

5.9 RDCKA FAULT DIAGNOSIS PROCEDURE

The following describes an effective procedure for tracing an electrical fault in an RDCKA air compressor which has been wired using a genuine ARB wiring loom - ARB#180405.

For a full wiring loom diagram refer to Air Locker Service & Parts Manual - Section 5.8

All steps must be performed in the order listed here for an accurate assessment.

NOTE: Before attempting to troubleshoot a malfunctioning compressor, always make sure that the compressor manifold has been de-pressurized, all connections have been made according to the wiring diagram, the vehicle's ignition is in the accessory power position, and that the isolating switch has been turned 'ON'.

NOTE: The 'battery voltage' referred to below should be approximately 12V in the case of the RDCKA and 24V in the case of the RDCKA24.

STEP

1 Using a multimeter, check the voltage at the battery terminals to make sure the battery is working and is fully charged.

Did each battery measure at least 11.5 volts?

YES Proceed to STEP 2.

NO Insufficient battery voltage. Recharge or replace the battery.

2 Disconnect the compressor motor from the wiring loom at the connector plug. Run a wire directly from the negative terminal of the first or only battery to the BLACK wire of the compressor motor. Momentarily connect a wire from the positive terminal of the second or only battery to the RED wire of the compressor motor.

Did the compressor activate when the wires were connected?

YES Remove the extra wires and reconnect the compressor motor plug. Proceed to STEP 3.

NO Internal compressor problem. Contact ARB for assistance.

3 Remove the fuse from the fuse socket in the compressor wiring loom. Using a multimeter, check the continuity (resistance) across the 2 contacts of the fuse.

Did the resistance measure less than 1 Ohm?

YES Proceed to STEP 4.

NO Blown fuse. Replace with a new 30A fuse of same type.

4 Using a multimeter, check for battery voltage at both of the contacts in the fuse socket.

Was battery voltage detected at one of the two contacts?

YES Reconnect the fuse into the socket. Proceed to STEP 5.

NO Wiring fault between the positive battery terminal and the fuse socket. Check the wire connection at the battery terminal and/or replace the wiring and/or fuse socket.

5 Using a multimeter, check for battery voltage at the SOLID RED wire at the relay block (i.e., the wire leading directly from the fuse).

Was battery voltage detected?

YES Proceed to STEP 6.

NO Wiring fault between the fuse and the relay. Replace wiring and/or fuse socket.

6 Using a multimeter, check for battery voltage at the RED/YELLOW wire connected to terminal #2 of the compressor isolating switch. (i.e., the wire leading from the vehicle's accessory power.)

Was battery voltage detected?

YES Proceed to STEP 7.

NO Wire has not been connected correctly or accessory power has not been turned on. Attach RED/YELLOW wire to live accessory power.

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STEP

7 Using a multimeter, check for approximately 12V at the SOLID RED wire connected to terminal #3 of the compressor isolating switch. (while still connected)
Was approximately 12V detected?

YES Proceed to STEP 8.

NO Switch fault or switch not turned 'ON'. Replace switch or toggle switch to 'ON' position.

8 Using a multimeter, check for approximately 12V at the SOLID RED wire connected to the pressure switch attached to the compressor tank.
Was approximately 12V detected?

YES Proceed to STEP 9.

NO Wiring fault between the isolating switch and the pressure switch. Replace wiring.

9 Using a multimeter, check for approximately 12V at the DARK BLUE wire connected to the pressure switch attached to the compressor tank. (while still connected)
Was approximately 12V detected?

YES Proceed to STEP 10.

NO Pressure switch fault or tank not de-pressurized. Replace pressure switch or drain tank.

10 Using a multimeter, check for approximately 12V at the DARK BLUE wire at the relay block. (i.e., the wire leading directly from the pressure switch)
Was approximately 12V detected?

YES Proceed to STEP 11.

NO Wiring fault between pressure switch and relay block. Replace wiring.

11 Disconnect the relay from the relay block. Using a multimeter, check the continuity between the SOLID BLACK wire at the relay block and the negative terminal of second or only battery.
Did the resistance measure less than 1 Ohm?

YES Reconnect the relay to the relay block. Proceed to STEP 12.

NO Wiring fault in the ground wire between the battery and the relay block. Replace wiring.

