

COIMA USA SHK SERIES TROUBLESHOOTING MATRIX

TROUBLE	CAUSE	DIAGNOSTIC STEPS	SOLUTION
FAN AND SHAKER MOTOR FAIL TO START / BUTTONS DO NOT WORK	Power Not Connected	Check fuses or circuit breaker at power panel	Replace fuses or switch circuit breaker to ON if not set Replace circuit breaker if bad
		Check that all disconnects are closed / engaged	Close / engage all disconnects
		Check connections between all buttons and the terminal block are secure	Secure all connections between all buttons and the terminal block
	Insufficient Control Voltage	Check control wiring for loose connections	Secure control wiring
		Check control transformer output - if low one or more fuses may need to be replaced	Replace fuses on control transformer
		Check control transformer output - if fuses OK and connections OK transformer may have failed	Replace control transformer
FAN MOTOR FAILS TO START	Blown Fuses on Main Panel	Check fuses and confirm they are rated for supply voltage for your SHK model	Replace fuses with proper type and rating [SHK Wiring Diagram - Table 1 : MPCB (A)]
	Circuit Breaker Trips	Check circuit breaker & amp rating	Reset circuit breaker, replace if bad [SHK Wiring Diagram - Table 1 : MPCB (A)]
	Thermal Fault Overload	Check and reset overload in motor starter panel	Reset overload in motor starter panel [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm Thermal Overload setting matches requirement for voltage supplied	Adjust Thermal Overload setting [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual customer voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
	Insufficient Power	Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual customer voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
		Confirm correct wire gauge for fan motor connection	Replace wiring with proper size for fan motor connection [SHK Wiring Diagram - Table 1: WIRE SIZE (C)]
	Improper Line Connections	Check connections at motor terminals	Confirm proper wiring in fan motor junction box [SHK Wiring Diagram - Table 2]
		Check continuity of phases from panel to motor terminals (L1, L2 & L3) - inspect all junction boxes, disconnects and wire connections	Secure and/or correct wiring between motor starter output and fan motor
	Open Circuit in Winding or Control Switch	Indicated by humming sound when fan is turned on - check for loose wiring connections	Check for loose wiring connections in motor junction box, at motor starter output, at disconnect and any junctions in between
		Ensure that all contacts are closing on contactor	Check output voltages across all legs on input and output of motor starter/thermal overload
	Mechanical Failure	Check if fan wheel turns freely by hand - may require dismantling ductwork to access fan wheel	If fan does not turn freely or makes grinding, squealing or scraping sounds while turning this indicates a mechanical failure inside the motor or its bearings - motor must be replaced
	Short Circuited Stator	Indicated by blown fuses/tripped circuit breaker - motor must be replaced	Check other connections for short circuits before declaring motor to be at fault.
	Motor May Be Overloaded	Reduce load on motor - check for obstructions or dust build-up in fan housing or hopper	Clear any obstructions or dust build-up inside fan housing or hopper
WRONG ROTATION DIRECTION	Incorrect Sequence of Phases	Reversing sequence of phases will change rotation direction	Change order of phases by swapping 2 of the 3 power input or motor connections Example: L1-U1 / L2-V1 / L3-W1 becomes L1-U1 / L2-W1 / L3-V1

