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Heat Division, Temperature Section
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U. S. DEPARTMENT OF COMMERCE, Frederick B. Dent, Secretary
NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director

Preface

Certain commercially available equipment, instruments and materials are identified in this report to specify adequately the experimental procedures used and the materials to which the data obtained apply. In no case should such identification be inferred as an evaluation by the National Bureau of Standards of the suitability of the product for its intended purpose.

REPORT OF TEST

Influence of Windshield Tint on the Temperature in Automobile Passenger Compartments

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I. Introduction

The National Highway Traffic Safety Administration of the Department of Transportation requested that the National Bureau of Standards perform measurements to determine the effect of tinting in the glass of windshields on the air temperature in automobile passenger compartments. The work described was performed under contract number DOT-HS-185-3-599IA. The measurements were made in Phoenix, Arizona during the week of April 1, 1974.

II. Procedure and Measurement Methods

Two 1973 American Motor 4-door Ambassador sedans were employed for the tests. These cars were identical in color, engine size and optional equipment. The paint number was E1A, a light blue color, and the trim number was 383B. Both were equipped with air conditioning, although it was not used in the tests. All glass in the side and rear windows of both cars was tinted. New windshields were purchased for the tests, one tinted and one clear. The glass numbers for all of the windows are given in Table I.

Tests were made under static and dynamic conditions. In the static tests, the cars were parked facing due south, and measurements of the air temperature were made every 5 or 10 minutes, from approximately 0800 to 1600 hours. All vents and windows were kept closed during these tests. In the dynamic tests, the cars were driven at approximately 80 km per hour over public roads. Two people were inside each of the cars for these tests; one to drive and one to record the measurements. Measurements in the dynamic tests were synchronized by signaling to the lead car with the headlights at the start of a sequence of measurements (every 5 minutes). Again, all vents and windows were closed during the measurements. Static and dynamic tests were made, and then the windshields were interchanged and both the static and dynamic tests were repeated. In this way, extraneous effects that would cause interior temperature differences between the cars could be differentiated from the effect of the windshield tint.

Care was taken to keep the thermal histories of the cars approximately the same. For the static tests, the cars were left parked in the test position during the previous night. For the dynamic tests, the opening and closing of the windows and doors were kept approximately synchronous.

The vehicle arrangement for the static test is shown in Fig. 1. The cars were far enough apart that they did not shade each other during the day. The truck behind the cars housed the instrumentation.

Temperature measurements were made with thermocouples and with liquid-in-glass thermometers. The liquid-in-glass thermometers had a range of -20 to 102 °C and were scaled every 0.2 °C. They were total immersion thermometers and were calibrated at the National Bureau of Standards at 0, 20 and 40 °C. The estimated uncertainties in the calibration corrections did not exceed 0.05 °C. The calibration corrections for all of the glass thermometers were less than 0.1 °C. In this report, these scale corrections were small enough to be ignored.

The thermocouples employed were type E (Ref. 1), of 0.25 mm diameter and fibre glass insulated. All thermocouples were taken from the same spool (lot) of wire. Calibration of one thermocouple taken from this spool over the range 0 to 100 °C in 20 °C steps indicated that within this temperature interval the thermocouple wire was within 0.1 °C of compliance with the type E thermocouple reference tables as given in NBS Monograph 125 (Ref. 1). The uncertainity in the calibration was ±0.1 °C. All temperatures in this report are given in degrees Celsius (IPTS-68) (Ref. 2).

In each car, one liquid-in-glass thermometer was suspended from the dome light over the back-rest of the front seat, as shown in Fig. 2. The thermometer bulb was about 10 cm below the top of the seat. For the static tests, a third liquid-in-glass thermometer was placed outside of the cars in the shade to measure exterior air temperatures. A portable telescope facilitated reading of the car thermometers without opening of the doors (Fig. 1).

Ten thermocouples were placed inside of the car to measure air temperatures at various locations within the car. A typical thermocouple installation is shown in Fig. 3. About 3 cm of the thermocouple wires were taped to a seat fabric or other car surface, with the thermocouple wire bent at right angles so that the measuring junction was located in air about 3 cm away from the surface.

A complete list of all thermocouple positions is given in Table II. Thermocouple position 1 placed the measuring junction in air near the top of the liquid-in-glass thermometer. Thermocouple position 11 was located outside underneath the car in the shade to measure the exterior air temperatures. All but two of the thermocouples were placed with the junctions shielded from the sun and in air. Thermocouples 8 and 10 were placed in the sun, and the measuring junctions were placed in contact with a car surface. The installation of a thermocouple in position 10 is shown in Fig. 4.

The reference junctions for the thermocouples were maintained at 0 °C in an ice bath. In the static tests, instrumentation for measuring the thermal emf was housed in a truck placed behind the test vehicles (Fig. 1). An automatic data logging system was used for collecting the data, and included a scanner (switch) of low thermal emf (less than 1 μV) and a digital voltmeter. The digital voltmeter was of commercial design, with 5 full digits plus 60% overranging and 0.1 μV resolution. The 90 day accuracy at 25 ±5 °C was listed as ±(.003% of reading +0.5 μV), with a temperature coefficient of ±(.0005% of reading +20 nV)/°C. A comparison of the digital voltmeter with a precision six-dial potentiometer showed that the emf indication of the digital voltmeter (when compared in the laboratory) changed by less than 1 μV during the week of the measurements. The thermal emf's in the scanner and lead wires to the ice bath was less than 3 μV (as read by the digital voltmeter). The maximum uncertainty in the thermocouple temperature measurements is estimated not to exceed ±0.3 °C in the static tests, and ±0.5 °C in the dynamic tests.

In the static tests, two digital voltmeters were used. Thermocouples in the same position in each test car were read by the same digital voltmeter. Thus, small instrument differences did not enter into the calculation of the temperature differences between the cars. A photograph of the instrumentation is given in Fig. 5.

In the dynamic tests, a digital voltmeter was placed inside each car and read manually. A solid state 12 volt dc to 115 volt 60 Hz inverter and an harmonic neutralized constant voltage transformer were placed in the car trunk and supplied the electrical power to the digital voltmeter. Readings of the liquid-in-glass thermometers were also taken during the dynamic tests.

Results

a. Static tests

Static tests were performed on April 2 and again on April 4 after interchanging the windshields. The cars were headed directly south for both tests. The interior air temperatures and the outside air temperatures as determined by the liquid-in-glass thermometers are plotted in Fig. 6 and 7. The time is given on a 24-hour real time base. April 2 was a day which occasionally had some high light clouds through which the sun would shine. A brief shower at 11:45 is responsible for the sudden cooling. Outside air temperatures reached about 25 °C. April 4 was a day of very clear skies and strong sun, but a cool breeze kept the air temperatures lower than on April 2. Temperature measurements were made with the liquid-in-glass thermometers every 10 minutes.

The difference in the interior air temperature between the car with the clear windshield and the car with the tinted windshield is shown in Fig. 8 and 9. The difference was such that the car with the tinted windshield was always cooler. The low point in Fig. 8 was caused by the sun striking only one of the thermometers when the sun was near the horizon in the early morning. The car temperature difference on April 2 reached a maximum of between 2.5 and 3.0 °C in the late afternoon. The shower at the time of 11:45 decreased the temperature difference. By the late afternoon, the angle of incidence of the sun to the windshield was large and the temperature difference decreased. A similar result occurred in the April 4 data (Fig. 9). On both days, the decrease in the temperature difference late in the day occurred with the outside air temperature staying relatively constant. This is an expected result, since the transmittance of the clear windshield glass would be greatest when the sun's rays were normal to the windshield. The air temperature difference on April 4 as determined by the liquid-in-glass thermometers reached a maximum of about 3.7 °C.

All of the collected data are presented in tables in the Appendices. Appendix I gives the data for the liquid-in-glass thermometers for the static tests of April 2 and 4 first, and then for the dynamic tests of April 3 and 5. Appendix II presents the temperature differences for each thermocouple position for the static and dynamic tests. The last column in each table labeled "Outside Air" presents the average of the air temperature as determined by the two thermocouples located under each of the cars. Appendix III presents for each thermocouple position the indicated temperatures and also the calculated temperature differences.

The interior temperature differences in the static tests as determined at some of the thermocouple positions are shown in Fig. 10 and 11. The symbol list for the graphs of the thermocouple data is given in Table III. The temperature differences varied widely according to the placement of the thermocouples. The thermocouple positions in both static tests that were located away from the floor of the car generally indicated a greater temperature difference than those positions located near the floor. The temperature differences were typically between 2 and 6 °C.

Two thermocouples were specially positioned to be in the sun. Thermocouple position 8 was located on the front passenger seat in the sun. In both static tests, this thermocouple position showed temperature differences typically of 5 to 8 °C, the thermocouple in the car with the tinted windshield being cooler (see Appendix II). Thermocouple position 10 was located in contact with the top of the dash about 7 cm back from the windshield (Fig. 4). In both static tests, this thermocouple position showed temperature differences of about 15 °C.

Comparison between the thermocouples at position 1 and the liquid-in-glass thermometers cannot readily be made because of the large difference in the response of the sensors and because they sense the temperature of a different volume of air. Several degrees Celsius of difference in the temperature indication of the two sensors is not surprising during the warm-up of the cars. The interior air temperature differences for the cars as determined by the different sensors was mostly within about 0.5 °C agreement on April 2. On April 4, this difference was about 1 °C; however, the data may reflect effects of the large temperature gradients that existed in the cars. Thermocouples 1 and 2, positioned with approximately 50 cm vertical separation, exhibited a difference of more than 8 °C in car 2. The exterior air temperatures as determined by the thermocouples and the liquid-in-glass thermometers are in good agreement in the April 2 data. The differences in the air temperature on April 4 are probably a result of the outside thermocouples not being shielded from the wind whereas the outside liquid-in-glass thermometer was partially shielded.

b. Dynamic tests

Dynamic tests were made on April 3 and 5. April 3 was a day with some thin high clouds through which the sun could shine, whereas April 5 was a day of clear skies and strong sun. The results for the liquid-in-glass thermometer measurements of April 3 are shown in Fig. 12. The figure presents the temperature difference between the car with the clear windshield and the car with the tinted windshield. The car windows and doors were closed at approximately 1320 and measurements were started at 1325. It was apparently difficult to keep the thermal histories of the cars closely the same, as car 1 (with the tinted windshield) was more than 1 °C warmer than car 2 near the start of the test. Travel was roughly southeast at approximately 80 km/hour. Within about 15 minutes, conditions reached a steady state with car 1 (tinted windshield) being about 0.5 °C cooler than car 2. At about 1440 the cars were stopped and windows and doors were opened. At about 1450 the test was resumed, with the cars travelling in the opposite direction (northwest) over the same road again at approximately 80 km/hour. Similar results were again obtained, the difference being independent of direction. However, the sun at that hour was positioned such that the cars were not driven directly toward or away from the sun.

The results for some of the thermocouple measurements of April 3 are shown in Fig. 13. Again the figure presents the temperature difference between the cars with the clear and tinted windshields. The symbol list is given in Table III. Instrument problems prevented taking thermocouple measurements after 1440. Most of the thermocouple measurements showed temperature differences that were small, typically about 1 °C. Some of the thermocouple positions indicated continually higher interior temperatures for the car with the tinted windshield; these thermocouples were positioned either near the floor or low in the car.

Thermocouple position 10 placed in the sun on top of the dash, exhibited large temperature differences of about 10 °C. A similar result was obtained for thermocouple position 8, on the seat of the car in the sun (see data in Appendix II), where a temperature difference of approximately 5 °C was exhibited.

The complete data are listed in the Appendices. The outside air temperature as measured by the two thermocouples outside the cars is given as an average in Appendix II under the column "Outside Air", and listed for each thermocouple outside of the cars in Appendix III under the columns for thermocouple 11.

The results for the liquid-in-glass thermometer measurements of April 5 are shown in Fig. 14, which presents the temperature differences. The direction of travel was generally east at approximately 80 km/hour. The position of the sun relative to the cars was approximately the same as on April 3. The temperature differences on April 5 were a little larger than on April 3, car 2 (with the tinted windshield) being about 1.5 °C cooler than car 1. Some of the peaks in the data were a result of being stopped on the highway by road repair crews.

The results for some of the thermocouple measurements of April 5 are shown in Fig. 15. The temperatures at all thermocouple positions were lower in the tinted car. Typical temperature differences were 2 to 5 °C. Thermocouple position 10, in the sun, again showed a large temperature difference, about 12 °C.

c. Discussion

The interior air temperature differences measured in the dynamic tests are generally less than those for the static tests. This is largely a result of air leaks into the car at high speed tending to diminish the interior to exterior air temperature difference. Opening one vent at 80 km/hour was enough to reduce the inside air temperature by 5 °C.

These measurements indicate interior air temperature differences only. They do not necessarily reflect the effect of the physiological discomfort felt by the human body that is struck by sunlight through either a tinted or clear windshield.

Summary

In almost all cases, the interior temperatures measured in the car with the tinted windshield were lower than that for the car with the clear windshield. Negligible changes occurred with interchanging the windshields between the cars. In the static tests, the differences in the interior air temperature of the two cars as determined by the liquid-in-glass thermometers were 2 to 3 °C. In the dynamic tests these differences were smaller, typically 0.5 to 1.5 °C, and probably were less than in the

static tests because of air leaks into the car.

The interior temperature differences determined from thermocouples placed in various positions depended upon the thermocouple position. For those thermocouples positioned in air and out of direct sunlight, the temperature difference varied from a negligible amount (less than 1 °C) to about 6 °C in the static tests and to about (typically) 4 °C in the dynamic tests. Those thermocouples positioned in the sun exhibited larger differences, typically 5 to 8 °C on the car seat, and up to 16 °C on top of the dash near the windshield.

List of Figures

Fig. 12 Difference in the interior air temperature of the cars during the dynamic test of 4/3/74 as determined by the liquid-in-glass thermometers.

Fig. 13 Difference in the interior air temperature of the cars during the dynamic test of 4/3/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

Fig. 14 Difference in the interior air temperature of the cars during the dynamic test of 4/5/74 as determined by the liquid-in-glass thermometers.

Fig. 15 Difference in the interior air temperature of the cars during the dynamic test of 4/5/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

Table I

Glass Numbers

Location	Glass Number
Tinted Windshield	PPG Sunshade Solex Duplate, Laminated Safety Float ASI M30 153 DOT 18
Clear Windshield	PPG Duplate, Laminated Safety Float ASI M25 153 DOT 18
	Car 1
Right front and rear doors, Left front door	Guardian Safety Float Tint, Solid Tempered AS-2-72 66-M87 DOT-22
Left rear door	PPG Solex Herculite Solid Tempered Safety Float AS2 M27-6 26 92 DOT 18
Rear window	PPG Solex Herculite Solid Tempered Safety Float AS2-M27-8 26 23 DOT 18
	Car 2
Right front and left front doors	Guardian Safety Float Tint, Solid Tempered AS-2-72 66-M87 DOT 22
Right rear door	PPG Solex Herculite Solid Tempered Safety Float AS2 M27-6 26 82 DOT 18
Left rear door	PPG Solex Herculite Solid Tempered Safety Float AS2 M27.6 26 92 DOT 18
Rear window	PPG Solex Herculite Solid Tempered Safety Float AS2 M27.8 26 23 DOT 18

Table II

Thermocouple Installation Positions

Thermocouple Position	Measuring Junction Location
1	Near the top of the liquid-in-glass thermometer, 15 cm from the roof.
2	Approximately midway between the floor and the roof, below thermocouple position 1, 60 cm from the roof.
3	3 cm above the floor, below thermocouple position 1.
4	In front of the front seat, 5 cm from the roof.
5	1 cm off the front of the dash opposite the front edge of the front seat, 36 cm above the floor.
6	5 cm above the floor, under the dash.
7	3 cm above the back rest of the back seat, 36 cm from the roof.
8	On the middle of the cushion of the front seat on the passenger side, 15 cm back from the front edge of the seat. This thermocouple was in the sun during mid-day when the cars were parked facing south. The measuring junction was in contact with the seat fabric.
9	Below the front edge of the front seat, 3 cm above the floor.
10	In contact with the top of the dash in the sun, 8 cm back from the bottom of the windshield.
11	Measured the outside air temperature underneath the car, 30 cm above the ground.
12	No thermocouple--the lead wires were shorted together in the ice bath.

Table III

Symbol List for the Graphs of the Thermocouple Data

Symbol	Thermocouple Number
Square	1
Circle	2
Triangle	3
Plus sign	5
X	7
Diamond shape	10

References

1. Nat. Bur. Stand. (U.S.), Monograph 125, 410 pages (March 1974).

2. International Practical Temperature Scale of 1968, Metrologia 5, 35 (1969).

Fig. 1 Vehicles in position for the static tests.

Fig. 2 Mounting of a liquid-in-glass thermometer inside of a test car.

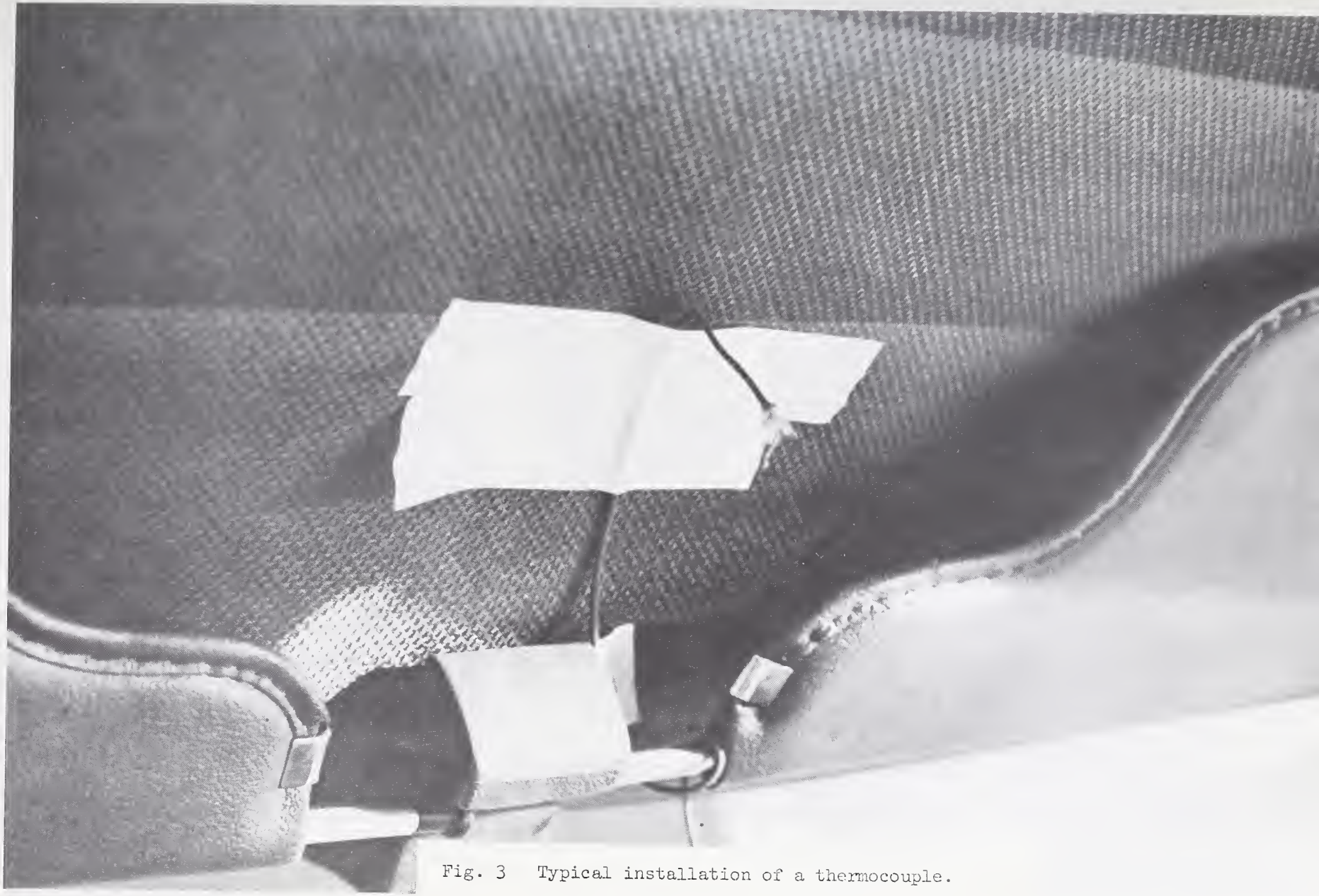

Fig. 3 Typical installation of a thermocouple.

