REPORT NUMBER 103-GTL-06-005

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 103 WINDSHIELD DEFROSTING AND DEFOGGING SYSTEMS

FORD MOTOR CO.
2006 FORD FIVE HUNDRED, PASSENGER CAR
NHTSA NO. C60200

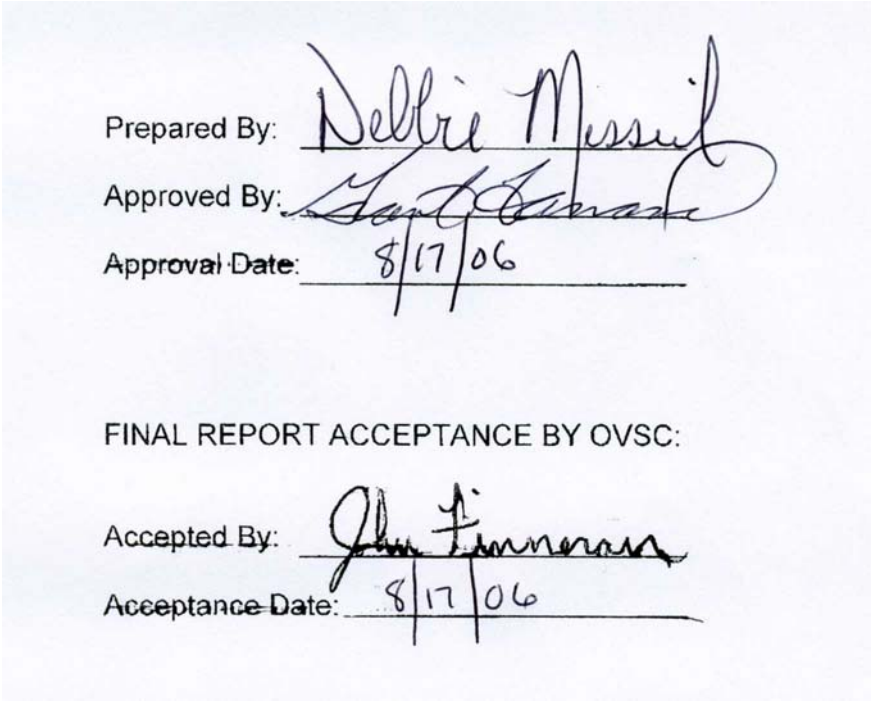
GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

AUGUST 17, 2006

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590



Technical Report Documentation Page

1. Report No. 103-GTL-06-005	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Final Report of FMVSS 103 Compliance Testing of 2006 FORD FIVE HUNDRED, PASSENGER CAR NHTSA No. C60200		5. Report Date August 17, 2006 6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-06-103-005
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A 11. Contract or Grant No. DTNH22-01-C-11025
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 7th Street, S.W., Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report June 19-20, 2006 14. Sponsoring Agency Code NVS-220
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject, 2006 Ford Five Hundred Passenger Car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-103-13 for the determination of FMVSS 103 compliance. Test failures identified were as follows: None		
17. Key Words Compliance Testing Safety Engineering FMVSS 103	18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services (TIS) Room 2336 (NP0-405) 400 7th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4947	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 34	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

Form DOT F 1700.7 (8-72)

TABLE OF CONTENTS

SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2006 Ford Five Hundred Passenger Car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 103 testing to determine if the vehicle was in compliance with the requirements of the standard. All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure, TP-103-13 dated 26 June 1996 and General Testing Laboratories, Inc. (GTL) Test Procedure, "Windshield Defrosting and Defogging Systems – Passenger Vehicles, Mulitpurpose Vehicles, Trucks and Buses".

1.1 TEST VEHICLE

The test vehicle was a 2006 Ford Five Hundred Passenger Car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1FAFP23106G104130

B. NHTSA No.: C60200

C. Manufacturer: FORD MOTOR COMPANY

D. Manufacture Date: 07/05

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 103 testing on June 19-20, 2006.

SECTION 2

COMPLIANCE TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2006 Ford Five Hundred 4-door passenger car, NHTSA No. C60200 was subjected to FMVSS No. 103 tests on June 19-20, 2006. Photographs of the test vehicle are shown in Figures 5.1 through 5.4. The manufacturer's certification and tire information labels are shown in Figures 5.5 and 5.6. The test instrumentation and instrument panel setups are depicted in Figures 5.7 and 5.8. Figures 5.9 through 5.16 depict the windshield pre and post test defrost conditions.

2.1 TEST PROCEDURE

Prior to test the test vehicle was inspected for completeness, systems operability, and appropriate fuel and liquid levels, i.e., oil and coolant to include antifreeze protection. The vehicle was then photographically documented as required by the DOT/NHTSA test procedure. The windshield patterns for areas A, B, C, and D had been furnished prior to testing and these areas were outlined on the windshield with a marker. The vehicle was then installed in the cold chamber and pre-conditioned for a 14-hour minimum, 0º ±5º F temperature soak for the first test run. After the pre-condition, the hood was raised to assure engine coolant and lubricant were stabilized within the test temperature range for a minimum of 2 hours.

At the end of the 2-hour minimum stabilization period, the entire windshield was sprayed evenly with 0.010 ounces of water per square inch of glass area. Refer to Section 3, Compliance Test Data, for test specifics such as total amount of water sprayed, spray gun identification, and air pressure regulation. The vehicle soak continued for an additional 30 minutes minimum but no more than 40 minutes after the windshield was sprayed.

At the conclusion of the additional soak time the vehicle's engine was started and operated at a target speed of 1500-1600 rpm or at the manufacturer's specification if different as noted on data sheets. The defroster blower was turned on to the high speed setting with the heater selector in the de-ice (defrost) position, and the temperature control in the maximum temperature position. All doors and windows were closed. The heater air intake was fully open and the vehicle's hood closed. At no time during the test were the windshield wipers used.

SECTION 2 continued

At start of testing and during test, at each 5-minute interval after engine start, cold chamber, engine coolant, heater coolant in and defroster air left/defroster air right temperatures were recorded. Likewise at each 5-minute interval the boundary of the defrosted area was marked on the inside surface of the windshield. The test was run for a maximum of 40 minutes from engine start, or until such time as 100 percent windshield clearance was achieved. Photographs were made of the windshield at the pre-test frosted state and 20-minute and 25-minute intervals. Post test actions included placing a vellum pattern on the windshield and tracing the windshield's 5-minute interval defrosted area boundary lines onto the vellum pattern.

