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UNIT 4 ELECTRICAL

412-00 Air Conditioning System Performance Test

1. Close (clockwise screw in) red and blue manifold gauge set valves (Fig. 1). Close (counterclockwise screw out) red and blue control valves and connect to one end of corresponding hoses.
3. Yellow Hose -- Connect both ends of hose to gauge set.
4. Red Hose -- Connect one end to bottom of gauge set; connect other end with red high pressure coupler to high pressure valve on vehicle (red cap receiver-drier near radiator).
5. Blue Hose -- Connect one end to bottom of gauge set; connect other end with blue low pressure coupler to low pressure valve on vehicle (blue cap on line near rear of engine).
6. Open (clockwise screw in) blue and red control valves on hoses.
7. Start vehicle, open windows, turn on A/C to full cold and let gauges stabilize.
8. Obtain low and high pressures by reading innermost black band on gauges.
(NOTE: >0=psi low pressure side, <0=inHg vacuum equipment. Ignore all other bands.)
9. Compare to the following chart to determine if readings are within Normal range:

| <u>Ambient Temp (°F)</u> | <u>Low Side Gauge (psi)</u> | <u>High Side Gauge (psi)</u> |
|--------------------------|-----------------------------|------------------------------|
| 65° | 25 - 35 | 135 - 155 |
| 70° | 35 - 40 | 145 - 160 |
| 75° | 35 - 45 | 150 - 170 |
| 80° | 40 - 50 | 175 - 210 |
| 85° | 45 - 55 | 225 - 250 |
| 90° | 45 - 55 | 250 - 270 |
| 95° | 50 - 55 | 275 - 300 |
| 100° | 50 - 55 | 315 - 325 |
| 105° | 50 - 55 | 330 - 335 |
| 110° | 50 - 55 | 340 - 345 |

412-00 Air Conditioning System Pressure Fault Diagnosis

| <u>Low Side</u> | <u>High Side</u> | <u>Discharge Air Fault</u> | <u>Cause</u> |
|-----------------|------------------|---|------------------------------|
| normal | normal | initially cool then warms | moisture in system |
| low | normal | initially cool then warms | moisture in system |
| low | low | slightly cool or warm | refrigerant charge low |
| low | low | slightly cool or frost @ expansion valve | expansion valve stuck closed |
| low | low | slightly cool, sweat or frost @ restriction | restriction in High Side |
| high | high | warm, high side pipes hot | refrigerant charge high |
| high | high | warm, high side pipes hot | inefficient condensor cool |
| high | high | warm, sweat or frost at evaporator | expansion valve stuck open |
| high | low | compressor noisy (gauge needle vibrates) | defective reed valve |

