
TROUBLESHOOTING NOTE #1

SYMPTOM: Observation ON THE 1250 OF HIGH LEVEL IMPRESSED AC VOLTAGE ON THE DC ANALOG OUTPUT.

This is not a normal operating mode. The unit you are testing is the *non*-isolated input variety, where terminal C [S3] and terminal 2 [analog output negative] are electrically common. There is the possibility of an undesired ground loop causing the problem. The problem can usually be traced to one of the following:

1) Faulty Wiring

- Improper grounding of the 1292 leads (S1, S2, S3) during design or installation. This situation can be found on the 1292 terminals, the field wiring, any interposing terminations, and the 1250 terminations.
- Improper grounding of the 1292 leads (S1, S2, S3) from compromised wire insulation during pulls through conduit.

2) 1292 Fault

- Compromised winding insulation allowing the rotor voltage (120VAC nominal) to be impressed on the stator windings. The resulting voltage across the various stator windings can be additive or subtractive depending upon vector resultant of the rotor and stator voltages.
- Ground fault of the stator windings to the 1292 housing and subsequently to ground.

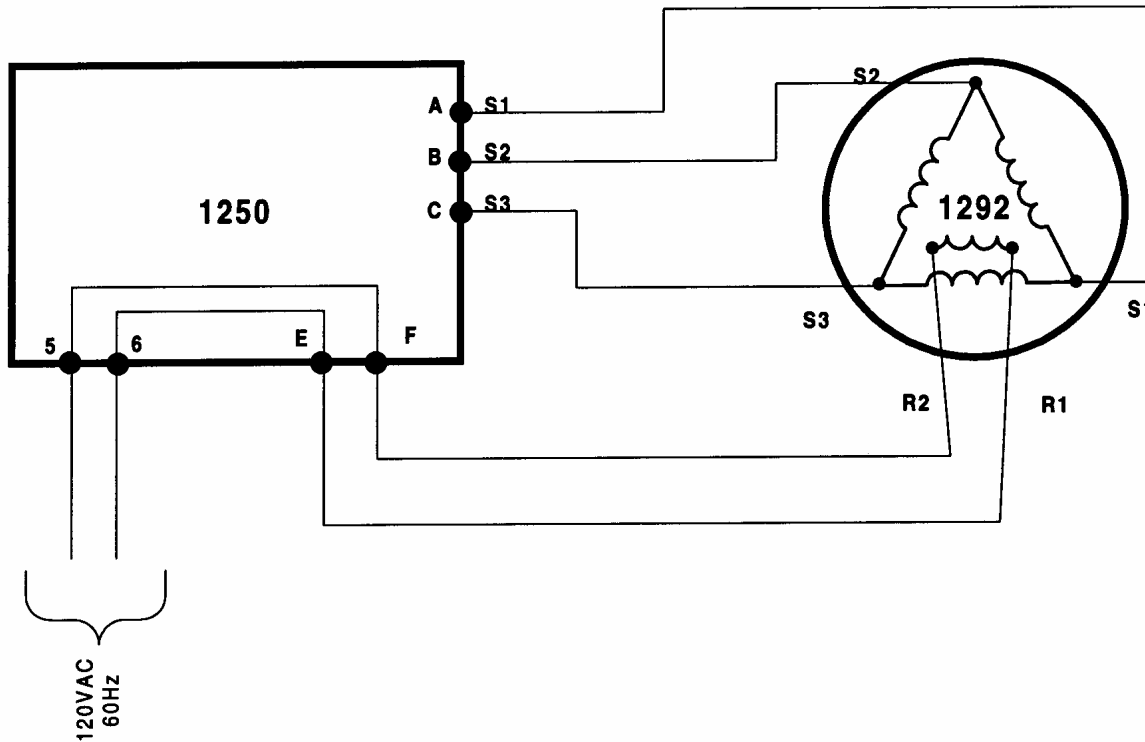
3) 1250 Fault

- Compromised components or circuit board traces.

A logical approach is to isolate and test the 1292, the 1250, and finally the field wiring.