After the traces were obtained, the windshield was again thoroughly cleaned and the vehicle engine coolant and lubricant stabilization period at 0º ±5º F temperature commenced for a repeat of the procedure discussed. The windshield patterns for both tests were used subsequently to determine the cleared area percentages.

2.2 SUMMARY OF RESULTS

Based on the test performed, the test vehicle appears to be in compliance with the requirements of FMVSS 103.

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of testing on the 2006 Ford Five Hundred.

SUMMARY DATA SHEET
FMVSS 103, WINDSHIELD DEFROSTING AND DEFOGGING SYSTEMS

VEH. MOD YR/MAKE/MODEL/BODY: 2006 FORD FIVE HUNDRED PASSENGER CAR
VEH. NHTSA NO: C60200; VIN: 1FAFP23106G104130
VEH. BUILD DATE: 07/05 TEST DATE: JUNE 19-20, 2006
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

WINDSHIELD AREA: 2085 in^2 AREA C = 225.4 in^2 AREA D = 225.4 in^2 AREA A= 1029.8 in^2

MANUFACTURER'S WINDSHIELD PATTERN USED: Yes X No

ENGINE THERMOSTAT NOMINAL REGULATING TEMPERATURE: 190 ºF

HEATER-DEFROSTER SYSTEM INCLUDES AIR CONDITIONER: YES X NO

DESCRIBE UNUSUAL FEATURES OF DEFROSTING SYSTEM: NONE

DESCRIBE UNUSUAL FEATURES OF TEST CAR: NONE

DESIGNATION	AREA PERCENT DEFROSTED					
	TEST 1	TEST 2	AVG	REQ'D	PASS	FAIL
CRITICAL AREA C AT 20 MINUTES	100%	100%	100%	80% MINIMUM	PASS	
PASSENGER AREA D AT 25 MINUTES	100%	100%	100%	80% MINIMUM	PASS	
TOTAL AREA A AT 40 MINUTES	100%	100%	100%	95% MINIMUM	PASS	

REMARKS:

RECORDED BY: G. FARRAND DATE: 08/03/06

APPROVED BY: D. MESSICK

FMVSS 103 TEST DATA RECORD – TEST RUN NO. 1

VEH. MOD YR/MAKE/MODEL/BODY: 2006 FORD FIVE HUNDRED PASSENGER CAR
VEH. NHTSA NO: C60200; VIN: 1FAFP23106G104130
VEH. BUILD DATE: 07/05; TEST DATE: JUNE 19-20, 2006
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

If 1st Test Run, chamber conditioned 48 hours @ 0º ±5º F (14 hrs. min.)

Cold Soak Period: 20 HOURS

Time engine coolant and lubricant remained stabilized at 0º F: 12 hrs. 0 minutes

Water Spray Gun and Nozzle Type: BINKS #66

Spray Gun Pressure: 50 psi (50 psi ± 3 psi)

Water used: 20.9 fluid oz. (0.010 ounces per square inch of windshield area)

Soak Period Between Ice Application and Test Start: 35 minutes (30 to 40 minutes)

Engine Speed: 1550 (Target engine speed 1500 to 1600 rpm)

Wind at specified location in front of windshield: 1 mph (0 to 2 mph)

Number of Vehicle Occupants: 2 (2 maximum)

Describe window openings, if any: NONE

TIME FROM START (minutes)	MOTOR VOLTAGE (volts)	TEMPERATURE, ºF					DEFROSTED AREA, %		
		TEST ROOM	ENGINE WATER	HEATER WATER IN	DEFROSTER AIR				
					DRVR	PSGR	A	C	D
0	13.2	-4.0	-4.0	-4.0	-4.0	-4.0	0%	0%	0%
5	14.7	-4.0	61.5	95.9	65.1	64.4	0%	0%	0%
10	14.7	-1.4	105.5	129.2	98.3	95.4	37.4%	20.3%	19.4%
15	14.7	1.3	125.8	143.9	114.6	111.9	86.8%	91.5%	90.5%
20	14.7	3.2	136.9	154.9	125.1	123.6	100%	100%	100%
25	14.7	6.1	147.0	164.3	134.8	132.2	100%	100%	100%

REMARKS:

RECORDED BY: G. FARRAND DATE: 08/03/06

APPROVED BY: D. MESSICK

FMVSS 103 TEST DATA RECORD – TEST RUN NO. 2

VEH. MOD YR/MAKE/MODEL/BODY: 2006 FORD FIVE HUNDRED PASSENGER CAR
VEH. NHTSA NO: C60200; VIN: 1FAFP23106G104130
VEH. BUILD DATE: 07/05; TEST DATE: JUNE 19-20, 2006
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

If 1st Test Run, chamber conditioned N/A hours @ 0º ±5º F (14 hrs. min.)

Cold Soak Period: 24.0 HOURS

Time engine coolant and lubricant remained stabilized at 0º F: 16 hrs. ____ minutes

Water Spray Gun and Nozzle Type: BINKS #66

Spray Gun Pressure: 50 psi (50 psi ± 3 psi)

Water used: 20.9 fluid oz. (0.010 ounces per square inch of windshield area)

Soak Period Between Ice Application and Test Start: 35 minutes (30 to 40 minutes)

Engine Speed: 1550 (Target engine speed 1500 to 1600 rpm)

Wind at specified location in front of windshield: 1 mph (0 to 2 mph)

Number of Vehicle Occupants: 1 (2 maximum)

Describe window openings, if any: NONE

TIME FROM START (minutes)	MOTOR VOLTAGE (volts)	TEMPERATURE, ºF					DEFROSTED AREA, %		
		TEST ROOM	ENGINE WATER	HEATER WATER IN	DEFROSTER AIR				
					DRVR	PSGR	A	C	D
0	13.2	-4.0	-4.0	-4.0	-3.0	-3.0	0%	0%	0%
5	14.7	-4.0	69.5	102.5	70.9	70.0	0%	0%	0%
10	14.7	-3.0	108.6	132.4	101.3	99.2	38.9%	21.4%	22.0%
15	14.7	0	127.0	144.0	112.9	110.5	83.8%	87.3%	87.8%
20	14.7	3.6	135.9	152.7	122.2	120.1	100%	100%	100%
25	14.7	4.3	146.8	164.4	134.0	131.3	100%	100%	100%

