PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE

Locomotive Operation and Maintenance

Hornby locomotives and their electric motors are precision built and, treated with reasonable care, will work well for a number of years. Whilst there are many varieties of locomotive whose differences are described in this leaflet, there are common points to be observed in their use and handling.

- NEVER CONNECT A LOCOMOTIVE DIRECT TO THE MAINS SUPPLY. Locomotives are designed to operate from 12 volts D.C. which is obtained from dry batteries or A.C. Mains via a suitable Power Controller.
- 2. Current consumption varies between approx. ·2 and ·6 amps depending upon type of locomotive, load and gradient. There will be a current surge on starting.
- 3. Half-wave rectified current, marked \(\sigma\) on the power switch of the Hornby R.900 Power Controller, may be used to improve control at slow speeds but should not be used for prolonged periods as it tends to cause over-heating.
- 4. Operating current is picked up through the wheels on one side of the locomotive or tender and returned through the other side. It is therefore essential that track and wheel rims are kept clean.
- 5. Mechanisms should be examined from time to time and any hair or fluff (e.g. from carpets) removed with tweezers.
- 6. Where Magnadhesion (see below) is fitted ensure that this has not caused pins or other metal objects to cling to the chassis or wheels.
- 7. Locomotives are lubricated at the factory. The lubricant may dry out in storage and the lubricating instructions should always be followed.

Magnadhesion

Many of the Hornby Locomotives in Classes 1, 2, and 3 are fitted with this unique feature, consisting of a small permanent magnet mounted in the chassis block between the driving wheels. The magnet causes the wheels to adhere to Hornby rails (which are made of steel) thus increasing the hauling power of the Locomotive.

Hints on Running

If a	locomotive does not respond to the control, check the following:-	C.	That each section of track is making good connection with its
a.	That all connections have been made correctly and that the power		adjacent sections and that the rail surfaces are clean.
	supply is on.	d.	That the power connecting clip is making good contact.
b.	If operating from batteries, that they are fitted correctly into the battery power module and not run down.	е.	That instructions on Lubrication and Maintenance, overleaf, have been correctly carried out.

0-6-0 Diesel Shunter Locomotive

The action of the coupling hook at the cab end of this model is influenced by an internal counterweight. With normal operation, coupling and uncoupling is effected in the same way as on other vehicles. The additional feature enables the locomotive to be uncoupled solely by the operation of the Controller.

To uncouple from a train it is hauling forwards, the locomotive should be stopped with a slightly abnormal jerk. This action causes the counterweight to move forward, thus lifting the coupling hook out of engagement. The locomotive should then resume movement smoothly.

To recouple, the locomotive is backed smoothly up to the train. It then gives a slight reverse jerk, causing the counterweight to fall backwards. This releases the coupling hook which will re-engage with the adjacent vehicle. A little practice will enable you to carry out this operation readily.

(British Patent Application No. 40398/75)

Maintenance of your Model

There are five basic classes of mechanism fitted to
Hornby electric locomotives. To identify your model
check the Catalogue to establish the "R" number,
and pick out from the list the appropriate class.
Some "R" numbers appear under two classes because
changes are being, or have been made. Removal of
the body will indicate which version you have. Then
follow the instructions overleaf.

Class 1	Silver motor	R.041, R.048, R.156, R.165, R.252, R.255, R.256
Class 2	X.03 and X.04 motor	R.041, R.048, R.154, R.156, R.165, R.252, R.255, R.761, R.845, R.852, R.866
Class 3	Worm drive power bogies	R.074, R.157, R.159, R.253, R.751, R.763, R.768
Class 4	Type 2 Ringfield motor	R.063, R.065, R.075, R.840
Class 5	Type 3 Ringfield motor	R.063, R.065, R.066, R.068, R.069, R.072, R.074, R.075, R.317, R.318, R.751, R.768, R.840, R.842

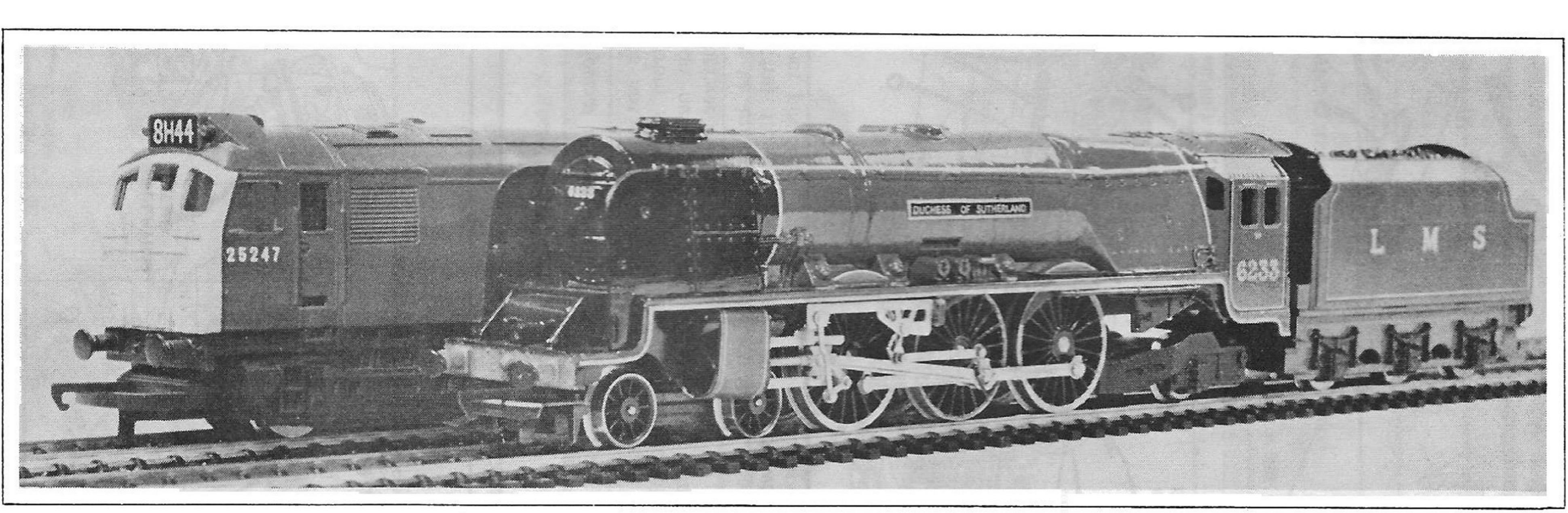
Spare Parts and Service

Spare carbon brushes, light bulbs, screws etc. may be purchased from Hornby Service Dealers or direct from the Rovex Service Centre. Service sheets illustrating Hornby locomotives in exploded view form are also available. An index of these will be sent on receipt of a stamped addressed envelope.

If your model is broken or disabled we recommend you to take it to your local Hornby Service Dealer (see Service Dealer List). If this is not practicable, send it to:-

Pack securely and enclose your name and address in BLOCK CAPITALS.

Rovex Service Centre, Albert Street, Ramsgate, Kent, CT11 9HD.



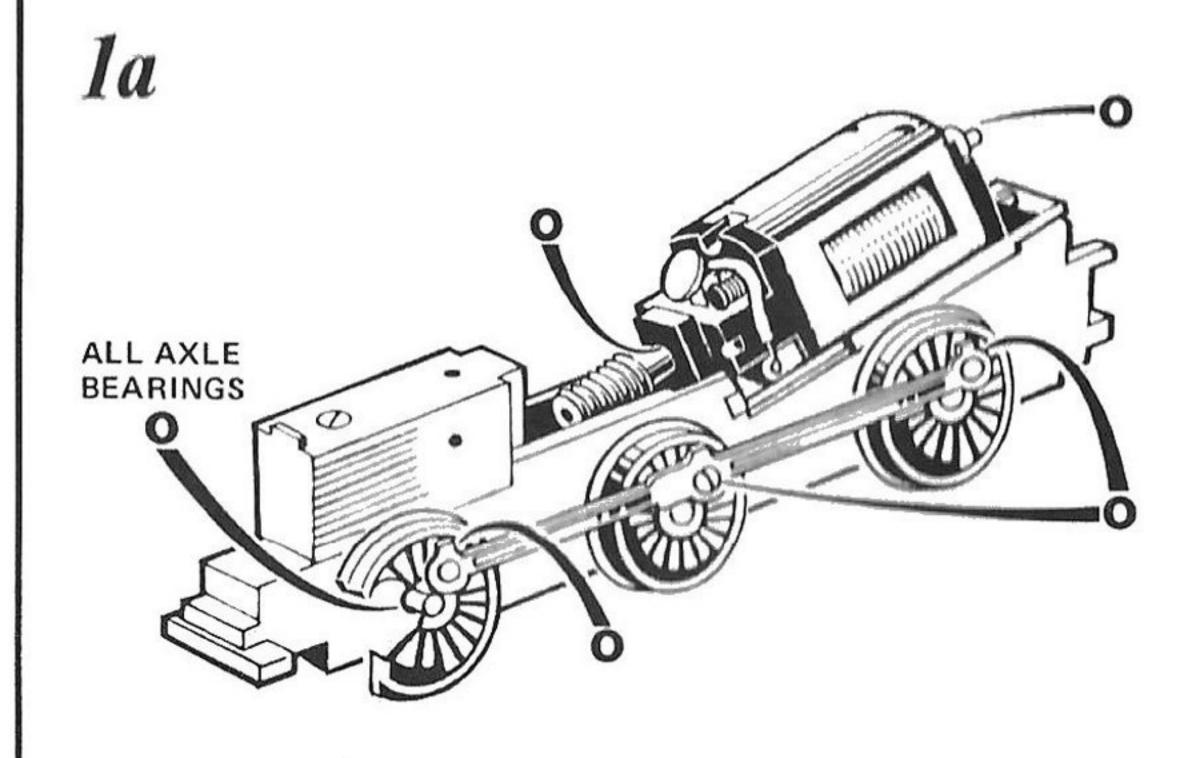
The Hornby "Duchess of Sutherland" Locomotive (R.066) with Class 25 Diesel Electric (R.068).

