

## 2299T Three Axle Compensating W Irons – RCH/GWR Type

Please read the instructions and familiarise yourself with the parts and options before bending, gluing or soldering anything.

In essence these parts make a conventional 2 axle (4 wheel) compensated chassis with a 'cosmetic' centre axle which plays no part in supporting the weight of the vehicle. The centre axle is effectively free to move laterally (and vertically) to follow the contours of the track. Two alternative methods of attaching the centre axle are provided. In the first, the axle is carried in a complete 'W' Iron assembly which is free to move from side to side. This can be a little restrictive on vehicles which have to negotiate 'tight' curves. Sideways movement of the 'W' Iron assembly is limited to the distance between the solebars. A table showing the relationship between vehicle wheelbase, solebar separation and minimum curving radius is provided. As an alternative, where tighter radii have to be accommodated, an internal bearing unit is provided which will allow a little more sideways movement. When using this, the 'W' Irons from the redundant unit can be cut off and used cosmetically.

Separate the main components from the fret and clean any remaining 'tabs'. Half etched fold lines go inside 90° bends and outside of 180° bends

Emboss the rivets in the bridles using the half etched holes (A) as a guide. Use a rivet press or a pointed instrument with the etch resting on a piece of hardboard.

Fold the bridles through 180° so that the rivets are on the outside (R)

Fold the W Irons and the sides through 90° to form a box. The four 'tabs' (Z) on the top of the unit will naturally protrude upward.

Repeat these steps to form three (or two) identical units.

One of these will be fixed, one will 'rock' at the other end and the third will hold the cosmetic centre axle. Leave the four tabs sticking up (Z1) on one of the units – the fixed unit – and fold them flush or remove them on the other(s) (Z2).

Fit brass bearings (MJT4009 or 4010) into the holes in the W-irons (which may need to be opened out slightly with a broach or round needle file). Although not necessary, it may be easier to solder or glue them in place.

Ease the axles between the bearings. If they are a loose fit this can be controlled by soldering the corners of the units or gently squeezing them between the (smooth) jaws of a vice (don't overdo it). It is suggested that this is left until after painting or chemical blackening as subsequent removal of the wheels is likely to loosen them.

Mark the positions of the axles across the underside of the floor taking care to ensure that they are at right angles to the longitudinal centre line. For most vehicles, the middle axle will be in the centre of the vehicle.

Attach the 'fixed' unit to the underside of the floor at one end (it does not matter which) using the position line as a guide. If attaching the unit permanently at this stage take care to get the ride height correct. The protruding tabs (Z) may have to be trimmed or flattened a little or the unit may have to be 'packed'. In some cases moulded floor ribs may have to be removed or even a section of the floor replaced to lower the ride height.

Fold the tabs (P) on the rocking unit mounting plate through 90°. The 'W' Iron unit attaches to the mounting plate using the slots (Q) which are slightly 'over width' to allow a small degree of 'steering'.

Using the previously marked axle positions as a guide, attach the mounting plate to the underside of the floor. Again take care to ensure that the eventual ride height is correct (and, of course, the same as that of the fixed unit at the other end).

Cut two lengths of 0.3mm brass wire (supplied) to be approximately 18mm longer than the overall wheelbase (the distance between the outermost axles). It is probably best to leave these a little over length at this stage and trim them later. Thread the wires through the 'W' Irons using the holes marked 'X'.

Solder the wires to the fixed and centre 'W' Iron units as shown in the general arrangement. Do *NOT* solder the wires to the rocking 'W' Iron unit; the wires must be able to slide in and out of this unit to allow lateral

