

Date of Diagnostic: July 10, 2023  
 Performed by: Pango  
 Invoice Number: INV-15101815

Brand: Chinese Diesel Heater  
 Model:  
 Serial Number:

Tested with Controller: CDH

Parameters	
- Voltage	12V (DC)
- Nominal Fuel Pump Flow Rate	22.0 ml/1000p
- Overall Energy Delivery	5 kW
- Air Flow Ratio	1

ECU / Main Controller Settings	Solution:	
- Settings		KEEP
		PASS

- Settings - Protected by Password	1688	ACCESSIBLE
- Settings - Min. Frequency	1.6 Hz	PASS
- Settings - Max. Frequency	5.5 Hz	PASS
- Settings - Min. RPM	1680 RPM	PASS
- Settings - Max. RPM	4500 RPM	PASS
- Settings - Voltage	12V (DC)	PASS
- Settings - Polarity of Magnets	SN-1	PASS
- Settings - Glow Plug	PF-5	PASS
- Settings - Fuel Pump Capacity	-	N/A
- Settings - Heating Power	-	N/A

- Low Heating Power		PASS
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	35.2 µl / s	
- Set Fuel Flow	126.7 ml / h	PASS
- Set Heat Output *	1,056 W	
- Set Overall Energy Delivery *	1,359 W	PASS
- Set Rich Ratio	20.95	PASS

- Low Heating Power		PASS
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	121.0 µl / s	
- Set Fuel Flow	435.6 ml / h	PASS
- Set Heat Output *	3,629 W	
- Set Overall Energy Delivery *	4,671 W	PASS
- Set Rich Ratio	26.89	PASS

Run Test		
- Start		FAIL
		FAIL

- Controller Communication		PASS
- Air Blower Motor Spinning		PASS
- Activation of the Glow Plug	107 W	PASS
- Start of Pumping		PASS
- Ignition		FAIL

- Low Heating Power		CAN NOT CHECK
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- Fan RPM		CAN NOT CHECK
- Pump Frequency		CAN NOT CHECK
	N/A	
- Fuel Flow	N/A	CAN NOT CHECK
	N/A	
- Approximate Heat Output *	N/A	CAN NOT CHECK
- Approximate Overall Energy Delivery *	N/A	CAN NOT CHECK
- Rich Ratio	N/A	CAN NOT CHECK

- High Heating Power		CAN NOT CHECK
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- Fan RPM		CAN NOT CHECK
- Pump Frequency		CAN NOT CHECK
	N/A	
- Fuel Flow	N/A	CAN NOT CHECK
	N/A	
- Approximate Heat Output *	N/A	CAN NOT CHECK
- Approximate Overall Energy Delivery *	N/A	CAN NOT CHECK
- Rich Ratio	N/A	CAN NOT CHECK
- Temperature - Air Intake		
- Temperature - Air Outlet		CAN NOT CHECK
- Temperature - Difference	N/A	

\* This is only calculated approximate value that estimates the power based on the measured fuel consumption and does not represent the value achieved by physical measurement of the real heat output or the overall energy delivery. Carbon deposition, faulty burner or sediments on the atomising net may have strong impact on the combustion process and influence the final values.

<b>Main Controller</b>	<b>Solution:</b>	<b>KEEP</b>	
<b>- Summary</b>		<b>PASS</b>	
- Integrity		<b>PASS</b>	
- Contamination		<b>PASS</b>	
- Buttons		<b>PASS</b>	
- LCD Display		<b>PASS</b>	
- Speaker		<b>N/A</b>	
- Wiring		<b>PASS</b>	
- Connector		<b>PASS</b>	
<b>Wiring Loom</b>	<b>Solution:</b>	<b>N/A</b>	
<b>- Summary</b>		<b>NOT SUPPLIED</b>	
- Contamination	-	<b>N/A</b>	
- Integrity		<b>N/A</b>	
- Connector - Fuel Pump		<b>N/A</b>	
- Connector - Main Controller		<b>N/A</b>	
- Connector - ECU		<b>N/A</b>	
- Fuse Box		<b>N/A</b>	
- Fuse		<b>N/A</b>	
- Wiring		<b>N/A</b>	
- Run Test		<b>N/A</b>	
<b>Fuel Pump</b>	<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>		<b>FAIL</b>	Recommended replacement for the 22ml Type E Pump
- Type of Pump	Type C		
- Measurement of Real Pumping Capacity	26.0 ml/1000p		
- Nominal / Real Pumping Capacity	15.38%	<b>FAIL</b>	
- Integrity		<b>PASS</b>	
- Contamination Outside	-	<b>SATISFACTORY</b>	
- Rubber Holder	-	<b>PASS</b>	
<b>Casing</b>	<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>		<b>FAIL</b>	
- Type of Casing	Plastic		
- Contamination	-	<b>SATISFACTORY</b>	
- Air Intake Grill		<b>MISSING</b>	Supply new
- Air Outlet Hood		<b>PASS</b>	
- Top Lid		<b>PASS</b>	
- Bottom Housing		<b>PASS</b>	
- Bottom Housing - Attachment for Air Outlet Hood		<b>PASS</b>	
- Base Gasket	Melted	<b>FAIL</b>	Replace
- Case Grommet Plug Solid		<b>PASS</b>	
- Thermal Barrier Left Top		<b>PASS</b>	
- Thermal Barrier Right Top		<b>PASS</b>	
- Thermal Barrier Left Bottom		<b>PASS</b>	
- Thermal Barrier Right Bottom		<b>PASS</b>	
<b>ECU</b>	<b>Solution:</b>	<b>KEEP</b>	Replace the holding bolt
<b>- Summary</b>		<b>PASS</b>	
- Holding Bolt		<b>SATISFACTORY</b>	
- Integrity		<b>PASS</b>	
- Contamination	N/A	<b>PASS</b>	
- Magnetic Sensor		<b>PASS</b>	
- Connector - Fan		<b>PASS</b>	
- Connector - Overheating Sensor		<b>PASS</b>	
- Connector - Glow Plug		<b>PASS</b>	
- Connector - Wiring Loom	Square	<b>PASS</b>	
- Wiring		<b>PASS</b>	
- Wiring Grommet		<b>PASS</b>	
<b>Overheating sensor</b>	<b>Solution:</b>	<b>N/A</b>	
<b>- Summary</b>		<b>N/A</b>	
- Type of sensor	50k NTC		
- Integrity		<b>PASS</b>	
- Contamination	-	<b>PASS</b>	
- Wiring		<b>PASS</b>	
- Connector		<b>PASS</b>	
- Holding Clip		<b>PASS</b>	
- Resistance Test	45.0 kOhm 20.0 °C	<b>PASS</b>	
- Run Test		<b>CAN NOT CHECK</b>	

