16mm MINI PLANET
INSTRUCTION MANUAL

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Welcome to the Hobby of Model Engineering, from Maxitrak Ltd & Accucraft UK

We thank you for selecting one of our models, which we trust will trust provide you with long-term enjoyment, in both its building and operation.

This construction manual provides build instructions, and operational procedures for your model. The same manual is supplied with all models, irrespective of how the model is ordered i.e. Ready to Run, Fully Machined Painted Kit or Un-painted kit, therefore some pages may not be relevant for your model, but nevertheless could be useful in the future. Complete any kit build in the sequence listed in the instructions.

We have a policy of continual improvement to our product range, including on-going updates to the construction manuals. This is based on our own experiences and feedback from customers. We invite customers to contact us regarding their experience on any matter during the build or operation of their loco, should they consider there are errors, misunderstandings or procedures that could be better described in this manual.

We aim to provide a good quality basic model that is easy to build, operate and maintain. We also, encourage, support, and will assist, customers who wish to implement their own modifications, and we are also pleased to receive photographs of models to retain in our files.

We wish to ensure all customers are able to build and operate their model to their expectations, for which we have a 'helpline' available to provide technical and operational advice regardless how insignificant it may be considered.

We offer customers spares, servicing and boiler examination & testing facilities for all locomotives.

The above information is also relevant should you have acquired your locomotive second-hand.

Pleased be assured of our best and personal attention at all times.

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16mm MINI PLANET instructions

- To start, take one of the buffer beams, insert coupler outer from the front of the buffer beam (These are 2mm thick) Insert the coupler inner from the back of the buffer beams (These are 4mm thick). These plates can be assembled to make a standard two pocket coupler or a single pocket suitable for an Accucraft chopper coupler. See photo 3. The coupler cutout in the buffer beam is over size by 1mm to allow for the thickness of paint or powder coat on the coupler plates. If it's a tight fit you may need to file down some of the plates to fit. If it's a lose fit some packing along the bottom of the coupler will be needed (a strip of double-sided mounting tape is good for this job).
- Once assembled check the 3mm bolts fit through the holes in the plates. Clean out as necessary. These bolts need to be a tight fit so don't over size the holes. They go in from the bottom of the buffer beam.
- Put the spacer over the coupler bolts (spacer 3mm thick), push the assembly and bolts through the bottom of the chassis plate and do up the nuts. Check that the buffer beam is at right angles to the chassis, you may need to clean off any excess paint or burrs on the coupler plates if they are causing a problem.
  Repeat with the back buffer beam. See photo's 1,2,3 & 4.

Photo 1:

Photo 2:

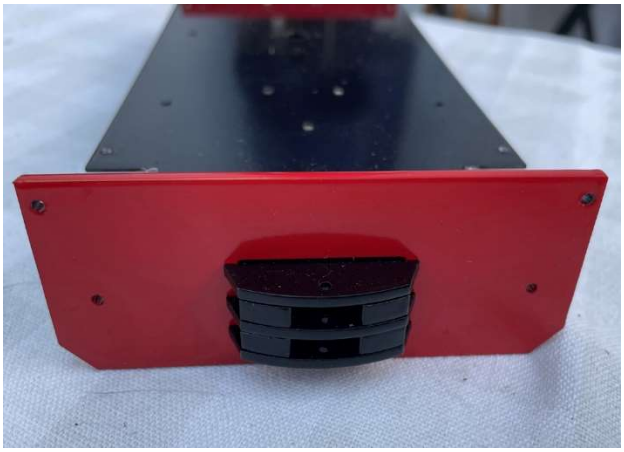


Photo 3:

