TSN00925-100-A | THERMAL IMAGING CAMERA

PURPOSE:

To aide technicians with finding hot fuses/circuits, air leaks, thermal/ temperature signatures, and more.

LABOR CODE:

N/A

OTHER TOOLS REQUIRED:

N/A

PRIOR TO USAGE:

- Inspect tool for damage to screen or lens
- Test tool functionality prior to use (On/Off and check image reading on a known temperature changing source)
- Ensure that the Flir C5 is sufficiently charged to ensure that it lasts the length of the diagnostic inspection

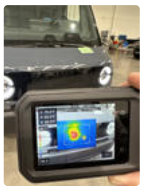
⚠ **CAUTION: Do not perform procedure if any equipment is missing or damaged. Contact tooling team with any questions or requests for replacement parts. ServiceToolEngineering@rivian.com**

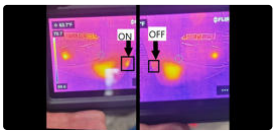
TOOL USAGE:

This TUI is to help identify potential use cases when diagnosing vehicle issues as well as useful settings. It is not for initial tool setup.

Refer to user manual for details on how to setup/troubleshoot issues with your thermal camera.

Flir C5 User Manual.pdf
15 Jun 2023, 03:19 AM

STEP	DIRECTIONS	VISUAL AID
Settings	Flir C5 can be setup in different image modes: • Thermal MSX (digital and thermal image overlay on each other/ full screen) • Thermal (thermal detection only/ full screen) • Digital camera (basic digital camera image/ full screen) • Picture in picture (digital image is majority with thermal detection in specific vehicle location shown) These image setups will allow you customize thermal data on the vehicle	
ADAS Component Diagnostics	The Thermal camera can be used to look for functioning parking sensors, corner and front radars, forward facing cameras (long and short range) as well as exterior cameras. Since they let off a heat signature when they are awake and operating, it will be seen using the thermal camera. When a vehicle is “awake” and a ADAS component is not visible in the thermal imaging camera, it may indicate that component may be disconnected/unplugged. If an entire related group (ex: all front fascia parking sensors and corner radars) are not outputting a heat signature, this may require you to investigate the main harness plug and work your way to the main controller of that system. This method is very useful when doing an initial diagnostic on a parking sensor warning or ADAS warning on the dash. This can help narrow down if an entire system requires a large teardown for further diagnosing or if a single component is just unplugged (example: when a surround view camera is unplugged or defective)	Examples using EDV that is “awake”  Picture in Picture of the rear corner radar and parking sensors  EDV parking sensors visible with thermal camera  Front Radar and front fascia camera

		 Front windshield cameras (long and short range)  Side mirror camera  Stereo cameras on top header panel  An example of a parking sensor unplugged from the front fascia to simulate when a sensor is not functioning (R1 used as example)
Coolant Circuit Diagnostics	Using the thermal camera in this application can help detect blockages on the cooling system, non functioning valves (2 way/3 way) as well as helping determine if there is air in the coolant system. The thermal imaging camera can show coolant fluid routing as well as hot/cold spots on the A/C condenser or radiator.	 Picture in Picture setup showing the hot coolant flow in the system

		 At the connection to AXM, camera can help determine if there is air in the system (blue spot shows possible trapped air pocket)  Cooling fan operation and hot air flow (shown in RED)
HVAC Diagnostics	The thermal camera can be used to inspect the A/C lines for refrigerant flow as well as A/C compressor operation. It can also be used to help inspect for anomalies in the A/C system by showing hot sections in a component (condenser etc.) as well as cool sections in the A/C hoses.	
USB Power/Phone Charging Pad Diagnostics	The thermal imaging camera can be used to see if there is power present at the USB-C plugs in the vehicle as well as see if the charging pad is active. When the USB-C outlets and charging pad are functioning correctly, they will give off a heat signature that is detected by the thermal imaging camera.	 R1S third row USB-C plug  Front seat USB-C outlet  Phone charging pad in center console

		 Center console bin USB-C outlets  Rear display USB-C outlets
Vehicle Access Diagnostics	The thermal camera can also be used to detect the NFC reader in the door handle as well as inner driver door panel. This quick diagnosis can be done to ensure that the vehicle recognizes the NFC card or can help confirm a customer complaint with vehicle access.	 Picture in picture showing drivers door NFC heat signature on door handle  NFC heat signature from inside the drivers door panel