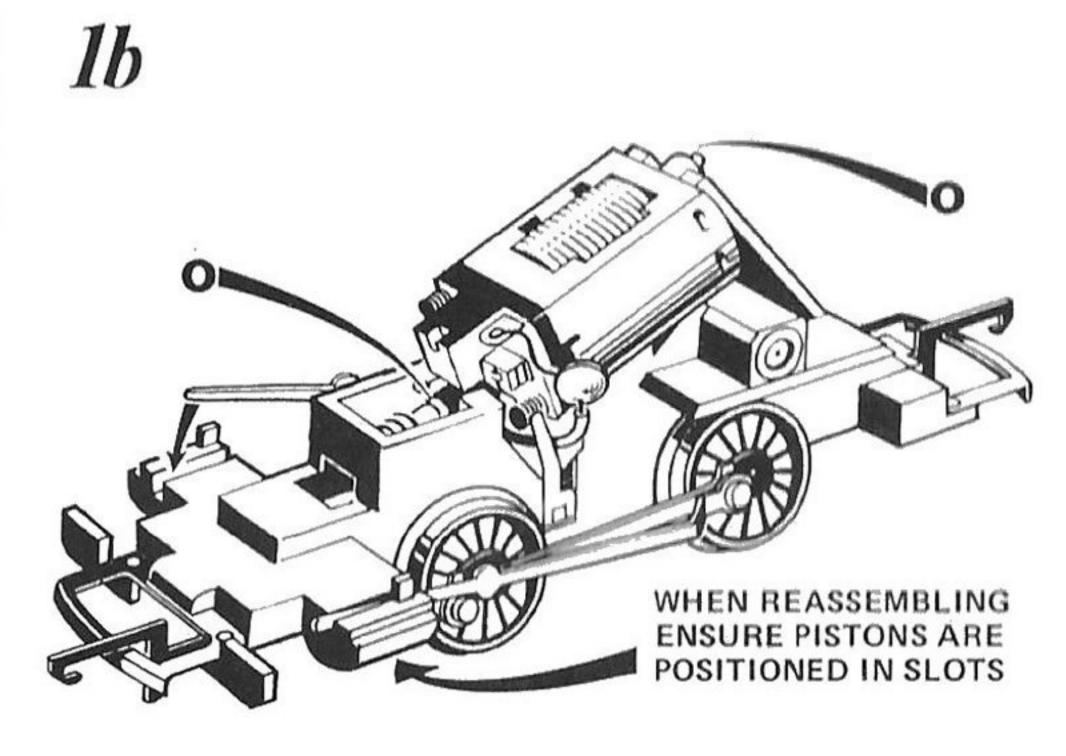
Locomotive Lubrication and Maintenance Chart

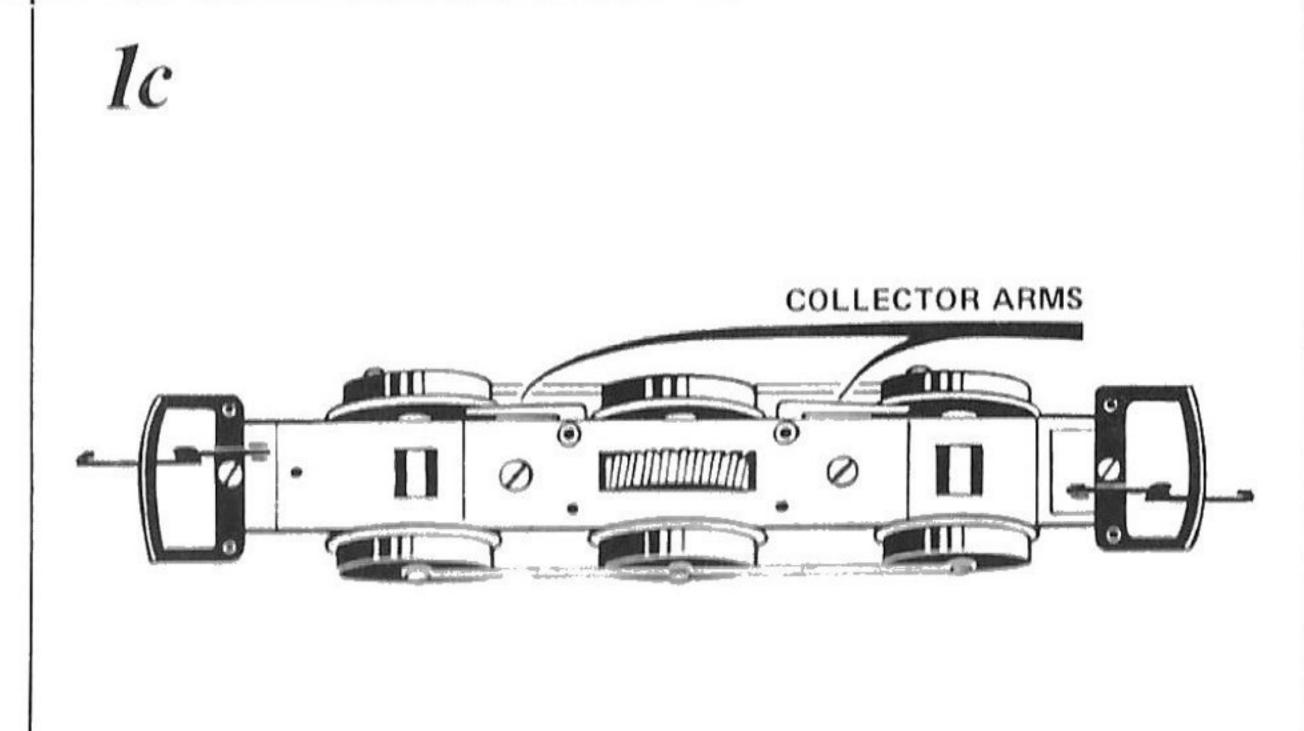
HORNBY RAILWAYS

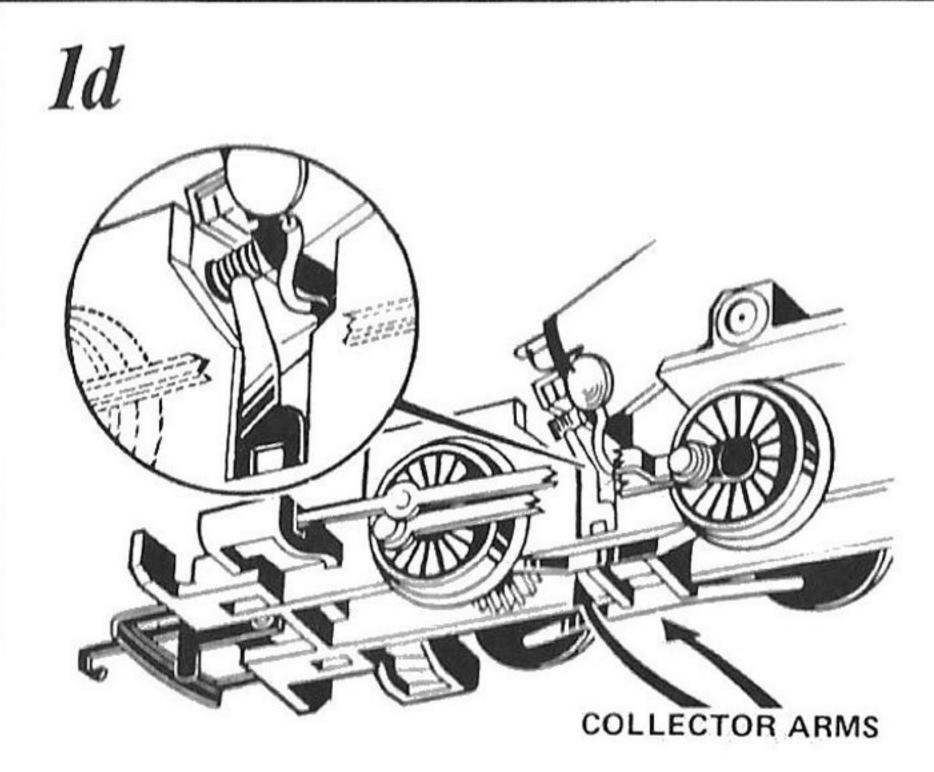
Use a drop of light machine oil on each point marked O. Do not over oil or use thick oil or grease. Keep oil off brushes and commutator.