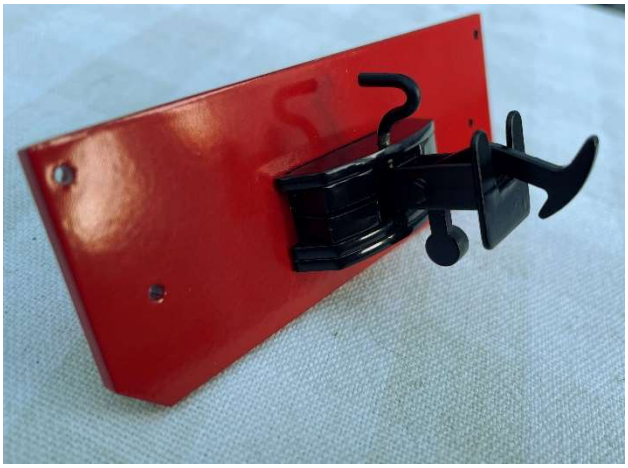
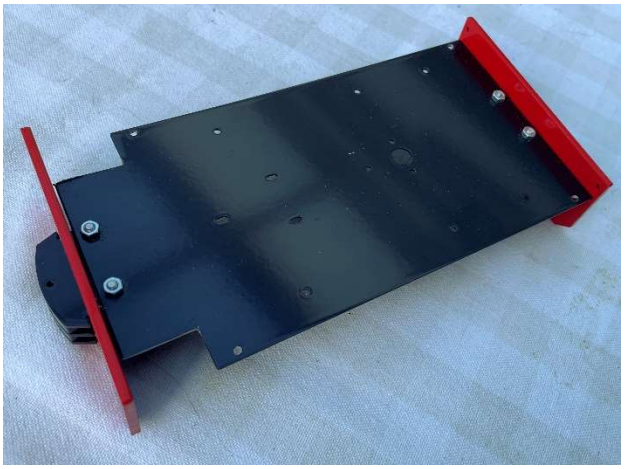


Photo 4:



- Wheel Set assembly, you have two types of wheel bracket, the front one has three slots in it. The back one has holes for the motor and screws.
- It is important to get the assembly sequence correct, or you will be obliged to take them apart and start again!
- Take the axles and check the sprockets are spaced correctly, approximately 22mm from the axle end.
  Slide one of the bevel gears onto the back axle, then the two wheels, nip up the grub screws on the wheels so they don't fall off during assembly. Check photo for correct assembly, wheels, sprocket and gear.
  See photo's 5 & 6.

- Fit one E clip to the grove in the end of the axle (one end only at this stage) Do the same on the front axle, but without the bevel gear.

Photo 5:

Photo 6:

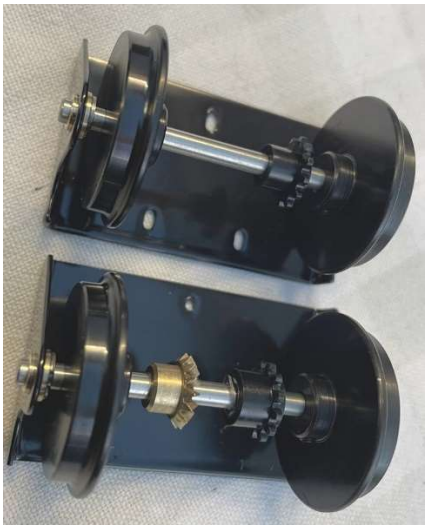
- Check that the bearings are an easy push fit into the wheel brackets, clean out the holes as required. They go in with the shoulder on the inside. Lay the wheel brackets out on the worktop facing the correct way round.
  Lay the axles by their brackets making sure you have the bevel gear on the back axle and the sprockets the same way round, see photo 7.

Photo 7:

- Fit a bearing to one side of the wheel bracket only, fit the second bearing to the axle with the shoulder up against wheel. You can now fit the end of the axle through the wheel bracket hole, then push the axle back into the bearing already in position on the other side. Hold the E clip against the bearing on the other side and push the second bearing down the axle and into to hole in the wheel bracket. Fit the second E clip to retain the axle and wheels in place. This sounds more complicated than it is, check the photo's for assembly sequence.
  See photo's 8 & 9:

Photo 8:

Photo 9:



