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2008 FORD SportKa OEM Service and Repair Workshop Manual

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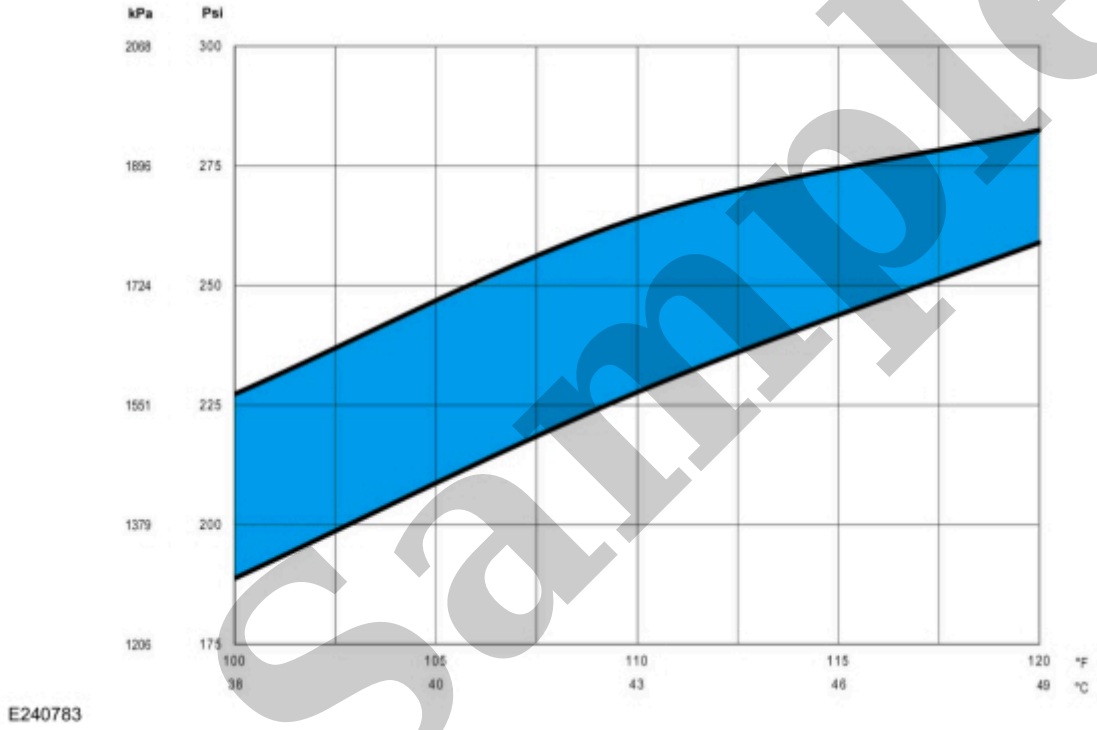
Refer to the chart below.

High (Discharge) Pressure	Low (Suction) Pressure	Component — Causes
High	Normal to High	• Condenser — inadequate airflow. • Electrical Grill Shutter (if equipped) or Cooling Fan Improper function, Debris or blocked front end airflow. • Engine — overheating.
Normal to High	Normal	• Refrigerant overcharge — air in refrigerant.
Normal to Low	High	• A/C Compressor — low performance, Check the EVDC compressor performance with the EVDC 100 control valve tester.
Normal to Low	Normal to High	• A/C suction line — partially restricted or plugged. [a]
Normal to Low	Low	• Low refrigerant charge — leak in system. • A/C suction line — partially restricted or plugged. [b]
Normal to High	Low	Internally restricted condenser or receiver drier, IHX (internal heat exchanger) restriction (Suction Restriction).
Normal to High	High	TXV not operating correctly, Not Closing
Normal to High	Low	TXV not operating correctly, Not Opening
Normal to Low	Normal to Low	Evaporator - Low or restricted air flow, Evaporator Temperature Sensor bad.
Normal to Low	Low	Low refrigerant charge, A/C (air conditioning) suction line Restricted.
High	Low	IHX Line restricted (Liquid Line Restriction).
Erratic Operation or Compressor Not Running		• Ambient Air Temperature (AAT) sensor — poor connection. • A/C pressure transducer — poor connection. • Evaporator temperature sensor — poor connection.