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MOTOR DRAWS TOO MUCH CURRENT / TAKES TOO LONG TO ACCELERATE	Supply Voltage Too Low	Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual service voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
	Excessive Load	Reduce load on motor - check for obstructions or dust build-up in fan housing or hopper	Clear any obstructions or dust build-up inside fan housing or hopper
	Low Voltage During Start	Check for high resistance - confirm adequate cable/conductor size is used	Replace wiring with proper size for fan motor connection [SHK Wiring Diagram - Table 1: WIRE SIZE (C)]
	Defective Squirrel Cage Rotor	Rotor is faulty or has been damaged	Replace motor
	Windings Burning Out	Excessive heat for extended periods can degrade coating on windings, causing short circuit	Replace motor
MOTOR STALLS	One Phase May Be Open	Check continuity of phases from panel to motor terminals (L1, L2 & L3) - inspect all junction boxes, disconnects and wire connections	Secure and/or correct wiring between motor starter output and fan motor
		Check phases at input to panel match motor terminals (L1 = U1, L2 = V1, L3 = W1)	Correct phase order at motor terminals or motor starter output [SHK Wiring Diagram - Table 2]
	Motor Overload / Overcurrent	Reduce load on motor	Check for obstructions or dust build-up in fan housing
		No ductwork installed on fan inlet	Install ductwork, reset thermal overload and try starting fan again If ductwork is not available, partially obstruct fan inlet with thick sheet of wood - cover more than half of the fan inlet, secure wood to fan, and take safety precautions around moving parts such as fan impeller
	Low Voltage	Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual service voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
		Confirm correct wire gauge for fan motor connection	Replace wiring with proper size for fan motor connection [SHK Wiring Diagram - Table 1: WIRE SIZE (C)]
	Open Circuit	One or more fuses blown or circuit breaker tripped	Replace fuses or switch circuit breaker to ON if not set
			Replace circuit breaker if bad or undersized [SHK Wiring Diagram - Table 1 : MPCB (A)]
MOTOR RUNS THEN DIES DOWN	Power failure	Loose wiring connection	Check for and secure any loose connections to line, to fuses, and to control panel
	Thermal Fault Overload	Check and reset overload in motor starter panel	Reset overload in motor starter panel [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm Thermal Overload setting matches requirement for voltage supplied	Adjust Thermal Overload setting [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual service voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
		Check phases at input to panel match motor terminals (L1 = U1, L2 = V1, L3 = W1)	Correct phase order at motor terminals or motor starter output [SHK Wiring Diagram - Table 2]
		No ductwork installed on fan inlet	Install ductwork, reset thermal overload and try starting fan again If ductwork is not available, partially obstruct fan inlet with thick sheet of wood - cover more than half of the fan inlet, secure wood to fan, and take safety precautions around moving parts such as fan impeller

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MOTOR DOES NOT COME UP TO NOMINAL SPEED	Voltage Too Low at Motor Terminals Due to Line Drop	Incorrect motor terminal connections / wired for incorrect voltage	Confirm proper wiring in fan motor junction box [SHK Wiring Diagram - Table 2]
		Insufficient power supply voltage	Use higher voltage or transformer terminals for power supply to match rating on control panel
		Connections not all secure or consistent	Check and secure all wiring connections between motor starter and motor terminals Loose fasteners or wires may be impeding current enough to reduce motor speed
		Incorrect / insufficient wire gauge for fan motor connection	Replace wiring with proper size for fan motor connection [SHK Wiring Diagram - Table 1: WIRE SIZE (C)]
	Open Primary Circuit	One or more fuses blown or circuit breaker tripped	Replace fuses or switch circuit breaker to ON if not set Replace circuit breaker if bad or undersized [SHK Wiring Diagram - Table 1 : MPCB (A)]
		Connections not all secure or consistent	Check and secure all wiring connections between motor starter and motor terminals Loose fasteners or wires may be impeding current enough to reduce motor speed
		Faulty winding in motor	Replace motor
MOTOR OVERHEATS WHILE RUNNING	Supply Voltage Too Low	Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual service voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
	Motor May Have One Phase Open	Connections not all secure or consistent	Check and secure all wiring connections between motor starter and motor terminals Loose fasteners or wires may be impeding current enough to reduce motor speed
	Unbalanced Terminal Voltage	Check for faulty leads or connections	Secure or replace any wiring, connectors or components as necessary
		Service power supply not equal across all legs	If power service is not equal across all legs check power service connections and transformers Utility provider may be needed to rectify power service
		Supply voltage is not equal across all legs of motor starter output (power service confirmed OK)	If power service is equal across all legs check contactor and thermal overload Replace faulty contactor and/or thermal overload
	Frame or Vent Holes Obstructed	Check frame or vent holes for dirt & debris	Clean out and check for continuous stream of air flow through motor cooling vanes when motor is running
	Motor Enclosure Not Ventilated	Check that motor is not enclosed or obstructed in a way that prevents proper ventilation	Remove enclosure or reduce airflow impediment to provide adequate cooling ventilation
	Motor Exposed to Direct Sunlight / External Heat Source	Check that motor is not exposed to direct sunlight or heat from another source	Shield motor from direct sunlight or other external heat source
MOTOR EMITS HUMMING, SQUEALING OR GRINDING NOISE	Obstruction in Fan Housing	Check for obstructions or dust build-up in fan housing or hopper	Clear any obstructions or dust build-up inside fan housing or hopper
	Fan Out of Balance	Check if fan wheel is damaged or does not turn evenly	If fan appears to wobble or any fan blades are missing / damaged fan wheel must be replaced
	Open Winding in Motor	Indicated by humming sound when fan motor is powered	Check and secure all wiring connections between motor starter and motor terminals
			If all connections are tested as OK problem exists in motor windings (burned or shorted) Replace motor
	Faulty Rotor Bearing	Check if fan wheel turns freely by hand - may require dismantling ductwork to access fan wheel	If fan does not turn freely or makes grinding, squealing or scraping sounds while turning this indicates a mechanical failure inside the motor or its bearings Replace motor
	Cooling Fan Damage	Check cooling fan and cowling on end of motor housing (may require removal of cooling fan cowling to inspect)	If plastic cooling fan is damaged it must be replaced
			If cooling fan cowling is damaged first remove and attempt to repair If cooling fan cowling cannot be repaired it must be replaced

