



Serial Number

Number in Batch

2HSM524
TD Cut Off- ER Contacts & HR Flag

110VDC HIGH SPEED TRIP RELAY

Issue Level	Date	Summary of changes
A	03/08/2010	Release for 100mA test

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1. ASSOCIATED DRAWINGS

Auxiliary Voltage: 110V
 Refer to Job Card and associated documentation.
 Relay Connection Diagram

2. HIGH VOLTAGE TESTING

- a) Apply 2kV RMS 50Hz between terminal Groups 1 and 2 in Table 1 for 1 minute.
- b) Apply three 5kV 1/50us pulses of each polarity between terminal Groups 1 and 2 in Table 1.

TABLE 1

GROUP 1	GROUP 2
Coil	All other connections and Frame
Each contact set	All other connections and Frame

PASS

3. TEST PROCEDURE

Check the job card for any special requirements of the relay to be tested.

- a) Plug in the Alpha20 contact test module. Manually operate the relay by pushing the armature towards the pole face of the relay. Ensure that the contacts have sufficient over travel by ensuring that all of the contacts have made before the armature is fully home.

PASS

- b) Plug in the High Speed Matrix test module and attach the coaxial leads to the appropriate inputs of the oscilloscope.
- c) Operate the "CRO/Counter" switch to "CRO"
- d) Press the "test" button and adjust the trigger and vertical sensitivity on the CRO to obtain a waveform which displays the time between the trigger point and the contact closure.
- e) Ensure that this time to first touch is less than 10ms at nominal voltage.
- f) Repeat this test for each contact in turn by operating the rotary switch to the position that corresponds to the contact under test.

PASS

- g) Reduce the auxiliary voltage input to 60% of nominal volts (66V) and by repeating one operation as in d) above ensure that the relay operates fully. Also check that the armature is fully home.

PASS

- h) Check that pick up occurs at 120% of nominal (132V).

PASS

- i) Check that the operated power is ZERO.

PASS

- j) Check that the operating power is between 100W (0.91A) and 150W (1.36A) at nominal voltage, by measuring operating current on CRO.

PASS



- k) Reduce the auxiliary voltage input to 6.5% of nominal applied voltage (7V). The delay element is to have dropped out. If this is not the case, the delay element residual screw should be adjusted inwards to make sure the delay element is in the unpowered state.

PASS

4. OPERATE CURRENT

- a) Reduce the auxiliary input voltage to zero then bring the voltage slowly back to nominal. Observe the current reading on the power supply meter. Note the current at which the relay operates, this must be greater than 100mA. Ensure the flag drops at the same voltage that the contacts pick up.
- b) Ensure that the operated burden is reduced to zero by the economising element after the relay has operated.

PASS

5. CAPACITOR DISCHARGE TEST

Adjust the input auxiliary voltage to 120% of nominal (132V), operate the “Cap Discharge” switch and ensure that the relay does not operate. The criterion is that the flag must not drop or contacts make.

PASS

6. ELECTRICAL RESET

- a) Operate the relay then set the reset test switch on the Matrix test module to “Electrical”. Press the test button and ensure that the contacts reset correctly when applying 60% (66V) of nominal to the electrical reset terminals 25 & 26.
- b) With the relay operated, set auxiliary voltage back to nominal (110V) and again press the reset button. Check that the reset operating power is less than 40W (< 0.36A).

PASS

7. FLAG RESET

Ensure that the flag can be hand reset correctly.

PASS

8. GENERAL & FUNCTIONAL

Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.

PASS

TESTED BY: _____ DATE: _____