5. Confirm the compressor is operating and the engine cooling fan(s) are operating or engaged. Allow the vehicle to idle until the suction (low-side) and discharge (high-side) pressures are stable or fluctuate in a range that repeats.
6. Record the ambient (shop) temperature.
7. Record the discharge pressure. If the pressure is fluctuating, record the average value.
8. Determine if the discharge pressure falls within the normal operating limits using the

   Normal Refrigerant Discharge Pressures 38- 49°C (100 - 120 °F) Ambient (15 - 40% Relative Humidity)

   chart below.



Click here to learn about symbols, color coding, and icons used in this manual.

9. Record the suction pressure. If the pressure is fluctuating, record the average value.
10. Determine if the suction pressure falls within the normal operating limits using the

    Normal Refrigerant Suction Pressures 38 - 49°C (100 - 120 °F) Ambient (15 - 40% Relative Humidity)

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Refer to the chart below.

High (Discharge) Pressure	Low (Suction) Pressure	Component — Causes
High	Normal to High	• Condenser — inadequate airflow. • Electrical Grill Shutter (if equipped) or Cooling Fan Improper function, Debris or blocked front end airflow. • Engine — overheating.
Normal to High	Normal	• Refrigerant overcharge — air in refrigerant.
Normal to Low	High	• A/C Compressor — low performance, Check the EVDC compressor performance with the EVDC 100 control valve tester.
Normal to Low	Normal to High	• A/C suction line — partially restricted or plugged. [a]
Normal to Low	Low	• Low refrigerant charge — leak in system. • A/C suction line — partially restricted or plugged. [b]
Normal to High	Low	Internally restricted condenser or receiver drier, IHX (internal heat exchanger) restriction (Suction Restriction).
Normal to High	High	TXV not operating correctly, Not Closing
Normal to High	Low	TXV not operating correctly, Not Opening
Normal to Low	Normal to Low	Evaporator - Low or restricted air flow, Evaporator Temperature Sensor bad.
Normal to Low	Low	Low refrigerant charge, A/C (air conditioning) suction line Restricted.
High	Low	IHX Line restricted (Liquid Line Restriction).
Erratic Operation or Compressor Not Running		• Ambient Air Temperature (AAT) sensor — poor connection. • A/C pressure transducer — poor connection. • Evaporator temperature sensor — poor connection.

Refrigerant System Tests - Electric, Vehicles With: Max Trailer Tow - Battery Electric Vehicle (BEV)

412-00 Climate Control System - General Information	***2022 F-150***
General Procedures	***Procedure revision date: 04/13/2022***

Refrigerant System Tests - Electric, Vehicles With: Max Trailer Tow - Battery Electric Vehicle (BEV)

Inspection

1. **NOTE**

   Procedure 1 — Ambient Temperature below 21 °C (70 °F).