- It only remains to do the front axle, double checking that the wheel brackets are both the correct way round and the sprockets line up for the drive chain.
- Check the wheels turn freely with minimal side play on the axle. The wheels themselves can now be moved along the axles to set the required gauge. 28mm between wheel backs for 32mm gauge and 40mm for 45mm gauge. Tighten the grub screws.
- Bolt the front wheel bracket to the bottom of the chassis leaving the bolts loose.
- Do the same to the rear wheel bracket using the front bolt only.
- The motor can now be tried in place through the hole in the top of the chassis, you need to fit the second bevel gear onto the motor shaft as the motor goes in. Tighten the bolts on the rear wheel bracket and set the clearance for the bevel gears. The teeth on the bevel gears should line up with a minimum amount of backlash. There is a flat on the motor shaft for the grub screw to tighten onto.
  Last mechanical chassis job is fitting the Delrin chain, wrap the chain round the two sprockets and check the length. The chain can be shortened by inserting a small screwdriver into the relevant link and twisting the links apart. The chain can then be threaded round the axles and the ends re connected by getting one pin engaged and twisting the links together. Get the chain onto the sprockets and tension by moving the front wheel bracket in its slots. Tighten the bolts once the tension is set. Chain length 165mm. The two under frame mouldings can now be fitted to the chassis on the left and right sides. Locate the step in the front of the chassis with the moulding running down the length of the chassis. Drill into the moulding 1.5mm dia from the holes in the chassis and screw on with self tap screws. The chassis is now complete and can be oiled and test run.
  See photo’s 10 & 11

Photo 10:

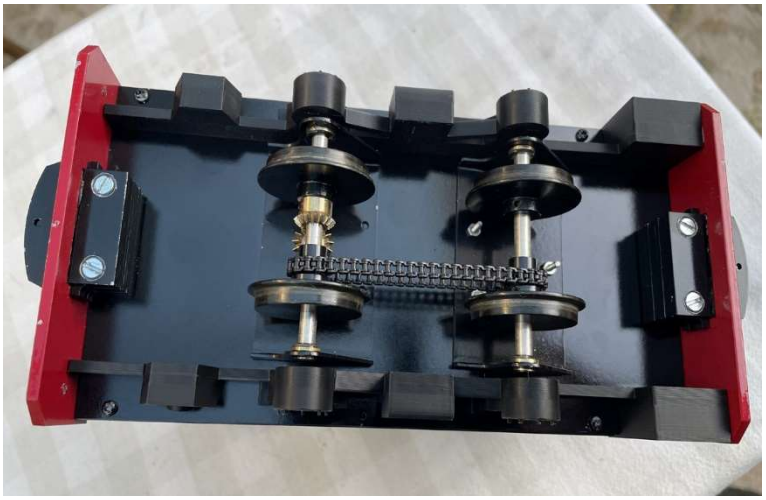
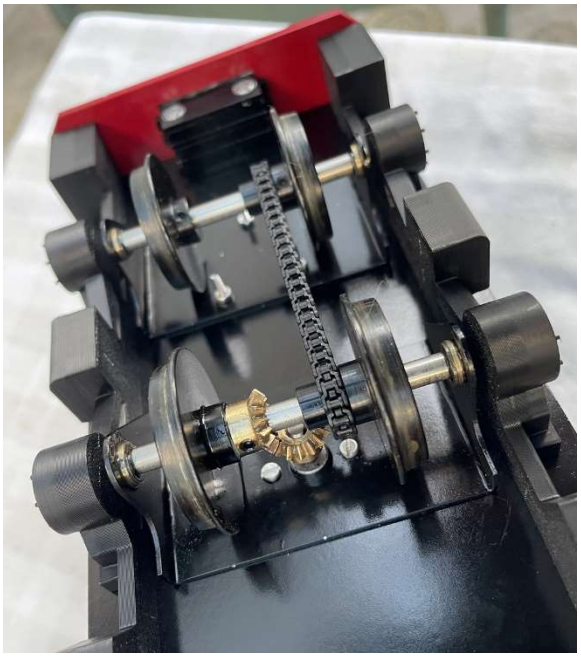


Photo 11:



Moving on to the footplate and body parts

- Start by making sure the footplate fits over the chassis and steps, sitting nicely inside the buffer beams. Adjust as necessary but don't fit this just yet, you need to have the footplate separate to fit the body.
- Take the cab, bonnet sides and footplate, make sure the tabs fit through their respective slots, cab to footplate and cab to bonnet sides, bonnet sides to footplate. Paint may need removing from the tabs and slots to get a fit.
- The bonnet sides need the front tabs bent in 90 degrees to match the radiator. They are bent left and right hand, do this before assembly getting the tab bent as tight as you can so the radiator butts up nicely against the bonnet side. See Photo 15 for reference.

