

AJ-Aid EXPERIMENTERS PACK

AJ -X

The Alex Jackson Coupling

Introduction

The Alex Jackson coupling was invented as far as we know by Alex Jackson of the Manchester Model Railway Society. There have been several re-engineering exercises of this product, some of which are best forgotten. The basic principles were well tested by the founders of the product and changing materials used the shape and location of the Jackson hook is not something to be recommended.

One change that has occurred to the original design was to make the mechanical upward push uncoupling movement a downward magnetic pull.

The question that remains unresolved has been how to set up the AJ coupling and how to ensure that coupling and uncoupling takes place only on demand.

The parts included on this etching were designed by David Rimmington of Leicester and are his solution to this issue.

Accompanying etchings to facilitate stock with axle heights other than for 3 feet 1 inch wheels is available as AJB_4. A mounting jig for EM or P4 track gauges is also available AJG. The Alex Jackson coupling tends not to be suitable for "OO" as there is too much slop available with track/ wheel standards to guarantee coupling/ uncoupling.

The coupling locator for the vehicle

A very slight upward spring is best to help the coupling remain at the specification height. Made from spring steel there seems no necessity to provide other alignment aids. However be sure the mounting point is firm, a wire melted into a plastic wagon is probably going to go out of adjustment quickly as the mounting becomes "loose".

References

(compiled by the late Martin Brent):

- Manchester Model Railway Society Leaflet on Jackson Couplings - from D Booth, 53 Derwent Road, Hanley, Huddersfield, HD7 2E1 - send a s.a.e.
- Model Railway News January 1960.
- EMGS Data Sheet 9.1.1(1) For EMGS members
- Scalefour Digest Sheet 42.6.1 for Scalefour Society members.
- Model Railways June & August 1977.
- Scale Trains April 1983.
- Model Railway Journal Nos 55 & 56 of 1992.
- Also: G.O.G Gazette - Bob Alderman in August, 1995 for an "O" gauge version.
- "Alex Jackson - A man and his Coupling" - Recently published by Wild Swan is an authoritative document that summaries all previous published articles.

Benefits from using Alex Jackson Couplings

- It is almost invisible.
- It allows "remote" uncoupling.
- It allows "crane shunting" - lifting vehicles clear of each other without untangling hook and bar type couplings.
- It is usually cheap to make and install made primarily from wire.
- Can uncouple from a stationary position.
- Only one hook need move to provide uncoupling.

Deficiencies with the Alex Jackson Coupling

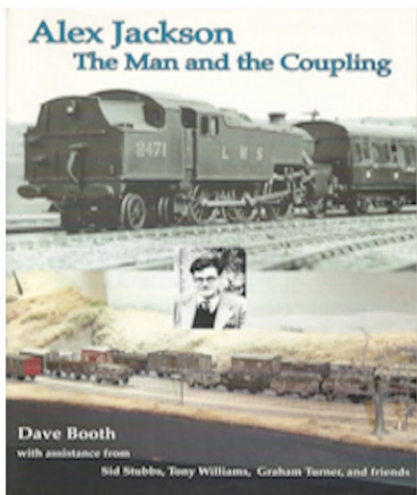
- The lack of three link or screw couplings, they seem to inhibit the automatic coupling feature of the Alex Jackson coupling.
- Vehicles have to be "buffered up" or at least couplings should not be taught to uncouple
- A coupling only occurs when the vehicle is buffered up to the next vehicle - you cannot couple up a "static" train - though this can only be required if unnecessary uncoupling during a pushing movement has happened.
- Difficulties can be experienced with coupling on curves This depends on many factors as noted below.

Notes

Some of the problems that some users have found with using this coupling are:

- The result of not using the specified material and not fixing it securely down to the wagon body. "the specified material is .011" spring steel (top E of a guitar string,
- The hook rusts or has burrs on the tail of the hook making it rough so that it will not pass easily another AJ hook.
- Fitting the hook too near the buffers of a vehicle. The mounting jig AMBIS supplies uses a very minimum 0.3mm gap - pack this out to your preferred setting. Too wide a gap between vehicles to AMBIS looks unrealistic. This gap on straight track will be the buffer clearance of the AJ hook plus the effective hook tail length - twice.
- Not being able to couple vehicles on tight curves. There is a target area into which the couplings must fit before coupling can occur. This is about a circle of 2mm radius from the preferred location. Hooks out of adjustment, the overhang of long wheelbase vehicles, the slop between wagon and track are the factors involved with a hook not hitting the target zone. In addition the hook tail beyond buffer face can prevent coupling - try compensating or springing buffers to help overcoming this last problem.
- Too free rolling wagons - one pushes another along without coupling - possibly also too light a wagon - stick to 1.5 to 2 ozs if possible, cast metal vans frequently exceed this weight, plastic open wagons do not.
- The soft iron dropper sometimes becomes magnetised - the same polarity as an uncoupling magnet - use an AC solenoid not a DC solenoid. SEEP make a useful solenoid that is stated as being capable of safe operation using either DC. and AC. voltages. Also AC. supplies are less harmful to the SEEP push button switches. Note the SEEP solenoid takes about 1-2 amps to operate, so don't leave it switched on for very long.
- Coach wheels - 3 feet 7 inches in diameter inhibit the standard Alex Jackson coupling settings - particularly the uncoupling movement and especially on coach bogies. The AJ-Aid for bogies parts from AMBIS may overcome this problem for you.