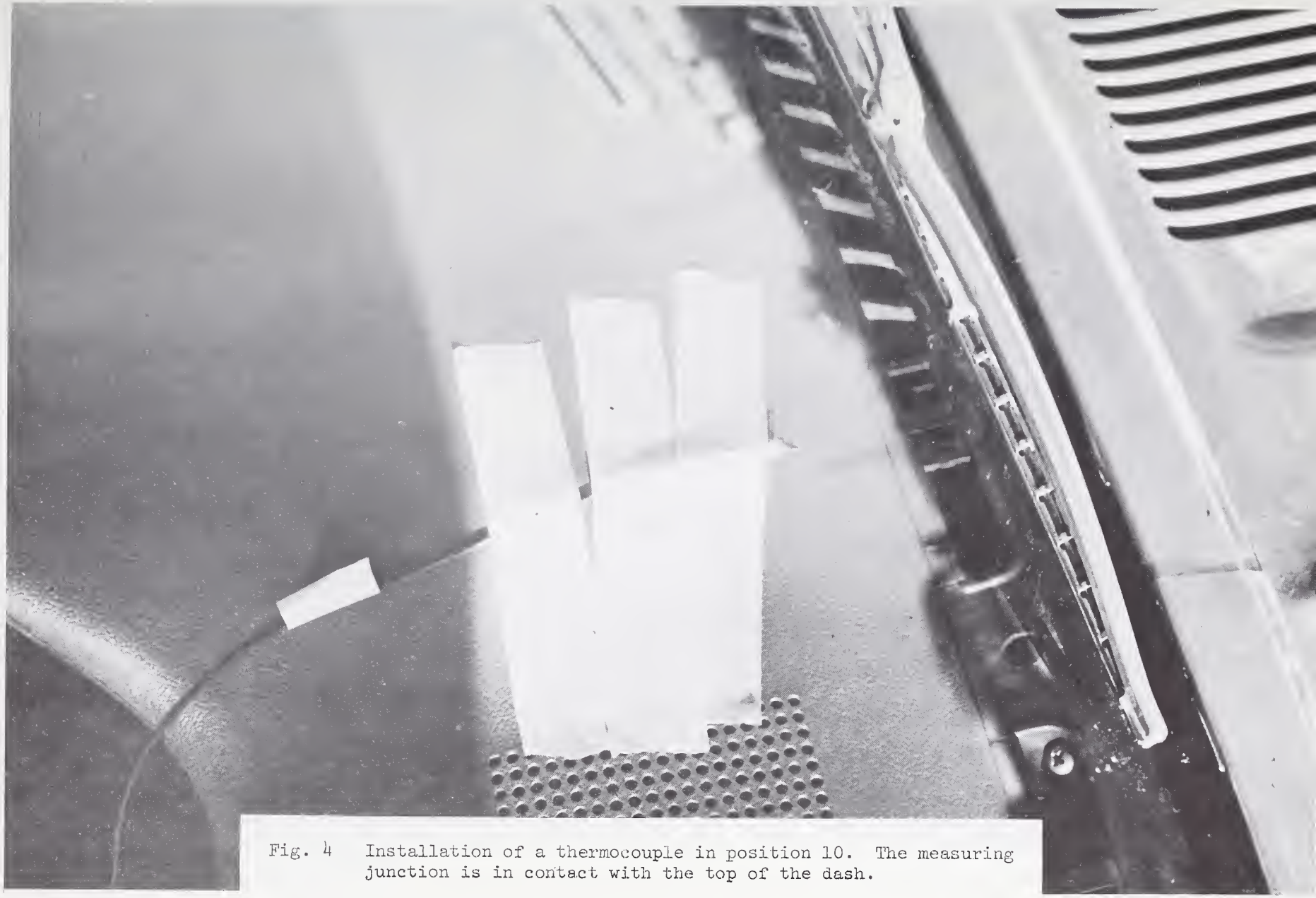

Fig. 4 Installation of a thermocouple in position 10. The measuring junction is in contact with the top of the dash.

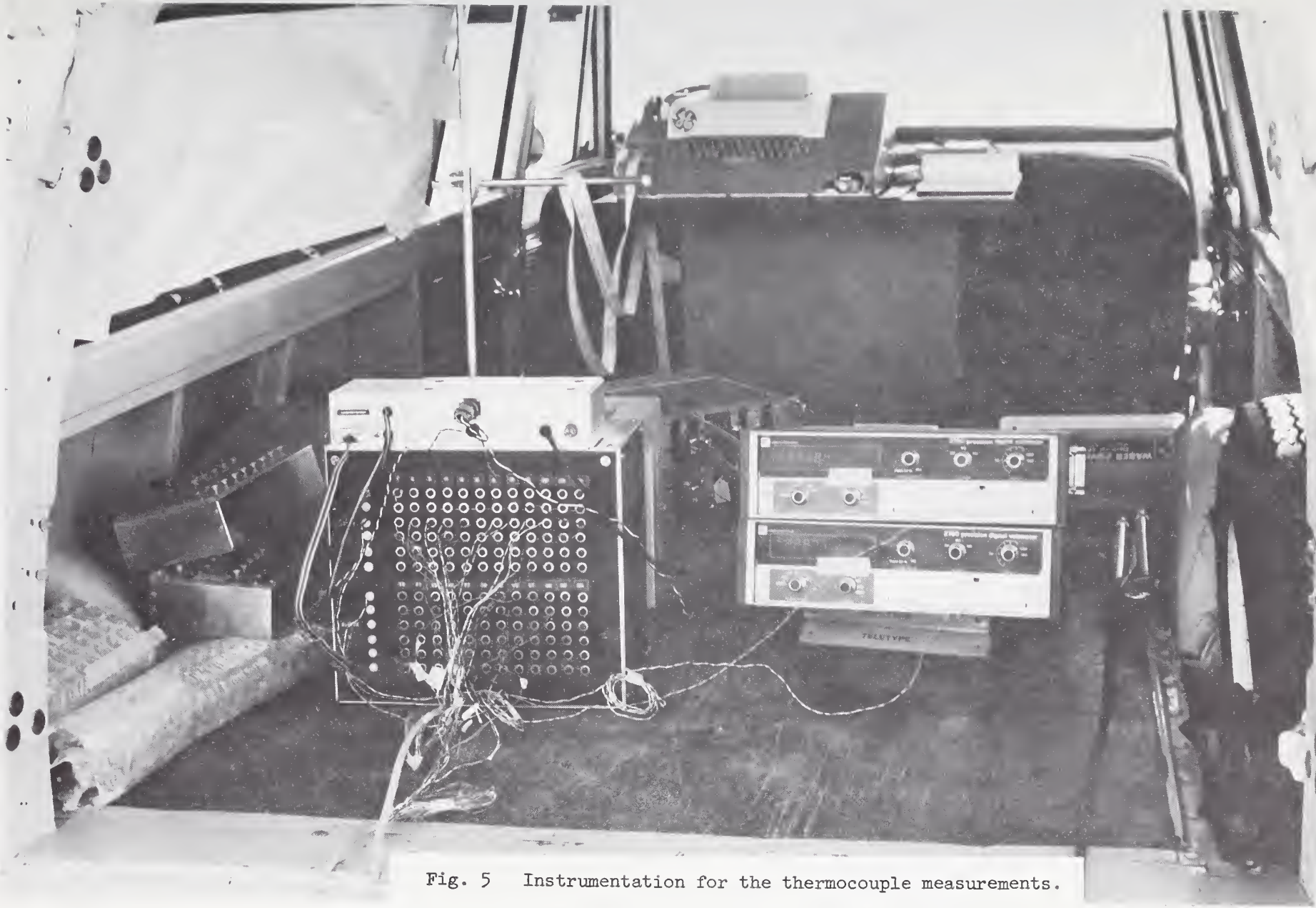

Fig. 5 Instrumentation for the thermocouple measurements.

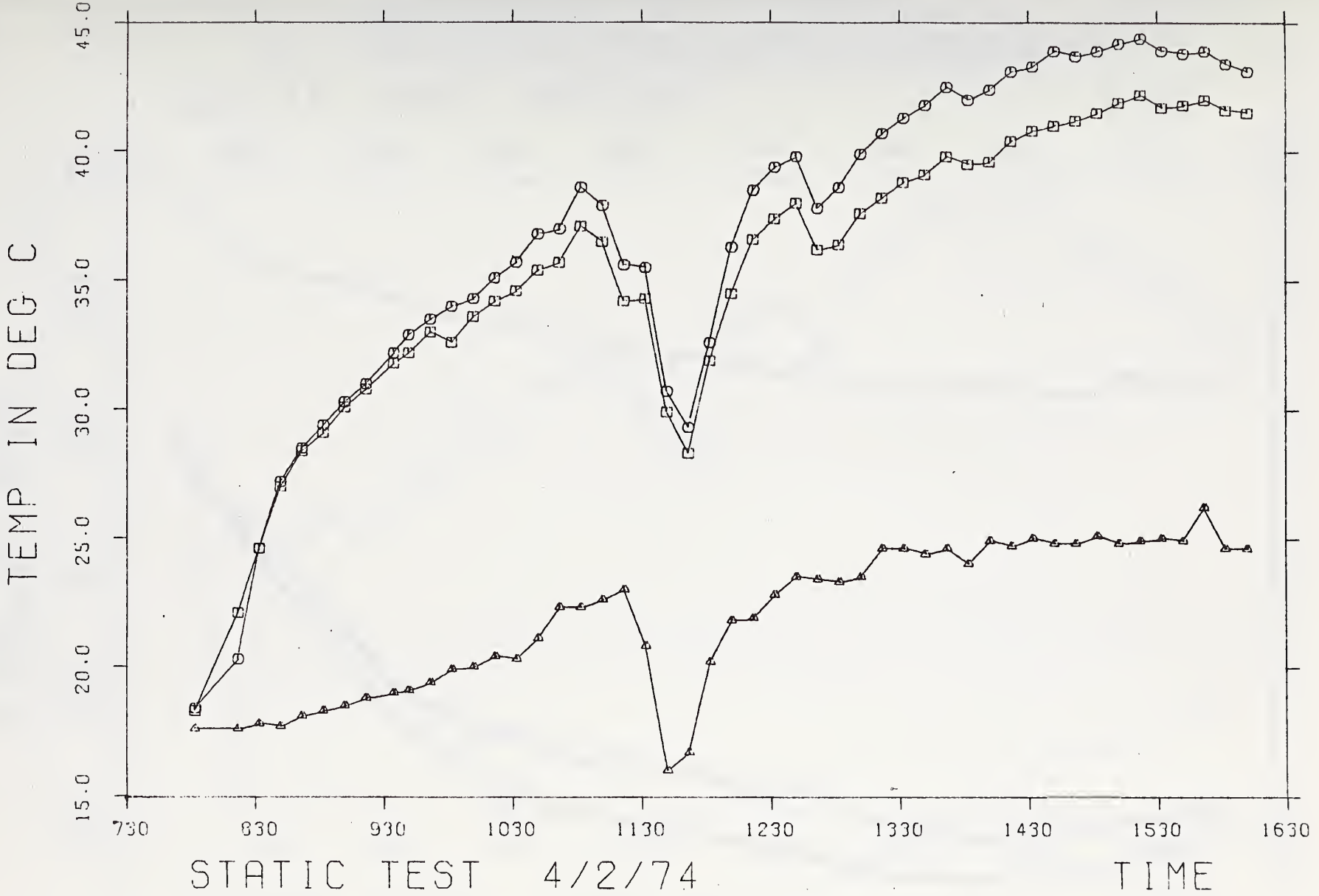

Fig. 6 Temperatures during the static test of 4/2/74 as determined by the liquid-in-glass thermometers. Symbols: Circle for car 1 with the clear windshield; square for car 2 with the tinted windshield; triangle for the outside air temperature.

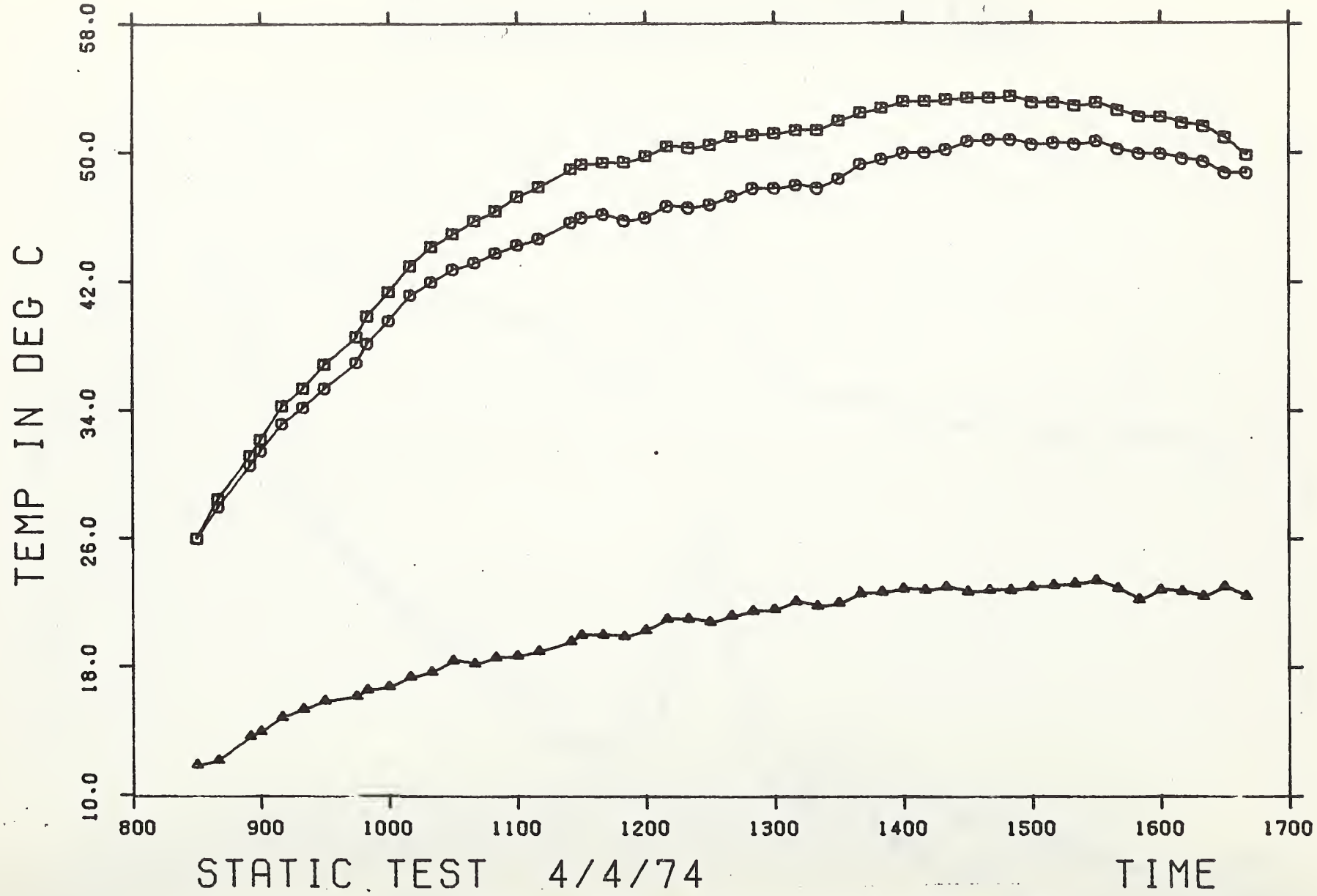

Fig. 7 Temperatures during the static test of 4/4/74 as determined by the liquid-in-glass thermometers. Symbols: Circle for car 1 with tinted windshield; square for car 2 with the clear windshield; triangle for the outside air temperature.

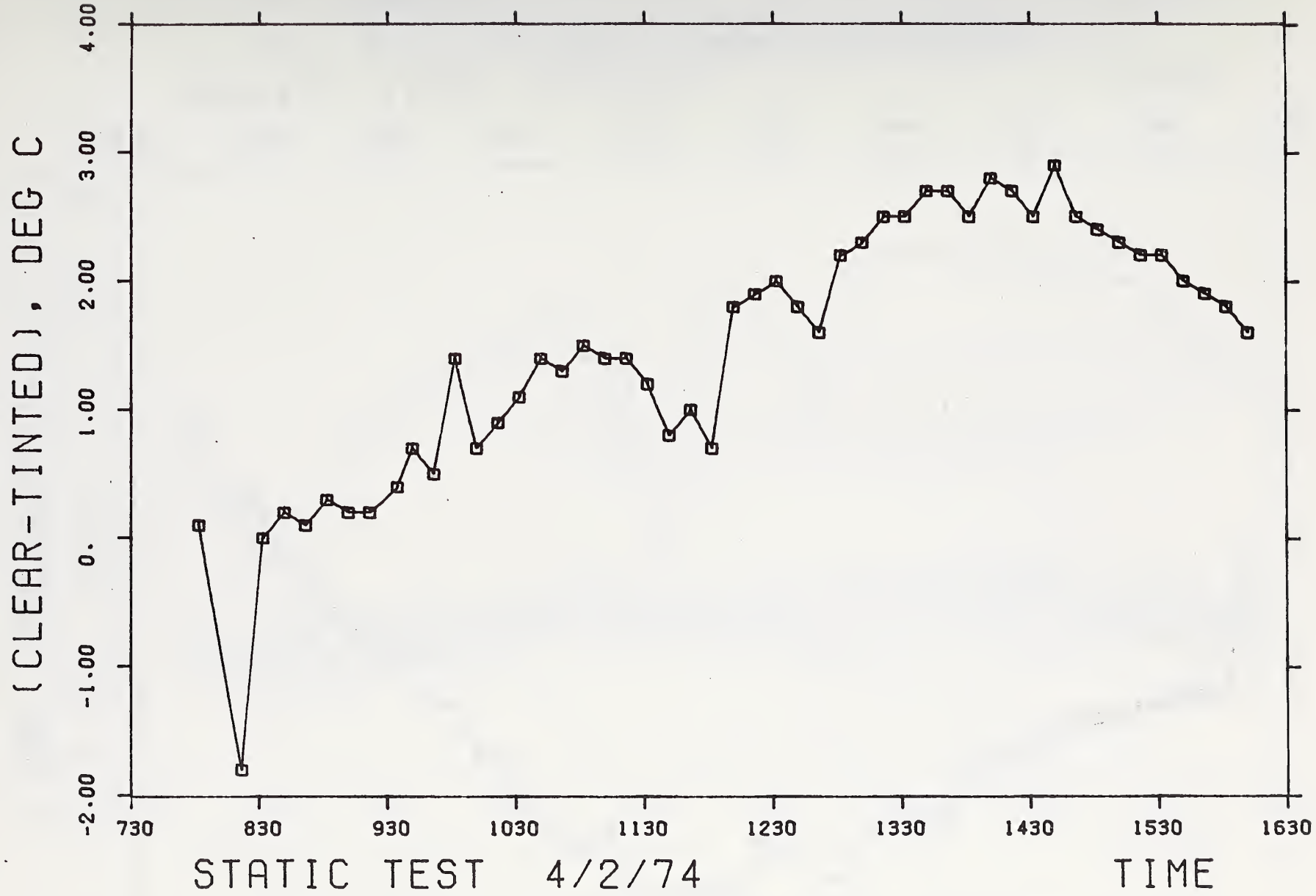

Fig. 8 Difference in the interior air temperature of the cars during the static test of 4/2/74 as determined by the liquid-in-glass thermometers.

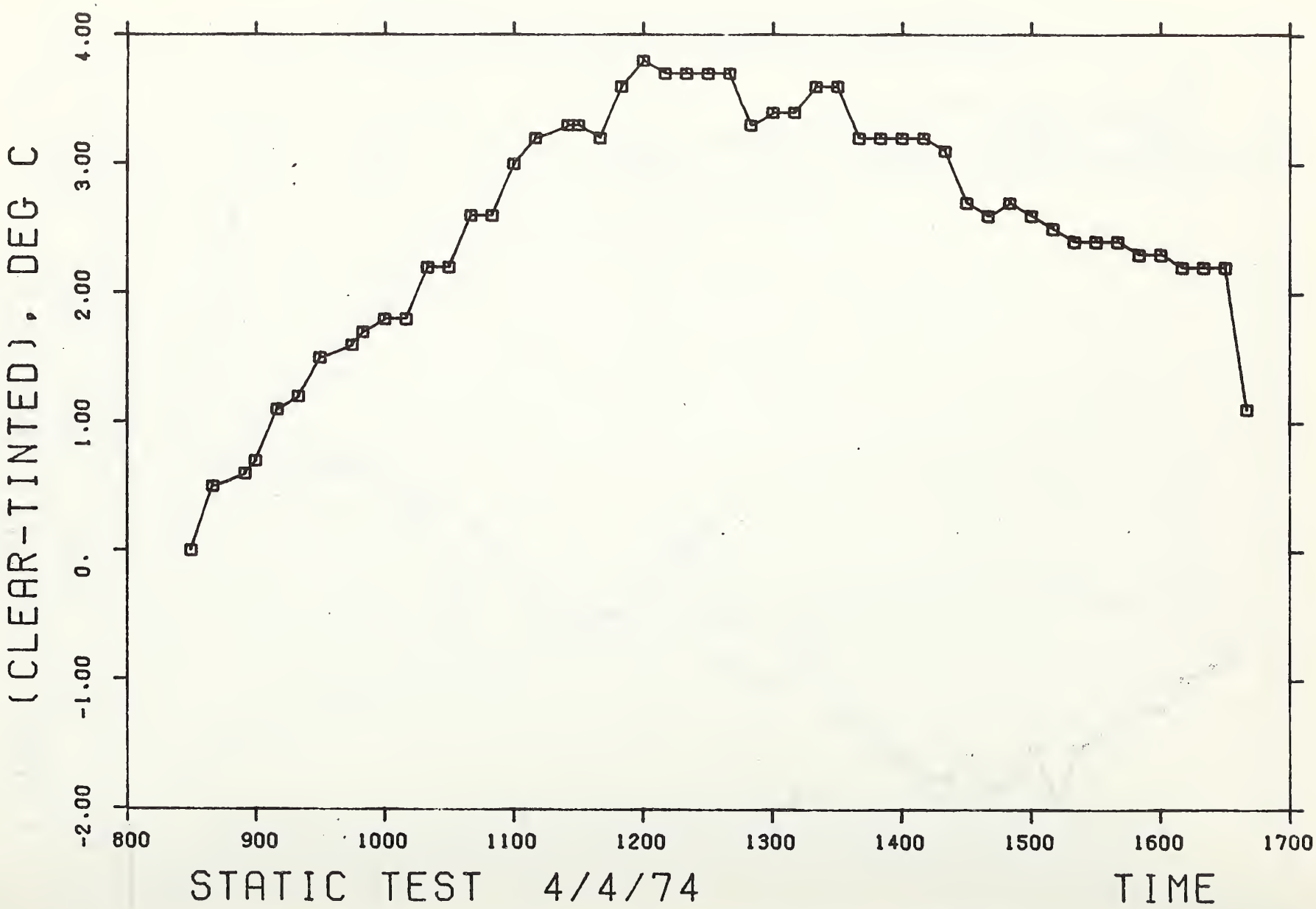

Fig. 9 Difference in the interior air temperature of the cars during the static test of 4/4/74 as determined by the liquid-in-glass thermometers.

