Central Air Conditioner Tune-Up Specifications

Through the DTE Energy Air Conditioner Tune-Up Program, DTE electric customers can receive a rebate for qualifying diagnostic tune-up services performed by a participating contractor. Regular maintenance and tune-ups can help a system run more efficiently, last longer, and improve home comfort.

Participation Requirements

Participating contractors must perform, at a minimum, the following test-in and test-out procedures and record the relevant information on the Central Air Conditioner Tune-Up Report. The protocol focuses on maximizing the thermodynamics capacity of the system and has the added benefit of identifying system improvements that are beyond the scope of regular maintenance.

Required Steps:

1. Perform test-in procedure.

- Start the system to make sure it operates or check to make sure it is on.
- Drill access holes for a psychrometer to measure the conditions entering and leaving the coils and install instruments. Let instruments stabilize while conducting the next test.
- Drill access holes for static pressure or anemometer airflow measurements and take measurements.
- Record airflow and psychrometric data.
- Measure and record system wattage.
- Calculate coil capacity.

a. If coil capacity is greater than 85%, perform maintenance procedures.

b. If coil capacity is less than 85%, perform maintenance procedures and make all possible airflow and charge adjustments to maximize the coil capacity and bring it to at least 85%.

- ☐ Inspect filter. Clean or replace standard filters.
- ☐ Clean condenser coil.
- ☐ Inspect evaporator coil. Recommend cleaning as needed.
- ☐ Adjust airflow.
- ☐ Adjust refrigerant charge.
- ☐ Inspect electrical connections and wire.

2. Measure and record system wattage again. (System wattage should change if airflow and charge are adjusted or if significantly dirty coils are cleaned.)

3. Record and calculate system effective efficiency for all units that were below 85% on the initial test-in procedure.

Calculation Worksheet – Before

System Watts (Power):

Blower Motor Volts_____x Amps_____= _____Watts

Compressor Volts_____x Amps_____= _____Watts

Condenser Fan Volts_____x Amps_____= _____Watts

Add the above to get Total System Watts _____

Converting Wet Bulb to Enthalpy (measure all temps to first decimal place and record enthalpy to two decimal places)

Coil Entering WB_____= _____BTU/Lb Enthalpy a

Coil Leaving WB_____= _____BTU/Lb Enthalpy b

Coil Capacity: CFM _____ x 4.5 x (Enthalpy a-b_____) = _____BTUH

System Effective Efficiency: Coil Capacity: _____÷_____Equipment Normal Capacity =_____%

Tune-Up Procedures

At a minimum, the following were accomplished:

- ☐ Inspected filter; cleaned or replaced standard filters
- ☐ Cleaned condenser coil
- ☐ Inspected evaporator coil; recommended cleaning as needed
- ☐ Adjusted airflow
- ☐ Adjusted refrigerant charge
- ☐ Inspected electrical connections and wire

Comments:

Calculation Worksheet – After*

System Watts (Power):

Blower Motor Volts_____x Amps_____= _____Watts

Compressor Volts_____x Amps_____= _____Watts

Condenser Fan Volts_____x Amps_____= _____Watts

Add the above to get Total System Watts_____

Converting Wet Bulb to Enthalpy (measure all temps to first decimal place and record enthalpy to two decimal places)

Coil Entering WB_____= _____BTU/Lb Enthalpy a

Coil Leaving WB_____= _____BTU/Lb Enthalpy b

Coil Capacity: CFM _____ x 4.5 x (Enthalpy a-b_____) = _____BTUH

System Effective Efficiency: Coil Capacity: _____÷_____Equipment Normal Capacity =_____%

Notes

If the ductwork is installed in a hot, unconditioned space, a difference between the room return air and coil entering air temperatures could indicate delivered capacity loss from duct leakage and/or transmission gains. Duct sealing or insulating may be recommended to improve delivered capacity, comfort, and efficiency. A difference between the coil leaving temperature and the temperature delivered to a supply terminal usually indicates transmission gains through inadequate insulation. If the supply ducts leak, air will be lost to the unconditioned space. If adequate coil airflow cannot be achieved by replacing a dirty filter or changing the blower speed, the problem is likely inadequate ductwork.

Technician Name:	Technician Signature:
Collect homeowner's signature on the Terms & Conditions form.	Date:

*Required for all systems that were 85% or less than manufacturer's nominal capacity.