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Ignition Testing Guide - Yamaha SR400/500 (8 wire CDi units)

Here are a few simple tests to aid trouble shooting the SR400/500 electronic ignition system. A separate guide is available for the 1980 & 81 American XT500 models with factory fitted CDi.

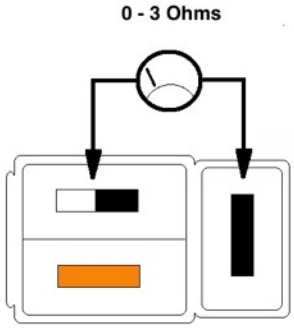
These tests assume a good working knowledge of your bike and that you are able to use a multimeter. You should also have the shop manual and carry out obvious checks first such as replacing the spark plug and checking for loose connectors. You will need an accurate multimeter, such as our P/N TM-2 to carry out these tests.

Note if you have replaced a CDi unit and the fault is worse or still there you should not suspect the new part. We charge to test returned CDi units if they are found to be working correctly. In nearly all cases the fault is found to be with the 30 year old bike and not the brand new unit that was tested and confirmed to be working before we sent it.

Start by locating the CDi unit, which is on the left hand side of the bike next to the battery, follow the leads to the connectors and unplug them.

- **Tests are done on the BIKE side of the CDi unit connectors**
- **Do not carry out these tests on the CDi unit.**

SR400/500 models
Test 1 - No Spark - Check to operation of the ignition and kill switches
Check the kill switch, ignition switch and the associated wiring by carrying out continuity (resistance) checks on the loom 3 way plug.



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If your readings are considerably different to those given a wiring or switch fault is indicated:

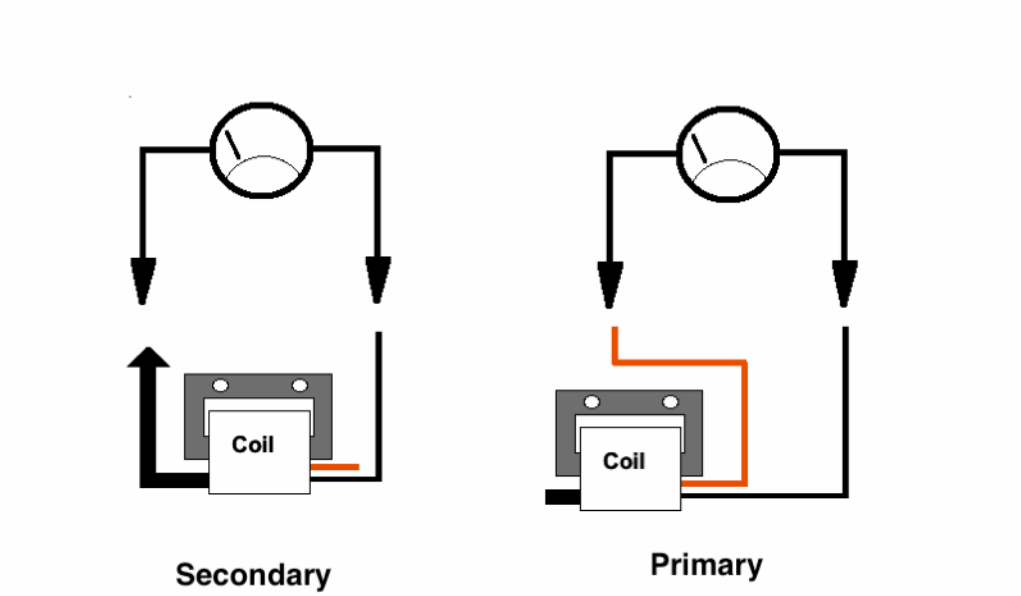
KILL SWITCH	IGNITION SWITCH	OHMS
OFF	OFF	0-3
RUN	OFF	0-3
OFF	ON	0-3
RUN	ON	INFINITE

Test 2 - No Spark - Check the HT Coil - You will need to remove the fuel tank.

Secondary Resistance: 11-12K
Primary Resistance 0.95 -1.1R

Non OEM coils and Yamaha ones manufactured at a later date may have different resistance readings which don't necessarily indicate a failure. Typical values could be anything from 0.6R to1.5R for the primary and 7-14K for the secondary. The HT cap should be removed to test the secondary.

Rex's stock the correct type of HT coil for the SR400/500 models - our P/N: HTC10. If you find you have the incorrect type of HT coil, IE one that does not have the metal frame around the coil body this maybe the cause of poor starting. Incorrect or low quality HT coils should be replaced for the correct sort.



Poor Running
We recommend you start by testing the generator and pulser coil windings as these are simple to test and don't require the generator to be removed. The generator windings that supply the power for the ignition and give the timing information tend to fail gradually. The ignition box on the other hand tends to fail suddenly. The first signs of trouble with the generator can be one or a combination of the following; misfiring at speed, poor running only when warm, failing to rev above 3,500 RPM, very stubborn to start when warm but OK when cold, engine runs for a short period then cuts out or a weak, yellow spark.

