

Resistance reading differences on the D12R and AWA



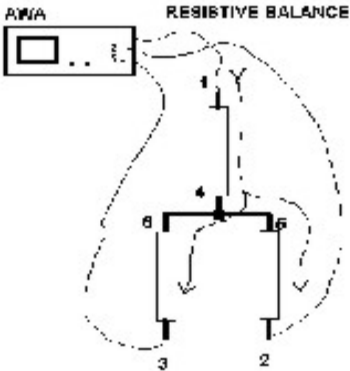
Question:

Why does the AWA always give me a different phase resistance reading than I get with my D12R tester?

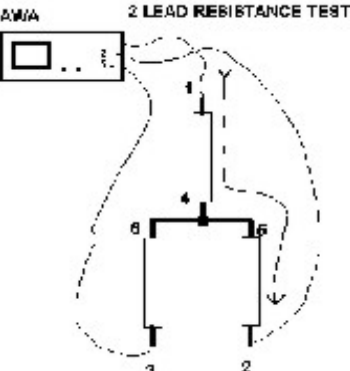
Answer: There are 2 reasons.

The AWA does a 2 lead resistance test, where the D12R does a 4 lead resistance test.

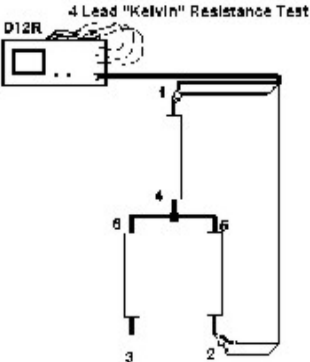
The AWA does a series or (user defined) parallel measurement and calculation automatically where the D12R does a manually performed series only calculation.



This example shows the method used by the AWA to perform the resistance test. As you can see, it has three red leads connected to the terminal leads of the motor being tested. In the example, resistance test lead 1 has been selected. Therefore, DC test current flows from lead 1 of the AWA, through all the phase windings and returns to the AWA through leads 2 and 3. The resulting voltage drop is measured across T1 (in series) and T2 + T3 (In parallel).



In this example, the AWA operator has selected "Number of Leads to Test" on the Temperature/Resistance, and set the value to "2" the AWA will then perform a test from lead 1 to lead 2. This is a series.



The example below briefly illustrates the D12R-4 lead resistance measurement circuitry. This test always performs a series test, no parallel phase windings influence the reported measurements.

D12R uses 4 lead "Kelvin" resistance test leads. 2 leads carry the DC test current, 2 leads measure the voltage drop across T1 to T2. contact resistance effects are negated. The leads must be moved manually across terminals.