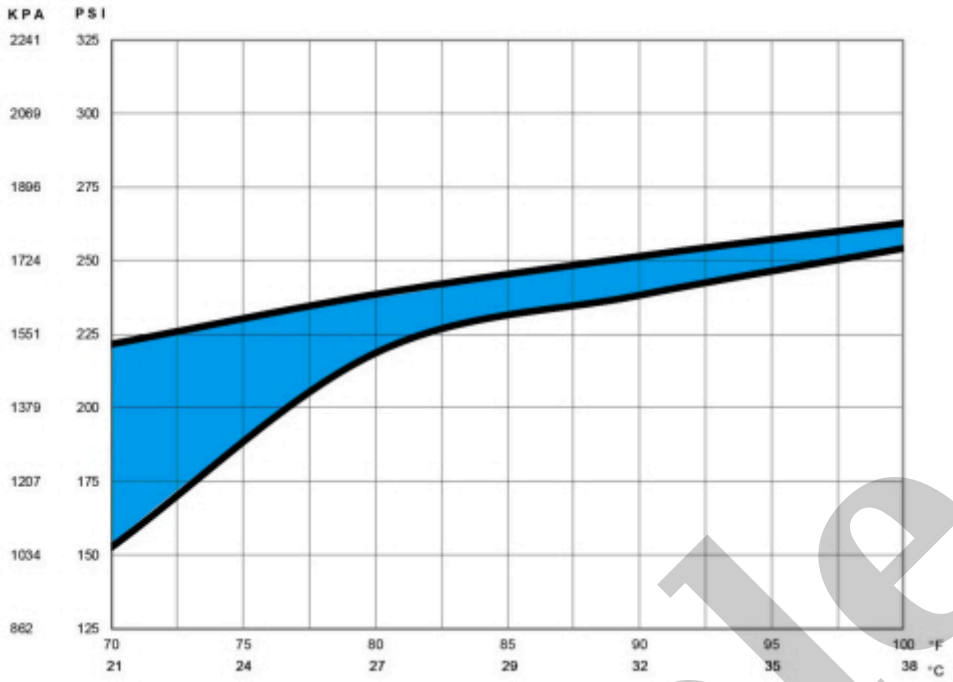
   NOTE

   Proper A/C system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21°C (70°F). Perform the following steps to achieve normal operating pressures.

   Set the vehicle in ready to drive mode and the climate control system to MAX defrost heat on the highest setting.

2. Close all the vehicle windows and doors.
3. Confirm the cabin temperature is above 24 °C (75 °F). Set the A/C (air conditioning) system to MAX A/C ON.
4. Proceed to procedure 2 — ambient temperature between 21 °C (70 °F) and 38 °C (100 °F).

Inspection



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Click here to learn about symbols, color coding, and icons used in this manual.

9. Record the suction pressure. If the pressure is fluctuating, record the average value.
10. Determine if the suction pressure falls within the normal operating limits using the **Normal Refrigerant Suction Pressures 21 - 38 °C (70 - 100 °F) Ambient (30 - 60% Relative Humidity)** chart below.

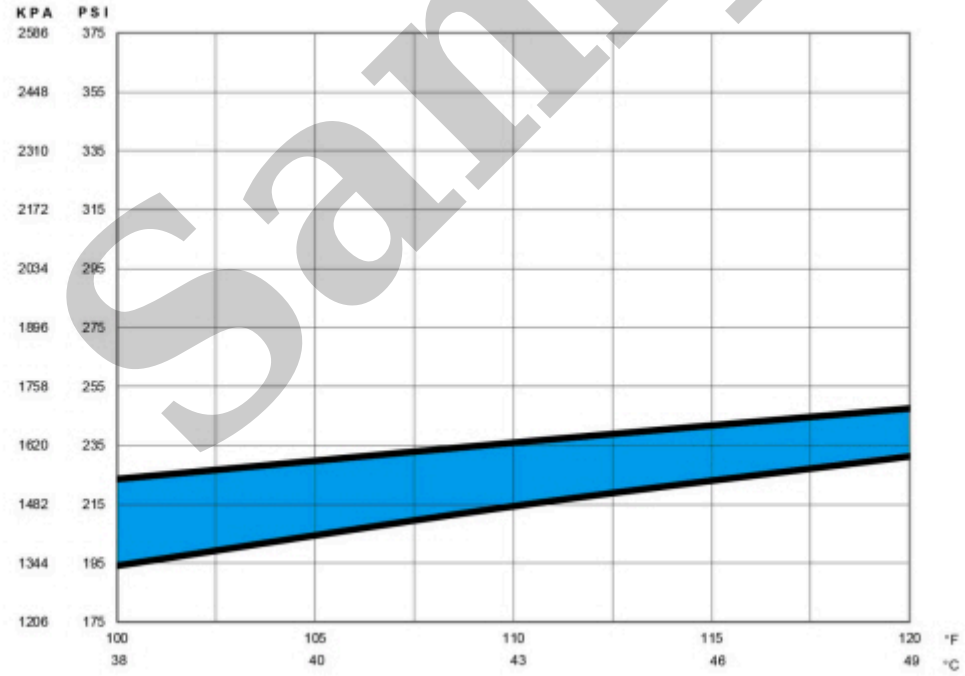
Refer to the chart below.