A coupling hook shaping jig may help you in manufacture the Alex Jackson hook.



AMBIS Engineering supply a number of aids to assist in the use of the AJ coupling. These are:

1. A coupling location etching for wagons without complicated underframe components
The AJ coupling needs a clear space in which it can be fitted and couple/uncouple.

Product item **AJ-3**, available in 16 or 32 wagon packs.

2. The standard mounting does not work for 14mm axles e.g.coaches. To overcome that we have a counter-balance option to fit to coach bogies or other stock, or even tenders.

Product item **AJ-B**, available in a 24 fitting pack.

3. Where the bogie option will not fit we also have a miniature version.

Product item **AJ-M**, available in a 18 fitting pack

4. Finally there is a simple fold up etching to help set/locate or check the position of the AJ Hook.

Product item **AJG**

Note although the magnetic - downward deflection of the coupling wire is the most common method of operation of AJ couplings today, it was first introduced with a upwards mechanical push to uncouple.

Also Nigel Cliffe has shown that rotating the coupling will also enable uncoupling to occur - and has produced a working AJ for 2mm scale models.

When we considered auto-uncoupling remote from a magnetic or mechanical device it was not ruled out that the coupling hook could be raised and not lowered to uncouple (remember only one AJ hook has to move to allow uncoupling) Hence the provision for uncoupling remotely on the counter-balance versions allows for an upward pull on the counter-balance not a downward pull on the coupling wire to uncouple. The coupling locating arrangements do not permit an upwards push on the coupling wire to enable uncoupling.

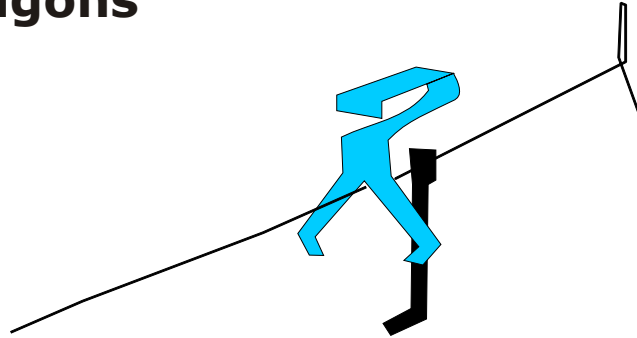
Product changes since introduction have been:

1. Adding extensions to the inverted "Y" in AJ-2 to prevent the AJ wire moving outside the "Y" fitting, caused by excessive downward movement of the coupling wire and sideways deflection that can be caused by trackwork curves and/or by magnetic attraction. This resulted in item AJ-3 being introduced to replace AJ-2
2. Adapting AJB and building into AJM an option for an upwards pull (from inside the vehicle) to uncouple the vehicle anywhere instead of just at under track mounted magnets. This allows options such as a DCC function to provide uncoupling.

AMBIS
Engineering

AMBIS Engineering - Mail Order or through selected shows
Proprietor - Alan Austin
80 Westgate Street, Shouldham, KINGS LYNN, Norfolk, PE33 0BH

AJ-Aid Small Wheel version - primarily for 4 wheel stock for 16 or 32 wagons



This forms a fitting to attach the AJ coupling to small wheel 2 axle wagons by making a upturned "Y" to set the coupling wire in place.

As supplied the base should fit around an AMBIS axleguard saddle using the large holes while the small holes are for locating the AJ wire at the opposite end of the wagon from the coupling hook.

An add on dropper arm support is supplied to feed on to the coupling wire - a steel or iron end must be attached to the dropper for magnetic operation to work.