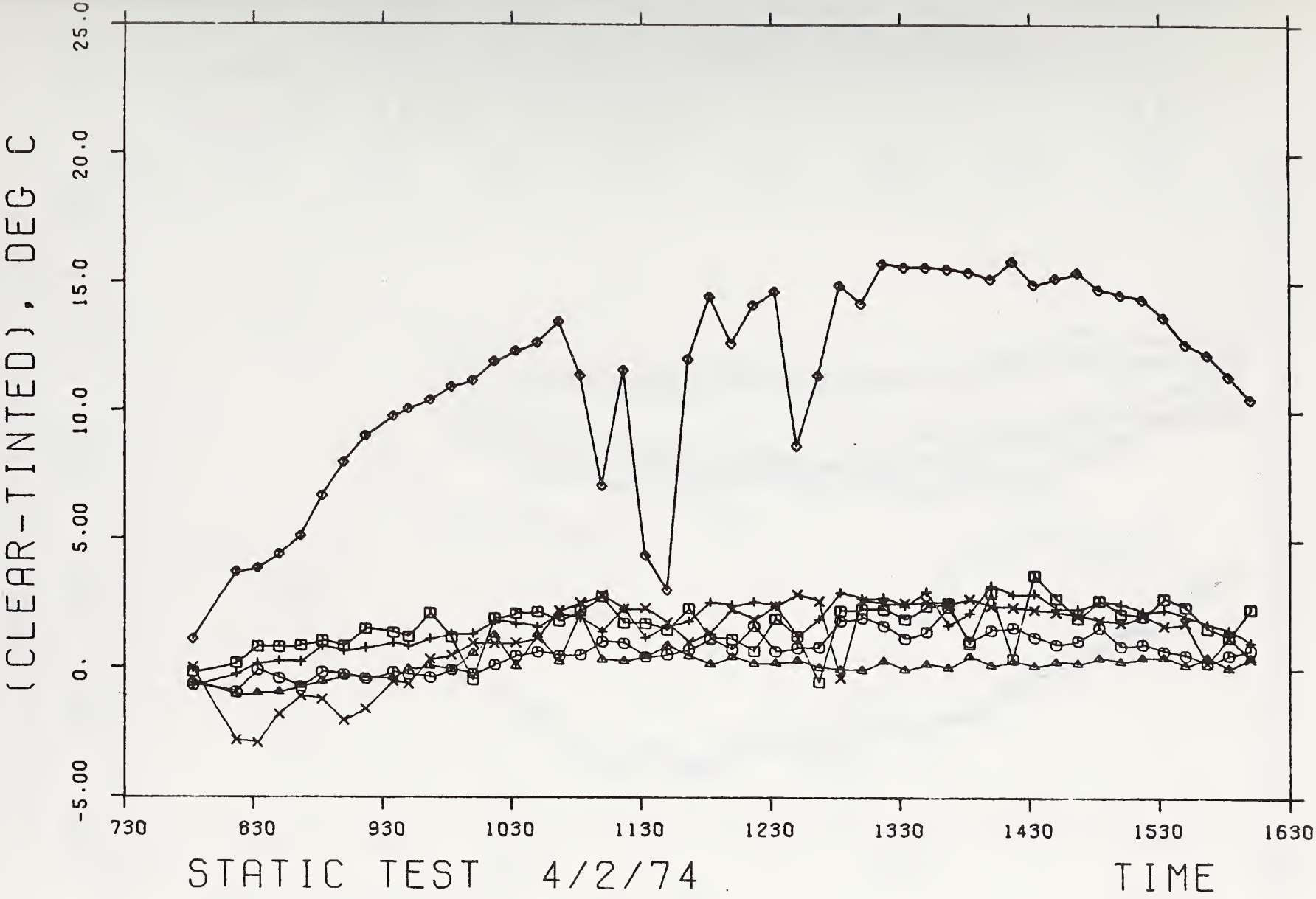

Fig. 10 Difference in the interior air temperature of the cars during the static test of 4/2/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

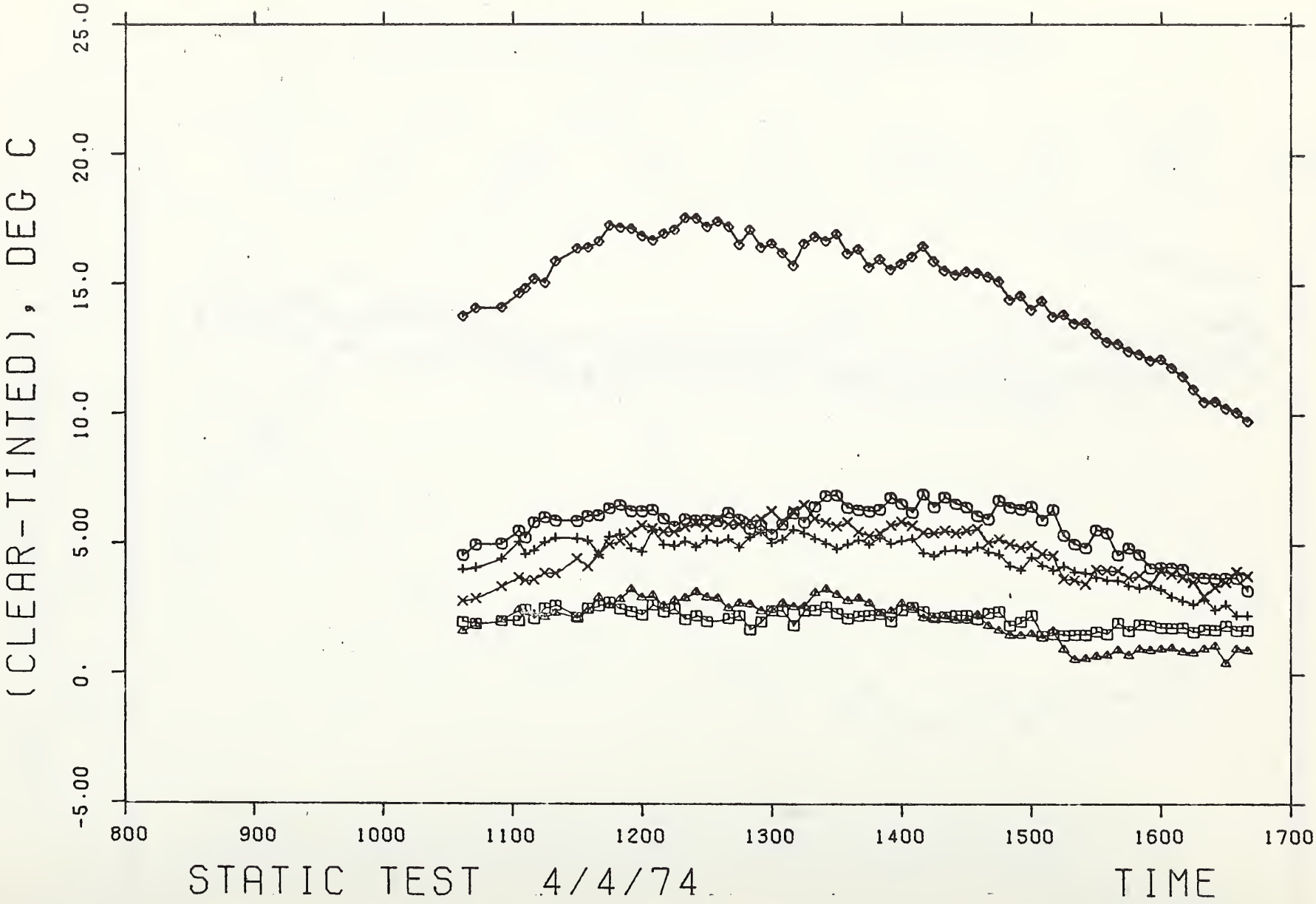

Fig. 11 Difference in the interior air temperature of the cars during the static test of 4/4/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

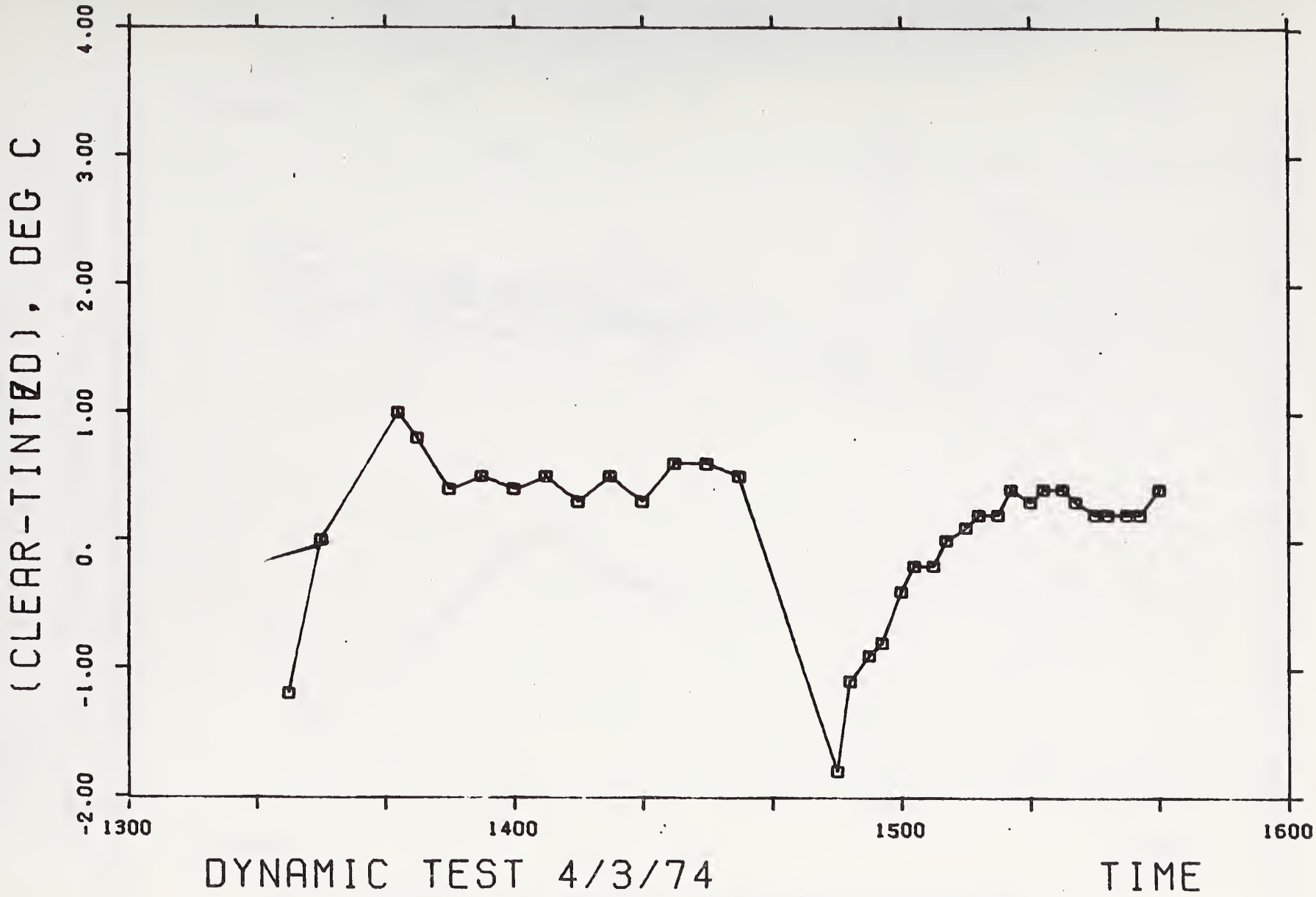

Fig. 12 Difference in the interior air temperature of the cars during the dynamic test of 4/3/74 as determined by the liquid-in-glass thermometers.

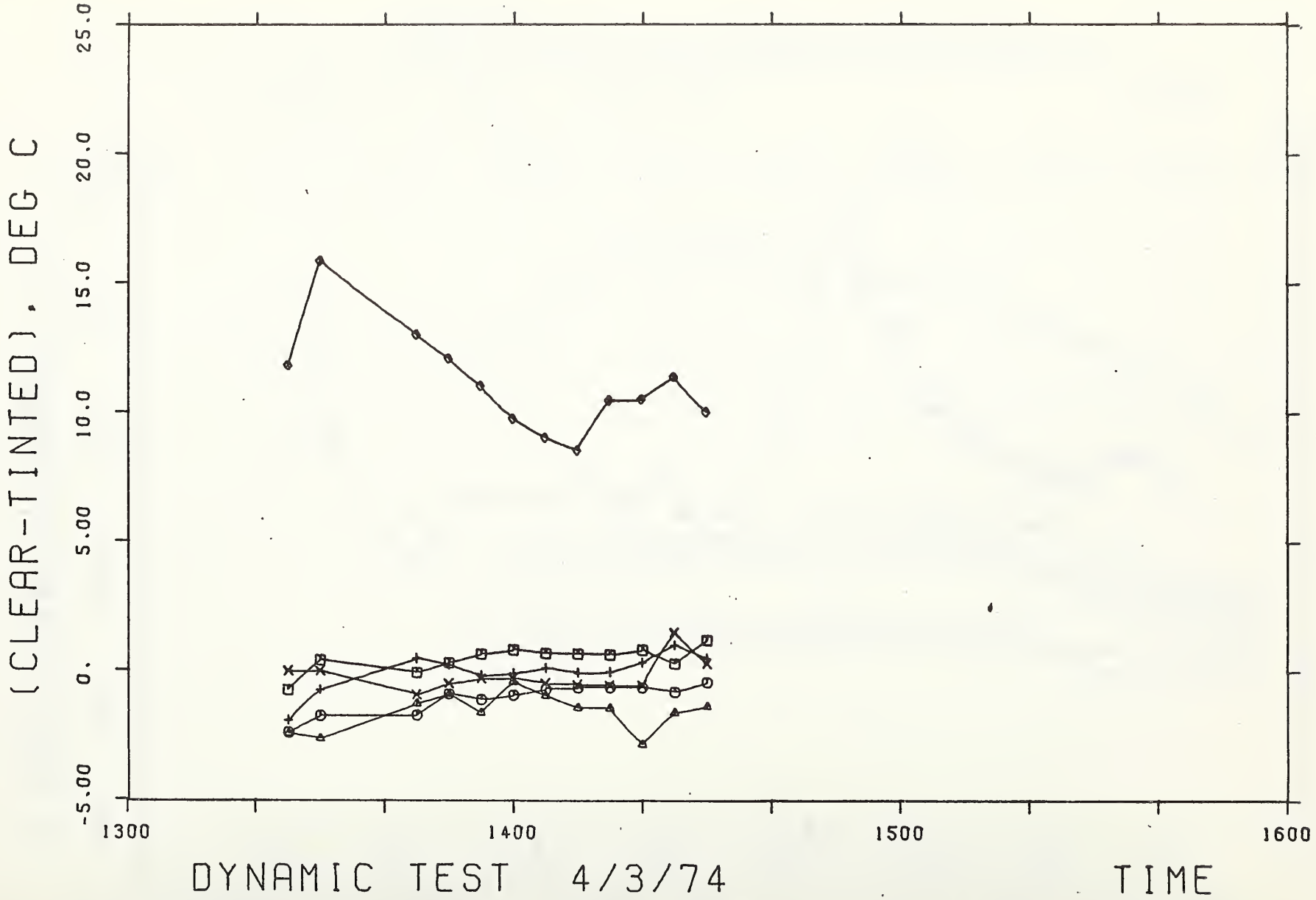

Fig. 13 Difference in the interior air temperature of the cars during the dynamic test of 4/3/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

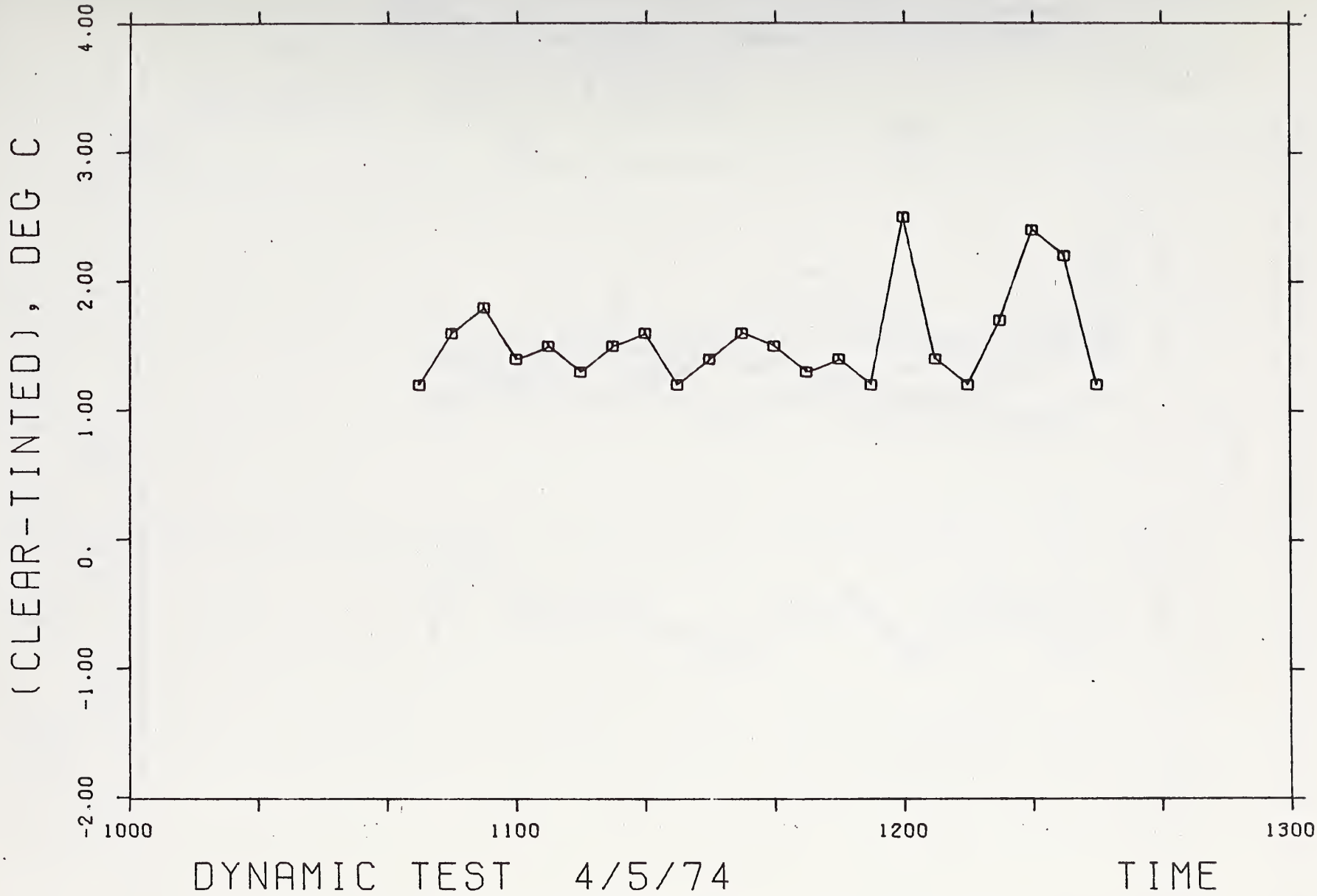

Fig. 14 Difference in the interior air temperature of the cars during the dynamic test of 4/5/74 as determined by the liquid-in-glass thermometers.

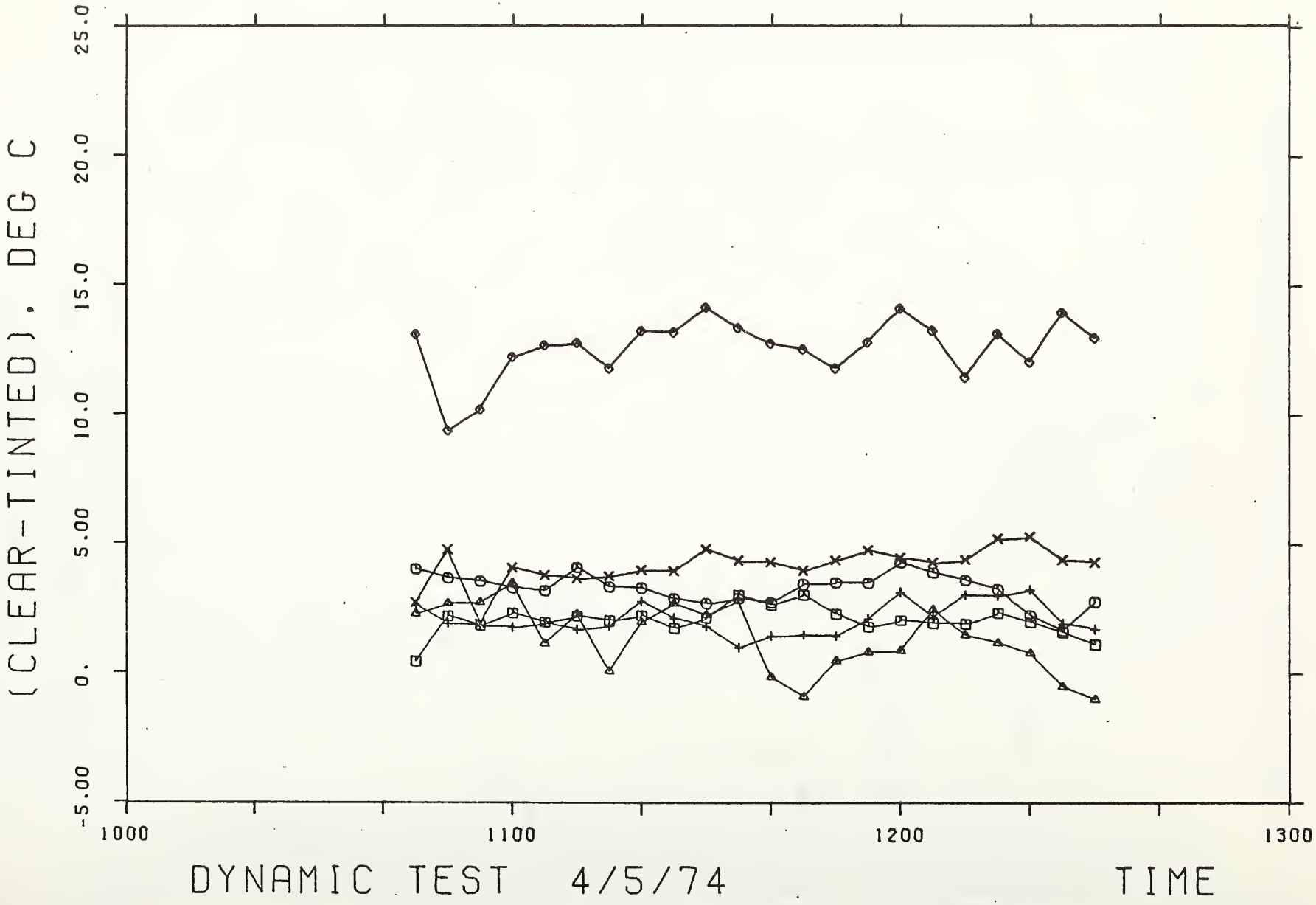

Fig. 15 Difference in the interior air temperature of the cars during the dynamic test of 4/5/74 as determined at several thermocouple positions. The symbol list for the thermocouples is given in Table III.