High (Discharge) Pressure	Low (Suction) Pressure	Component — Causes
High	Normal to High	• Condenser — inadequate airflow • Active grill shutter (if equipped) or Cooling Fan improper function –– debris or blocked front end airflow • Engine — overheating • FHEV (full hybrid electric vehicle) , PHEV (plug-in hybrid electric vehicle) & BEV (battery electric vehicle) high voltage battery coolant cooler capacity could be reduced.
Normal to High	Normal	• Refrigerant overcharge — air in refrigerant
Normal to Low	High	• A/C Compressor — low performance
Normal to Low	Normal to High	• A/C suction line — partially restricted or plugged [a]
Normal to Low	Low	• Low refrigerant charge — leak in system. • A/C suction line — partially restricted or plugged [b]
Normal to High	Low	• Internally restricted condenser or receiver drier, IHX (internal heat exchanger) restriction (suction line restriction).
Normal to High	High	• Thermostatic expansion valve (TXV) not operating correctly – not closing
Normal to High	Low	• Thermostatic expansion valve (TXV) not operating correctly –– not opening
Normal to Low	Normal to Low	• Evaporator –– low or restricted air flow, evaporator sensor bad
Normal to High	Low	• Evaporator internal blockage.

2. Connect the air conditioning service unit to the refrigerant system.
3. Set the A/C (air conditioning) system temperature to the lowest possible temperature setting with the dual function disabled (if equipped). Manually set blower on MED LOW. If the vehicle has a fresh air/recirc button, set it to FRESH.
4. Open all vehicle windows and leave the hood open for the test. Open the rear hatch and/or rear doors (if equipped).
5. Confirm the compressor is operating. Allow the system to stablize until the suction (low-side) and discharge (high-side) pressures are stable or fluctuate in a range that repeats.
6. Record the ambient (shop) temperature.
7. Record the discharge pressure. If the pressure is fluctuating, record the average value.
8. Determine if the discharge pressure falls within the normal operating limits using the

   Normal Refrigerant Discharge Pressures 38 - 49 °C (100 - 120 °F) Ambient (15 - 40% Relative Humidity)

   chart below.



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Click here to learn about symbols, color coding, and icons used in this manual.

9. Record the suction pressure. If the pressure is fluctuating, record the average value.

NOTE: The following table is meant to lead the technician in a diagnostic direction. It is not meant to be the final path to replacement of a component. Follow the Diagnostic and Testing (D&T) portion of the of the workshop manual (WSM) for actual final direction in circuit and component conditions found and actions taken.

Refer to the chart below.

High (Discharge) Pressure	Low (Suction) Pressure	Component — Causes
High	Normal to High	• Condenser — inadequate airflow • Active grill shutter (if equipped) or Cooling Fan improper function –– debris or blocked front end airflow • Engine — overheating • FHEV (full hybrid electric vehicle) , PHEV (plug-in hybrid electric vehicle) & BEV (battery electric vehicle) high voltage battery coolant cooler capacity could be reduced.
Normal to High	Normal	• Refrigerant overcharge — air in refrigerant
Normal to Low	High	• A/C Compressor — low performance
Normal to Low	Normal to High	• A/C suction line — partially restricted or plugged [a]
Normal to Low	Low	• Low refrigerant charge — leak in system. • A/C suction line — partially restricted or plugged [b]
Normal to High	Low	• Internally restricted condenser or receiver drier, IHX (internal heat exchanger) restriction (suction line restriction).
Normal to High	High	• Thermostatic expansion valve (TXV) not operating correctly – not closing
Normal to High	Low	• Thermostatic expansion valve (TXV) not operating correctly –– not opening

Refrigerant System Tests - Electric

412-00 Climate Control System - General Information	***2022 F-150***
General Procedures	***Procedure revision date: 04/13/2022***

Refrigerant System Tests - Electric

Inspection

1. **NOTE**

   Procedure 1 — Ambient Temperature below 21 °C (70 °F).

   NOTE

   Proper A/C system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21°C (70°F). Perform the following steps to achieve normal operating pressures.

   Set the vehicle in ready to drive mode and the climate control system to MAX defrost heat on the highest setting.

2. Close all the vehicle windows and doors.
3. Confirm the cabin temperature is above 24 °C (75 °F). Set the A/C (air conditioning) system to MAX A/C ON.
4. Proceed to procedure 2 — ambient temperature between 21 °C (70 °F) and 38 °C (100 °F).

Inspection

1. **NOTE**