

British Rail Class 121 & 122

Diesel railcars

O Gauge Model

Owner's manual

dapol

Authentic Scale Model

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Thank you for purchasing this Dapol product.

A history of the BR railcar

Nicknamed 'Bubblecars' the class 122 and 121 were built by two companies in consecutive batches.

Class 122: 20 were ordered by the British Transport Commission (BTC) in 1956 and built by the GRC&W Co. Ltd class 122 was based on the class 116 with the addition of an additional cab end. 20 of these single unit railcars were constructed for the Birmingham and London areas of the WR. During the 1970s some sets were re-allocated to Scotland. Other cars, (except one in departmental use) were moved to Tyseley. Used on W.M. local services, and as 'spares' for other type formations if a car required depot or works attention. In 1984 two cars moved to the Stockport - Stalybridge service. The same year three were transferred to Bletchley for work on the St Albans and Bedford branches. In 1987 six vehicles replaced troublesome class 142's on the Cornish branch lines to Looe, Newquay and St Ives, the last two being withdrawn in 1993. Subsequent to passenger service many were used as route learning cars, Currently, 8 vehicles are in preservation.

Class 121: 16 were built during 1960 after the Class 121 and the longest-lived class, they were built by the Pressed Steel Co. in Scotland to replace the aging GWR railcars, but soon became used around west London, Bristol, South Wales and Cornwall. The class existed in many liveries, being used by Arriva and Chiltern as well as departmental duties 55034 retired from Chiltern Railways revenue service in 2017. Worthy of note is that technically (as of 2020), 55034 is still in service as it is used for route learning by Locomotive Services. Of the remaining sets, more than half are now in preservation.

Specification

Specification:

- Diecast metal chassis
- Diecast bogie frame and wheels
- Twin low-profile motors
- 2nd radius (1028mm) ability
- All wheel pickup
- Brass bearings
- DCC Ready (21-pin)
- Optional speaker in luggage area (standard with factory-fitted sound)
- Sprung buffers
- Sprung coupling hook
- Instanter style couplings
- Highly detailed body and interior
- Separate handrails and door handles
- Etched grills
- Fully operational independent lighting
- DC 'Smooth drive' capacitors
- Exhaust and handrail variations
- Buffer variations
- All body styles tooled

BR classes 121 & 122

Quick start: *We know you would like to have your model running as quickly as possible; please spare a moment to read this section first.*

- An accessory pack containing optional hoses.
- Models factory fitted with optional DCC or DCC sound will operate on DC or DCC*

* When operating on DC, the model will produce exhaust sounds automatically

Icons used in this booklet:



Information: Hints and tips



Caution: Take care when performing this step



Warning: A risk of damage may exist



The model is mounted on an acrylic base. Please remove this as described below. *Please re-pack in the same way before sending for warranty or service.*

Unboxing:

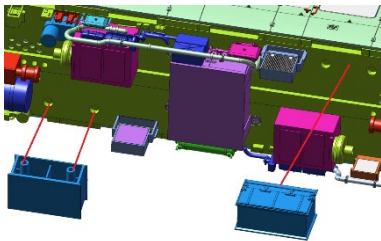
Remove the model with its acrylic base from the foam.

The model is fastened to the base using two screws.

After removing the two screws, the base and spacers can be removed).

Press-fit the two battery boxes (found in the accessory pack) over the mounting bosses. Retain the fitting

hardware and base in case of return or repair.



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An accessory pack is supplied with your model containing the following items: (See *fitting of accessory items* for further detail)

- 4 x Vacuum hoses
- 2 x Air hoses
- 4 x Electrical jumpers
- 2 x Battery boxes
- 1 x 2-pin plug with flying leads (optional speaker)

Operation:

Running in / First use: No special running in or initial lubrication is required; our 'new generation' locomotives have been designed with care to offer many years of service with minimal maintenance.

i Before operating your model, first run in both directions at a low speed checking for correct operation using either DC or DCC.