Appendix I

Temperature Measurements for the Static and Dynamic Tests Determined with the Liquid-in-Glass Thermometers.

OMNITAB PROGCARS4 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	CAR 1	CAR 2	OUTSIDE AIR	DIFFERENCE
750.0	18.3	18.4	17.6	-.1
810.0	22.1	20.3	17.6	1.8
820.0	24.6	24.6	17.8	.0
830.0	27.0	27.2	17.7	-.2
840.0	28.4	28.5	18.1	-.1
850.0	29.1	29.4	18.3	-.3
900.0	30.1	30.3	18.5	-.2
910.0	30.8	31.0	18.8	-.2
923.0	31.8	32.2	19.0	-.4
930.0	32.2	32.9	19.1	-.7
940.0	33.0	33.5	19.4	-.5
950.0	32.6	34.0	19.9	-1.4
1000.0	33.6	34.3	20.0	-.7
1010.0	34.2	35.1	20.4	-.9
1020.0	34.6	35.7	20.3	-1.1
1030.0	35.4	36.8	21.1	-1.4
1040.0	35.7	37.0	22.3	-1.3
1050.0	37.1	38.6	22.3	-1.5
1100.0	36.5	37.9	22.6	-1.4
1110.0	34.2	35.6	23.0	-1.4
1120.0	34.3	35.5	20.8	-1.2
1130.0	29.9	30.7	16.0	-.8
1140.0	28.3	29.3	16.7	-1.0
1150.0	31.9	32.6	20.2	-.7
1200.0	34.5	36.3	21.8	-1.8
1210.0	36.6	38.5	21.9	-1.9
1220.0	37.4	39.4	22.8	-2.0
1230.0	38.0	39.8	23.5	-1.8
1240.0	36.2	37.8	23.4	-1.6
1250.0	36.4	38.6	23.3	-2.2
1300.0	37.6	39.9	23.5	-2.3
1310.0	38.2	40.7	24.6	-2.5
1320.0	38.8	41.3	24.6	-2.5
1330.0	39.1	41.8	24.4	-2.7
1340.0	39.8	42.5	24.6	-2.7
1350.0	39.5	42.0	24.0	-2.5
1400.0	39.6	42.4	24.9	-2.8
1410.0	40.4	43.1	24.7	-2.7
1420.0	40.8	43.3	25.0	-2.5
1430.0	41.0	43.9	24.8	-2.9
1440.0	41.2	43.7	24.8	-2.5
1450.0	41.5	43.9	25.1	-2.4
1500.0	41.9	44.2	24.8	-2.3
1510.0	42.2	44.4	24.9	-2.2
1520.0	41.7	43.9	25.0	-2.2
1530.0	41.8	43.8	24.9	-2.0
1540.0	42.0	43.9	26.2	-1.9
1550.0	41.6	43.4	24.6	-1.8
1600.0	41.5	43.1	24.6	-1.6

TEMPERATURES MEASURED WITH LIQUID-IN-GLASS THERMOMETERS

OMNITAB PROGCARS4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	CAR 1	CAR 2	OUTSIDE AIR	DIFFERENCE
830.0	26.0	26.0	11.9	.0
840.0	28.5	28.0	12.2	.5
855.0	31.2	30.6	13.7	.6
900.0	32.2	31.5	14.0	.7
910.0	34.3	33.2	14.9	1.1
920.0	35.4	34.2	15.4	1.2
930.0	36.9	35.4	15.9	1.5
945.0	38.6	37.0	16.2	1.6
950.0	39.9	38.2	16.6	1.7
1000.0	41.4	39.6	16.8	1.8
1010.0	43.0	41.2	17.4	1.8
1020.0	44.2	42.0	17.7	2.2
1030.0	45.0	42.8	18.4	2.2
1040.0	45.8	43.2	18.2	2.6
1050.0	46.4	43.8	18.6	2.6
1100.0	47.3	44.3	18.7	3.0
1110.0	47.9	44.7	19.0	3.2
1125.0	49.0	45.7	19.6	3.3
1130.0	49.3	46.0	20.0	3.3
1140.0	49.4	46.2	20.0	3.2
1150.0	49.4	45.8	19.9	3.6
1200.0	49.8	46.0	20.3	3.8
1210.0	50.4	46.7	21.0	3.7
1220.0	50.3	46.6	21.0	3.7
1230.0	50.5	46.8	20.8	3.7
1240.0	51.0	47.3	21.2	3.7
1250.0	51.1	47.8	21.5	3.3
1300.0	51.2	47.8	21.6	3.4
1310.0	51.4	48.0	22.1	3.4
1320.0	51.4	47.8	21.8	3.6
1330.0	52.0	48.4	22.0	3.6
1340.0	52.5	49.3	22.6	3.2
1350.0	52.8	49.6	22.7	3.2
1400.0	53.2	50.0	22.9	3.2
1410.0	53.2	50.0	22.8	3.2
1420.0	53.3	50.2	23.0	3.1
1430.0	53.4	50.7	22.7	2.7
1440.0	53.4	50.8	22.8	2.6
1450.0	53.5	50.8	22.8	2.7
1500.0	53.1	50.5	23.0	2.6
1510.0	53.1	50.6	23.1	2.5
1520.0	52.9	50.5	23.2	2.4
1530.0	53.1	50.7	23.4	2.4
1540.0	52.6	50.2	22.9	2.4
1550.0	52.2	49.9	22.2	2.3
1600.0	52.2	49.9	22.8	2.3
1610.0	51.8	49.6	22.7	2.2
1620.0	51.6	49.4	22.4	2.2
1630.0	50.9	48.7	23.0	2.2
1640.0	49.8	48.7	22.4	1.1

TEMPERATURES MEASURED WITH LIQUID-IN-GLASS THERMOMETERS

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	CAR 1	CAR 2	DIFFERENCE
1325.0	34.8	33.6	1.2
1330.0	35.2	35.2	.0
1342.0	29.8	30.8	-1.0
1345.0	33.4	34.2	-.8
1350.0	35.8	36.2	-.4
1355.0	36.1	36.6	-.5
1400.0	36.0	36.4	-.4
1405.0	35.8	36.3	-.5
1410.0	36.0	36.3	-.3
1415.0	35.9	36.4	-.5
1420.0	36.2	36.5	-.3
1425.0	36.8	37.4	-.6
1430.0	37.4	38.0	-.6
1435.0	36.7	37.2	-.5
1450.0	30.0	28.2	1.8
1452.0	31.6	30.5	1.1
1455.0	32.8	31.9	.9
1457.0	33.4	32.6	.8
1500.0	33.6	33.2	.4
1502.0	33.7	33.5	.2
1505.0	34.0	33.8	.2
1507.0	34.2	34.2	.0
1510.0	34.4	34.5	-.1
1512.0	34.4	34.6	-.2
1515.0	34.6	34.8	-.2
1517.0	34.6	35.0	-.4
1520.0	34.8	35.1	-.3
1522.0	34.8	35.2	-.4
1525.0	35.0	35.4	-.4
1527.0	35.3	35.6	-.3
1530.0	35.5	35.7	-.2
1532.0	35.5	35.7	-.2
1535.0	35.6	35.8	-.2
1537.0	35.8	36.0	-.2
1540.0	35.6	36.0	-.4

TEMPERATURES MEASURED WITH LIQUID-IN-GLASS THERMOMETERS

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	CAR 1	CAR 2	DIFFERENCE
1045.0	35.4	34.2	1.2
1050.0	37.8	36.2	1.6
1055.0	38.8	37.0	1.8
1100.0	39.2	37.8	1.4
1105.0	39.9	38.4	1.5
1110.0	40.4	38.7	1.7
1115.0	40.6	39.1	1.5
1120.0	40.8	39.2	1.6
1125.0	40.8	39.6	1.2
1130.0	40.8	39.4	1.4
1135.0	41.0	39.4	1.6
1140.0	40.9	39.4	1.5
1145.0	40.9	39.6	1.3
1150.0	41.6	40.2	1.4
1155.0	41.8	40.6	1.2
1200.0	42.4	39.9	2.5
1205.0	43.0	41.6	1.4
1210.0	42.8	41.6	1.2
1215.0	42.2	40.5	1.7
1220.0	42.0	39.6	2.4
1225.0	41.6	39.4	2.2
1230.0	40.2	39.0	1.2

TEMPERATURES MEASURED WITH LIQUID-IN-GLASS THERMOMETERS

Appendix II

Temperature Differences for the Static and Dynamic Tests Determined with the Thermocouples.

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 1	TC 2	TC 3
750.0	.2	.7	.5
810.0	-.2	1.0	1.1
820.0	-.8	.1	1.0
830.0	-.8	.4	1.0
840.0	-.9	.7	.7
850.0	-1.0	.2	.5
900.0	-.8	.3	.3
910.0	-1.5	.4	.4
923.0	-1.4	.2	.4
930.0	-1.2	.3	.0
940.0	-2.1	.4	-.0
950.0	-1.2	.1	.1
1000.0	.5	.2	-.6
1010.0	-1.9	-.1	-1.3
1020.0	-2.1	-.5	-.0
1030.0	-2.2	-.6	-1.3
1040.0	-1.8	-.5	-.2
1050.0	-2.2	-.5	-2.1
1100.0	-2.8	-1.0	-.3
1110.0	-1.7	-1.0	-.3
1120.0	-1.7	-.4	-.5
1130.0	-1.5	-.5	-.9
1140.0	-2.3	-.7	-.5
1150.0	-1.2	-1.1	-.2
1200.0	-1.1	-.7	-.4
1210.0	-.7	-1.7	-.2
1220.0	-1.9	-.7	-.2
1230.0	-1.3	-.8	-.3
1240.0	.5	-.8	-.0
1250.0	-2.2	-1.9	.0
1300.0	-2.3	-2.0	.1
1310.0	-2.3	-1.7	-.3
1320.0	-1.9	-1.2	.0
1330.0	-2.4	-1.4	-.2
1340.0	-2.5	-2.4	-.0
1350.0	-1.0	-1.1	-.5
1400.0	-3.0	-1.5	-.1
1410.0	-.4	-1.6	-.3
1420.0	-3.6	-1.2	-.1
1430.0	-2.7	-.9	-.3
1440.0	-2.0	-1.1	-.2
1450.0	-2.6	-1.6	-.4
1500.0	-2.1	-.9	-.3
1510.0	-2.0	-.9	-.4
1520.0	-2.7	-.7	-.4
1530.0	-2.4	-.5	-.1
1540.0	-1.5	-.2	-.4
1550.0	-1.2	-.5	-.0
1600.0	-2.3	-.8	-.4

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 4	TC 5	TC 6
750.0	.3	.7	.4
810.0	-.5	.2	.9
820.0	-.6	-.2	.8
830.0	-.5	-.3	.7
840.0	-.8	-.2	.7
850.0	-.6	-.8	.4
900.0	-.8	-.6	.4
910.0	-1.1	-.8	.5
923.0	-1.5	-1.0	.4
930.0	-1.7	-.8	.5
940.0	-1.8	-1.1	.1
950.0	-1.8	-1.3	.1
1000.0	-1.8	-1.3	[redacted]
1010.0	-2.2	-1.8	-3.0
1020.0	-2.2	-1.7	-1.9
1030.0	-2.3	-1.6	-5.7
1040.0	-2.7	-2.1	-1.7
1050.0	-1.9	-1.9	-.9
1100.0	-2.7	-1.4	-1.1
1110.0	-3.2	-2.3	-.7
1120.0	-1.6	-1.2	-.7
1130.0	-1.4	-1.6	-.5
1140.0	-3.1	-1.8	-.5
1150.0	-3.0	-2.6	-.4
1200.0	-2.2	-2.5	-.5
1210.0	-2.9	-2.6	-1.0
1220.0	-3.4	-2.4	-1.0
1230.0	-2.7	-1.3	-1.6
1240.0	-3.0	-1.9	-.8
1250.0	-4.5	-2.9	-.7
1300.0	-3.9	-2.7	-.8
1310.0	-4.0	-2.8	-1.8
1320.0	-2.6	-2.4	-1.8
1330.0	-3.0	-3.0	-1.0
1340.0	-4.3	-1.7	-.9
1350.0	-3.9	-2.2	-1.5
1400.0	-3.7	-3.2	-.7
1410.0	-2.0	-2.9	-.9
1420.0	-3.6	-2.9	-.7
1430.0	-2.6	-2.3	-.6
1440.0	-2.6	-2.3	-.5
1450.0	-3.3	-2.6	-.7
1500.0	-2.5	-2.5	-.6
1510.0	-2.1	-2.2	-.8
1520.0	-3.3	-2.3	-.5
1530.0	-2.5	-2.0	-.8
1540.0	-2.2	-1.7	-.5
1550.0	-2.7	-1.5	-.7
1600.0	-1.7	-1.0	-.6

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 7	TC 8	TC 9
750.0	.0	-.6	.8
810.0	2.8	-1.5	.8
820.0	2.9	-2.9	.7
830.0	1.8	-3.0	.8
840.0	1.1	-3.6	.8
850.0	1.2	-5.6	.7
900.0	2.1	-5.0	.4
910.0	1.6	-1.4	.6
923.0	.5	-2.0	.6
930.0	.6	-2.3	.4
940.0	-.3	-3.8	.4
950.0	-.5	-4.1	.1
1000.0	-1.0	-5.6	.4
1010.0	-.9	-4.5	.3
1020.0	-1.0	-5.3	-.1
1030.0	-1.2	-6.9	-.2
1040.0	-2.2	-6.0	-.3
1050.0	-2.5	-5.6	-.4
1100.0	-2.8	-3.9	-.1
1110.0	-2.3	-6.5	-.5
1120.0	-2.3	-3.8	-.2
1130.0	-1.8	-2.9	-.1
1140.0	-1.0	-5.4	-.2
1150.0	-1.4	-6.5	-.2
1200.0	-2.3	-5.3	-.3
1210.0	-1.9	-5.4	-.2
1220.0	-2.4	-5.7	.2
1230.0	-2.9	-.8	-.1
1240.0	-2.6	-4.4	-.3
1250.0	.4	-4.7	-.3
1300.0	-2.6	-6.2	-.3
1310.0	-2.5	-5.5	-.3
1320.0	-2.6	-5.8	-.5
1330.0	-2.6	-5.9	-.5
1340.0	-2.5	7.1	-.6
1350.0	-2.7	-4.9	-.6
1400.0	-2.4	-4.9	-.6
1410.0	-2.4	-4.3	-.6
1420.0	-2.3	-5.0	-.9
1430.0	-2.2	-4.4	-.8
1440.0	-2.1	-4.3	-.7
1450.0	-1.9	-4.5	-.9
1500.0	-1.8	-3.8	-.8
1510.0	-2.1	-4.0	-.8
1520.0	-1.7	-4.1	-.9
1530.0	-1.8	-5.9	-.8
1540.0	-.2	-5.4	-.9
1550.0	-1.2	-4.7	-1.0
1600.0	-.4	-14.1	-.7

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 10	OUTSIDE AIR
750.0	-1.1	16.2
810.0	-3.7	17.6
820.0	-3.9	17.5
830.0	-4.4	18.1
840.0	-5.1	18.4
850.0	-6.7	18.6
900.0	-8.0	18.7
910.0	-9.0	19.0
923.0	-9.8	19.2
930.0	-10.1	19.5
940.0	-10.4	19.8
950.0	-10.9	20.1
1000.0	-11.2	20.6
1010.0	-11.9	20.2
1020.0	-12.3	20.7
1030.0	-12.7	21.7
1040.0	-13.5	21.4
1050.0	-11.4	21.2
1100.0	-7.1	20.9
1110.0	-11.6	22.4
1120.0	-4.4	19.1
1130.0	-3.0	16.2
1140.0	-12.0	17.8
1150.0	-14.4	19.5
1200.0	-12.6	20.2
1210.0	-14.1	22.1
1220.0	-14.7	22.7
1230.0	-8.6	22.1
1240.0	-11.4	22.9
1250.0	-14.9	23.5
1300.0	-14.2	23.6
1310.0	-15.7	24.9
1320.0	-15.6	23.4
1330.0	-15.6	24.8
1340.0	-15.5	25.0
1350.0	-15.4	24.2
1400.0	-15.1	25.0
1410.0	-15.8	25.2
1420.0	-14.9	24.4
1430.0	-15.2	25.0
1440.0	-15.4	26.0
1450.0	-14.7	27.1
1500.0	-14.5	24.9
1510.0	-14.3	25.6
1520.0	-13.6	25.4
1530.0	-12.6	26.3
1540.0	-12.2	25.9
1550.0	-11.4	25.4
1600.0	-10.5	25.7

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 1	TC 2	TC 3
1037.0	2.0	4.6	1.6
1043.0	1.9	5.0	1.9
1055.0	2.0	5.0	2.1
1103.0	2.0	5.5	2.5
1106.0	2.5	5.2	2.3
1110.0	2.1	5.8	2.3
1115.0	2.5	6.0	2.2
1120.0	2.6	5.9	2.3
1130.0	2.2	5.9	2.1
1135.0	2.5	6.1	2.4
1140.0	2.6	6.1	2.9
1145.0	2.8	6.4	2.6
1150.0	2.5	6.5	2.9
1155.0	2.4	6.3	3.3
1200.0	2.3	6.3	2.9
1205.0	2.7	6.3	3.0
1210.0	2.4	6.0	2.6
1215.0	2.5	5.7	2.8
1220.0	2.1	6.0	2.9
1225.0	2.2	5.9	3.2
1230.0	2.0	5.9	2.9
1235.0	-8.3	5.9	2.9
1240.0	2.2	6.2	2.5
1245.0	2.3	6.0	2.7
1250.0	1.7	5.6	2.7
1255.0	2.0	5.7	2.4
1300.0	2.5	5.4	2.5
1305.0	2.4	5.8	2.7
1310.0	1.9	6.2	2.6
1315.0	2.4	5.8	2.6
1320.0	2.5	6.5	3.1
1325.0	2.6	6.9	3.3
1330.0	2.3	6.9	3.1
1335.0	2.2	6.4	2.8
1340.0	2.2	6.3	2.9
1345.0	2.3	6.3	2.7
1350.0	2.3	6.3	2.3
1355.0	2.0	6.8	2.4
1400.0	2.5	6.6	2.7
1405.0	2.6	6.2	2.6
1410.0	2.4	6.9	2.2
1415.0	2.2	6.4	2.2
1420.0	2.2	6.8	2.2
1425.0	2.3	6.6	2.1
1430.0	2.3	6.4	2.1
1435.0	2.1	6.1	2.3
1440.0	2.4	6.0	1.9
1445.0	2.4	6.7	1.7
1450.0	1.9	6.4	1.5
1455.0	2.0	6.3	1.5

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 1	TC 2	TC 3
1500.0	2.3	6.5	1.6
1505.0	1.5	5.9	1.4
1510.0	1.6	6.3	1.7
1515.0	1.5	5.3	1.0
1520.0	1.5	5.0	.6
1525.0	1.5	4.9	.6
1530.0	1.7	5.6	.7
1535.0	1.5	5.4	.7
1540.0	2.0	4.6	.9
1545.0	1.7	4.9	.7
1550.0	1.9	4.6	1.0
1555.0	1.9	4.1	.9
1600.0	1.8	4.1	1.0
1605.0	1.8	4.1	1.0
1610.0	1.8	4.0	.9
1615.0	1.6	3.7	.8
1620.0	1.7	3.7	1.0
1625.0	1.7	3.7	1.1
1630.0	1.9	3.7	.4
1635.0	1.7	3.7	1.0
1640.0	1.7	3.2	.9

