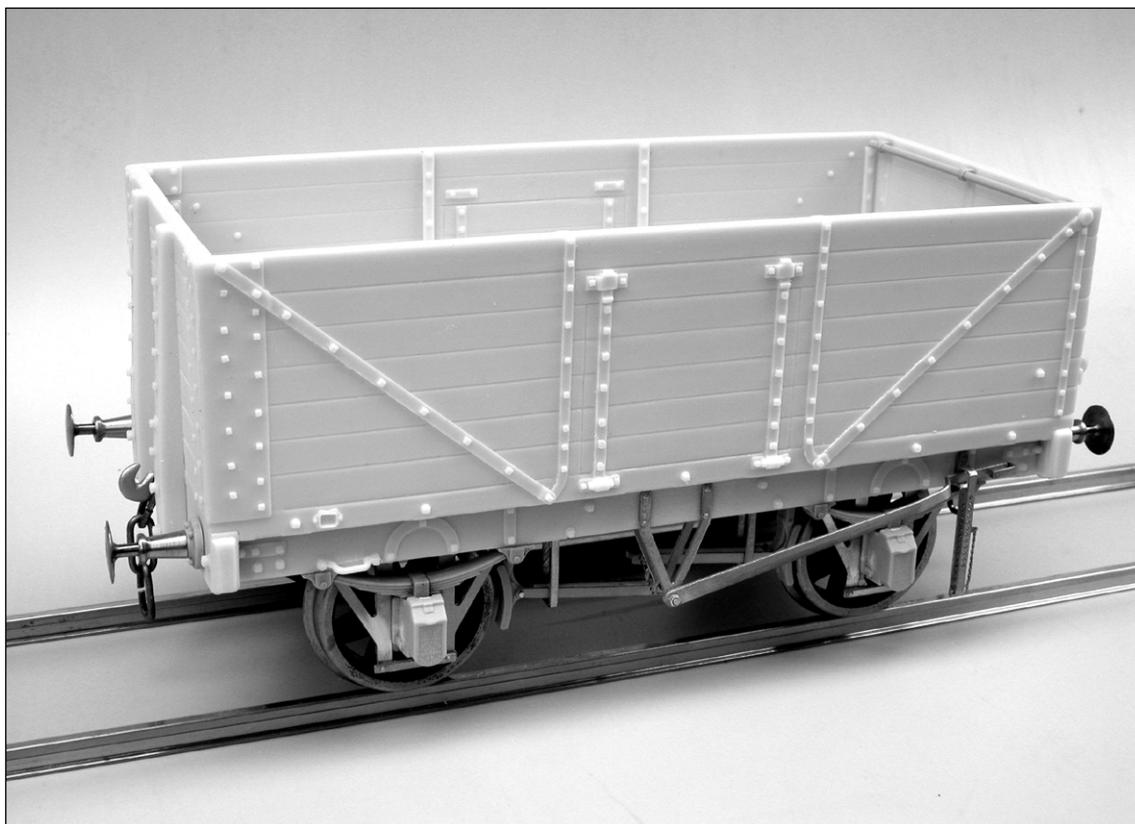


## Ref. 8041 - Gauge 1 (1:32) 1907 Charles Roberts 7 Plank Side & End Door



### INTRODUCTION

#### Prototype Information

These wagons are based on the Railway Clearing House regulations of 1907. Charles Roberts as a major wagon builder must have had a considerable influence in the drawing up of these regulations. This is evidenced by the fact that the wagon's being built by Roberts in the 1900's, were virtually indistinguishable from the 1907 design. This wagon was built with both side and end door.

#### Painting Details

The majority of private owner liveries were based on one of four body colours; black, red oxide, grey or dark brown. The body colour was taken down on to the solebar, but all running gear and ironwork on the body being painted black. There were exceptions to this generalisation, and some quite colourful wagons did exist.

We suggest you gather reference work currently available to select a suitable livery. A range of suitable transfers will be available from Slater's to suit this wagon - see our current price list for details.

#### Model Information

This kit will enable you to build an accurate replica of a Charles Roberts 7-plank 10 ton coal wagon built to the 1907 Railway Clearing House specifications. It has been designed to be as simple, and

therefore as quick, as possible to assemble. There is a one piece resin body, etched axle guards and brake linkage, plastic moulded axleboxes and springs, turned buffers, and cast coupling hooks. The buffers and couplings are sprung, and the axleboxes can be sprung or solid. There is a choice of Attocks or Ellis Patent axleboxes. The model has steel tyred, glass-filled nylon centred wheels (being impervious to most oils and other chemicals encountered on indoor or outdoor model railways); the wheels are to 'Fine' profile, but are set to 41mm back-to-back to enable them to run smoothly through PECO points.