Class	If ordering replacement motor specific	ecify colour of worm gear on motor shaft.	
Model No.	To remove body	Lubricate	Special instructions
R.041, R.048, R.252	Undo screw on left side of body.	Motor bearings, axle bearings and Check that collector arms are bearing light coupling rod fixings (Diag. 1a). of wheels and are not touching metal chas	
R.255	Undo screw at cab end.		
R.156, R.165	Insert blade into slot in front buffer beam and lever body off.		or wind and more to do ming in other or door pring, rey
R.256	Insert blade at rear underside between body and chassis and lever body off.	Motor bearings (Diag. 1b).	Check that collector arms are making good contact with inside of wheels and motor terminals (Diag. 1d).

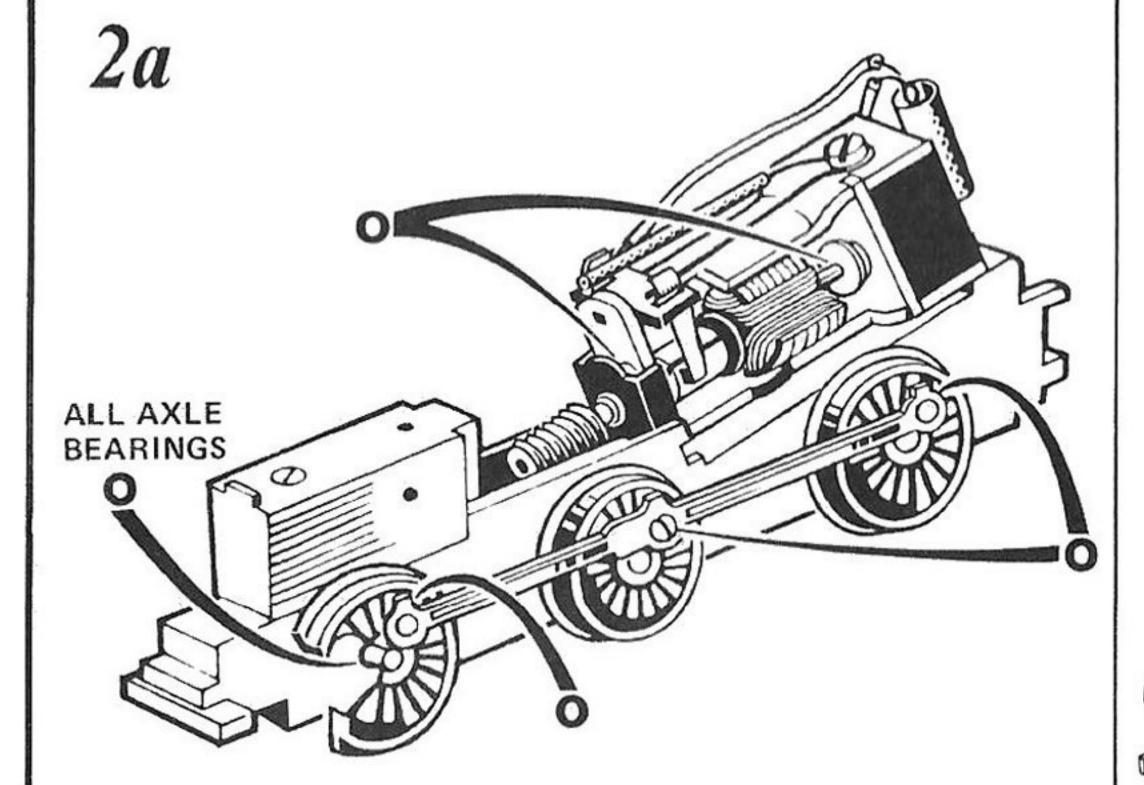


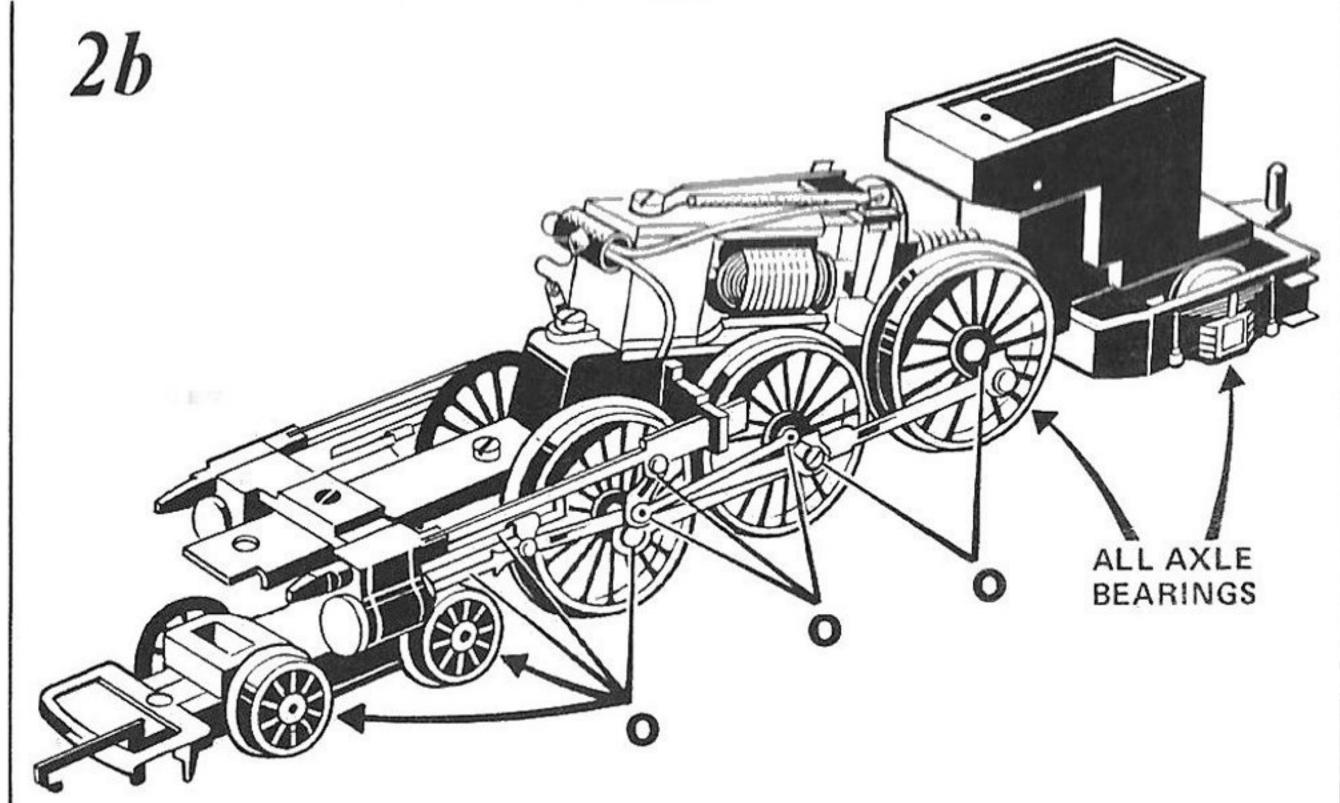


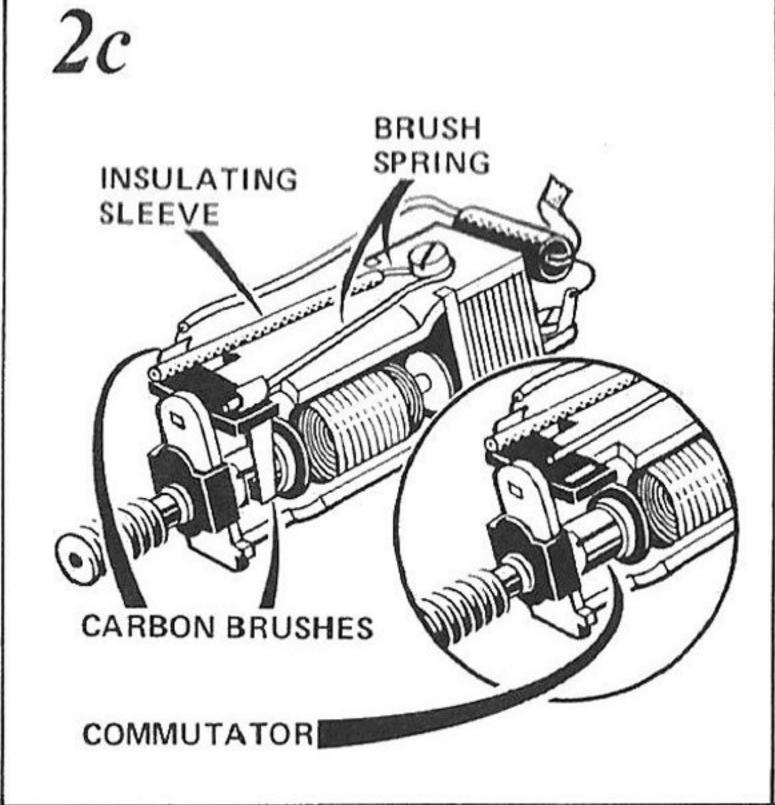


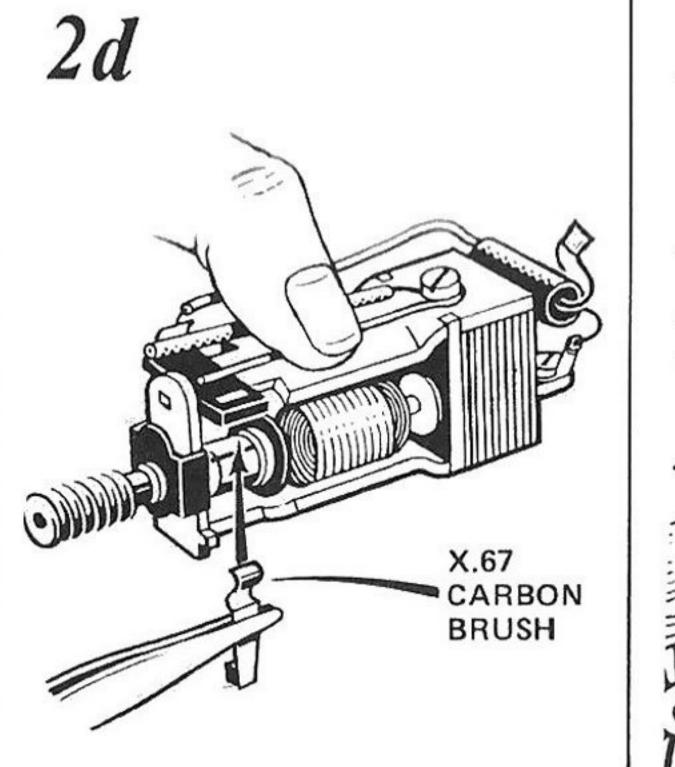


