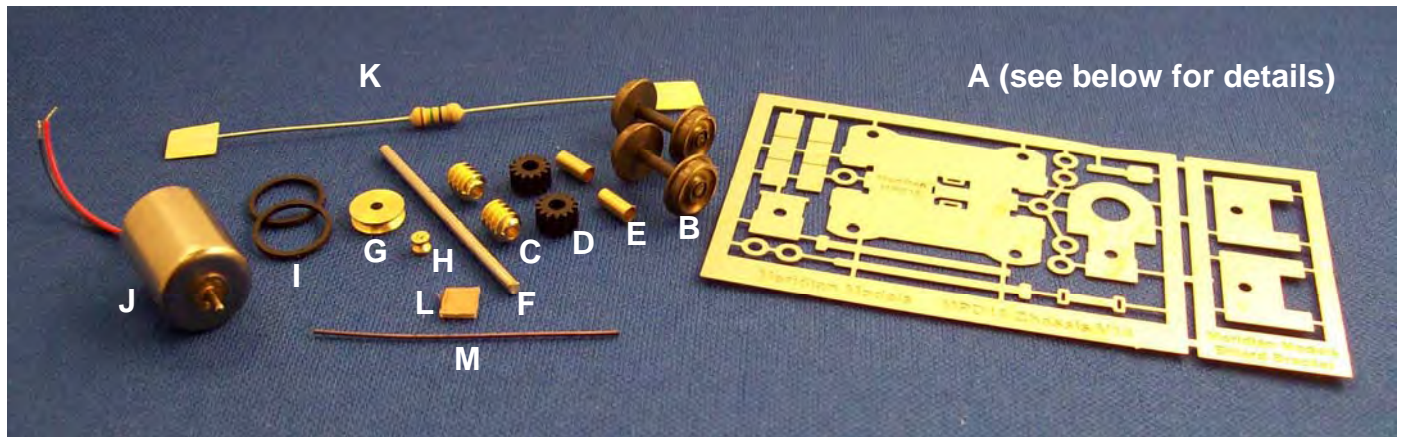
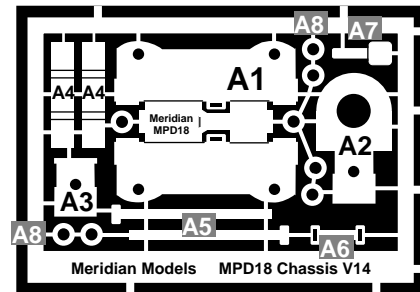


Meridian Models MPD18 chassis build instructions



Parts list:

Ident		Quantity
A	Etched Nickel/Silver fret	1
B	Wheel sets	2
C	Worms	2
D	Worm gears	2
E	Shaft adapters	2
F	Lay shaft	1
G	6mm OD (5mm root) pulley	1
H	2mm OD (1.2mm root) pulley	1
I	7.5mm belts (1 is a spare)	2
J	10mm x 12mm motor	1
K	15 ohm resistor	1
L	4mm x 4mm x 0.8mm PCB	1
M	0.5mm x 30mm phosphor/bronze strip	1



WARNING! ETCHED PARTS CONTAINED IN THIS KIT HAVE SHARP POINTS, EDGES AND CORNERS. HANDLE ALL ETCHED PARTS WITH CARE AND REMOVE SHARP EDGES FROM THE COMPLETED MODEL.

- **PLEASE READ ALL THESE INSTRUCTIONS THROUGH BEFORE STARTING TO BUILD THE KIT.**
- **IT IS IMPLICIT THAT ALL JOINING PIECES ETC SHOULD BE REMOVED FROM ETCHED COMPONENTS BEFORE ASSEMBLY.**

Tools Required

Small hobby knife or scalpel with new blade.
 Soldering iron (preferably temperature controlled)
 Flat thin nosed pliers long and short for folding
 Side cutters or snips for stripping wires
 Small needle files. Also Toolmakers' 'stones' if you have them for cleaning up parts.
 0.6mm drill for drilling shaft adapters
 Mini drill in stand (drill press) or hand chuck or pin vice.
 1.5mm tapered Jeweller's broach

