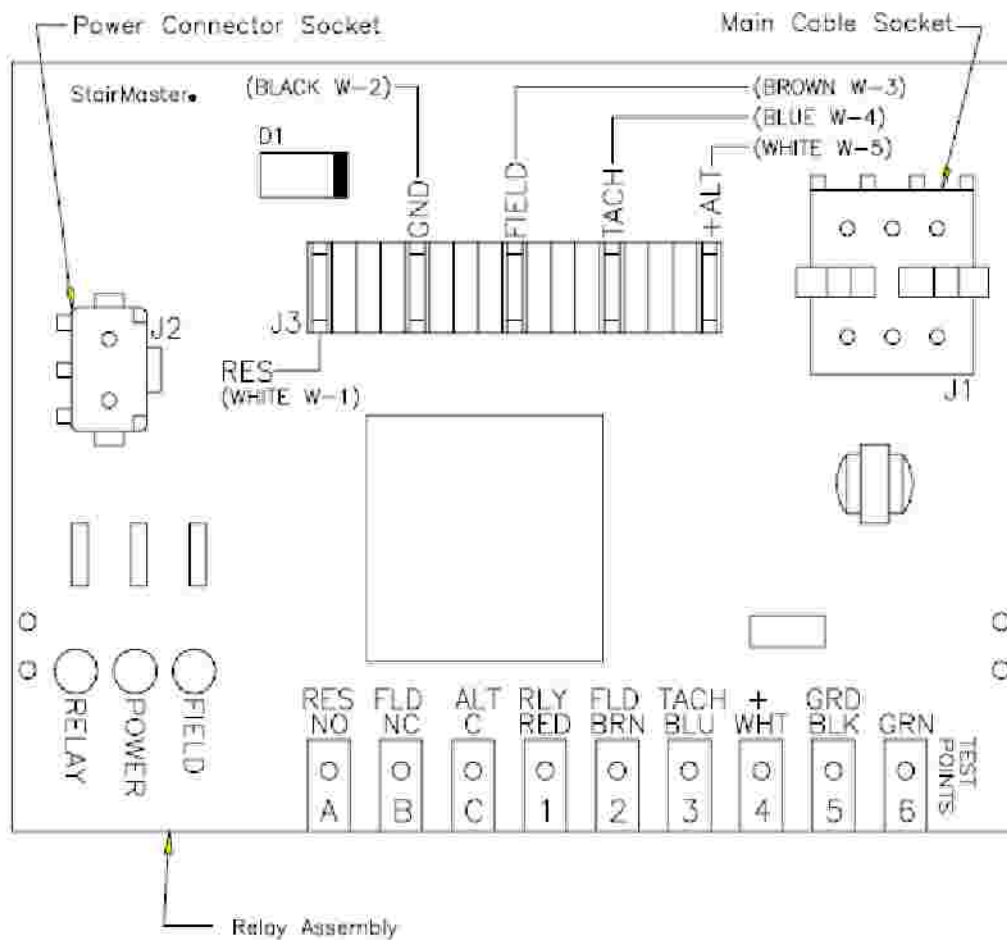


ELECTRICAL TROUBLESHOOTING GUIDE FOR THE STAIRMASTER SM5 STEPMILL

his trouble shooting guide is designed to help with determining exactly which electrical part is bad. Many times parts are replaced by swapping them out with known good parts until the issue is resolved. This document will help save time and money.