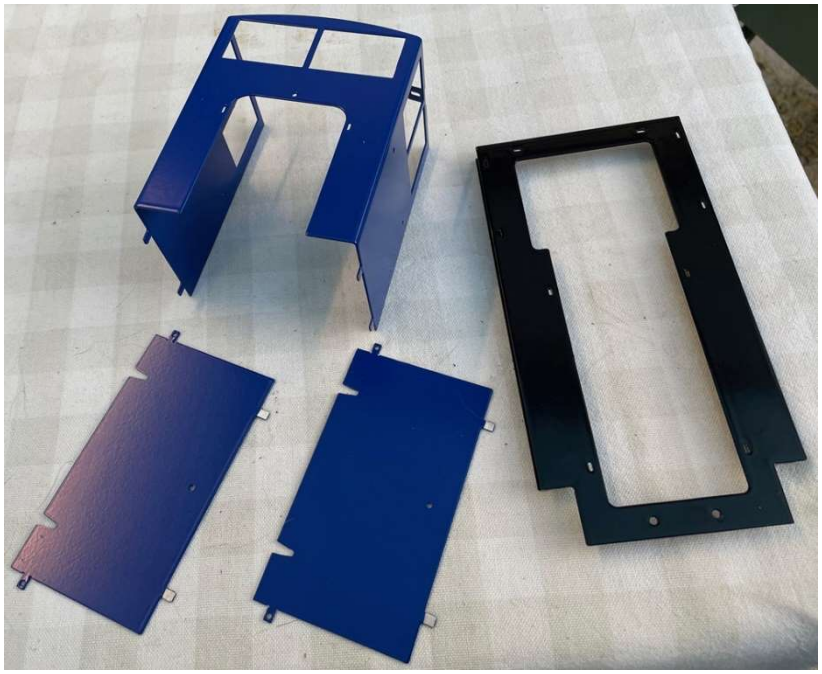


Photo 12.
Start assembly by inserting the cab into the footplate, just ease over the two back tabs only to keep the cab in place. Lift the front of the cab slightly and insert the bonnet sides, check the front tabs are correct to take the radiator, facing in towards each other. This assembly can now be eased down so the bonnet bottom tabs go into the footplate. Once in place the tabs can be bent over to retain the parts in place. The cab tabs are best pushed down with a big screwdriver and don't need to go a full 90 degrees. Don't lever against the channel section as it will distort and damage the paint. See photo's 12, 13 & 14.

Photo 13:

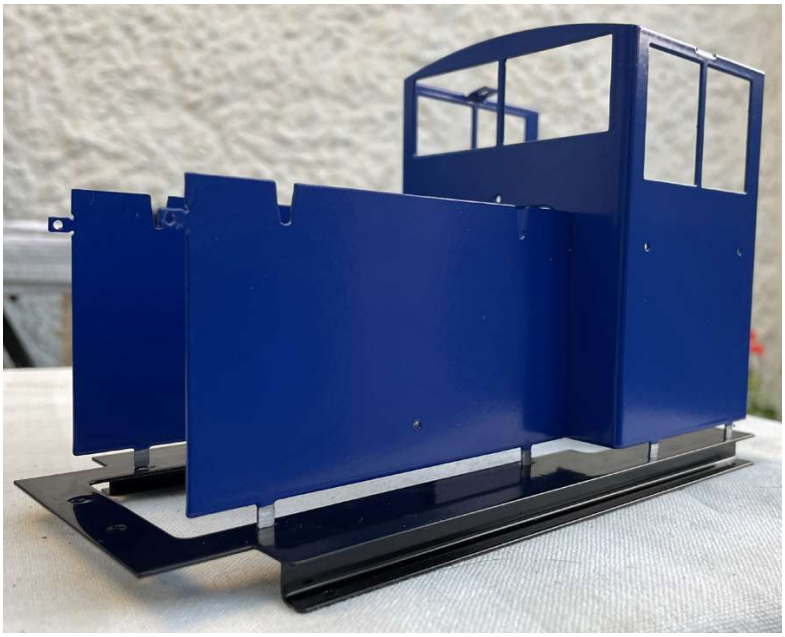
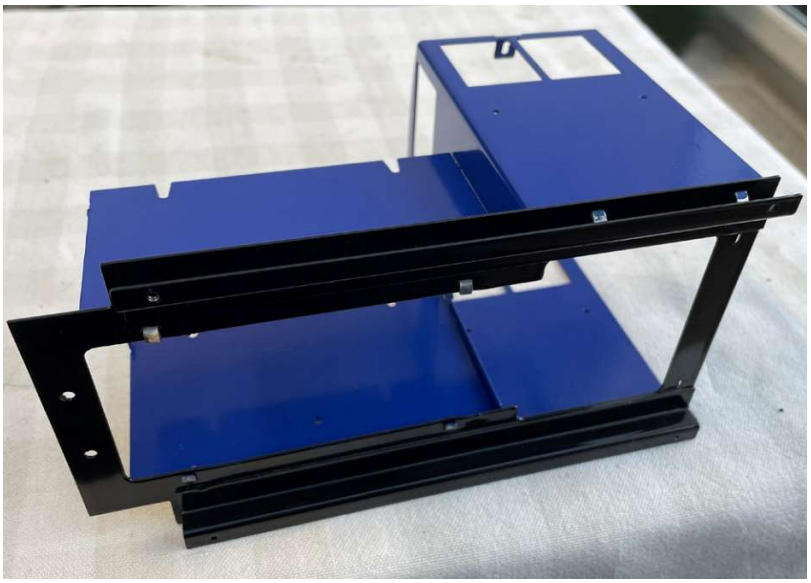
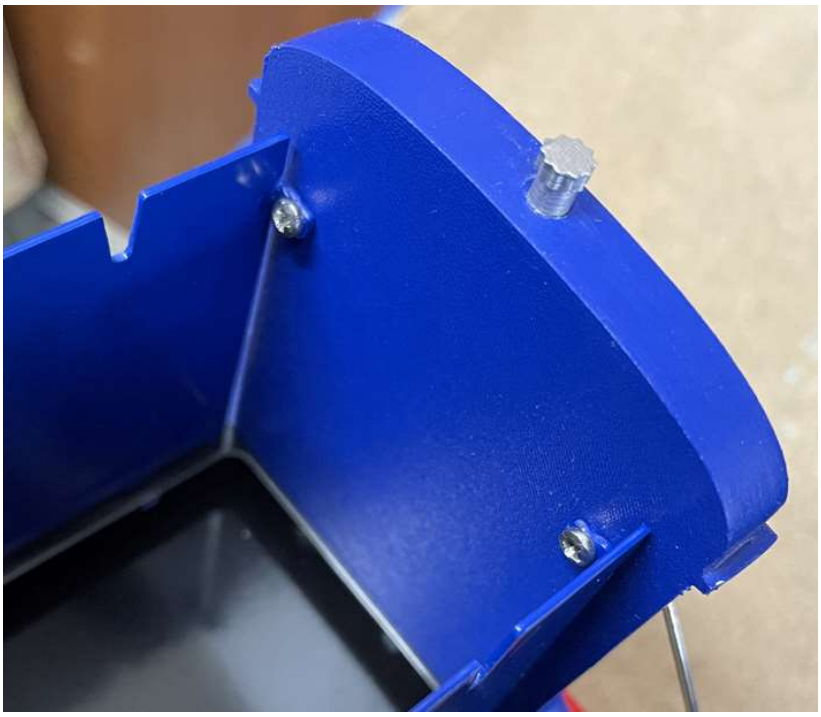