If a DCC or sound fitted version has been purchased it will operate correctly on both DC and DCC.

A Non-DCC fitted model will not operate on a DCC controlled track.

i **DCC address** is factory set to address #3.
The decoder fitted is either a Dapol Imperium 3 (DCC) or Zimo MX644C (DCC Sound).

i A DCC fitted model will 'autodetect' and operate on both analogue (DC) and DCC

If operating a DCC fitted model on DC, please follow the DC operating procedure.

Further information is available in the relevant sections.

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Maintenance:

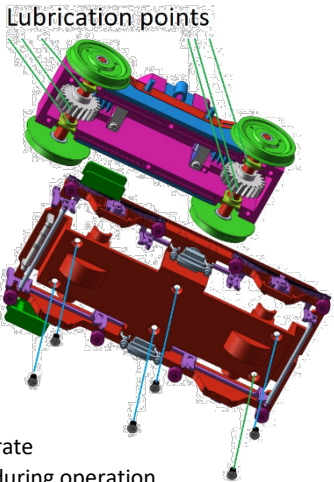
⚠ Warning: Mineral oil types or thicker oils may damage your locomotive paint finish or components and invalidate your warranty.

The model is designed using components which require little maintenance. We suggest that the drive train and gear box are lubricated after every 100 hours running using a light synthetic lubricating oil such as Dapoil or Locolube™.

Lubrication is applied to axle bearings. Using only 1 small drop of oil on each point.

To lubricate the worm gear, remove the bogie frame screws.

Only 1 or 2 drops of oil are required on the gear-train, this will migrate through the gear train during operation.



⚠ Caution: Do not over oil. Over oiling may damage paint finishes and/or cause build-up of dust.

Check all moving parts to ensure that no build-up of debris is apparent.

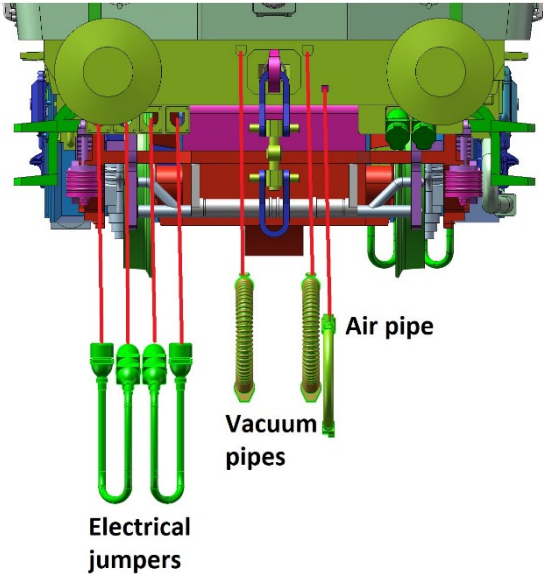
- i** Remove any surplus or spilt oil immediately using a lint free cloth.
- i** Regularly check your model for build-up of dust of loose scenic material around moving parts.

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Fitting of accessory items:

Couplings: The model is fitted with two instanter style couplings

Buffer beam pipes: are fitted in the following locations:



i A small drop of flexible [rubber] adhesive can be used to permanently attach these parts

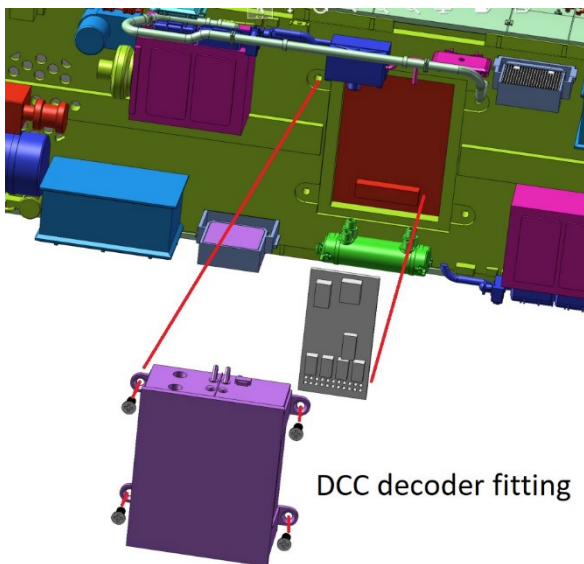
BR classes 121 & 122

Installing a DCC decoder: (DCC Ready models)

Dapol recommend an 8 function Dapol Imperium decoder.