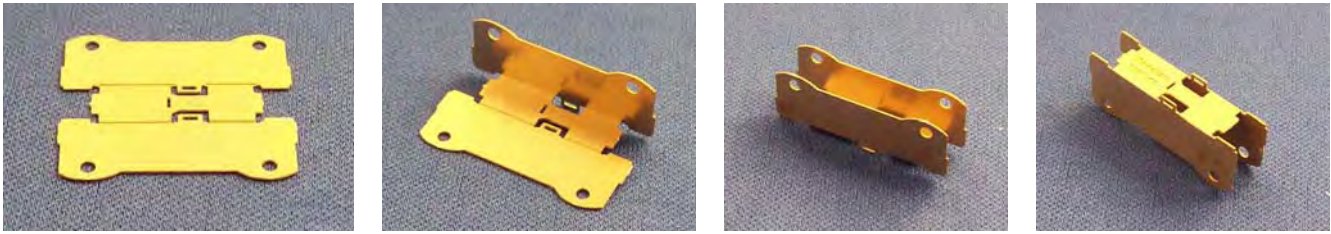
Consumables Required

Standard 240 degree solder
 Flux (we recommend a paste type like 'Powerflux')
 Non-permanent thread lock (e.g. Blue Loctite 242 or green 603)
 Model grease or oil

A note about cutting parts from the frets.

Use a sharp knife or scissors or special fret snips. Apply knife side to side, not downwards. Where possible cut the trace at the opposite end to where it joins the part and trim with scissors afterwards. Use fine needle files or toolmakers stones to clean up small projections.

Basic Frame Construction



Remove the main frames A1 from the fret and fold the two sides with the half etched lines on the inside of the joins



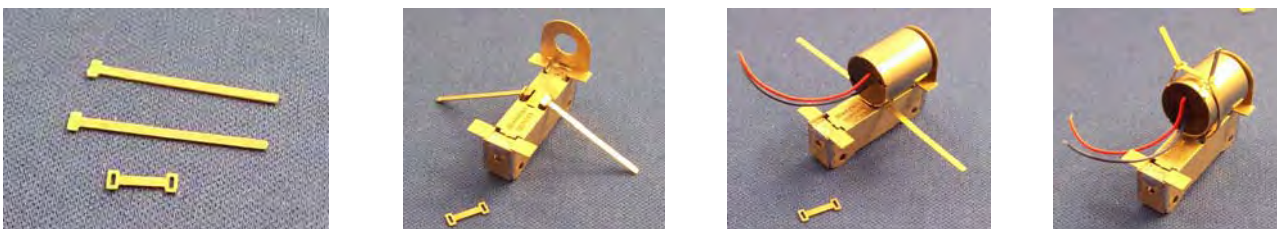
Remove the motor end spacer A2 from the fret and fit between the two sides noting the interlocking steps in the pieces to set position. The motor end spacer goes at the opposite end to the 'Meridian' etched name on the frames. Solder in place.



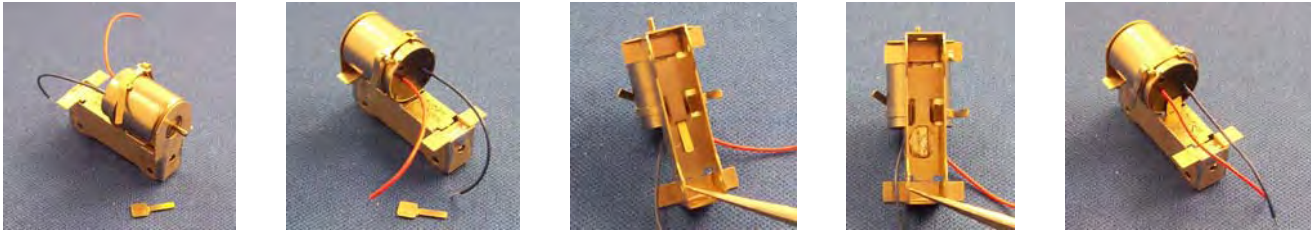
Remove the other end spacer A3 from the fret and fit between the two sides noting the interlocking steps in the pieces to set position. Solder in place.



