

Stockists of 7mm Modern Image Kits

Tel – 07807225801 prmrp@fsmail.net www.prmrp.com

# **BRL - 066 CLASS 66 LOCOMOTIVE**

# **Building Instructions**



SCALE MODEL PRODUCT FOR ADULT MODELLERS ONLY. WHITE METAL CONTAINS LEAD WASH HANDS AFTER USE. MAY CONTAIN SMALL PARTS. ETCHED BRASS HAS FUNCTIONAL SHARP EDGES - HANDLE WITH EXTREME CARE Thank you for purchasing this kit.

This instruction pack should provide an easy to follow guide for building this model given some experience of soldering and the basics of etched kit construction.

#### Please read all the pack before starting to build.

Drawings and photos are essential for builders to acquaint themselves with the loco they wish to model.

For builders of modern image in 7mm, consider joining MIGO+1, the Modern Image Gauge 0/1 organisation. For more details see the MIGO+1 website at www.migo.org

Wheels gears and motors are required to complete the locomotive. We also recommend the use of Delrin chain, which will allow 4 axles to be driven to increase pulling power.

The correct wheel size for the Class 66 is 3'7".

Transfers are available from Fox Transfers.

## **Locomotive History**

This locomotive is a derivative of the Class 59 which has been in the UK for some years. Deliveries of the Class 66 started in 1998 to the English, Welsh and Scottish Railways (EWS). Their order was for 250 vehicles. Since then Freightliner have ordered over 20 locomotives and GB Railways have ordered 10. This will thus become the most numerous class of main line locomotives in the UK.

Locomotives are numbered:

- 66001 66250 (EWS)
- 66501 6652x (Freightliner)

Please note : On diesel locomotives the No 1 end (often referred to as the "free end") is where the power unit sits and can usually be identified by air intake grills, radiator grills and roof mounted circular exhaust fan grills. No 2 end is generally where the alternator or generator sits and would house a lot of the electrical control gear.

## **Identification of Parts**

### White Metal Castings

- 1 x Radio telephone roof box 66/01
- 2 x M.u. socket 66/03
- 2 x Right hand sandbox 66/06
- 2 x Left hand sandbox 66/07
- 2 x Left hand bogie sideframe 66/09
- 12 x Axleboxes 66/11
- 4 x Right hand bogie damper 66/13
- 2 x Right hand guard irons 66/15
- 12 x Axlebox strip 66/17
- 1 x ATC pick up(bogie rear) 66/20
- 1 x Chassis solebar filter casing(on body side with only one grill on it) 66/21
- 1 x Silencer feedpipe
- 4 x Lamp plate wedges
- 1 x Fuel tank overflow pipe
- 2 x Fuel caps
- 20 x Short solbar struts
- 2 x Coupling hook sockets
- 1 x End solebar pipe assembly
- 1 x Multi-way solebar pipes

## Lost Wax Castings

4 x Buffer shanks and heads

## **Miscellaneous Parts**

Flex hose for air pipes Glazing 2 x Solder tags 10 x 6BA nuts and bolts 2 x Plastic screws and nuts 2 x Insulation sheet 12 x frame bushes 6 x Fibre washers

# **Required To Complete**

2 x Motors GEN-080 2 x Gear sets GEN-083 6 x 3'7" loco wheel sets For optional additional adhesion use Delrin drive GEN-082

- 2 x Upper headlight 66/02
- 4 x Sandbox centre 66/05
- 8 x Airpipes
- 2 x Bogie rear beam 66/08
- 2 x Right hand bogie sideframe 66/10
- 4 x Left hand bogie damper 66/12
- 2 x Left hand guard irons 66/14
- 8 x Brake solenoid assembly 66/16
- 8 x Sandpipe support 66/18
- 2 x Roof front fillets
- 4 x Cab seat supports
- 2 x Fuel gauges
- 1 x Water cap
- 10 x Long solebar struts
- 4 x Double headlights
- 1 x Main solebar pipe

# Class 66 - Body Assembly

We recommend that you assemble the body in the order set out below:

- 1. Solder body side grill outer to body side grill. Then solder grill assembly into body side from inside with riveted panel to bottom.
- 2. Solder cab side infills which go behind cab windows.
- 3. Add small roof grill. This goes over hole on outside of body.
- 4. Solder on the cab handrail backing plates and the cab door handle back plates (note these are handed).
- 5. You can fold the body to final shape.
- 6. Fit the centre and cab bulkhead plates to inside of body.
- 7. Fit cab ends (Note: before you fit scribe the window size onto the plastic glazing to be cut and fitted later).
- 8. At this stage fit body side strengthening strips to inside of body shell between the bulkheads, level with the base of the bulk heads.
- 9. Bend up roof detail, solder up and fit radio telephone base plate in the recess.
- 10. Make up the exhaust box. This will have to be cut down to 35mm in length, then fit and add pipe casting.
- 11. Fit roof grill frames from inside.
- 12. Fit 4 roof hatches.
- 13. Add door handles and grab rails made from wire, and cab door rain strips which go above doors.
- 14. Add horn grill above cab fronts and infill which go behind.
- 15. Add cab front handrails and windscreen wipers.
- 16. Now make up chassis assembly as per Class 59 sheet, but remove the outside small lip which would have turned up from the top chassis etch. Do not fit end triangle infills, as this is where the sand boxes go, and where the infill were to go cut back 10mm away from behind buffer beam so as to take the sand boxes.
- 17. Fuel tank. Take the one from the 59 and remove by cutting off the ends. Take ends and fit to new tank wrapper. When soldered add castings. When fitting the tank it lines up with the etched lines at No 2 end and the overflow pipe goes towards the No 1 end.
- 18. Battery boxes. Make up as shown ensuring you place next to tank but the switch box is on the other end of the battery box and goes at No 1 end.
- 19. Add solebar detail from castings supplied and from square tube or make up all pipe work and cable runs from .7mm and .9mm dia. Wire, refer to photos as both sides are different.
- 20. Make up bogies as from drawings on page 9.

# **MOTOR BOGIES**

#### Introduction

The motor bogies in this range of models are of a standard type with an inner 'U' section chassis and outer cosmetic sideframes. The steel wheels have a small nylon bush at one end of the axle to allow pick up via the live chassis.

The model will run on one motor but for increased traction and better adhesion, the use of two motors plus a Delrin chain set is recommended.

When assembling the bogies remember the following points:

- Although the motors as supplied have fixing screws, the motor body may not be tapped to take them. See Motors, Gears and Delrin.
- Ensure that the insulated wheels on bogie one are opposite those on bogie two. Although the bogie centre to centre measurement is 315mm and the wheelbase is 47.25mm, check the wheel centres against the bogie sideframes.
- The chassis and sideframes have to be the same length to couple with the crossbraces but the sideframe castings when put back to back will be found unequal in length. File square, and place the sideframe upper c1 against the chassis e41 before cutting it to length.

#### Construction

- The Chassis
- Bearings and Wheels
- Motors, Gears and Delrin
- Sideframes and Castings

#### The Chassis

When happy with the sideframe to chassis length cut e41 as marked. The chassis can now be folded along with the saddles e39 & e40 which determine the wheelbase.

Solder in the saddles followed by the bulkheads e36 ensuring the cut-outs for Delrin are in line. The pivot overlay e45 can now be folded and soldered on the top as shown, however it may be necessary to omit this item from the assembly if the body sits too high. The key to deciding this is that the buffers are at the correct height above rail.

#### **Bearings and Wheels**

For the wheels to be true and level, the top hat bearings must be soldered in on a flat surface such as a piece of plate glass. The bearing holes may need enlarging and a tapered reamer is ideal for this. Whilst the outer bearings are soldered to the chassis, the middle ones are left to float and the etched washers e37 are soldered on the inside of the bearing instead.

# **Chassis Etch**

- 35. Pivot box
- 36. Bulkhead
- 37. Centre axle washer
- 38. Folding bogie mtg. Stretcher
- 39. Saddle, motor end

- 40. Saddle, outer end
- 41. Chassis
- 42. Crossbrace, outer
- 43. Crossbrace, inner
- 44. Bogie mounting plate
- 45. Bogie pivot overlay

## **Miscellaneous Parts**

M1	buffer with spring 4		M9	Steel worm	2
M2	Solder Tag	2	M10	Brass Gear	2
M3	Nut & Bolt for above	2		M11 Delrin Chain	1 (extra
to kit)					
M4	Pivot box Nut	2	M12	Delrin Cog	4 (extra to kit)
M5	Nylon Screw	2	M13	Insul Pad	2
M6	Brass wheel Bearing	12	M14	Steel wheel	6
M7	Can motor	2 (Extra)	M15	Axle with ins. Wheel	6
M8	Brass Sleeve	2 (Extra)			

Not illustrated: Brass strip, clear plastic, fibre washers, motor fixing screws. Worm and gear screws, screw couplings.