The decoder chosen must offer a minimum of 4 functions and be of the 'logic level' output type. An 8-function decoder will produce best results.

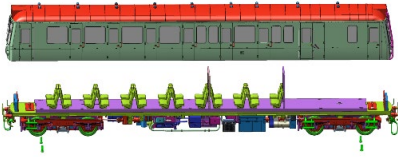
To install a decoder and/or optional speaker follow these steps:



1. Remove the four centre box retaining screws (using a Philips 00 screwdriver).
2. Remove the blanking and capacitor plate.
3. Fit the 21-pin decoder of your choice.
4. Program the decoder for correct operation (see pages 12 & 13)

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Removing the body: The body is held in place with four (Phillips 00) screws located on the underside of the chassis, a little inboard of the front wheels.



After removal of these screws the body will lift off the chassis. As electrical connections are by spring loaded pin there is no need to be concerned about wiring.


Speaker installation: If using a sound decoder, a pair of 4-ohm 26mm round speakers or alternative must be installed (DCC Supplies Product: **115150**).



1. Remove the body
2. Remove the six seating/floor retaining (Phillips 00) screws.
3. Lift the floor assembly, revealing the speaker recesses.
4. The speaker leads are soldered to the PCB located on the underside of the tender chassis (Marked LS+ and LS-). It is important that speaker polarity matches the polarity printed on the PCB.
5. The speakers are screwed into the cast recess using the locating lugs and washers.


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Fitting an optional speaker: If required, an optional 8-ohm bass enhanced speaker can be fitted into the luggage area (DCC Supplies part No: 100790). The 2nd speaker must be correctly matched with the speakers fitted in the chassis to produce a total impedance suitable for your decoder's amplifier. (Ref. Page 10)

 Refer to the warning below and check your chosen decoders manual to carefully select the additional speaker.

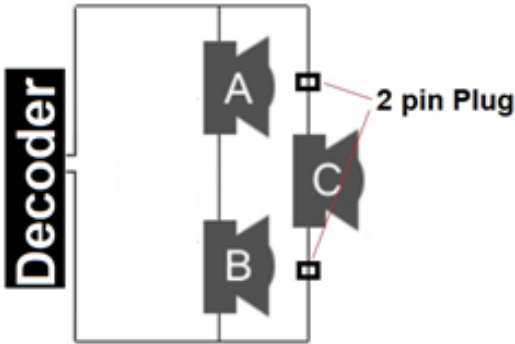
Example: 2 x 4-ohm speakers and an 8-ohm optional speaker will produce a decoder load of 4 ohms.

1. Using a Phillips 00 screwdriver, remove the body from the chassis.
2. A 2-pin socket will be found in the luggage area, a matching plug and flying leads is provided in the accessory pack.
3. Use this lead to connect the speaker of your choice (please ensure the correct combination to match the chassis speakers is chosen).
4. The speaker can be fitted in a convenient location using double sided tape.
5. Re-assemble the locomotive. The speaker will operate automatically without further configuration.

 **Incorrect auxiliary speaker selection may result in damage to the decoder.** Please refer to the notes on page 10.

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The model speakers are wired as shown below:



Speaker A & B – Chassis mounted speakers

Speaker C – Optional luggage area speaker.

Recommended speaker permutations when using Zimo or ESU decoders:

- 1 x 8 or 4 ohm (speaker C) ONLY.
- 2 x 4 ohm (Speakers A & B).
- 2 x 4 ohm plus 1 x 8 ohm (Speakers A & B plus C).

