

Defined Function Test - Point Local Function Tests

These tests confirm, locally, the correct functioning of point electrical circuits.

1. DYNAMIC EARTH TEST

This can be done in conjunction with the other Point Local Function tests below or as a discrete test.

1. Connect a meter to the point operating power supply ready to carry out the **BUSBAR EARTH TEST**.
2. Connect a meter to the point detection power supply ready to carry out the **BUSBAR EARTH TEST**.
3. Whilst points are moving from normal to reverse and reverse to normal, *Measure and record* the maximum positive and negative voltage between each of the busbars and earth.
4. *Measure and Record* the voltage across each leg of the detection circuit for each lie of points.
5. *Measure and Record* the voltage between each leg of the detection circuit and earth for each lie of points.
6. Compare the results with the appropriate table in **BUSBAR EARTH TEST**.

An EFD is required for point drive & detection circuits. Exceptions are shown below:

- *Dedicated 30 – 120V DC drive supply*
- *Dedicated 110V AC or 50V DC detection supply*
- *Specific systems provide equivalent security (i.e. SIMIS-W & SSI), although it does apply to interfaces for such systems.*

Note *Dedicated means that the supply is only used for that purpose and no other.*

If earth fault detectors with an audible alarm are available, connect these on to the point operating and detection power supplies. They must remain connected for the duration of the tests, and any alarm should be investigated.

2. LOCAL CORRESPONDENCE TESTS

1. *Check* that the location circuitry has been suitably verified and circuit function testing, as far as necessary, has been completed.
2. With the detection circuit powered up, manually operate the points between normal and reverse and observe the detection relays operation.

NOTE *In the case of relay circuits, where the detection relays have any other additional function besides the actual switch position, 2 meters should be connected to both the normal and reverse incoming detection circuits and the presence and absence of voltages on each observed.*

In the case of SSI, the interrogator should be connected to be able to observe both the normal and reverse detection inputs.

3. *Check* that the control and detection relays (or SSI output and input telegrams) correspond with the lie of points.
4. *Test* that each motor feed fuse controls its correct corresponding point end(s).
5. *Test* that each point end is controlled by the correct control relay or SSI output telegram.

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6. Test, for each point end, each detection contact individually, for the normal and reverse lie of the point end, to the local detection relay or SSI input telegram.

NOTE "Detection Contact" refers to the functional contact NOT each individual spring.

For a machine there are 2 detection contacts (one in the positive leg and one in the negative leg of the detection circuit).

For Clamp Locks this refers to the open switch microswitch in one mechanism and the closed switch microswitch in the other mechanism.

3. POWER ISOLATION TESTS

The following tests may be combined.

1. Test that the power isolating contacts operate correctly.
 - Insert the point manual operating handle.
 - Confirm the contacts have disconnected the point drive circuit.
 - Check the point drive remains disconnected with the handle removed.
 - Operate the cut-out reset mechanism.
 - Confirm the contacts have reconnected the point drive circuit.
2. Test the functional operation of the power isolation of the machine.
 - With the switches normal, isolate the machine.
 - Operate the control relay, or SSI output, to command the points to reverse.
 - Check that:
 - The switches have not moved.

Where the circuitry provides for local correspondence between the command relay and detection relay

- Both detection relays are down.

In the case of SSI, the normal detection input will still be present.

- After the prescribed time delay confirm that the point contactor relay has dropped or the contactor relay down proving SSI input is present, if applicable.
- Briefly place the machine back onto power.
- Check that the switches do not move (unless otherwise identified in the Test Plan).
- Re-isolate the machine
- Manually operate the switches to reverse.
- Check that, when the switches are fully reverse, the reverse detection relay is up or the SSI reverse detection input is present.
- Operate the control relay, or SSI output, to command the points to normal.