VOLTAGE DROP TEST FOR CONTACTS AND ELECTRICAL APPARATUS

Supervisor: IVECO STD. 19-0201

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1 PURPOSE

To monitor voltage drop due to current flow, especially across electrical contacts and internal component bridges, junctions and other connections.

2 TEST APPARATUS

Test apparatus shall consist of:

- Stabilized power supply as per IVECO STD. 16-2108 ;
- DC ammeter, class 0.5 of adequate capacity.
- DC millivoltmeter, class 0.5 of adequate capacity.
- Slide rheostat of adequate resistance and range, where test current is to be modulated as requested.

Instrumentation may be replaced with other apparatus provided it is equivalent or better in terms of characteristics, accuracy and repeatability.

3 TEST CONDITIONS

Test ambient temperature shall be consistent ± 0,5 ^{o}C, from 18 to 28 ^{o}C (23 ± 5 ^{o}C). Relative humidity shall be 45 to 65 %.

Components and devices to be tested, together with the test circuit, shall be pre-conditioned for 24 h in test environment.

Edition	Date	Description of modifications	Group
1	10.01.1984	New.	
2	03.11.2009	Completely revised.	
			PEL

4 TEST PROCEDURE

4.1 Set up test circuit as shown in **Figure 1** For ammeter circuits use leads of adequate cross section relative to test current and as short as possible ensuring efficient and reliable mechanical connection to the device under test.

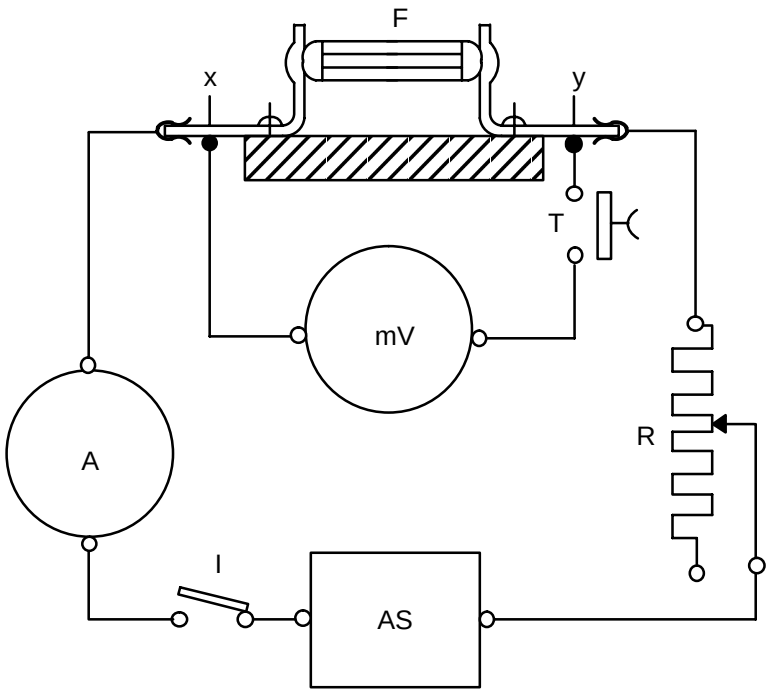

Figure 1

where:

- **F** = Device under test (fuseholder and fuse);
- **AS** = Stabilized voltage power supply
- **R** = Slide rheostat
- **I** = Switch
- **A** = Ammeter
- **mV** = Millivoltmeter
- **T** = Millivoltmeter key
- **x-y** = Test points

On test setup, directly connect test millivoltmeter rheophores across the points where the voltage signal is to be taken, so as to deliberately exclude the voltage drop resulting from connection to test device as specified in **Figure 2** to ensure correct test connection .

If testing is not possible across pins, internal parts of test device may be accessed for connection, provided the electrical and mechanical properties of the component are not adversely affected.

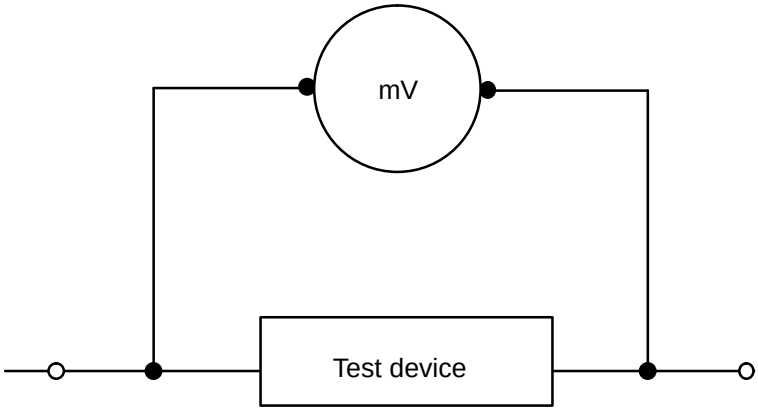

Figure 2 - Proper connection for testing

4.2 Set stabilized supply to voltage requested through AS, apply to circuit after operating switch I to close ammeter circuit, move slider of rheostat R to adjust current as specified on drawing and/or procurement specification and hold for 60 s unless otherwise specified therein.

4.3 Press key T, wait 10 s minimum to stabilize reading on digital millivoltmeter mV, read voltage drop across x – y and enter in associated form.

4.4 Notes

4.4.1 Current ratings (A) normally used for testing, to be called up on drawing and/or procurement specification, are as follows:

1 - 5 - 10 - 25 - 50 - 100 - 500 - 1000.

4.4.2 For diodes, on connection to test circuit ensure correct polarity.

4.4.3 When testing voltage drop across switch contacts, adhere to requirements of procurement specification and/or drawing as regards number of operation cycles (open – close) to be completed prior to testing, to ensure full settling of contact points.

4.4.4 For components with N O (normally open) contacts, ensure that circuit closes as per paras.4.4.4.1 e 4.4.4.2.

4.4.4.1 Switch/diverter/selector gear

Manually operate contact closing control.

4.4.4.2 Relays

Energize relay coil to nominal and/or specified voltage prior to testing circuits 30-87/87b.

5 EXPRESSION OF RESULTS

Repeat the tests as specified on drawing and/or procurement specification on a number of parts or devices as required and compare results with requirements. No readings shall exceed requirements.

NOTE **:** As tests may be carried out on new specimens or subsequent to other tests (climatic, fatigue, etc.), the final report shall specify the condition of parts and assemblies to which test results refer.
Also specify whether power circuit (> 1 A) or control circuit (< 1 A).

Enter data processing results in the associated formI.

FORMI

Points of connection tested	Reading of current applied to circuit [A]	Voltage drop		RESULT
		Target [mV]	Actual [mV]	
			FINAL RESULT:	
Condition of component				
Note				

REFERENCES

IVECO STD.: 16-2108, 19-0201.