Example 3 speaker combinations from DCC Supplies are:

Speakers A & B: 115150

Speaker C: 100789 or 100897 or 100790

Single speaker (luggage area only) which are suitable:

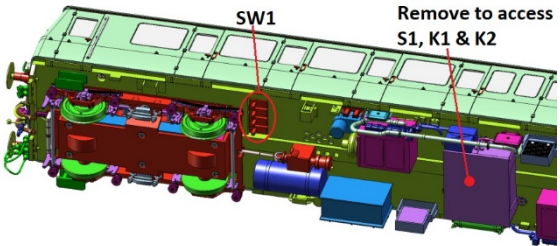
Speaker C only: 103543 or 103542



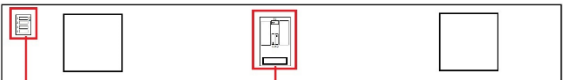
We do not recommend use of combinations not listed above, as this may result in damage to your sound decoder.

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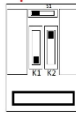
DC lighting control: Four switches are located on the underside of the front (non-exhaust) end, additional switches are located on the DC blanking plug.



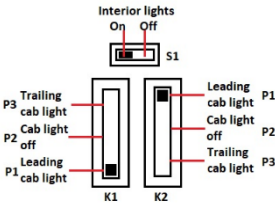
DC Lighting control



- SW1-4
- SW 1-1 #1 end (Front) White on/off
 - SW 1-2 #1 end (Front) Red on/off
 - SW 1-3 #2 end (Rear) White on/off
 - SW 1-4 #2 end (Rear) Red on/off



- S1: Interior lights On/Off
- K2: #2 end Rear cab Leading/OFF/Trailing
- K1: #1 end Front cab Leading/OFF/Trailing



Each switch controls a particular lighting function as shown below.

SW1 – 4: Front and rear lighting control. These switches are simple On/Off switches for each lamp.

S1, K1 and K2: Cab and interior lighting.

S1 is On/Off interior lighting control.

K1 & K2 controls the cab light function as shown in the following table.

K1 & K2	Forwards	Reverse
P1	#1 end cab on	#2 end cab on
P2	#1 end cab off	#2 end cab off
P3	#2 end cab on	#1 end cab on

BR classes 121 & 122

DCC Factory Fitted models: Are fitted with an imperium DCC decoder (address 3) to control the locomotive. Please note that the four switches SW1 – 4 will override the decoder and should all be set 'On' when a decoder is fitted.

The following function keys on your controller operates special functions.

F0	#1 end (non-exhaust) lights (directional)
F1	#2 end (exhaust) lights (directional)
F2	Cab lights (see note below)
F4	Interior lights

The supplied decoder is set to operate the leading cab light. If trailing cab lights are required, then the following CVs must be set:

CV 53 = 0 CV 54 = 16

To revert to leading cab lights set:

CV 53 = 16 CV 54 = 0

i If a full decoder reset is performed (CV8 = 4) re-set CVs to the values shown in the table below.

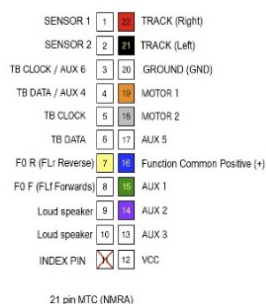
Using a Dapol Imperium 3 decoder:

CV	Value
51	16
52	0
53	16
54	0
35	4
36	4
39	8
40	8
43	32

The Imperium 3 decoder has 8 functions and will operate all features of this model. If you have purchased an Imperium 3 decoder separately to install yourself, then the CVs shown in the table to the left must be set to operate as shown in the table above. **If an imperium 2 decoder is used, then the interior (saloon) lighting will not function.**

i Dapol Imperium 3 are manufactured using a blue PCB. Earlier Imperium decoders are produced on a green PCB.

