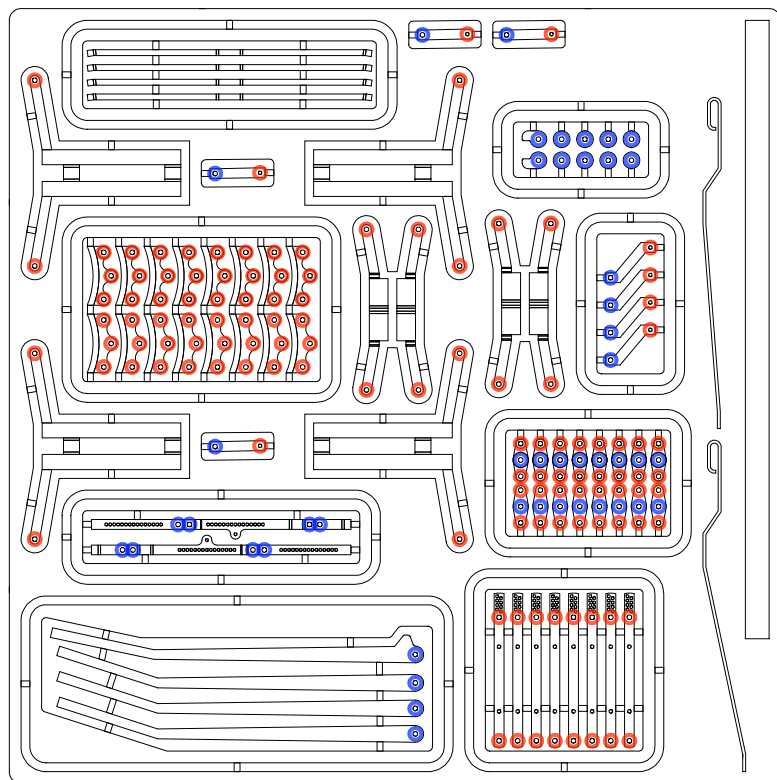


IMPORTANT NOTES. These products are designed to cover various options and configurations of axle guards and brake types found on the prototype. It is therefore imperative that the user has all the necessary information of the prototype to be modelled.

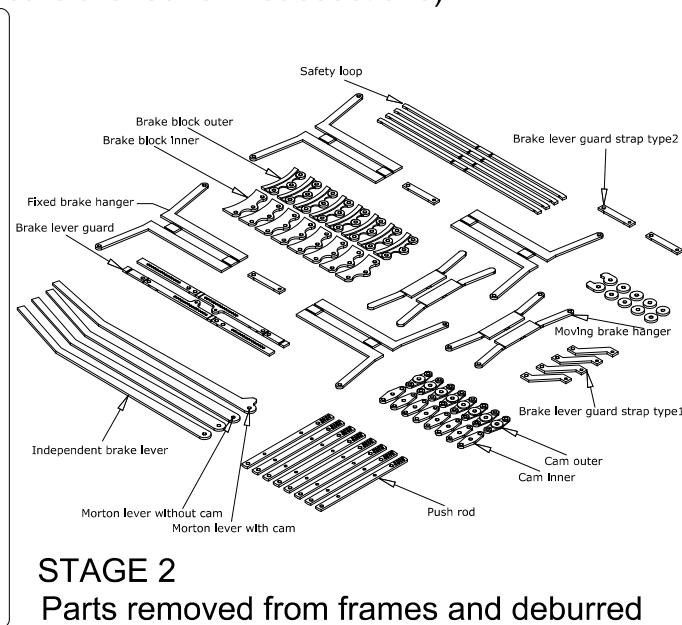
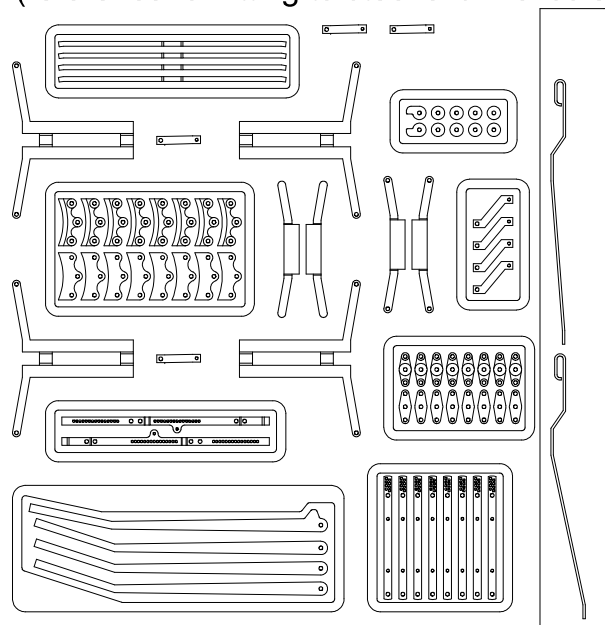
The brake type detailed in this section is of reversible type brake shoes and post 1923 brake guard hanger, with fixed brake hanger, fitted to a wagon with 12 timber solebars (reference for fitting to steel channel solebars are found in subsections).



STAGE 1

Before parts are removed from the frame

- Drill holes marked ● 0.40 mm dia 4mm scale
- Drill holes marked ● 0.50 mm dia 4mm scale
- Drill holes marked ● 0.60 mm dia 7mm scale
- Drill holes marked ● 0.80 mm dia 7mm scale



STAGE 2

Parts removed from frames and deburred

PDF and JPG files required for the assembly of the following brake types:

[Reversible independent brake blocks both sides or one side only, 12in timber solebar.](#)

INS 1001/1 to 1001/8, 1001/11, 1001/12, 1001/14, 1001/15 1001/18 1001/24 1001/25

[Morton brakes both sides or one side only, 12in timber solebar.](#)

INS 1001/1 to 1001/6, 1001/9 to 1001/12, 1001/16, 1001/17 1001/18 1001/24 1001/25

[Reversible independent brake blocks both sides or one side only. Supplement for channel solebar.](#)

INS 1001/19, 1001/20 to 1001/25

[MORTON brakes. Supplement for channel solebar.](#)

INS 1001/23 to 1001/25

[Supplement for Non Reversible independent brakes both sides or one side only.](#)

INS 1001/25

[Supplement for Moving brake blocks.](#)

INS 1001/25

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Part No INS 1001 SHEET 1

Part Name

Material

Date Drawn

Scale

Remove all sharp edges

All dimensions in MM unless otherwise stated

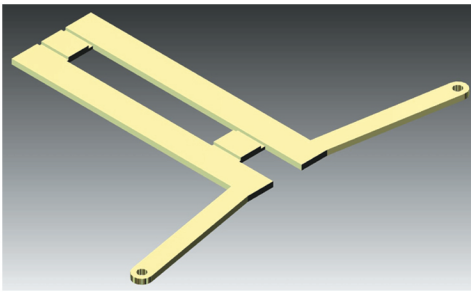
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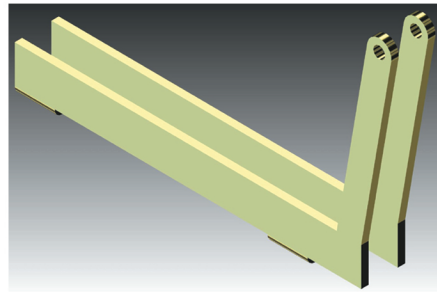
Instruction number

INS 1001/1

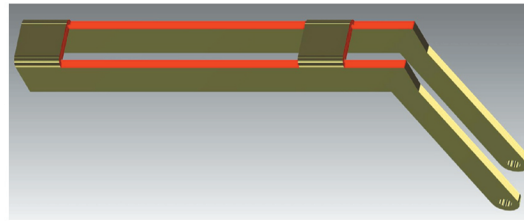
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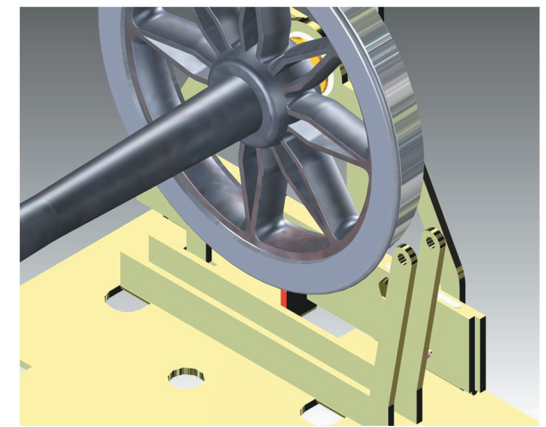
STAGE 3
View of fixed type brate hanger



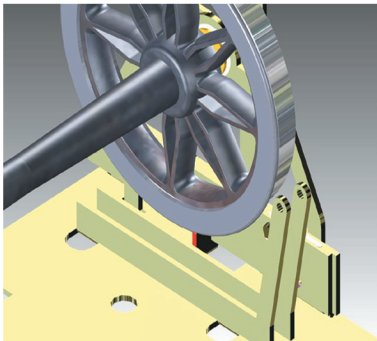
STAGE 4
Fold both sides to 90 degrees



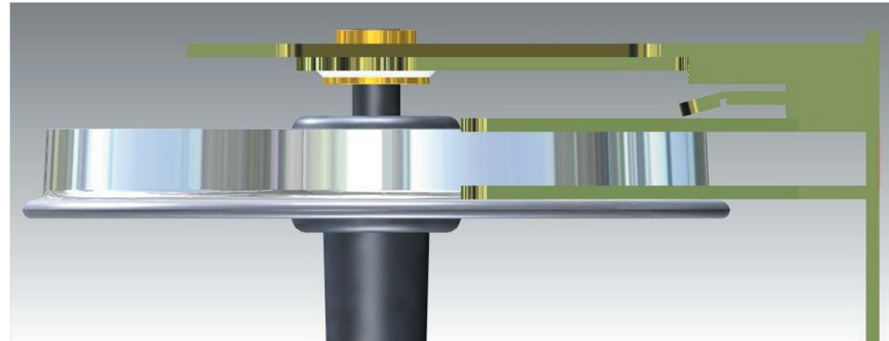
STAGE 5
Ensure the faces in red are flat and corners are sharp to fit snugly into chassis See stage 6



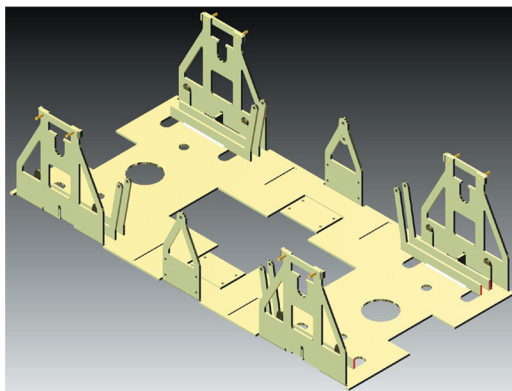
STAGE 6
View showing position of brake hanger.
If modelling P4 or S7, to enable the brake hanger to align with the wheel tread 0.25mm approx will have to be removed from the spring stop (marked in red). For other gauges, align brake hanger to wheel tread and scribe a line for repositioning along the brake hanger on the inside of the floor pan.
Repeat for all brake hangers. This is necessary to ease assembly of rest of the brakes.
Remove the wheelsets and cradles.



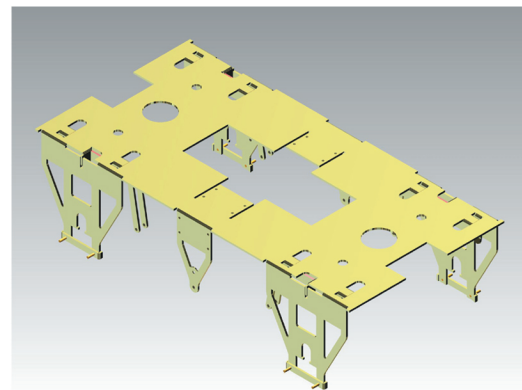
STAGE 7
View showing position of brake hanger.



STAGE 8
View from the end of the chassis, showing correctly positiond brake hanger in relation with the tread of the wheel.



STAGE 9
Solder all brake hangers as shown. If brakes are only required on one side, tack solder the two hangers not required as these will removed later.



STAGE 10
Turn over and ensure the base is free from solder burrs and is flat.

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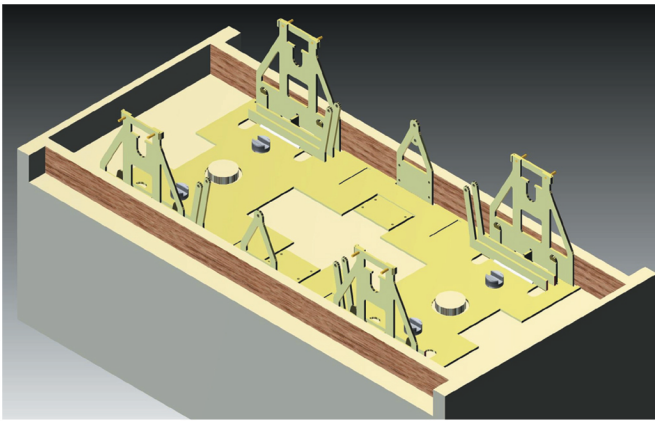
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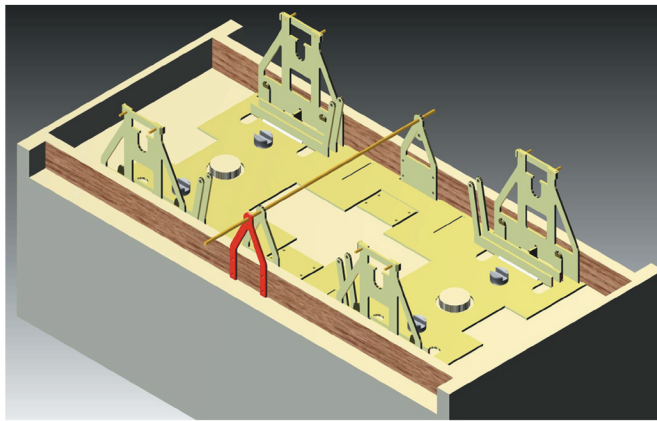
INS 1001/2

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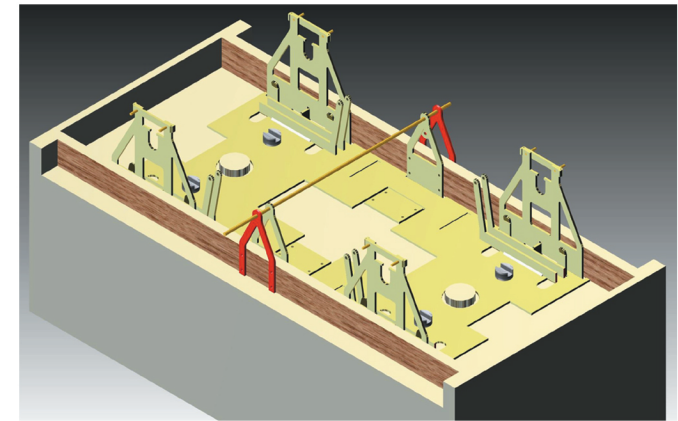
STAGE 11

Align chassis into underside of body and fix. Suggested method is to use 4 holes provided and 4 1mm dia short screws as shown. You may wish to use an alternative method!



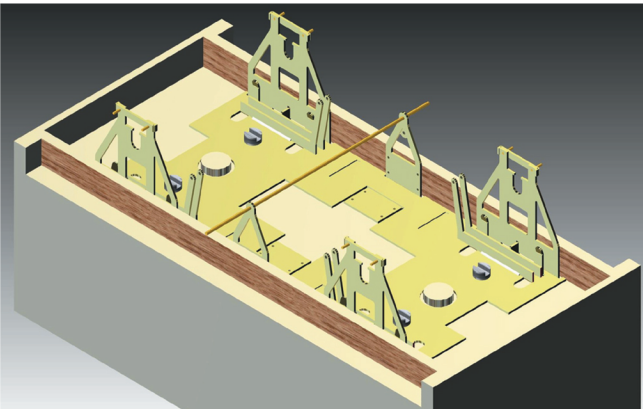
STAGE 12

Getting ready for independent brake one side only. Cut a piece of straight brass wire (0.5 dia for 4mm) (0.8mm dia for 7mm). Thread wire through V hangers on floor pan then a plain V hanger (highlighted in red).



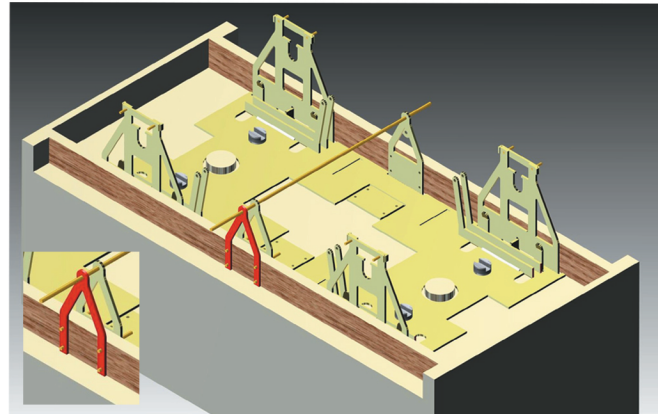
STAGE 13

Getting ready for independent brakes both sides. Cut a piece of straight brass wire (0.5 dia for 4mm) (0.8mm dia for 7mm). Thread wire through V hangers on floor pan then a plain V hanger both sides (highlighted in red).



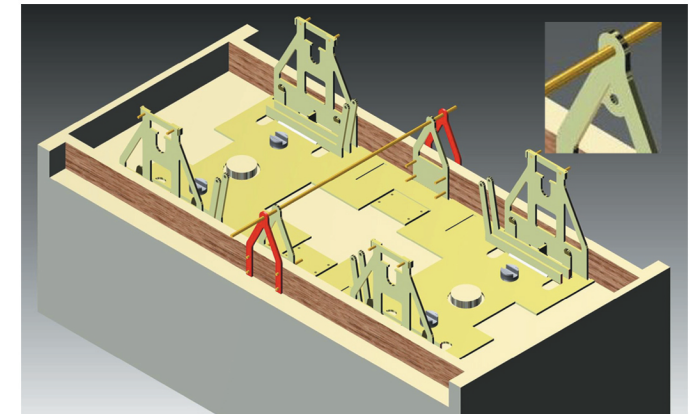
STAGE 14

Getting ready for Morton brakes both sides or one side. Cut a piece of straight brass wire (0.5 dia for 4mm) (0.8mm dia for 7mm). Thread wire through both V hangers on floor pan.



STAGE 15

Independent brake one side only. Drill 4 holes (0.30 dia for 4mm scale) (0.58 dia for 7mm scale) through the solebar and V hanger. These holes should be a light press fit for 0.33 or 0.60 dia. Cut 4 pieces of suitable wire and press into solebar as shown. **Do not solder these wires onto the V hanger as they will need to be removed.**



STAGE 16

Independent brakes both sides. Repeat stage 10 on other side of vehicle. Remove half etch hole for Morton brakes (see INS 1000/2 stage 5).

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Part No INS 1001 SHEET 3

Part Name

Material

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Scale

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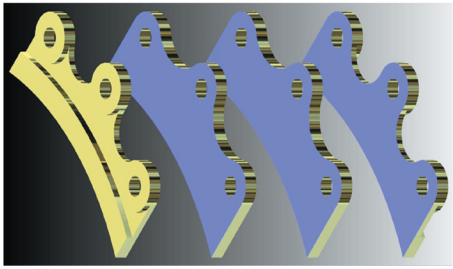
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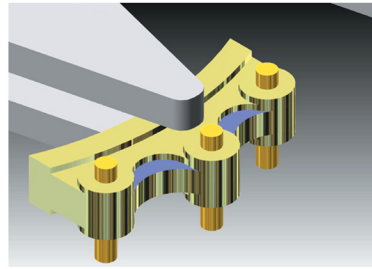
INS 1001/3

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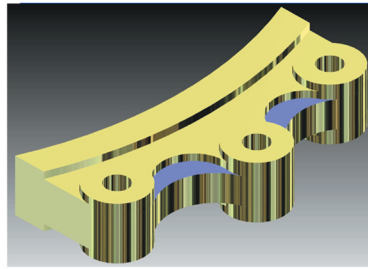
STAGE 17

Brake blocks are made up of 4 layers as shown. Carefully tin mating faces (shown in blue) check that holes are free of solder.



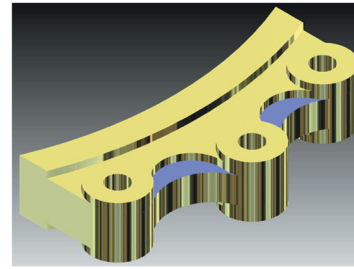
STAGE 18

Cut 3 pieces of brass wire. deburr ends and smear with oil, assemble applying a tiny amount of flux between faces; clamp using hair clip.