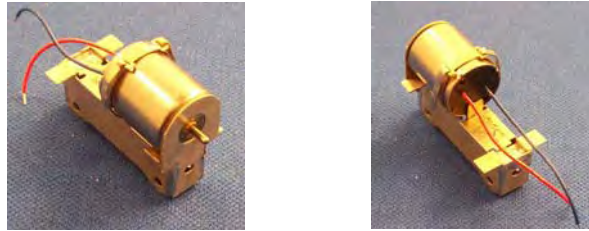
Remove the two cross pieces A4 from the fret. Fold the four half etched lines on each piece with the half etch on the inside. Fit at each end in the open areas of the frames. Solder in place.



Remove the two long straps A5 and short strap A6 from the fret. Fit one of the long straps through each of the slots in the frames as shown. Position the motor and fit the short strap between the two long straps. Tighten but do not solder.

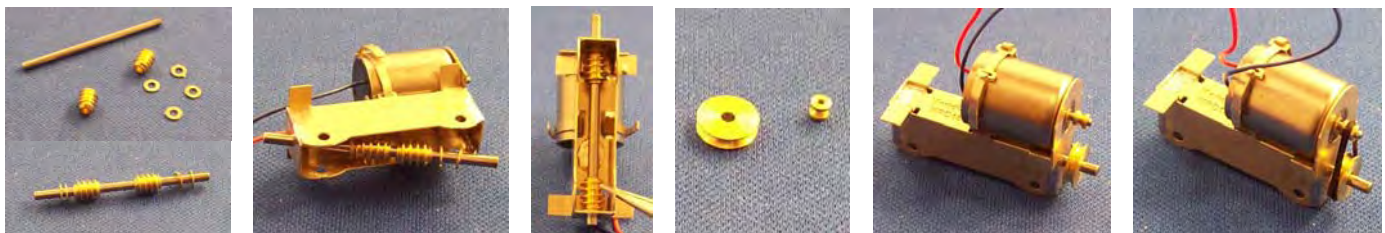


Remove the motor stop A7 from the fret. Fit through the slot in the top of the frames with the broad section outside. Bend and solder in place inside the frames.



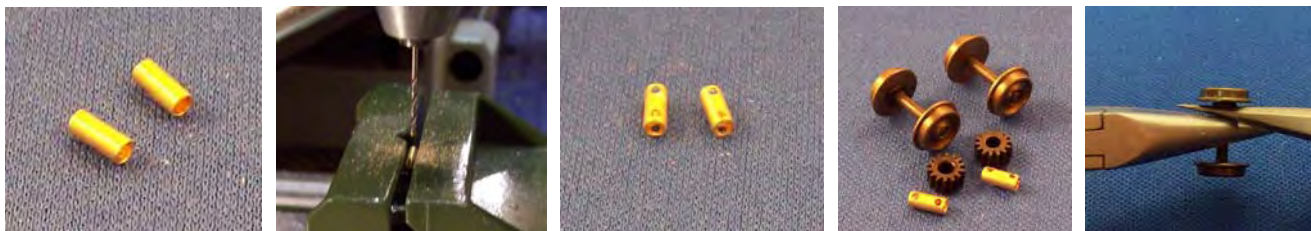
The basic frame is now complete

Running Gear



Remove the four washers A8 from the fret. Position the two worms C and four washers A8 on the lay shaft F. Fit the lay shaft assembly into the frame taking care not to lose any washers. If the holes in the frame are too small open them out with a broach until the shaft is an easy fit and rotates freely. Position the worms so that the lay shaft has minimal end movement and the majority of its spare length is at the motor end. Fix the worms to the lay shaft by applying non-permanent thread lock on the inboard ends.