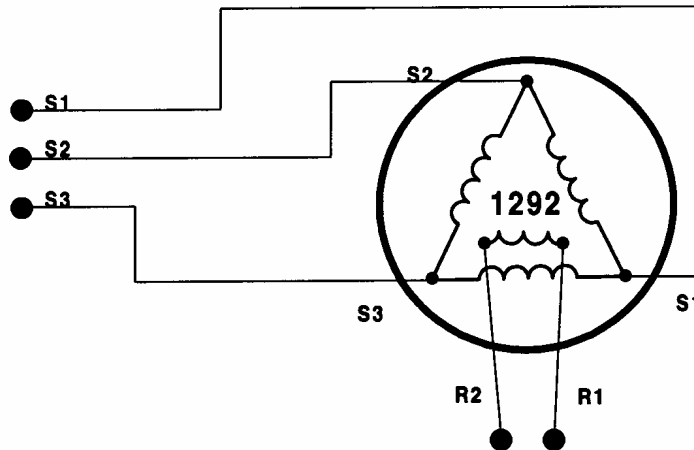
GENERAL WIRING REVIEW

This is a diagram of a properly connected 1250 and 1292. Note that the rotor (R1 – R2) is isolated from the ground and the stator (S1, S2, S3). The stator is isolated from the ground and the rotor. Under no circumstances should any of the leads S1, S2, or S3 be grounded.



TESTING THE 1292

To determine if there is a ground fault within the 1292, all wires should be removed from the 1292. Resistance checks should then be made with a DC ohmmeter. DO NOT leave the field wiring on the 1292 for this test! The 1292 must be floating and isolated.



The acceptable range of resistances is given below.

DC resistance across terminals and case of the 1292, 1292K, 1292K:

R1 - R2 = 700 to 860 Ohms S1 - S2 = 465 to 575 Ohms

S1 - S3 = 465 to 575 Ohms S2 - S3 = 465 to 575 Ohms

Any terminal to case should be an open circuit

Any "R" terminal to any "S" terminal should be an open circuit

If the 1292 resistance test values are acceptable, the next step is to test the condition of the 1250. If the values are not in the ranges given, the problem is a fault within the 1292. Contact INCON Technical Service for a replacement.

TESTING THE 1250

Remove all wiring from the 1250 to the 1292: terminals A, B, C, E, & F. This isolates the 1250 from the field wiring and the 1292. If the previously noted high voltage AC is not present at the analog output terminals (1 & 2), the 1250 is not the cause of the problem. If the high voltage AC is present on the analog output terminals, the problem is within the 1250. Contact INCON Technical Service for a replacement.

TESTING THE FIELD WIRING FOR GROUND FAULTS

Remove the field wiring from the 1250 and the 1292. This should effectively isolate the wires that connect the following terminals from each other and from ground:

Wire Mark at 1250	Wire Mark at 1292	Resistance to Ground
A	S1	Open Circuit
B	S2	Open Circuit
C	S3	Open Circuit
D	S4	Open Circuit
E	S5	Open Circuit

Test the wiring for resistance to ground from each end of the run; the 1250 terminals and the 1292 terminals. All tests should yield an open circuit, as the wiring should be completely isolated. If continuity to ground is discovered, there is a problem with the field wiring.

TESTING THE FIELD WIRING FOR ROLLED OR MIS-MARKED WIRES

Connect the following wiring pairs together at the 1292 location, and measure for continuity at the 1250 location:

Tie Wires Marked Together at the 1292	Measure Wires Marked At 1250	Resistance Between Pair of Wires
R1 – R2	R1 – R2	Near Zero Ohms
S1 – S2	S1 – S2	Near Zero Ohms
S2 – S3	S2 – S3	Near Zero Ohms
S1 – S3	S1 – S3	Near Zero Ohms

If the test results do not conform with the table above, there is a problem with the field wiring.

- While testing for continuity between a joined pair of wires as marked above, also test between that joined pair and all other non-joined wires. These tests should yield open circuits. If not, there is a problem with the field wiring.