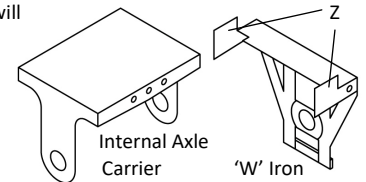
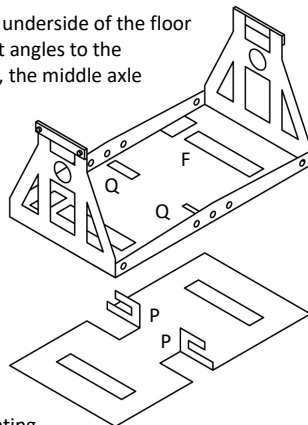
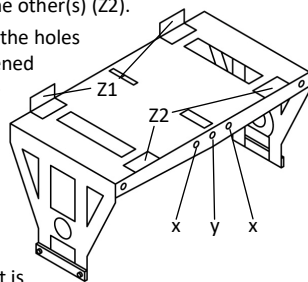
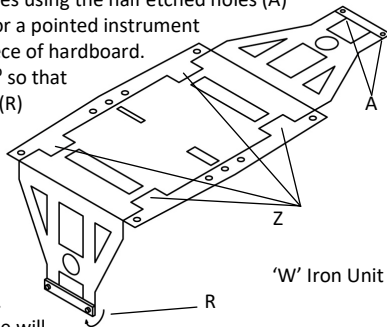
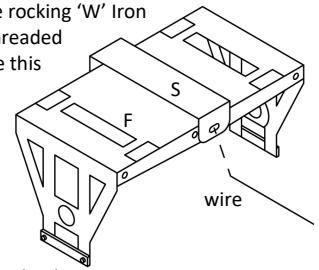
movement of the centre axle while curving. If necessary the holes can be enlarged with a small broach. Trim the wires leaving 2 – 3mm protruding outboard of the rocking 'W' Iron when the centre axle is at its maximum lateral displacement; i.e. when negotiating the tightest curve. Note: aggressive trimming is only necessary if there is a danger of the wires fouling the back of the buffer beam or anything like a coupling that might be mounted there. If clearances behind the buffer beam are particularly tight, it may be necessary (and a lot more 'fiddley') to thread and trim the wire before the fixed and rocking units are attached to the chassis.

As an alternative to using the tabs (P) the rocking 'W' Iron can be mounted using a length of wire threaded through the central holes (y). To facilitate this a longitudinal 'saddle' (S) is provided.

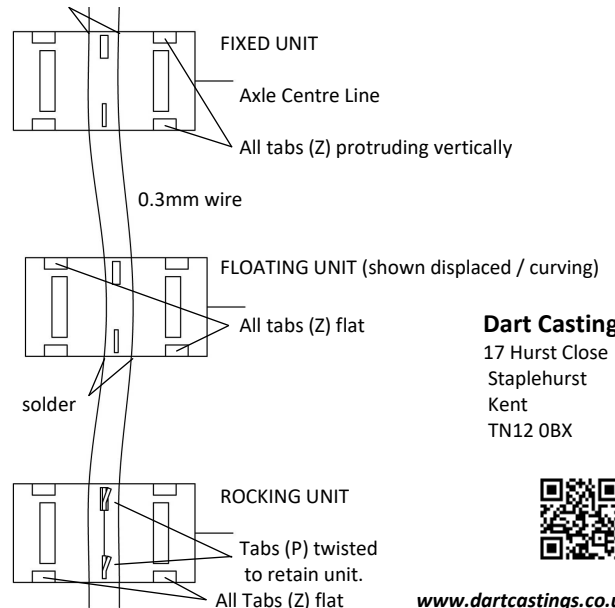
Many three axle vehicles rode on circa 3'6" diameter wheels. 14mm at 1:76. Wheels turned to P4, EM and OO Fine standards should (just about) fit in the 'W' Iron without fouling. The rectangular slots (F) will allow the use of OO wheels with deeper flanges. If using wider gauge wheels with deep flanges, the slots (F) might themselves have to be widened.

The alternative, internal bearing, axle carrier for the middle axle is shown after it has been folded. The 'pin points' on the ends of the axle will have to be ground off. It is suggested that this is done while the wheels are still on the axle as this will help to grind it square and show the correct position when the wheel is replaced. The unit is the correct width for OO gauge; some 2mm (5BA) washers are provided to accommodate wider gauges.

As with the 'W' Irons, the carrier will be strengthened by soldering the corners. Remove one wheel and thread the axle through the holes in the carrier. Replace the wheel using a back to back gauge or the ground face of the axle to align it. If the 'surplus' 'W' Irons are to be used 'cosmetically' they will have to be separated from each other and the assembly; the axle carrier occupies the same space under the vehicle. It is suggested that the single 'W' Irons are assembled as shown: the tabs (Z) might assist with vertical alignment.



### GENERAL ARRANGEMENT



### Dart Castings

17 Hurst Close  
Staplehurst  
Kent  
TN12 0BX



[www.dartcastings.co.uk](http://www.dartcastings.co.uk)

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