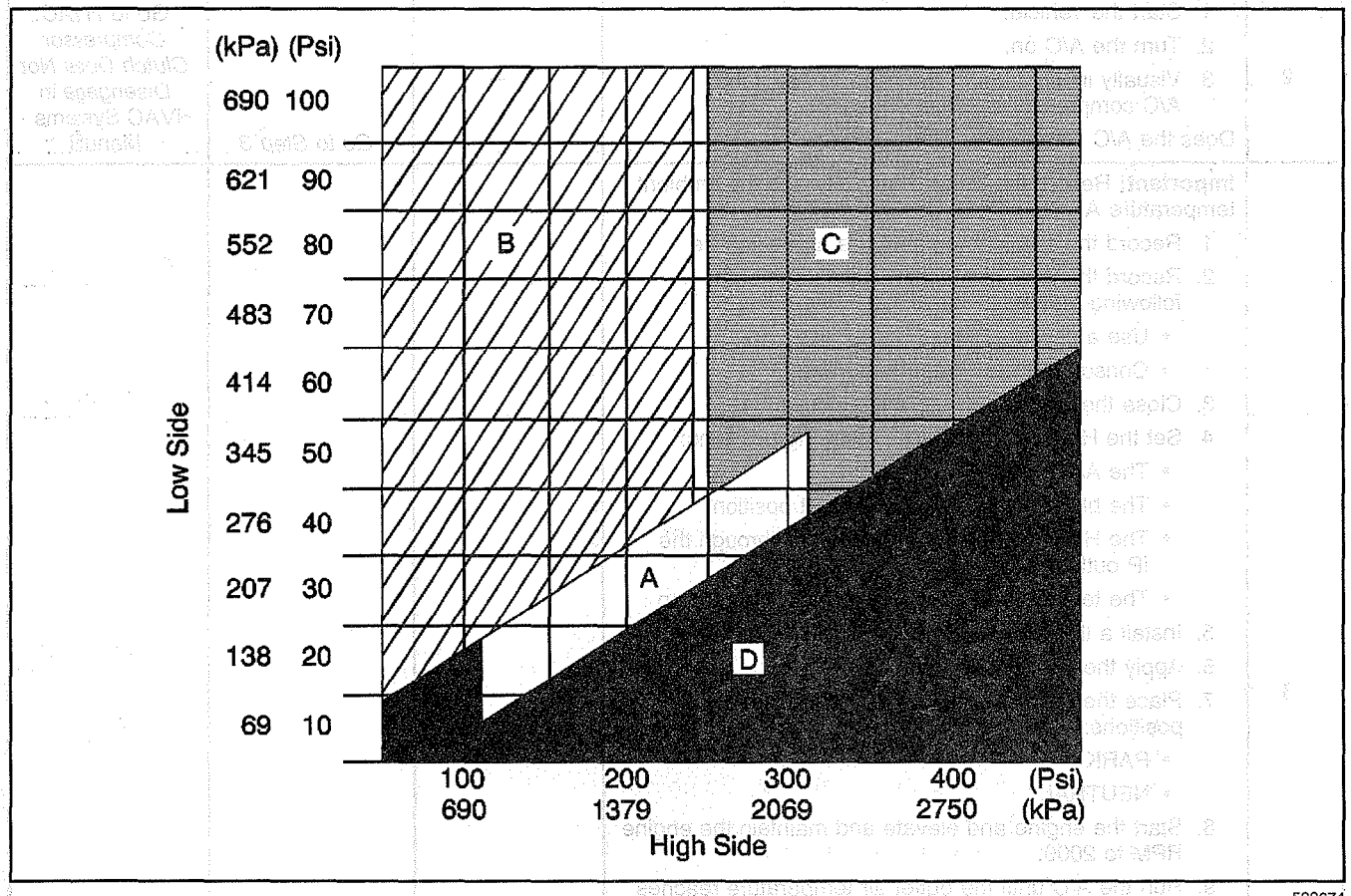
Cooling Insufficient, A/C System

A/C System Pressure - Zone Classification Graph



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Cooling Insufficient, A/C System