Locate the pulleys G & H. Test fit the large pulley G to the lay shaft and the small pulley H to the motor shaft. Open up the holes with a broach if too small. Position in good vertical alignment with the small pulley as close as possible to the motor and fix in place with thread lock. Fit one of the belts I.



Locate the two shaft adapters E. Drill four 0.6mm holes in the ends of the adapters ideally using a mini drill in a drill stand or press. Alternatively a hand held mini drill or pin chuck can be used but the shaft adapter should be held in a vice and you may wish to file a flat on the end of each shaft adapter and only make one or two holes in this case. These holes are used for applying thread lock fluid to fix the adapters to the wheel sets.

Identify the insulated wheel on each wheel set; this has a black plastic bush behind the wheel. Carefully remove the insulated wheel on each wheel set using a pair of pliers and tweezers and a rocking sliding action.

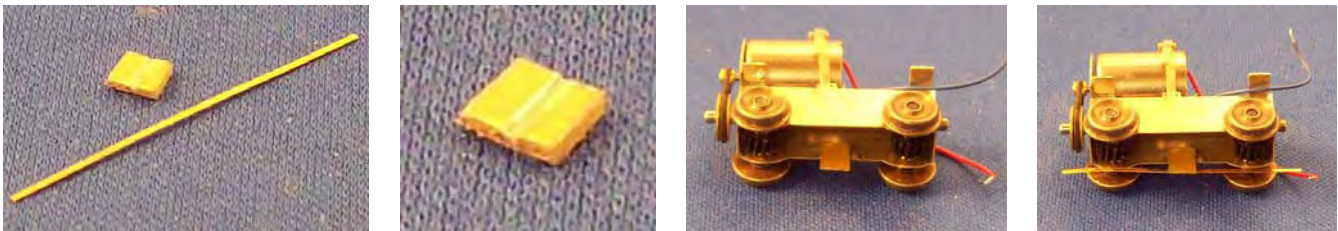


Locate the worm gears D. Fit a drilled shaft adapter to each worm gear so the gear is in the centre of the adapter. Rest one of the adapter and gear assemblies on top of one of the worms within the frame and feed the shaft of the wheel set through both frames and the adapter. If the holes in the frames are too small open them up with a broach until they are an easy fit and rotate freely. Repeat for the second wheel set. Very carefully re-fit the insulated wheel on the end of each axle using a vice or press to ensure the wheel is fitted square. Adjust the back to back to your liking (we use 7.6mm). This is approximately when the shaft is flush with the outside of the insulated wheel. Carefully centre each shaft adapter on its axle and apply thread lock to each of the holes drilled in them to lock the gears to the axles.



The running gear is now complete

Pickups and wiring



Locate the PCB material L and phosphor bronze strip M. Gap the PCB about 1mm from one edge. Solder the copper side to the inside of the frame on the side which has the insulated wheels fitted so that the 1mm section and gap are below the edge of the frame. Solder the phosphor bronze strip to the lower 1mm section of the PCB so that it is insulated from the frame (no touching, no solder bridges).

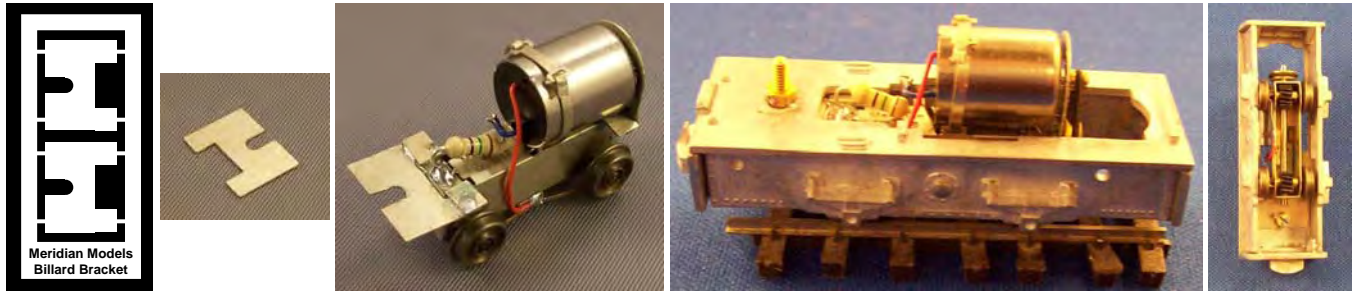


Shape and cut the two ends of the phosphor bronze strip to rub against the back of the insulated wheels.