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Third party fitted decoders:

Decoders which are not factory fitted should be programmed to use the following outputs. Please refer to your decoder and control system manuals for further guidance.

Dapol recommend using an 8-function decoder; use of a decoder with fewer functions will prevent higher numbered features from operating.

Function number	Function name	Decoder pin	Feature Description
1	FO (Flf)	7	#1 end White
2	FO (Flr)	8	#1 end Red
3	Aux 1	15	#2 end White
4	Aux 2	14	#2 end Red
5	Aux 3	13	Rear cab
6	Aux 4	4	Front cab
7	Aux 5	17	Interior lighting

DCC Sound Factory Fitted models:

This model is pre-fitted with a Zimo sound decoder, underframe speakers and bass reflex speaker in the luggage area. Authentic sounds from an operating locomotive have been recorded as both manual and automatic sounds. Manual sounds are operated by the following keys on your DCC controller.

i When operating your locomotive on a DC (analogue) layout the decoder will autodetect the power source and produce engine and acceleration sounds only.

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DCC manual functions

F0	White marker lights (directional)	When ON, the white marker lights will be illuminated at the leading and of the Railcar.
F1	Start-up and shutdown	Whilst ON and with the speed set to 0 the engines start-up is heard. On pressing F1 again (F1 OFF) and with the speed set to 0, the sound of the engines shutting down is heard.
F2	Two-tone horns*	Short high and low horns will be heard
F3	Single horn*	Long, low horn will be heard
F4	Passenger doors slamming*	When pressed passenger door slams will be heard. If F4 is left ON, further door slams will be heard. Turn F4 OFF when the required number of door slams is reached.
F5	Guard's whistle	On pressing F5, the Guard's whistle is heard.
F6	Communication 'beep'	On pressing F6 (F6 ON), the Guard-to-driver communication beeper is heard. If F6 is pressed again (F6 OFF), sounds the driver's response beeper.

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F7	Brake application and release	When F7 is pressed, a brake application sound will be heard. Pressing F7 again (F7 OFF) 'releases' the brake. If 'RealDrive' is activated, the working brake will be applied (F7 ON) and released (F7 OFF). Note that if the working brake is left ON, the loco will not accelerate!!
F8	Flange squeal	On pressing F8, the sound of the wheel flanges squealing is heard.
F9	Red taillights (directional)	When F9 is turned ON, the Red taillights will be illuminated at the trailing end of the Railcar.
F10	Interior saloon lights	When F10 is ON, the interior saloon lights are illuminated.
F11	Cab lights (directional)	When F11 is on, the leading end drivers' cab light is illuminated.
F12	Fade out/in	When F12 is pressed (F12 ON), all sounds will slowly fade to silence. This can be used to when the Railcar is going 'off-scene' or into a tunnel. When F12 is pressed again (F12 OFF), all sounds will slowly fade back to the previously set volume. This can be used when the Railcar is arriving 'on-scene' or exiting a tunnel.

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F13	Cab sliding door open/close*	On pressing F13, the sound of the internal sliding door to the cab being opened is heard. Pressing F3 again (F13 OFF) simulates shutting the door.
F14	AWS warning siren	Pressing F14, sounds the AWS warning buzzer.
F15	High horn*	Pressing F15, sounds the long high horn.
F16	Low horn*	Pressing F16, sounds the short low horn.
F17	High horn*	On pressing F17, the sound of a high 'toot' horn will be heard.
F18	High horn*	Pressing F18, sounds a short high horn will be heard.
F19	Guard's door open/close	When F19 is pressed (F19 ON), the Guard's door is heard to open. Pressing F19 again (F19 OFF) 'slams' the door closed.
F20	Handbrake application	On pressing F20, initiates the sound of the handbrake being applied.

Automatic sounds:

Brake squeal: Produced when speed drops below a pre-set value, only whilst decelerating. The threshold value can be set using CV 287 and can be increased or decreased from the factory value of 20.



