Photo 14:



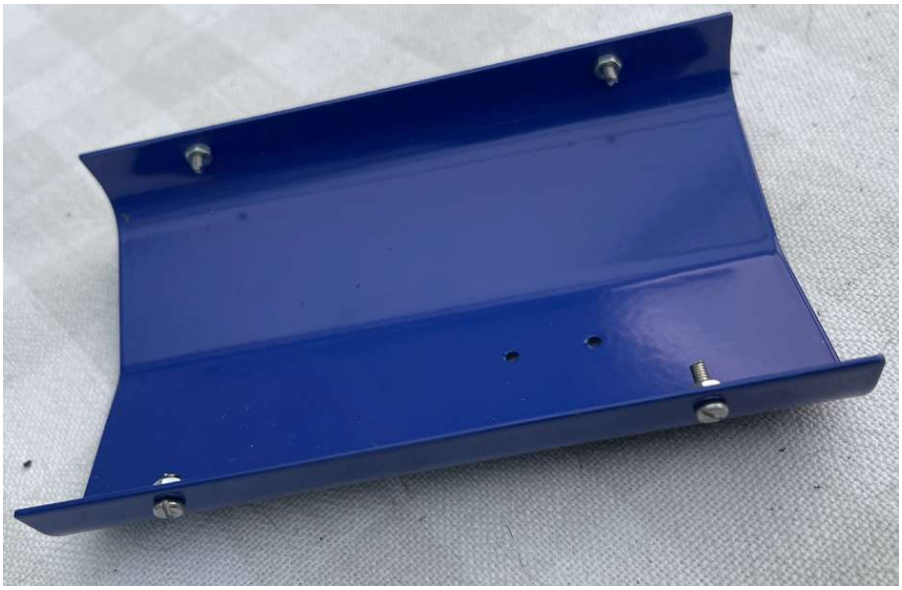
Sit the assembly upright and try the radiator in place on the front of the footplate. There are holes in the radiator for self tap fixing screws through the footplate and the bonnet sides. Open out the holes in the bonnet side tabs to 2.2 or 2.3mm. Screw the radiator into place, use a long reach screwdriver through the cab back to get to the bonnet side tabs. Use self tap screws in the base and through the bonnet side tabs. See photo 15.

Photo 15:



- Take the bonnet top and fit an M2 bolt in each of the four holes, run a nut on the inside and tighten up. Check the fit of the bonnet top over the sides, there should be a little clearance at each end to prevent scratching the paint on the cab or radiator. See photo 16.

Photo 16:



- Fit the window frames to the cab, there is double sided tape on the frames. Peel off the backing tape on the frames and press onto the cab being careful to align the frames against the window cutouts. See Photo 17.
  The body accessories can now go in place, horn on the roof M2 screw, tool box and air tank on the bonnet sides, self tap screws. See photo 17 *(for reference as some parts might already be fitted).*

Photo 17:

- The radiator filler cap is fitted to the top of radiator with a spot of glue. It should stand up 3mm from radiator to the underside of the cap. The radiator grill fits into the recess in the radiator front with a spot of glue. See photo's 18 & 19 *(for reference as some parts might already be fitted).*

Photo 18:

Photo’s 19 & 20:

Cab side strip and hand rails go on next, slide two split pins on to the hand rails, open up the split pins if necessary.

Place the cab side strip on the cab side lining up the holes. Push the split pins through the holes in the cab sides with the handrail press in tight against the outside of the cab, check the side strip is the correct way round to go round the front of the cab.

Fold over the split pins inside the cab. Do both sides. The bottom of the hand rail fits into the hole at the top of the back buffer beam. Trim the split pins inside the cab. See photo 19.

- The front hand rail can be tried in place going into the holes in the top of the front buffer beam. Adjust as necessary and hold in place with a spot of glue.

- Last detail parts, fit the exhaust to the bonnet top, check the exhaust screw holes are 1.5mm and screw in from under the bonnet. See photo 20.

