



## Maxial cUL Track System Hoist 110 Version Troubleshooting Guide

1. Does the hoist do anything?  
YES – 2  
NO - 35
  
2. What does the hoist do?  
Goes down not up - 3  
Goes up not down - 16  
Does not move but hums - 29  
Runs but will not lift a load - 31  
Runs but will not hold a load - 34
  
3. Open the Enclosure Box. Locate the UP relay (KA4). Press the UP button on the Control Pendant. Does the UP relay (KA4) close?  
YES – 4  
NO – 7
  
4. Press the UP button on the Control Pendant again. Does the UP contactor (KM4) close?  
YES – 5  
NO – 10
  
5. Check the supply voltage with a multi-meter set to AC voltage on the input side of the UP contactor (KM4). Are both lines of supply voltage present?  
YES – 6  
NO – Check wire connections feeding the input side of the UP contactor (KM4)
  
6. Check the supply voltage with a multi-meter set to AC voltage on the output side of UP contactor (KM4) while the UP contactor (KM4) is closed by pressing the UP button on the Control Pendant. Are both lines of supply voltage present?  
YES – Check the wires and connections feeding the motor  
NO – Replace the UP contactor (KM4) (bad main contacts)
  
7. Locate the UP relay (KA4) coil inputs “A1” and “A2”. With a multi-meter set to AC voltage, test the control voltage between “A1” and “A2” while pressing the UP button on the Control Pendant. Is the control voltage present while pressing the UP button?  
YES – Replace the UP relay (KA4) (bad relay coil)  
NO – 8



8. With a multi-meter set to AC voltage, check the control voltage at the UP relay (KA4) coil input "A2" and terminal "95" of the Motor Overload (OL1). Is the control voltage present?  
YES – 9  
NO – Check the wiring that feeds UP relay (KA4) coil input "A2"
9. Open the back cover of the Control Pendant. With a multi-meter set to AC voltage, check the control voltage between the UP relay (KA4) coil input "A2" and both terminal sides of the UP button while pressing the UP button. Is the control voltage present?  
Control voltage **IS** present on both sides – Check the wiring connections between the UP button and UP relay (KA4) coil input "A1"  
Control voltage **ONLY** present on one side – Replace UP button on Control Pendant  
Control voltage **NOT** present on both sides – Check the wiring connections of the "Common" wire in the Control Pendant
10. Locate the UP contactor (KM4) coil inputs "A1" and "A2". With a multi-set to AC voltage, test the control voltage between "A1" and "A2" while pressing the UP button on the Control Pendant. Is the control voltage present while pressing the UP button?  
YES – Replace the UP contactor (KM4) (bad contactor coil)  
NO – 11
11. With a multi-meter set to AC voltage, check the control voltage at the UP contactor (KM4) coil input "A2" and terminal "95" of the Motor Overload (OL1). Is the control voltage present?  
YES – 12  
NO – Check the wiring that feeds UP contactor (KM4) coil input "A2"
12. With a multi-meter set to AC voltage, check the control voltage between UP contactor (KM4) coil input "A2" and UP relay (KA4) terminal "5" while pressing the UP button on the Control Pendant. Is the control voltage present?  
YES – Check the wiring that feeds UP contactor (KM4) coil input "A1"  
NO – 13
13. With a multi-meter set to AC voltage, check the control voltage between UP contactor (KM4) coil input "A2" and UP relay (KA4) terminal "9". Is the control voltage present?  
YES – Replace the UP relay (KA4) (bad relay contact)  
NO – 14



14. Inspect the Over Weight limit switch with an empty load in the basket. Is the Over Weight limit switch compressed against the rung of the mast?  
YES – Adjust the Over Weight limit switch  
NO – 15
15. Open the back cover of the Over Weight limit switch. With a multi-meter set to AC voltage, check the control voltage between the UP contactor (KM4) coil input “A2” and both terminal sides of the NC circuit of the Over Weight limit switch. Is the control voltage present?  
Control voltage **IS** present on both sides – Check the wiring that feeds the UP relay coil (KA4) terminal “9” from the Over Weight limit switch  
Control voltage **ONLY** present on one side – Replace the Over Weight limit switch  
Control voltage **NOT** present on both sides – Check the wiring connections of the “Common” wire in that feeds the Over Weight limit switch
16. Open the Enclosure Box. Locate the DOWN relay (KA5). Press the DOWN button on the Control Pendant. Does the DOWN relay (KA5) close?  
YES – 17  
NO – 20
17. Press the DOWN button on the Control Pendant again. Does the DOWN contactor (KM5) close?  
YES – 18  
NO – 23
18. Check the supply voltage with a multi-meter set to AC voltage on the input side of the DOWN contactor (KM5). Are both lines of supply voltage present?  
YES – 19  
NO – Check wire connections feeding the input side of the DOWN contactor (KM5)
19. Check the supply voltage with a multi-meter set to AC voltage on the output side of DOWN contactor (KM5) while the DOWN contactor (KM5) is closed by pressing the DOWN button on the Control Pendant. Are both lines of supply voltage present?  
YES – Check the wires and connections feeding the motor  
NO – Replace the DOWN contactor (KM5) (bad main contacts)