12 Using a multimeter, pierce the RED/WHITE wire connected to the relay block and check for battery voltage while the relay is still connected.
Was battery voltage detected?

YES Proceed to STEP 13.

NO Relay fault. Replace with a new 40A relay of the same type.

13 Disconnect the compressor motor from the wiring loom at the connector plug. Using a multimeter, check for battery voltage at the RED/WHITE wire on the loom side of the plug.
Was battery voltage detected?

YES Proceed to STEP 14.

NO Wiring fault between the relay and the compressor motor connector. Replace wiring.

14 Using a multimeter, check the continuity (resistance) between the SOLID BLACK wire on the loom side of the plug (not on the compressor side) and the negative terminal of the first or only battery.
Did the resistance measure less than 1 Ohm?

YES Intermittent fault or internal compressor problem. Contact ARB.

NO Wiring fault in the ground wire between the battery and the compressor motor. Replace wiring.

5.9 CKMA12 & CKMA24 FAULT DIAGNOSIS PROCEDURE

The following describes an effective procedure for tracing an electrical fault in a CKMA12 or CKMA24 compressor which has been wired using a genuine ARB wiring loom - ARB#180409
For a full wiring loom diagram refer to Air Locker Service & Parts Manual - Section 5.8
All steps must be performed in the order listed here for an accurate assessment.

NOTE : Before attempting to troubleshoot a malfunctioning compressor, always make sure that the compressor manifold has been de-pressurized, all connections have been made according to the wiring diagram, the vehicle's ignition is in the ACC power position, and that the ISOLATING SWITCH has been turned 'ON'.

NOTE : The 'MOTOR VOLTAGE' referred to below should be approximately 12V in the case of the CKMA12 and 24V in the case of the CKMA24. Otherwise '12V' refers to approximately 12V regardless of compressor model as the 24V compressor runs on a 12V control circuit.

NOTE : Battery number references (e.g., [#1]) are for 24V system wiring purposes.

STEP

1 Using a multimeter, check the voltage at the battery terminals to make sure the battery is working and is fully charged. Check each individual 12V battery in a 24V system.
Did each battery measure at least 11.5 volts?

YES Proceed to STEP 2.

NO Insufficient battery voltage. Recharge or replace the battery.

2 Disconnect the compressor motor from the wiring loom at the connector plug. Run a new wire directly from the negative (-) terminal of the battery [#1] to the BLK-WHT wire of the compressor motor. Momentarily connect a wire from the positive terminal of the battery [#2] to the RED wire of the compressor motor.
Did the compressor activate when the wires were connected?

YES Remove the extra wires and reconnect the compressor motor plug. Proceed to STEP 3.

NO Internal compressor motor problem. Contact ARB for assistance.

3 Remove the fuse from the fuse socket in the compressor wiring loom. Using a multimeter, check the continuity (resistance) across the 2 contacts of the fuse.
Did the resistance measure less than 1 Ohm?

YES Proceed to STEP 4.

NO Blown fuse. Replace with a new 40A maxi fuse of same type. Insert new fuse with caution in case a wiring short was responsible for the fuse blowing.

4 Using a multimeter, check for MOTOR VOLTAGE between a chassis ground and each of the two contacts in the fuse socket.
Was MOTOR VOLTAGE detected at one of the two contacts?

YES Reconnect the fuse into the socket. Proceed to STEP 5.

NO Wiring fault between the positive (+) battery terminal and the fuse socket. Check the wire connection at the battery terminal and/or replace the wiring and/or fuse socket.

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STEP

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Using a multimeter, check for MOTOR VOLTAGE between a chassis ground and the RED wire at the relay block (i.e., the wire leading directly from the fuse).

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 6.

NO Wiring fault between the fuse and the relay. Replace wiring and/or fuse socket.

6

Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the RED-YEL wire connected to terminal #2 of the compressor isolating switch. (i.e., the wire leading from the vehicle's ACC power.)

Was 12V detected?

YES Proceed to STEP 7.

NO Wire has not been connected correctly or accessory power has not been turned on. Attach RED-YEL wire to live ACC power.

7

Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the RED wire connected to terminal #3 of the compressor isolating switch. Test while spade terminals are still connected.

Was approximately 12V detected?

YES Proceed to STEP 8.