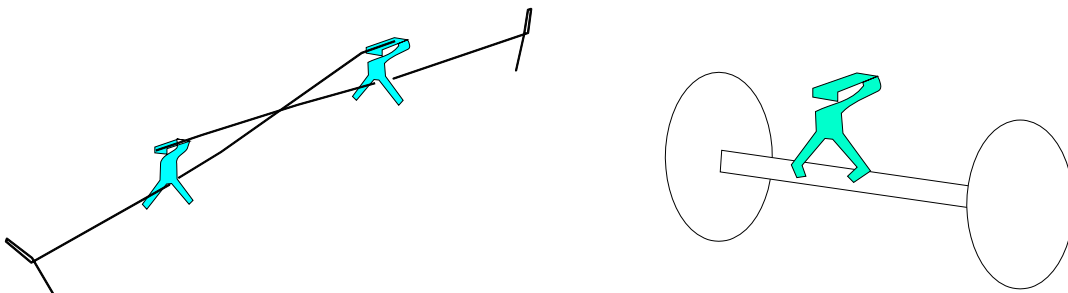
We would only recommend using spring steel wire .011 thou' diameter
- top E on a metal guitar string if you have supply issues for wire.

The dropper need not be fixed to the coupling wire until its location to enable uncoupling to occur is known.

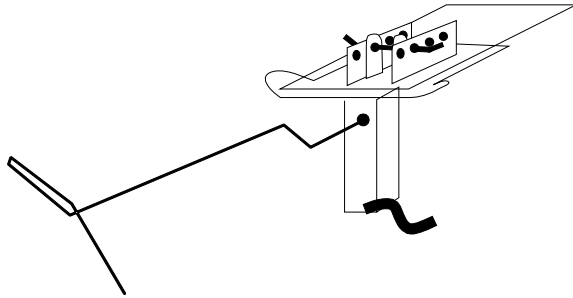
We would not recommend bending the coupling wire beyond the hook for example to pass through complex underframe detail - a bent wire can stretch and change shape we suggest trying the Mini-fit version of AJ Aid instead.

We would suggest lightly springing the coupling wire upwards to the coupling support "Y". The "Y" can be moved until it provides satisfactory support for the coupling wire.

The design was created by David Rimmington of Leicester. Since the mark one the shape of the "Y" has gained "tails" to stop the coupling wire passing outside the "Y" support under some circumstances.



AJ-Aid Bogie/Larger Wheel version - primarily for coaching stock for 12 coaches

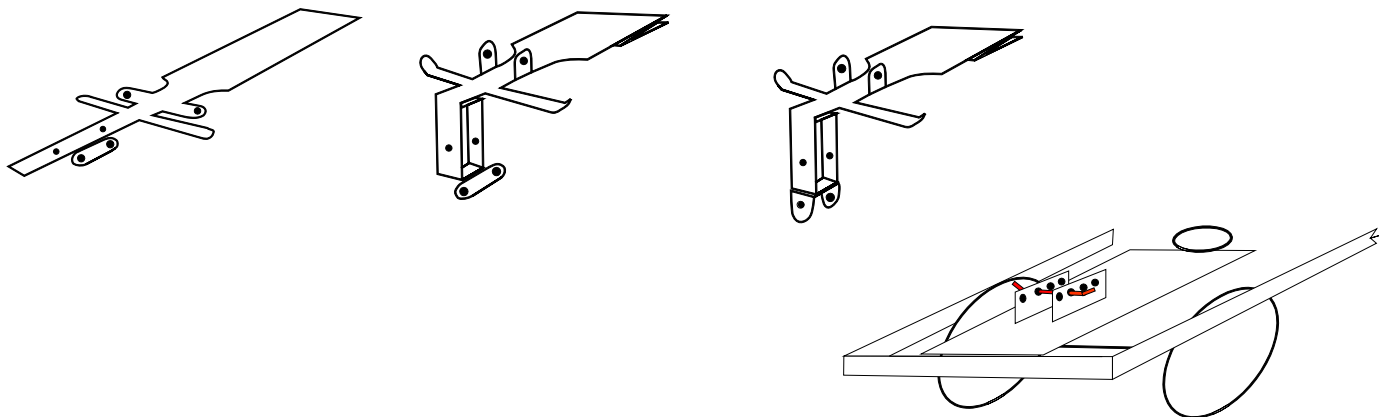


This version of the coupling mounting was designed for coach bogies. The mounting should be fitted to the bogie making sure one fitting hole pair is outside the bogie wheelbase. As designed it does not allow for flexibility in the bogie and should be fixed along the centre line at both ends, but it can be trimmed to length as it should fit 8 feet to 10ft 6ins bogies and is marked in 6in increments.