## HEALTH AND SAFETY

### Resin

The main body casting is made from Polyurethane Resin, which should not cause any safety problems in normal use. Do not subject the material to excessive heat such as flame or soldering iron as, apart from damage to the fine detail, unpleasant fumes will be given off. For the same reason, do not use a power drill or other power cutting tools, as heat will be generated. When filing or sanding (e.g. to remove moulding 'pips') do not breathe in the fine dust. Ideally you should wear a suitable dust mask or use 'wet and dry' paper (used wet) to prevent dust being caused.

### Glass Fibre Pencil

Whilst not dangerous or harmful, the fibres can be very irritating if they stick in your skin. If this proves to be a problem it is advisable to wear gloves. Damage could be caused if fibres flick into your eyes, so it is desirable to wear suitable spectacles. Do be careful not to rub your eyes when using glass fibre. An alternative, in many, but unfortunately not all circumstances, is to use an abrasive rubber block, usually sold by the same firms and exhibition traders who sell the glass fibre pencils.

### Other Tools and Adhesives

Be careful with sharp tools such as knives and drills, and observe Health & Safety instructions on adhesives and paints, particularly spray paints.

## TOOLS NEEDED

The following tools are needed, most of which will already be in the toolkit of the average modeller.

Piercing Saw or Nippers	for removing lost wax castings from their sprues
"Stanley" type knife	for removing etched parts from the frets
Assortment of small files	for finishing removal of pips, tabs, and general cleaning up
Soldering Iron, Solder & Flux	for the majority of brass to brass fixing
Cyanoacrylate (Loctite Superglue or similar)	for quick fixing of parts where strength is not important
2-part Epoxy Glue (Araldite or similar)	for fixing resin to resin or two dissimilar materials, such as resin to brass. (Could also be used as a substitute for much of the soldering if required). The 5 minute setting variety is OK for most of this work, but the 24 hour setting version is better if you have the patience to wait for each bit to set!
Glass Fibre Pencil	
Abrasive Rubber Block	for cleaning all materials (but particularly etched brass parts) prior to soldering or glueing and prior to painting.
Assortment of small drills	
Pin Chuck (or similar)	for forming or enlarging holes. The following sizes of drill will be needed: 1mm; 1/8in
Blue Tack (or similar)	For holding parts in place while you solder them, or while the epoxy is setting.

## PREPARATION NOTES

### Cleaning Up Resin Mouldings

All moulding sprues and 'pips' should be removed, using a scalpel, then finished off with a file or 'wet and dry' paper. If at any stage during assembly you damage the resin parts the following tips are offered for their repair.

- If the part breaks 'cleanly' and will fit back together properly, it can be stuck with a cyanoacrylate (superglue) type adhesive.
- Other damage, such as gouges or holes drilled too deep, are best repaired with car body filler.
- Badly damaged breaks are better joined with epoxy and the resulting cracks repaired with filler.

### Removing plastic parts from the Sprues

Cut through the joining tabs with a sharp knife or nippers, away from item required, removing the remains of the tab afterwards with the knife and finishing with a file. Do not try to break or snap the tabs, as this usually results in breaking away part of the item you need!

### Cleaning up Lost Wax Castings

Remove pieces from the sprue with a piercing saw or nippers and finish off with a fine file. Remove any blemishes with a file and finish with a quick polish with a glass fibre brush.

### Etched Components

Remove components from the sheets only when you need them. This is done by cutting through the small tabs (but see next paragraph) with a Stanley-type knife, or a small chisel blade, whilst resting on a fairly hard surface like a piece of MDF. In many places it is possible to cut the tabs with scissors or nippers, but however you do it, do it carefully to avoid distorting the part you are removing and any adjoining parts. Usually it is best to cut the tab at the end away from the part and then remove the remains with fine nippers, finishing off with a fine file.

Many of the etched components require folding, and some of the folding joints look very much like the location tabs. Make sure, by studying the instructions, that you cut out parts by removing only the tabs and not the fold joints! As a general rule, where components form a right angle, the fold line is on the inside, but where it folds back on itself (i.e. to 180°), the line is on the outside.