#### Bearings and Wheels (cont.)

Fit the bearings and wheels and when happy that everything is true and square, solder the outer bearings in place followed by the middle ones noting that the pin points on the axles have to be removed until they are flush with the wheels.

#### Motors, Gears and Delrin. (Not supplied in kit)

The can motors as supplied have fixing screws but the motor body may not be tapped to take them. Dismantling them is an easy task as described below.

Simply remove the brushes and springs from top of motor and prise back the two securing lugs. Pull up the motor top and remove the armature noting the number of packing washers under it. Tap the holes 2.5mm and be sure to remove all the swarf.

Re-assembly is the reverse of above.

Now check that the fixing holes in chassis top line up with motor and enlarge if necessary. The brass sleeve m9 fits inside the steel worm m10 ensuring that it is proud by 2.5mm at the shouldered end. For the worm to grip onto the motor shaft , use a 3/32 drill and bore a hole through the brass sleeve in the side of the worm and tap 6BA.

By enlarging the hole in the chassis top, the motor complete with worm can be fitted or removed with ease. Fit the motor followed by driving axle and brass gear m11 adjusting as necessary to produce a good mesh. Sometimes, inserting a shim of scrap brass between one end of the motor and saddle can improve this. Fix solder tags m2 to inside ends of chassis. Before continuing it is advisable to test the bogies.

Fit wheels, attach wires and couple up to a nylon terminal block. If the motors turn in different directions swap the motor wires on one bogie.

Note : Do not fix the Delrin cogs at this stage as once in place they are not easily removed. The chassis can now be dismantled and along with the wheels, painted before final assembly.

If fitting Delrin note:

- that the cogs are in line with the bulkhead cut-outs
- they are fitted to the outer axles
- you may have to file the shank of the cog if there is insufficient room on the driving axle.

The bogies can now be reassembled.

Useful Tip : Use Loctite Lock 'n' seal to prevent the wheels unscrewing.

#### Sideframes and Bogie Castings.

Solder sideframe upper c1 and sideframe lower c2 together. Fit the bogie air cylinders c9 noting their position before soldering. Finally carefully fold and solder the two parts of the etched bogie step e26 & e31 together and fit ensuring that it lines up with the cab door.

There are several ways of fixing the side frames:

- Build up with the crossbraces and solder in as one unit
- As above, solder an additional brace to the ends of the chassis, drill and secure with nuts and bolts
- Fix crossbraces to ends of chassis then couple to the side frames.

Note:

Before spraying, add a spot of maskol where you intend to solder to keep that area clean. Ensure the side frames are horizontally and vertically central before fixing.

Finally fit the life guard irons c6 at the front of the bogies

Now the completed bogies can be laid to one side until the body construction is complete.

When they are fitted, the following points should be noted:

- Before fitting the nylon bogie attachment screws m5, it may be necessary to enlarge the hole in the top of the chassis. To ensure the thread in the pivot nut is clear you may need to run a 4BA tap through.

Ensure the bogies do not foul on the fuel tanks, if so, you may have to remove a section at the top and rear of each chassis with a cutting disc on a mini-drill.

You can also avoid shorting out by shaping and sticking pieces of black insulating tape to the ends of the tanks after painting.

It may be necessary to omit the pivot overlay e44 if the body sits too high. The key to deciding this is that the buffers are at the correct height above the rail.







(J)

'<del>3</del>



### CHASSIS ETCH

- 35. Pivot box
- 36. Bulkhead
- 37. Centre axle washer
- 38. Folding bogie mtg. Stretcher
- 39. Saddle, motor end

- 40. Saddle, outer end
- 41. Chassis
- 42. Crossbrace, outer
- 43. Crossbrace, inner
- 44. Bogie mounting plate45. Bogie pivot overlay



i,





## Miscellaneous Parts

<b>M</b> 1	Lost wax buffer with spring	4	M9	Steel worm	2
M2	Solder Tag	2	M10	Brass Gear	2
M3	Nut & Bolt for above	2	<b>M</b> 11	Delrin Chain	1 (extra to kit)
M4	Pivot box Nut	2	M12	Delrin Cog	4 (extra to kit)
M5	Nylon Screw	2	M13	Insul Pad	2
M6	Brass wheel Bearing	12	M14	Steel wheel	6
M7	Can motor	2 (Extra)	M15	Axle with ins. Wheel	6
M8	Brass Sleeve	2 (Extra)			

Not illustrated: Brass strip, clear plastic, fibre washers, motor fixing screws. Worm and gear screws, screw couplings.