REMARKS:

RECORDED BY: G. FARRAND DATE: 08/03/06

APPROVED BY: D. MESSICK

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
TIMER	ACCU-SPLIT	ACT2	04/06	04/07
TEMPERATURE READOUT	OMEGA	43P	04/06	04/07
TEMPERATURE RECORDER	OMEGA	CT91	04/06	04/07
SPRAY GUN	BINKS	6655	BEFORE USE	BEFORE USE
AIR VELOCITY METER	OMEGA	HHF-616	04/06	04/07
AIR PRESSURE GAGE	BINKS	0-160	05/06	05/07
SCALE	METTLER	200A4M	05/06	05/07
TACHOMETER	MONARCH	ACT-3	04/06	04/07
GRADUATED BEAKER	PHOTAX	N/A	N/A	N/A
EVENT RECORDER	COMPUTER	GEO1	BEFORE USE	BEFORE USE
DATA LOGGER	FLUKE	7471026	12/05	12/06

SECTION 5

PHOTOGRAPHS

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.1
RIGHT SIDE VIEW OF VEHICLE

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

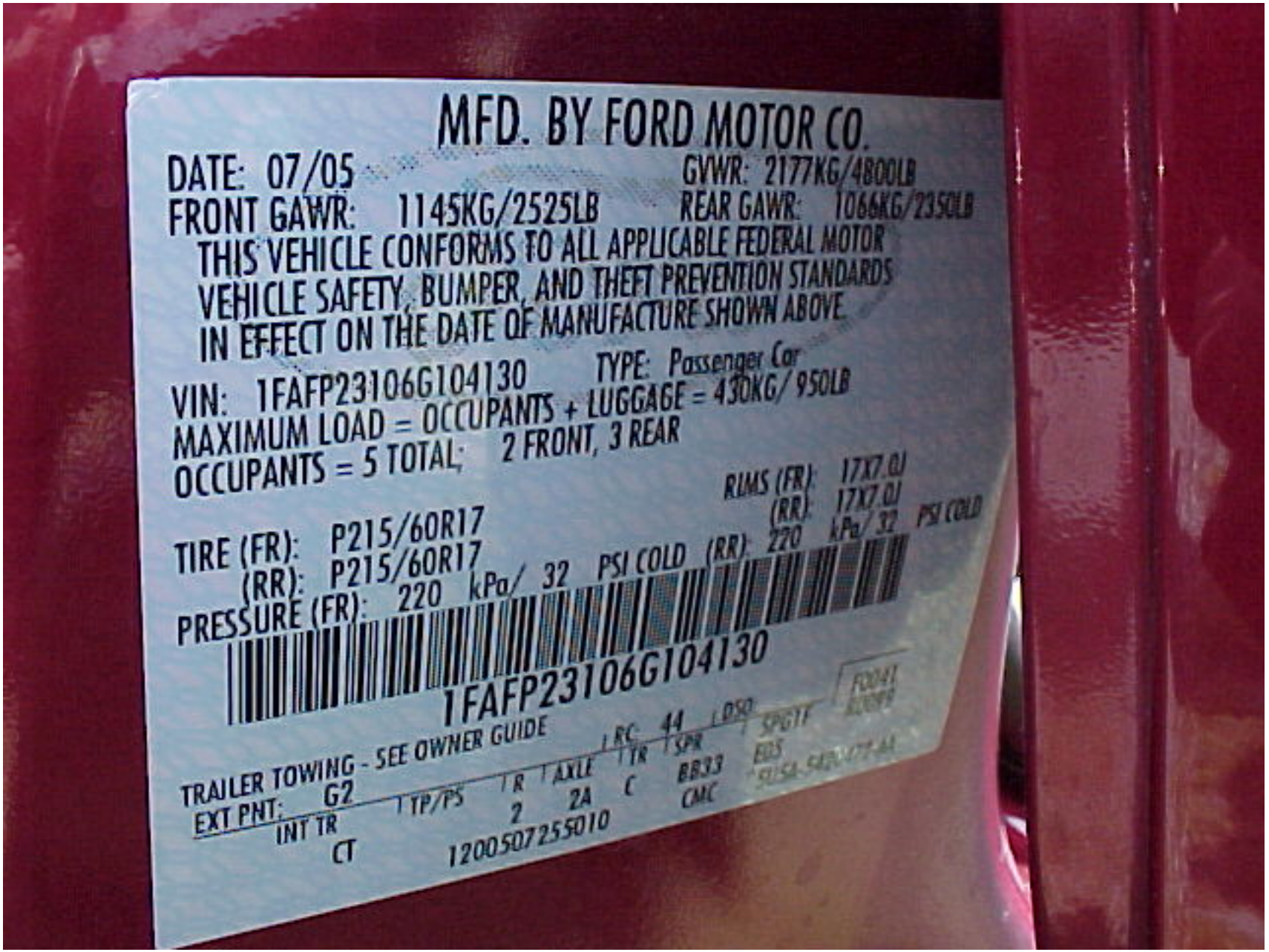
FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.3
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