Before you do any folding or assembly work, clean any edges or surfaces to be soldered with the glass fibre brush or abrasive rubber. This is in addition to using a liquid flux immediately before the soldering operation. It is possible to complete the whole kit without soldering (although soldering is recommended, both for strength and longevity); just run some superglue into the joints after assembly or smear some epoxy (Araldite) on the faces and joints during assembly.

## PAINTING AND FINISHING

The secret of good painting is preparation. Make sure that all parts are thoroughly clean, dry and free of any grease. Metal parts should be cleaned with the glass fibre brush as the slight scratching helps the paint to key. Everything should be washed with a mildly abrasive kitchen cream cleaner, such as Cif (ex Jif), or even better, if you can get it, a product called Shiny Sinks, which is intended for stainless steel sinks, but cleans brass beautifully. Use an old toothbrush to work into the corners and crevices. You may need to repeat if the foam goes grey the first time. When it is clean, rinse in clean water. Once thoroughly clean and dry do not handle the model except with surgical gloves or tissue paper/kitchen roll. Leave to dry, at least overnight, before applying the primer. Cover with a clean cardboard box or similar to prevent dust settling.

To prime the resin body, it only needs a light mist coat from a car aerosol spray, but brass should be primed more thoroughly. In fact, an etching primer is best; this is available from good model suppliers. Read the manufacturer's recommendations on the minimum drying time. If you are going to follow a car aerosol spray primer with the same maker's top coat, ten minutes may be sufficient.

However, with many paints you will find that at least 24 hours should elapse before the top coat is finally applied.

The final job (optional) is to give everything a coat of rust, dust, dirt and grime! There are now several very good books available on the subject should you wish to go further.

## ASSEMBLY INSTRUCTIONS

To avoid tedious repetition, it will be assumed in each sub-section that the parts have been removed from the etched fret, moulding or casting sprue, etc., that tabs, moulding pips, etc., have been removed, rivets formed, and preliminary cleaning done ready for soldering or glueing.

The starting point is the resin body, carefully checked, and with any moulding pips and part lines removed. The buffer (round) and coupling (rectangular) holes may need gently opening out with a small round or square file. The resin casting may have traces of the mould parting agent, so a wash in detergent is a good precaution at this stage to ensure that the glue you will be using does stick properly. Finally, if the sides (or ends) are bulging in or out, put the body in very hot water (not necessarily boiling, but just too hot to keep your fingers in) and the resin will soften slightly, enough to gently straighten up the part concerned. Then dunk in cold water, to harden it up again.

### 1. Buffers

Take the four plastic bases from sprue X804120. Insert the brass bodies, pushing tight up to the 'step'.

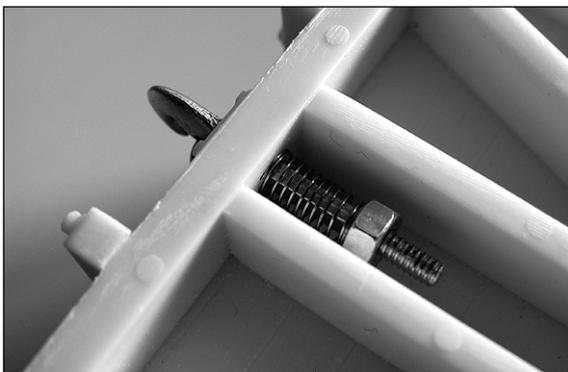


The parts are deliberately a tight fit, so do this carefully to avoid damage. Check that the holes in the buffer beams are clear; if not use a round file, a taper broach or a taper reamer. Now glue each of the assembled buffer housings into the holes in the buffer beams, noting the correct orientation; the two pairs of nuts which are closer together should be horizontal, whilst the two pairs furthest apart should be vertical. Place a spring on the screw end of the (steel) buffer up to the 'step', then insert into the bodies (making sure there is no glue remaining liquid), then screw

on a nut right up to the end of the thread. Once painted, and if desired, put a tiny blob of blue tack or white (PVA) glue on the thread to stop it coming unscrewed (but still enabling you to 'break' the joint to unscrew the nut later); also, once painted, put a tiny drop of oil into the interior to stop it ceasing up.

### 2. Couplings

Take the two lost wax castings, cutting them from the sprue at the end of the screw section. Carefully bevel the end of the screw section, and screw on a 6BA nut. This may need a bit of force, but persevere until it is reasonable free.



