

How to service the RX motor in your Scalextric car

Maintain your Scalextric car's RX motor with these simple hints and tips

Abstract

The earlier Scalextric cars produced in the 1960s were fitted with open frame motors the most common of which is known as the RX motor. This motor was also fitted to many of the Hornby locomotives of the period. This article shows how an RX motor can be serviced in a methodical way by considering the mechanical, electrical and magnetic aspects of the motor.

Introduction

The [RX motor](#) was fitted to most Scalextric cars from the 1960s. In order for your Scalextric car's RX motor to give the best possible performance it has to be in the best possible health. Effectively giving the maximum torque for the electrical power available to it. For any electrical motor to give its best 3 key areas need to be considered; the mechanical condition of the motor, the electrical condition of the motor and the magnetic condition of the motor.

Mechanical

Mechanically the RX motor needs to be in the best condition possible to ensure that no energy is lost and the motor can transfer all of the generated torque to the rear axle. To do this several areas need to be reviewed:

- Firstly check and ensure that all the parts are present and undamaged. All [missing or damaged parts](#) must be replaced.
- Check and ensure the motor armature spins freely with no rubbing or tight spots. This could be caused by missing or damaged bearings or a damaged motor housing.
- Review the motor pinion gear and ensure all the gear teeth are in good condition. Replace the pinion gear if gear teeth damage is found.
- Add a [drop of oil](#) to each of the bearing felt pads.
- Ensure the [brush spring sleeve](#) is present and in good condition. Replace if necessary.

Electrical

There are many electrical connections and contacts used on the RX motor. Each of these must be in good condition to ensure the best performance of the motor. To do this several areas need to be reviewed:

- Firstly check and ensure that the solder joint between the wire from the pick-up brush and the eyelet that fits over the [brush spring sleeve](#) is complete and sound. [Replace or remake this joint](#) if any of the wire strands are broken or not making contact.
- Inspect the [eyelet](#) for any dirt or metal oxides that may have formed over the years. Clean the brush spring back to clean shiny metal where it contacts the motor brush.
- Inspect the [brush spring](#) for any dirt or metal oxides that may have formed over the years. Clean the brush spring back to clean shiny metal where it contacts the motor brush and the screw that secures the magnet.
- Inspect and clean the [motor brushes](#) removing any dirt, oil and carbon deposits. Ensure the carbon block is present and securely attached to the brass strip. Clean the motor brushes back to clean shiny metal where they contact the brush spring and eyelet.
- Remove any dirt, oil and carbon deposits from between the commutator segments of the armature.
- Remove any dirt, oil and carbon deposits from the commutator.
- Check the three solder joints that secure the armature windings to the commutator, remake these joints if necessary.
- The electrical connections for a car with an RX motor are:
 - Contact: Track braid to track rail
 - Contact: Braid contact to track braid
 - Solder joint: Wire to braid contact
 - Solder joint: Motor brush sleeve to wire
 - Contact: Motor brush to motor brush sleeve
 - Solder joint: Motor brush carbon block to motor brush
 - Contact: Commutator to motor brush carbon block
 - Solder joint: Armature wire to commutator
 - Solder joint: Armature wire to commutator
 - Contact: Commutator to motor brush carbon block

- Solder joint: Motor brush carbon block to motor brush
- Contact: Motor brush to brush spring
- Contact: Brush spring brass bolt
- Contact: Brass bolt to eyelet
- Solder joint: Eyelet to wire
- Solder joint: Wire to braid contact
- Contact: Braid contact to track braid
- Contact: Track braid to track rail

Magnetic

The magnetic field used by the RX motor is provided by a permanent magnet at the rear of the motor. The magnetic field reaches the outside of the armature by the use of steel plates that are also used as the housing for the motor. To ensure the magnetic circuit is maintained the RX motor uses various materials to ensure the magnetic field is not reduced.

- Ensure the magnet is secured by the correct brass screw.
- Ensure both the steel housing plates make good tight contact with the magnet.
- Ensure the aluminum plate adjacent to the magnet is fitted correctly.
- Ensure the brass plate at the commutator end of the motor is fitted correctly.

General

Through experience we have found that some RX motors still do not perform well even with all of these checks completed. This may be caused by a weak magnet or internally damaged armature windings. These faults are outside the scope of this article. There are many other possible faults with the earlier cars with the open frame motors. This is intended as a simple fault finding guide only. If the information above does not resolve the fault then contact us for further information.

About the author:

Gary Harding has been working with Scalextric cars for over 30 years and now operates Scalextric Car Restorations in the UK. Scalextric Car Restorations is a Worldwide internet based business that offers for sale high quality Scalextric cars and Scalextric parts from the 1960s to the present day. All the restoration work is carried out to the

highest standards with the highest quality parts available. Only the best cars are selected and the final result is a car that is genuinely like new.

Further help and advice relating to this article or Scalextric cars in general can be found at:

<http://www.scalextric-car.co.uk>