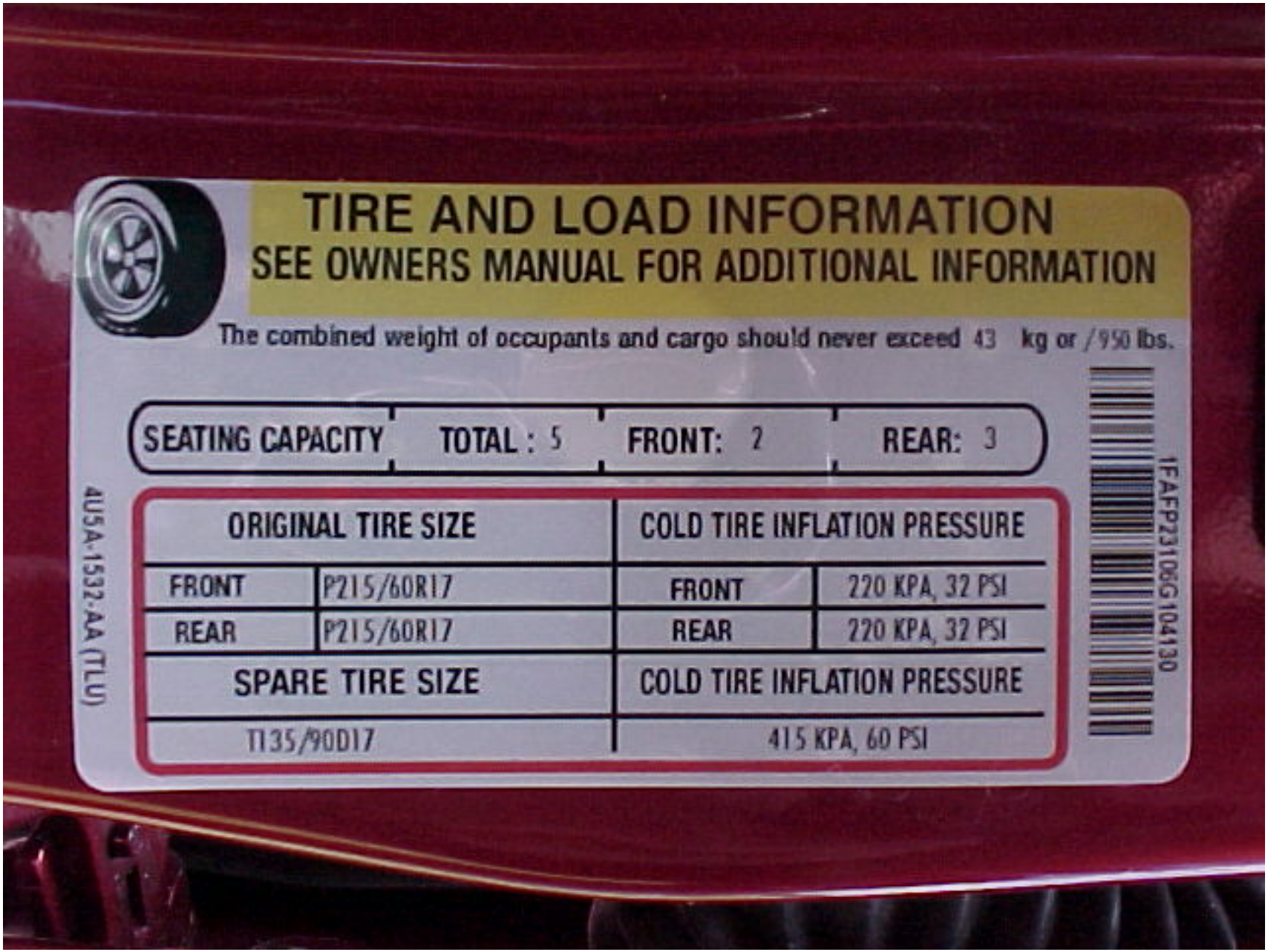
2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.5
VEHICLE CERTIFICATION LABEL

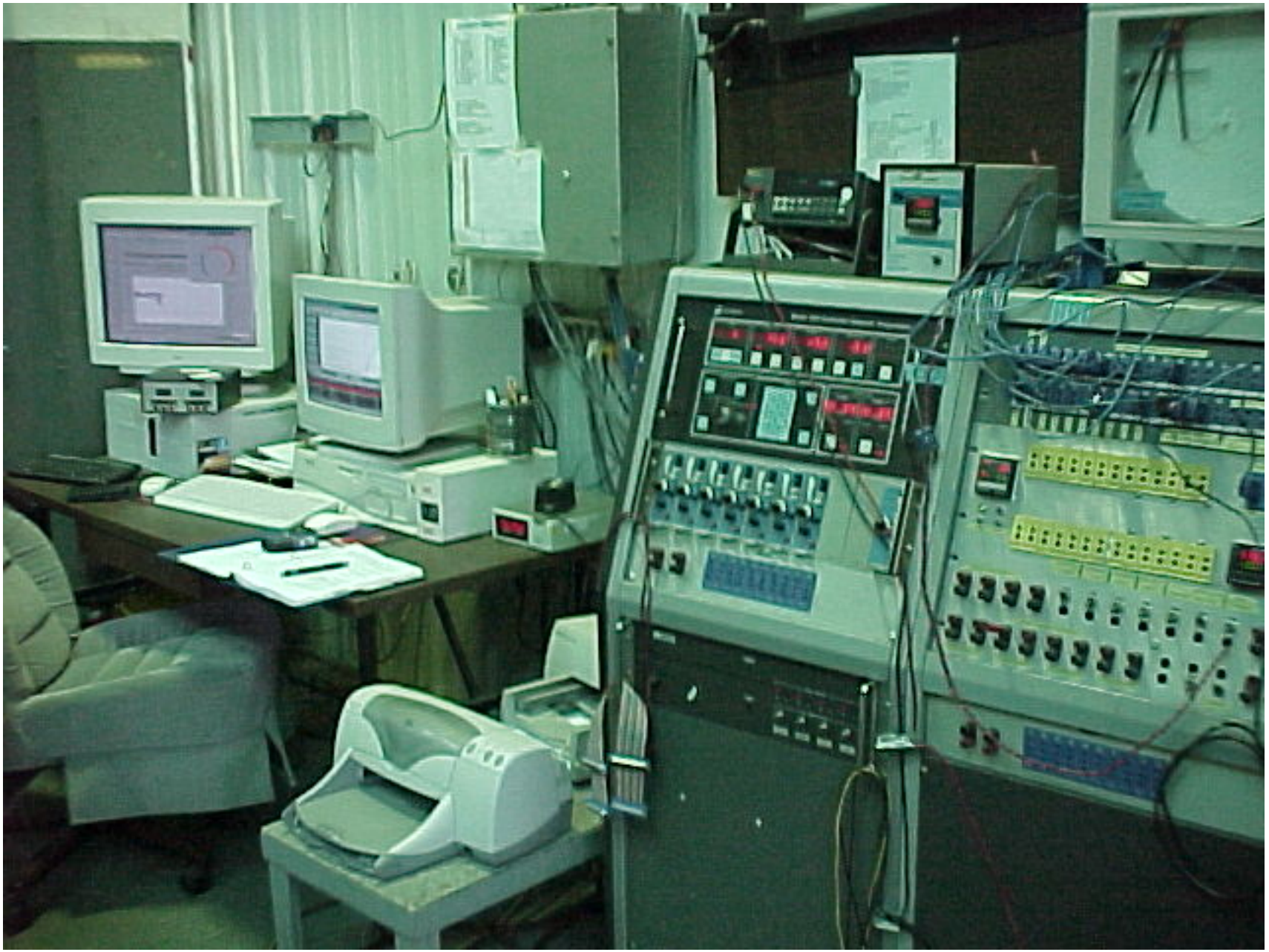


2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.6
VEHICLE TIRE INFORMATION LABEL