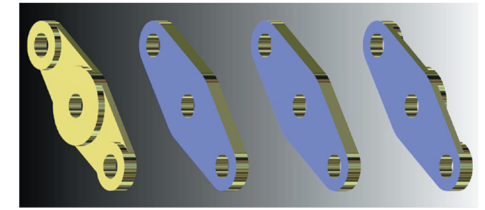
STAGE 19

Using a very hot soldering iron apply heat to each end and centre boss. **DO NOT ADD EXTRA SOLDER**, the tinning will suffice.



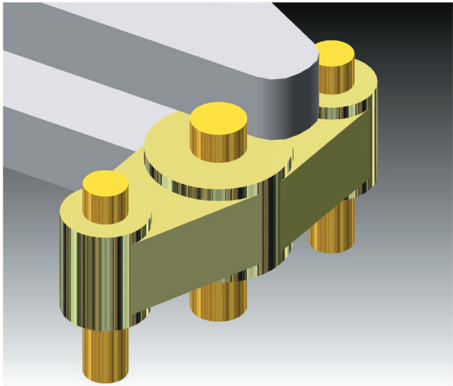
STAGE 20

Remove brass pins and clean up excess solder, ensure holes are clear and accept wire freely.



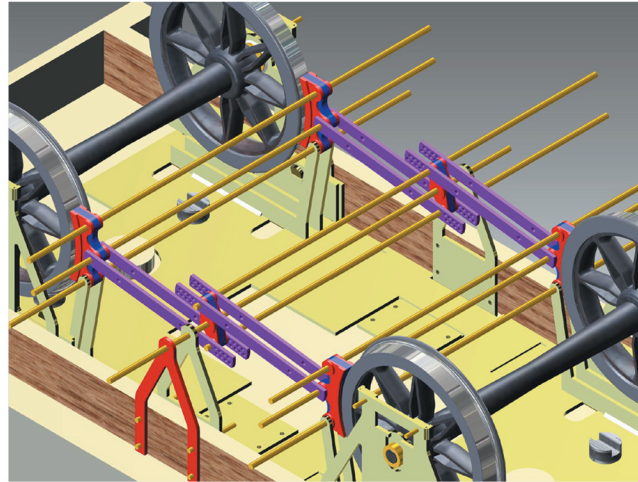
STAGE 21

Centre cams are made up of 4 layers as shown. Carefully tin mating faces (shown in blue) and check that holes are free of solder.



STAGE 22

Cut 3 pieces of brass wire (remember the centre hole is larger). Continue as per stages 13, 14 and 15.

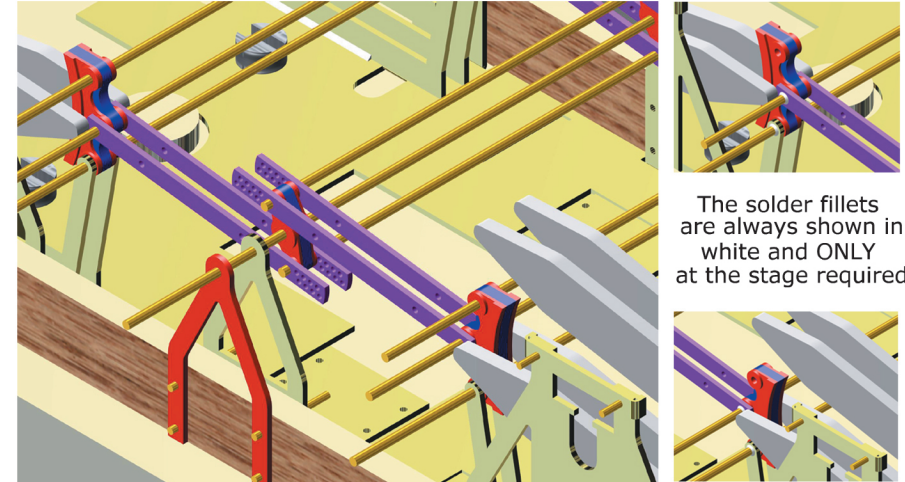
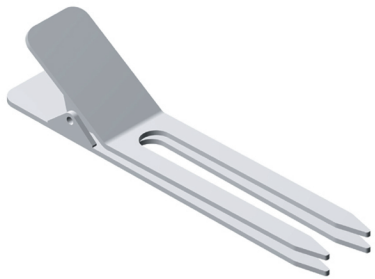


STAGE 23

Dry run assembly for independent brakes one side only. Assemble as shown including cradles and wheelsets. The brake parts will be aligned and positioned with the brass wires and held in position by the brake hangers and V hangers. Check that there is no contact of the wheels to the brakes over the total spring movement.

IMPORTANT ensure the wire which is located in the bottom holes in the brake blocks have a smear of oil as this wire has to be removed later.

IMPORTANT ensure the larger diameter wire which is located in the V hangers has a smear of oil as this wire has to be removed later.



STAGE 24

Fixing 1: for independent brakes one side only.

Remove wheelsets and cradles.

Clamp the pushrods onto the brake blocks using 2 hair clips (as shown), apply a dab of liquid flux both sides of both brake blocks and two wires (**NOT THE BOTTOM WIRE** as this wire has to be removed later). Apply a dab of solder paste on inside of both brake hangers and wires; repeat on the inside of both push rods and wires.

Using a very hot iron quickly apply heat to the wire close to the brake hanger and push rod. Repeat on other brake block. Leave to cool.

Remove both wires at the bottom of the brake blocks; this leaves an unused hole visible at the bottom of each brake block.

The solder fillets are always shown in white and **ONLY** at the stage required

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Part No INS 1001 SHEET 4

Part Name

Material

Date Drawn

Scale

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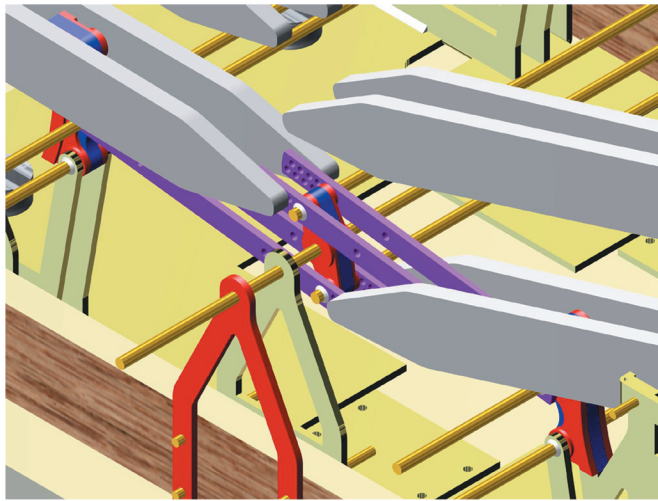
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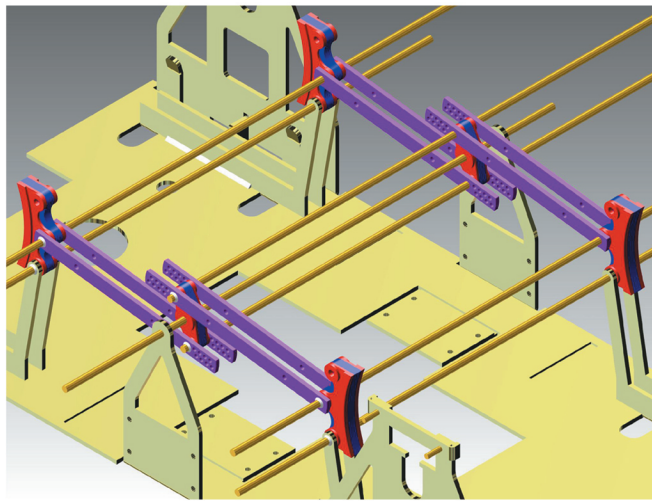
INS 1001/4

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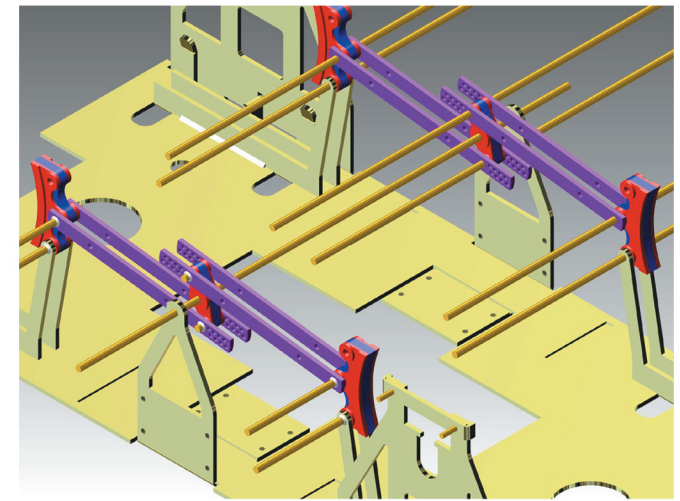
STAGE 20

Fixing 2: for independent brakes one side only.
Place clamps on the push rods and center cam (as shown).
Solder push rods to cams as described at stage 19.
Allow to cool.



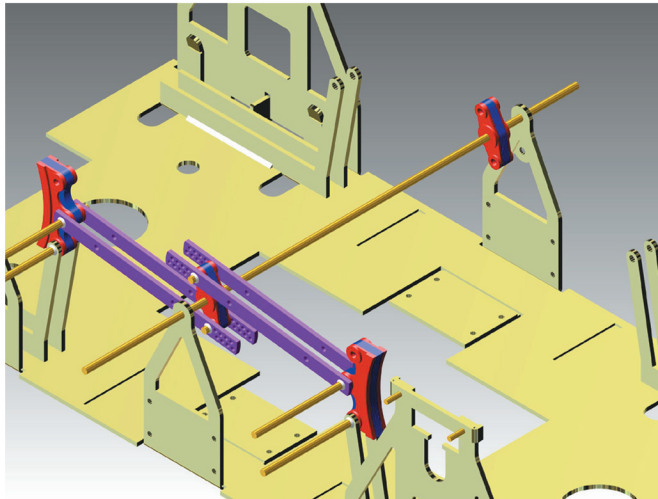
STAGE 21

Fixing 3: for independent brakes one side only.
Remove the hair clips and the 4 pins locating the outer V hanger. Remove 4 screws then remove underframe from body.



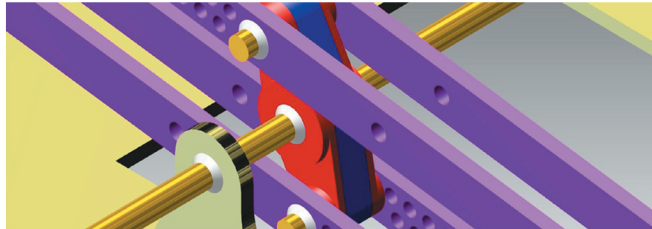
STAGE 21

Fixing 4: for independent brakes one side only.
Cut the 6 wires (approx 2mm) from inside of push rods as shown and slide partly out.
(DONT cut the V hanger wire at this stage).



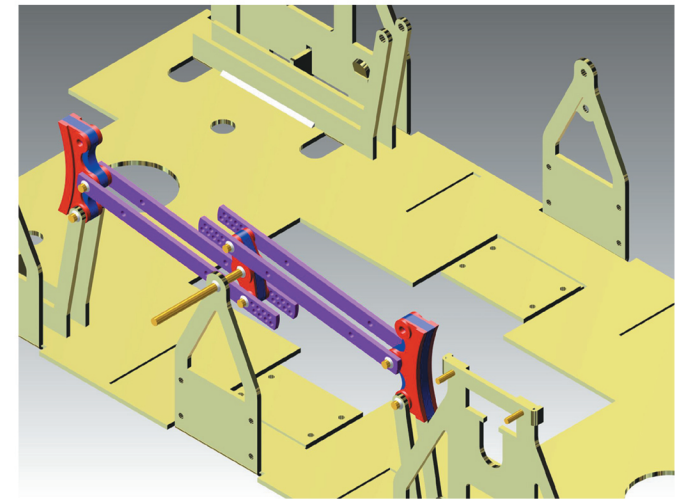
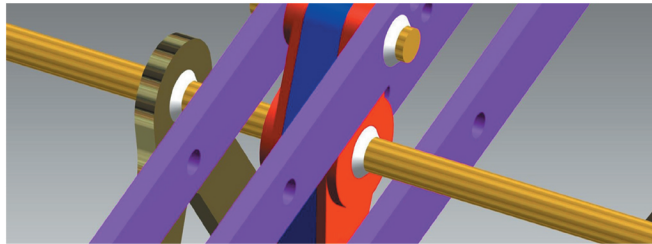
STAGE 22

Fixing 5: for independent brakes one side only.
Remove the brake blocks, push rods and cut wires.
(As shown above).



STAGE 23

Fixing 6: for independent brakes one side only.
Apply flux and solder paste to the V hanger wire and solder the center cam V hanger to the center wire
(As shown above).



STAGE 24

Fixing 7: for independent brakes one side only.
Cut V hanger wire behind push rods, remove cam and rod.
Finish front of brake block pins (As shown above).

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Part Name

Material

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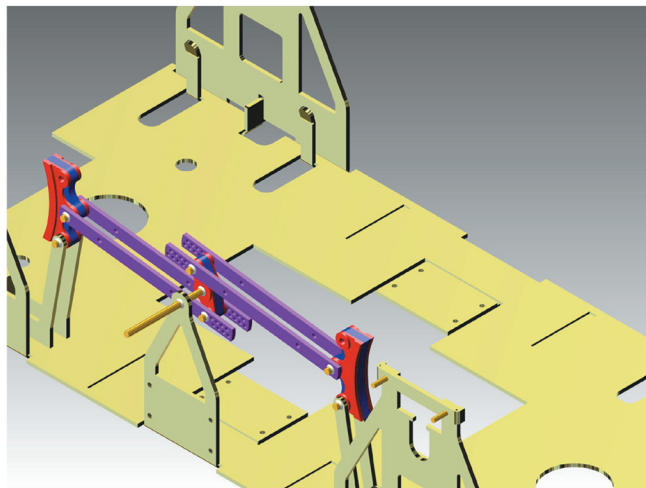
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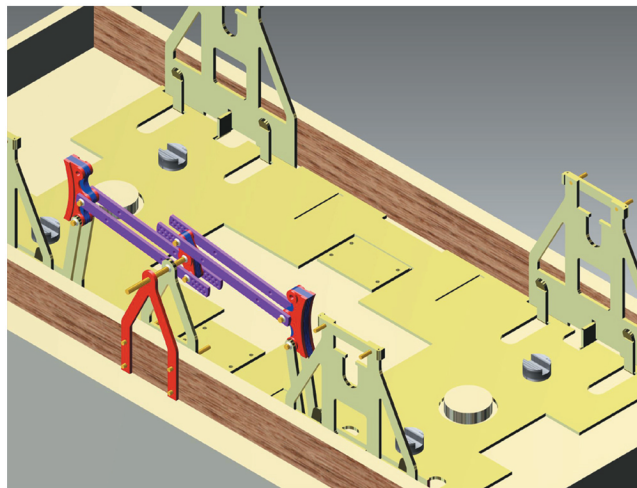
INS 1001/5

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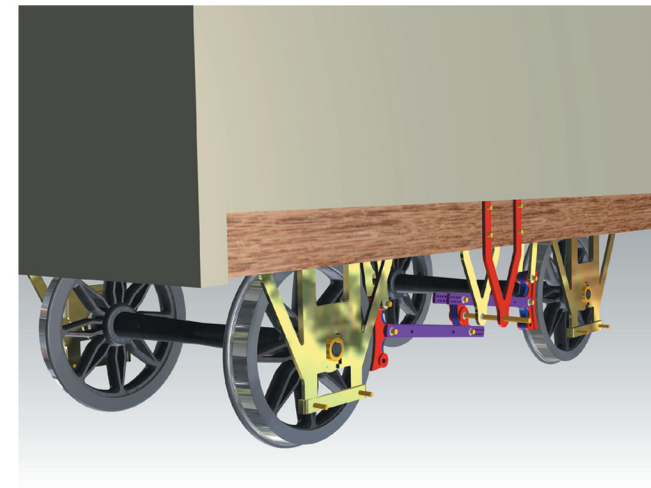
STAGE 31

Fixing 8: for independent brakes one side only.
Remove the unused brake hangers (tack soldered in stage 6).
Remove V hanger (as in INS 1000/1 stage 4).



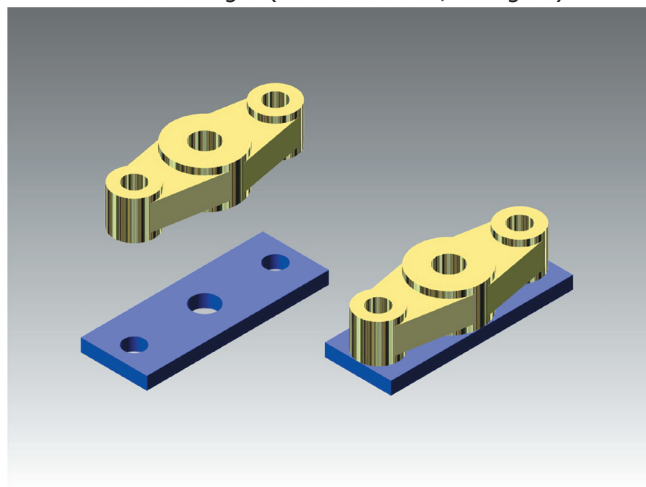
STAGE 32

Fixing 9: for independent brakes one side only.
Reassemble chassis into body, V hanger and pins
(as shown above).



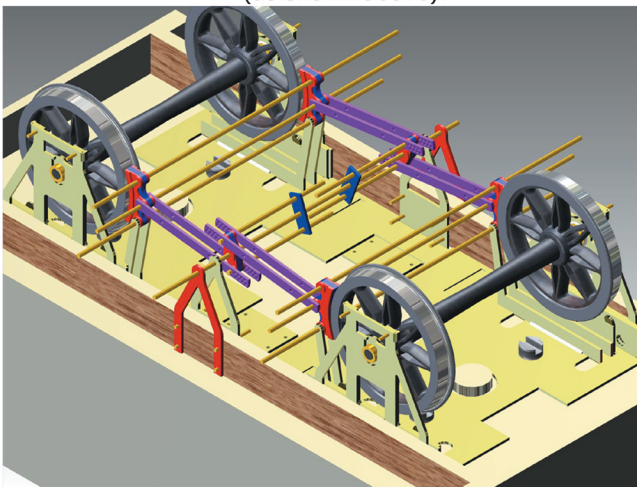
STAGE 33

Fixing 10: for independent brakes one side only.
View showing chassis complete with wheelset, cradles
and body. For brake lever and lever guards see later.



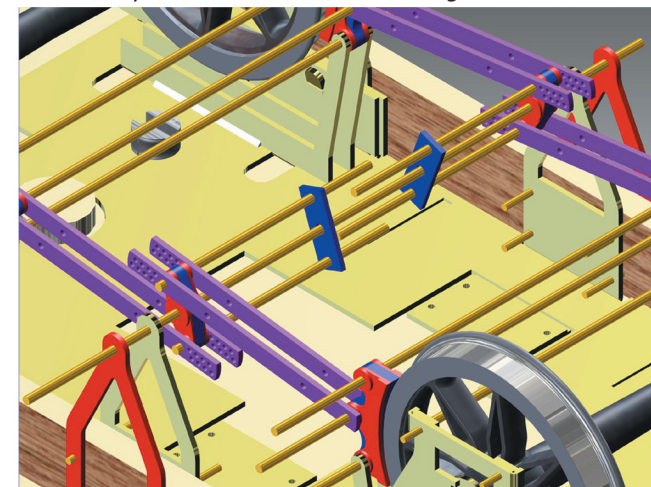
STAGE 34

Assembly for independent brakes both sides.
Using the spare cams, assemble 2 cams as detailed in
stages 21 and 22. These now form an assembly aid
and have been simplified in the images
(shown in blue for clarity).



STAGE 35

Dry run assembly for independent brakes both sides.
Assemble as shown including cradles and wheelsets.
The brake parts will be aligned and positioned with the
brass wires and held in position by the brake hangers,
V hangers and assembly aids.
Check that there is no contact of the wheels to the brakes
over the total spring movement.



STAGE 36

NOTES on assembly for independent brakes both sides.
Assemble brake blocks and wires as Stage 18 but the
push rods are in opposite directions (as shown). The wires
in the V hangers and cams use the two parts made in
stage 29. This will keep the assembly of the cams and
V hangers square to the chassis.