Locate the resistor K. Cut the lead wires short and bend as shown. Solder one end to the frame at the opposite end from the motor. Cut the blue wire short, strip and solder to the free end of the resistor. Solder the red wire to the PCB & phosphor bronze strip. Tension the phosphor bronze strip against the wheels by bending close to the PCB.

Meridian Models MPD18 Billard bracket fitting instructions

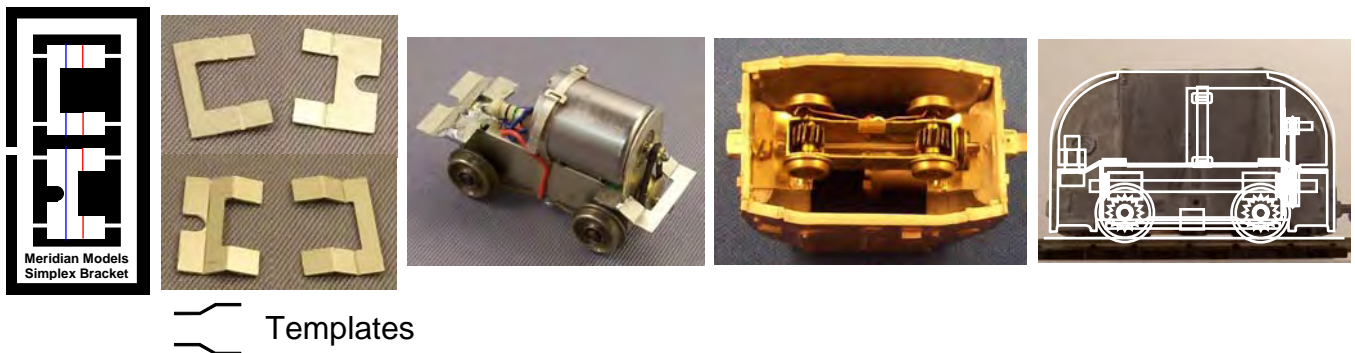
To fit LT01 BILLARD T75.



Important Note: Build the body kit only as far as fitting the below running plate parts to the running plate before fitting the chassis. This is to allow the chassis fixing nut to be fitted. Remove one of the brackets from the fret (one is a spare). Offer up and solder the two tabs to the underside of the chassis cross piece at the opposite end from the motor. Offer up the chassis with bracket fitted to the Billard running plate. Align the wheels with the axle boxes and mark the fixing screw position on the whitemetal running plate at the centre of the slot in the bracket. Drill the running plate with a 2mm drill at this location. Tin the 10BA nut provided with the Billard kit with standard solder and solder to the upper side of the running plate using low melt solder. Use the 10BA bolt provided with the Billard kit to secure the chassis to the body and test run. Complete the Billard body build with the chassis removed.

Meridian Models MPD18 protected/armoured Simplex bracket fitting instructions

To fit Meridian Models MM15, MM1 and MM5.



 Templates

Remove the brackets from the fret. Fold both brackets to match the template. The U shaped bracket is fitted at the motor end of the chassis. The bracket with the slot is fitted at the opposite end from the motor and is the means of attachment to the Simplex body. Tin the 10BA nut from the Meridian kit using standard solder and attach above the fixing hole on one of the shelves inside the loco body using low melt solder. Solder the two tabs on each bracket to the underside of the chassis cross pieces. Fit the bracket with the slot at the opposite end to the motor. Fit the bracket with the long tabs at the end with the motor. Test fit the chassis to the body and adjust the bracket folds until the body sits in the correct relationship with the chassis. Remove the chassis and fix the bracket folds in place by soldering on the half etched side. Finally re-fit the chassis.