It is probably easier to attach the coupling links before inserting the hook into the buffer beam. This is best done with two pairs of fine plyers, twisting the link open just enough to insert it through the hole in the hook. Insert a second unopened link into the first, then twist it closed again. Open the third link, inserting it through the second, then close it, and you have a complete coupling. Repeat, of course, for the second coupling.

Check that the slot in the buffer beam is clear, opening out with a small square file if necessary. Insert each coupling, then put a spring on and the 6BA nut. Once painted, and if desired, put a tiny blob of blue tack or white (PVA) glue on the thread to stop it coming unscrewed; also, once painted, a tiny drop of oil on the spring will stop it rusting and ceasing up.

### 3. End Door Hinge



This is a plastic moulding on sprue X804120. Remove sprue remains level with the "step" in the moulding, which glues into the wagon body as seen in the photo, "resting" on the top of the inside strapping. The round bar should line up with the prominent "nuts" on the outside.

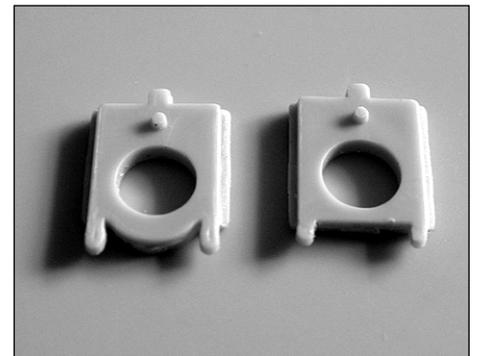
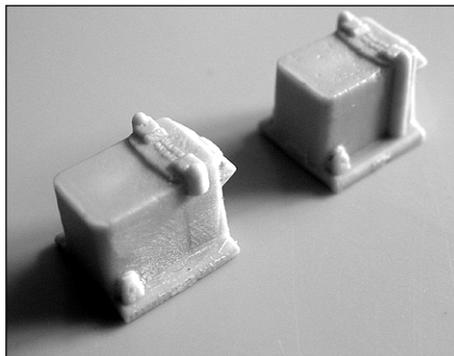
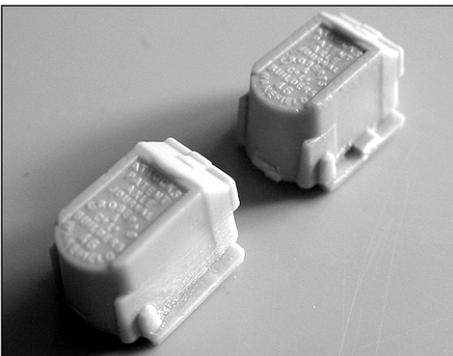
### 4. Axleguards ("W Irons")

Remove from etched fret and emboss the two 'rivets' on the fold-over retaining strip. Fold over the two 'ears' at the top, doing it carefully to ensure that they are at right angles to the main axleguard. After fitting the axleboxes and springs (see next section), and inserting the wheels, the axleguards are glued into the underside of the body, with the two holes fitting over the shallow locating pegs. My usual method of assembly of dissimilar materials (plastic to resin, brass to resin, etc.), where the resultant joint cannot be seen from normal viewing angles, is to assemble with a small amount of "Superglue", which is virtually instantaneous, then when everything is OK, and other adjoining parts are similarly assembled, put on a fairly generous fillet of Epoxy to make it permanent. [You could, of course, just use the superglue, although it won't be as strong, or if you have the patience to wait at least 5 minutes at each joint, just use the epoxy.] Also, once the axleboxes are in place, fold over the retaining strip and secure with glue, or with extreme care, with solder. If soldereing, make sure the metal is clean, use plenty of flux, and a clean hot iron, and the mearest touch will apply enough solder, without so much heat that it risks melting the plastic axleboxes. Note that, as with any folding operation in etched brass, you can do this only once; unfolding and trying again will result in the part breaking off!