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Part No INS 1001 SHEET 6

Part Name

Material

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Scale

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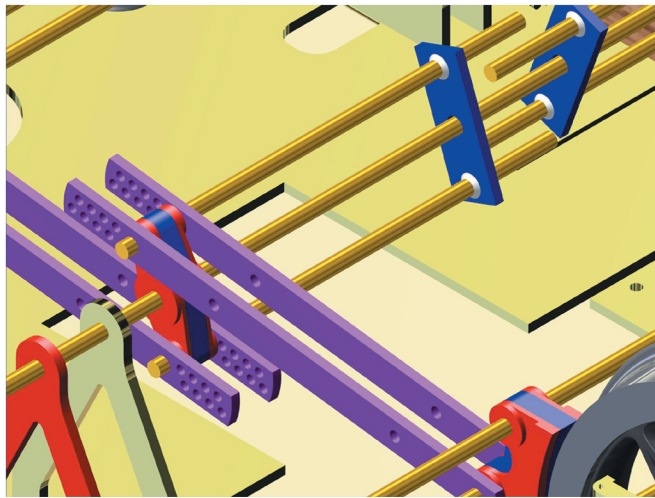
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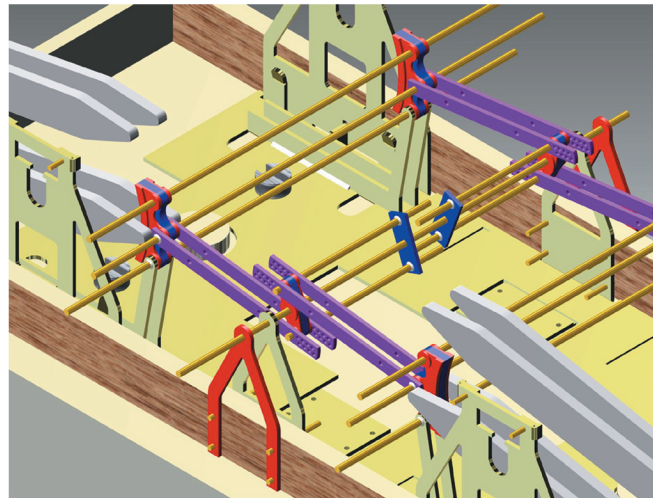
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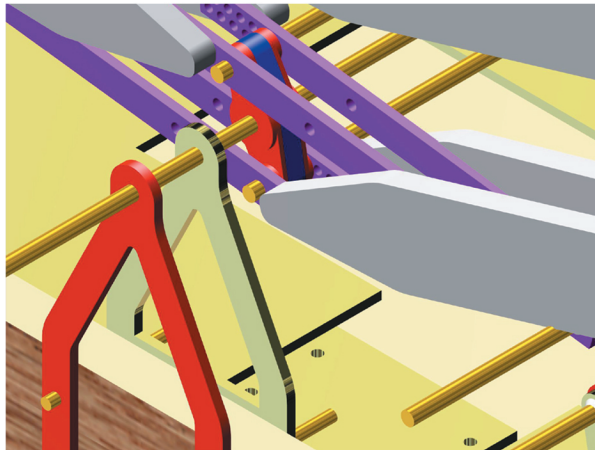
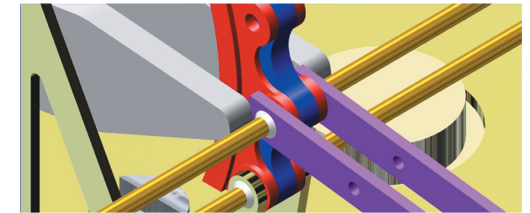
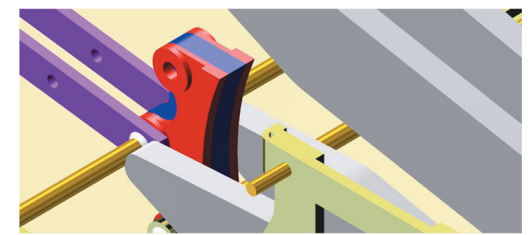
STAGE 37

Fixing 1: for independent brakes both sides. Remove wheelsets and cradles. Ensure the cam wires are positioned equally (as shown). Apply a dab of liquid flux and solder paste both sides of each assembly aids. Using a very hot iron apply heat very quickly to the wire close to the assembly aids. Repeat on other side.



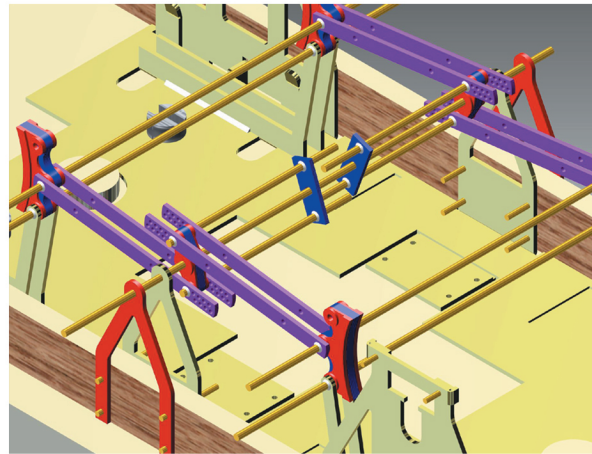
STAGE 38

Fixing 2: for independent brakes both sides. Clamp the pushrods onto the brake blocks using 2 hair clips (as shown). Apply a dab of liquid flux and solder paste on the wires, both sides of the push rods and brake hangers. (NOT THE BOTTOM WIRE as this will be removed later). Using a very hot soldering iron apply heat very quickly onto the wires close to the brake hangers and push rods i.e. at 8 positions. Repeat above operations to the other side of the chassis.



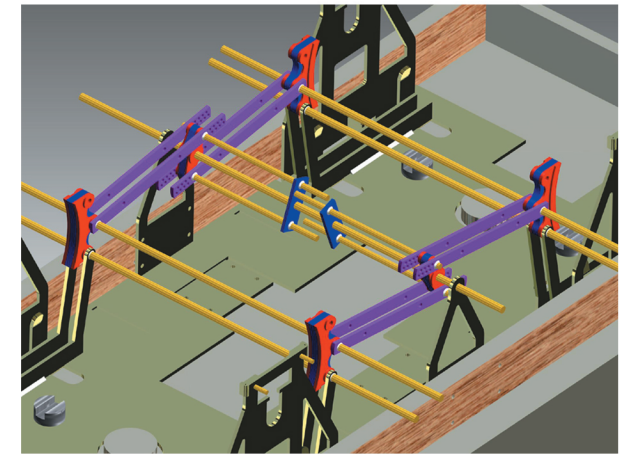
STAGE 39

Fixing 3: for independent brakes both sides. Place clamps on the push rods and centre cam (as shown). Solder push rods to cams as described at stage 33. **DON'T solder V hanger wire to cams.**



STAGE 40

Fixing 4: for independent brakes both sides. Repeat stage 39 on the other side of chassis. (Soldered joints shown in white).



STAGE 41

Fixing 5: for independent brakes both sides. View showing soldered joints from the opposite side of stage 40 assembly. Remove V hanger pins and V hangers.

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Part Name

Material

Date Drawn

Scale

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All dimensions in MM unless otherwise stated

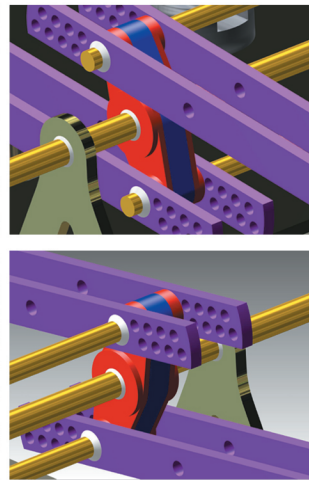
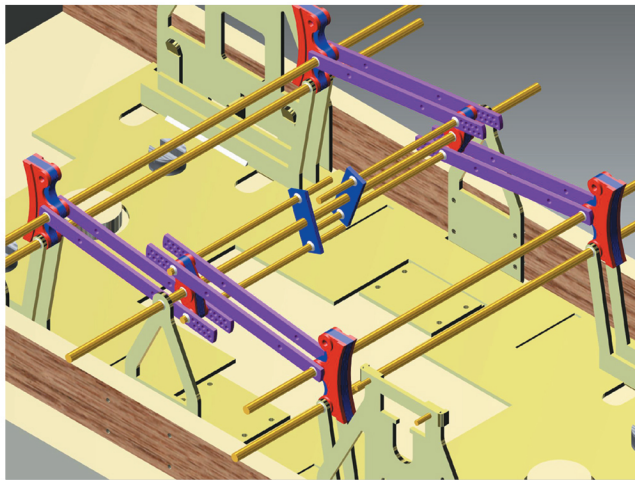
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Instruction number

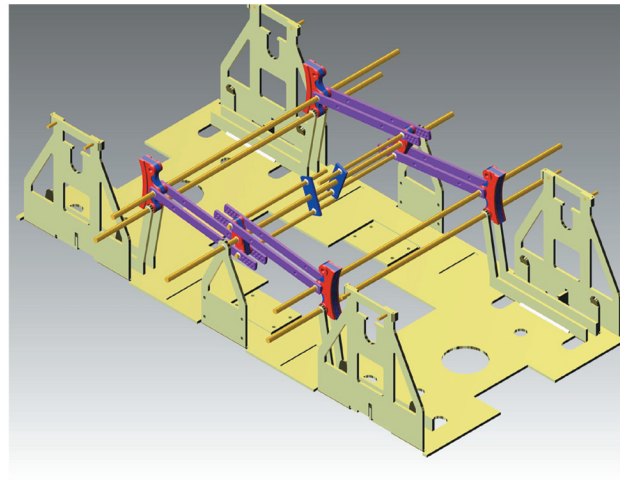
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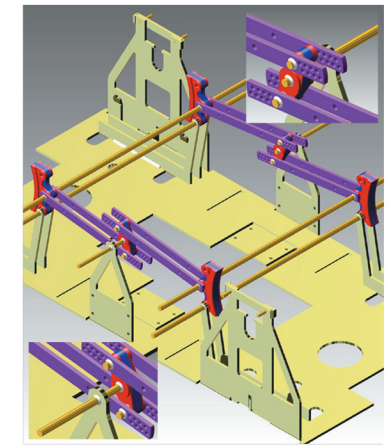
STAGE 42

Fixing 6: for independent brakes both sides.
Using soldering method described in stage 24, solder V hanger wire to V hangers and push rod cams (as shown).



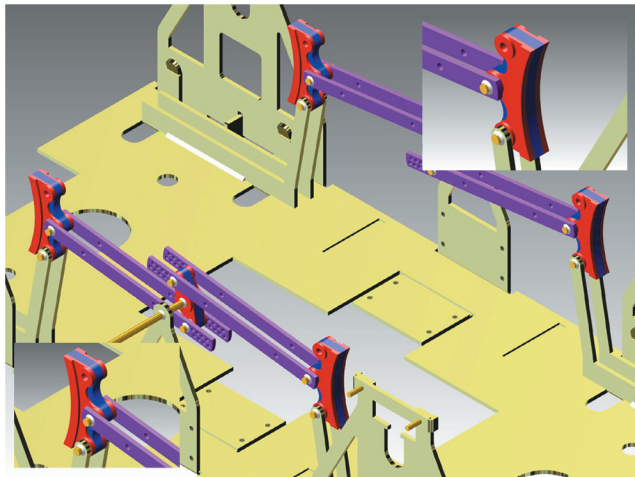
STAGE 43

Fixing 7: for independent brakes both sides.
Remove small screws and remove chassis from body.



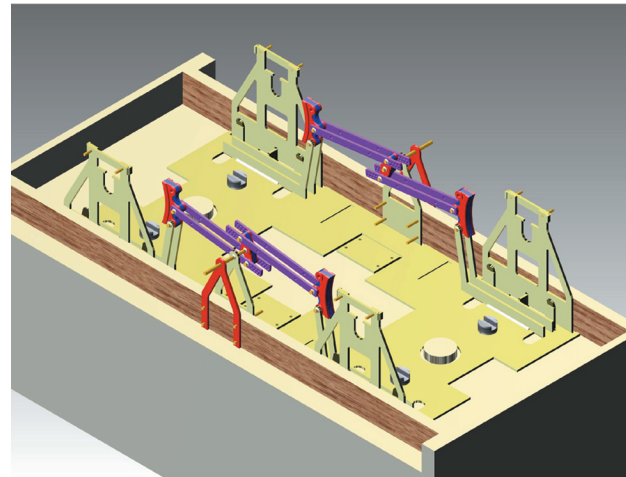
STAGE 44

Fixing 8: for independent brakes both sides.
Carefully cut cam and V hanger wires.
Finish ends (as shown). **Don't cut the outer ends of the V hanger wire.**



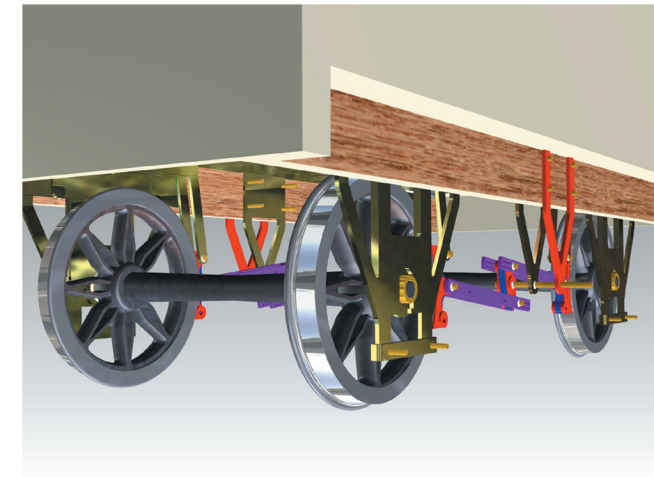
STAGE 45

Fixing 9: for independent brakes both sides.
Carefully cut the brake hanger and push rod wires.
Finish ends inside and outside (as shown).



STAGE 46

Fixing 10: for independent brakes both sides.
Reassemble into body. Refit V hangers and pins.



STAGE 47

Fixing 11: for independent brakes both sides.
View showing model at this stage.
Fitting of brake lever and brake lever guards comes later.

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Part Name

Material

Date Drawn

Scale

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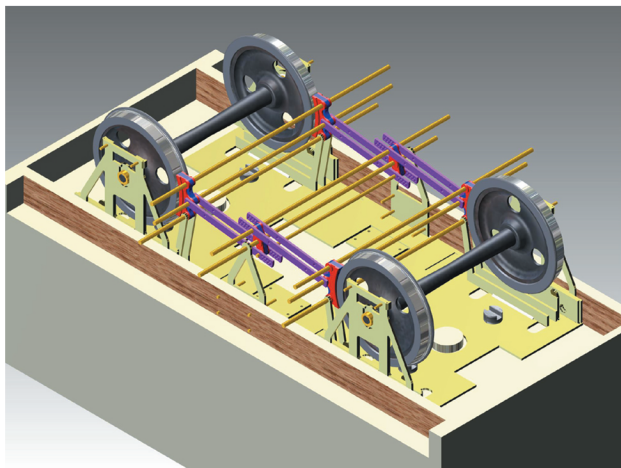
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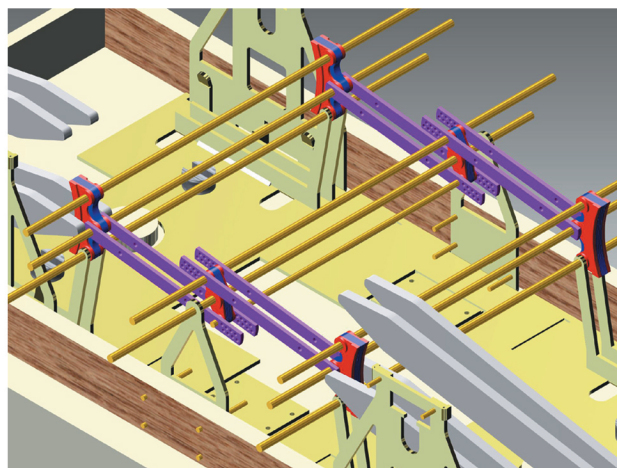
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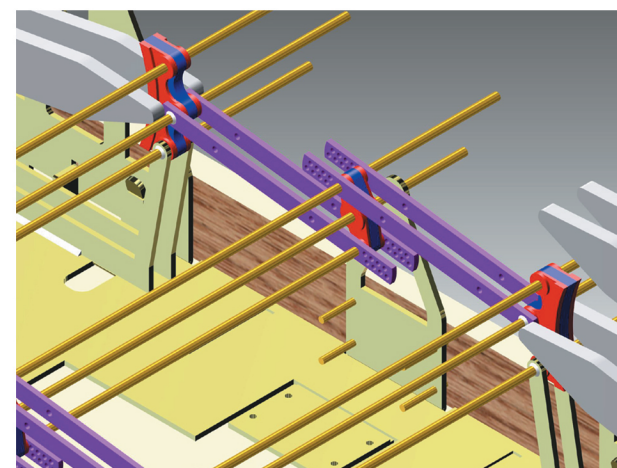
STAGE 48

Dry run assembly for Morton brakes. Assemble as shown including cradles and wheelsets. The brake parts will be aligned and positioned with the brass wires and held in position by the brake hangers, and V hangers. Note there are no outer V hangers used. Check that there is no contact of the wheels to the brakes over the total spring movement.



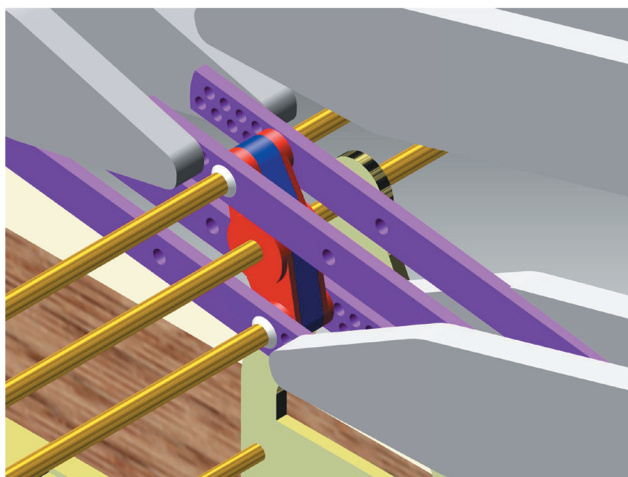
STAGE 49

Fixing 1: for Morton brakes. Remove wheelsets and cradles. Ensure the cam wire on the top of the cams is positioned equally. Remove the bottom wires that pass through the brake blocks, smear with oil as they are moved later and refitted. Clamp the push rods with two hair clips (as shown).



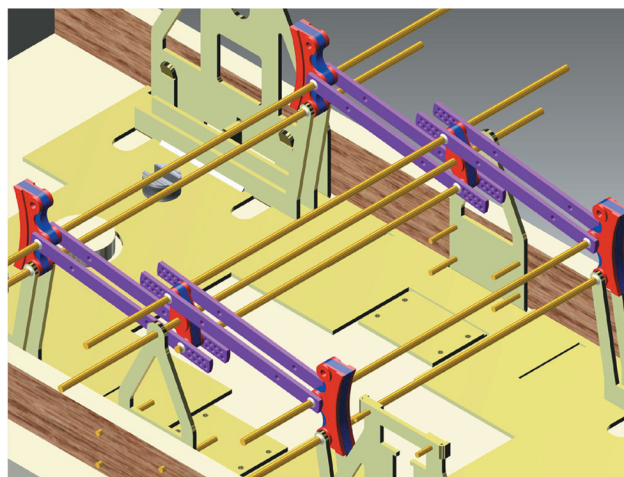
STAGE 50

Fixing 2: for Morton brakes. Apply a dab of liquid flux and a dab of solder paste at 8 positions (both sides of push rods and brake blocks and both sides of brake hangers and brake blocks). Using a very hot iron apply heat on the wire close to the joint. This must be done very quickly. Repeat to all 8 joints (shown in white).



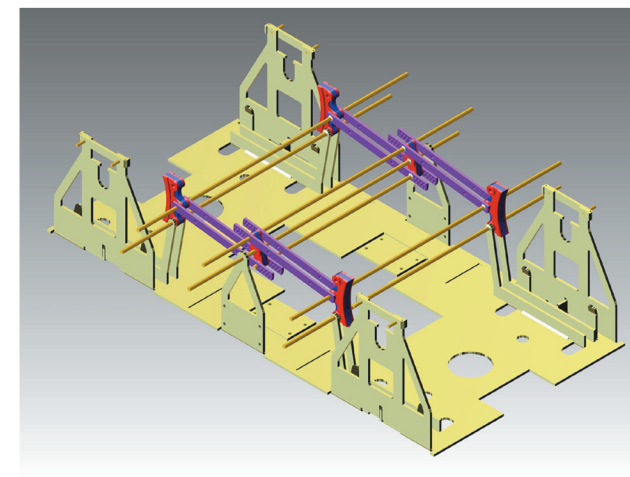
STAGE 51

Fixing 3: for Morton brakes. Remove wires in the bottom of brake blocks. Reposition hair clips and solder push rods wires, and brake blocks (shown in white), **don't solder V hanger wires at this stage.**



STAGE 52

Fixing 4: for Morton brakes. If brakes are to be fitted to all four wheels. Repeat stages 50 and 51 to the other side of the chassis.



STAGE 53

Fixing 5: for Morton brakes. Remove V hanger pins and screws; remove chassis from body.