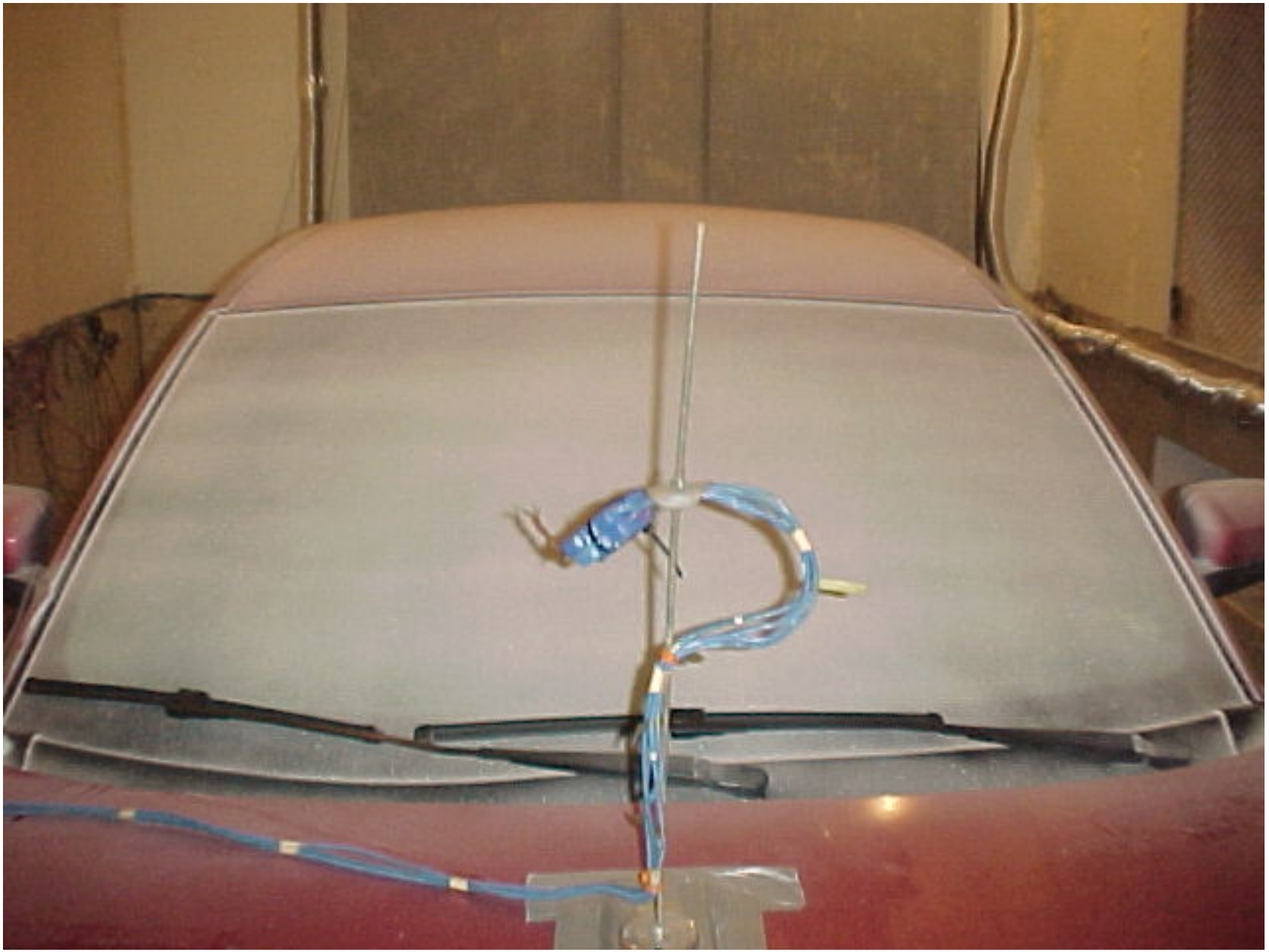
2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.7
CLOSE-UP VIEW OF DEFROSTER CONTROL
SETTING ON DASH