- Lifting eyes glue into place through the holes in the buffer beams. Fit the radiator plate and two cab side plates. See Photo 20 & 21.

Try the fit of the switch panel, slotting into the floor of the cab, with a self tap screw at the top of the panel going into the cab front. You might need to remove paint from the bottom tabs.

Photo 21:

- Once checked for fit the panel can be removed and wired up. All loco's need wires soldering to the motor, after that follow instructions for the different controllers.
- Rear cab back, this is magnetic so doesn't require any fitting, you will need to put the window frames and door on in the same manner as you did the cab windows using double sided tape provided.

Manual control

- Fit the charger socket to the left hand panel hole, pull the knob off the speed control potentiometer and fit to the centre hole. Forward/ off/ reverse switch goes in the right side hole. Look at the wires attached to the switches, yellow and blue go to the motor, black and red go to the battery.

- NOTE battery cables must be the right way round, red to positive black to negative. Failure to observe this will blow the controller. If the engine runs backwards with the switch forward, turn the switch round or swap the motor cables over.

- Oil the gears and bearings (cycle oil) and try the engine out!
  It's easiest to fit the roof and horn after wiring, M2.5 nuts for the roof and M2 bolt and nut for the horn.
  Refer to Photo 19.

- For remote control follow the separate makers instructions; Fosworks or Loco Remote are the systems we offer.

Driving and Maintenance Instructions

- Before running put a spot of oil round the axles and gears, use thin cycle oil.
- Charge the battery, maximum input 1amp (battery supplied half charged).
- Occasionally check grub screws are tight, wheels and gears.
- Clean after a run.

Driving, manual control:

- Check the speed control is turned off, anticlockwise until it clicks.
- Reversing switch, move from its central off position to forward or reverse.
- Turn the speed control up to the required speed.
- Turn down to slow, off to stop.

- For remote control see separate instructions.

Check List

Chassis Check List	Quantity	
Buffer Beams	2	
Coupler Outer	6	
Coupler Inner	4	
Spacer	2	
Chassis Plate	1	
Front Wheel Bracket	1	
Rear Wheel Bracket	1	
Axles	2	
Wheels with grub screws	4	
Bearings	4	
Sprockets	2	
E Clips	4	
Delrin Chain	1	
Bevel Gear Set with grub Screws	1	
Motor	1	

Body Check List	Quantity	
Footplate	1	
Cab	1	
Bonnet Side	2	
Bonnet Top	1	
Cab Roof	1	
Switch Panel	1	
Cab Side Strips	2	
Radiator	1	
Radiator Grill	1	

Accessory Check List	Quantity	
Underframe moulding	1x Left Hand Side. 1x Right hand Side.	
Horn	2	
Radiator Cap	1	
Exhaust	1	
Air Tank	1	
Tool Box	1	
Lifting Eyes	4	
Handrail Material/Handrails		
Split pins for Handrail	4	
Window Frame Set with Backing Tape	3	
Cab Plates	2	
Radiator Plate	1	
Cab Back Complete RTR. (Optional Extra)	1	
Cab Back Kit.(Optional Extra) Cab Back x 1. Magnets x 3. Window Frame Set.	1	
Fixings Check List		
M3 x 22mm Bolts - coupler to chassis	4	
M3 Nuts	4	
Self Tap Screws - Footplate to chassis, switch panel to cab, radiator to footplate, radiator to bonnet sides, chassis to underframe moulding	20	
M2.5 nuts - cab roof	2	
M2 x 6 Bolts – Bonnet top, wheel brackets, motor to chassis, horn	11	
M2 nuts – wheel brackets to chassis	9	
Strip of double sided tape	1	
Controller Check List		
Motor cable & socket	1	
Battery with fuse & socket	1	
Fosworks manual controller set with charge socket Or Loco Remote Maxi remote control set Switch and charge socket Or Fosworks remote control set. (Delete as appropriate)	1	

In the event of any problems or questions please contact Maxitrak tel: 01580 893030