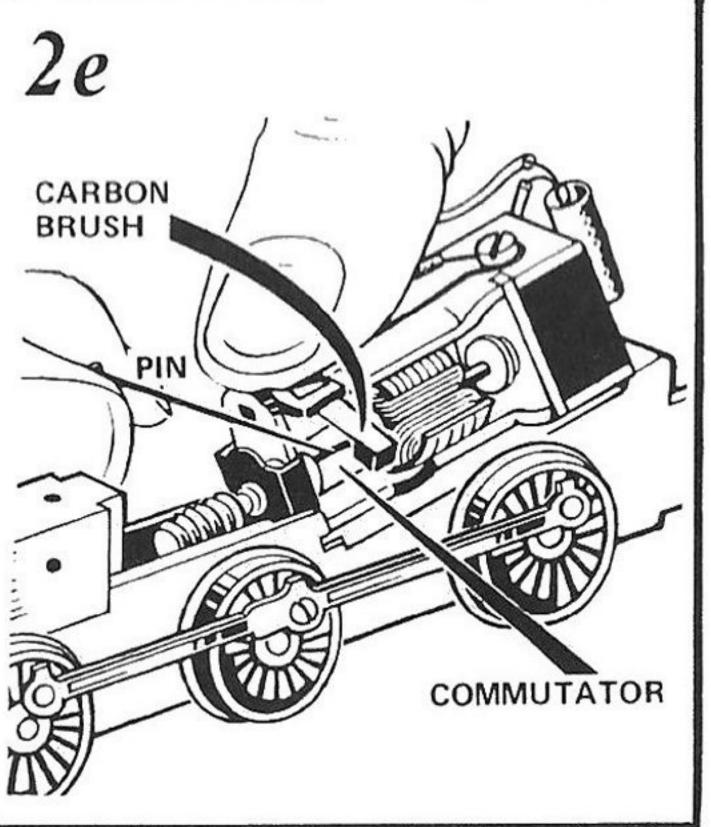
	Class 2	I.	f ordering replacement motor specify colour of worm gear on motor shaft	
Model No.	To remove body	Lubricate	Brush replacement	Special instructions
R.041,R048,R.252	Undo screw on left side of body.	On all models:	Do not remove motor from chassis. Diagram 2c is to clarify motor parts referred to. Release spring pressure from brush arm and withdraw brush with tweezers. Replacement brush part No. X.67, two required. See diagram 2d. Ensure insulating sleeve on brush spring is positioned correctly (Diag. 2c).	(Diag. 2c). Check that collector arms are making good contacts with inside faces of wheels.
R.156, R.165	Insert blade into slot in front buffer beam and lever body off.	bearings and coupling rod fixings (Diag. 2a). As above, plus valve		
R.255	Undo screw at cab end.			
R.154, R.761, R.852, R.866	Undo screw at cab end.			
R.854	Undo screw below cab.			