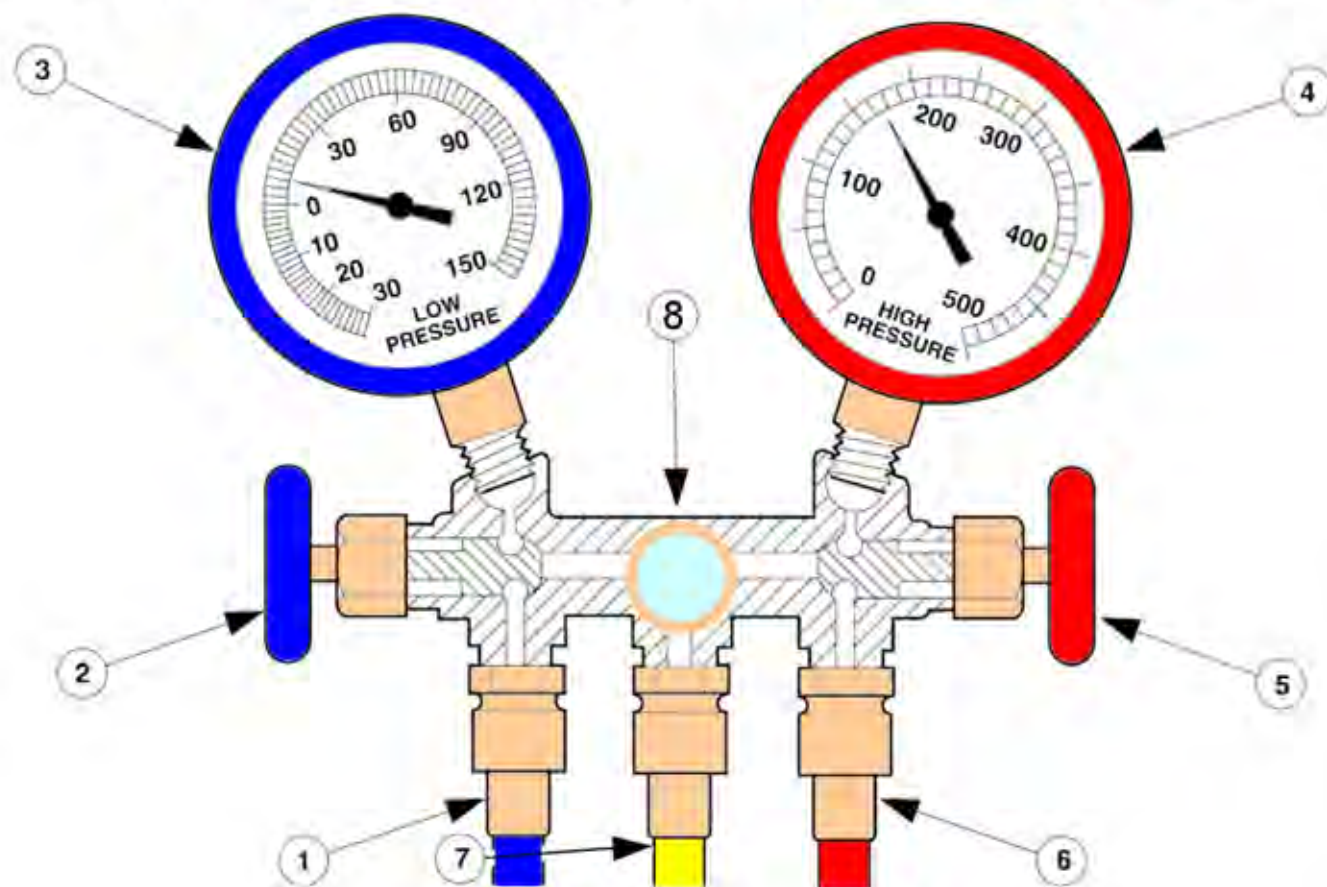
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412-00 Air Conditioning System Recharge