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Material

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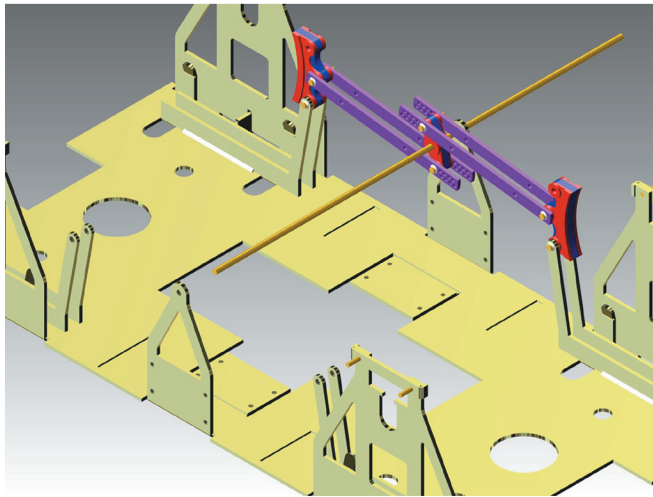
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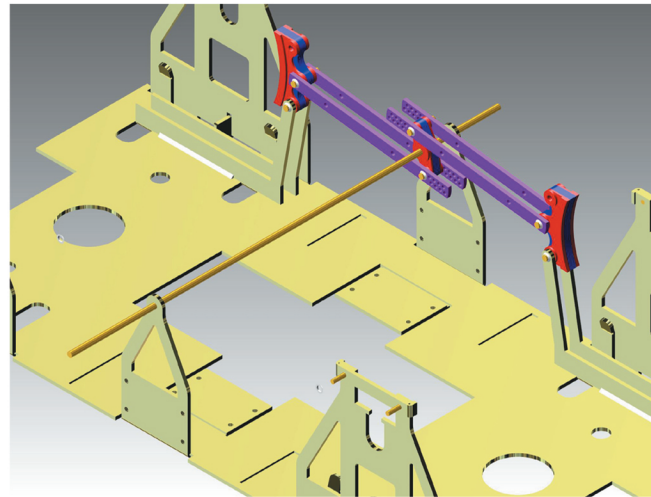
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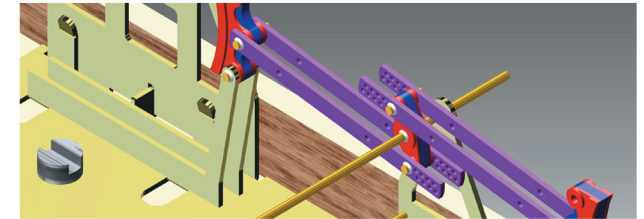
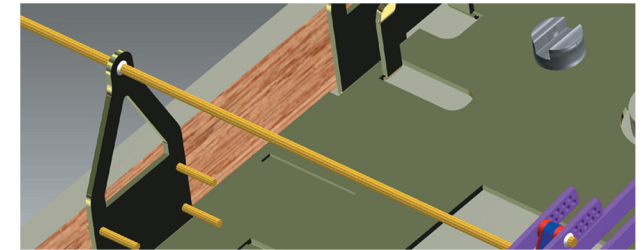
STAGE 54

Fixing 6: for Morton brakes (brakes one side only). Carefully slide the V hanger wire out (as shown) Remove cam, push rods and brake blocks on one side, slide V hanger wire back centrally, then cut wires on brake blocks and cam. Finish the ends of wires on the inside and outside.



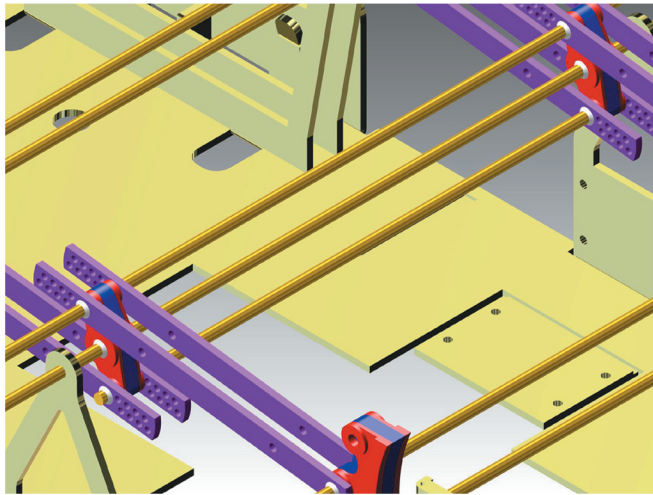
STAGE 55

Fixing 7: for Morton brakes (brakes one side only). Remove unused tack soldered brake hangers, see stage 9.



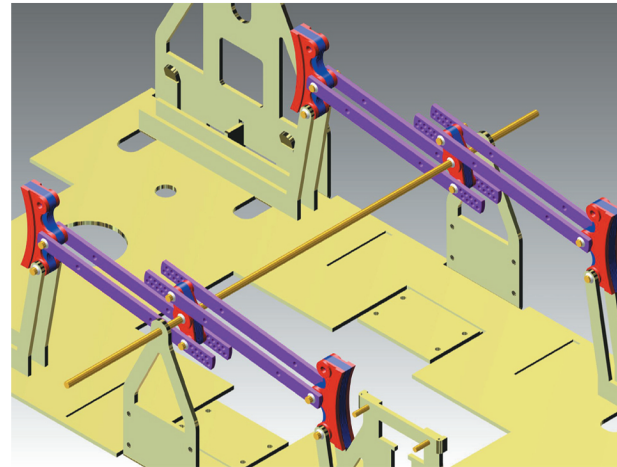
STAGE 56

Fixing 7: for Morton brakes (brakes one side only). Refit chassis into body using screws and V hanger pins. Solder V hanger wire on the inside to V hanger and to the inside of cam.



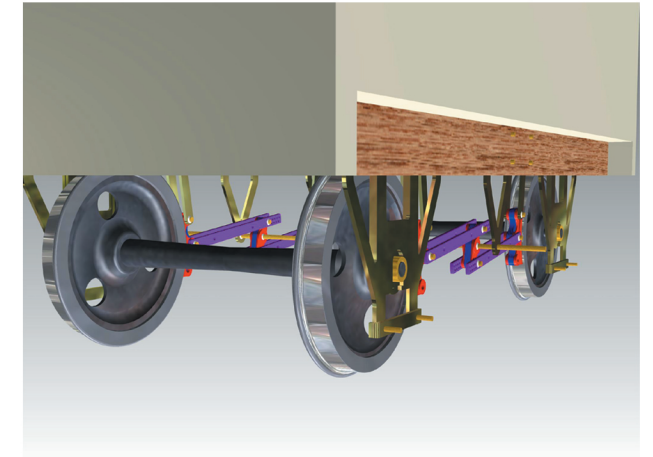
STAGE 57

Fixing 8: for Morton brakes, If brakes are fitted to all four wheels. Solder V hanger wire to the inside of V hangers and both sides of the cams (as shown).



STAGE 58

Fixing 9: for Morton brakes, brakes fitted to all four wheels. Cut wires between all brake blocks and cams. Finish ends of wires (as shown). **DO NOT cut the V hanger wire.**



STAGE 59

Fixing 10: for Morton brakes (brake both sides). View showing model at this stage. Fitting of brake lever and brake lever guards comes later.

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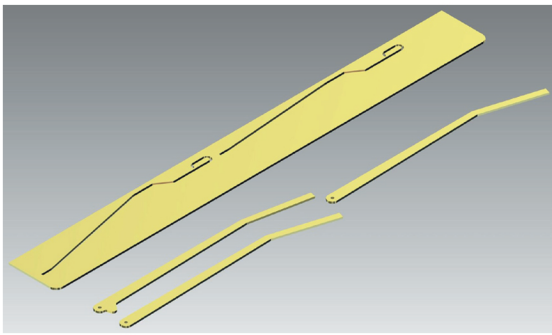
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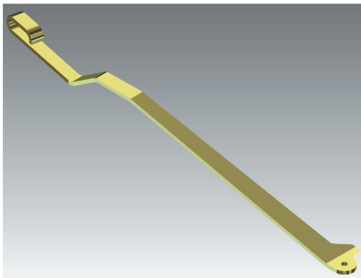
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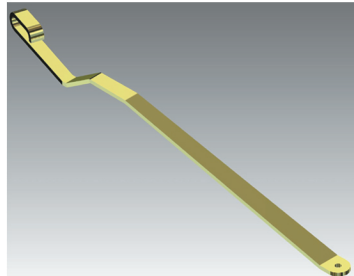


STAGE 60

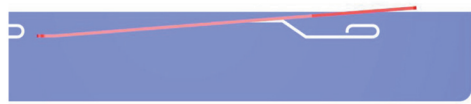
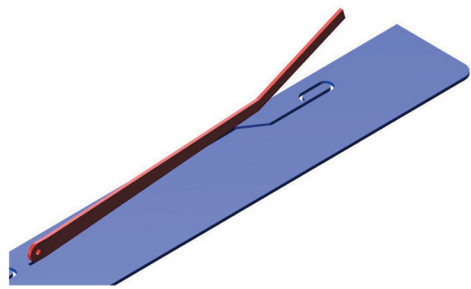
View showing the brake lever template and three types of brake lever. The two levers on the left are for Morton brakes, the one on the right is for independent brakes. The template has Morton shape on the left and standard on the right.



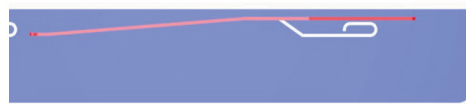
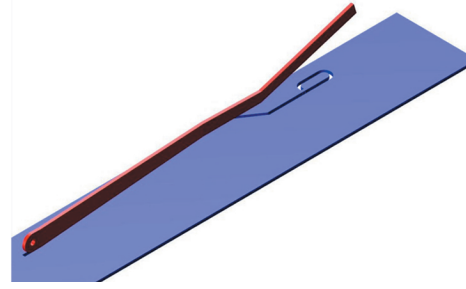
STAGE 67
Completed Morton cam
brake lever.
One per wagon.



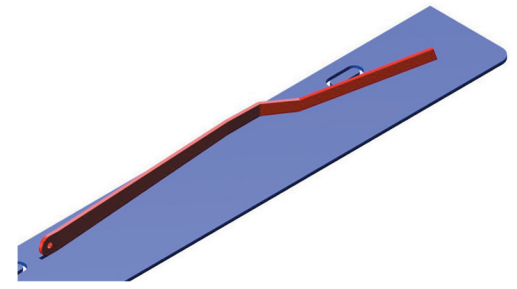
STAGE 68
Completed Morton
brake lever, non-cam side.
One per wagon.



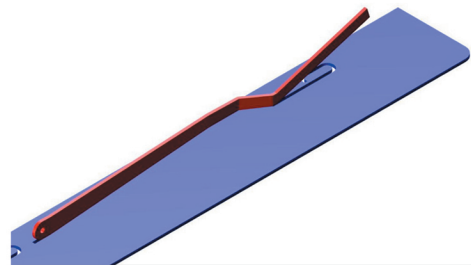
STAGE 61
First bend of standard lever.



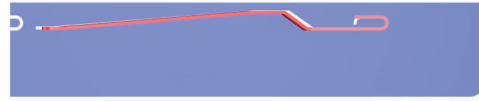
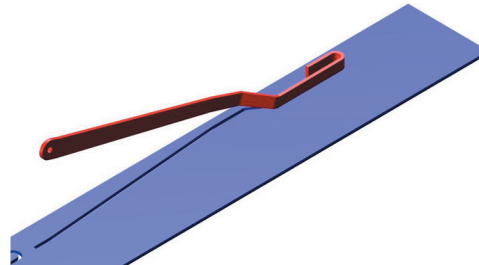
STAGE 62
Second bend of standard lever.



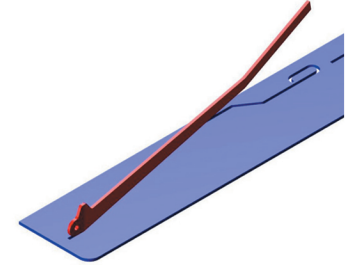
STAGE 63
Third bend of standard lever.



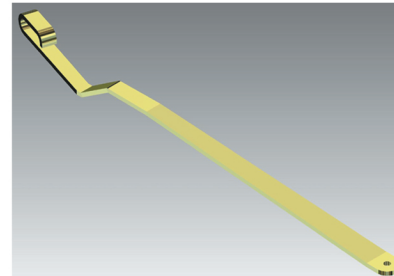
STAGE 64
Fourth bend of standard lever.



STAGE 65
Fifth bend of standard lever. Finish by
bending end in towards face of lever.



STAGE 66
First bend of Morton lever. Note
cam positioned upwards, complete
as for standard lever.



STAGE 69
Completed independent brake lever.
One per wagon brake one side only.
Two per wagon, brakes both sides.

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Material

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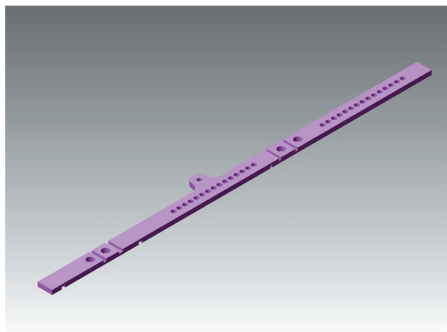
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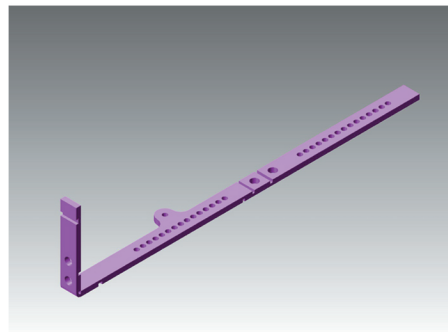
Instruction number

INS 1001/11

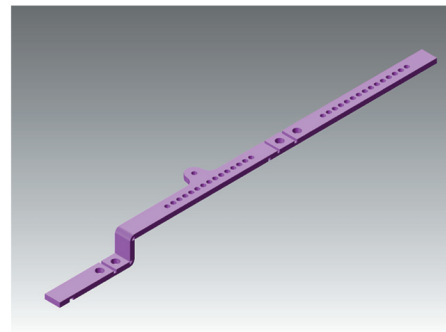
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STAGE 64
Etch as supplied for post-1923
brake lever guard.



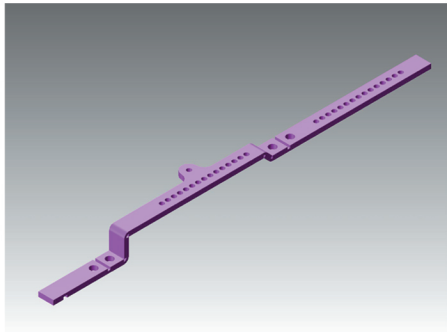
STAGE 65
Bend 1, 90 degrees.



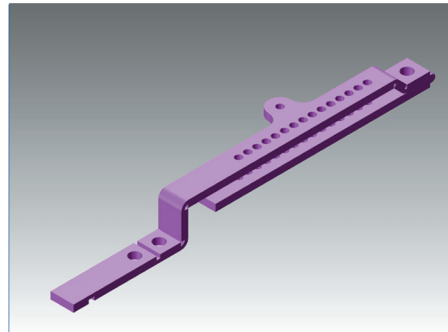
STAGE 66
Bend 2, 90 degrees.



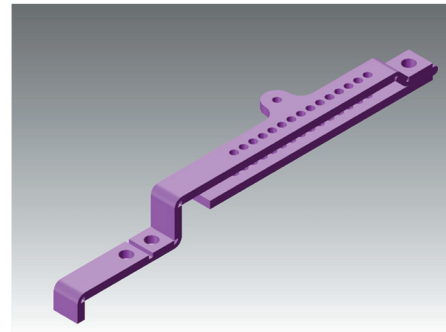
STAGE 67
Bends 3, 45 degrees.



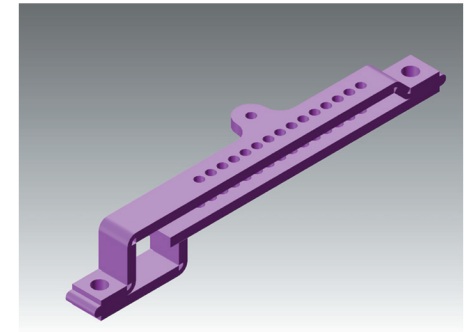
STAGE 68
Bend 4, 45 degrees.
Apply solder paste between joint faces.



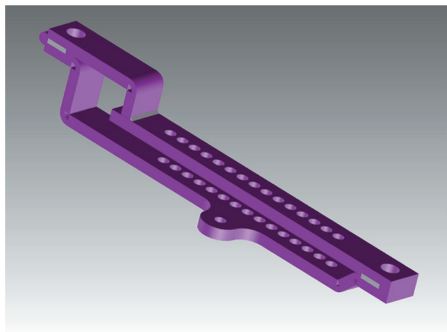
STAGE 69
Bend 5, 180 degrees. NOTE the half etch
is on the outside for this fold.
Apply solder paste between joint faces.



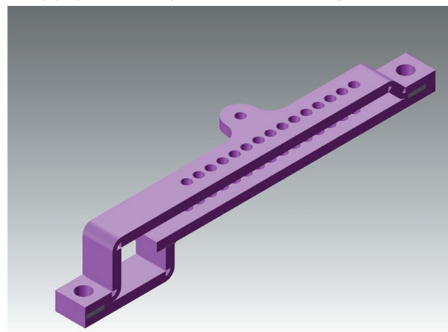
STAGE 70
Bend 6, 90 degrees.



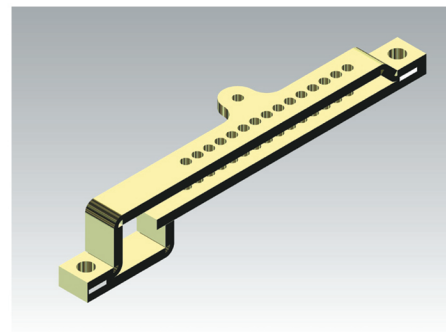
STAGE 71
Bend 7, 180 degrees. NOTE the half etch
is on the outside for this fold.
Apply solder paste between joint faces.



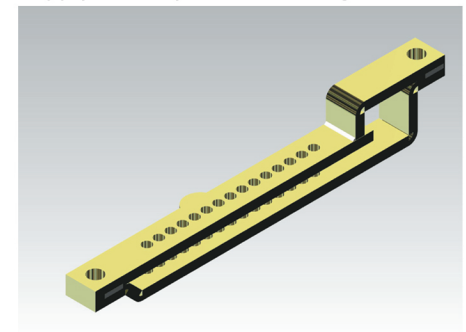
STAGE 72
Solder joints as shown. Clear any solder
from holes.



STAGE 73
Remove etch residue from 180 degree bends.



STAGE 74
View of completed brake lever guard.



STAGE 75
View of completed brake lever guard.

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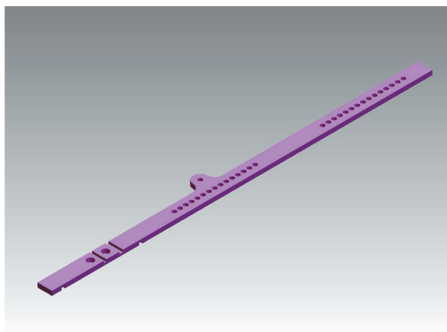
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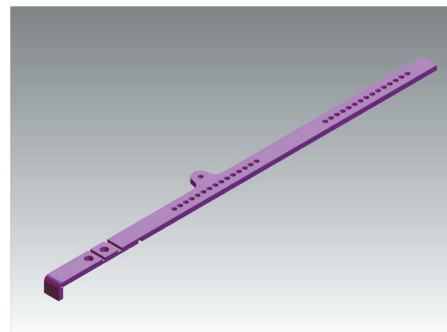
Instruction number

INS 1001/12

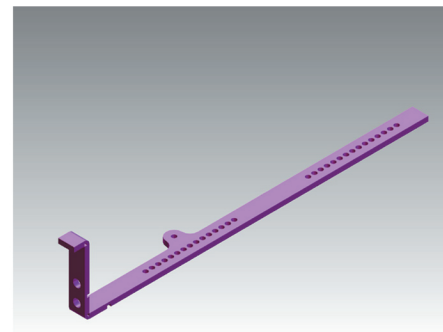
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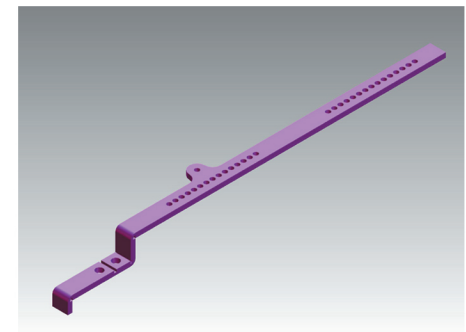
STAGE 76
Etch as supplied for pre-1923
brake lever guard.



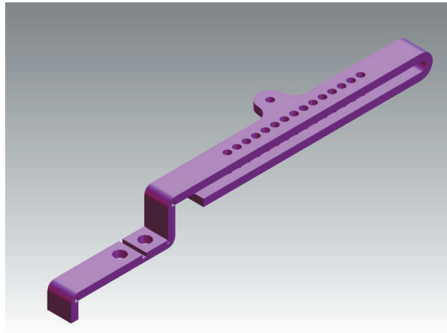
STAGE 77
Bend 1, 90 degrees.