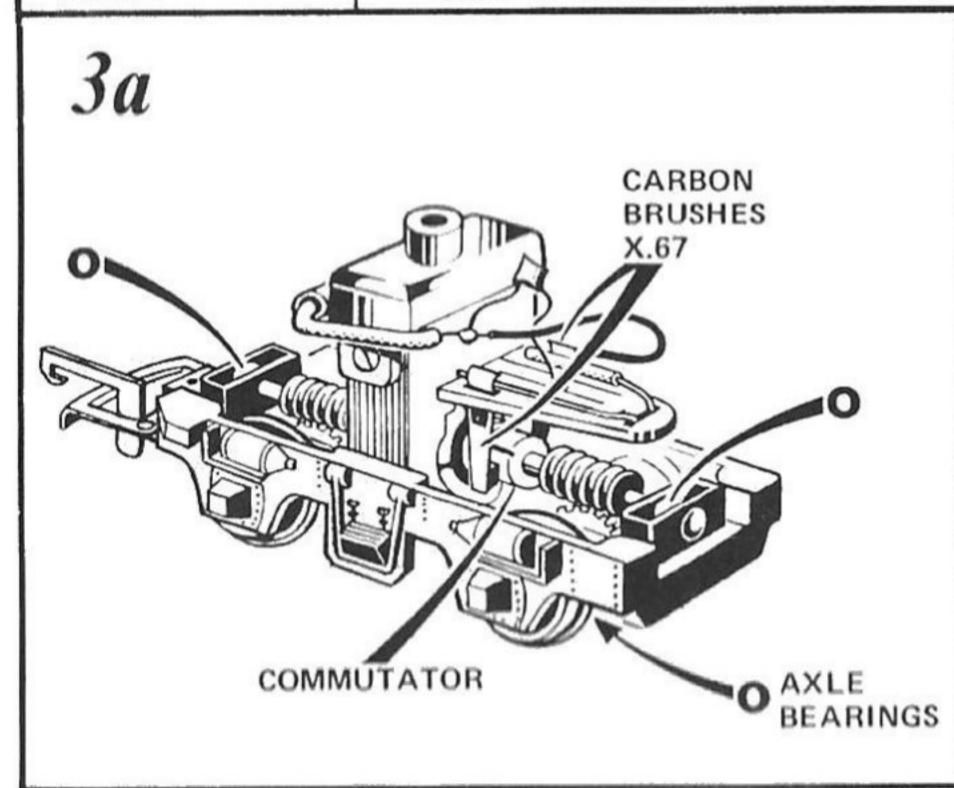


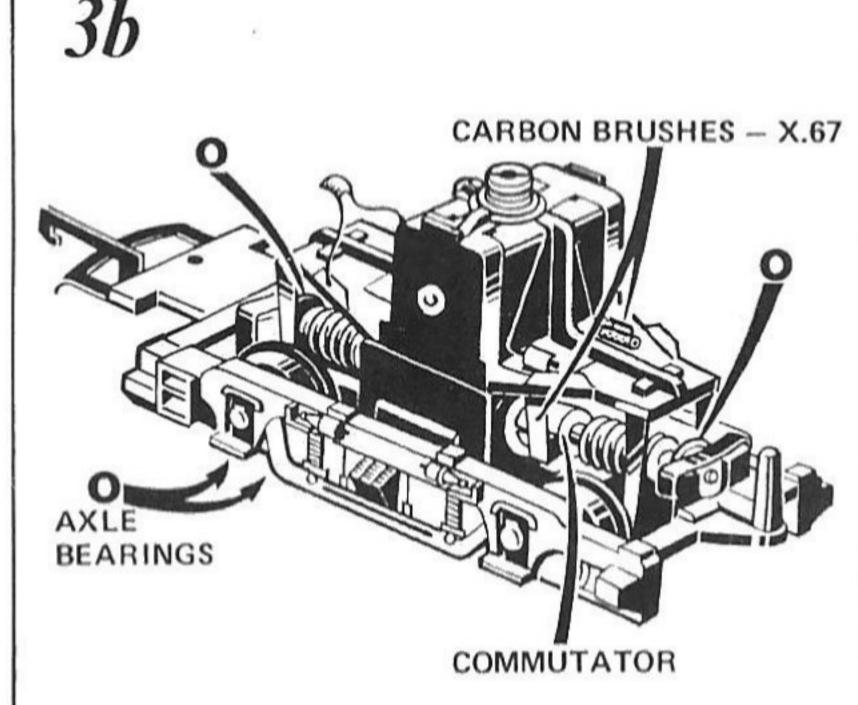
Class 3		Do not dismantle the entire motor. If magnets are removed they may lose their power.		
	T LL-	1hrinata	Special inst	
K.U/4,K./08	to release body from steps below cab doors.	On motor bogie: Armature shaft bearings	To identify parts refer to diagram 3a, 3 the segments of the commutator will	
R.751	Undo screw below.	and axle bearings (Diag.	from the brush arms and remove brush	
R.157,R.253	Undo screw in roof.	3a, 3b or 3c. Check which	(Diag. 3d). When replacing brushes ensur	
R.763	Undo 2 screws on top.		on brush spring (Diag. 3e or 3f). Chec inside faces of wheels.	
R.159	Undo 2 screws in roof; remove roof; undo screw over m	otor bogie.		

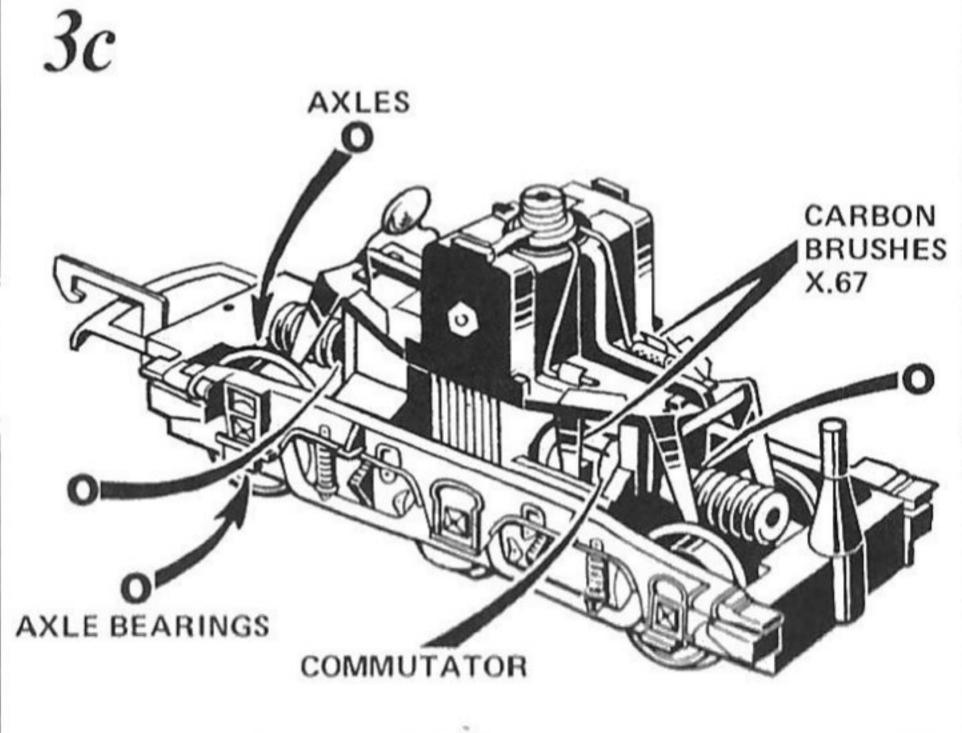
Special instructions

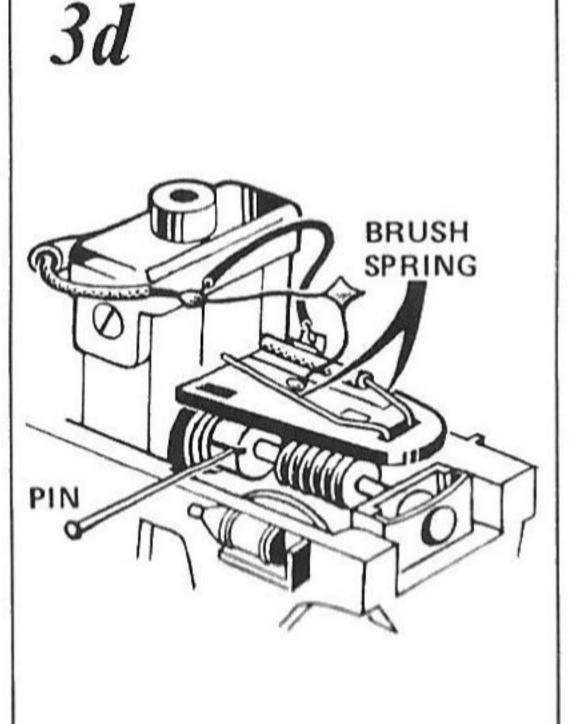
To identify parts refer to diagram 3a, 3b or 3c. From time to time the slots between the segments of the commutator will need cleaning. Release the spring pressure from the brush arms and remove brushes with tweezers. Use a pin to clean out slots (Diag. 3d). When replacing brushes ensure that insulating sleeve is correctly positioned on brush spring (Diag. 3e or 3f). Check that collector arms make good contact on inside faces of wheels.

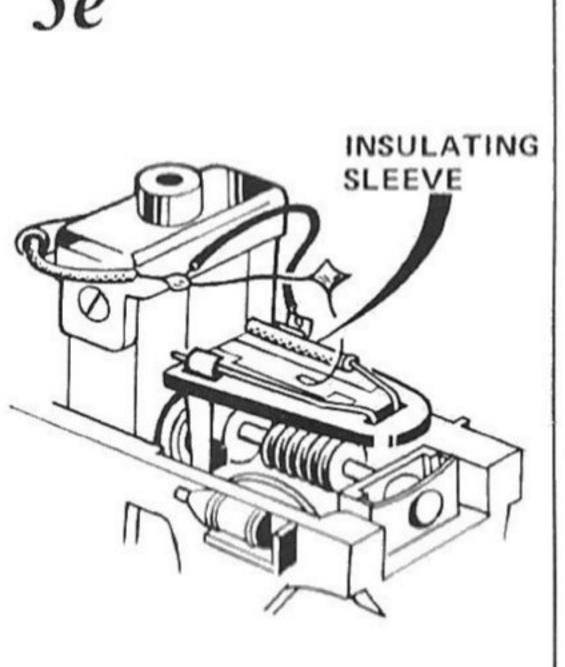
Brush replacement It is advisable to clean slots in commutator when replacing brushes. Refer to Special instructions when reassembling use new brushes (Spares No. X.67).

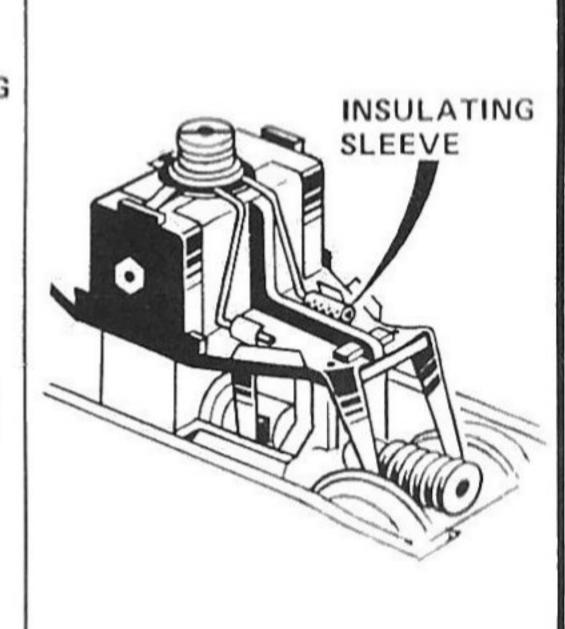












Model No.	To remove mechanism
	Insert blade as in diagram 4a, press lever down slightly to unclip bogie from chassis.
Tender of: R.063, R.065 R.840	Insert blade between body and chassis, diagram 4b, and twist open. Undo 2 weight screws, remove weight.

Lubricate

Gear shafts on motor (Diag. 4c). Axle bearings through 3 holes beneath.

As above, plus all locomotive valve gear pivot points (Diag. 4d) and axle bearings.