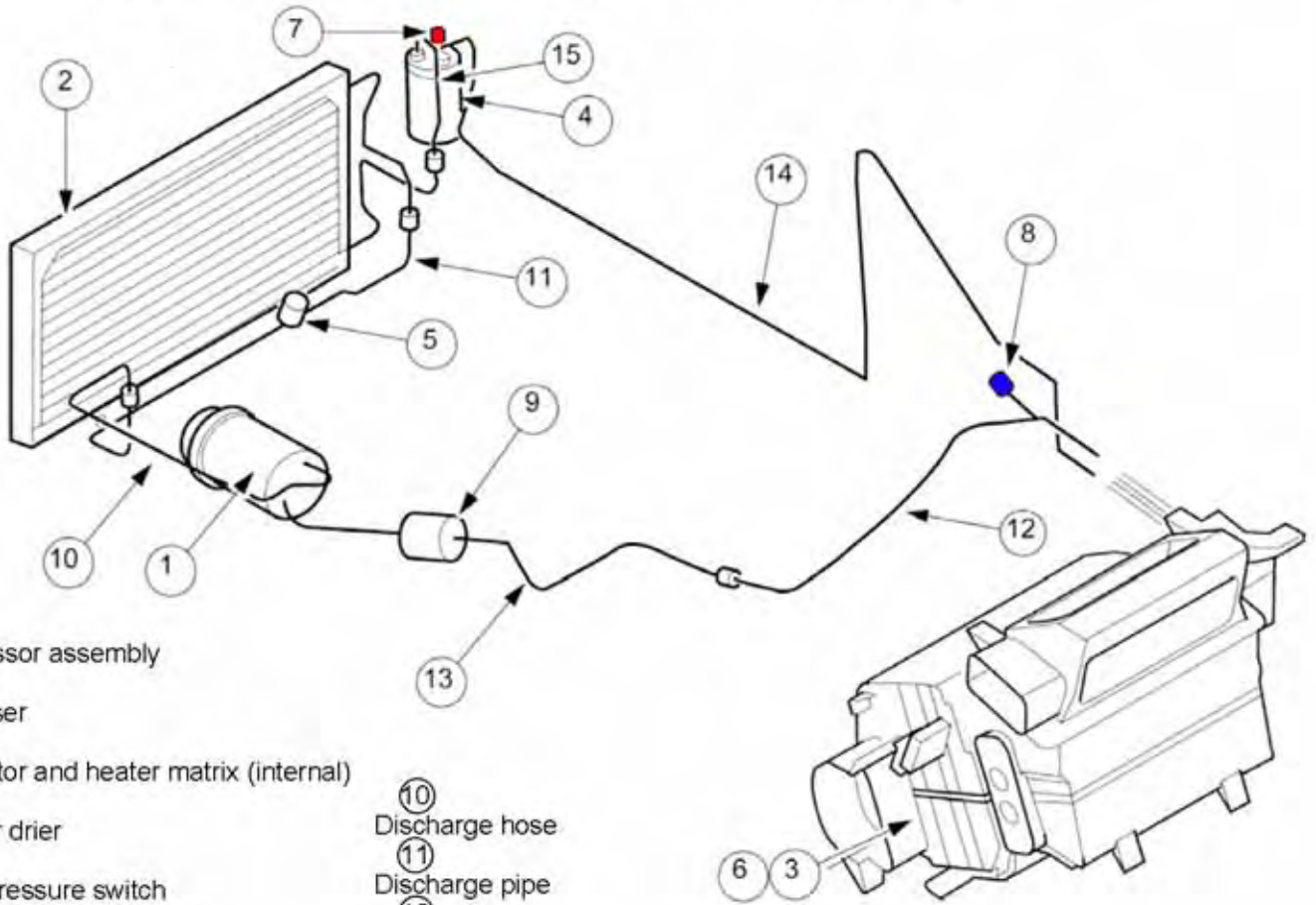
10. Yellow Hose -- Connect one end to bottom of gauge set; connect other end to R134a tank.
11. Invert R134a tank and open tank valve.
12. Open (counterclockwise screw out) blue manifold gauge valve. Coolant will begin to flow from tank through gauge set (visible in sight glass) and into vehicle through low pressure valve. The low pressure gauge will increase.
13. When air from A/C gets cold, close blue manifold gauge valve. Allow system to stabilize and reread low and high pressure gauges. Compare to the preceding chart to determine if readings are within Normal range.
14. If Low, then continue charging by repeating Steps 12.-13.
15. If High, then close (counterclockwise screw out) blue control valves and disconnect blue hose coupler from vehicle. Bleed pressure from vehicle system, reconnect blue hose, and recheck pressures.
16. If Normal, then close (counterclockwise screw out) red and blue control valves and disconnect couplers from vehicle. Close R134a tank valve and disconnect yellow hose from tank.

412-00 Air Conditioning Manifold Gauge Set



- 1 LOW pressure service hose
- 2 LOW pressure gauge valve
- 3 LOW pressure gauge
- 4 HIGH pressure gauge
- 5 HIGH pressure gauge valve
- 6 HIGH pressure service hose
- 7 refrigeration charging (aka service) hose
- 8 sight glass

Jaguar XK8 Thermostatic Expansion Valve A/C System



- ① Compressor assembly
- ② Condenser
- ③ Evaporator and heater matrix (internal)
- ④ Receiver drier
- ⑤ 4-level pressure switch
- ⑥ Expansion valve (internal)
- ⑦ High-side charge port
- ⑧ Low-side charge port
- ⑨ Suction muffer
- ⑩ Discharge hose
- ⑪ Discharge pipe
- ⑫ Suction hose
- ⑬ Suction pipe
- ⑭ Liquid line
- ⑮ Jumper hose (condenser hose)