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 4	TC 5	TC 6
1037.0	1.2	4.0	2.1
1043.0	1.7	4.1	2.1
1055.0	1.9	4.4	2.4
1103.0	1.4	5.1	2.5
1106.0	1.8	4.6	2.1
1110.0	1.6	4.8	2.3
1115.0	1.9	5.1	2.2
1120.0	1.9	5.2	2.4
1130.0	1.6	5.2	2.4
1135.0	2.4	5.1	2.3
1140.0	2.7	4.6	2.2
1145.0	3.2	5.3	2.2
1150.0	2.7	5.4	2.3
1155.0	2.8	4.9	2.8
1200.0	2.9	4.7	2.9
1205.0	2.6	5.5	2.4
1210.0	3.3	5.0	2.8
1215.0	3.1	5.0	2.4
1220.0	3.5	5.1	2.9
1225.0	3.2	4.9	2.7
1230.0	3.8	5.2	2.5
1235.0	2.5	5.1	2.5
1240.0	3.5	5.2	2.6
1245.0	3.7	4.9	2.7
1250.0	1.9	5.3	2.8
1255.0	2.8	5.5	2.9
1300.0	3.2	5.1	2.9
1305.0	3.9	5.2	2.9
1310.0	3.1	5.6	3.2
1315.0	3.3	5.5	3.3
1320.0	3.6	5.2	3.0
1325.0	3.8	5.1	2.8
1330.0	3.5	4.8	2.9
1335.0	3.2	5.0	2.8
1340.0	3.4	5.2	2.8
1345.0	2.7	5.0	2.6
1350.0	3.0	5.3	2.7
1355.0	2.8	5.1	2.6
1400.0	3.3	5.2	2.8
1405.0	3.6	5.2	2.7
1410.0	3.1	4.7	2.3
1415.0	2.6	4.6	2.5
1420.0	3.8	4.8	2.4
1425.0	3.7	4.8	2.5
1430.0	3.0	4.7	2.6
1435.0	2.7	4.9	2.5
1440.0	3.4	4.7	2.4
1445.0	2.2	4.6	2.2
1450.0	2.8	4.2	2.1
1455.0	2.6	4.0	1.9

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 4	TC 5	TC 6
1500.0	2.4	4.5	1.9
1505.0	2.1	4.2	2.0
1510.0	2.2	4.0	1.8
1515.0	2.3	4.2	1.8
1520.0	2.4	4.0	1.8
1525.0	2.2	3.9	1.7
1530.0	2.2	3.8	1.6
1535.0	2.8	3.6	1.3
1540.0	2.5	3.6	1.6
1545.0	1.9	3.4	1.2
1550.0	2.2	3.3	1.4
1555.0	2.7	3.4	1.6
1600.0	2.9	3.3	1.3
1605.0	2.8	3.0	1.2
1610.0	2.7	2.8	1.2
1615.0	2.6	2.7	1.2
1620.0	2.4	2.9	1.3
1625.0	2.4	2.5	1.2
1630.0	2.2	2.7	1.0
1635.0	2.5	2.3	1.1
1640.0	2.5	2.3	1.0

OMNITAB PROGCAP4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 7	TC 8	TC 9
1037.0	2.8	1.8	2.0
1043.0	2.9	1.0	2.1
1055.0	3.4	3.8	2.4
1103.0	3.7	1.7	2.3
1106.0	3.6	3.4	2.3
1110.0	3.6	2.2	2.4
1115.0	3.9	.0	2.5
1120.0	3.9	1.1	2.4
1130.0	4.4	-1.2	2.7
1135.0	4.1	-2.4	2.4
1140.0	4.6	-2.3	2.6
1145.0	5.0	-2.0	2.6
1150.0	5.1	-3.1	2.8
1155.0	5.4	.2	2.7
1200.0	5.7	6.1	3.0
1205.0	5.6	2.6	2.8
1210.0	5.5	-3.6	2.7
1215.0	5.5	5.5	2.8
1220.0	5.7	4.7	2.8
1225.0	5.8	8.9	2.9
1230.0	5.7	5.2	2.7
1235.0	6.0	2.2	2.8
1240.0	5.8	2.8	2.5
1245.0	5.8	2.0	2.5
1250.0	5.9	1.6	2.4
1255.0	6.0	1.9	2.6
1300.0	6.3	5.0	2.7
1305.0	5.9	-3.0	2.6
1310.0	6.3	2.7	2.7
1315.0	6.5	.3	2.8
1320.0	6.0	-.2	2.6
1325.0	5.8	1.4	2.4
1330.0	5.7	1.4	2.3
1335.0	5.9	2.1	2.3
1340.0	5.5	4.3	2.2
1345.0	5.3	4.9	2.1
1350.0	5.4	7.1	2.0
1355.0	5.7	2.1	2.0
1400.0	5.9	8.9	2.0
1405.0	5.7	8.4	1.9
1410.0	5.5	8.7	1.9
1415.0	5.4	3.7	1.8
1420.0	5.5	12.0	1.8
1425.0	5.4	8.3	1.8
1430.0	5.5	5.2	1.7
1435.0	5.6	5.6	1.8
1440.0	5.1	2.2	1.7
1445.0	5.2	.9	1.8
1450.0	5.0	4.2	1.7
1455.0	4.9	3.3	1.7

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 7	TC 8	TC 9
1500.0	5.0	-1.8	1.6
1505.0	4.6	-4.8	1.6
1510.0	4.6	-.3	1.5
1515.0	3.7	3.2	1.4
1520.0	3.6	2.3	1.4
1525.0	3.5	-4.2	1.3
1530.0	4.0	4.3	1.2
1535.0	4.0	5.0	1.2
1540.0	4.0	5.6	1.2
1545.0	3.7	2.9	1.2
1550.0	3.8	2.7	1.3
1555.0	3.5	1.8	1.1
1600.0	4.0	-6.0	1.1
1605.0	3.8	-10.3	1.2
1610.0	3.7	-7.5	1.1
1615.0	3.6	-5.6	1.1
1620.0	3.0	-3.7	1.0
1625.0	3.3	5.6	.9
1630.0	3.6	5.5	1.0
1635.0	4.0	.3	1.0
1640.0	3.8	1.9	1.0

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 10	OUTSIDE AIR
1037.0	13.8	19.5
1043.0	14.1	20.2
1055.0	14.1	20.1
1103.0	14.7	21.3
1106.0	14.9	20.8
1110.0	15.2	20.9
1115.0	15.1	21.3
1120.0	15.9	21.6
1130.0	16.4	21.7
1135.0	16.4	22.1
1140.0	16.7	21.4
1145.0	17.3	22.5
1150.0	17.2	22.4
1155.0	17.1	22.5
1200.0	16.9	23.3
1205.0	16.7	23.8
1210.0	17.0	23.3
1215.0	17.1	23.4
1220.0	17.6	23.2
1225.0	17.6	22.9
1230.0	17.2	23.4
1235.0	17.4	24.5
1240.0	17.2	24.2
1245.0	16.5	24.2
1250.0	17.1	24.8
1255.0	16.4	24.9
1300.0	16.6	24.4
1305.0	16.2	24.6
1310.0	15.7	25.1
1315.0	16.6	24.4
1320.0	16.9	26.2
1325.0	16.7	24.9
1330.0	16.9	26.0
1335.0	16.2	25.3
1340.0	16.4	26.6
1345.0	15.7	26.1
1350.0	16.0	27.0
1355.0	15.6	26.8
1400.0	15.8	26.9
1405.0	16.1	26.3
1410.0	16.5	26.5
1415.0	15.9	27.0
1420.0	15.5	27.2
1425.0	15.4	27.5
1430.0	15.5	27.0
1435.0	15.5	27.8
1440.0	15.3	28.6
1445.0	15.1	26.3
1450.0	14.4	27.7
1455.0	14.6	28.3

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 10	OUTSIDE AIR
1500.0	14.0	28.5
1505.0	14.4	28.0
1510.0	13.8	28.4
1515.0	13.8	26.9
1520.0	13.5	28.0
1525.0	13.5	29.2
1530.0	13.1	27.3
1535.0	12.8	28.6
1540.0	12.7	28.6
1545.0	12.4	28.2
1550.0	12.3	29.2
1555.0	12.1	27.5
1600.0	12.1	28.3
1605.0	11.8	28.7
1610.0	11.5	28.9
1615.0	11.0	28.7
1620.0	10.5	29.0
1625.0	10.5	27.7
1630.0	10.2	27.4
1635.0	10.1	28.7
1640.0	9.7	29.5

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 1	TC 2	TC 3
1325.0	.7	2.4	2.4
1330.0	-.4	1.7	2.6
1345.0	.0	1.7	1.2
1350.0	-.3	.9	.9
1355.0	-.7	1.1	1.6
1400.0	-.8	.9	.4
1405.0	-.7	.7	1.0
1410.0	-.7	.6	1.4
1415.0	-.6	.6	1.5
1420.0	-.8	.6	2.8
1425.0	-.3	.8	1.6
1430.0	-1.2	.4	1.4

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 4	TC 5	TC 6
1325.0	-1.0	1.9	2.3
1330.0	-3.0	.7	1.7
1345.0	-2.1	-.5	.0
1350.0	-1.9	-.2	-.3
1355.0	-1.1	.2	.6
1400.0	-1.0	.1	2.0
1405.0	-1.1	-.1	1.9
1410.0	-.5	.1	.9
1415.0	-.9	.0	2.6
1420.0	-1.2	-.4	1.8
1425.0	-1.1	-1.0	-.9
1430.0	-2.4	-.5	4.0

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 7	TC 8
1325.0	.0	.0
1330.0	.0	.0
1345.0	.9	-6.7
1350.0	.5	-9.0
1355.0	.3	-4.6
1400.0	.3	-5.2
1405.0	.5	-4.8
1410.0	.5	-4.4
1415.0	.5	-3.7
1420.0	.5	-7.0
1425.0	-1.5	-3.0
1430.0	-.3	-3.5

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 10	OUTSIDE AIR
1325.0	-11.8	23.8
1330.0	-15.9	24.6
1345.0	-13.0	25.6
1350.0	-12.1	24.8
1355.0	-11.0	24.2
1400.0	-9.8	23.5
1405.0	-9.0	24.4
1410.0	-8.5	23.0
1415.0	-10.5	23.0
1420.0	-10.5	27.1
1425.0	-11.4	25.6
1430.0	-10.0	23.7

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	LIQ THERM	TC 1	TC 2
1045.0	1.2	.5	4.0
1050.0	1.6	2.2	3.7
1055.0	1.8	1.8	3.5
1100.0	1.4	2.3	3.3
1105.0	1.5	2.0	3.2
1110.0	1.7	2.2	4.1
1115.0	1.5	2.0	3.3
1120.0	1.6	2.2	3.3
1125.0	1.2	1.7	2.9
1130.0	1.4	2.1	2.7
1135.0	1.6	3.0	2.9
1140.0	1.5	2.6	2.7
1145.0	1.3	3.0	3.4
1150.0	1.4	2.3	3.5
1155.0	1.2	1.8	3.5
1200.0	2.5	2.0	4.3
1205.0	1.4	1.9	3.9
1210.0	1.2	1.9	3.6
1215.0	1.7	2.3	3.2
1220.0	2.4	2.0	2.2
1225.0	2.2	1.6	1.6
1230.0	1.2	1.1	2.7

OMNITAB PROGCARS5 [redacted]
DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2
TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 3	TC 4	TC 5
1045.0	2.3	2.9	2.6
1050.0	2.7	3.6	1.9
1055.0	2.7	3.5	1.8
1100.0	3.5	3.3	1.8
1105.0	1.1	4.6	1.9
1110.0	2.3	4.2	1.7
1115.0	.1	3.9	1.8
1120.0	2.0	3.9	2.8
1125.0	2.7	3.1	2.1
1130.0	2.2	4.3	1.8
1135.0	2.8	3.3	1.0
1140.0	-.2	4.7	1.4
1145.0	-.9	4.5	1.5
1150.0	.5	3.7	1.4
1155.0	.8	4.3	2.1
1200.0	.9	5.0	3.1
1205.0	2.4	4.7	2.2
1210.0	1.5	3.9	3.0
1215.0	1.2	2.9	3.0
1220.0	.8	3.0	3.2
1225.0	-.5	2.9	1.9
1230.0	-1.0	2.4	1.7

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 6	TC 7	TC 9
1045.0	3.5	2.7	1.8
1050.0	3.1	4.8	1.9
1055.0	3.7	1.9	2.3
1100.0	5.6	4.1	1.4
1105.0	2.7	3.8	1.2
1110.0	2.8	3.7	2.2
1115.0	3.8	3.7	1.5
1120.0	4.3	4.0	2.6
1125.0	3.7	3.9	3.3
1130.0	4.7	4.8	2.3
1135.0	5.9	4.3	-.3
1140.0	5.5	4.3	1.6
1145.0	3.8	4.0	.4
1150.0	3.9	4.4	.6
1155.0	3.0	4.8	2.4
1200.0	2.1	4.5	2.5
1205.0	4.0	4.3	2.1
1210.0	3.4	4.4	1.2
1215.0	3.5	5.2	2.0
1220.0	4.4	5.3	1.0
1225.0	3.5	4.4	.3
1230.0	2.9	4.3	-5.4

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURE DIFFERENCES IN DEGREES CELSIUS

TIME	TC 10	OUTSIDE AIR
1045.0	13.1	28.4
1050.0	9.4	28.2
1055.0	10.2	27.0
1100.0	12.2	28.8
1105.0	12.7	30.3
1110.0	12.8	30.3
1115.0	11.8	27.5
1120.0	13.2	25.9
1125.0	13.2	26.9
1130.0	14.1	30.2
1135.0	13.3	30.1
1140.0	12.7	29.7
1145.0	12.5	30.9
1150.0	11.8	28.9
1155.0	12.8	28.4
1200.0	14.1	28.3
1205.0	13.2	28.1
1210.0	11.4	25.1
1215.0	13.1	25.2
1220.0	12.0	21.2
1225.0	13.9	21.2
1230.0	12.9	23.3

Appendix III

Temperature Measurements for the Static and Dynamic Tests Determined with the Thermocouples.

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 1, CAR 1	TC 1, CAR 2	DIFFERENCE
750.0	18.8	18.6	.2
810.0	23.4	23.6	-.2
820.0	26.6	27.4	-.8
830.0	28.4	29.2	-.8
840.0	30.0	30.9	-.9
850.0	30.3	31.3	-1.0
900.0	31.4	32.2	-.8
910.0	31.5	33.1	-1.5
923.0	32.8	34.1	-1.4
930.0	33.9	35.2	-1.2
940.0	32.5	34.7	-2.1
950.0	34.7	35.9	-1.2
1000.0	34.7	34.3	.5
1010.0	35.0	36.9	-1.9
1020.0	36.6	38.7	-2.1
1030.0	36.8	39.0	-2.2
1040.0	38.2	40.0	-1.8
1050.0	36.1	38.3	-2.2
1100.0	35.6	38.4	-2.8
1110.0	36.0	37.7	-1.7
1120.0	33.8	35.6	-1.7
1130.0	29.5	31.0	-1.5
1140.0	29.6	31.9	-2.3
1150.0	35.9	37.1	-1.2
1200.0	38.6	39.8	-1.1
1210.0	40.4	41.1	-.7
1220.0	39.2	41.2	-1.9
1230.0	39.9	41.1	-1.3
1240.0	37.5	36.9	.5
1250.0	38.8	41.0	-2.2
1300.0	39.5	41.8	-2.3
1310.0	40.6	42.9	-2.3
1320.0	40.2	42.1	-1.9
1330.0	40.6	43.0	-2.4
1340.0	41.6	44.1	-2.5
1350.0	40.3	41.3	-1.0
1400.0	41.3	44.3	-3.0
1410.0	42.8	43.2	-.4
1420.0	40.9	44.6	-3.6
1430.0	42.2	44.9	-2.7
1440.0	42.6	44.6	-2.0
1450.0	43.0	45.7	-2.6
1500.0	43.3	45.5	-2.1
1510.0	41.7	43.8	-2.0
1520.0	42.6	45.3	-2.7
1530.0	42.2	44.6	-2.4
1540.0	42.4	43.9	-1.5
1550.0	42.1	43.3	-1.2
1600.0	41.7	44.1	-2.3

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 2, CAR 1	TC 2, CAR 2	DIFFERENCE
750.0	19.2	18.5	.7
810.0	23.2	22.2	1.0
820.0	25.1	25.0	.1
830.0	26.8	26.3	.4
840.0	28.0	27.3	.7
850.0	28.4	28.2	.2
900.0	29.6	29.3	.3
910.0	30.2	29.7	.4
923.0	30.9	30.7	.2
930.0	31.8	31.5	.3
940.0	32.2	31.9	.4
950.0	32.6	32.6	.1
1000.0	32.7	32.5	.2
1010.0	33.2	33.3	-.1
1020.0	34.0	34.4	-.5
1030.0	34.5	35.2	-.6
1040.0	35.4	35.9	-.5
1050.0	34.9	35.4	-.5
1100.0	34.4	35.5	-1.0
1110.0	33.5	34.5	-1.0
1120.0	32.2	32.7	-.4
1130.0	28.8	29.3	-.5
1140.0	29.2	29.9	-.7
1150.0	32.3	33.4	-1.1
1200.0	33.9	34.7	-.7
1210.0	35.4	37.1	-1.7
1220.0	37.2	37.8	-.7
1230.0	36.9	37.7	-.8
1240.0	35.3	36.1	-.8
1250.0	36.0	37.8	-1.9
1300.0	36.9	38.9	-2.0
1310.0	37.6	39.3	-1.7
1320.0	38.6	39.8	-1.2
1330.0	38.9	40.4	-1.4
1340.0	38.8	41.2	-2.4
1350.0	38.7	39.7	-1.1
1400.0	39.6	41.1	-1.5
1410.0	40.2	41.8	-1.6
1420.0	40.1	41.3	-1.2
1430.0	40.5	41.4	-.9
1440.0	40.9	42.0	-1.1
1450.0	40.7	42.3	-1.6
1500.0	41.7	42.5	-.9
1510.0	41.4	42.3	-.9
1520.0	41.4	42.1	-.7
1530.0	41.2	41.8	-.5
1540.0	41.5	41.7	-.2
1550.0	41.0	41.6	-.5
1600.0	40.7	41.5	-.8

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 3, CAR 1	TC 3, CAR 2	DIFFERENCE
750.0	18.8	18.2	.5
810.0	19.6	18.5	1.1
820.0	20.1	19.1	1.0
830.0	20.7	19.8	1.0
840.0	21.2	20.5	.7
850.0	21.5	21.0	.5
900.0	21.8	21.5	.3
910.0	22.6	22.2	.4
923.0	23.1	22.7	.4
930.0	23.2	23.2	.0
940.0	23.8	23.8	-.0
950.0	24.5	24.5	.1
1000.0	24.5	25.0	-.6
1010.0	25.3	26.6	-1.3
1020.0	25.5	25.5	-.0
1030.0	25.1	26.4	-1.3
1040.0	26.3	26.6	-.2
1050.0	27.4	29.5	-2.1
1100.0	27.4	27.7	-.3
1110.0	27.0	27.3	-.3
1120.0	26.5	27.0	-.5
1130.0	25.3	26.2	-.9
1140.0	25.0	25.5	-.5
1150.0	25.8	25.9	-.2
1200.0	25.9	26.3	-.4
1210.0	26.8	27.0	-.2
1220.0	27.5	27.7	-.2
1230.0	28.0	28.3	-.3
1240.0	28.3	28.4	-.0
1250.0	28.2	28.2	.0
1300.0	28.7	28.6	.1
1310.0	28.7	29.0	-.3
1320.0	29.6	29.5	.0
1330.0	29.5	29.7	-.2
1340.0	29.7	29.8	-.0
1350.0	30.5	30.9	-.5
1400.0	30.1	30.2	-.1
1410.0	30.3	30.6	-.3
1420.0	30.8	30.9	-.1
1430.0	31.0	31.3	-.3
1440.0	31.1	31.3	-.2
1450.0	30.8	31.3	-.4
1500.0	31.5	31.8	-.3
1510.0	31.4	31.8	-.4
1520.0	31.5	31.9	-.4
1530.0	31.8	31.9	-.1
1540.0	31.7	32.1	-.4
1550.0	31.7	31.7	-.0
1600.0	31.9	32.4	-.4

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 4, CAR 1	TC 4, CAR 2	DIFFERENCE
750.0	19.3	19.0	.3
810.0	24.6	25.1	-.5
820.0	27.8	28.3	-.6
830.0	29.7	30.2	-.5
840.0	31.0	31.8	-.8
850.0	32.1	32.7	-.6
900.0	33.1	33.9	-.8
910.0	33.5	34.6	-1.1
923.0	34.6	36.1	-1.5
930.0	35.2	36.9	-1.7
940.0	35.7	37.5	-1.8
950.0	36.5	38.3	-1.8
1000.0	37.2	39.0	-1.8
1010.0	37.7	39.9	-2.2
1020.0	38.1	40.3	-2.2
1030.0	39.4	41.7	-2.3
1040.0	39.7	42.4	-2.7
1050.0	39.5	41.3	-1.9
1100.0	38.5	41.2	-2.7
1110.0	38.0	41.2	-3.2
1120.0	35.0	36.6	-1.6
1130.0	30.8	32.1	-1.4
1140.0	31.5	34.6	-3.1
1150.0	37.8	40.9	-3.0
1200.0	40.2	42.5	-2.2
1210.0	42.5	45.4	-2.9
1220.0	42.5	46.0	-3.4
1230.0	41.8	44.5	-2.7
1240.0	40.3	43.3	-3.0
1250.0	41.7	46.2	-4.5
1300.0	42.8	46.7	-3.9
1310.0	43.3	47.4	-4.0
1320.0	43.8	46.4	-2.6
1330.0	44.5	47.6	-3.0
1340.0	44.7	49.1	-4.3
1350.0	44.7	48.6	-3.9
1400.0	44.8	48.4	-3.7
1410.0	45.7	47.6	-2.0
1420.0	45.0	48.6	-3.6
1430.0	45.4	48.0	-2.6
1440.0	45.2	47.8	-2.6
1450.0	45.4	48.7	-3.3
1500.0	46.0	48.6	-2.5
1510.0	45.6	47.6	-2.1
1520.0	44.9	48.2	-3.3
1530.0	44.6	47.1	-2.5
1540.0	44.8	47.0	-2.2
1550.0	44.0	46.7	-2.7
1600.0	43.5	45.2	-1.7