BR classes 121 & 122

Spare parts:

When ordering parts, please ensure you quote Dapol's part number and the model's running number/livery, as parts and colours will vary between versions.

Additional parts to those illustrated may be available, please check dapolspares.dccsupplies.com for full list.

BR classes 121 & 122: Spare parts

Part Number	Part	Photo
115099	Class 121 & Class 122 O Gauge Complete Front Bogie Assembly	
115100	Class 121 & Class 122 O Gauge Complete rear Bogie Assembly	
115102	Class 121 O Gauge Handrail Set	
115103	Class 121 O Gauge Cab Handrail (Short) Set	
115104	Class 121 O Gauge Cab Handrail (Long) Set	
115105	Class 121 O Gauge Exhaust Pair	
115106	Class 121 & Class 122 O Gauge Windscreen Wipers Pair	
115107	Class 121 O Gauge Buffer Assembly Pair	
115108	Class 121 & Class 122 O Gauge Buffer Beam Detailing Set	
115109	Class 121 & Class 122 O Gauge Coupling Assembly Pair	
115110	Class 121 & Class 122 O Gauge Drive Shaft Detailing Assembly Pair	
115111	Class 121 & Class 122 O Gauge Main PCB (Includes blanking plate)	
115112	Class 121 & Class 122 O Gauge exterior Lamp Board Pair	
115113	Class 121 & Class 122 O Gauge Interior Lighting Board	
115114	Class 121 & Class 122 O Gauge DCC blanking plate (With capacitors)	
115117	Class 121 & Class 122 O Gauge Battery box set of 2	
115118	Class 121 & Class 122 O Gauge Decoder cover assembly	
115127	Class 121 & Class 122 O Gauge Lamp brackets (set of 4)	
115129	Class 121 & 122 Motor and worm gears	

Warranty

Manufacturer's warranty

Description: We want you to be completely satisfied with your purchase and obtain many years of pleasure from its operation. If you experience any problems with your model, we suggest that your first point of contact is your retailer; they will be able to advise on any teething problems and will use their experience to quickly solve many of your questions or concerns.

Your dealer is also the fastest way to exchange a model which is found to be missing components, accessories, or is otherwise defective after purchase. But, we recognise that you may require more: If a replacement model is not available you may find a refund disappointing, or you may simply prefer to deal directly with Dapol. For these reasons, we offer a 12-month manufacturer's repair warranty on this product in addition to your statutory rights.



Our Manufacturer's warranty in simple terms: If your model experiences a mechanical or electrical fault within one year of purchase, other than returning to the place of purchase, we offer you have the option of a free repair at our service agents which is (within the UK) also post free.

2nd year service (locomotives only). An option exists to have your locomotive serviced by our authorised agent (a service fee is payable). Simply contact our agent and you will be advised of the current cost and given a freepost address. The model will be serviced and returned with a validated warranty certificate for a second year of no-quibble warranty for your model.



Please note: Year 2 warranties cannot be issued more than 13 months after the original date of purchase.

Warranty



VERY IMPORTANT: Please ensure that your dealer has supplied a proper printed receipt with (Cont.) your purchase. Without this, our service agents are unable to offer warranty service. Repairs will be charged at the prevailing rate. Your statutory rights with the place of purchase are unaffected.

How to claim:

- Locate the proof of purchase (copies acceptable)
- Year 2 claims: Return with validated 2nd year certificate (or service fee if within 13 months of purchase).
- Contact our service agent for a Job ID number.
- Write the Job ID number on the outside of the package, and enclose your name, contact information, proof of purchase and if applicable your year 2 certificate.
- When posting, ensure that you obtain proof of posting and the model is adequately packed. If you require proof of delivery or insurance, you will need to purchase the additional service (at your cost) from your post office.

What happens next? If you have supplied an email address, receipt will be acknowledged, you will be advised when work commences and is completed. They will contact you in case of unforeseen difficulties during repair. Using your email address, you can use the online enquiry system to check the status of your model at any time via the internet.