NO Switch fault or switch not turned 'ON'. Replace switch or toggle switch to 'ON' position.

8

Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the RED wire connected to the pressure switch attached to the compressor tank.

Was approximately 12V detected?

YES Proceed to STEP 9.

NO Wiring fault between the isolating switch and the pressure switch. Replace wiring.

9

Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the DK-BLU wire connected to the pressure switch attached to the compressor tank. Test while spade terminals are still connected.

Was approximately 12V detected?

YES Proceed to STEP 10.

NO Pressure switch fault or tank not de-pressurized. Replace pressure switch or drain tank.

10

Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the DK-BLU wire at the relay block. (i.e., the wire leading directly from the pressure switch)

Was approximately 12V detected?

YES Proceed to STEP 11.

NO Wiring fault between pressure switch and relay block. Replace wiring.

11

Disconnect the relay from the relay block. Using a multimeter, check the continuity between the BLK wire at the relay block and the negative (-) terminal of the battery [#2].

Did the resistance measure less than 1 Ohm?

YES Reconnect the relay to the relay block. Proceed to STEP 12.

NO Wiring fault in the ground wire between the battery and the relay block. Replace wiring.

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STEP #

12

Using a multimeter, check for MOTOR VOLTAGE between the negative (-) terminal of the battery [#1] and the RED-WHT wire connected to the relay block and while the relay is still connected. Pierce the RED-WHT wire with the multimeter probe to make connection if necessary.

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 13.

NO Relay fault. Replace with a new 12V - 40A relay of the same type.

13

Disconnect the compressor motor from the wiring loom at the connector plug. Using a multimeter, check for MOTOR VOLTAGE between the negative (-) terminal of the battery [#1] and the RED-WHT wire on the loom side of the plug.

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 14.

NO Wiring fault between the relay and the compressor motor connector. Replace wiring.

14

Using a multimeter, check the continuity (resistance) between the BLK-WHT wire on the loom side of the plug (not on the compressor side) and the negative (-) terminal of the battery [#1].

Did the resistance measure less than 1 Ohm?

YES Intermittent wiring fault or internal compressor problem. Contact ARB.

NO Wiring fault in the ground wire between the battery [#1] and the compressor motor. Replace wiring.

5.9 CKMTA12 & CKMTA24 FAULT DIAGNOSIS PROCEDURE

The following describes an effective procedure for tracing an electrical fault in a CKMTA12 or CKMTA24 compressor which has been wired using a genuine ARB wiring loom - ARB #180414 & ARB #180415. For a full wiring loom diagram refer to Air Locker Service & Parts Manual - Section 5.8. All steps must be performed in the order listed here for an accurate assessment.

NOTE : Before attempting to troubleshoot a malfunctioning compressor, always make sure that the compressor manifold, air tanks and connected accessories have been de-pressurized, all connections have been made according to the wiring diagram, the vehicle's ignition is in the ACC power position, and that the ISOLATING SWITCH has been turned 'ON'

NOTE : The 'MOTOR VOLTAGE' referred to below should be approximately 12V in the case of the CKMTA12 and 24V in the case of the CKMTA24. Otherwise '12V' refers to approximately 12V regardless of compressor model as the 24V compressor runs on a 12V control circuit.

NOTE : Battery number references (e.g., [#1]) are for 24V system wiring purposes.

STEP

1 Using a multimeter, check the voltage at the battery terminals to make sure the battery is working and is fully charged. Check each individual 12V battery in a 24V system.

Did each battery measure at least 11.5 volts?

YES Proceed to STEP 2.

NO Insufficient battery voltage. Recharge or replace the battery.

2 Disconnect the compressor motors from the wiring loom at the connector plugs. Run a new wire directly from the negative (-) terminal of the battery [#1] to the BLK-WHT wire of the one compressor motor. Momentarily connect a wire from the positive terminal of the battery [#2] to the RED wire of the compressor motor. Repeat for the second motor.

Did the compressor activate when the wires were connected?

YES Remove the extra wires and reconnect the compressor motors. Proceed to STEP 3.

NO Internal compressor motor problem. Contact ARB for assistance.

3 Remove the fuses from the fuse socket in the compressor wiring loom. Using a multimeter, check the continuity (resistance) across the 2 contacts of the fuses.