Brush replacement

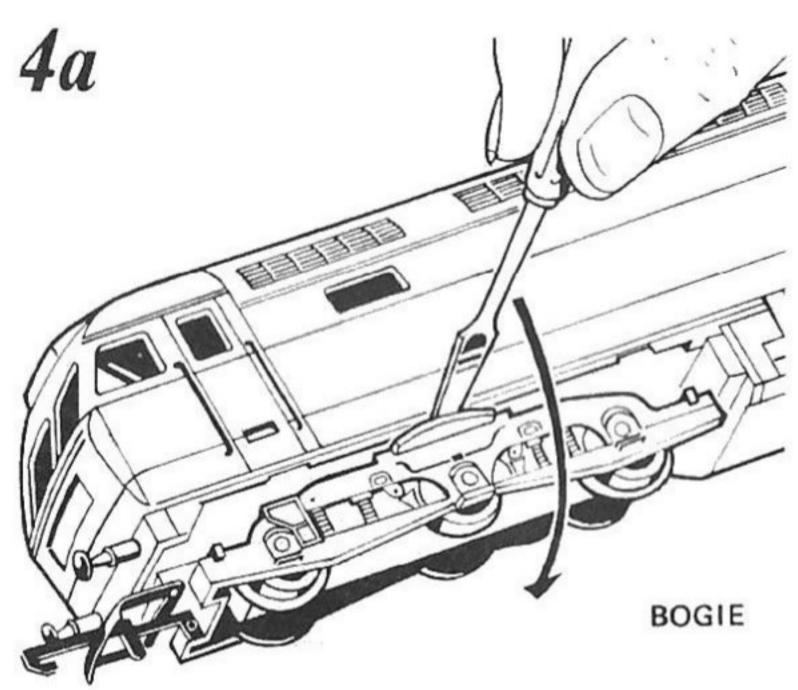
When removing brush caps take great care, there is a coil spring under each one.

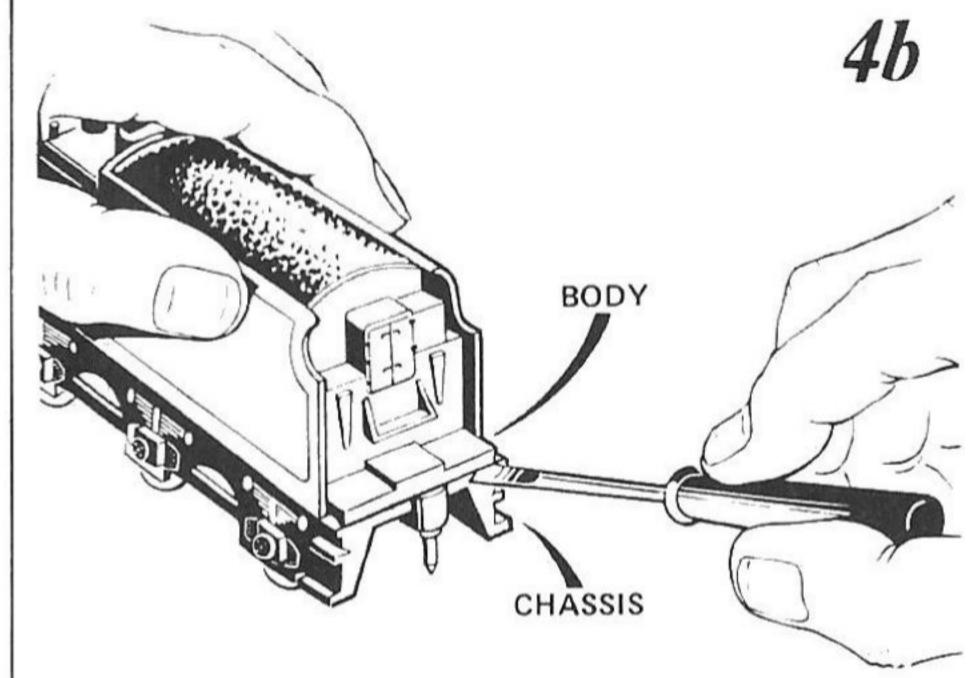
Carefully pull off brush caps, S.3766, (Diag. 4e) and withdraw coil springs S.8382. If carbon brushes do not come out turn mechanism over and tap lightly. If the non-tapered ends are less than 1/16", 1.6mm, long they should be renewed, part S.8319. Use the point of a sharpened matchstick to replace the brush springs.

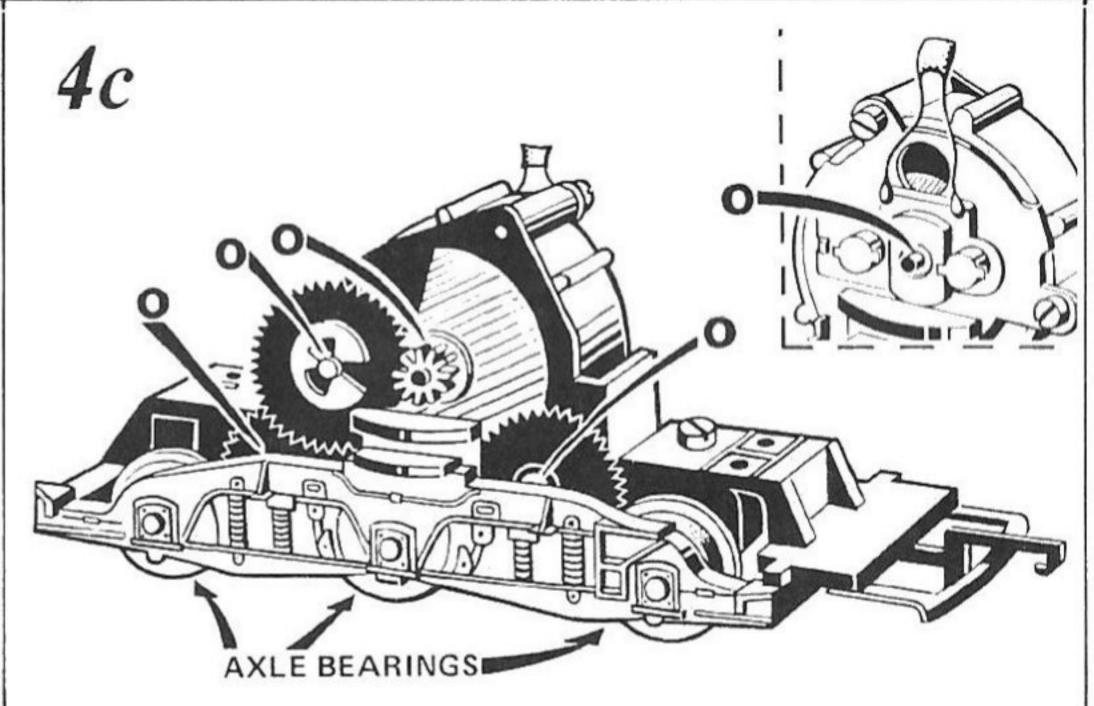
Special instructions

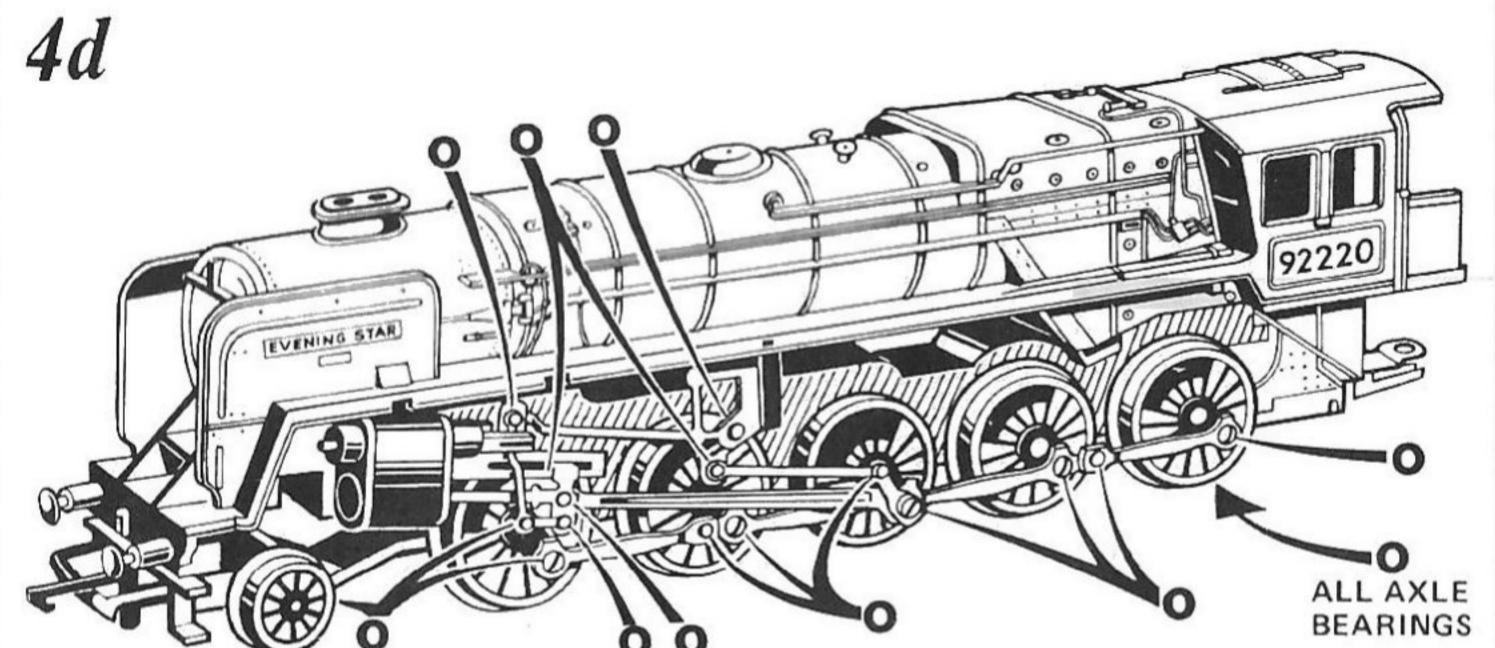
To replace Headcode bulbs do not remove motor bogie. See diagram 4f and use blade to release body from steps below cab doors. Remove plugs A. Remove bulb. Refit sleeve on new bulb (S.5099). Reassemble (Diag. 4g). Ensure no wires are trapped between lip of body and chassis.

