All J+J electric actuators are tested prior to shipping. Most issues are site related, we hope that you will find a solution to your problem in this guide. If not, please contact us for support.

ISSUE: PRINTED CIRCUIT BOARD(S) (PCBs) – ACTUATOR DOESN'T WORK

POSSIBLE REASON(S)	POSSIBLE SOLUTIONS/ ADVICE
PCB damage or failure.	• Incorrect power applied to the actuator. This is easily identified when the cover is removed as the PCB components around the power cable connection on the PCB are burned/ damaged. • In the J3C S Type the main PCB is split into 2 halves, one is the power supply PCB, the other the control PCB. Should the power supply be damaged (eg; incorrect voltage, voltage surge/ spike, excessive current drawn due to voltage drop in DC systems), the power PCB can be replaced. **However, identify the cause and take corrective action to prevent recurrence.**
	• Condensation. This is identified by oxidisation of internal aluminium components and often by dried residue on the PCB. Condensation can only be caused by the external power being removed (check counters) thereby eliminating the internal heater. • Note: Damage caused by condensation is NOT covered by the warranty as a thermostatic anti-condensation heater is provided as standard, activated whenever external power is connected, and the actuator is designed to have external power continuously applied.
	• Water ingress: This is identified by water being visible in the housing, tide marks on the inside of the housing, oxidisation of internal aluminium components and by dried residue on the PCB if the water has been drained. Generally the entry point is clearly visible as an entry 'track' can be seen. • The J3C-S is fully weatherproof to IP67 and under normal circumstances does not have any issues with water (or dust) ingress. It cannot however be submerged for long periods, hosed down, deluged in water, or pressure washed.
	Voltage drop: (THIS IS A VERY COMMON CAUSE OF FAILURES IN LOW VOLTAGE UNITS) • As the voltage drops the current increases, the excess current causes the damage. Voltage drop can be due to incorrectly sized power supply (undersized), or the effect of the length of cables in DC powered applications has not been considered. Typically this burns out diodes (see below)
	Voltage spikes/ line faults • If surge protection is not in place, lightning strikes, or simple high voltage spikes, whist often only seen for a fraction of a second, can blow a variety of PCB components, and not necessarily the obvious power connection components. (see below ref: Diode burnout)
	Vibration. J3C-S actuators should not be used where vibration is present. • Vibration can move the cams mounted to the output shaft so that they no longer actuate the end of travel micro-switch resulting in the actuator running continuously • Components can break loose from PCB. Although the 'tall' components are 'glued' to the PCB using silicon, vibration can still cause components to come away from the PCB • Motor housing can break loose from the plastic base • Miscommunication between a plug & play accessory sub-PCB and main PCB where the plug & socket connection is not made/ maintained.
	Motor failure • When applying high voltage, users may try to apply the supply voltage (110 or 240VAC) directly to the motor in a J3/J3C actuator that isn't working, to try to determine if the issue is motor, or PCB

	related. In doing so, the motor is irreparably damaged (and also possibly the main PCB if the motor cable is not removed from the PCB ahead of the 'test') because all J3C-S actuators use a 24VDC motor.
	Limit Switch PCB failure • The difference between the power (grey plug) and end of travel (black plug) wiring has not been observed, or the plugs have been swapped so the grey plug was fitted to the black base, creating an internal short circuit resulting in a blow-out on the limit-switch PCB.

J+J ELECTRIC ACTUATORS WITH BURNED OUT DIODES IN THE MAIN PCB POWER SUPPLY

In our experience, the most common causes of power supply failures in J+J electric actuators are the result of the failure of one, or a number of diodes. Failure of these diodes is neither a material or manufacturing defect but are caused by a site issue, and therefore any rectification or re-supply is not covered by our warranty.

We understand the most common causes of diode failure to be:

1) **Metalisation Burnout** caused by current overload. Typically this will be caused by a voltage drop along a cable run in 24VDC system, resulting in the current rising to try and maintain the power to the motor. The most common reason for the damaging voltage drop to occur is an undersized power supply.

2) **Voltage Transients or Spikes** generally in AC systems but can occur in DC systems, are typically caused by a large inductive load (eg: motor starting, or all equipment restarting at the same time following a power outage).

3) **Thermal Runaway** caused by rising voltage which, in combination with simultaneously rising current induces heat which burns out the diode.

4) **Inverse Polarity** caused by incorrect wiring can cause diodes to fail.

5) **Lightening Strike.**

Note: J+J can only try to identify the cause of an actuator's failure by observing the condition of the actuator when it is returned, and once the reason for the failure has been identified, can only offer a range of possible causes that are known to have the outcome that was identified.

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