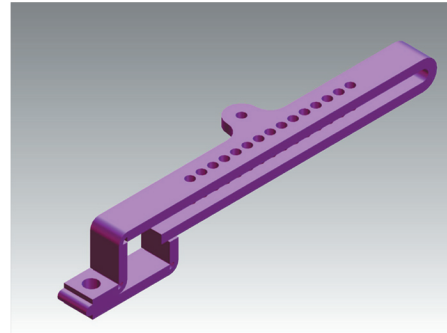
STAGE 78
Bend 2, 90 degrees.



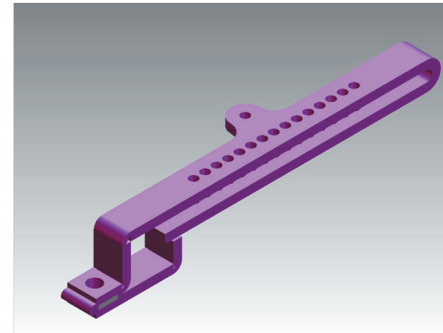
STAGE 79
Bends 3, 90 degrees.



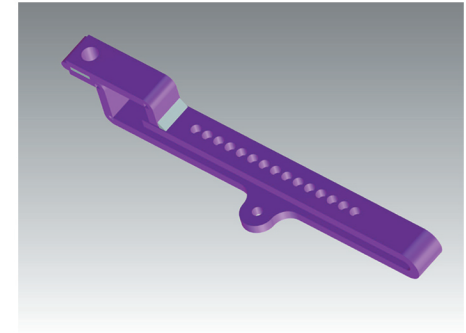
STAGE 80
Bend 4, 180 degrees.
4mm scale fold around 0.4mm dia drill.
7mm scale fold around 0.7mm dia drill.



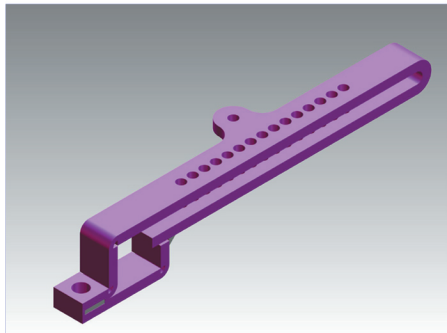
STAGE 81
Bend 5, 180 degrees. NOTE the half etch
is on the outside for this fold.
Apply solder paste between joint faces.



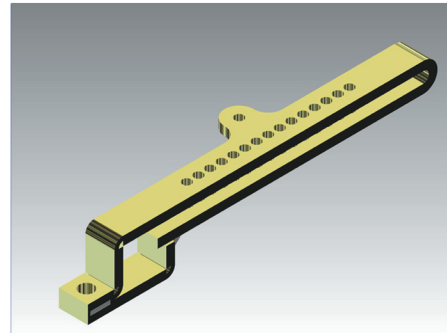
STAGE 82
Solder joint as shown. Clear any solder
from holes.



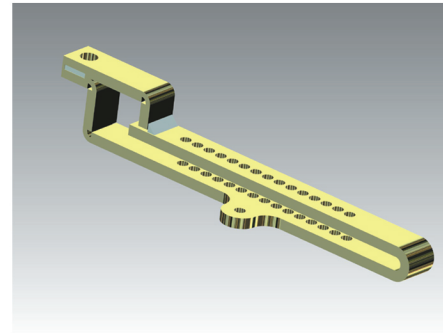
STAGE 83
Solder joint as shown.



STAGE 84
Remove etch residue from 180 degree bend.



STAGE 85
View of completed brake lever guard.



STAGE 86
View of completed brake lever guard.

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Part Name

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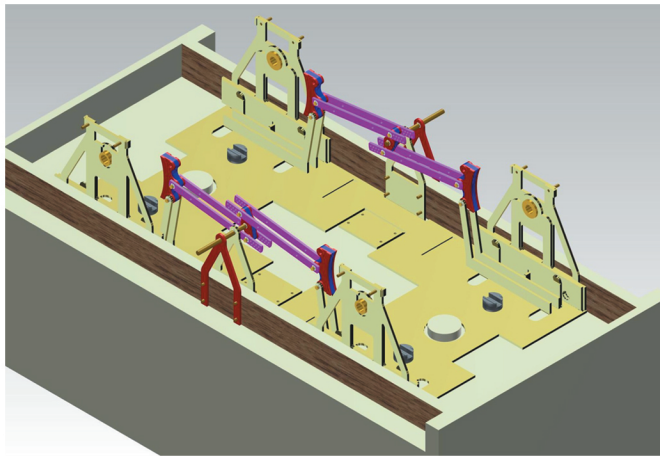
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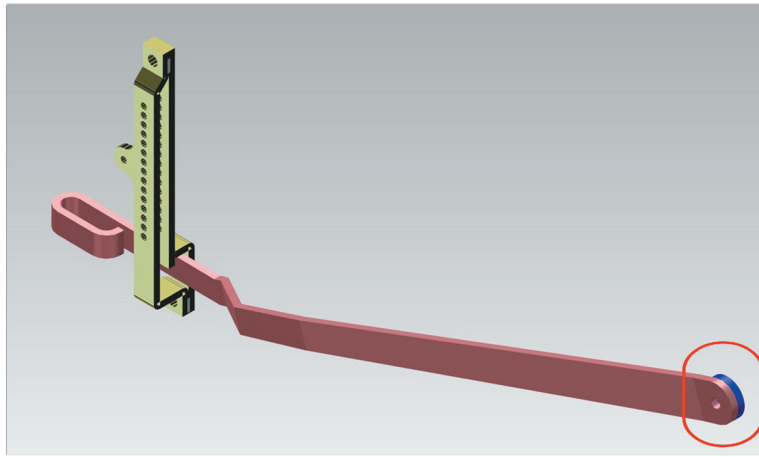
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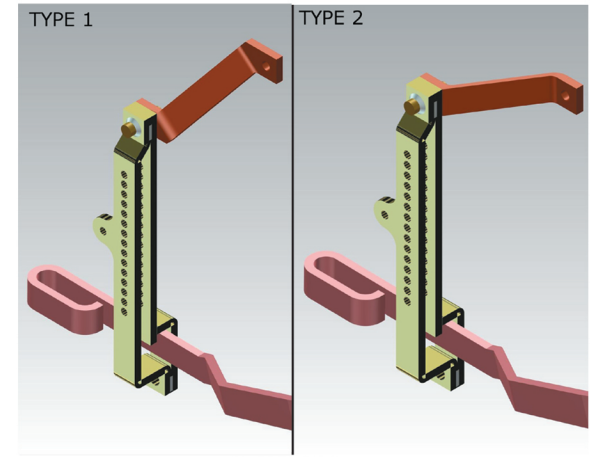
STAGE 87

FIXING 1: Fitting brake levers for independent brakes.
Assembly as Stage 46.



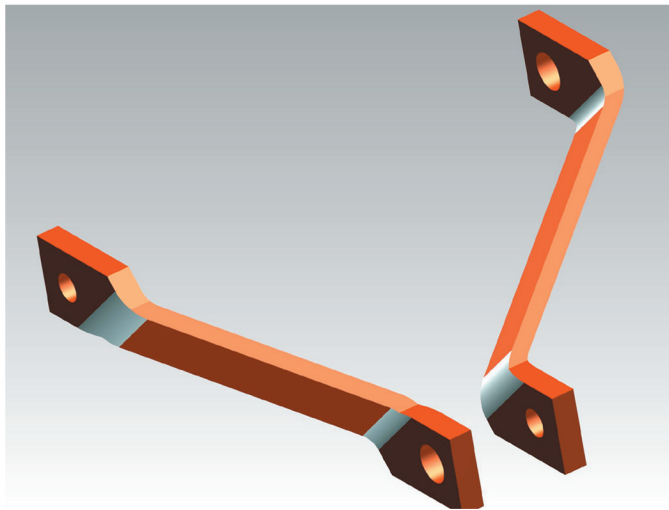
STAGE 88

FIXING 2: Fitting brake levers for independent brakes.
Slide an independent brake lever through a brake lever guard (as shown). Tin one side of a spacer and solder to lever, clean out hole.



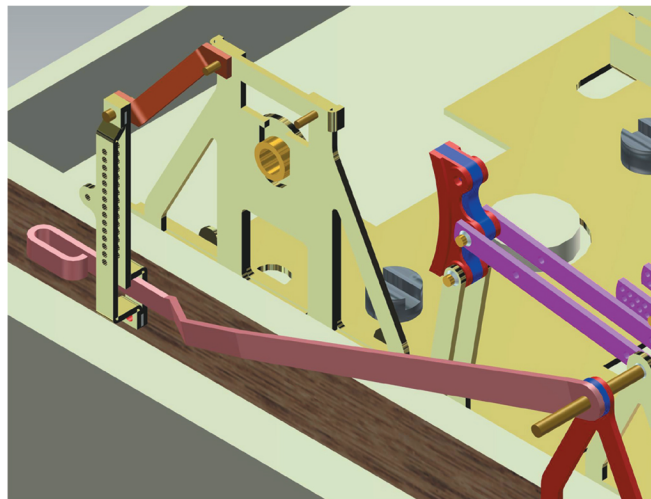
STAGE 89

FIXING 3: Fitting brake levers for independent brakes.
There are two types of brake lever guard bottom bracket supplied (shown above). See stage 97 for type 2.



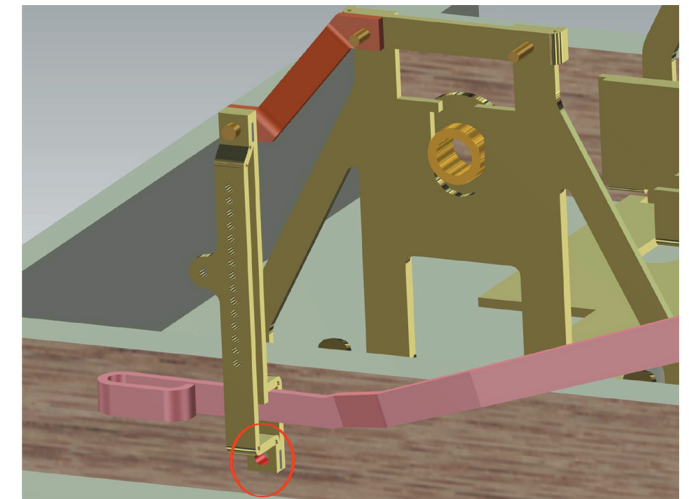
STAGE 90

FIXING 4: Fitting brake levers for independent brakes.
For type 1 the angled straps require bending around 45 degrees at the positions shown in white.
Depending on the kit or model in use this may vary.
Adjust if necessary to achieve the view shown in STAGE 91.



STAGE 91

FIXING 5: Fitting brake levers for independent brakes.
Locating the strap onto pin in axle guard (left long, see INS 1000/3 stage 13), position a short wire between the brake lever guard and strap.



STAGE 92

FIXING 6: Fitting brake levers for independent brakes.
Position lever and guard as shown above, drill into the solebar through the guard in position shown in red, making a press fit for brass wire.

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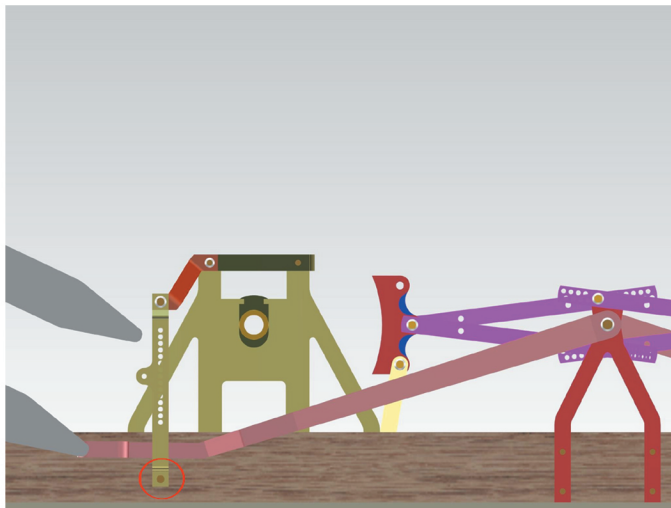
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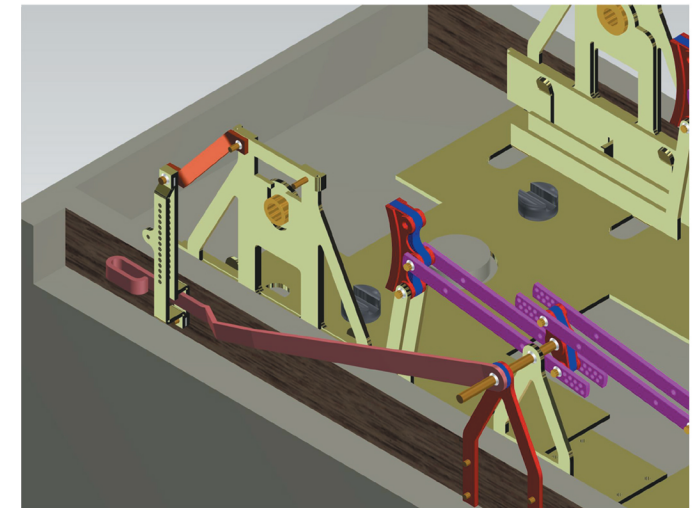
STAGE 93

FIXING 7: Fitting brake levers for independent brakes. Position lever and guard as shown above, press fit pin in position indicated (in red), then clamp brake lever to brake lever guard.



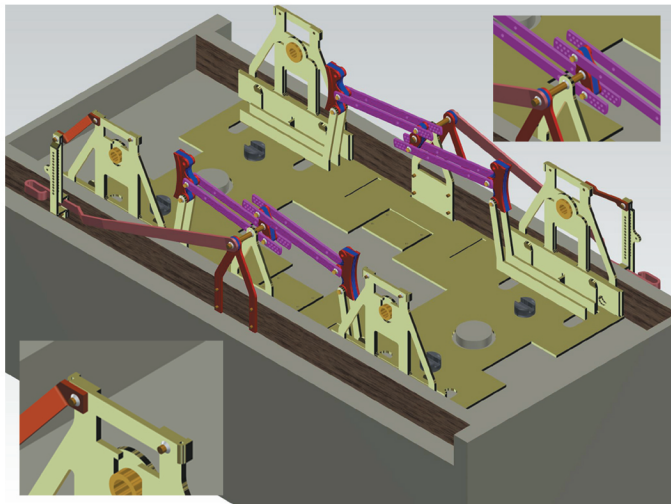
STAGE 94

FIXING 8: Fitting brake levers for independent brakes. Solder brake lever guard to strap, then the strap to the axleguard.



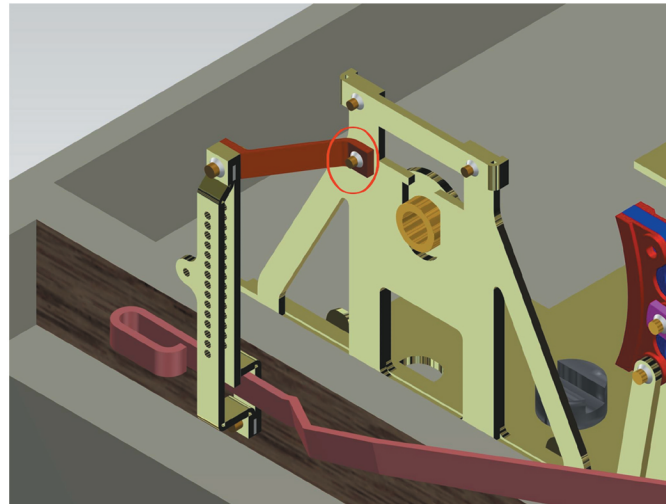
STAGE 95

FIXING 9: Fitting brake levers for independent brakes. Remove clamp and solder brake lever to V hanger wire and carefully solder the brake lever to the brake lever guard. Repeat stages 87 to 95 if fitting brakes both sides.



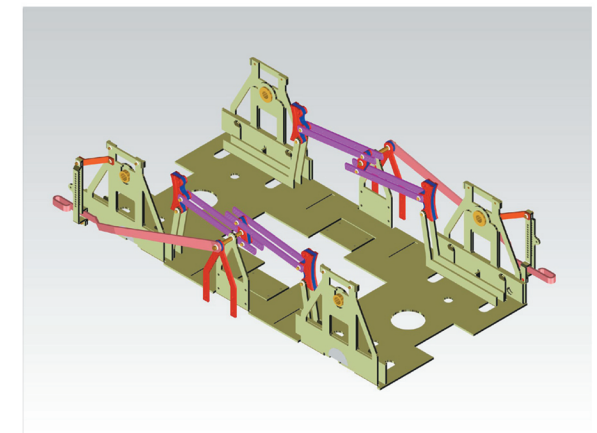
STAGE 96

FIXING 10: Fitting brake levers for independent brakes. Finally shorten V hanger and axle guard strap pins.



STAGE 97

FIXING 11: Fitting brake levers for independent brakes. When fitting a type 2 brake lever guard bottom strap, a hole will have to be drilled in the axleguard (as shown).



STAGE 98

FIXING 11: Fitting brake levers for independent brakes. By fitting the brake levers and guards as described, the complete chassis can be removed by withdrawing the pins from V hangers, brake lever guards and 4 screws. If brakes are fitted one side only, carefully remove V hanger shown in INS 1000/2 stage 4.

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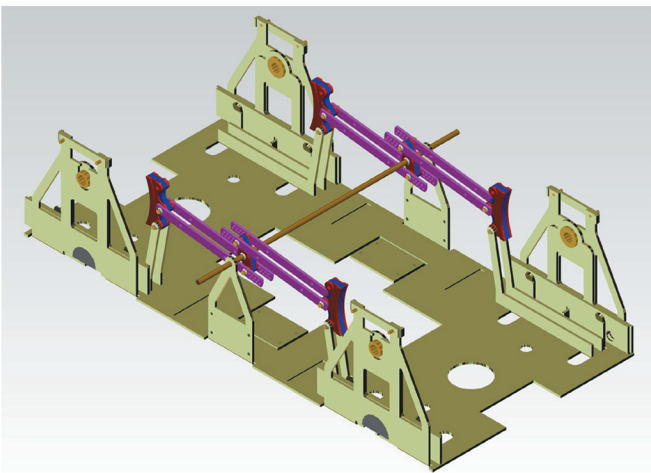
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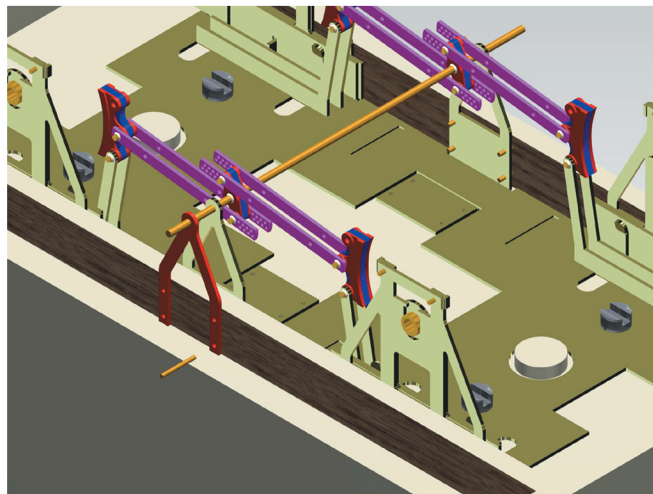
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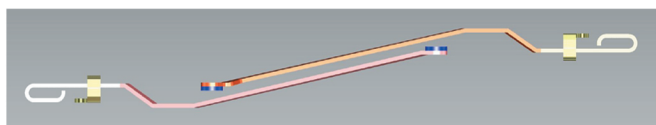
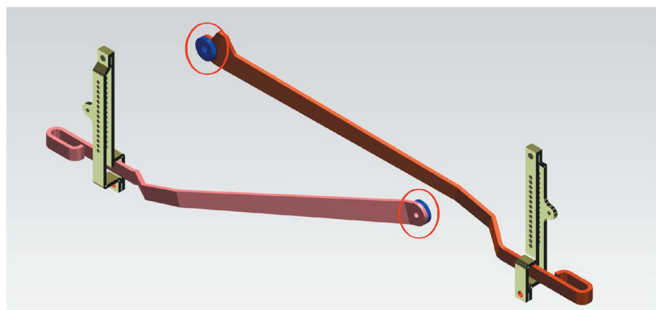
STAGE 99
FIXING 1: Fitting brake levers for MORTON brakes.
 Assembly as Stage 59.