If you have not supplied an email address, your model will be repaired and returned, you will only be contacted in case of a problem. You may of course contact our agent (quoting the job ID) at any time. What happens when the warranty expires? Our service agent offers a comprehensive repair service at reasonable cost. Alternatively, a comprehensive

Warranty

range of spare parts is available for purchase.

The small print! (Terms and conditions) We intend this 'No Quibble' warranty to be a simple and fair addition to your statutory rights, however, some situations simply cannot be covered as they are outside of our control. We've listed these below.



We're reasonable folks, so if in doubt, please contact either our customer service or service agents for advice on your situation and we'll suggest the best course of action.

Terms and conditions:

1. Only Dapol models packaged with this warranty or marked with a 'W' are covered under this scheme.
2. This manufacturer's warranty is in addition to your existing statutory rights and offers a repair service for your model. Requests for outright refund or replacement should be directed to the place of purchase.
3. In the event the model cannot be repaired, at Dapol's sole option, you may be offered: a new replacement model (subject to availability), a refund voucher (for exchange at the place of purchase) or the return of the model in an unrepaired condition.
4. On issuance of a replacement model or refund voucher the original model and all associated accessories shall become the property of Dapol Ltd.
5. The replacement or repair of a model shall not extend the original warranty period under any circumstance.
6. This warranty covers the model's electronics, chassis and mechanisms for manufacturing defect or premature failure. The following situations shall invalidate this warranty:
 - a. Accidental damage
 - b. Missing accessories (i.e. accessory packs) – Please return to your dealer.
 - c. Over or under oiling, incorrect oil type (use a thin synthetic oil i.e. Dapoil, LocoLube™ or similar)
 - d. Fair wear and tear (unless deemed to be premature by Dapol or our service agent)

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- e. Routine maintenance and faults due to foreign bodies i.e. Drive tyres, Dirty wheels, Pickups etc.
 - f. Mishandling: Inclusive of broken wires, dislocated driveshaft's, damaged valve gear.
 - g. Mechanical or electrical modification; inclusive of fitting of DCC to a non DCC ready model.
(Reasonable modifications inclusive of: Weathering, super detailing etc. are permitted, however any adverse effects of such modification shall invalidate the warranty.)
 - h. Unauthorised attempts to repair or modify the model.
7. This warranty is not transferable and is valid only for purchases made from authorised Dapol dealers when accompanied by a proof of purchase.
 8. This warranty does not cover: Used models, models purchased from private individuals or auction sites (unless a 'Buy It Now' purchase of a new model from an authorised dealer when supplied with supporting proof of purchase).
 9. Dapol and its agents shall be the sole arbiters as to the warranty status of the model and their decision is final.
 10. Whilst every effort will be made to protect such, Dapol and its agents shall not be liable for damage or alteration to any 'super detailing' or other aftermarket cosmetic, mechanical or electrical enhancements.
 11. Dapol and its agents shall not be held liable for damage caused to inadequately packaged models.
 12. Dapol and its agents shall not be held liable for models lost in the post unless a proof of posting can be supplied.
 13. All repairs will be repaired on a first in-first out basis, within a reasonable period after receipt by our agent. Unless agreed in writing by Dapol or its agent prior to receipt of the model time shall not be of the essence in any contract.
 14. All repairs and/or replacements are subject to availability

Contacts

Contact information:

Dapol Customer service
Telephone: 01691 774455
Email: sales@dapol.co.uk
Website: www.dapol.co.uk

Service and Spares Centre:
DCC Supplies Ltd.
Telephone: 01905 621999
Email: dapol@dccsupplies.com
Website: dapolspares.dccsupplies.com

Dapol Limited.

Unit 7 Gledrid Industrial Park, Chirk, Wrexham
LL14 5DG

Telephone: 01691 774455

Website: www.dapol.co.uk

Email: sales@dapol.co.uk

Spares: dapolspares.dccsupplies.com