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FAN & MOTOR VIBRATES	Fan Housing Not Supported	Check fan housing support legs	Secure legs to floor/ground to provide sturdy base for fan housing - use shims if needed Tighten fasteners joining legs to underside of fan housing
	Fan Motor Not Secured to Fan Plate or Fan Housing	Check that fan motor is secured to the fan housing	Inspect and tighten all bolts around the base of the fan motor
			Inspect and tighten all bolts joining the fan cover plate to the rest of the fan housing
			Fan housing support legs are secured to fan cover plate - ensure that all fasteners are secured, including inside legs
	Fan Not Secured to Hopper	Check fan housing outlet and transition frame	Inspect and secure all fasteners joining fan housing to transition frame and dust collector hopper inlet Apply additional silicone as needed between parts for airtight seal
	Inlet Ductwork Not Secured	Check ductwork parts for fit and alignment	Check and secure inlet adapter to fan housing
			Check and secure all duct pieces together
			Provide adequate support for vertical ductwork above fan
			Apply additional silicone as needed between parts for airtight seal
	Debris Stuck in Fan Housing	Check for obstructions or foreign objects inside fan housing	Clear any obstructions or foreign objects from inside fan housing
	Fan Out of Balance	Check if fan wheel is damaged or does not turn evenly / smoothly	If fan appears to wobble or any fan blades are missing / wheel is damaged the fan wheel must be replaced
	Motor Running on Single Phase	Loose wiring connection	Check for and secure any loose connections to line, to fuses, and to control panel
		Check phases at input to panel match motor terminals (L1 = U1, L2 = V1, L3 = W1)	Correct phase order at motor terminals or motor starter output [SHK Wiring Diagram - Table 2]
	Fan Impeller Not Secured	Check if fan impeller wheel rocks or wobbles when pressing or pulling on edge, or when spun around by hand	Tighten fastener in center of fan impeller wheel. If needed, add sturdy spacer between bolt head and mating surface on impeller wheel to secure wheel to shaft Requires inlet ductwork to be removed
	Fan Motor Rotor Damage	If fan motor housing is clear source of vibration and hot to the touch	Replace motor
	Faulty Rotor Bearing	Check if fan wheel turns freely by hand - may require dismantling ductwork to access fan wheel	If fan does not turn freely or makes grinding, squealing or scraping sounds while turning this indicates a mechanical failure inside the motor or its bearings Replace motor