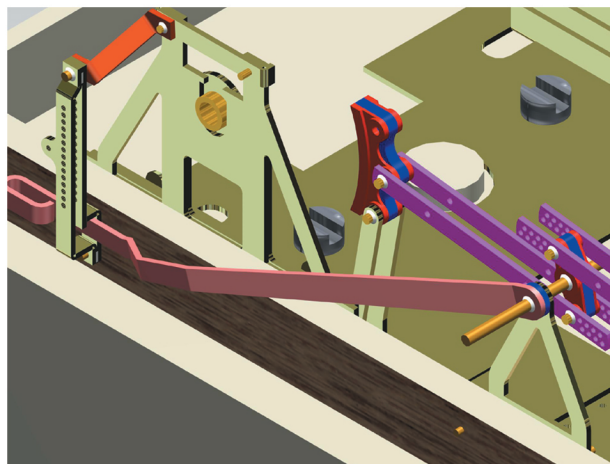
STAGE 100
FIXING 2: Fitting brake levers for MORTON brakes.
 Fit chassis into body. Align an unused V hanger (as shown) and drill 4 holes through the solebar to suit press fit wires.



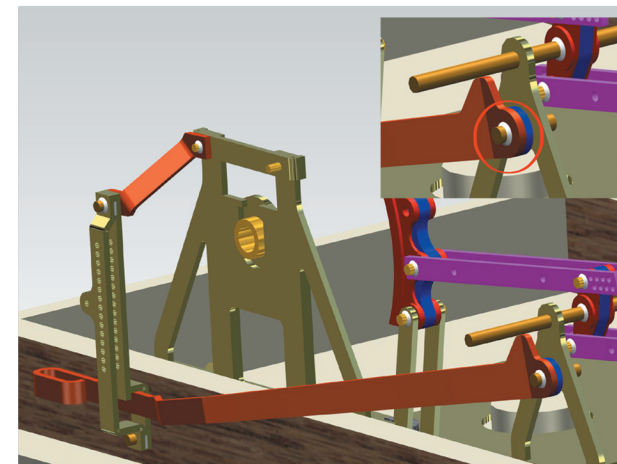
STAGE 101
FIXING 3: Fitting brake levers for MORTON brakes.
 Discard red V hangers, fit wires and repeat other side.



STAGE 102
FIXING 4: Fitting brake levers for MORTON brakes.
 Slide MORTON brake lever (without cam) through a brake lever guard (as shown upper left). Tin one side of a spacer and solder to lever, clean out hole. Repeat on MORTON brake lever with cam (as top right). Clean out holes.



STAGE 103
FIXING 5: Fitting brake levers for MORTON brakes.
 Fit MORTON brake lever (without cam), brake lever guard and strap as stages 89 to 95.



STAGE 104
FIXING 6: Fitting brake levers for MORTON brakes.
 Fit MORTON brake lever (with cam), brake lever guard and strap as stages 89 to 95. NOTE: for the fixing position on the V hanger (as shown), a short wire is required.

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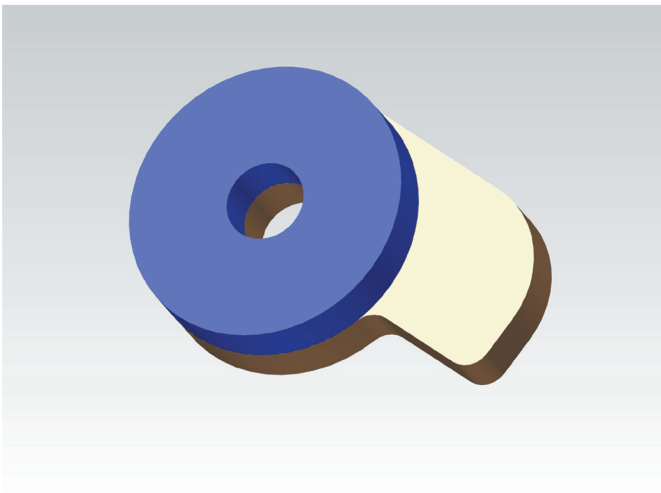
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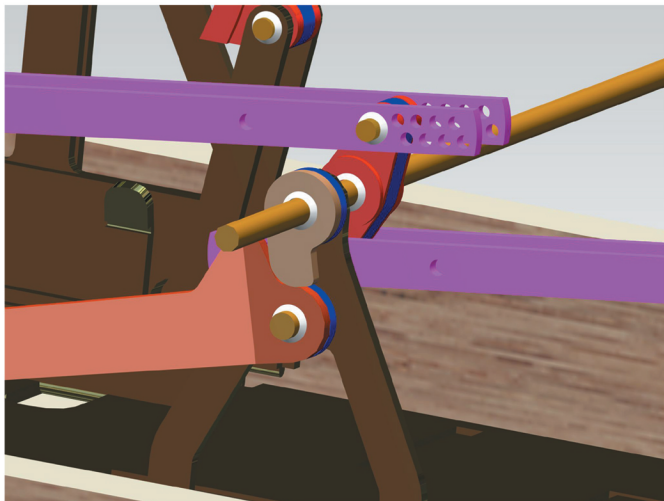
INS 1001/16

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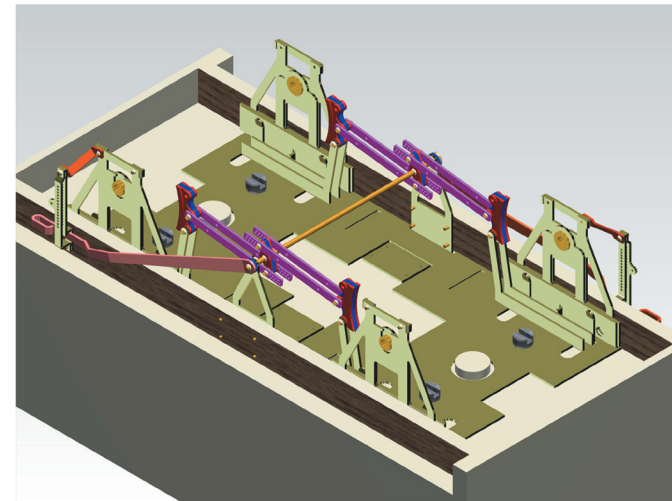
VAT Reg. No. GB 848 6751 76



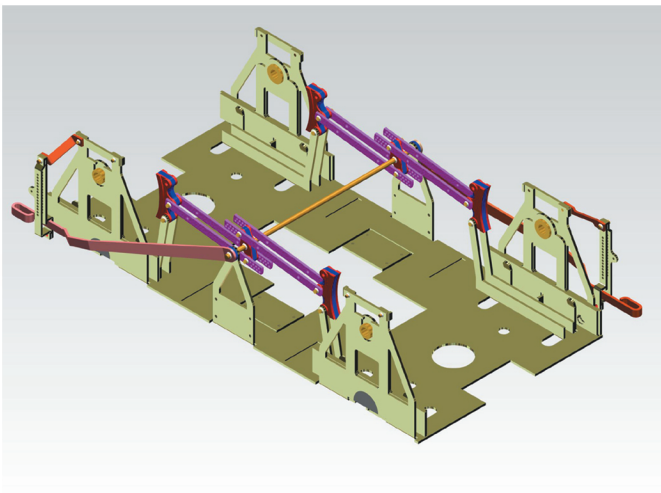
STAGE 105
FIXING 7: Fitting brake levers for MORTON brakes.
 Tin face on spacer and solder to cam (as shown).
 Clean out hole.



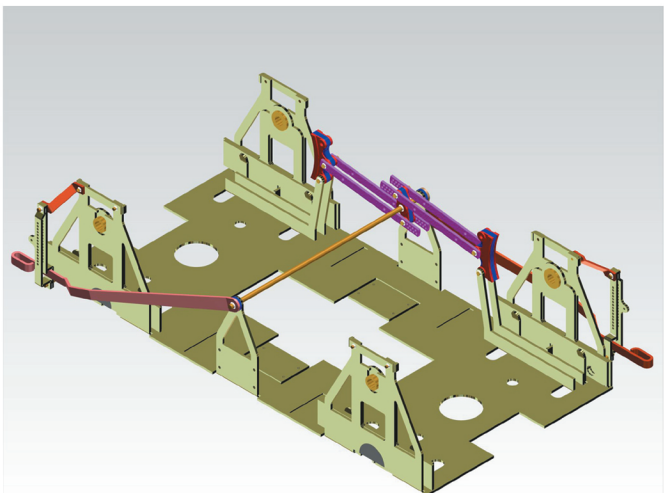
STAGE 106
FIXING 8: Fitting brake levers for MORTON brakes.
 Place cam and spacer (as shown) and solder into position.



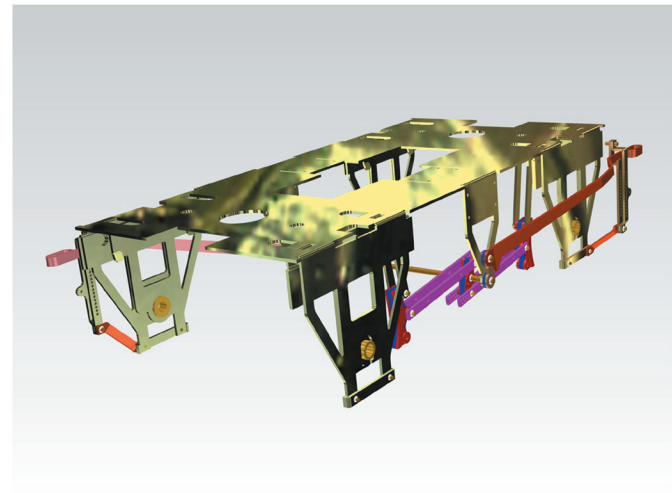
STAGE 107
FIXING 9: Fitting brake levers for MORTON brakes.
 Shorten outer ends of centre rod and axleguard
 strap pins that were previously left long.



STAGE 108
FIXING 10: Fitting brake levers for MORTON brakes.
 By fitting the brake levers and guards as described, the
 complete chassis can be removed by withdrawing the pins
 from V hangers and brake lever guards, and the 4 screws.



STAGE 109
FIXING 11: Fitting brake levers for MORTON brakes.
 View showing MORTON brakes one side only.



STAGE 110
FIXING 12: Fitting brake levers for MORTON brakes.
 Another view of MORTON brakes one side only.

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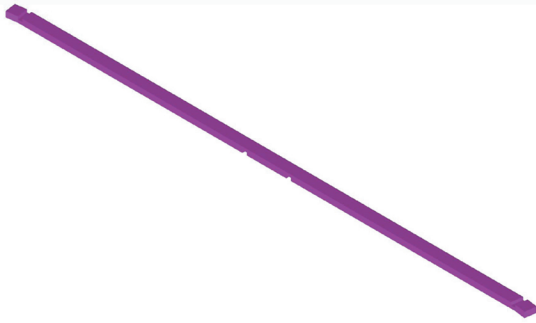
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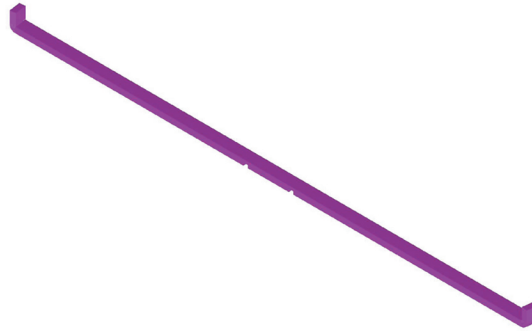
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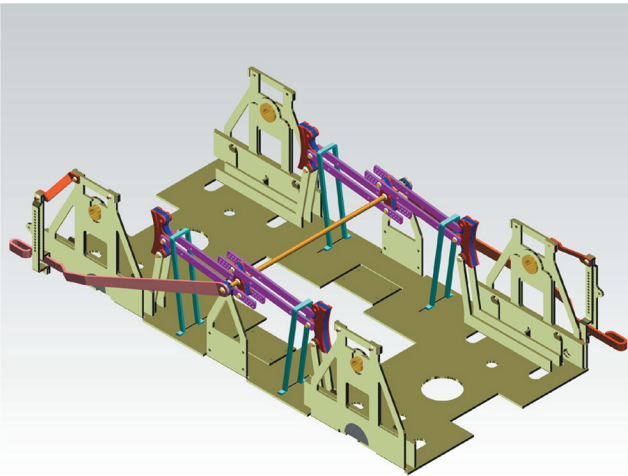
STAGE 111
Push rod safety loop as supplied.



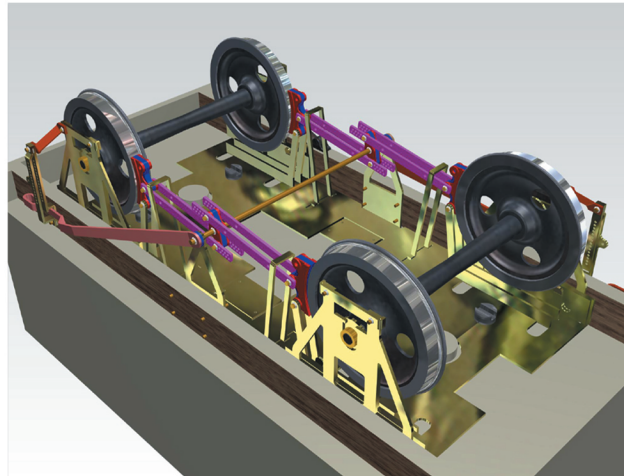
STAGE 112
Two bends 90 degrees (as shown).



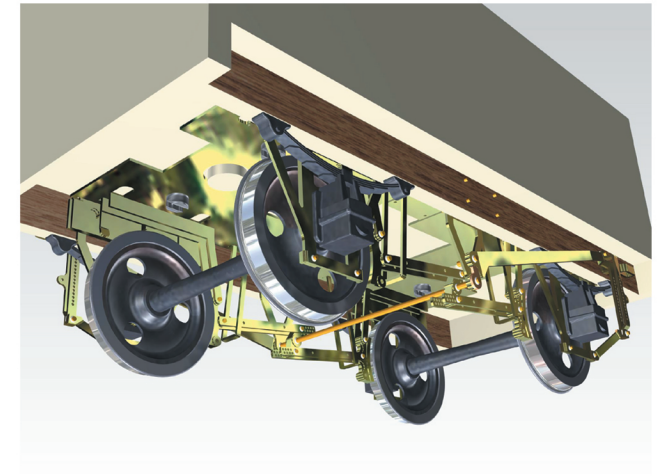
STAGE 113
Two bends 90 degrees (as shown).



STAGE 114
Push rod safety loops located in slots in floor pan, solder into positions shown. If brakes are one side only omit two of the loops.



STAGE 115
Refit wheels and assemble into body using screws and V hanger and brake lever guard pins.



STAGE 116
View showing springs and axle boxes fitted (these are NOT supplied).

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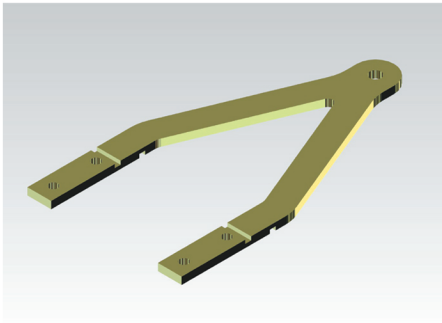
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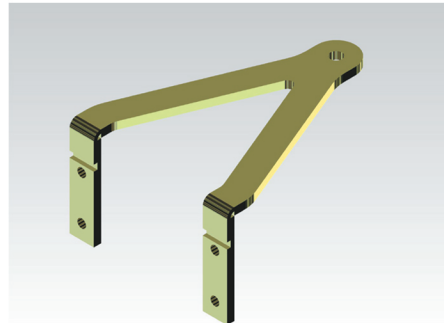
Instruction number

INS 1001/18

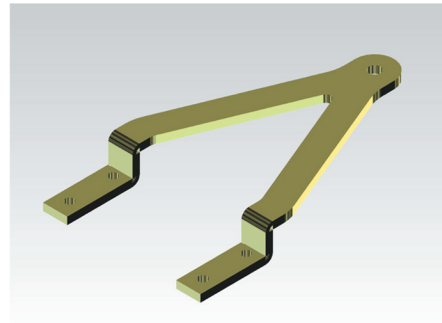
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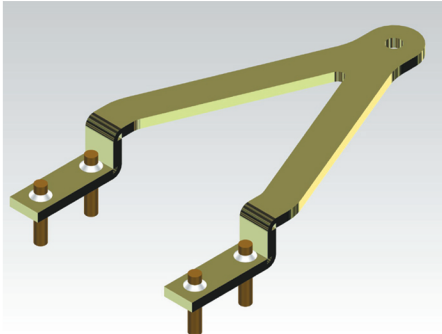
STAGE 117
V hanger for channel solebar as supplied.
Independent brakes only.



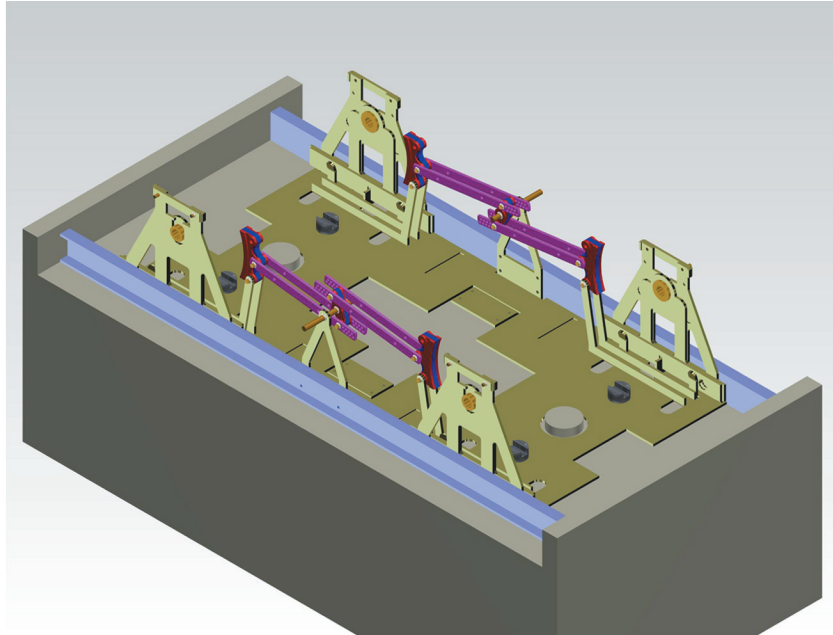
STAGE 118
Fold 2 legs 90 degrees.
Independent brakes only.



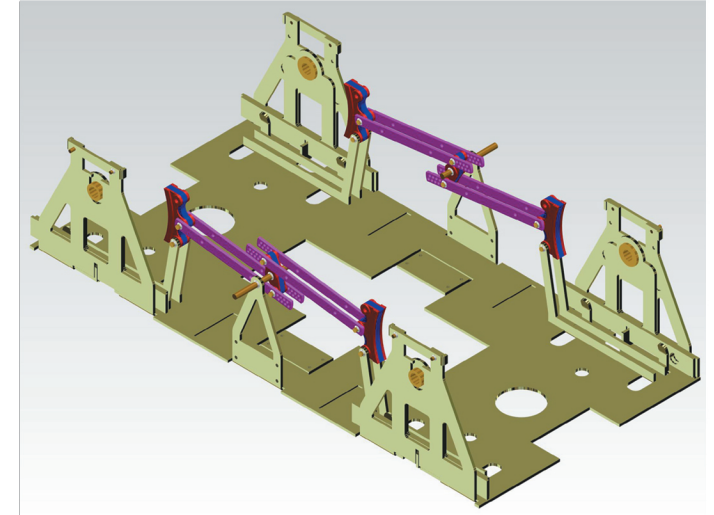
STAGE 119
Second fold of legs 90 degrees.
Independent brakes only.



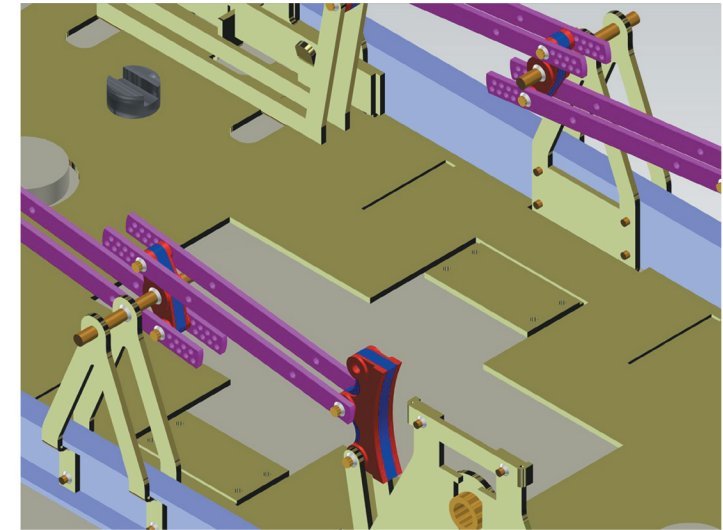
STAGE 121
Solder 4 V hanger pins into
V hanger(as shown).
Independent brakes only.



STAGE 122
Refit chassis into body using 1mm screws.
Independent brakes only.



STAGE 120
Steel channel solebar assembly. Assembly of chassis
using stages 3 to 47 but using V hangers as per stage 119.
Independent brakes only.