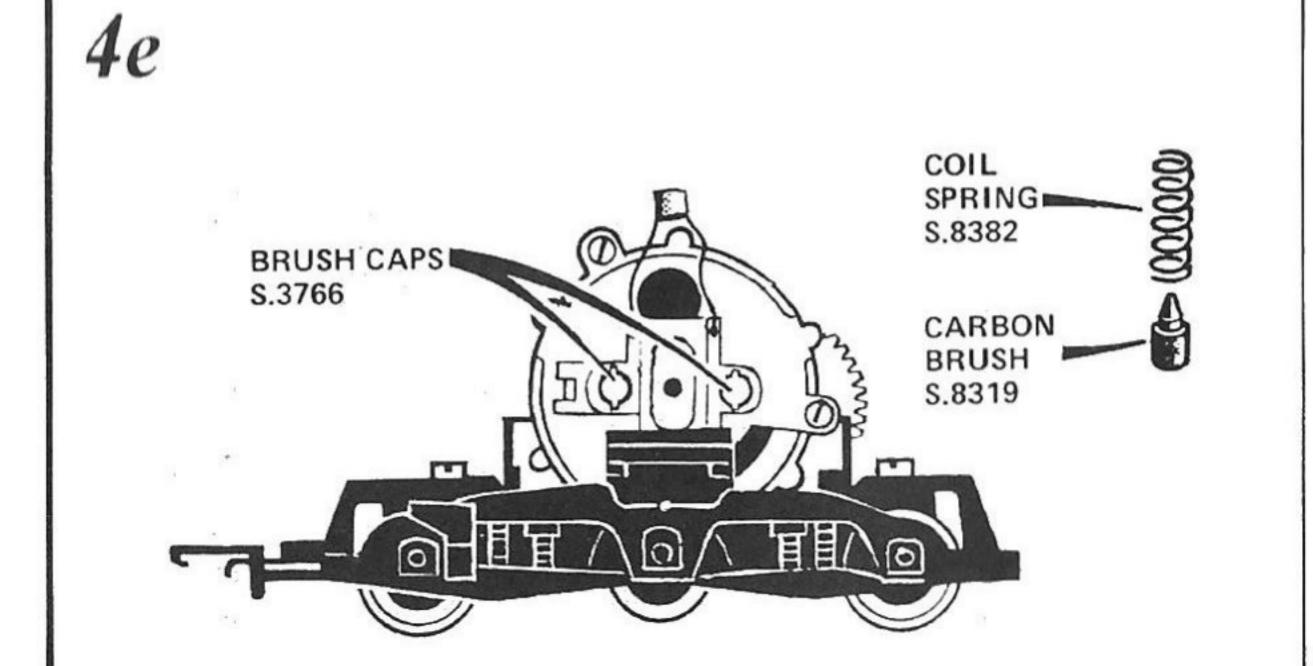
Good electrical contact must be maintained through loco/tender connection (Diag. 4h). Keep clean and free from oil: (i) Screw 'B' and drawbar 'C'. (ii) Clip 'D' and tender contact pin 'E'.

