

Signalling Like for Like Renewal Work Instruction		WO No.
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Scope:		Date:
Team Leader:	Relay Type:	
Activity: SHELF RELAY LIKE FOR LIKE RENEWAL		
Reference: PR S 40010, PR S 40011, PR S 40024		
Activity No.	Task No.	WORK DESCRIPTION
		Completed Name/Sign
APPARATUS INSPECTION & PREPARATION		
1	1A	Examine and bench test new (overhauled relay) for correct operation. Ensure relay is sealed and seals are not damaged.
	1B	If a DC shelf-mounted relay: test the "pick-up", "drop-away" and "working" currents of the new relay.
	1C	Confirm the new relay is of the same type and contact configuration as the one to be replaced and as shown in the circuit book analysis. Observe each relay contact to ensure it is of the correct type (front or back) and opens and closes correctly.
	1D	Check the wiring on the existing relay against the circuit book contact analysis sheet. Any discrepancy to be investigated by the Maintenance Signal Engineer.
	1E	Confirm that the locknuts between studs and relay top on the new relay are tight.
Note: If a detachable top is fitted perform activity 2A then go to activities 5B – 5F. If relay is direct wired perform activities 3A – 5F.		
CHANGE OVER – detachable top only		
2	2A	Change the relay after obtaining train running information and reaching an understanding with the signaller for safe working as traffic conditions permit. Request signaller to install blocks on protecting signals.
WIRING CONFIRMATION – direct wired only		
3	3A	Examine relay to find which terminals are not in use.
	3B	On the new relay fit nuts and washers to the corresponding spare terminals and tighten. Fit bottom washers only to the terminals to be used.
	3C	Confirm any bridges on the existing relay and fit the same bridges on the new relay before installation. Tighten down nuts.
	3D	Ensure that each and every wire on the existing relay is correctly labelled with its terminal number and circuit name, and that the wiring is securely tied with multiple ties in a firm loom corresponding to the relay terminal configuration.
	3E	Write down the relay contact configuration, wire count and null count for each terminal on the relay on a copy of the contact analysis sheet attached to work package.
	3F	Compare actual wire count and null count against the circuit book and the contact analysis sheet. Any discrepancy to be investigated by the maintenance signal engineer.
	3G	Contact signal box for train running information, advise the signaller the relay is to be changed and reach an understanding for the safe working as traffic conditions permit. Arrange protecting signals to be maintained at stop and blocks applied.

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CHANGE OVER – direct wired only			
4	4A	Remove the nuts, locknuts and washers from the existing relay and lift wiring loom clear, ensuring that no wire touches any metal shelf/bracket or any other relay or relay stud and the wiring is not disturbed.	
	4B	Immediately remove the existing relay and replace it with the new one.	
	4C	Lower the wiring loom onto the new relay and check that the terminal number on each wire label corresponds with the relay terminal to which the wire is fitted- fit washers and nuts.	
	4D	Check if any bridges are left on the replaced relay once removed from shelf.	
CERTIFICATION			
5	5A	Confirm relay wiring against written down wire count and null count on circuit book analysis sheet (record by ticking the wire /null count in the copy of contact analysis sheet - results from step 3E & 3F).	
	5B	Observe that the relay correctly energises and de-energises.	
	5C	Verify each controlled function in turn by energising and de-energising relay replaced and observing each end controlling function operates as per circuit design for each and every relay contact on the relay replaced (record by ticking the contact function name in the copy of contact analysis sheet for each contact).	
	5D	If a track relay: ensure that the shunt value is within the permissible range of values for the type of track. Ensure the local coil voltage and current and track coil voltage and current are correct. Update the Track History Card.	
Note		If any doubt or delay arises during the process that could put at risk the safety of the signalling, the affected functions through the relay contacts shall be disconnected and booked out of use before changeover until certified by Circuit Strap and Function Tests after the changeover.	
	5E	Advise the signaller that the work is complete and the affected signalling is available for use (includes the removal of applied blocks).	
	5F	Complete and sign relay change form PR S 40024 FM01.	
<p>I certify _____ relay at _____ location has been inspected and tested and is fit for service.</p> <p>_____</p> <p>Print Name _____ Position _____</p> <p>_____ / ____ / ____</p> <p>Signature _____ Date _____</p>			