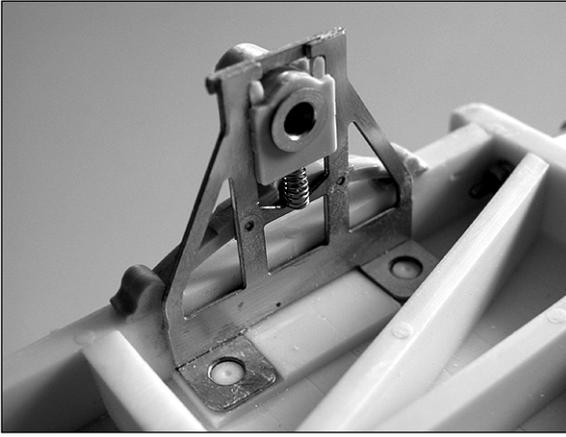
### 5. Axleboxes and Springs

Choose which type of axlebox to use. Charles Roberts used either Attocks or Ellis Patent types depending on their customer. For each type there is a back plate adjoining on the sprue (the Attocks one has a half-round protrusion to match the bottom of the box itself).

When removing the axleboxes from their sprues be careful to remove the tabs cleanly; it is too easy to break them and leave a mark. A couple of minor finishing touches are desirable: on the Attocks type (rounded bottom), part of the tab 'overlaps' the axleguard rib, and should be carefully removed with a scalpel. On the Ellis Patent type (square bottom) there is a half-round rib down the side, which should be partly removed to leave just the 'ear' into which, on the real thing, the cover plate screws. On the backplates, it is very easy to mistake for a sprue tab, the tab needed for the functional spring, and the two tabs needed as travel-limiting stops, so study the adjoining pictures carefully.



The axleboxes are assembled by locating the backplate to the axlebox using the small pin and hole, then forcing in a brass axle bearing, at the same time 'trapping' the axleguard so that the former can slide up and down in the slot in the latter.



The backplate has two protruding stops to limit the up-and-down travel. Move the axlebox down as far as it will go, then slip a small coil spring between the brass tab on the axleguard and the equivalent plastic tab on the axlebox. Now fit the cosmetic leaf spring plastic moulding, locating it with the two small pins into the two holes on the axleguards. This will retain the coil spring, but make sure that you do not use too much adhesive and glue the whole thing up solid.

Of course, if you don't want to bother with functional springing, just omit the coil spring and glue the axlebox in place. It is probably best not to do the gluing until the

axleguards and wheels are in place, putting the whole wagon on a mirror (or plate glass, or other perfectly level surface) to ensure that all wheels are truly level.

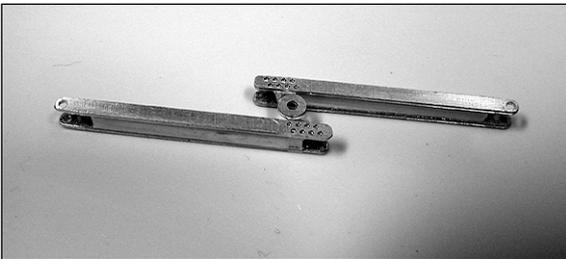
## 6. Wheels and Axles

Before permanently attaching the assembled axleguards and axleboxes, put the wheelsets in place, trying it dry first to ensure a good free-running fit. Once assembled and painted, put a tiny drop of oil into each bearing, making sure that you use an oil which will not affect the polystyrene plastic mouldings.

## 7. Brake Blocks and Linkage

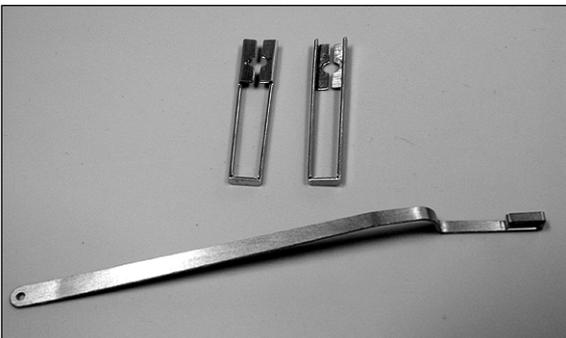
Fit these once the wheels are in place. The plastic brake block mouldings fit into the underside of the body with the 'angle iron' between the axleguard location piece and the cross member, with the brake block detail outwards. Make sure the brake block lines up with the wheel, but not quite touching (leave about 0.5mm gap).

Next assemble the etched push rods. On each side, these fold up to leave two pairs of flat bars separated by a 2.25mm gap. Use a piece of the 1.5 x 2.25mm (0.060 x 0.090in) Plastikard Microstrip, cut to 21.5mm long, to fill the gap (this is usually a piece of wood on the real thing), and then remove the brass joining pieces. If you wish, add the inside centre 'bearing' to the same orientation as the outside one, although we found it could be omitted as it's virtually invisible. If you want to solder it in place, do it before adding the Microstrip. Using



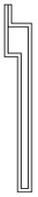
a piece of the 1mm (0.040mm) brass wire as a pin (you may need to gently put a 1mm drill right the way through to open out the holes), attach the push rods to the brake blocks.

