



SATURN

RESOURCE MANAGEMENT

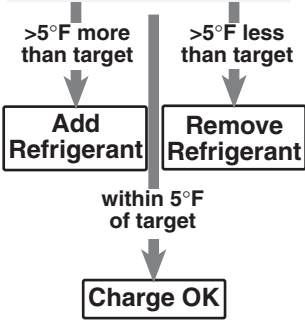
8.22.4 Evaluating Air-Conditioner Charge

SWS Details: 5.0103.2 Refrigerant Charge; 5.0103.1 Refrigerant Lines; 5.0103.3; Thermostatic Expansion Valve (TXV); 5.0103.4 Compressors; 5.0109.3 Evaporators

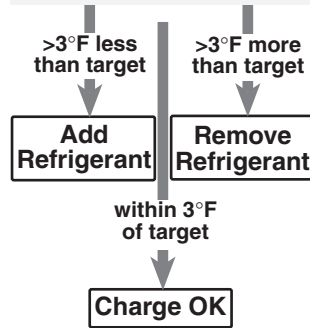
Air-conditioning replacement or service includes refrigerant charge-checking. The efficiency of the air-conditioning system is directly related to the amount of refrigerant. HVAC technicians evaluate refrigerant charge by two methods depending on what type of expansion valve the air conditioner has.

1. If the expansion valve has a fixed orifice, perform a superheat test.
2. If the valve is a thermostatic expansion valve (TXV), perform a subcooling test.

Superheat Method Fixed-Orifice XV



Subcooling Method Thermostatic XV



Charge-checking: Two methods help technicians judge whether the charge is correct. The remedy for incorrect charge is to either add or remove refrigerant.

Checking and Correcting Charge

Superheat and subcooling tests indicate whether the amount of refrigerant in the system is correct, or whether there is too much or too little refrigerant. In the refrigerant is low, test for refrigerant leaks.

Perform charge-checking after you complete the airflow tests, airflow adjustments, and duct-sealing. Do charge-checking while the air conditioner operates during the cooling season.

- ✓ In the refrigerant is low, test for refrigerant leaks.
- ✓ Verify that indoor and outdoor temperatures are in the allowable testing range when you test.
- ✓ Add or remove refrigerant as necessary.
- ✓ Weigh in calculated refrigerant charge if outdoor conditions prevent accurate charge-checking according to manufacturer's refrigerant-weight specifications.
- ✓ Document your charge-checking and charge-correction and post the document on or near the equipment.