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 5, CAR 1	TC 5, CAR 2	DIFFERENCE
750.0	19.3	18.6	.7
810.0	22.3	22.0	.2
820.0	24.2	24.4	-.2
830.0	25.8	26.0	-.3
840.0	27.0	27.3	-.2
850.0	27.7	28.5	-.8
900.0	28.7	29.4	-.6
910.0	29.4	30.2	-.8
923.0	30.3	31.3	-1.0
930.0	31.2	32.0	-.8
940.0	31.3	32.4	-1.1
950.0	31.7	33.0	-1.3
1000.0	32.0	33.3	-1.3
1010.0	32.5	34.3	-1.8
1020.0	33.7	35.4	-1.7
1030.0	34.2	35.8	-1.6
1040.0	34.7	36.8	-2.1
1050.0	34.3	36.3	-1.9
1100.0	34.3	35.7	-1.4
1110.0	33.9	36.2	-2.3
1120.0	31.4	32.6	-1.2
1130.0	28.5	30.1	-1.6
1140.0	29.7	31.6	-1.8
1150.0	32.7	35.3	-2.6
1200.0	34.2	36.6	-2.5
1210.0	36.3	38.8	-2.6
1220.0	36.8	39.2	-2.4
1230.0	35.8	37.1	-1.3
1240.0	35.1	37.1	-1.9
1250.0	36.8	39.7	-2.9
1300.0	38.0	40.7	-2.7
1310.0	38.6	41.4	-2.8
1320.0	38.6	41.1	-2.4
1330.0	39.1	42.1	-3.0
1340.0	39.8	41.5	-1.7
1350.0	39.1	41.3	-2.2
1400.0	39.6	42.8	-3.2
1410.0	40.2	43.1	-2.9
1420.0	40.3	43.2	-2.9
1430.0	40.6	42.9	-2.3
1440.0	40.6	42.9	-2.3
1450.0	41.3	43.9	-2.6
1500.0	41.6	44.1	-2.5
1510.0	41.5	43.7	-2.2
1520.0	41.2	43.5	-2.3
1530.0	41.2	43.2	-2.0
1540.0	41.2	42.9	-1.7
1550.0	40.9	42.4	-1.5
1600.0	41.2	42.2	-1.0

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 6, CAR 1	TC 6, CAR 2	DIFFERENCE
750.0	19.6	19.2	.4
810.0	21.4	20.5	.9
820.0	22.3	21.5	.8
830.0	23.1	22.5	.7
840.0	23.9	23.2	.7
850.0	24.2	23.9	.4
900.0	24.8	24.4	.4
910.0	25.3	24.9	.5
923.0	25.8	25.4	.4
930.0	26.2	25.8	.5
940.0	26.4	26.3	.1
950.0	26.9	26.8	.1
1000.0	[redacted]	27.8	[redacted]
1010.0	25.0	28.1	-3.0
1020.0	27.0	28.9	-1.9
1030.0	23.2	28.9	-5.7
1040.0	28.3	30.0	-1.7
1050.0	29.1	30.0	-.9
1100.0	29.1	30.2	-1.1
1110.0	29.1	29.9	-.7
1120.0	28.3	29.0	-.7
1130.0	26.8	27.3	-.5
1140.0	26.5	27.0	-.5
1150.0	27.4	27.7	-.4
1200.0	27.7	28.2	-.5
1210.0	29.0	30.0	-1.0
1220.0	29.6	30.6	-1.0
1230.0	30.2	31.8	-1.6
1240.0	30.0	30.8	-.8
1250.0	30.4	31.1	-.7
1300.0	30.8	31.5	-.8
1310.0	31.3	33.0	-1.8
1320.0	32.0	33.8	-1.8
1330.0	32.2	33.3	-1.0
1340.0	32.6	33.5	-.9
1350.0	33.0	34.5	-1.5
1400.0	32.7	33.3	-.7
1410.0	33.0	33.9	-.9
1420.0	33.3	34.0	-.7
1430.0	33.7	34.3	-.6
1440.0	33.7	34.2	-.5
1450.0	33.6	34.3	-.7
1500.0	34.2	34.8	-.6
1510.0	34.3	35.2	-.8
1520.0	34.3	34.8	-.5
1530.0	34.3	35.1	-.8
1540.0	34.3	34.9	-.5
1550.0	34.2	34.9	-.7
1600.0	34.5	35.1	-.6

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 7, CAR 1	TC 7, CAR 2	DIFFERENCE
750.0	19.1	19.1	.0
810.0	26.7	23.9	2.8
820.0	29.5	26.5	2.9
830.0	29.5	27.7	1.8
840.0	30.2	29.1	1.1
850.0	30.8	29.6	1.2
900.0	32.2	30.2	2.1
910.0	32.4	30.8	1.6
923.0	32.4	31.9	.5
930.0	33.1	32.4	.6
940.0	32.7	33.0	-.3
950.0	33.2	33.7	-.5
1000.0	33.2	34.1	-1.0
1010.0	33.8	34.8	-.9
1020.0	34.5	35.4	-1.0
1030.0	35.4	36.5	-1.2
1040.0	36.1	38.3	-2.2
1050.0	35.8	38.3	-2.5
1100.0	34.7	37.6	-2.8
1110.0	35.2	37.5	-2.3
1120.0	31.9	34.2	-2.3
1130.0	29.0	30.7	-1.8
1140.0	30.6	31.7	-1.0
1150.0	34.0	35.4	-1.4
1200.0	35.5	37.8	-2.3
1210.0	36.9	38.8	-1.9
1220.0	37.1	39.5	-2.4
1230.0	35.8	38.7	-2.9
1240.0	35.7	38.3	-2.6
1250.0	39.2	38.9	.4
1300.0	37.9	40.6	-2.6
1310.0	38.6	41.1	-2.5
1320.0	38.6	41.2	-2.6
1330.0	39.1	41.7	-2.6
1340.0	39.1	41.7	-2.5
1350.0	39.0	41.7	-2.7
1400.0	39.9	42.4	-2.4
1410.0	40.5	42.9	-2.4
1420.0	40.7	43.0	-2.3
1430.0	40.7	42.9	-2.2
1440.0	41.1	43.1	-2.1
1450.0	41.6	43.5	-1.9
1500.0	41.9	43.7	-1.8
1510.0	41.4	43.5	-2.1
1520.0	41.6	43.2	-1.7
1530.0	41.2	43.0	-1.8
1540.0	41.4	41.6	-.2
1550.0	41.9	43.1	-1.2
1600.0	42.5	42.9	-.4

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 8, CAR 1	TC 8, CAR 2	DIFFERENCE
750.0	20.0	20.6	-.6
810.0	26.7	28.2	-1.5
820.0	29.4	32.3	-2.9
830.0	31.0	34.1	-3.0
840.0	32.6	36.2	-3.6
850.0	32.5	38.1	-5.6
900.0	31.6	36.6	-5.0
910.0	31.5	32.9	-1.4
923.0	31.9	33.8	-2.0
930.0	32.0	34.3	-2.3
940.0	32.5	36.3	-3.8
950.0	33.0	37.1	-4.1
1000.0	34.0	39.6	-5.6
1010.0	34.1	38.5	-4.5
1020.0	34.9	40.2	-5.3
1030.0	35.8	42.7	-6.9
1040.0	36.3	42.3	-6.0
1050.0	35.9	41.4	-5.6
1100.0	35.8	39.7	-3.9
1110.0	35.7	42.2	-6.5
1120.0	31.7	35.5	-3.8
1130.0	29.5	32.4	-2.9
1140.0	31.6	37.0	-5.4
1150.0	35.0	41.6	-6.5
1200.0	36.5	41.8	-5.3
1210.0	37.9	43.4	-5.4
1220.0	38.4	44.1	-5.7
1230.0	36.9	37.7	-.8
1240.0	37.1	41.5	-4.4
1250.0	39.0	43.8	-4.7
1300.0	39.5	45.7	-6.2
1310.0	40.1	45.5	-5.5
1320.0	40.4	46.2	-5.8
1330.0	40.6	46.5	-5.9
1340.0	40.5	33.3	7.1
1350.0	41.0	45.9	-4.9
1400.0	41.7	46.6	-4.9
1410.0	42.1	46.4	-4.3
1420.0	41.8	46.8	-5.0
1430.0	42.0	46.4	-4.4
1440.0	42.4	46.7	-4.3
1450.0	42.4	46.9	-4.5
1500.0	42.7	46.5	-3.8
1510.0	42.8	46.8	-4.0
1520.0	42.9	47.0	-4.1
1530.0	43.2	49.1	-5.9
1540.0	45.7	51.1	-5.4
1550.0	45.3	50.0	-4.7
1600.0	35.4	49.5	-14.1

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 9, CAR 1	TC 9, CAR 2	DIFFERENCE
750.0	19.1	18.3	.8
810.0	19.9	19.1	.8
820.0	20.7	20.0	.7
830.0	21.5	20.7	.8
840.0	22.2	21.5	.8
850.0	22.8	22.1	.7
900.0	23.3	22.9	.4
910.0	23.8	23.2	.6
923.0	24.4	23.8	.6
930.0	24.7	24.3	.4
940.0	25.1	24.7	.4
950.0	25.5	25.4	.1
1000.0	25.8	25.4	.4
1010.0	26.2	25.9	.3
1020.0	26.5	26.6	-.1
1030.0	27.0	27.3	-.2
1040.0	27.5	27.8	-.3
1050.0	28.2	28.5	-.4
1100.0	28.2	28.3	-.1
1110.0	28.0	28.5	-.5
1120.0	27.5	27.7	-.2
1130.0	26.2	26.3	-.1
1140.0	25.9	26.1	-.2
1150.0	26.2	26.4	-.2
1200.0	26.7	27.0	-.3
1210.0	27.5	27.7	-.2
1220.0	28.3	28.1	.2
1230.0	28.6	28.7	-.1
1240.0	28.7	29.0	-.3
1250.0	29.0	29.3	-.3
1300.0	29.4	29.7	-.3
1310.0	29.9	30.2	-.3
1320.0	30.4	30.8	-.5
1330.0	30.6	31.1	-.5
1340.0	31.0	31.7	-.6
1350.0	31.2	31.7	-.6
1400.0	31.4	31.9	-.6
1410.0	31.5	32.1	-.6
1420.0	31.7	32.6	-.9
1430.0	31.9	32.7	-.8
1440.0	32.1	32.8	-.7
1450.0	32.2	33.0	-.9
1500.0	32.7	33.4	-.8
1510.0	33.0	33.8	-.8
1520.0	32.8	33.7	-.9
1530.0	32.8	33.6	-.8
1540.0	33.2	34.1	-.9
1550.0	33.1	34.1	-1.0
1600.0	33.1	33.8	-.7

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 10, CAR 1	TC 10, CAR 2	DIFFERENCE
750.0	22.1	23.2	-1.1
810.0	29.1	32.9	-3.7
820.0	33.9	37.7	-3.9
830.0	36.9	41.3	-4.4
840.0	39.2	44.3	-5.1
850.0	41.7	48.4	-6.7
900.0	43.6	51.6	-8.0
910.0	46.0	55.0	-9.0
923.0	48.5	58.3	-9.8
930.0	49.7	59.8	-10.1
940.0	51.2	61.7	-10.4
950.0	52.7	63.6	-10.9
1000.0	54.4	65.6	-11.2
1010.0	55.8	67.7	-11.9
1020.0	57.7	70.0	-12.3
1030.0	60.7	73.3	-12.7
1040.0	60.7	74.1	-13.5
1050.0	57.6	69.0	-11.4
1100.0	51.5	58.5	-7.1
1110.0	57.3	68.9	-11.6
1120.0	42.0	46.4	-4.4
1130.0	36.1	39.1	-3.0
1140.0	49.9	61.9	-12.0
1150.0	60.0	74.4	-14.4
1200.0	61.6	74.2	-12.6
1210.0	66.1	80.2	-14.1
1220.0	66.9	81.6	-14.7
1230.0	58.0	66.6	-8.6
1240.0	60.3	71.7	-11.4
1250.0	65.4	80.3	-14.9
1300.0	64.6	78.7	-14.2
1310.0	68.1	83.9	-15.7
1320.0	68.2	83.8	-15.6
1330.0	68.6	84.2	-15.6
1340.0	66.7	82.3	-15.5
1350.0	67.3	82.7	-15.4
1400.0	67.5	82.6	-15.1
1410.0	67.2	83.0	-15.8
1420.0	66.9	81.8	-14.9
1430.0	66.0	81.1	-15.2
1440.0	65.9	81.3	-15.4
1450.0	65.4	80.1	-14.7
1500.0	64.8	79.3	-14.5
1510.0	63.5	77.8	-14.3
1520.0	62.6	76.2	-13.6
1530.0	61.1	73.7	-12.6
1540.0	60.1	72.3	-12.2
1550.0	58.2	69.5	-11.4
1600.0	57.2	67.6	-10.5

OMNITAB PROGCARS2 [redacted]

STATIC TEST 4/2/74 TINTED WINDSHIELD ON CAR 1
TEMPERATURES IN DEGREES CELSIUS

TIME	TC 11, CAR 1	TC 11, CAR 2	DIFFERENCE
750.0	16.9	15.5	1.5
810.0	17.8	17.3	.5
820.0	17.6	17.5	.1
830.0	18.0	18.2	-.2
840.0	18.6	18.2	.4
850.0	18.7	18.5	.2
900.0	18.7	18.6	.1
910.0	19.4	18.7	.8
923.0	19.2	19.2	-.0
930.0	19.3	19.8	-.5
940.0	19.9	19.8	.1
950.0	20.1	20.2	-.1
1000.0	20.5	20.7	-.2
1010.0	20.2	20.1	.1
1020.0	20.4	20.9	-.5
1030.0	21.7	21.8	-.0
1040.0	21.8	21.1	.7
1050.0	21.4	21.1	.4
1100.0	20.6	21.2	-.6
1110.0	22.3	22.6	-.3
1120.0	19.2	19.0	.2
1130.0	18.2	14.4	3.8
1140.0	18.9	16.7	2.2
1150.0	20.1	18.9	1.1
1200.0	19.7	20.8	-1.1
1210.0	22.6	21.7	.8
1220.0	22.3	23.1	-.7
1230.0	22.1	22.2	-.0
1240.0	22.9	22.9	.0
1250.0	23.6	23.5	.0
1300.0	23.6	23.5	.1
1310.0	24.6	25.1	-.5
1320.0	23.6	23.3	.3
1330.0	24.9	24.8	.1
1340.0	24.7	25.2	-.5
1350.0	24.2	24.2	-.1
1400.0	25.0	25.0	.1
1410.0	25.5	25.0	.5
1420.0	24.9	24.0	.9
1430.0	25.0	25.0	.0
1440.0	26.0	25.9	.2
1450.0	27.0	27.2	-.2
1500.0	25.0	24.8	.2
1510.0	25.9	25.4	.5
1520.0	24.9	26.0	-1.1
1530.0	26.0	26.6	-.6
1540.0	25.9	25.9	.0
1550.0	25.0	25.7	-.6
1600.0	26.0	25.5	.5

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 1, CAR 1	TC 1, CAR 2	DIFFERENCE
1037.0	49.1	47.1	2.0
1043.0	49.7	47.7	1.9
1055.0	50.7	48.6	2.0
1103.0	51.4	49.3	2.0
1106.0	51.5	49.0	2.5
1110.0	51.7	49.6	2.1
1115.0	52.6	50.0	2.5
1120.0	52.9	50.2	2.6
1130.0	53.2	51.0	2.2
1135.0	53.4	50.9	2.5
1140.0	52.9	50.2	2.6
1145.0	52.8	50.1	2.8
1150.0	52.9	50.4	2.5
1155.0	53.4	51.0	2.4
1200.0	53.8	51.5	2.3
1205.0	54.1	51.4	2.7
1210.0	54.1	51.7	2.4
1215.0	53.9	51.4	2.5
1220.0	53.6	51.5	2.1
1225.0	54.0	51.8	2.2
1230.0	54.1	52.1	2.0
1235.0	44.5	52.8	-8.3
1240.0	54.8	52.7	2.2
1245.0	55.0	52.7	2.3
1250.0	54.7	53.0	1.7
1255.0	54.9	52.9	2.0
1300.0	55.2	52.7	2.5
1305.0	55.0	52.6	2.4
1310.0	55.2	53.3	1.9
1315.0	55.1	52.7	2.4
1320.0	55.0	52.5	2.5
1325.0	55.7	53.1	2.6
1330.0	55.6	53.3	2.3
1335.0	56.0	53.9	2.2
1340.0	56.4	54.2	2.2
1345.0	56.5	54.2	2.3
1350.0	56.6	54.2	2.3
1355.0	56.8	54.7	2.0
1400.0	56.9	54.4	2.5
1405.0	56.8	54.2	2.6
1410.0	56.7	54.3	2.4
1415.0	56.5	54.3	2.2
1420.0	56.5	54.3	2.2
1425.0	56.7	54.4	2.3
1430.0	57.1	54.8	2.3
1435.0	56.8	54.7	2.1
1440.0	56.8	54.4	2.4
1445.0	57.2	54.8	2.4
1450.0	56.7	54.9	1.9
1455.0	56.4	54.4	2.0

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 1, CAR 1	TC 1, CAR 2	DIFFERENCE
1500.0	56.0	53.7	2.3
1505.0	55.9	54.4	1.5
1510.0	56.2	54.7	1.6
1515.0	55.7	54.2	1.5
1520.0	55.6	54.0	1.5
1525.0	55.7	54.2	1.5
1530.0	56.0	54.3	1.7
1535.0	55.3	53.8	1.5
1540.0	54.9	52.9	2.0
1545.0	54.8	53.1	1.7
1550.0	54.5	52.5	1.9
1555.0	54.4	52.5	1.9
1600.0	54.2	52.4	1.8
1605.0	53.8	52.0	1.8
1610.0	53.2	51.4	1.8
1615.0	53.0	51.4	1.6
1620.0	52.8	51.1	1.7
1625.0	52.6	50.9	1.7
1630.0	51.8	50.0	1.9
1635.0	51.3	49.6	1.7
1640.0	50.9	49.2	1.7

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 2, CAR 1	TC 2, CAR 2	DIFFERENCE
1037.0	45.0	40.4	4.6
1043.0	45.3	40.3	5.0
1055.0	46.3	41.3	5.0
1103.0	46.5	41.0	5.5
1106.0	47.0	41.8	5.2
1110.0	47.1	41.2	5.8
1115.0	47.8	41.7	6.0
1120.0	48.2	42.3	5.9
1130.0	48.7	42.8	5.9
1135.0	49.2	43.1	6.1
1140.0	48.9	42.8	6.1
1145.0	48.9	42.5	6.4
1150.0	49.0	42.5	6.5
1155.0	49.3	43.0	6.3
1200.0	49.3	43.1	6.3
1205.0	49.7	43.3	6.3
1210.0	50.0	44.0	6.0
1215.0	49.7	44.1	5.7
1220.0	49.7	43.7	6.0
1225.0	50.0	44.0	5.9
1230.0	50.1	44.2	5.9
1235.0	50.4	44.5	5.9
1240.0	50.5	44.3	6.2
1245.0	50.4	44.4	6.0
1250.0	50.4	44.8	5.6
1255.0	50.5	44.8	5.7
1300.0	50.3	44.9	5.4
1305.0	50.4	44.6	5.8
1310.0	50.9	44.7	6.2
1315.0	50.6	44.7	5.8
1320.0	51.0	44.5	6.5
1325.0	51.5	44.6	6.9
1330.0	51.5	44.6	6.9
1335.0	51.8	45.4	6.4
1340.0	52.0	45.7	6.3
1345.0	52.2	45.9	6.3
1350.0	52.1	45.8	6.3
1355.0	52.6	45.8	6.8
1400.0	52.6	46.1	6.6
1405.0	52.7	46.5	6.2
1410.0	52.7	45.7	6.9
1415.0	52.5	46.0	6.4
1420.0	52.7	45.8	6.8
1425.0	52.7	46.2	6.6
1430.0	53.2	46.7	6.4
1435.0	53.0	46.9	6.1
1440.0	52.9	47.0	6.0
1445.0	53.0	46.3	6.7
1450.0	53.1	46.7	6.4
1455.0	52.7	46.3	6.3

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 2, CAR 1	TC 2, CAR 2	DIFFERENCE
1500.0	52.3	45.8	6.5
1505.0	52.6	46.6	5.9
1510.0	52.5	46.2	6.3
1515.0	52.4	47.1	5.3
1520.0	52.3	47.3	5.0
1525.0	52.5	47.7	4.9
1530.0	52.6	47.1	5.6
1535.0	52.4	47.0	5.4
1540.0	51.8	47.3	4.6
1545.0	51.8	46.9	4.9
1550.0	51.6	47.0	4.6
1555.0	51.7	47.6	4.1
1600.0	51.7	47.6	4.1
1605.0	51.6	47.5	4.1
1610.0	51.2	47.2	4.0
1615.0	51.2	47.4	3.7
1620.0	51.1	47.4	3.7
1625.0	50.8	47.1	3.7
1630.0	50.1	46.4	3.7
1635.0	49.7	46.1	3.7
1640.0	49.4	46.2	3.2