TROUBLE	CAUSE	DIAGNOSTIC STEPS	SOLUTION
SHAKER MOTOR DOES NOT START (FAN MOTOR OK)	Safety Interlink	Shaker motor cleaning system cannot function if the fan motor is in operation due to a safety interlink inside the control panel	Per NFPA 654-2020 9.3.12.1.1.2 (4)a - The filter medium is not shake or pressure-pulsed to dislodge dust during operation.
	Thermal Fault Overload	Check and reset overload in motor starter panel	Reset overload in motor starter panel [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm Thermal Overload setting matches requirement for voltage supplied	Adjust Thermal Overload setting [SHK Wiring Diagram - Control Panel Wiring (F)]
		Confirm proper voltage supplied to motor - check motor nameplate rated voltage against actual customer voltage (refer to voltage confirmation sheet if possible)	If input voltage is too low, change power source to proper voltage or install buck-boost transformer to provide required voltage
	Improper Line Connections	Confirm correct wire gauge for fan motor connection	Replace wiring with proper size for fan motor connection [SHK Wiring Diagram - Table 1: WIRE SIZE (C)]
		Check connections at motor terminals	Confirm proper wiring in fan motor junction box [SHK Wiring Diagram - Table 2]
		Check continuity of phases from panel to motor terminals (L1, L2 & L3) - inspect all junction boxes, disconnects and wire connections	Secure and/or correct wiring between motor contactor output and fan motor
	Mechanical Failure	Check if eccentric weights turn freely by hand - will require access to top of collector to work on shaker motor	If weight arm does not turn freely or makes grinding, squealing or scraping sounds while turning this indicates a mechanical failure inside the motor or its bearings Replace motor
EXCESSIVE NOISE FROM SHAKER MOTOR	Loose Shaker Motor Mount	Check shaker motor mounts	Inspect shaker motor mounts for wear or damage - clean & repair if needed
			Inspect shaker motor mounting bracket and filter top plate / trapeze for damage
			Secure any loose fasteners
	Loose Shaker Weights	Check eccentric weight housings on sides of shaker motor	Check and secure shaker weight plates on both sides of shaker motor
			Check for damage or debris inside shaker weight housings
			Confirm same and symmetrical arrangement of shaker weight plates on both sides
DUST BYPASS FROM SUCTION FAN	Loose Duct Connections	Reseat all Clamp-Together duct connections	Un-clamp duct pieces and inspect ends, clamps & seals for damage or defects
		Inspect & repair all other duct types	Inspect and disassemble (if necessary) any duct pieces which do not fit together properly
			Apply additional silicone sealant as needed between parts for airtight seal
			Secure and support ductwork
	Fan Motor / Plate Not Sealed	Check area around fan motor mounting flange for dust bypass	Check and secure all fasteners around fan mounting flange
		Check area around fan cover plate for dust bypass	Check and secure all fasteners around fan cover plate
			Fan housing support legs are secured to fan cover plate - ensure that all fasteners are secured, including inside legs
			Apply additional silicone sealant as needed between parts for airtight seal
	Fan Housing Bypass	Check all corners and edges of fan housing	Clean and inspect any areas where dust bypass is visible, then apply silicone sealant to fill the voids between metal panels
			Do not attempt to clean or seal fan while in operation - provide adequate drying time for silicone sealant to cure
	Fan Not Secured to Hopper	Check fan housing outlet and transition frame	Inspect and secure all fasteners joining fan housing to transition frame and dust collector hopper inlet
			Apply additional silicone as needed between parts for airtight seal

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DUST BYPASS FROM COLLECTOR	Dust Bypassing Filters	Check all filters are seated properly	Check and correct any filter snap rings not properly seated in top and bottom tube sheets USE CAUTION AS METAL EDGES MAY BE SHARP
		Check filters for any rips, tears, holes or other damage	If a filter is damaged contact COIMA USA for a replacement To continue operating until new filter arrives: 1) Remove faulty filter from top and bottom tube sheets 2) Remove top of adjacent filter from top tube sheet only 3) Insert top of adjacent filter into opening in lower tube sheet
	Dust Bypassing Hopper Panels	Check for damage to hopper body	Clean area and attempt to seal damage if minor or simple to address For significant or complex damage contact COIMA USA for guidance
		Check for gaps or leaks between body panels	Clean area and apply silicone sealant to void - allow proper time to dry / cure Whenever possible it is advised to seal from within the hopper first and apply silicone to the exterior as necessary to stop dust bypass
		Check for missing fasteners or open holes in hopper panels	Where possible clean area around hole, replace missing fastener(s) and apply silicone around work area
	Dust Bypassing Waste Bags	Check for tears, holes or broken seams on waste bags	Remove and replace with new, undamaged bag
		Check for wrinkles or snags between clamp and hopper spout	Remove and reseal bag without wrinkles or snags Neatly fold loose bag material over itself to provide clean clamping surface
		Check bag clamp tension is tight but not too tight	Adjust spring location to provide ideal tension to support and secure bag Adjusting too tightly will stretch spring and reduce clamping force / spring life
		Check for tears, holes or broken seams on fabric barrel connector	Contact COIMA USA for a replacement fabric connector
	Dust Bypassing Barrels or Bins	Check bag clamp tension is tight but not too tight	Adjust spring location to provide ideal tension to support and secure bag Adjusting too tightly will stretch spring and reduce clamping force / spring life
		Check for leaks in edges of barrels or bins	Clean area and attempt to seal damage if minor or simple to address For significant or complex damage contact COIMA USA for guidance Whenever possible it is advised to seal from within the barrel or bin first and apply silicone to the exterior as necessary to stop dust bypass
		Check gaskets & seals on dump bins	Clean and reaffix gasket around dump bin opening Apply silicone sealant or other adhesive (cyanoacrylate, etc) under mating surface of gasket material to help adhere to metal surface - allow seal to dry before use
			Clean around sight glass and any other areas where a seal may be failing to trap dust, and apply additional silicone sealant to patch holes



*Solutions for dust collection,
painting, & biomass systems*

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