20. Locate the DOWN relay (KA5) coil inputs "A1" and "A2". With a multi-set to AC voltage, test the control voltage between "A1" and "A2" while pressing the DOWN button on the Control Pendant. Is the control voltage present while pressing the DOWN button?  
YES – Replace the DOWN relay (KA5) (bad relay coil)  
NO – 21
21. With a multi-meter set to AC voltage, check the control voltage at the DOWN relay (KA5) coil input "A2" and terminal "95" of the Motor Overload (OL1). Is the control voltage present?  
YES – 22  
NO – Check the wiring that feeds DOWN relay (KA5) coil input "A2"
22. Open the back cover of the Control Pendant. With a multi-meter set to AC voltage, check the control voltage between the DOWN relay (KA5) coil input "A2" and both terminal sides of the DOWN button while pressing the DOWN button. Is the control voltage present?  
Control voltage **IS** present on both sides – Check the wiring connections between the DOWN button and DOWN relay coil (KA5) input "A1"  
Control voltage **ONLY** present on one side – Replace DOWN button on Control Pendant  
Control voltage **NOT** present on both sides – Check the wiring connections of the "Common" wire in the Control Pendant
23. Locate the DOWN contactor (KM5) coil inputs "A1" and "A2". With a multi-set to AC voltage, test the control voltage between "A1" and "A2" while pressing the DOWN button on the Control Pendant. Is the control voltage present while pressing the DOWN button?  
YES – Replace the DOWN contactor (KM5) (bad contactor coil)  
NO – 24
24. With a multi-meter set to AC voltage, check the control voltage at the DOWN contactor (KM5) coil input "A2" and terminal "95" of the Motor Overload (OL1). Is the control voltage present?  
YES – 25  
NO – Check the wiring that feeds DOWN contactor (KM5) coil input "A2"
25. With a multi-meter set to AC voltage, check the control voltage between DOWN contactor (KM5) coil input "A2" and DOWN relay (KA5) terminal "5" while pressing the DOWN button on the Control Pendant. Is the control voltage present?  
YES – Check the wiring that feeds DOWN contactor (KM5) coil input "A1"  
NO – 26



26. With a multi-meter set to AC voltage, check the control voltage between DOWN contactor (KM5) coil input "A2" and DOWN relay (KA5) terminal "9". Is the control voltage present?
- YES – Replace the DOWN relay (KA5) (bad relay contact)
  - NO – 27
27. Inspect the Slack Rope limit switch with the wire rope tight with tension. Is the wire rope tension roller up against the Slack Rope limit switch?
- YES – Wire rope is on the wrong side of the roller
  - NO – 28
28. With a multi-meter set to Ohms ( $\Omega$ ), check the continuity between pin #4 and pin #6 of the motor plug on the Motor pack. Is there continuity through the circuit?
- YES – Check the wiring that feeds the DOWN relay (KA5) coil terminal "9" from the Slack Rope limit switch
  - NO – Replace the Slack Rope limit switch
29. Do you hear a distinctive metallic click in the motor when pressing the UP or DOWN button on the Control Pendant?
- YES – 30
  - NO – 31
30. Check the Capacitors and the capacitor connections through to the UP contactor (KM4) and DOWN contactor (KM5). Do the Capacitors and connections look ok?
- YES – Check all Motor connections and the continuity of the motor windings
  - NO – Repair connections or replace Capacitors
31. Ensure that the Control Box is connected to the proper power, taking into factor the length of the supply cable and size of cable to limit voltage drop. Is the power fed correct?
- YES – 32
  - NO – Correct the power feed
32. Ensure that the motor power wires have a good connection from the power plug all the way to the motor, including the motor plug connection. Are the connections good?
- YES – 33
  - NO – Correct the connections



