



## **A/C Service Table Data Collection Procedure**

### **1 Scope**

**Note:** Nothing in this standard supercedes applicable laws and regulations.

**Note:** In the event of conflict between the English and domestic language, the English language shall take precedence.

**1.1 Purpose.** To develop air conditioning (A/C) diagnostic table for service manual and service technician usage.

**1.2 Foreword.** Not applicable.

**1.3 Applicability.** For all vehicles with vapor compression refrigerant systems.

### **2 References**

**Note:** Only the latest approved standards are applicable unless otherwise specified.

#### **2.1 External Standards/Specifications.**

None

#### **2.2 GM Standards/Specifications.**

GMW15845

#### **2.3 Additional References.**

CG2310, Data Sheet A1 - GMW15754 Service Table Data Collection Spreadsheet

### **3 Resources**

**3.1 Facilities.** An ambient chamber is required that is large enough to fit the test vehicle. Ambient capability required from 15 °C to 50 °C at 10% to 80% relative humidity (RH).

**3.1.1 Calibration.** The test facilities and equipment shall be in good working order and shall have a valid calibration label.

**3.1.2 Alternatives.** Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

**3.2 Equipment.** GMW15845 defines specific requirements of all test instrumentation.

**3.2.1** Temperature measuring devices to record front grille temperature, front left center instrument panel (I/P) outlet and left second row seat panel outlet (if there is a rear HVAC system).

**3.2.2** Pressure measuring devices for test vehicle refrigeration system service ports (one high pressure and one low pressure). The following pressure transducer would be for a typical R134a refrigerant system; high pressure device capable of 0 kPa to 3500 kPa  $\pm$  50 kPa and low pressure device capable of 0 kPa to 500 kPa  $\pm$  0 kPa.

**3.2.3** Battery charger to maintain vehicle battery during test.

**3.2.4** Voltage measurement device to record test vehicle battery voltage.

**3.2.5** Fan speed measurement device to record vehicle engine cooling fan speed for vehicles equipped with a mechanical engine cooling fan.

**3.2.6** Voltage measurement(s) for each fan motor if vehicle is equipped with electric engine cooling fan(s) (identify if pusher/puller/left/right).

**3.3 Test Vehicle/Test Piece.** Passenger vehicles equipped with an A/C and heater system. Vehicle configurations (diesel, turbo, single fan, dual fan, auxiliary HVAC, heavy duty, shutters, baffles, compressor

drive ratio, etc.) and drive system operating modes are required for each unique idle service data set required for the service manual as determined by the Product Development Team (PDT).

### 3.4 Test Time.

Calendar time: 1 to 2 days

Test hours: 8 to 10 hours

Coordination hours: 3 to 5 hours

### 3.5 Test Required Information. Not applicable.

### 3.6 Personnel/Skills. One chamber operator.

## 4 Procedure

**4.1 Preparation.** Each vehicle shall be prepared for the climatic chamber testing with instrumentation described in 3.2. Vehicle shall have a full tank of gas and fully charged battery. Vehicles equipped with a refrigerant chiller require a method to power the chiller coolant pump on during this test.

### 4.2 Conditions.

#### 4.2.1 Environmental Conditions.

**4.2.1.1 Ambient.** The temperature and humidity should be run as described in Table 1. Record the actual temperature and humidity at the test conditions from the facility instrumentation in the file CG2310 as shown on Data Sheet A1.

**4.2.2 Test Conditions.** Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

**4.2.2.1** The ambient temperature should be maintained to  $\pm 1$  °C of the desired temperature. See Table 1.

**4.2.2.2** The relative humidity should be maintained to  $\pm 3\%$  of the desired humidity. See Table 1.

**Table 1: Ambient Test Points**

| Test Point | Temperature (Degrees °C) | Relative Humidity % |
|------------|--------------------------|---------------------|
| 1          | 15.0                     | 60.0                |
| 2          | 22.0                     | 20.0                |
| 3          | 22.0                     | 60.0                |
| 4          | 27.0                     | 20.0                |
| 5          | 27.0                     | 40.0                |
| 6          | 27.0                     | 60.0                |
| 7          | 32.0                     | 20.0                |
| 8          | 32.0                     | 40.0                |
| 9          | 32.0                     | 60.0                |
| 10         | 38.0                     | 10.0                |
| 11         | 38.0                     | 30.0                |
| 12         | 38.0                     | 60.0                |
| 13         | 43.0                     | 10.0                |
| 14         | 43.0                     | 30.0                |
| 15         | 49.0                     | 15.0                |
| 16         | 32.0                     | 40.0                |