Step	Action	Value(s)	Yes	No
The following test measures the air conditioning (A/C) system operating efficiency by comparing the following: • The ambient air temperature • The ambient air humidity • The pressure at the high-pressure side of the refrigeration system • The pressure at the low-pressure side of the refrigeration system • The temperature of the air being discharged into the passenger compartment				
1	1. Park the vehicle inside or in the shade. 2. Open the windows in order to ventilate the interior of the vehicle. 3. If the engine is at operating temperature, allow the engine to cool. 4. Ensure that the ignition key is in the OFF position. 5. Install *J 39500-B*. 6. Record the readings of the low and high side STATIC pressures. The low and high side pressure readings should be almost equal to each other once the system has come to rest. Are both the low and high side pressures above the specified value?	345 kPa (50 psi)	*Go to Step 2*	Go to *Leak Testing.*

Cooling Insufficient, A/C System (cont'd)

Step	Action	Value(s)	Yes	No
2	1. Start the vehicle. 2. Turn the A/C on. 3. Visually inspect under the hood to see if the A/C compressor clutch is engaged. Does the A/C compressor clutch engage?	—	*Go to Step 3*	Go to *HVAC Compressor Clutch Does Not Disengage* in HVAC Systems - Manual
3	**Important:** Record the relative humidity and the ambient temperature AT THE TIME OF THE TEST. 1. Record the ambient temperature at the vehicle. 2. Record the relative humidity, using one of the following methods: • Use a psychrometer • Consult the local weather bureau 3. Close the vehicles doors and windows. 4. Set the HVAC control to the following positions: • The A/C on • The blower control to the highest position • The HVAC control to discharge air through the IP outlets • The temperature control to the coldest position 5. Install a thermometer into the IP center air outlet. 6. Apply the park brake. 7. Place the transmission in one of the following positions: • PARK • NEUTRAL 8. Start the engine and elevate and maintain the engine RPM to 2000. 9. Run the A/C until the outlet air temperature reaches the lowest temperature. This will take approximately 3 minutes. 10. Record the following information: • The outlet air temperature • The low-side pressure • The high-side pressure 11. Compare the low and high side pressures and the output temperature to the table. Does all the data recorded fall within the specified ranges of the table below?	—	*Go to Step 8*	*Go to Step 4*
4	Compare the recorded pressures to the *A/C System Pressure - Zone Classification Graph.* Do both the low and high side pressures fall within Zone A on the graph?	—	Go to *Cooling Insufficient, A/C System - Pressure Zone A*	*Go to Step 5*
5	Do the pressures fall within Zone B?	—	Go to *Cooling Insufficient, A/C System - Pressure Zone B*	*Go to Step 6*

Cooling Insufficient, A/C System (cont'd)

Step	Action	Value(s)	Yes	No
6	Do the pressures fall within Zone C?	—	Go to *Cooling Insufficient, A/C System - Pressure Zone C*	*Go to Step 7*
7	Do the pressures fall within Zone D?	—	Go to *Cooling Insufficient, A/C System - Pressure Zone D*	*Go to Step 8*
8	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to *Symptoms* in HVAC System - Manual

A/C Performance Table

Temperature	Humidity	Low Gauge Pressure	High Gauge Pressure	Center Outlet Temperature
21°-27°C (70°-80°F)	Less than 50%	165-234 kPa (24-34 psi)	793-1310 kPa (115-190 psi)	3°-9°C (38°-48°F)
	More than 50%	172-255 kPa (25-37 psi)	793-1379 kPa (115-200 psi)	4°-13°C (40°-55°F)
27°-33°C (80°-90°F)	Less than 50%	193-262 kPa (28-38 psi)	965-1482 kPa (140-215 psi)	3°-13°C (38°-55°F)
	More than 50%	207-276 kPa (30-40 psi)	1034-1620 kPa (150-235 psi)	7°-18°C (45°-65°F)
33°-38°C (90°-100°F)	Less than 40%	234-296 kPa (34-43 psi)	1138-1793 kPa (165-260 psi)	7°-17°C (45°-63°F)
	More than 40%	251-331 kPa (36-48 psi)	1276-1862 kPa (185-270 psi)	13°-20°C (55°-68°F)
38°-44°C (100°-110°F)	Less than 20%	276-338 kPa (40-49 psi)	1448-2000 kPa (210-290 psi)	12°-18°C (53°-64°F)
	More than 20%	296-359 kPa (43-52 psi)	1517-2137 kPa (220-310 psi)	14°-21°C (58°-70°F)