<b>Blower Motor</b>		<b>Solution:</b>	<b>REPAIR</b>	
<b>- Summary</b>			<b>FAIL</b>	
- Holding Bolt			<b>PASS</b>	
- Integrity			<b>PASS</b>	
- Sediments			<b>PASS</b>	
- Wiring			<b>PASS</b>	
- Connector			<b>PASS</b>	
- Centering Bracket			<b>PASS</b>	
- Polarity of the Magnets	POSITIVE & NEGATIVE		<b>PASS</b>	
- Outer Propeller			<b>PASS</b>	
- Inner Propeller			<b>PASS</b>	
- Inner Propeller - Gap	0.4-0.7mm		<b>FAIL</b>	Requires reassembly
- Surface for the Gasket			<b>FAIL</b>	Needs cleaning
- Acoustic Level			<b>SATISFACTORY</b>	
- Vibrations			<b>PASS</b>	
- Stability of the RPM			<b>PASS</b>	
- RPM response to 2V (4V) (DC)	1231 RPM		<b>PASS</b>	
- RPM response to 5V (10V) (DC)	2931 RPM		<b>PASS</b>	
- RPM response to 9V (18V) (DC)	4755 RPM		<b>PASS</b>	
- 5x Start on any Position (Test of Brushes)			<b>PASS</b>	
<b>Heat Exchanger / Air Blower Motor Gasket</b>		<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>			<b>FAIL</b>	
- Type of Gasket	Green			
- Cracks	-		<b>FAIL</b>	
- Soak by Diesel			<b>FAIL</b>	
<b>Glow Plug</b>		<b>Solution:</b>	<b>KEEP</b>	
<b>- Summary</b>			<b>PASS</b>	
- Integrity			<b>PASS</b>	
- Attachment (angle)			<b>FAIL</b>	Grommet must be attached in different angle
- Sediments			<b>PASS</b>	
- Wiring			<b>PASS</b>	
- Grommet			<b>PASS</b>	
- Connector			<b>PASS</b>	
- Consumption - after 20s of 9V (18V)	85 W		<b>PASS</b>	
<b>Burner</b>		<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>			<b>FAIL</b>	
- Integrity			<b>PASS</b>	
- Rubber Grommet			<b>PASS</b>	
- Fuel Intake Pipe			<b>PASS</b>	
- Glow Plug Socket			<b>SATISFACTORY</b>	
- Glow Plug Socket - Side Hole			<b>PASS</b>	
- Carbon Deposition			<b>FAIL</b>	
<b>Glow Plug Screen / Combustion Net</b>		<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>			<b>PASS</b>	
- Integrity			<b>PASS</b>	
- Contamination			<b>SATISFACTORY</b>	
<b>Heat Exchanger / Burner Gasket</b>		<b>Solution:</b>	<b>REPLACE</b>	
<b>- Summary</b>			<b>FAIL</b>	
- Type of Gasket	Green			
- Cracks			<b>PASS</b>	
- Soak by Diesel			<b>FAIL</b>	
<b>Heat Exchanger</b>		<b>Solution:</b>	<b>REPAIR</b>	
<b>- Summary</b>			<b>FAIL</b>	
- Integrity			<b>PASS</b>	
- Un-Cleaned Aluminium in the Exhaust Hose Tail			<b>PASS</b>	
- Corrosion by Salt			<b>PASS</b>	
- Contamination Outside			<b>PASS</b>	
- Carbon Deposition			<b>FAIL</b>	
- Surface of the Burner Gasket			<b>FAIL</b>	
- Surface of the Air Blower Motor Gasket			<b>FAIL</b>	
- Threaded Mounting Rods	Rusty		<b>SATISFACTORY</b>	
- Thread for Mounting Rods			<b>PASS</b>	
- Thread for Burner Bolts			<b>PASS</b>	
- Thread for Air Blower Motor Bolts			<b>PASS</b>	