

# Work Instruction for Testing BR930 series Relays using the MRD RelayDoc Test Tool

ESI-05-15

## Applicability

ARTC Network Wide	SMS
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## Document Audience & Main Points

Audience	Main Points
Signal Maintenance Technicians, Signal Managers, Signal Construction Engineers and Signal Project Engineers	<ul style="list-style-type: none"> <li>All BR930 series signalling relays, before being brought into operational service, must be tested using the RelayDoc Test Tool if is available.</li> </ul>

## Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
1.0	11/10/2016	Standards	Stakeholders	Signal Manager Standards	Manager Standards 20/1/2017

## Background

The process described in ESM-05-11 is that prior to bringing BR930 series relays into service, the relays must be tested. A flowchart of the process to be followed can be found on the last page of this document.

The MRD RelayDoc is the preferred testing tool and is to be used where possible and supersedes the use of relay test panels.

## Relay testing procedure:

### 1 RelayDoc Calibration (prior to the start of a relay testing session)

- 1.1 Inspect electrical tag and ensure within compliant date.
- 1.2 Inspect electrical cable for physical damage.
- 1.3 Inspect label to ensure RelayDoc is calibrated and within compliant date (refer to SMP 47).
- 1.4 To ensure the RelayDoc is calibrated, insert the test block into the test base. Select "Test relay", enter the serial number then select test. When testing is complete select "OK". Remove the test block.

### 2 Initial Settings

- 2.1 Select the "Settings" icon on the bottom right of screen.
- 2.2 Enter password, default is "0000". A screen with 6 test options will automatically appear.
- 2.3 Ensure all 6 boxes on the left of screen are green with a tick except the second contact conditioning box.
- 2.4 Ensure contact conditioning reads "0 cycles" and only the default box for contact conditioning is blank.
- 2.5 Select the "Advanced" icon on the bottom left.
- 2.6 Ensure the language, time zone, date and time are set correctly and select "save".
- 2.7 Select "Back" on the top left then Select "Home" on the top left.

### 3 Relay Inspection

- 3.1 Prior to testing, ensure the relay has no physical damage, signs of overheating and the relay type is identifiable (Refer to ESM-05-11 sections 3.1, 4, 7.3 and 9.1 for more detail on examination requirements). If the relay is defective in any of these requirements, then a complete overhaul is required.

### 4 Testing

- 4.1 Insert relay to be tested. Select "Test Relay" on the bottom of the home screen.
- 4.2 Confirm the relay "Type" on the drop down menu with what is shown on relay label.
- 4.3 Enter the serial number as shown on the relay label then select "Test" to continue. Test progress and status should appear on the screen.
- 4.4 If error occurs, you may be prompted to identify if the relay is correct. Recheck the relay type and select "OK" if correct. Testing should commence.
- 4.5 After successful testing is complete, 3 beeps will sound. Select "OK" to return to the test results display.
- 4.6 Select "Report" top left. Record details on the label as per 6.1 below. Scroll to bottom of screen. Select "Save to USB" then select "OK". Select "Back" then select "home" and continue process for the next relay (step 3.1).
- 4.7 If the relay fails the test, you will be prompted to authorise contact cleaning and retest the failed relay prior to creating the test report. Go to step 5.1.

**5 Retest with Contact Conditioning**

- 5.1 A relay must not undergo a contact conditioning test more than twice before an overhaul is required. If a relay label indicates that the relay has undergone contact conditioning twice, then abort this retest and quarantine the relay for overhaul instead.
- 5.2 If the relay fails the test, go to setting section as per setting instructions above (step 2) and select "Contact Conditioning" so the green box with a tick appears. Then select the number beside the word "cycles", a new screen will appear. Using the + and – adjust to "10 Cycles" and select "Set". Leave default blank. Select "save" and select "home"
- 5.3 Provided the relay label indicates the relay has undergone "None" or "1" contact conditioning test before, retest relay as per the test instructions on the screen.
- 5.4 If the relay fails again, the relay can undergo this retest again, only if it does not exceed the maximum of two contact conditioning tests, otherwise an overhaul is required.

**6 Label**

- 6.1 Enter Report No. and RelayDoc ID (Report No.), your name, date and if contact conditioning was applied enter either "**None**", "**1**" or "**2**" as appropriate.
- 6.2 Then sign and attach label to the side of the relay.

**7 Saving Test Results to USB**

- 7.1 Insert a USB storage device.
- 7.2 Select the testing reports to be saved from this session of testing, either by "select all" checkbox if appropriate or by checking each test report individually.
- 7.3 Select "Save" to copy the selected reports to the USB device.

**Notes:**

1. If a prompt occurs to complete test block verification, then reinsert the test block into the test base. Select "Test relay", enter the serial number then select test. When testing is complete select "OK". Remove the test block, select "Home" top right of screen and continue relay testing.
2. MRD RelayDoc Web Cloud Service **MUST NOT** be used for storage of relay test reports.
3. If required, check the MRD RelayDoc Type Approval documentation for the list of BR930 series relay types that can be tested on the MRD RelayDoc.

## Relay Flow Chart Procedure