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 3, CAR 1	TC 3, CAR 2	DIFFERENCE
1037.0	27.3	25.6	1.6
1043.0	27.7	25.8	1.9
1055.0	28.7	26.6	2.1
1103.0	29.2	26.7	2.5
1106.0	29.3	27.0	2.3
1110.0	29.6	27.3	2.3
1115.0	29.8	27.6	2.2
1120.0	30.1	27.7	2.3
1130.0	30.5	28.4	2.1
1135.0	31.1	28.7	2.4
1140.0	31.7	28.8	2.9
1145.0	31.3	28.7	2.6
1150.0	31.7	28.9	2.9
1155.0	32.4	29.1	3.3
1200.0	32.3	29.4	2.9
1205.0	32.6	29.6	3.0
1210.0	33.0	30.4	2.6
1215.0	33.3	30.5	2.8
1220.0	33.4	30.5	2.9
1225.0	33.6	30.5	3.2
1230.0	33.7	30.7	2.9
1235.0	33.8	30.9	2.9
1240.0	33.6	31.1	2.5
1245.0	33.9	31.1	2.7
1250.0	33.9	31.2	2.7
1255.0	33.6	31.2	2.4
1300.0	33.7	31.2	2.5
1305.0	34.0	31.3	2.7
1310.0	33.8	31.2	2.6
1315.0	33.8	31.2	2.6
1320.0	34.2	31.1	3.1
1325.0	34.9	31.6	3.3
1330.0	35.1	32.0	3.1
1335.0	34.9	32.1	2.8
1340.0	35.0	32.0	2.9
1345.0	35.0	32.3	2.7
1350.0	34.9	32.6	2.3
1355.0	35.3	32.9	2.4
1400.0	35.4	32.7	2.7
1405.0	35.7	33.1	2.6
1410.0	35.5	33.3	2.2
1415.0	35.6	33.4	2.2
1420.0	35.6	33.4	2.2
1425.0	35.5	33.5	2.1
1430.0	35.9	33.8	2.1
1435.0	35.9	33.6	2.3
1440.0	35.6	33.7	1.9
1445.0	35.5	33.8	1.7
1450.0	35.4	33.9	1.5
1455.0	35.7	34.2	1.5

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 3, CAR 1	TC 3, CAR 2	DIFFERENCE
1500.0	35.4	33.9	1.6
1505.0	35.3	33.9	1.4
1510.0	35.6	33.9	1.7
1515.0	35.3	34.3	1.0
1520.0	35.1	34.6	.6
1525.0	35.2	34.6	.6
1530.0	35.5	34.8	.7
1535.0	35.7	35.0	.7
1540.0	35.6	34.6	.9
1545.0	35.7	35.0	.7
1550.0	35.5	34.5	1.0
1555.0	35.5	34.5	.9
1600.0	35.6	34.7	1.0
1605.0	35.6	34.6	1.0
1610.0	35.5	34.7	.9
1615.0	35.5	34.7	.8
1620.0	35.6	34.6	1.0
1625.0	35.7	34.6	1.1
1630.0	35.4	35.0	.4
1635.0	35.6	34.6	1.0
1640.0	35.6	34.7	.9

OMNITAP PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 4, CAR 1	TC 4, CAR 2	DIFFERENCE
1037.0	50.6	49.4	1.2
1043.0	51.6	49.9	1.7
1055.0	52.7	50.8	1.9
1103.0	53.0	51.6	1.4
1106.0	53.2	51.4	1.8
1110.0	53.7	52.2	1.6
1115.0	54.6	52.7	1.9
1120.0	55.0	53.1	1.9
1130.0	55.3	53.7	1.6
1135.0	55.8	53.5	2.4
1140.0	55.6	52.9	2.7
1145.0	55.9	52.7	3.2
1150.0	56.0	53.3	2.7
1155.0	56.4	53.7	2.8
1200.0	56.7	53.8	2.9
1205.0	57.1	54.6	2.6
1210.0	57.5	54.2	3.3
1215.0	57.0	53.9	3.1
1220.0	57.3	53.8	3.5
1225.0	57.3	54.1	3.2
1230.0	58.2	54.4	3.8
1235.0	57.7	55.2	2.5
1240.0	58.2	54.7	3.5
1245.0	58.4	54.7	3.7
1250.0	57.8	56.0	1.9
1255.0	58.9	56.0	2.8
1300.0	58.8	55.7	3.2
1305.0	59.3	55.4	3.9
1310.0	59.2	56.1	3.1
1315.0	58.3	55.0	3.3
1320.0	59.5	55.9	3.6
1325.0	60.0	56.2	3.8
1330.0	59.7	56.2	3.5
1335.0	60.2	57.0	3.2
1340.0	60.4	57.1	3.4
1345.0	59.6	57.0	2.7
1350.0	60.4	57.4	3.0
1355.0	60.3	57.5	2.8
1400.0	60.6	57.2	3.3
1405.0	60.7	57.1	3.6
1410.0	60.3	57.2	3.1
1415.0	59.3	56.7	2.6
1420.0	60.6	56.8	3.8
1425.0	60.6	57.0	3.7
1430.0	60.3	57.3	3.0
1435.0	59.9	57.2	2.7
1440.0	60.5	57.1	3.4
1445.0	59.6	57.4	2.2
1450.0	59.8	57.1	2.8
1455.0	59.1	56.5	2.6

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 4, CAR 1	TC 4, CAR 2	DIFFERENCE
1500.0	58.5	56.1	2.4
1505.0	58.2	56.1	2.1
1510.0	58.4	56.2	2.2
1515.0	58.2	55.9	2.3
1520.0	57.8	55.5	2.4
1525.0	57.8	55.7	2.2
1530.0	57.8	55.6	2.2
1535.0	57.6	54.8	2.8
1540.0	56.7	54.2	2.5
1545.0	56.2	54.3	1.9
1550.0	56.2	54.1	2.2
1555.0	56.2	53.5	2.7
1600.0	56.1	53.2	2.9
1605.0	55.8	53.0	2.8
1610.0	55.1	52.4	2.7
1615.0	55.1	52.5	2.6
1620.0	54.7	52.3	2.4
1625.0	54.4	52.0	2.4
1630.0	53.2	51.1	2.2
1635.0	52.9	50.4	2.5
1640.0	52.4	50.0	2.5

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 5, CAR 1	TC 5, CAR 2	DIFFERENCE
1037.0	44.7	40.6	4.0
1043.0	45.1	41.0	4.1
1055.0	46.2	41.7	4.4
1103.0	47.1	42.0	5.1
1106.0	47.3	42.7	4.6
1110.0	47.5	42.7	4.8
1115.0	48.0	42.9	5.1
1120.0	48.7	43.5	5.2
1130.0	49.3	44.0	5.2
1135.0	49.8	44.7	5.1
1140.0	48.8	44.2	4.6
1145.0	49.6	44.3	5.3
1150.0	49.8	44.4	5.4
1155.0	49.5	44.6	4.9
1200.0	49.6	44.8	4.7
1205.0	50.8	45.2	5.5
1210.0	50.7	45.7	5.0
1215.0	50.8	45.8	5.0
1220.0	50.8	45.7	5.1
1225.0	50.7	45.8	4.9
1230.0	51.3	46.1	5.2
1235.0	51.3	46.2	5.1
1240.0	51.6	46.3	5.2
1245.0	51.6	46.7	4.9
1250.0	52.0	46.7	5.3
1255.0	52.3	46.8	5.5
1300.0	52.0	46.9	5.1
1305.0	52.1	46.8	5.2
1310.0	52.5	46.9	5.6
1315.0	52.4	46.9	5.5
1320.0	52.3	47.1	5.2
1325.0	52.5	47.5	5.1
1330.0	52.3	47.4	4.8
1335.0	53.0	48.0	5.0
1340.0	53.2	48.0	5.2
1345.0	53.2	48.2	5.0
1350.0	53.5	48.2	5.3
1355.0	53.5	48.5	5.1
1400.0	53.7	48.5	5.2
1405.0	53.9	48.7	5.2
1410.0	53.2	48.6	4.7
1415.0	53.2	48.6	4.6
1420.0	53.4	48.7	4.8
1425.0	53.6	48.8	4.8
1430.0	53.8	49.1	4.7
1435.0	53.9	48.9	4.9
1440.0	53.6	48.9	4.7
1445.0	53.6	49.0	4.6
1450.0	53.1	48.9	4.2
1455.0	52.7	48.7	4.0

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 5, CAR 1	TC 5, CAR 2	DIFFERENCE
1500.0	53.0	48.4	4.5
1505.0	52.9	48.7	4.2
1510.0	52.6	48.6	4.0
1515.0	52.8	48.6	4.2
1520.0	52.6	48.7	4.0
1525.0	52.6	48.7	3.9
1530.0	52.4	48.6	3.8
1535.0	51.8	48.2	3.6
1540.0	51.8	48.1	3.6
1545.0	51.3	47.9	3.4
1550.0	51.2	47.9	3.3
1555.0	51.3	47.9	3.4
1600.0	51.1	47.8	3.3
1605.0	50.8	47.8	3.0
1610.0	50.5	47.7	2.8
1615.0	50.4	47.7	2.7
1620.0	50.3	47.4	2.9
1625.0	49.7	47.2	2.5
1630.0	49.3	46.6	2.7
1635.0	48.7	46.4	2.3
1640.0	48.8	46.5	2.3

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 6, CAR 1	TC 6, CAR 2	DIFFERENCE
1037.0	32.3	30.2	2.1
1043.0	32.8	30.7	2.1
1055.0	33.8	31.3	2.4
1103.0	34.3	31.8	2.5
1106.0	34.2	32.1	2.1
1110.0	34.6	32.3	2.3
1115.0	34.7	32.5	2.2
1120.0	35.2	32.8	2.4
1130.0	35.7	33.2	2.4
1135.0	36.0	33.7	2.3
1140.0	36.1	33.9	2.2
1145.0	35.9	33.7	2.2
1150.0	36.1	33.8	2.3
1155.0	36.7	34.0	2.8
1200.0	36.8	33.9	2.9
1205.0	36.9	34.5	2.4
1210.0	37.4	34.6	2.8
1215.0	37.3	34.9	2.4
1220.0	37.5	34.6	2.9
1225.0	37.6	34.8	2.7
1230.0	37.7	35.2	2.5
1235.0	37.7	35.3	2.5
1240.0	38.2	35.6	2.6
1245.0	38.3	35.6	2.7
1250.0	38.4	35.6	2.8
1255.0	38.5	35.6	2.9
1300.0	38.6	35.7	2.9
1305.0	38.7	35.8	2.9
1310.0	38.9	35.7	3.2
1315.0	39.0	35.7	3.3
1320.0	39.0	35.9	3.0
1325.0	39.2	36.4	2.8
1330.0	39.5	36.6	2.9
1335.0	39.5	36.7	2.8
1340.0	39.6	36.7	2.8
1345.0	39.6	37.0	2.6
1350.0	39.9	37.2	2.7
1355.0	40.0	37.4	2.6
1400.0	40.2	37.4	2.8
1405.0	40.3	37.7	2.7
1410.0	40.5	38.2	2.3
1415.0	40.6	38.1	2.5
1420.0	40.5	38.1	2.4
1425.0	40.6	38.1	2.5
1430.0	41.0	38.4	2.6
1435.0	40.8	38.3	2.5
1440.0	40.8	38.4	2.4
1445.0	40.9	38.7	2.2
1450.0	41.0	38.9	2.1
1455.0	41.0	39.1	1.9

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 6, CAR 1	TC 6, CAR 2	DIFFERENCE
1500.0	40.9	39.0	1.9
1505.0	40.8	38.8	2.0
1510.0	41.2	39.4	1.8
1515.0	40.9	39.1	1.8
1520.0	40.9	39.1	1.8
1525.0	41.0	39.3	1.7
1530.0	41.0	39.5	1.6
1535.0	41.1	39.7	1.3
1540.0	41.0	39.4	1.6
1545.0	41.0	39.9	1.2
1550.0	41.0	39.7	1.4
1555.0	41.1	39.5	1.6
1600.0	41.0	39.8	1.3
1605.0	41.1	39.9	1.2
1610.0	41.0	39.8	1.2
1615.0	40.9	39.7	1.2
1620.0	41.0	39.8	1.3
1625.0	41.1	39.8	1.2
1630.0	40.9	40.0	1.0
1635.0	40.8	39.7	1.1
1640.0	40.6	39.5	1.0

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 7, CAR 1	TC 7, CAR 2	DIFFERENCE
1037.0	45.1	42.3	2.8
1043.0	45.5	42.6	2.9
1055.0	46.5	43.1	3.4
1103.0	47.0	43.3	3.7
1106.0	47.2	43.6	3.6
1110.0	47.5	43.9	3.6
1115.0	47.9	44.1	3.9
1120.0	48.3	44.5	3.9
1130.0	48.8	44.4	4.4
1135.0	49.1	44.9	4.1
1140.0	48.7	44.1	4.6
1145.0	48.8	43.8	5.0
1150.0	49.0	43.9	5.1
1155.0	49.2	43.8	5.4
1200.0	49.4	43.7	5.7
1205.0	49.7	44.1	5.6
1210.0	49.9	44.4	5.5
1215.0	49.8	44.3	5.5
1220.0	49.7	44.1	5.7
1225.0	50.0	44.2	5.8
1230.0	50.2	44.6	5.7
1235.0	50.6	44.6	6.0
1240.0	50.7	44.9	5.8
1245.0	50.8	45.1	5.8
1250.0	50.8	44.9	5.9
1255.0	50.8	44.9	6.0
1300.0	50.8	44.5	6.3
1305.0	50.8	45.0	5.9
1310.0	51.2	44.9	6.3
1315.0	51.0	44.5	6.5
1320.0	51.2	45.2	6.0
1325.0	51.6	45.7	5.8
1330.0	51.7	46.0	5.7
1335.0	52.0	46.2	5.9
1340.0	52.3	46.8	5.5
1345.0	52.5	47.2	5.3
1350.0	52.7	47.2	5.4
1355.0	52.9	47.2	5.7
1400.0	52.9	47.0	5.9
1405.0	52.9	47.1	5.7
1410.0	52.8	47.3	5.5
1415.0	52.8	47.3	5.4
1420.0	52.9	47.4	5.5
1425.0	53.0	47.5	5.4
1430.0	53.2	47.7	5.5
1435.0	53.1	47.5	5.6
1440.0	53.1	48.0	5.1
1445.0	53.4	48.2	5.2
1450.0	53.2	48.2	5.0
1455.0	52.8	48.0	4.9

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 7, CAR 1	TC 7, CAR 2	DIFFERENCE
1500.0	52.6	47.6	5.0
1505.0	52.6	48.0	4.6
1510.0	52.6	48.0	4.6
1515.0	52.5	48.9	3.7
1520.0	52.5	48.9	3.6
1525.0	52.6	49.2	3.5
1530.0	52.9	48.8	4.0
1535.0	52.6	48.6	4.0
1540.0	52.4	48.4	4.0
1545.0	52.1	48.4	3.7
1550.0	52.2	48.4	3.8
1555.0	52.1	48.6	3.5
1600.0	52.4	48.4	4.0
1605.0	51.9	48.0	3.8
1610.0	51.3	47.6	3.7
1615.0	51.1	47.5	3.6
1620.0	50.6	47.6	3.0
1625.0	50.5	47.1	3.3
1630.0	49.7	46.2	3.6
1635.0	49.5	45.6	4.0
1640.0	48.8	45.0	3.8

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 8, CAR 1	TC 8, CAR 2	DIFFERENCE
1037.0	46.9	45.1	1.8
1043.0	45.9	44.9	1.0
1055.0	49.7	45.8	3.8
1103.0	48.7	46.9	1.7
1106.0	50.8	47.4	3.4
1110.0	50.6	48.4	2.2
1115.0	48.8	48.8	.0
1120.0	49.7	48.6	1.1
1130.0	51.2	52.3	-1.2
1135.0	51.7	54.1	-2.4
1140.0	52.4	54.7	-2.3
1145.0	52.8	54.7	-2.0
1150.0	53.1	56.2	-3.1
1155.0	58.3	58.0	.2
1200.0	62.9	56.8	6.1
1205.0	59.0	56.5	2.6
1210.0	52.0	55.5	-3.6
1215.0	57.5	52.0	5.5
1220.0	57.6	52.9	4.7
1225.0	60.7	51.9	8.9
1230.0	58.8	53.6	5.2
1235.0	57.0	54.8	2.2
1240.0	60.1	57.3	2.8
1245.0	57.9	55.9	2.0
1250.0	60.9	59.3	1.6
1255.0	62.0	60.0	1.9
1300.0	63.5	58.5	5.0
1305.0	59.9	62.9	-3.0
1310.0	59.8	57.0	2.7
1315.0	60.4	60.1	.3
1320.0	58.8	59.0	-.2
1325.0	59.8	58.4	1.4
1330.0	62.4	60.9	1.4
1335.0	60.1	58.0	2.1
1340.0	62.6	58.3	4.3
1345.0	60.1	55.2	4.9
1350.0	63.4	56.2	7.1
1355.0	64.7	62.6	2.1
1400.0	63.4	54.5	8.9
1405.0	66.4	58.0	8.4
1410.0	66.2	57.4	8.7
1415.0	64.1	60.4	3.7
1420.0	65.9	54.0	12.0
1425.0	66.0	57.8	8.3
1430.0	61.3	56.1	5.2
1435.0	61.8	56.2	5.6
1440.0	60.9	58.7	2.2
1445.0	59.3	58.4	.9
1450.0	63.9	59.7	4.2
1455.0	60.6	57.3	3.3

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 8, CAR 1	TC 8, CAR 2	DIFFERENCE
1500.0	56.9	58.7	-1.8
1505.0	56.2	60.9	-4.8
1510.0	58.6	58.9	-.3
1515.0	57.1	53.9	3.2
1520.0	54.7	52.4	2.3
1525.0	54.5	58.7	-4.2
1530.0	55.0	50.7	4.3
1535.0	54.5	49.5	5.0
1540.0	53.0	47.4	5.6
1545.0	51.2	48.3	2.9
1550.0	48.0	45.3	2.7
1555.0	48.3	46.5	1.8
1600.0	47.2	53.1	-6.0
1605.0	49.2	59.5	-10.3
1610.0	49.3	56.8	-7.5
1615.0	49.9	55.5	-5.6
1620.0	51.1	54.9	-3.7
1625.0	53.2	47.7	5.6
1630.0	54.7	49.2	5.5
1635.0	48.3	48.0	.3
1640.0	47.7	45.8	1.9

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 9, CAR 1	TC 9, CAR 2	DIFFERENCE
1037.0	30.5	28.4	2.0
1043.0	30.9	28.7	2.1
1055.0	31.9	29.4	2.4
1103.0	32.2	29.9	2.3
1106.0	32.4	30.1	2.3
1110.0	32.6	30.2	2.4
1115.0	32.9	30.4	2.5
1120.0	33.2	30.8	2.4
1130.0	33.7	31.1	2.7
1135.0	34.0	31.6	2.4
1140.0	34.1	31.5	2.6
1145.0	34.2	31.6	2.6
1150.0	34.4	31.6	2.8
1155.0	34.6	31.8	2.7
1200.0	34.8	31.8	3.0
1205.0	34.9	32.1	2.8
1210.0	35.2	32.4	2.7
1215.0	35.2	32.4	2.8
1220.0	35.3	32.5	2.8
1225.0	35.5	32.6	2.9
1230.0	35.6	32.8	2.7
1235.0	35.8	33.0	2.8
1240.0	35.9	33.4	2.5
1245.0	35.9	33.4	2.5
1250.0	36.0	33.6	2.4
1255.0	36.3	33.7	2.6
1300.0	36.4	33.7	2.7
1305.0	36.4	33.9	2.6
1310.0	36.6	33.9	2.7
1315.0	36.7	33.9	2.8
1320.0	36.7	34.1	2.6
1325.0	36.9	34.6	2.4
1330.0	36.9	34.6	2.3
1335.0	37.1	34.7	2.3
1340.0	37.2	35.0	2.2
1345.0	37.3	35.2	2.1
1350.0	37.4	35.4	2.0
1355.0	37.7	35.6	2.0
1400.0	37.8	35.7	2.0
1405.0	37.8	35.9	1.9
1410.0	37.9	36.0	1.9
1415.0	38.0	36.2	1.8
1420.0	38.0	36.2	1.8
1425.0	38.1	36.2	1.8
1430.0	38.2	36.5	1.7
1435.0	38.3	36.5	1.8
1440.0	38.2	36.5	1.7
1445.0	38.5	36.7	1.8
1450.0	38.6	37.0	1.7
1455.0	38.7	37.0	1.7

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 9, CAR 1	TC 9, CAR 2	DIFFERENCE
1500.0	38.5	36.9	1.6
1505.0	38.6	37.0	1.6
1510.0	38.6	37.2	1.5
1515.0	38.7	37.2	1.4
1520.0	38.6	37.2	1.4
1525.0	38.7	37.4	1.3
1530.0	38.8	37.6	1.2
1535.0	38.9	37.8	1.2
1540.0	38.9	37.7	1.2
1545.0	39.0	37.7	1.2
1550.0	39.0	37.7	1.3
1555.0	38.8	37.7	1.1
1600.0	38.9	37.8	1.1
1605.0	39.0	37.8	1.2
1610.0	39.0	37.9	1.1
1615.0	38.9	37.8	1.1
1620.0	38.9	37.9	1.0
1625.0	38.9	38.0	.9
1630.0	39.0	37.9	1.0
1635.0	38.9	37.9	1.0
1640.0	38.8	37.8	1.0