. No Resistance When Stepping

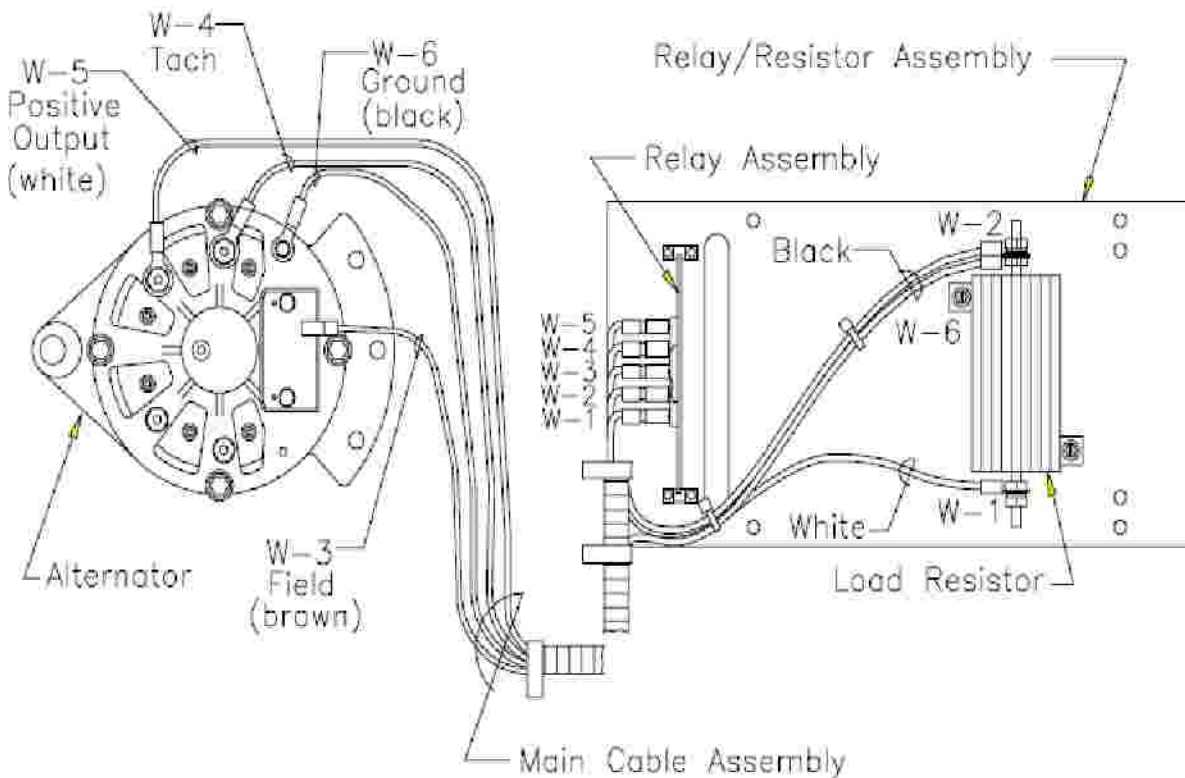
- Remove the right side panel to view the three LED's on the lower PCB board.
- Begin moving the staircase.
- If all three of the red LEDs on the relay board are illuminated but there is no resistance,
 - ? Replace the alternator brushes (SM24557) if worn or the alternator (SM22900).



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. No Resistance and No Field Light.

- Begin moving the staircase.
- Staircase freewheels and field **LED** does not light.
- Perform tach test by entering diagnostics.
- If there is no tach signal sensed on console
 - o Check for .6 to .7 volts AC at the W-4 (Tach) terminal of the alternator.
 - o If no voltage, remove the blue tach wire from the alternator, while staircase is moving.
 - ? Touch the tach wire to the field terminal.
 - ? If the field **LED** lights, replace the alternator.
 - o If the voltage checks good, remove the blue connector from the W-4 (Tach) terminal of the alternator. Lightly scrap the connector and re-install. Re-check.
 - o If still bad, replace the console.



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. Staircase has resistance but is choppy during exercise.