33. While trying to lift a load does the hoist bounce up and shuts off and then bounces down and starts up again?  
YES – Adjust the Over Weight limit switch  
NO – 34
34. Follow the “Maxial Brake Replacement and Adjustment Procedure”
35. Check all cable connections. Is the Control Pendant connected to the Control Box and the Power Cord plugged into power?  
YES – 36  
NO – Repair connections
36. Ensure that the Control Box is connected to the proper power, taking into factor the length of the supply cable and size of cable to limit voltage drop. Is the power fed correct?  
YES – 37  
NO – Correct the power feed
37. Check the supply voltage with a multi-meter set to AC voltage on the input side of the Motor Overload (OL1) terminals “2” and “6”. Are both lines of supply voltage present?  
YES – 38  
NO – Check wire connections from the Power Plug to the Motor Overload (OL1)
38. Check the supply voltage with a multi-meter set to AC voltage on the input side of the Main Contactor (KM1) terminals “2” and “6”. Are both lines of supply voltage present?  
YES – 39  
NO – Check the connections from the Motor Overload (OL1) and MAIN contactor (KM1)
39. Press the ENGAGE button on the Control Pendant. What does the MAIN contactor (KM1) do?  
Closes and stays engaged – 40  
Closes and then opens back up – 49  
Does nothing – 41
40. Check the supply voltage with a multi-meter set to AC voltage on the output side of the MAIN contactor (KM1) terminals “1” and “5”. Are both lines of supply voltage present?  
YES – Check wire connections between MAIN contactor (KM1), UP contactor (KM4) and DOWN contactor (KM5)  
NO – Replace the MAIN contactor (KM1) (bad contactor contacts)



41. With a multi-meter set to AC voltage, check the control voltage between the MAIN contactor coil input "A2" and both terminal sides of the Control Transformer secondary side fuse (FU5). Is the control voltage present?
- Control voltage **IS** present on both sides – 45
  - Control voltage **ONLY** present on one side – Replace the fuse
  - Control voltage **NOT** present on both sides – 42
42. With a multi-meter set to AC voltage, check the control voltage between the Control Transformer (TR2) terminal "6" and terminal "10". Is the control voltage present?
- YES – Check wire connections between MAIN contactor (KM1) coil input "A2" and Control Transformer (TR2) terminal "10"
  - NO – 43
43. With a multi-meter set to AC voltage, check the supply voltage between the Motor Overload (OL1) terminal "6" and both terminal sides of the Control Transformer primary side fuse (FU4). Is the supply voltage present?
- Supply voltage **IS** present on both sides – 44
  - Supply voltage **ONLY** present on one side – Replace the fuse
  - Supply voltage **NOT** present on both sides – Check wire connection feeding the Control Transformer primary side fuse (FU4)
44. With a multi-meter set to AC voltage, check the supply voltage between the Control Transformer (TR2) terminal "1" and terminal "5". Is the supply voltage present?
- YES – Replace the Control Transformer (TR2)
  - NO – Check the wire connection feeding from the Control Transformer primary side fuse (FU4) to the Control Transformer (TR2)
45. With a multi-meter set to AC voltage, check the control voltage between the MAIN contactor (KM1) coil input "A2" and terminal "96" of the Motor Overload (OL1). Is the control voltage present?
- YES – 46
  - NO – Check the wire connection from the Control Transformer secondary fuse (FU5)
46. With a multi-meter set to AC voltage, check the control voltage between the MAIN contactor (KM1) coil input "A2" and terminal "95" of the Motor Overload (OL1). Is the control voltage present?
- YES – 47
  - NO – Let the motor cool for 30 minutes and recheck Step 46, if problem continues contact BetaMax Technical Support



47. Is the RED STOP button pressed in on the Control Pendant?  
YES – Release the RED STOP button  
NO – 48
48. Open the back cover of the Control Pendant. With a multi-meter set to AC voltage, check the control voltage between the Main Contactor (KM1) coil input “A2” and both terminal sides of the RED STOP button. Is the control voltage present?  
Control voltage **IS** present on both sides – 49  
Control voltage **ONLY** present on one side – Replace RED STOP button on Control Pendant  
Control voltage **NOT** present on both sides – Check the wiring connections from Motor Overload (OL1) terminal “95” the RED STOP button
49. With a multi-meter set to AC voltage, check the control voltage between the Main Contactor (KM1) coil input “A2” and terminal “4” of the Main Contactor (KM1). Is the control voltage present?  
YES – 50  
NO – Check the wire connection from the RED STOP button
50. With a multi-meter set to AC voltage, check the control voltage between the MAIN contactor (KM1) coil input “A2” and both terminal sides of the ENGAGE button on the Control Pendant while pressing the ENGAGE button. Is the control voltage present?  
Control voltage **IS** present on both sides – 51  
Control voltage **ONLY** present on one side – Replace the ENGAGE button on the Control Pendant  
Control voltage **NOT** present on both sides – Check the wiring connections from the RED STOP button
51. With a multi-meter set to AC voltage, check the control voltage between the MAIN contactor (KM1) coil input “A2” and “A1” while pressing the ENGAGE button. Is the control voltage present?  
YES – Replace MAIN contactor (KM1) (bad contactor coil)  
NO – Check the wire connection from the ENGAGE button