Did the resistance measure less than 1 Ohm?

YES Proceed to STEP 4.

NO Blown fuse. Replace with a new 40A maxi fuse of same type. Insert new fuse with caution in case a wiring short was responsible for the fuse blowing.

4 Using a multimeter, check for MOTOR VOLTAGE between a chassis ground and each of the two contacts in the fuse socket.

Was MOTOR VOLTAGE detected at one of the two contacts?

YES Reconnect the fuse into the socket. Proceed to STEP 5.

NO Wiring fault between the positive (+) battery terminal and the fuse socket. Check the wire connection at the battery terminal and/or replace the wiring and/or fuse socket.

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STEP

5 [24V COMPRESSOR AND WIRING ONLY] Using a multimeter, check for 12V between a chassis ground and each of the two contacts in the mini-blade fuse holder.

Was 12V detected at one of the two contacts?

YES Reconnect the fuse into the holder. Proceed to STEP 6.

NO Wiring fault between the negative (-) terminal of the battery [#2] and the fuse holder, Check the wire connection at the battery terminal and/or replace the wiring and /or fuse holder.

6 Remove the compressor cover. Using a multimeter, check for MOTOR VOLTAGE between a chassis ground and the RED wire at each of the relay blocks (i.e., the wire leading directly from the fuse).

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 7.

NO Wiring fault between the fuse and the relay. Replace wiring and/or fuse socket.

7 Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the RED-YEL wire connected to terminal #2 of the compressor isolating switch. (i.e., the wire leading from the vehicle's ACC power.)

Was 12V detected?

YES Proceed to STEP 8.

NO Wire has not been connected correctly or accessory power has not been turned on. Attach RED-YEL wire to live ACC power.

8 Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the RED wire connected to terminal #3 of the compressor isolating switch. Test while spade terminals are still connected.

Was approximately 12V detected?

YES Proceed to STEP 9.

NO Switch fault or switch not turned 'ON'. Replace switch or toggle switch to 'ON' position.

9 Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the PUR wire connected to the pressure switch attached to the compressor manifold.

Was approximately 12V detected?

YES Proceed to STEP 10.

NO Wiring fault between the isolating switch and the pressure switch. Replace wiring.

10 Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the YEL wire connected to the pressure switch attached to the compressor manifold. Test while spade terminals are still connected.

Was approximately 12V detected?

YES Proceed to STEP 11.

NO Pressure switch fault or tank not de-pressurized. Replace pressure switch or drain tank.

11 Using a multimeter, check for approximately 12V between the negative (-) terminal of the battery [#2] and the YEL wire at each of the relay blocks. (i.e., the wire leading directly from the pressure switch)

Was approximately 12V detected?

YES Proceed to STEP 12.

NO Wiring fault between pressure switch and relay block. Replace wiring.

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STEP

12

Disconnect the relay from the relay block. Using a multimeter, check the continuity between the BLK wire at the relay block and the negative (-) terminal of the battery [#2].

Did the resistance measure less than 1 Ohm?

YES Reconnect the relay to the relay block. Proceed to STEP 13.

NO Wiring fault in the ground wire between the battery and the relay block. Replace wiring.

13

Using a multimeter, check for MOTOR VOLTAGE between the negative (-) terminal of the battery [#1] and the RED-WHT wire connected to each of the relay blocks and while the relay is still connected. Pierce the RED-WHT wire with the multimeter probe to make connection if necessary.

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 14.

NO Relay fault. Replace with a new 12V - 40A relay of the same type. ARB #CO42

14

Disconnect the compressor motors from the wiring loom at the connector plug. Using a multimeter, check for MOTOR VOLTAGE between the negative (-) terminal of the battery [#1] and the RED-WHT wire on the loom side of the plug.

Was MOTOR VOLTAGE detected?

YES Proceed to STEP 15.

NO Wiring fault between the relay and the compressor motor connector. Replace wiring.

15

Using a multimeter, check the continuity (resistance) between the each of the BLK-WHT wire on the loom side of the plug (not on the compressor side) and the negative (-) terminal of the battery [#1].

Did the resistance measure less than 1 Ohm?

YES Intermittent wiring fault or internal compressor problem. Contact ARB.

NO Wiring fault in the ground wire between the battery [#1] and the compressor motor. Replace wiring.