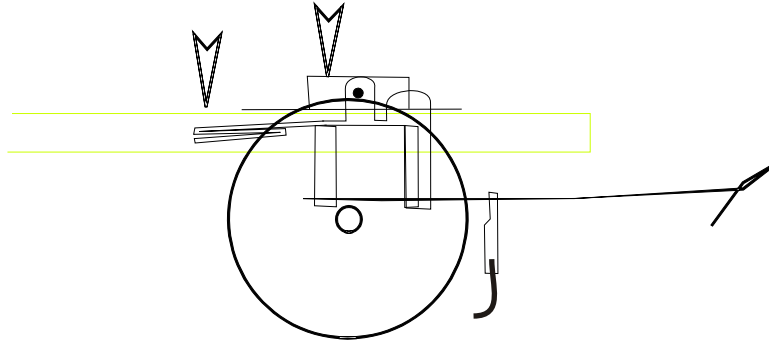
Fold up the main etched coupling support as shown in the diagrams below. This fits into the coupling saddle with a loose fit wire (too tight a fit stops the coupling support moving as required). The two "wings" of the coupling support locate it at rest and should not be bent more than 45 degrees from horizontal.

The counter-balance weight should fold up and always be heavier than the coupling hook. As the coupling usually drops to allow uncoupling the weight must be bent downward otherwise when it touches the saddle it will stop that movement. Two etched "pip" points should be pushed out (as rivetting) to stop "sticktion" of the support against the saddle.

A steel or iron end must be added for magnetic uncoupling that tends to work with a horizontal not downwards attraction. A hole has now been added to allow a push down pad to enable remote uncoupling.



AJ-Aid Mini-Fit version - where other versions won't fit 18 fittings



Fold up the main etched coupling support as shown.

This fits beneath the coupling saddle and should be attached by a loose fit wire (too tight a fit stops the coupling support moving as required).

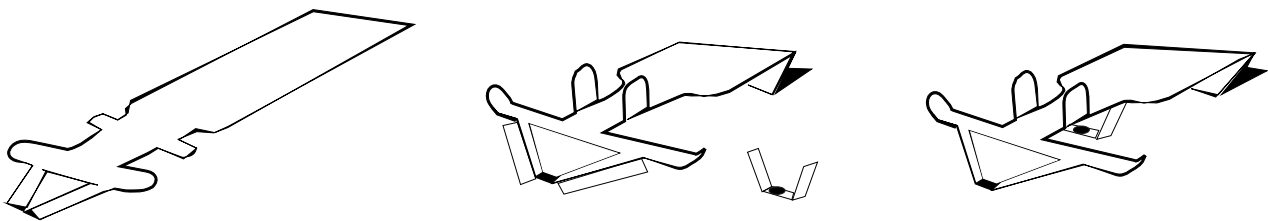
The two "wings" of the coupling support locate it at rest and should not be bent more than 45 degrees from horizontal.

The counter-balance weight should fold up and always be heavier than the coupling hook. As the coupling usually drops to allow uncoupling the weight must be bent downward otherwise when it touches the saddle it will stop that movement. Two etched "pip" points should be pushed out (as rivetting) to stop "sticktion" of the support against the saddle.

A second coupling support frame needs to be added to the main support frame - this provides additional stability to the coupling hook location.

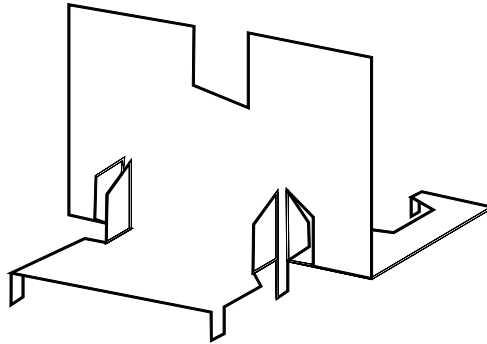
A dropper arm - to which a steel or iron end must be added for magnetic uncoupling is provided to add to the Alex Jackson hook wire. It need not be fixed to the wire until its location has been determined. This should not be made too heavy to inhibit the counter-balance from operating.

A pull up option is now provided on AJ-Aid (counter-balance) parts to enable remote uncoupling.



THE AJ AID COUPLING SETTING ETCHING

- suitable for P4 or EM gauges



Simply fold up etching bending over either the P4 or EM gauge tags. Strengthen joints with solder or glue.

Pad out buffer clearance with scrap metal. The etching is 0.010" brass, to increase clearance to 1mm would require three more layers. A height of 14mm (3ft 6ins) for buffers is etched into the gauge

The tail of a coupling hook should bear upon the upright panel of the gauge.

The outline shape of the AJ hook is also etched into the gauge panels.

The coupling wire should rest in the lowest point of the gauge for correct location of the AJ hook.

You may find it useful to make an open bottomed cradle with straps to tie a vehicle in, allowing access to the bottom of a vehicle. Remember that the counter-balance AJ Aid products will "uncouple" when turned upside down.