STAGE 123
Press fit V hangers and pins into solebar and inner V hanger.
Don't solder V hangers to centre cam shaft.
Independent brakes only.

NOTES

This and the following 1001/20 to 1001/23 sheets are designed to enable the brake levers, brake lever guards and, if applicable, the V hangers to be assembled separately into steel channel solebars. This enables the chassis to be removed from the body for adjustment and/or maintenance.

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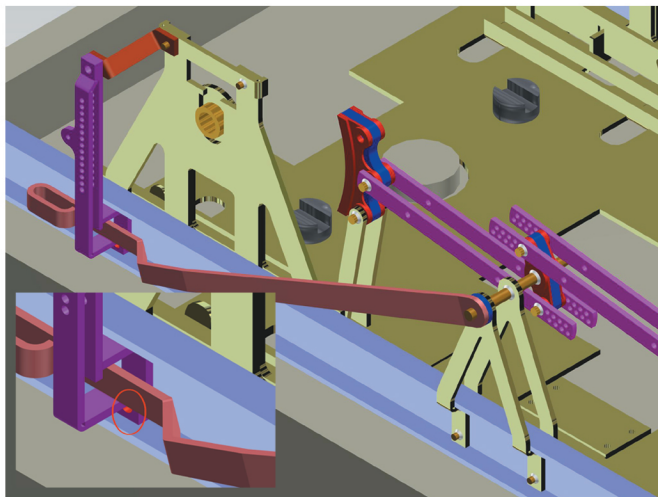
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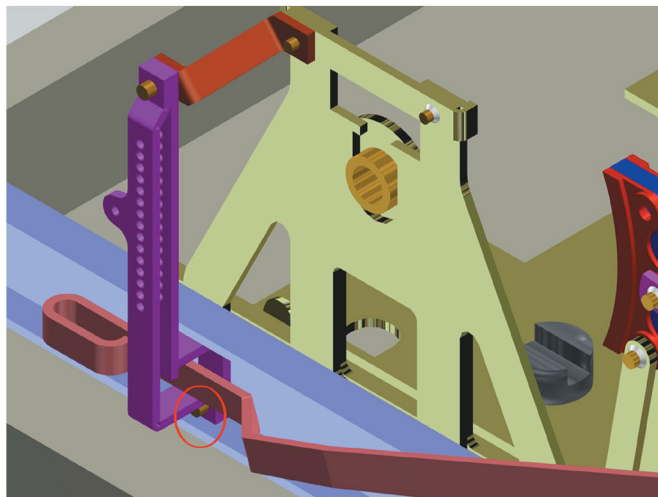
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INS 1001/19

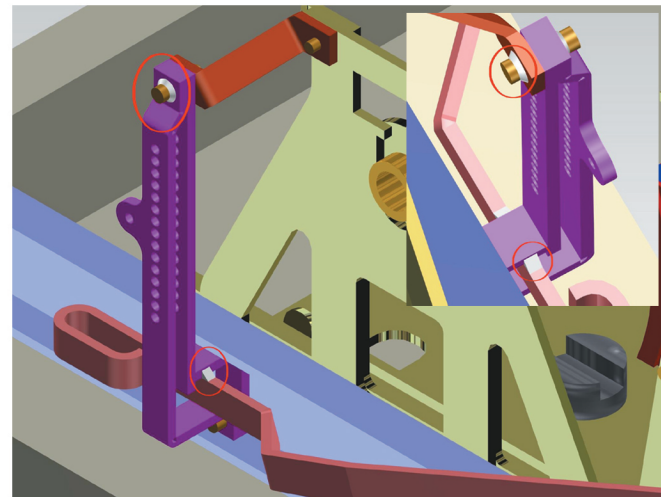
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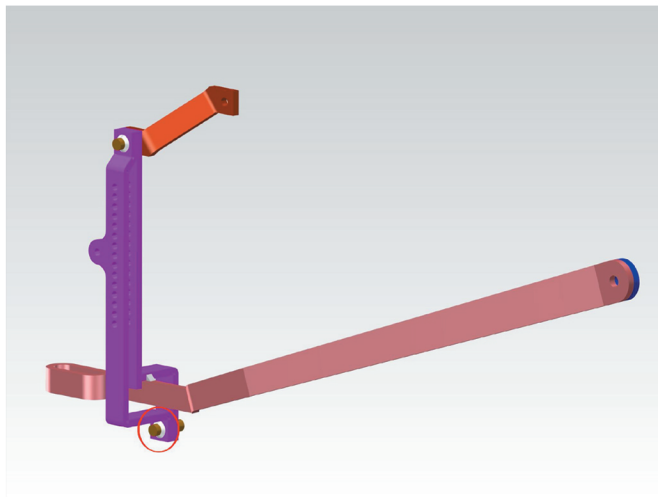
STAGE 124
Independent brakes only.
Assemble independent brake lever, brake lever guard, axle guard strap and spacer as per stages 88, 91, 92, and 93.



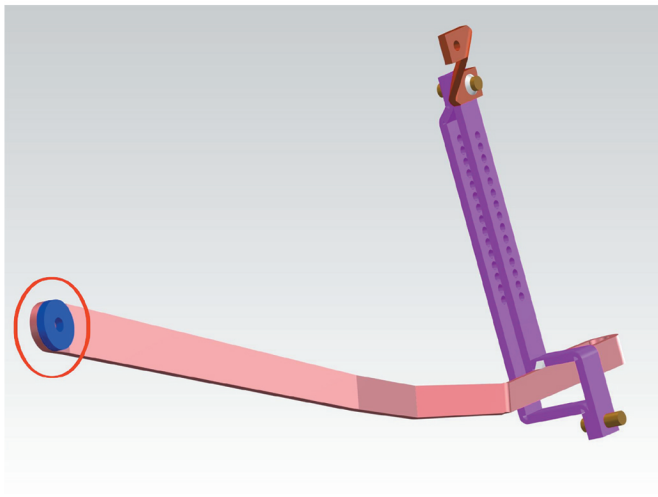
STAGE 125
Independent brakes only.
Press fit pin in position (as shown), align brake lever guard strap and clamp in position, see stage 93.



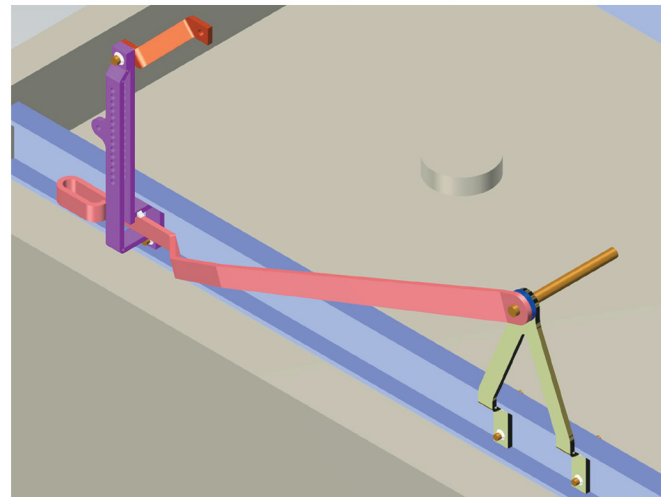
STAGE 126
Independent brakes only.
With brakelever guard pin fitted, solder strap to guard and brake lever to guard, solder both sides (as shown).
Don't solder strap to axle guard.



STAGE 127
Independent brakes only.
Remove brake lever guard and lever from body. Solder pin into guard (as shown). Remove any solder where rear face of guard mates to solebar.



STAGE 128
Independent brakes only.
Tin face of spacer and clean out hole, this is to be soldered to the outside face of outer V hanger.



STAGE 129
Independent brakes only.
Remove outer V hangers and chassis from body. Reassemble outer V hanger and lever assembly into body, smear oil onto a pin to align, solder lever spacer to V hanger. Remove pin.

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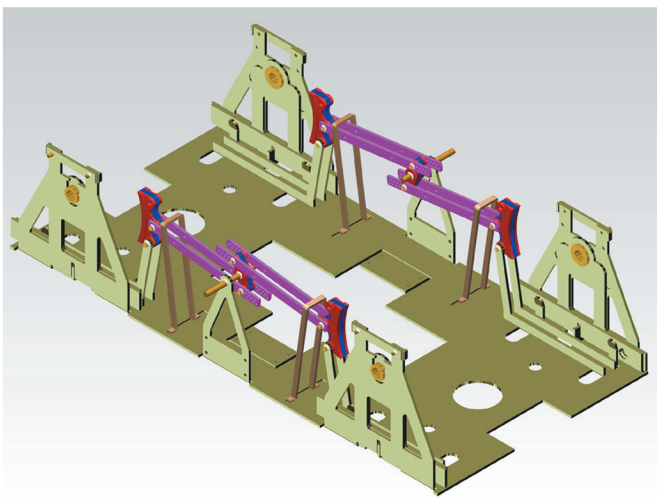
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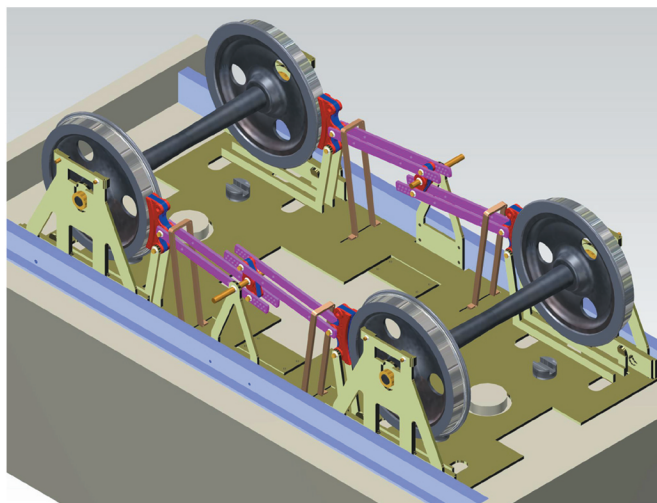
INS 1001/20

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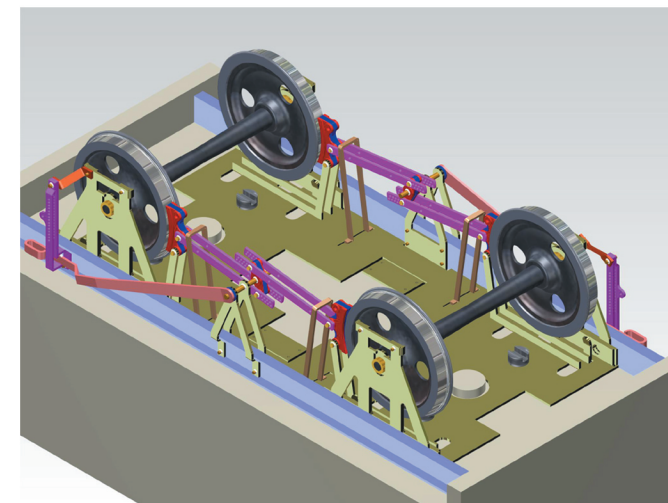
STAGE 130
Independent brakes only.

Fold and solder push rod safety loops, see stages 111 to 114.



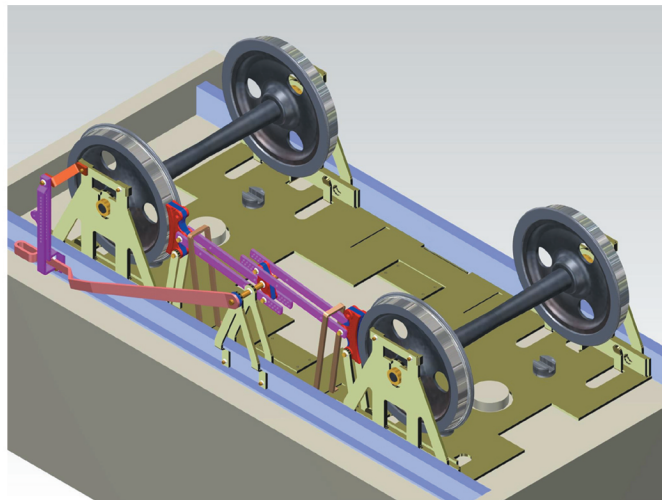
STAGE 131
Independent brakes only.

Remove any lever assemblies from body, fit wheels into chassis, fit chassis into body using small screws.



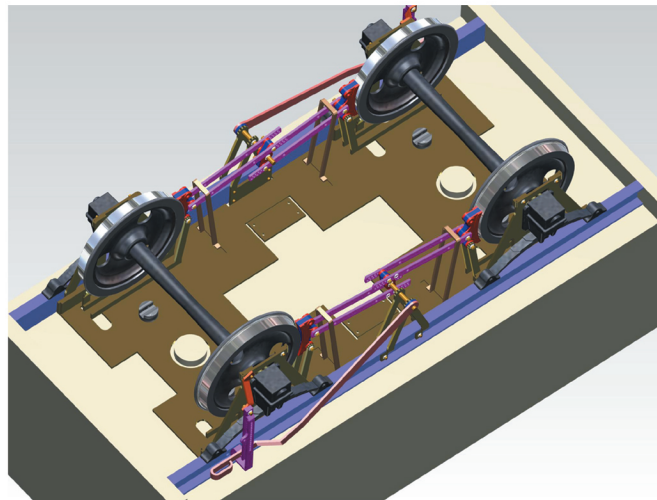
STAGE 132
Independent brakes only.

Press fit lever assemblies into holes in the solebar and locate on pin in axleguard.



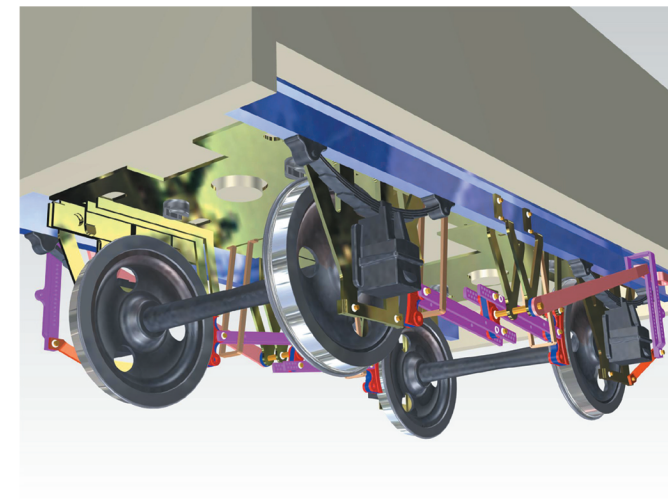
STAGE 133
Independent brakes only.

View independent brakes one side only.



STAGE 134
Independent brakes only.

Completed chassis, suspension and brakes. Independent brakes both sides. (axleboxes and springs not supplied)



STAGE 135
Independent brakes only.
Additional view of stage 134.
(axleboxes and springs not supplied)

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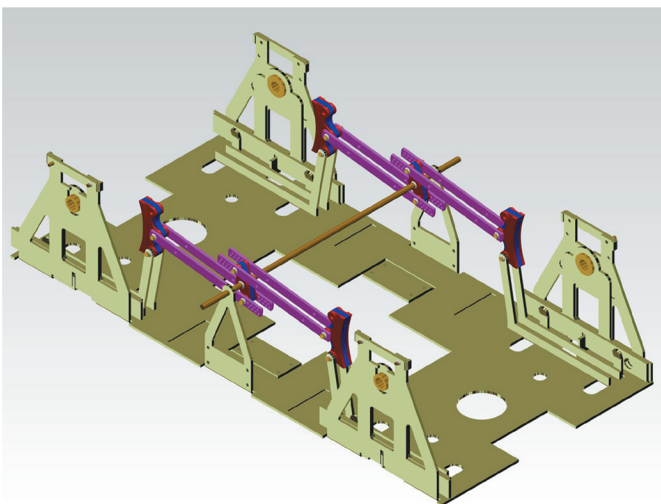
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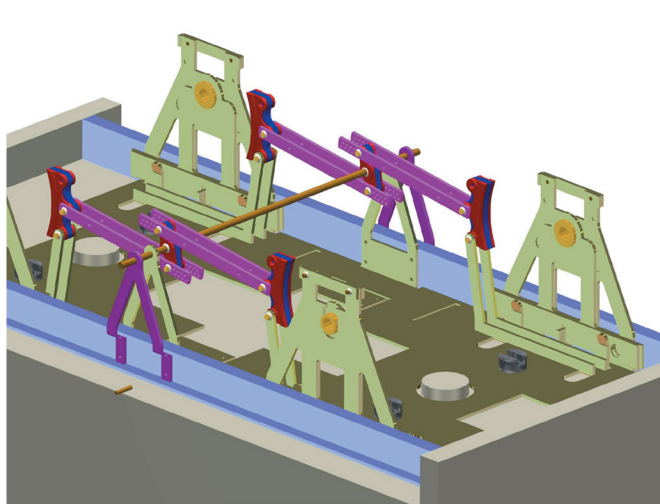
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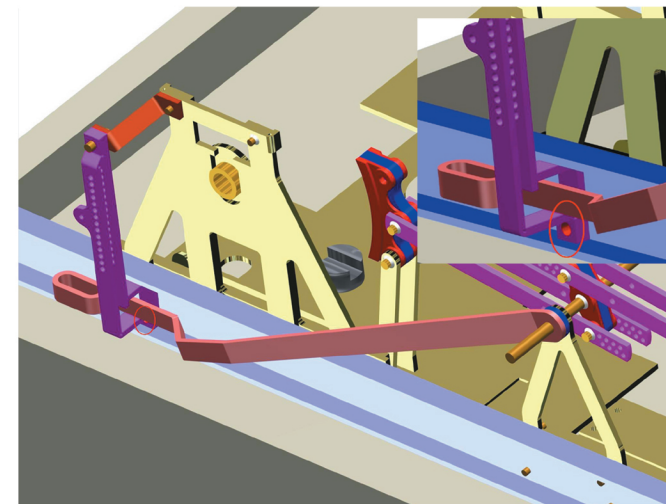
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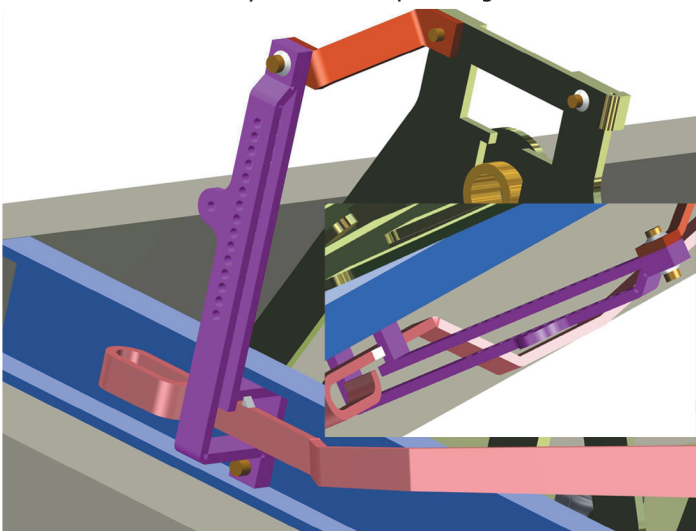
STAGE 136
MORTON brakes, with channel solebar.
Assembly of chassis up to stage 99.



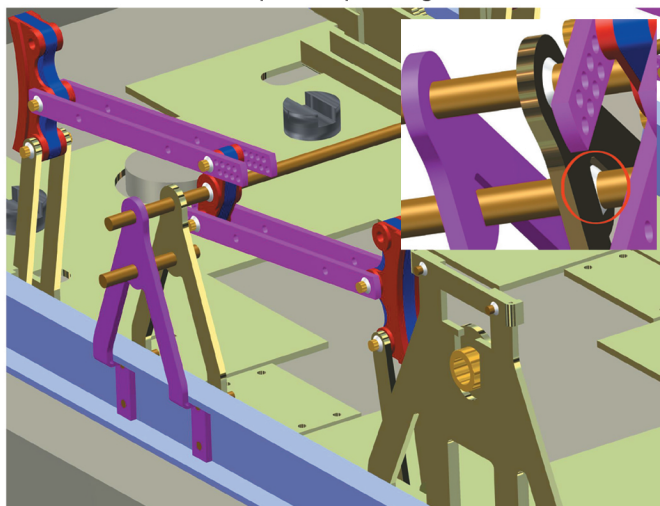
STAGE 137
MORTON brakes, with channel solebar.
Use a V hanger as a guide (see stages 117 to 119).
Fit pins as per stage 100.



