correct it. After about one minute, the cut-out will reset itself and you can resume running.

SIMPLEX coupler

The locomotive in this set includes an automatic coupler called SIMPLEX coupler. This mechanism allows you to uncouple the train from the locomotive at any point on the track – without any digital system or additional switches. If you stop the train you just need to push back the train slowly a few millimetres and the hook of the coupler will lift. If you change the direction of the loco again the loco will uncouple. If you don't wish to uncouple with this function just push back a few millimetres more and the hook will decline again without uncoupling. Please note that a silent click-sound, caused by this mechanism, during running is normal.

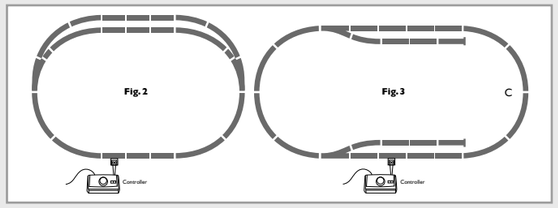
Points

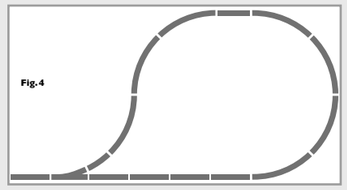
Points make it possible for trains to change from one track to another. This is done by operating the switch (A) which changes the switch blades (B) to direct the train along either one of the two exits from the point. Small internal contacts make sure that the power supply only feeds the track in the direction to which the switch blades are set. This "self-isolating" feature of Arnold points means that locomotives can be held in unpowered sidings or loops and brought into use onto the main track of the layout by merely altering the setting of points. Figs. 1a and 1b show points set in each direction. When constructing a layout, it is important to position the power connecting clip carefully. As a general rule, power should be fed into the track at the "single" end of the point, as in Figs. 2 and 3.



In the layout shown in Fig. 2, with both points set to the inner track of the loop, a train could be driven into the loop and, after the points were re-set to the outer track, would remain in the loop while another train was driven around the outer track.

In Fig. 3 the power is again fed to the track at the "single" end of both points. When both points are set to "straight", the oval track is "live" and both sidings are isolated. By running a train into one siding and changing the point, a second train can be brought out of the other siding and run around the oval. Alternatively, a train can be stopped at (C), both points changed and a train run from one siding, into the other.





Note: Because the two outer rails (1a) of a point are always "live", care must be taken with some track configurations to avoid creating a short circuit by joining rails of different polarity. The configuration in Fig. 4 (called a "Return Loop") is such an example. To successfully construct a Return Loop, it is necessary to use special wiring arrangements, switches and isolating rails (your Arnold stockist can supply you with the appropriate Arnold and Hornby equipment).

Remote Control
It is much more convenient to change points by remote control, especially when they are situated in awkward places and out of reach. Arnold points can be converted to operate electrically, by remote control, by using Arnold Point Motors and suitable electrical button or lever switches.

Caring for your new Arnold Train set

Caring for the track rail surfaces must be kept clean, because any build-up of dirt will affect the pulling power of your locomotive and eventually interfere with the flow of electric current to the motor. The track in your set is nickel silver which has excellent conductivity and good resistance to oxidisation. However, in normal use, model railway layouts will eventually accumulate a blackish deposit on the running surfaces of the rails and some of this will be transferred onto the locomotive's pick-up wheels. It is therefore essential that the track is kept clean. This can be done by wiping the surfaces with a clean, non-fluffy cloth.

More stubborn deposits can be removed by using R8087 Hornby Track Rubber (available at your Arnold stockist). Fishplates (rail joiners) between track sections may become loose-fitting and affect the electrical circuit. Disconnect the track and squeeze the suspect fishplate gently with pliers to tighten its slot. Spare fishplates are available from your stockist should you need them (reference HN8029).

Caring for locomotives and rolling stock: Locomotives pick up power through the wheels. It is important therefore that the wheels, like the track, be kept clean for good electrical contact. Clean the metal rims of pick-up wheels with a clean, soft, non-fluffy cloth or use the Track Cleaning Rubber.

Lubrication: When lubrication is due, refer to the locomotive's Operation and Maintenance Instructions. Keep oil away from the bodywork, which is made of a plastic that can be spoilt by oil. (Other parts, like the chassis and gears, can take oil without damage.) Also keep oil away from the rims of any wheels and the track. As you apply each drop of oil, immediately wipe o any excess. If you can see oil, there is usually too much.