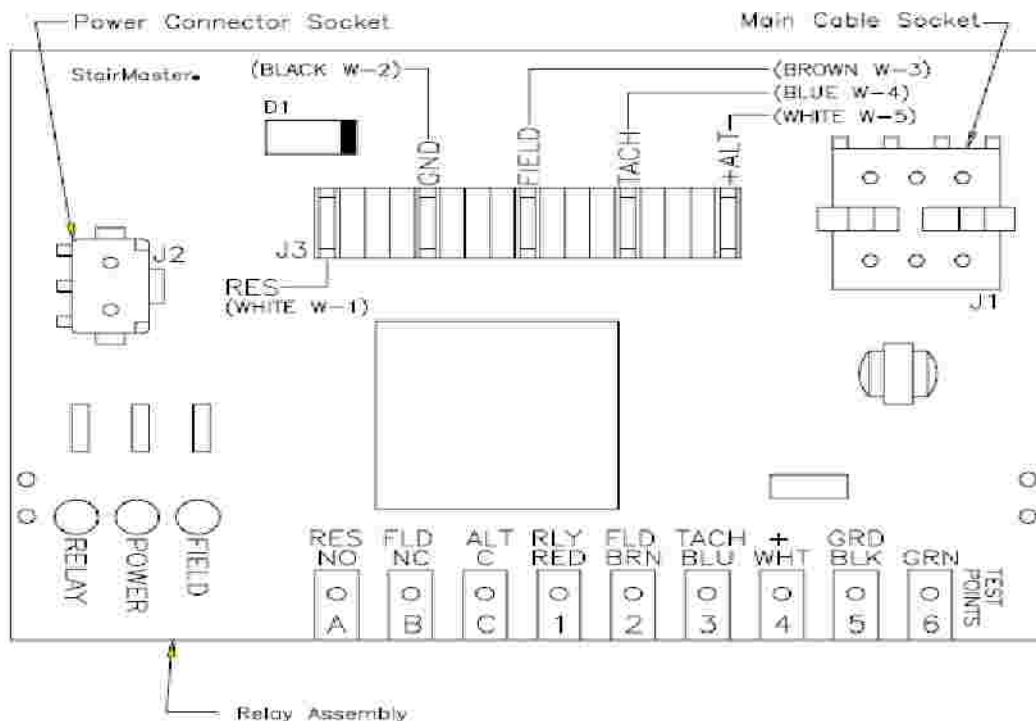
- Inspect Main Cable for Corrosion at all connections.
- Check Load Resistor for a reading of .5 to .6 Ohms. If lower than .5 ohms, then replace the load resistor (SM24989).
- If load resistor checks good, replace the alternator brushes (SM24557) or alternator (SM22900).

. Relay board tests.

- Disconnect the main cable from relay board J1 terminal.
- With power on, place jumper across GND/BLK and RLY/RED test points.
 - o Relay **LED** should light. If not, replace lower PCB board (SM23545).
- With power on, place jumper across +/WHT and FLD/BRN test points.
 - o Field **LED** should light. If not, replace lower PCB board (SM23545).

? Disconnect the black W-2 ground wire and J1

- With power on now, place a jumper on the +/WHT test point and with the other end touch the ALT/C test point,
- Next touch the FLD/NC test point do not remove the wire from the +/White test point
- Next touch the RES/NO test point.
- o Field **LED** should light. If not, replace lower PCB board (SM23545).
- re-attach the black W-2 ground wire and the J-1 main cable socket which was removed at the beginning of the relay board test



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. Other Key Points

- Remember that the only signal that will prevent the field LED from lighting on the relay board is the tach signal from the blue wire. The console must receive an rpm signal to activate the field current to the alternator that is PWM controlled.
 - If you suspect the alternator, disconnect all the wires and check the resistance across the field terminal and the alternator housing; a typical Alternator should read around 4 Ohms or higher.
 - The Field LED on the relay board will flicker at higher speed levels. This is the PWM signal from the console to the field terminal of the alternator to control resistance / speed. If you experience full resistance through all levels and the field light doesn't flicker; replace the console.
- ? To verify that the load resistor is working correctly, you must ohm the resistor out using your multi meter. The load resistor must read above .5 ohms. If the resistor reads anything less than .5 ohms, then replace the load resistor (SM24989).
- Always perform mechanical troubleshooting in addition to electrical trouble shooting for resistance problems.