2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.8
INSTRUMENTATION SET-UP



2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

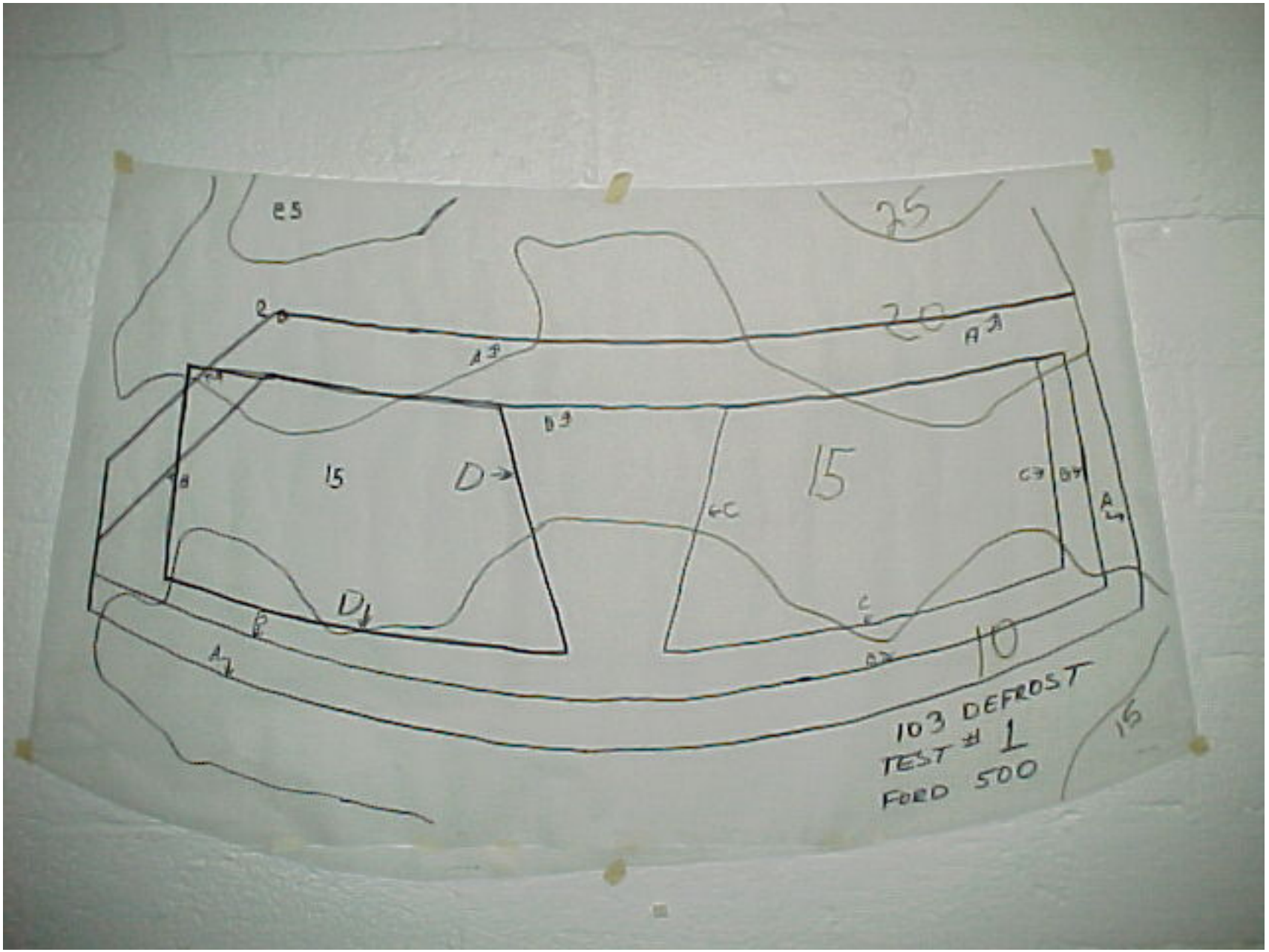
FIGURE 5.9
WINDSHIELD, PRE-TEST FROSTED STATE TEST #1

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.10
DEFROSTED AREA AT 20 MINUTES TEST #1

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.11
DEFROSTED AREA AT 25 MINUTES TEST #1



2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.12
WINDSHIELD VELLUM PATTERN, POST TEST #1

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

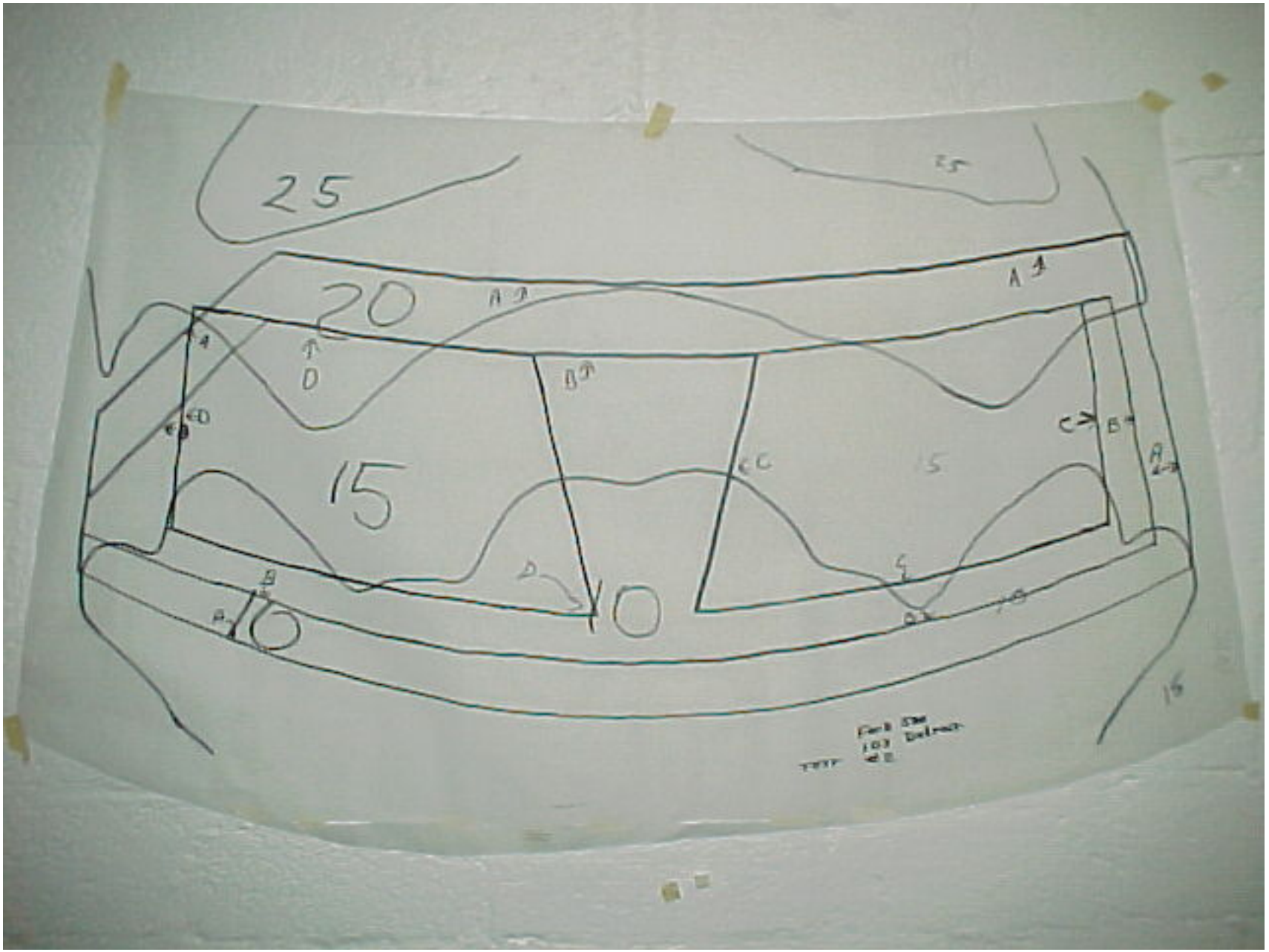
FIGURE 5.13
WINDSHIELD PRE-TEST FROSTED STATE TEST #2

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.14
DEFROSTED AREA AT 20 MINUTES TEST #2

2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.15
DEFROSTED AREA AT 25 MINUTES TEST #2



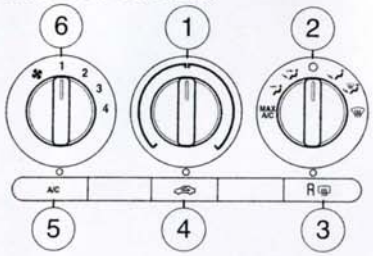
2006 FORD FIVE HUNDRED
NHTSA NO. C60200
FMVSS NO. 103

FIGURE 5.16
WINDSHIELD VELLUM PATTERN, POST TEST #2

SECTION 6

OWNER'S MANUAL DEFROSTER INSTRUCTIONS

MANUAL HEATING AND AIR CONDITIONING SYSTEM (IF EQUIPPED)



1. **Temperature selection:** Controls the temperature of the airflow in the vehicle.

