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Saihisday LJM299

Saihisday Universal 12V Under-Dash A/C Heating Cooling Evaporator Assembly Unit

Model: LJM299

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1. Introduction

This manual provides instructions for the Saihisday Universal 12V Under-Dash A/C Heating Cooling Evaporator Assembly Unit, Model LJM299. This unit is designed to add an air conditioning and heating system to vehicles that did not originally come with one from the factory. It features a 22-pass, 4-way coil for efficient temperature control and a 3-speed fan for adjustable airflow.

Important Note: This is an evaporator unit only. It is not a direct bolt-in system and requires additional components such as a compressor, condenser, dryer bottle, and refrigerant lines for a complete A/C system. Professional installation is recommended.

2. Setup & Installation

Installation of this universal A/C and heating unit requires mechanical and electrical knowledge. It is crucial to ensure all connections are secure and properly sealed to prevent leaks and ensure safe operation.

2.1 Components Required (Not Included)

- A/C Compressor
- A/C Condenser
- Receiver Drier/Accumulator
- Refrigerant Lines and Fittings
- Refrigerant (e.g., R134a) and A/C System Oil
- Heater Hoses (for heating function)
- Appropriate relays and wiring for the A/C clutch and fan control.

2.2 Unit Overview and Dimensions

Familiarize yourself with the unit's components and dimensions before selecting a mounting location.



Figure 1: Saihisday A/C Evaporator Assembly Unit (4 Vents).

This image shows the main evaporator assembly unit with its four air vents. The unit is designed for under-dash mounting.



Figure 2: Unit dimensions, approximately 40cm (15.7in) in length and 35cm (13.7in) in width.

This image provides a visual reference for the unit's approximate dimensions, which are important for installation planning.

2.3 Electrical Wiring

The unit operates on a 12V electrical system. Proper wiring is essential for functionality and safety. Refer to the following guidelines:

- **Red Wire:** This is the main power supply for the unit. Connect it to a fused 12V power source. It is recommended to connect it to the vehicle's existing blower motor power supply or a dedicated fused wire directly to the battery.
- **Ground Wire:** The ground wire is integrated into the unit's bracket. Ensure that the mounting bracket makes secure contact with a bare metal surface on the vehicle chassis to establish a proper ground connection.
- **Green Wire:** This wire is for the A/C clutch signal. It provides power to request A/C operation. It should be connected to your A/C compressor clutch relay. **Note:** This wire supplies power and does not directly power the A/C clutch. If your vehicle's existing A/C wiring expects a ground signal for the clutch relay, a 5-pin relay may be

required to invert the signal.



Figure 3: Wiring components and control knob detail, showing the fuse holder and various wire connections.



Figure 4: Front view of the A/C control knob, indicating fan speeds and A/C engagement.

2.4 Refrigerant and Heater Hose Connections

Connect the refrigerant lines to the evaporator unit according to standard automotive A/C practices. Ensure proper sealing and evacuation of the system before charging with refrigerant and oil.
For the heating function, connect the vehicle's heater hoses to the unit's heater core connections. It is recommended to install a shut-off valve in the heater hose line. This allows you to completely stop hot water flow to the unit when only cooling is desired, preventing the heating function from negatively impacting A/C performance.

3. Operation

The unit is controlled by a single rotary knob, typically mounted separately from the main evaporator unit.

3.1 Fan Speed Control

- **0:** Fan Off
- **I:** Low Fan Speed

- **II:** Medium Fan Speed
- **III:** High Fan Speed

Rotate the knob to select the desired fan speed for airflow.

3.2 Temperature Control (A/C and Heat)

The unit features an electrical thermostat for temperature regulation. The "AIR" setting on the knob typically engages the A/C compressor for cooling. For heating, the unit utilizes the vehicle's engine coolant. As there is no blend door, the heating and cooling functions are managed by engaging the A/C compressor for cooling and allowing hot coolant to flow for heating.
To optimize cooling performance, ensure the shut-off valve on the heater hose line is closed to prevent hot coolant from entering the unit's heater core.

4. Maintenance

Regular maintenance helps ensure the longevity and efficient operation of your A/C and heating unit.

- **System Checks:** Periodically inspect all refrigerant lines and heater hoses for leaks, cracks, or damage. Address any issues promptly.
- **Electrical Connections:** Verify that all electrical connections are secure and free from corrosion.
- **Air Filter:** While this unit does not typically include a user-serviceable cabin air filter, ensure the air intake area is clear of debris to maintain optimal airflow.
- **Refrigerant Level:** If cooling performance decreases, have a qualified technician check the refrigerant level and system pressure.

5. Troubleshooting

5.1 No Airflow or Weak Airflow

- Check fan speed setting on the control knob.
- Inspect electrical connections to the fan motor.
- Ensure the air intake is not obstructed.

5.2 Unit Not Cooling

- Verify the A/C compressor is engaging. Check the green signal wire connection and the compressor clutch relay.
- Ensure the heater hose shut-off valve is closed.
- Check refrigerant levels. This requires specialized equipment and should be performed by a qualified technician.
- Inspect the condenser for obstructions or damage.

5.3 Unit Not Heating

- Ensure the heater hose shut-off valve is open.
- Check the vehicle's engine coolant level and ensure the engine is at operating temperature.
- Inspect heater hoses for kinks or blockages.

5.4 Fan Noise (Squealing/Grinding)

- Unusual fan noise may indicate a faulty fan motor or debris within the blower housing. Inspection and potential replacement of the fan motor may be necessary.

5.5 Airflow Direction Limitations

This unit's vents are fixed and do not offer directional adjustment. If specific airflow direction is required, external modifications or additional ducting may be considered. Note that the evaporator's tube diameter (50mm) may differ from standard US 46mm vents, which could affect compatibility with aftermarket directional vents.

6. Specifications

Feature	Detail
Model	LJM299
Voltage	12 Volts
Power (Cooling)	12V 7.6A
Cooling Capacity	4107 kcal/h (16297 BTU)
Power (Heating)	12V 7.6A
Heating Capacity	3619 kcal/h (14360 BTU)
Evaporator Core	22 Pass 4 Way Aluminum Coil
Fan Speeds	3-Speed (Low, Medium, High)
Temperature Control	Electrical Thermostat
Dimensions (Approx.)	17.5 x 16 x 7.5 inches (Package)
Item Weight	10.63 pounds

7. Warranty & Support

For warranty information and technical support, please refer to the documentation included with your purchase or contact Saihisday customer service directly. Keep your purchase receipt as proof of purchase.
Contact Information: Please visit the official Saihisday website or refer to your product packaging for the most current customer support contact details.

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