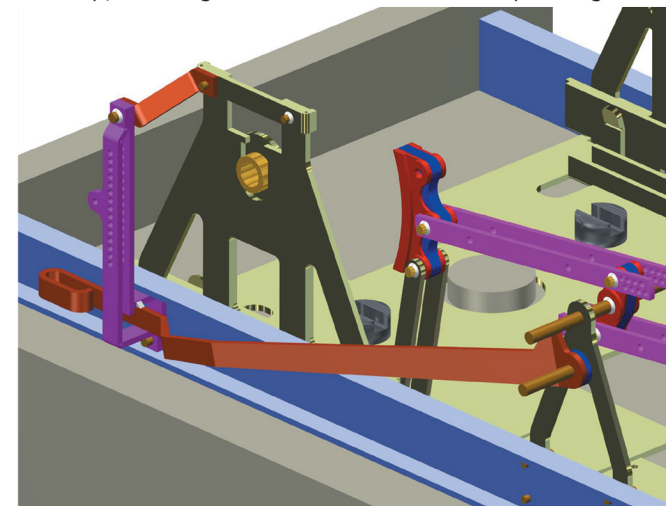
STAGE 138
MORTON brakes, with channel solebar.
Place Morton lever assembly (without cam), lever guard and strap, see stage 102. Drill into solebar as per stage 104.



STAGE 139
MORTON brakes, with channel solebar.
Press fit pin and align strap, guard and lever, clamp lever guard to solebar and strap to axleguard. Solder strap to lever guard both sides and lever to lever guard both sides.
Don't solder strap to axleguard or lever to V hanger.



STAGE 140
MORTON brakes, with channel solebar.
Using a spare Morton V hanger locate and align a short wire. Solder wire to V hanger on the inside (as shown). Discard spare V hanger, clean off any solder from outside face off V hanger to allow spacer to sit flush.



STAGE 140
MORTON brakes, with channel solebar.
Use the lever assembly for Morton lever (with cam), see stage 102. Align (as above) repeat stage 104, 138 and 139.
Don't solder strap to axleguard or lever to V hanger.

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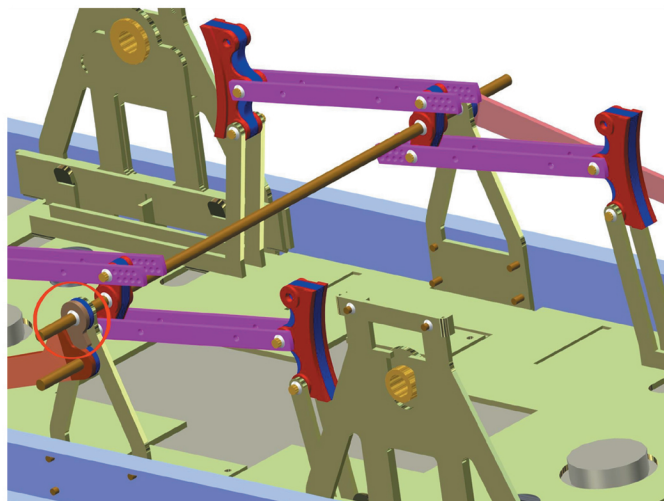
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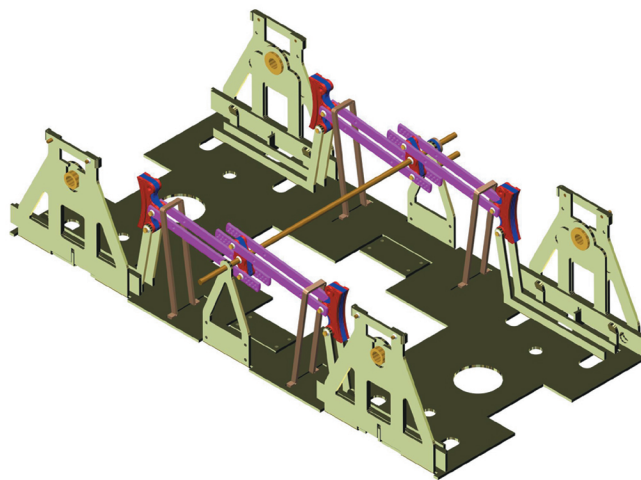


STAGE 141

MORTON brakes, with channel solebar.

Position spacer and cam (as shown) and solder.

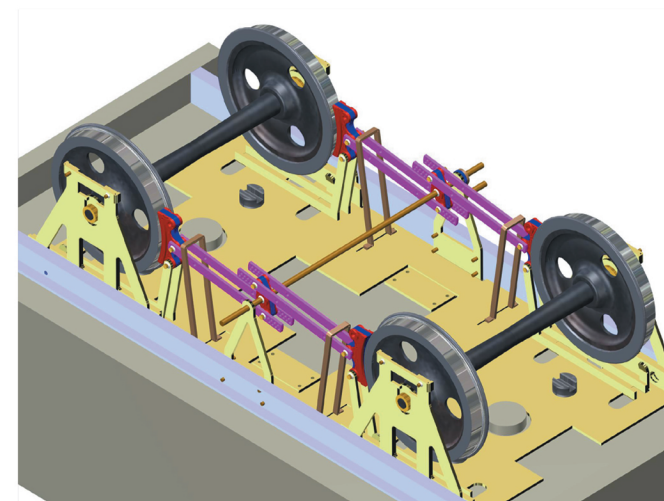
Take care not to solder lever assembly to cam or V hanger.



STAGE 142

MORTON brakes, with channel solebar.

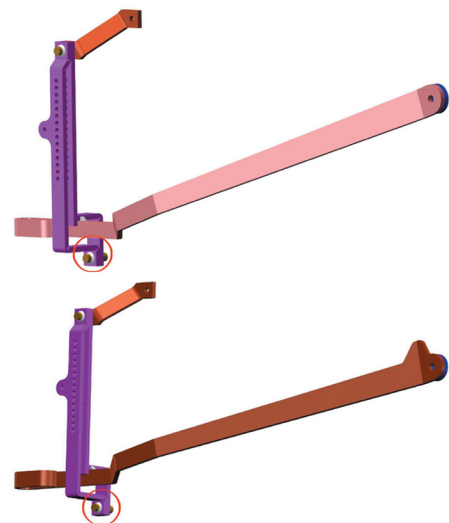
Remove V hanger pins, lever assemblies, body and small screws. Fit push rod safety loops as per stage 114.



STAGE 143

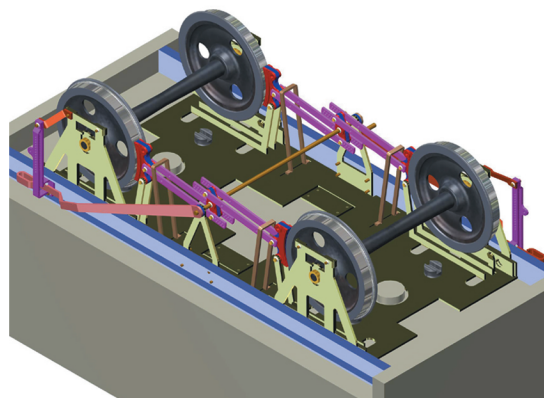
MORTON brakes, with channel solebar.

Fit wheels, refit chassis into body, fit V hanger pins and small screws.



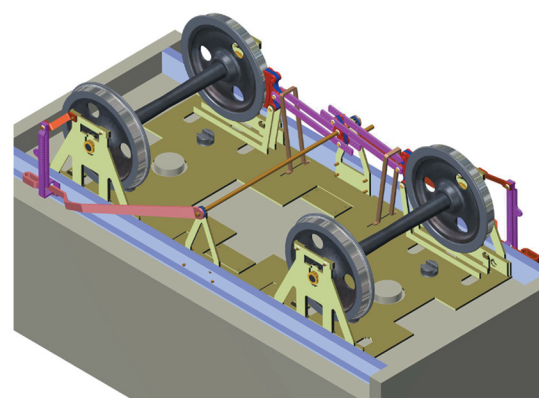
STAGE 144

Solder pins into brake lever guards (as shown), ensure no solder is on back face as these have to fit flush to the solebar.



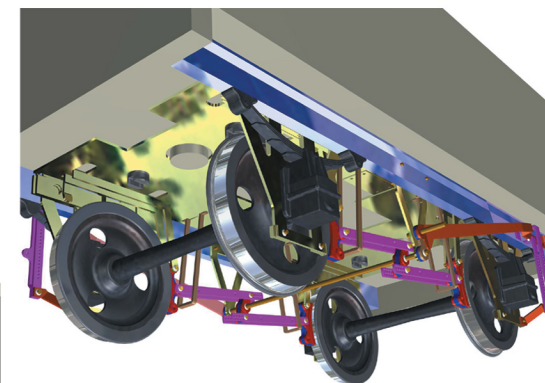
STAGE 145

MORTON brakes, with channel solebar. View shows completed brakes both sides.



STAGE 146

MORTON brakes, with channel solebar. View shows completed brakes one side only.



STAGE 147

MORTON brakes, with channel solebar. View shows completed with brakes both sides. Springs and axleboxes not supplied.

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FINAL OPERATIONS.

As previously stated, the assembly is designed to enable the chassis to be removed from the body. It may be advantageous to apply these safety measures to prevent any parts becoming dislodged while in use.

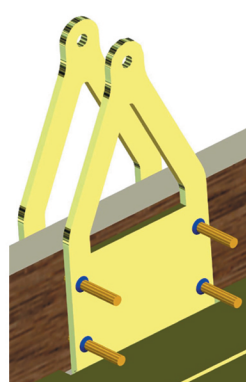
When model is complete and tested, apply a very small fillet of MILLIPUT around the ends of the location pins (as shown in blue). This, at a future date, can be removed for dismantling.

A simpler method is to apply a tiny dab of PVA adhesive or similar, the choice is yours.

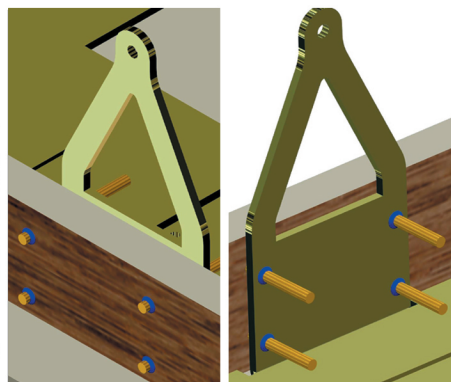
STAGE 148

Best performance is achieved by reducing the wheel side play within the chassis to a maximum of 0.1mm. This is achieved by using spacing washers (shown ringed). The number required depends on the gauge and wheel type.

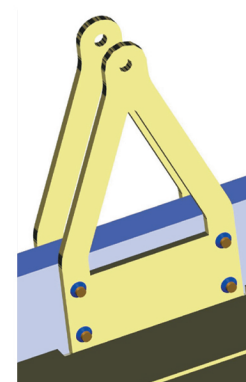
For 4mm scale use part number 4WC 701A.
For 7mm scale use part number 7WC 701A.



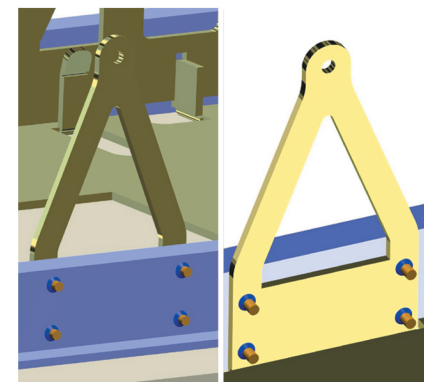
STAGE 149
Inside 12in timber solebar independent brakes.



STAGE 150
Outside and inside 12in timber solebar MORTON brakes.



STAGE 151
Inside channel solebar independent brakes.



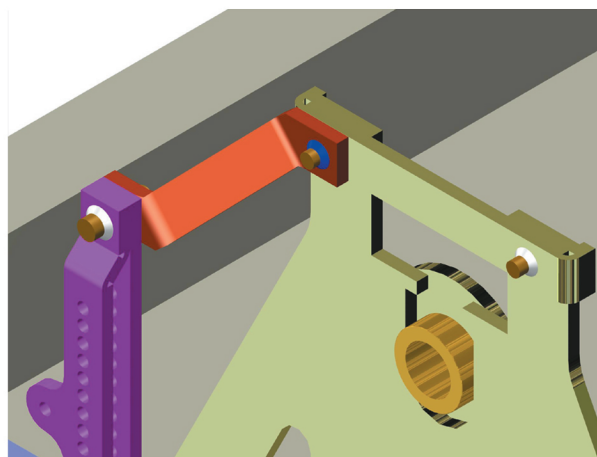
STAGE 152
Outside and inside channel solebar MORTON brakes.

NOTES ON FITTING AXLEBOXES AND SPRINGS.

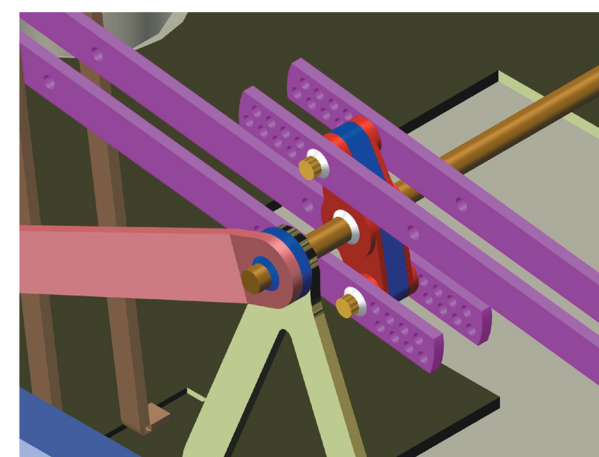
It has been found that the following method gives best results.

The rear of the axleboxes must be slightly enlarged and elongated to allow for spring movement. Then fix the axlebox to axleguard using HAFIXS[®] glue (this being very liquid). Place the model on its side, place axlebox into position, then using a toothpick apply a very small amount of HAFIXS[®] to the edge of the joint, capillary action will fill the joint faces. The springs MUST be fixed to the solebar and not attached to the axleguards in any way. This enables the chassis to be removed from the body and allows the axleguards to be eased open to remove the wheelsets.

HAFIXS can be obtained from:
HAFIXS Industrial Products, Park Royal House,
23 Park Royal Road, London, NW10 7JH
Tel: 0208 969 3034
www.hafixs.co.uk



STAGE 153
All channel solebar types using post 1923 brake lever guard and either type of brake lever guard strap. (type 1 shown).



STAGE 154
All MORTON types with channel solebar.

Exactoscale Limited

20 Waterson Vale, Moulsham Lodge,
Chelmsford, Essex CM2 9PB
01245 263779

Including **The P4Track Company**

Part No	INS 1001 SHEET 24
Part Name	
Material	
Date Drawn	
Scale	

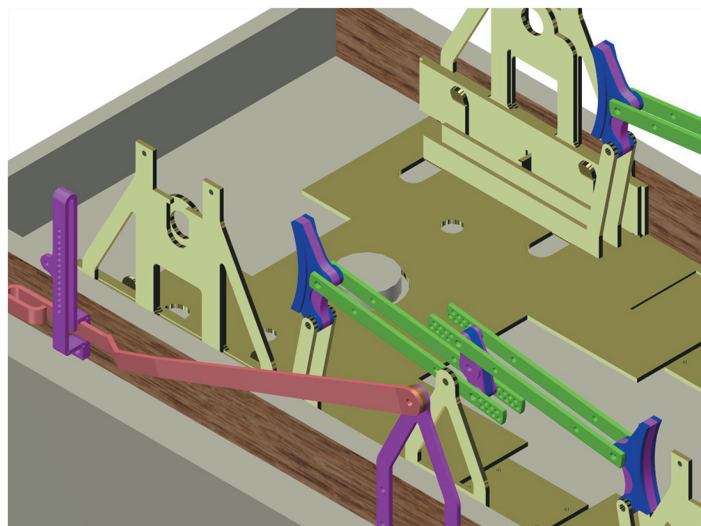
Remove all sharp edges
All dimensions in MM unless otherwise stated

www.exactoscale.co.uk

Company Reg. No. 05275090 Directors: L.C.Newman & A.J.Jukes
Registered in England and Wales. Registered Office: Suffolk House, George Street, Croydon CR0 0NY

Instruction number
INS 1001/24

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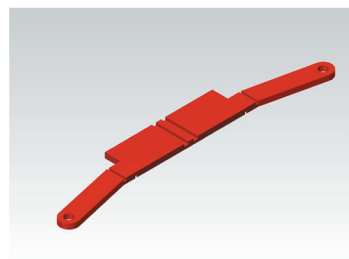
STAGE 155

Simplified view showing non reversible brake blocks and pre 1923 brake lever guard. Note the absence of any brake lever guard bottom straps.

Moving brake hangers and semi working brakes.
This option for brake assembly is NOT for the novice as great skill is required to assemble in this manner, unlike the previous method which is quite simple in procedure.

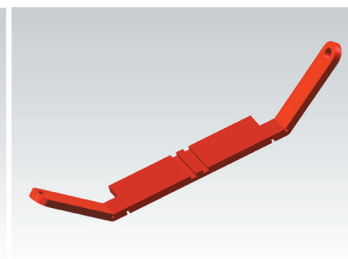
As the suspension moves up or down the brake blocks and cams rotate about their pivot points. The brake blocks and cams MUST be free to revolve on their location pins.

The rotation points are indicated in stage 162 by red boundaries.



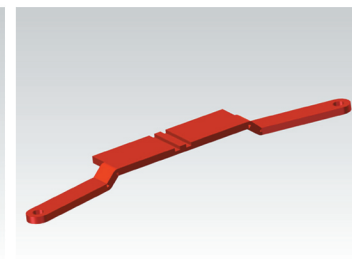
STAGE 156

Moving brake hanger as supplied.



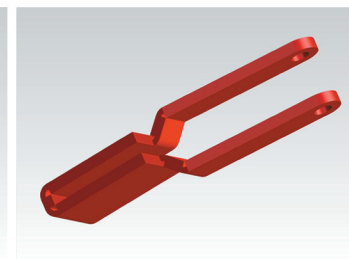
STAGE 157

First two folds 45 degrees.



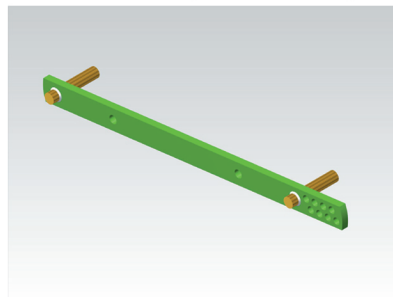
STAGE 158

Second two folds 45 degrees.



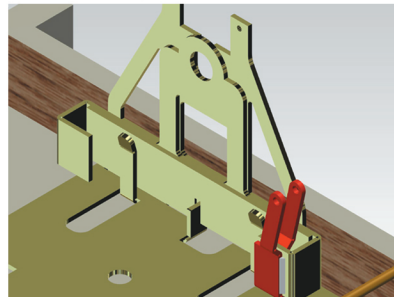
STAGE 159

Final two folds 90 degrees.



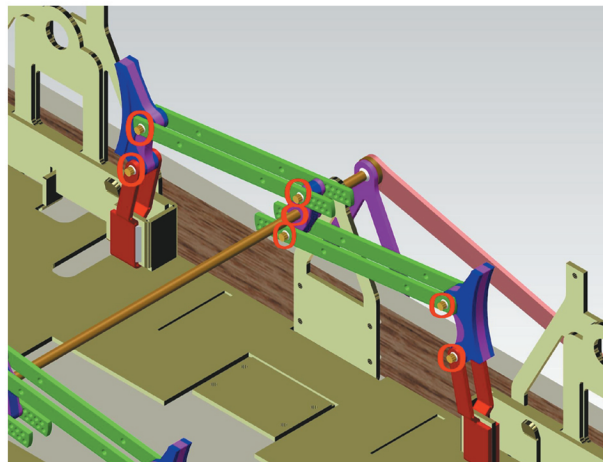
STAGE 160

Solder pins into push rods (as shown).



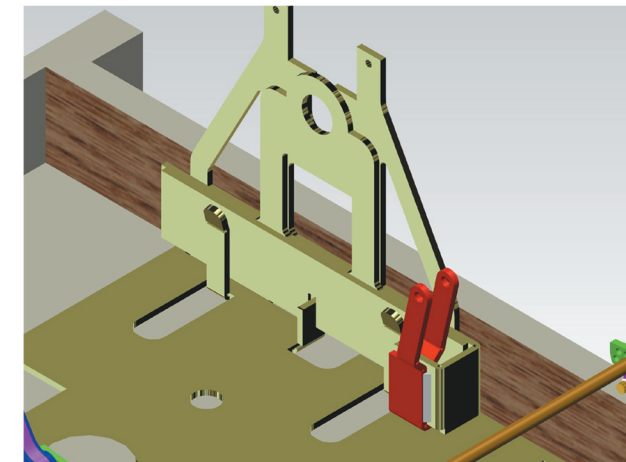
STAGE 161

Solder moving brake hangers to cradles (as shown).



STAGE 162

Assemble (as shown): solder push rods to push rod pins on opposite sides to stage 160. Ensure the brake blocks and centre cams are free to revolve about their locating pins and centre cam free to revolve about the V hanger centre rod.



STAGE 163

The unused ends of the cradle can be removed. This may be essential when fitting sprung buffers on short-bodied private owner wagons.

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01245 263779

Including **The P4Track Company**

Part No INS 1001 SHEET 25

Part Name

Material

Date Drawn

Scale

Remove all sharp edges

All dimensions in MM unless otherwise stated

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