2. **Air flow selections:** Controls the direction of the airflow in the vehicle. See the following for a brief description on each control setting:

MAX A/C: Distributes recirculated air through the instrument panel vents only to cool the vehicle. This re-cooling of the interior air is more economical and efficient. Recirculated air may also help reduce undesirable odors from entering the vehicle.

: Distributes air through the instrument panel vents.

: Distributes air through the instrument panel vents and floor vents.

O (OFF): Outside air is shut out and the climate system is turned off.

: Distributes air through the floor vents. **Note:** You may notice a small amount of air flowing from the demister and defroster vents.

: Distributes air through the windshield defroster vents, demisters and floor vents.

: Distributes outside air through the windshield defroster and demister vents. Can be used to clear thin ice or fog from the windshield. To exit select another mode.

3. **Rear defroster:** Press to activate/deactivate rear window defroster. Refer to *Rear window defroster* in this section for more information.

4. **Recirculated air:** Press to activate/deactivate air recirculation in the vehicle cabin. Recirculated air may reduce the amount of time to cool down the interior of the vehicle and may also help reduce undesired odors from reaching the interior of the vehicle. Recirculation engages automatically with selection of MAX A/C or can be engaged manually in any other airflow selection except defrost. Recirculation may turn off automatically in all airflow selections except MAX A/C.

5. **A/C:** Press to activate/deactivate air conditioning. Use with recirculated air to improve cooling performance and efficiency. Engages automatically in MAX A/C, (defrost) and (floor/defrost). Cannot be disabled in MAX A/C mode.

6. **Fan speed adjustment:** Controls the volume of air circulated in the vehicle.

Operating tips

- To reduce fog build up on the windshield during humid weather, place the air flow selector in the position.
- To reduce humidity build up inside the vehicle: do not drive with the airflow selector in the O (OFF) or with recirculated air engaged.
- Do not put objects under the front seats that will interfere with the airflow to the back seats.
- Remove any snow, ice or leaves from the air intake area at the base of the windshield.
- For maximum cooling performance (MAX A/C):

In the MAX A/C mode:

- Move the temperature control selector to the coldest setting.
- Set the fan to the highest speed initially, then adjust to maintain passenger comfort.

In the and modes:

- Move the temperature control selector to the coldest setting.
- Select A/C and recirculated air . Use with A/C to provide colder airflow.
- Set the fan to the highest speed initially, then adjust to maintain passenger comfort.

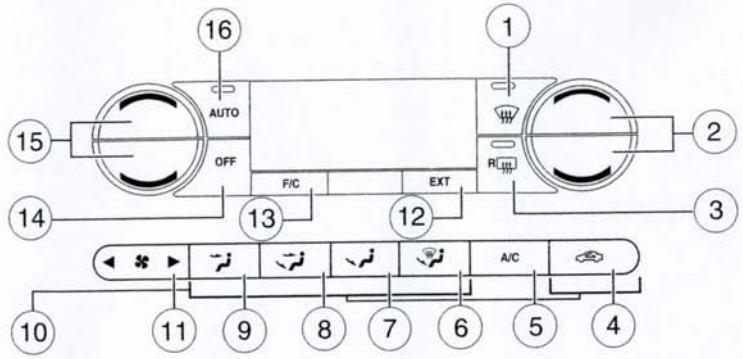
In extremely cold temperatures, to maximize overall heater performance it is suggested to not operate the auxiliary system (if so equipped) until the engine temperature gauge crosses into the normal operating range.

To aid in side window defogging/demisting in cold weather:

1. Select .
2. Select A/C.
3. Set the temperature control to full heat.
4. Set the fan speed to the highest setting.
5. Direct the outer instrument panel vents towards the side windows.

Do not place objects on top of the instrument panel as these objects may become projectiles in a collision or sudden stop.

DUAL ZONE AUTOMATIC TEMPERATURE CONTROL (IF EQUIPPED)



1. **Defrost:** Distributes outside air through the windshield defroster and demister vents. Can be used to clear thin ice or fog from the windshield. To exit select another mode.

2. **Passenger temperature control:** Press to increase/decrease the airflow temperature for the passenger in the front of the vehicle.

3. **Rear defroster:** Press to activate/deactivate rear window defroster. Refer to *Rear window defroster* in this section for more information.

4. **Recirculated air:** Press to activate/deactivate air recirculation in the cabin. Recirculated air may reduce the amount of time to cool down the interior of the vehicle and may also help reduce undesired odors from reaching the interior of the vehicle. Recirculation can be engaged manually in any other airflow selection except defrost. Recirculation may turn off automatically in all airflow selections.

5. **A/C:** Press to activate/deactivate air conditioning. Use with recirculated air to improve cooling performance and efficiency. Engages automatically in AUTO, defrost and floor/defrost.

6. : Distributes air through the windshield defroster, demister and floor vents.

7. : Distributes air through the floor vents. **Note:** You may notice a small amount of air flowing from the demister and defroster vents.

8. : Distributes air through the instrument panel and floor vents.

9. : Distributes air through the instrument panel vents.

10. **Manual override controls:** Allows you to manually select where airflow is directed. To return to full automatic control, press AUTO.

11. **Front fan speed control:** Press to manually increase or decrease the fan speed. To return to automatic fan operation, press AUTO.

12. **EXT:** Press to display outside temperature. Press again to display cabin temperature settings.

13. **F/C (Temperature conversions):** Press to switch temperature display between ° Fahrenheit and ° Celsius.