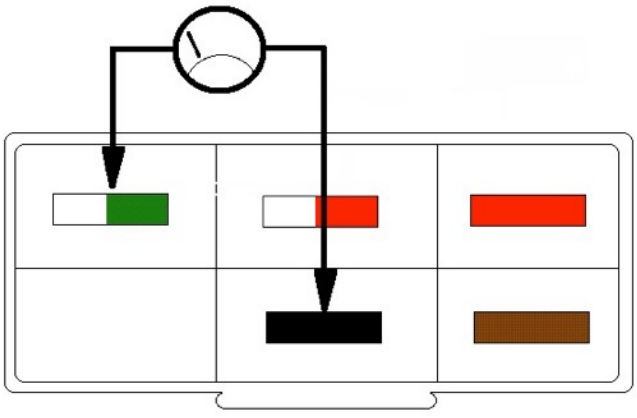
The ND CDi unit can fail partially and will give the same symptoms as a failing generator source coil windings just to add to the confusion! However rule of thumb is suspect a winding fault first and wherever a problem comes on only when the engine is warm. Winding faults are very common.

The generator is tested via the 6 way socket that comes from the generator. You are looking for readings exactly to specification at 20 degrees C (70F) and that remain steady, any readings that are off by 5% or more or any that fluctuate show a failed winding. We can correct your figures if you tell us the ambient temperature where it is more than 2 degrees away from 20 degrees C. The engine must not have run for several hours when testing.

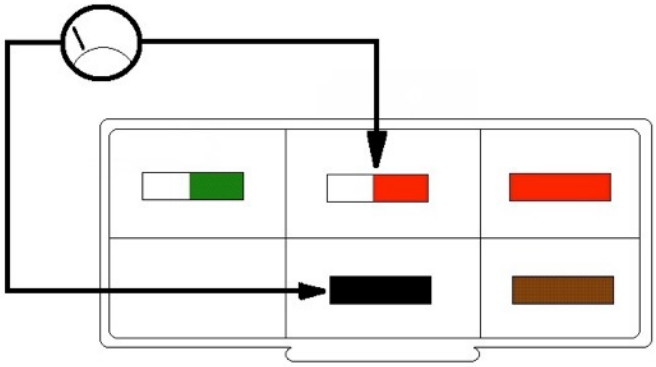
The manuals all give a 10% tolerance - however machine wound coils will be within 2% of each other when new. Winding industry standards state that where a reading has changed by as little as 5% this indicates a winding failure. You can save time and money by using this tighter tolerance. We see many 330 ohm windings reading 315 with running issues.

Note: The generator's 12 volt, 3 phase charging coils do not in any way affect the ignition.

Test 3 - Low Speed Pick Up 87 Ohms (5% Tolerance)

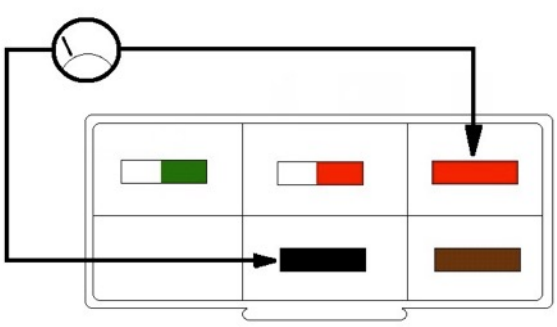


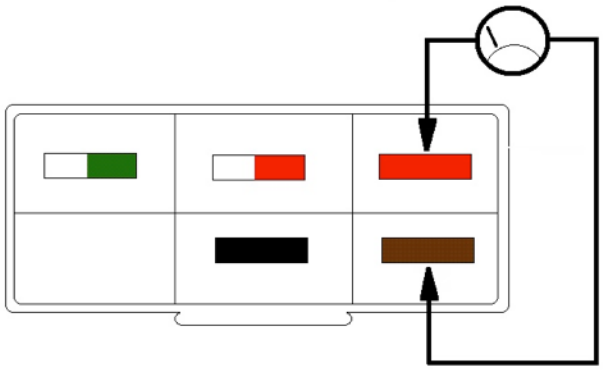
Test 4 - High speed pick up 16 Ohms (5% Tolerance)

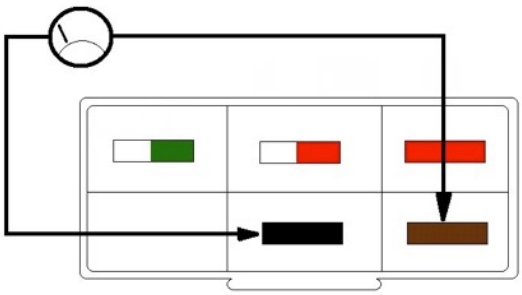


Source coils.
Test 5: Brown to black 330 Ohms **Test 6**: Brown to red 4-6 Ohms **Test 7**: Red to black 334 Ohms
These should be measured at 20 degrees 20 C (70F). A 5% tolerance applies.

Test 5, the brown to black tests the part that fails most often.







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Test Results

Never take stator resistance readings from an engine run within 6 hours.

Ambient temperature when readings taken:

	C/F

Standard Yamaha Factory Fitted CDi Stator Test Results - XT500 USA (G&H)			
Test	Item under test	Results	
1	Kill switch	1A	
		1B	
		1C	
		1D	
		1E	
		1F	
2	HT Coil	Primary. Ohms	
		Secondary. K Ohms	
3	Low speed pick-up	Ohms	
4	High speed pick-up	Ohms	
5	Low speed source	Ohms	
6	High speed source	Ohms	
7	Total of low & high speed	Ohms	

Look for a reading that is the odd one out. IE if all your readings are in the middle of a give range of values but one is on the upper limit, the one on the limit should be suspected. If you e-mail tech@rexs-speedshop.com our techs will look at your results.