The etched "V" hangers come next. On each side, these fold up to form a pair separated by the thickness of the solebar. Don't forget to push out the pairs of 'rivets' before folding. Put a 14BA screw through the V hanger and the bearing of the push rod assembly to align the V hanger unit in the correct place. Glue the V hanger unit to the solebar (using the Superglue-then-epoxy method described in section 4), then remove the tiny strip joining the inner and outer V's. Because this last operation is a bit tricky, you might find it easier to separate the inner and outer V's before gluing to the solebar, but be very careful to get them in line before the glue sets.



Now fit the push rod safety straps; these fold up to form a long 'U' shape, with the two flats with half circle cut-outs folded so that they meet to form a complete circle. These are glued to a cross member, enclosing, and lined up with the push rods.

Now fold up the brake handle latch. All of the fold lines are on the inside, and to 90°. The finished shape



should look like the adjacent drawing, with the etched pin and chain hanging down vertically. Glue to the solebar immediately to the left of the furthest right vertical strap. With your 1mm drill, carefully drill through the etching and into the resin solebar, and insert a section of 1mm (0.040in) brass wire, to help hold this vulnerable part in place. The brake handle itself needs to be bent to shape, using the diagram (which shows what will be the bottom of the handle once on the wagon) as a



guide; note that only the loop on the end has half etched folding lines.

Insert the looped handle end through the latch, with the other end over the 14BA screw. Put the 14BA nut on 'finger tight' (i.e. so that it not pull the two V hangers together). The brake handle, V hanger, and the push rod assembly need to be permanently attached to the 14BA screw; if you are confident about doing it, this can be soldered, but a 'smear' of epoxy will do. Trim the protruding part of the screw virtually flush with nut once everything is permanently attached.

### 8. Wagon Weight

The small suspension springs should be fully compressed in normal service (so that the wheels 'descend' into depressions), so you may find it desirable to add some additional weight to your wagon. There are no hard and fast 'rules' for how much additional weight, except that all wagons in a train should weigh about the same. If some of your other wagons are all metal or otherwise much heavier, then more weight should be added to this one. One easy way of doing this, which remains invisible to normal viewing angles, is to glue lead shot into the underframe recesses. Lead shot for this purpose is available from several model suppliers, including Eileen's Emporium. Use white (woodworking/PVA) glue, leaving the wagon upside down until thoroughly dry, but make sure that you keep it clear of the buffers and couplings - it will level itself out whilst wet, so build a 'dam' of some sort, or don't put any at all in the recesses containing these items.

**All that remains to be done is painting and lettering of your choice. The buffer heads (and couplings, if you want) can easily be removed for this operation.**

### PARTS LIST

Material	Part No	Description	No Per Kit
Etched Brass	X804101	Sheet 1 (25 thou) ("W" irons x 4).....	1
	X804102	Sheet 2 (20 thou) (Brake hangers and links) .....	1
	X804103	Makers and RCH Plates .....	4
		(Individual plates )	4
Resin Castings	X804105	Body .....	1
Brass Turnings	X804110	Buffer Housing .....	4
Steel Turnings	X804115	Buffer .....	4
Injection Moulded	X804120	Sprue .....	1
		Attocks 46A Axlebox (4), Attocks Backplate (4); Ellis Axlebox (4); Ellis Backplate (4).	
	X804121	Sprue .....	1
		LH Brake Block (2); RH Brake Block (2); Spring (4) Buffer Base (4); End Door Hinge.	
Nickel Silver Casting	8155	Coupling Hooks (2) .....	1
Wheelsets	F8116	(3'-1½" 8 Split Spoke) .....	2
G1 Buffer and Suspension Spring .....			8
10BA Brass Nut .....			4
G1 Coupling Links .....			6
6BA Brass Nut .....			2
G1 Coupling Spring .....			2
G1 Brass Axle Bearings.....			4
0.060 x 0.090 Plastikard Microstrip (approx. 5").....			1
1mm (0.040") Brass Wire (approx. 2") .....			1
14BA Brass Screw .....			2
14BA Brass Nut .....			2