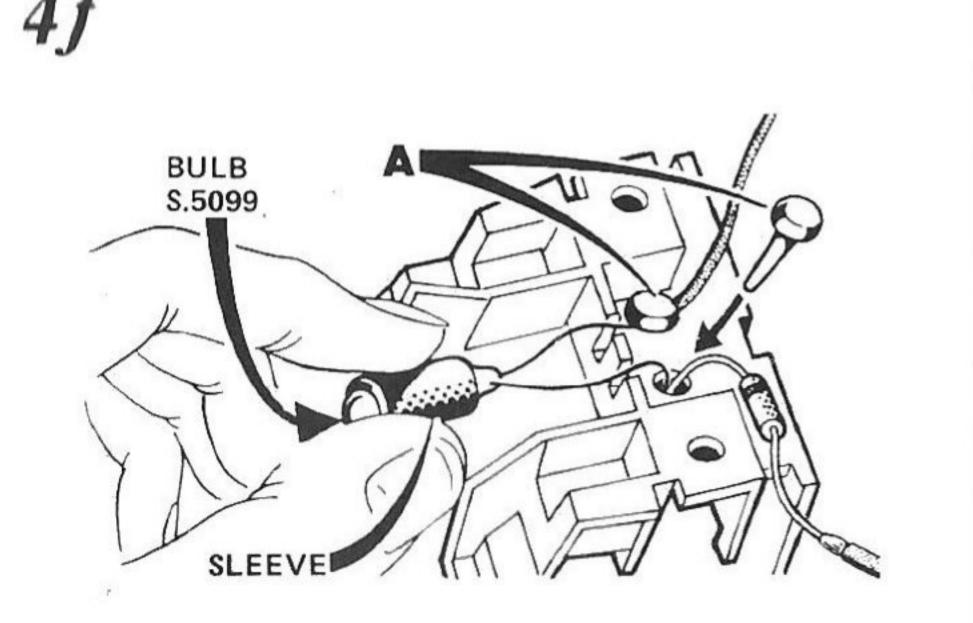


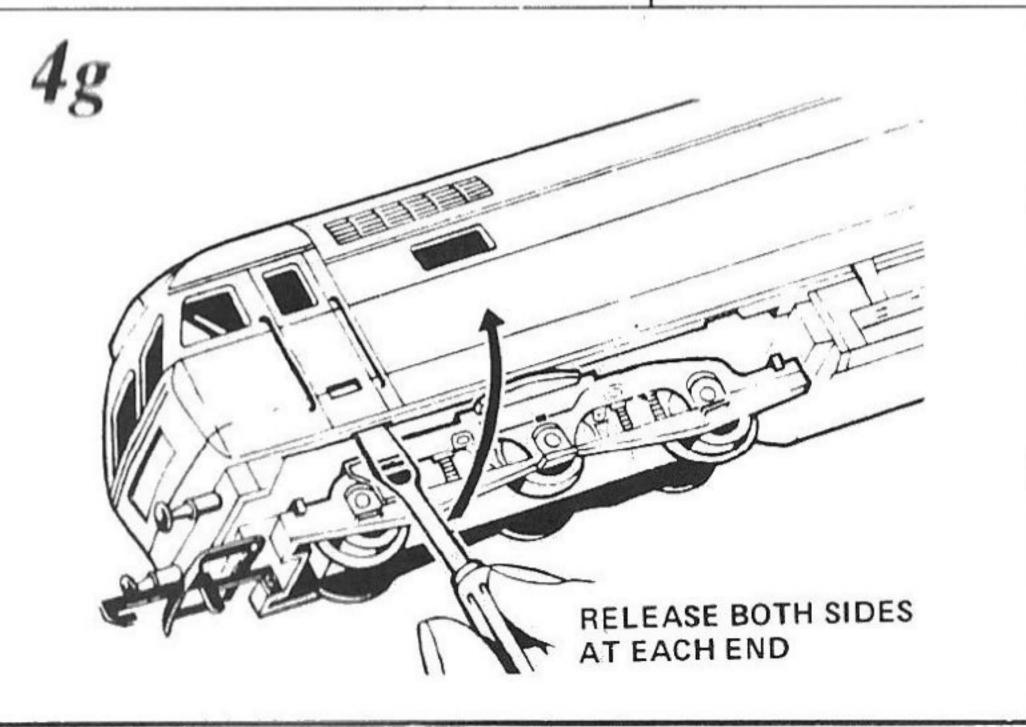


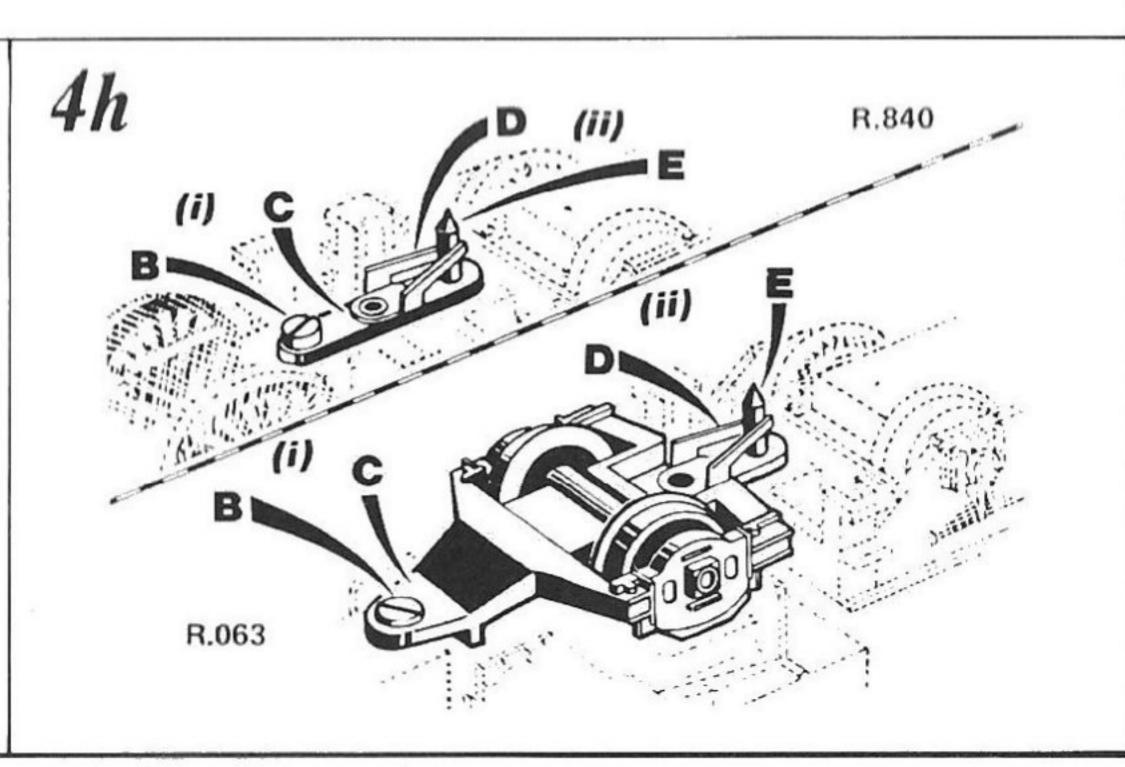












Locomotive Lubrication and Maintenance Chart

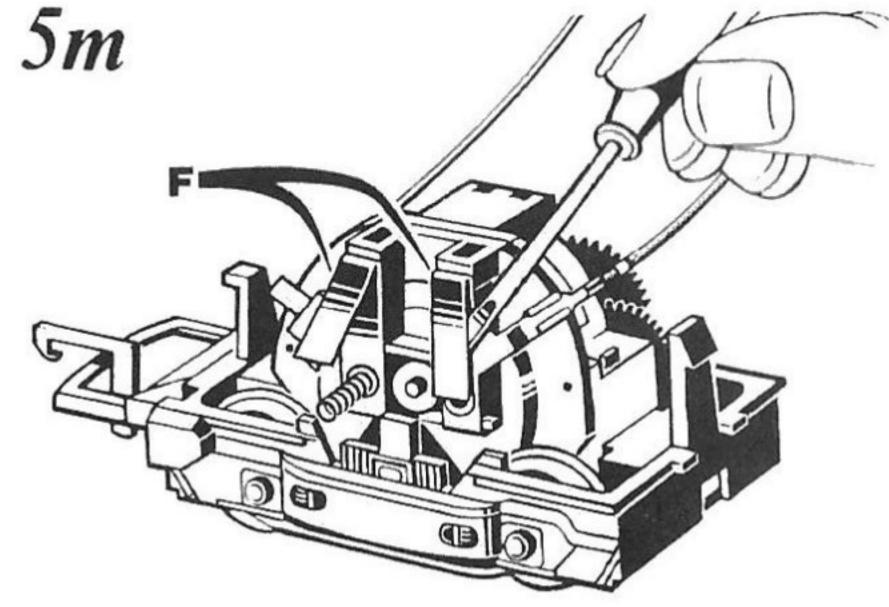


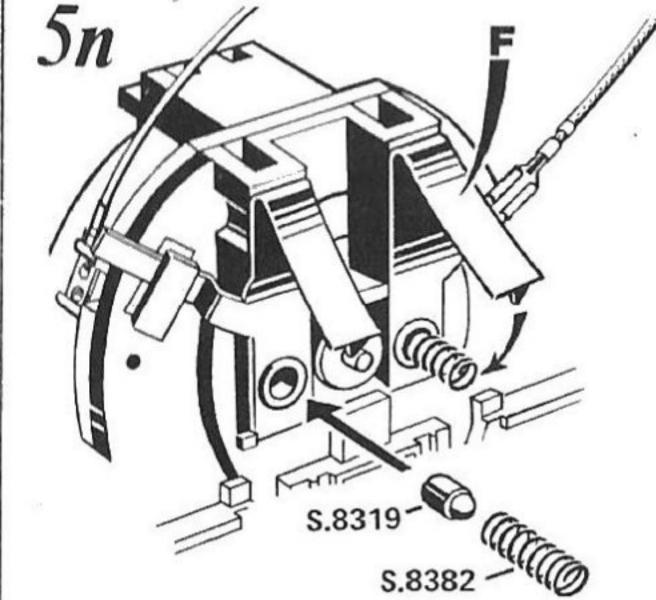
Use a drop of light machine oil on each point marked O.

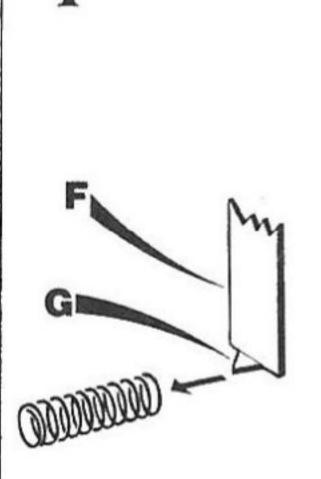
Do not over oil or use thick oil or grease.

Keep oil off brushes and commutator.

When mechanism is exposed do not unclip wires but take note of wire positions in case of accidental disconnection. Class 5 Brush replacement Lubricate To expose mechanism Model No. Special Instructions Note . . . R.074, R.768, R.317 and R.318 have the 4-Wheel Bogie Use a screwdriver blade to release clip A at the Use a drop of oil on the end of a pin. Taking great care not to let the springs jump out release clip A at the outer end of the bogie R.068, R.069, R.072, end of bogie frame (Diags. 5a, 5b and 5c or 5d). DO NOT OVER OIL. lift the two spring retaining arms F with a screwframe (opposite to that illustrated). R.074, R.768 Ease complete bogie out of chassis. driver blade (Diag. 5m). Withdraw springs, S.8382. Oil gear shafts on mechanism (Diag. 5h). Do not disconnect wires. (Diag. 5n). Should the carbon brushes, S.8319, not 6-Wheel Bogie The bogie with the mechanism can be identified Axle bearings (Diag. 5j). come out turn mechanism over and tap lightly. If by its two tyred wheels. 4-wheel and 6-wheel R.075, R.317, R.318, Axle bearings on non-powered bogie. bogies have common features. the non-tapered ends are less than 1/16" (1.6mm) R.751 long, brushes should be renewed. Good electrical contact must be maintained Use a drop of oil on the end of a pin. Insert blade between body and chassis and twist Tender for: through loco/tender connection (Diag. 5e). DO NOT OVER OIL. open (Diags. 5f and 5g). Use the point of a sharpened matchstick to replace R.063, R.065 R.066, springs. Bend retaining arms back into their original R.840, R.842 Keep clean and free from oil: Oil gear shafts on mechanism (Diag. 5h). Do not disconnect wire. position ensuring that points G (Diag. 5p) fit into (i) Screw B and drawbar C. Axle bearings (Diag. 5j). Locomotive valve the centre of springs ends. (ii) Clip D and tender contact pin E. gear (Diag. 5k) and axle bearings. Sa ALL AXLE







Traction Tyres

Hornby mechanisms with traction tyred wheels have been specially designed to operate on Hornby steel track. This track has a surface which ensures that the tyred wheels have a good grip thus enabling long trains to be hauled.

Made in Great Britain



Service Sheets are normally available within a few months of the release of new models. They show the model in exploded form including wiring and are helpful if it becomes necessary to replace parts such as light bulbs.

DOW/

ROVEX Limited WESTWOOD, MARGATE, KENT, CT9 4JX.