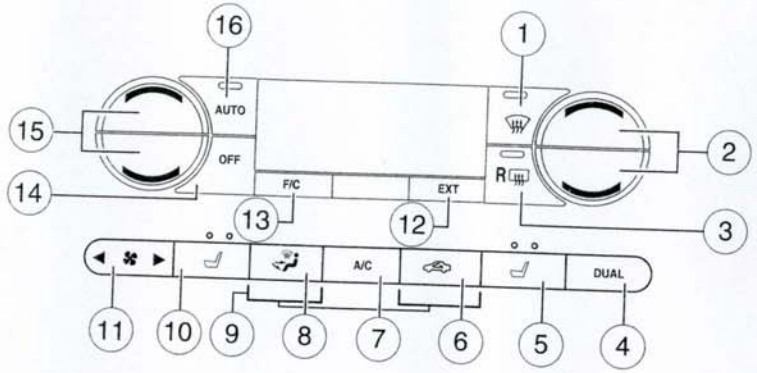
14. **OFF:** Outside air is shut out and the climate control system is turned off.

15. **Driver temperature control:** Press to increase/decrease the temperature on the driver side of the cabin. Sets the passenger side temperature also when DUAL is disengaged. The recommended vehicle cabin setting is between 72°F (22°C) and 75°F (24°C).

Dual temperature control: Press and hold the AUTO button to engage-disengage separate passenger side temperature control.

16. **AUTO:** To engage automatic temperature control, press AUTO and select the desired temperature using the temperature control. The system will automatically determine fan speed, airflow location, A/C on or off, and outside or recirculated air, to heat or cool the vehicle to reach the desired temperature.

Dual Zone Automatic Temperature Control with heated seats (if equipped)



1. **Defrost:** Distributes outside air through the windshield defroster and demister vents. Can be used to clear thin ice or fog from the windshield. To exit select another mode.

2. **Passenger temperature control:** Press to increase/decrease the airflow temperature for the passenger in the front of the vehicle.

3. **Rear defroster:** Press to activate/deactivate rear window defroster. Refer to *Rear window defroster* in this section for more information.

4. **DUAL (Dual temperature control):** Press to engage/disengage separate passenger side temperature control.

5. **Passenger heated seat control:** Press once to activate high heat setting (2 indicator lights), press again to activate low heat setting (1 indicator light), and press again to deactivate the passenger heated seat. **Note:** The heated seat feature will remain on for approximately ten minutes.

6. **Recirculated air:** Press to activate/deactivate air recirculation in the cabin. Recirculated air may reduce the amount of time to cool down the interior of the vehicle and may also help reduce undesired odors from reaching the interior of the vehicle. Recirculation can be engaged manually in any other airflow selection except defrost. Recirculation may turn off automatically in all airflow selections.

7. **A/C:** Press to activate/deactivate air conditioning. Use with recirculated air to improve cooling performance and efficiency. Engages automatically in AUTO, defrost and floor/defrost.

8. **Airflow direction control:** Press to toggle through the air distribution modes listed below. The selected mode will be shown in the display.

: Distributes air through the instrument panel and center console vents (if equipped).

: Distributes air through the instrument panel, floor and center console vents (if equipped).

: Distributes air through the floor vents. **Note:** You may notice a small amount of air flowing from the demister and defroster vents.

: Distributes air through the windshield defroster, demister and floor vents.

9. **Manual override controls:** Allows you to manually select where airflow is directed. To return to full automatic control, press AUTO.

10. **Driver heated seat control:** Press to heat the driver seat. Press once to activate high heat (two indicator lights). Press again to activate low heat (one indicator light). Press again to deactivate the driver heated seat. **Note:** The heated seat feature will remain on for approximately ten minutes.

11. **Front fan speed control:** Press to manually increase or decrease the fan speed. To return to automatic fan operation, press AUTO.

12. **EXT:** Press to display outside temperature. Press again to display cabin temperature settings.

13. **F/C (Temperature conversions):** Press to switch temperature display between ° Fahrenheit and ° Celsius.

14. **OFF:** Outside air is shut out and the climate control system is turned off.

15. **Driver temperature control:** Press to increase/decrease the temperature on the driver side of the cabin. Sets the passenger side temperature also when DUAL is disengaged. The recommended vehicle cabin setting is between 72°F (22°C) and 75°F (24°C).

16. **AUTO:** Press to engage automatic temperature control. Select the desired temperature using the temperature control. The system will automatically determine fan speed, airflow location, A/C on or off, and outside or recirculated air, to heat or cool the vehicle to reach the desired temperature.

Operating tips

- To reduce fog build up on the windshield during humid weather, place the air flow selector in the position.
- To reduce humidity build up inside the vehicle: do not drive with the airflow selector in the OFF or with recirculated air engaged.
- Do not put objects under the front seats that will interfere with the airflow to the back seats.
- Remove any snow, ice or leaves from the air intake area at the base of the windshield.
- For maximum cooling performance (MAX A/C):

In AUTO mode, press AUTO control and set to desired temperature.

In manual override control, select or , A/C and recirculated air and set the temperature to 60°F (16°C). Set the fan to the highest speed initially, then adjust to maintain passenger comfort.

- To improve the A/C cool down, drive with the windows slightly open for 2–3 minutes after starting the vehicle or until the vehicle has "aired out."

In extremely cold temperatures, to maximize overall heater performance it is suggested to not operate the auxiliary system (if so equipped) until the engine temperature gauge crosses into the normal operating range.

To aid in side window defogging/demisting in cold weather:

1. Select .
2. Select A/C.
3. Adjust the temperature control to maintain comfort.
4. Set the fan to the highest speed.
5. Direct the outer instrument panel vents towards the side windows.

Do not place objects on top of the instrument panel as these objects may become projectiles in a collision or sudden stop.

REAR WINDOW DEFROSTER

The rear defroster control is located on the climate control panel and works to clear the rear window of fog and thin ice.

The ignition must be in the 3 (RUN) position to operate the rear window defroster.

The rear defroster turns off automatically after 10 minutes or when the ignition is turned to the 1 (LOCK) position. To manually turn off the defroster before 10 minutes have passed, push the control again.

Do not use razor blades or other sharp objects to clean the inside of the rear window or to remove decals from the inside of the rear window. This may cause damage to the heated grid lines and will not be covered by your warranty.