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 10, CAR 1	TC 10, CAR 2	DIFFERENCE
1037.0	82.6	68.8	13.8
1043.0	83.9	69.8	14.1
1055.0	85.9	71.8	14.1
1103.0	87.2	72.6	14.7
1106.0	88.0	73.1	14.9
1110.0	88.9	73.7	15.2
1115.0	89.5	74.4	15.1
1120.0	90.3	74.4	15.9
1130.0	91.5	75.1	16.4
1135.0	92.2	75.8	16.4
1140.0	92.1	75.5	16.7
1145.0	92.7	75.4	17.3
1150.0	92.8	75.6	17.2
1155.0	93.3	76.2	17.1
1200.0	93.8	76.9	16.9
1205.0	94.5	77.8	16.7
1210.0	95.1	78.2	17.0
1215.0	95.3	78.2	17.1
1220.0	95.7	78.2	17.6
1225.0	96.0	78.5	17.6
1230.0	96.3	79.1	17.2
1235.0	96.8	79.4	17.4
1240.0	97.3	80.1	17.2
1245.0	97.1	80.6	16.5
1250.0	97.3	80.2	17.1
1255.0	97.2	80.8	16.4
1300.0	97.1	80.6	16.6
1305.0	96.9	80.6	16.2
1310.0	96.8	81.1	15.7
1315.0	96.8	80.2	16.6
1320.0	96.6	79.8	16.9
1325.0	96.6	79.9	16.7
1330.0	96.8	79.9	16.9
1335.0	96.7	80.5	16.2
1340.0	96.7	80.3	16.4
1345.0	96.0	80.4	15.7
1350.0	96.0	80.0	16.0
1355.0	95.7	80.2	15.6
1400.0	95.6	79.8	15.8
1405.0	95.6	79.5	16.1
1410.0	95.9	79.4	16.5
1415.0	94.8	78.9	15.9
1420.0	94.6	79.0	15.5
1425.0	93.9	78.6	15.4
1430.0	93.6	78.1	15.5
1435.0	93.1	77.7	15.5
1440.0	92.5	77.2	15.3
1445.0	92.4	77.2	15.1
1450.0	91.3	76.9	14.4
1455.0	90.6	76.0	14.6

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 10, CAR 1	TC 10, CAR 2	DIFFERENCE
1500.0	88.9	74.9	14.0
1505.0	88.7	74.3	14.4
1510.0	87.6	73.9	13.8
1515.0	86.9	73.1	13.8
1520.0	85.9	72.4	13.5
1525.0	85.4	71.9	13.5
1530.0	84.7	71.6	13.1
1535.0	83.8	71.0	12.8
1540.0	82.7	70.0	12.7
1545.0	82.0	69.6	12.4
1550.0	81.2	68.9	12.3
1555.0	80.3	68.2	12.1
1600.0	79.5	67.4	12.1
1605.0	78.4	66.6	11.8
1610.0	76.6	65.1	11.5
1615.0	75.1	64.1	11.0
1620.0	73.8	63.3	10.5
1625.0	72.5	62.0	10.5
1630.0	70.6	60.3	10.2
1635.0	68.8	58.7	10.1
1640.0	67.2	57.4	9.7

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 11, CAR 1	TC 11, CAR 2	DIFFERENCE
1037.0	19.1	19.8	-.7
1043.0	20.3	20.1	.2
1055.0	20.2	20.0	.2
1103.0	21.5	21.1	.3
1106.0	21.2	20.4	.8
1110.0	21.0	20.8	.1
1115.0	21.8	20.7	1.1
1120.0	22.3	20.9	1.4
1130.0	22.4	21.0	1.4
1135.0	22.5	21.7	.8
1140.0	22.0	20.8	1.2
1145.0	22.3	22.6	-.3
1150.0	22.9	21.9	1.0
1155.0	22.4	22.6	-.2
1200.0	23.6	23.0	.5
1205.0	24.1	23.4	.8
1210.0	23.9	22.6	1.3
1215.0	23.6	23.2	.5
1220.0	23.2	23.1	.1
1225.0	23.0	22.8	.1
1230.0	24.1	22.7	1.4
1235.0	25.7	23.2	2.4
1240.0	24.9	23.4	1.5
1245.0	23.8	24.5	-.7
1250.0	24.7	25.0	-.3
1255.0	25.2	24.6	.6
1300.0	24.5	24.4	.2
1305.0	24.6	24.7	-.1
1310.0	26.0	24.2	1.7
1315.0	25.3	23.6	1.7
1320.0	27.0	25.4	1.6
1325.0	26.2	23.6	2.6
1330.0	25.6	26.4	-.8
1335.0	24.7	26.0	-1.4
1340.0	27.8	25.3	2.5
1345.0	26.0	26.2	-.2
1350.0	28.1	25.9	2.2
1355.0	27.6	26.0	1.5
1400.0	27.6	26.2	1.4
1405.0	27.0	25.6	1.5
1410.0	27.7	25.2	2.5
1415.0	27.6	26.3	1.3
1420.0	27.8	26.5	1.3
1425.0	28.6	26.5	2.1
1430.0	26.3	27.7	-1.4
1435.0	29.7	25.9	3.7
1440.0	28.3	29.0	-.7
1445.0	27.0	25.6	1.4
1450.0	28.2	27.1	1.1
1455.0	28.7	27.9	.8

OMNITAB PROGCAR4 [redacted]

STATIC TEST 4/4/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 11, CAR 1	TC 11, CAR 2	DIFFERENCE
1500.0	28.8	28.3	.6
1505.0	28.8	27.2	1.6
1510.0	28.9	28.0	1.0
1515.0	26.9	26.8	.1
1520.0	28.5	27.4	1.1
1525.0	30.1	28.4	1.6
1530.0	27.8	26.9	.9
1535.0	29.1	28.2	.9
1540.0	28.9	28.4	.5
1545.0	28.5	27.9	.6
1550.0	29.4	29.0	.5
1555.0	30.1	24.9	5.3
1600.0	29.5	27.1	2.5
1605.0	29.8	27.6	2.2
1610.0	31.0	26.8	4.2
1615.0	29.8	27.5	2.3
1620.0	29.7	28.3	1.4
1625.0	28.7	26.7	2.0
1630.0	28.0	26.9	1.1
1635.0	29.7	27.8	1.9
1640.0	31.2	27.9	3.2

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 1, CAR 1	TC 1, CAR 2	DIFFERENCE
1325.0	36.5	35.8	.7
1330.0	36.7	37.1	-.4
1345.0	36.8	36.8	.0
1350.0	36.7	37.1	-.3
1355.0	36.4	37.1	-.7
1400.0	35.9	36.7	-.8
1405.0	35.7	36.4	-.7
1410.0	35.8	36.4	-.7
1415.0	35.9	36.6	-.6
1420.0	36.3	37.2	-.8
1425.0	38.2	38.5	-.3
1430.0	36.9	38.1	-1.2

OMNITAB PROGCAR53 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 2, CAR 1	TC 2, CAR 2	DIFFERENCE
1325.0	34.9	32.5	2.4
1330.0	35.3	33.6	1.7
1345.0	35.4	33.7	1.7
1350.0	35.7	34.8	.9
1355.0	36.0	34.9	1.1
1400.0	35.9	35.0	.9
1405.0	36.0	35.3	.7
1410.0	36.0	35.4	.6
1415.0	36.1	35.5	.6
1420.0	36.3	35.6	.6
1425.0	37.0	36.2	.8
1430.0	36.8	36.4	.4

OMNITAB PROGCAR S3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 3, CAR 1	TC 3, CAR 2	DIFFERENCE
1325.0	33.4	31.0	2.4
1330.0	34.2	31.6	2.6
1345.0	32.8	31.5	1.2
1350.0	33.1	32.2	.9
1355.0	34.1	32.5	1.6
1400.0	33.8	33.4	.4
1405.0	34.0	33.0	1.0
1410.0	34.8	33.4	1.4
1415.0	34.5	33.0	1.5
1420.0	36.2	33.4	2.8
1425.0	35.5	33.9	1.6
1430.0	35.0	33.7	1.4

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 4, CAR 1	TC 4, CAR 2	DIFFERENCE
1325.0	37.1	38.1	-1.0
1330.0	36.9	40.0	-3.0
1345.0	36.7	38.8	-2.1
1350.0	36.6	38.5	-1.9
1355.0	36.9	38.0	-1.1
1400.0	36.8	37.8	-1.0
1405.0	36.3	37.4	-1.1
1410.0	37.0	37.5	-.5
1415.0	36.8	37.7	-.9
1420.0	37.5	38.7	-1.2
1425.0	38.2	39.3	-1.1
1430.0	36.4	38.8	-2.4

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 5, CAR 1	TC 5, CAR 2	DIFFERENCE
1325.0	36.2	34.3	1.9
1330.0	36.6	35.9	.7
1345.0	35.9	36.4	-.5
1350.0	36.5	36.8	-.2
1355.0	36.9	36.7	.2
1400.0	37.0	37.0	.1
1405.0	37.1	37.2	-.1
1410.0	37.1	37.1	.1
1415.0	37.3	37.2	.0
1420.0	37.3	37.7	-.4
1425.0	37.5	38.5	-1.0
1430.0	37.7	38.2	-.5

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 6, CAR 1	TC 6, CAR 2	DIFFERENCE
1325.0	35.7	33.4	2.3
1330.0	36.0	34.3	1.7
1345.0	34.9	34.9	.0
1350.0	35.5	35.8	-.3
1355.0	36.7	36.1	.6
1400.0	38.0	36.0	2.0
1405.0	38.2	36.3	1.9
1410.0	36.6	35.7	.9
1415.0	38.2	35.6	2.6
1420.0	38.1	36.3	1.8
1425.0	36.4	37.2	-.9
1430.0	40.2	36.2	4.0

OMNITAB PROGCARD53 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 7, CAR 1	TC 7, CAR 2	DIFFERENCE
1325.0	.0	.0	.0
1330.0	.0	.0	.0
1345.0	35.9	35.0	.9
1350.0	36.2	35.7	.5
1355.0	36.4	36.1	.3
1400.0	36.4	36.1	.3
1405.0	36.3	35.8	.5
1410.0	36.4	35.9	.5
1415.0	36.7	36.1	.5
1420.0	37.0	36.5	.5
1425.0	38.6	40.1	-1.5
1430.0	37.3	37.5	-.3

OMNITAB PROGCAR53 [redacted]

YNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 8, CAR 1	TC 8, CAR 2	DIFFERENCE
1325.0	.0	.0	.0
1330.0	.0	.0	.0
1345.0	37.1	43.8	-6.7
1350.0	36.7	45.6	-9.0
1355.0	37.4	42.0	-4.6
1400.0	36.5	41.7	-5.2
1405.0	36.4	41.2	-4.8
1410.0	36.2	40.6	-4.4
1415.0	38.5	42.2	-3.7
1420.0	37.3	44.3	-7.0
1425.0	37.9	40.9	-3.0
1430.0	37.4	40.9	-3.5

OMNITAB PROGCARS3 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 9, CAR 1	TC 9, CAR 2	DIFFERENCE
1325.0	38.7	32.6	6.1
1330.0	38.7	32.4	6.3
1345.0	38.3	34.4	3.9
1350.0	40.1	34.0	6.1
1355.0	40.6	33.8	6.8
1400.0	41.0	33.9	7.2
1405.0	41.4	34.2	7.1
1410.0	41.3	33.9	7.4
1415.0	41.2	34.2	7.1
1420.0	41.5	34.5	7.1
1425.0	42.4	34.0	8.4
1430.0	42.3	33.7	8.6

OMNITAB PROGCAM53 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 10, CAR 1	TC 10, CAR 2	DIFFERENCE
1325.0	57.1	68.9	-11.8
1330.0	56.9	72.8	-15.9
1345.0	53.3	66.3	-13.0
1350.0	50.9	63.0	-12.1
1355.0	48.6	59.6	-11.0
1400.0	46.5	56.2	-9.8
1405.0	45.2	54.3	-9.0
1410.0	43.8	52.3	-8.5
1415.0	47.4	57.9	-10.5
1420.0	48.5	59.1	-10.5
1425.0	49.4	60.8	-11.4
1430.0	46.1	56.1	-10.0

OMNITAB PROGCAR53 [redacted]

DYNAMIC TEST 4/3/74 TINTED WINDSHIELD ON CAR 1

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 11, CAR 1	TC 11, CAR 2	DIFFERENCE
1325.0	24.0	23.7	.4
1330.0	25.3	24.0	1.3
1345.0	26.7	24.6	2.2
1350.0	24.2	25.5	-1.3
1355.0	23.9	24.4	-.5
1400.0	23.7	23.3	.3
1405.0	24.5	24.4	.1
1410.0	23.0	23.1	-.1
1415.0	23.4	22.6	.8
1420.0	26.1	28.1	-1.9
1425.0	24.5	26.7	-2.2
1430.0	23.7	23.7	-.0

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 1, CAR 1	TC 1, CAR 2	DIFFERENCE
1045.0	38.6	38.1	.5
1050.0	40.1	37.9	2.2
1055.0	40.8	38.9	1.8
1100.0	41.9	39.5	2.3
1105.0	41.8	39.8	2.0
1110.0	42.3	40.1	2.2
1115.0	42.7	40.6	2.0
1120.0	42.4	40.2	2.2
1125.0	42.7	41.0	1.7
1130.0	42.9	40.8	2.1
1135.0	43.5	40.5	3.0
1140.0	43.4	40.7	2.6
1145.0	43.6	40.6	3.0
1150.0	43.6	41.4	2.3
1155.0	43.8	42.1	1.8
1200.0	44.7	42.7	2.0
1205.0	45.2	43.3	1.9
1210.0	45.0	43.1	1.9
1215.0	44.0	41.7	2.3
1220.0	43.6	41.7	2.0
1225.0	42.5	40.9	1.6
1230.0	42.4	41.3	1.1

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 2, CAR 1	TC 2, CAR 2	DIFFERENCE
1045.0	37.0	33.0	4.0
1050.0	37.5	33.8	3.7
1055.0	38.1	34.5	3.5
1100.0	38.5	35.2	3.3
1105.0	38.8	35.6	3.2
1110.0	39.8	35.7	4.1
1115.0	39.4	36.1	3.3
1120.0	39.7	36.4	3.3
1125.0	39.9	37.0	2.9
1130.0	39.9	37.2	2.7
1135.0	40.3	37.4	2.9
1140.0	40.1	37.4	2.7
1145.0	41.0	37.6	3.4
1150.0	41.3	37.8	3.5
1155.0	41.5	38.0	3.5
1200.0	42.6	38.4	4.3
1205.0	42.6	38.7	3.9
1210.0	42.2	38.6	3.6
1215.0	41.9	38.6	3.2
1220.0	40.6	38.4	2.2
1225.0	39.4	37.8	1.6
1230.0	40.2	37.4	2.7

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 3, CAR 1	TC 3, CAR 2	DIFFERENCE
1045.0	34.5	32.3	2.3
1050.0	36.0	33.3	2.7
1055.0	36.8	34.0	2.7
1100.0	38.1	34.6	3.5
1105.0	37.5	36.4	1.1
1110.0	37.4	35.1	2.3
1115.0	37.5	37.4	.1
1120.0	39.7	36.7	2.0
1125.0	39.2	36.5	2.7
1130.0	39.3	37.1	2.2
1135.0	40.0	37.2	2.8
1140.0	38.7	38.8	-.2
1145.0	37.8	38.7	-.9
1150.0	39.2	38.7	.5
1155.0	38.9	38.1	.8
1200.0	39.8	38.9	.9
1205.0	40.7	38.2	2.4
1210.0	40.1	38.7	1.5
1215.0	40.0	38.8	1.2
1220.0	39.1	38.3	.8
1225.0	38.7	39.2	-.5
1230.0	37.7	38.7	-1.0

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 4, CAR 1	TC 4, CAR 2	DIFFERENCE
1045.0	42.8	39.9	2.9
1050.0	43.6	39.9	3.6
1055.0	43.0	39.5	3.5
1100.0	43.7	40.4	3.3
1105.0	44.7	40.1	4.6
1110.0	45.3	41.1	4.2
1115.0	44.5	40.6	3.9
1120.0	44.7	40.8	3.9
1125.0	43.5	40.5	3.1
1130.0	45.7	41.4	4.3
1135.0	45.1	41.8	3.3
1140.0	46.7	42.1	4.7
1145.0	47.1	42.5	4.5
1150.0	46.3	42.6	3.7
1155.0	46.4	42.1	4.3
1200.0	47.3	42.3	5.0
1205.0	47.8	43.1	4.7
1210.0	46.8	42.8	3.9
1215.0	44.6	41.7	2.9
1220.0	43.9	40.9	3.0
1225.0	42.8	39.9	2.9
1230.0	42.6	40.2	2.4

OMNITAB PROGCARS5 [redacted]
DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2
TEMPERATURES IN DEGREES CELSIUS

TIME	TC 6, CAR 1	TC 6, CAR 2	DIFFERENCE
1045.0	38.1	34.6	3.5
1050.0	38.6	35.5	3.1
1055.0	39.5	35.8	3.7
1100.0	41.6	36.0	5.6
1105.0	40.4	37.7	2.7
1110.0	40.5	37.7	2.8
1115.0	41.8	38.0	3.8
1120.0	41.9	37.6	4.3
1125.0	42.0	38.3	3.7
1130.0	43.1	38.4	4.7
1135.0	43.3	37.4	5.9
1140.0	44.1	38.7	5.5
1145.0	43.2	39.3	3.8
1150.0	43.6	39.6	3.9
1155.0	43.1	40.1	3.0
1200.0	42.3	40.2	2.1
1205.0	44.9	41.0	4.0
1210.0	44.6	41.2	3.4
1215.0	44.4	40.9	3.5
1220.0	44.4	40.0	4.4
1225.0	42.8	39.3	3.5
1230.0	42.2	39.2	2.9

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 5, CAR 1	TC 5, CAR 2	DIFFERENCE
1045.0	37.6	35.0	2.6
1050.0	38.2	36.3	1.9
1055.0	38.8	37.0	1.8
1100.0	39.4	37.6	1.8
1105.0	39.5	37.6	1.9
1110.0	40.5	38.9	1.7
1115.0	40.5	38.7	1.8
1120.0	41.4	38.6	2.8
1125.0	41.5	39.4	2.1
1130.0	41.0	39.2	1.8
1135.0	41.0	40.0	1.0
1140.0	41.1	39.7	1.4
1145.0	41.1	39.7	1.5
1150.0	42.3	40.8	1.4
1155.0	42.5	40.3	2.1
1200.0	43.7	40.6	3.1
1205.0	43.4	41.3	2.2
1210.0	44.3	41.3	3.0
1215.0	43.9	40.9	3.0
1220.0	43.5	40.3	3.2
1225.0	42.2	40.2	1.9
1230.0	41.1	39.4	1.7

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 7, CAR 1	TC 7, CAR 2	DIFFERENCE
1045.0	36.5	33.8	2.7
1050.0	39.1	34.4	4.8
1055.0	41.4	39.5	1.9
1100.0	40.0	35.9	4.1
1105.0	39.8	36.1	3.8
1110.0	40.2	36.6	3.7
1115.0	40.3	36.5	3.7
1120.0	40.6	36.6	4.0
1125.0	40.4	36.4	3.9
1130.0	40.8	36.0	4.8
1135.0	40.9	36.5	4.3
1140.0	41.0	36.7	4.3
1145.0	41.0	37.0	4.0
1150.0	41.5	37.2	4.4
1155.0	42.2	37.5	4.8
1200.0	42.7	38.2	4.5
1205.0	42.9	38.6	4.3
1210.0	42.4	38.0	4.4
1215.0	42.2	37.0	5.2
1220.0	42.0	36.7	5.3
1225.0	44.5	40.1	4.4
1230.0	44.6	40.3	4.3

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 8, CAR 1	TC 8, CAR 2	DIFFERENCE
1045.0	.0	.0	.0
1050.0	.0	.0	.0
1055.0	.0	.0	.0
1100.0	.0	.0	.0
1105.0	.0	.0	.0
1110.0	.0	.0	.0
1115.0	.0	.0	.0
1120.0	.0	.0	.0
1125.0	.0	.0	.0
1130.0	.0	.0	.0
1135.0	.0	.0	.0
1140.0	.0	.0	.0
1145.0	.0	.0	.0
1150.0	.0	.0	.0
1155.0	.0	.0	.0
1200.0	.0	.0	.0
1205.0	.0	.0	.0
1210.0	.0	.0	.0
1215.0	.0	.0	.0
1220.0	.0	.0	.0
1225.0	.0	.0	.0
1230.0	.0	.0	.0

OMNITAB PROGCAR55 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 9, CAR 1	TC 9, CAR 2	DIFFERENCE
1045.0	36.0	34.2	1.8
1050.0	37.0	35.1	1.9
1055.0	37.7	35.4	2.3
1100.0	38.3	36.9	1.4
1105.0	38.6	37.4	1.2
1110.0	39.9	37.7	2.2
1115.0	39.8	38.4	1.5
1120.0	40.0	37.4	2.6
1125.0	40.5	37.2	3.3
1130.0	40.7	38.5	2.3
1135.0	40.2	40.4	-.3
1140.0	41.4	39.8	1.6
1145.0	40.6	40.2	.4
1150.0	41.3	40.7	.6
1155.0	42.0	39.7	2.4
1200.0	42.9	40.4	2.5
1205.0	43.1	40.9	2.1
1210.0	43.0	41.8	1.2
1215.0	43.0	40.9	2.0
1220.0	43.1	42.0	1.0
1225.0	41.1	40.9	.3
1230.0	33.6	39.0	-5.4

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 10, CAR 1	TC 10, CAR 2	DIFFERENCE
1045.0	73.8	60.7	13.1
1050.0	71.2	61.8	9.4
1055.0	66.9	56.7	10.2
1100.0	71.7	59.4	12.2
1105.0	74.8	62.1	12.7
1110.0	76.6	63.8	12.8
1115.0	73.2	61.4	11.8
1120.0	73.0	59.8	13.2
1125.0	72.8	59.6	13.2
1130.0	76.9	62.8	14.1
1135.0	78.1	64.8	13.3
1140.0	78.9	66.1	12.7
1145.0	79.3	66.7	12.5
1150.0	76.9	65.1	11.8
1155.0	76.9	64.1	12.8
1200.0	78.1	64.0	14.1
1205.0	77.3	64.0	13.2
1210.0	74.0	62.6	11.4
1215.0	73.8	60.6	13.1
1220.0	70.8	58.7	12.0
1225.0	70.2	56.3	13.9
1230.0	67.8	54.9	12.9

OMNITAB PROGCARS5 [redacted]

DYNAMIC TEST 4/5/74 TINTED WINDSHIELD ON CAR 2

TEMPERATURES IN DEGREES CELSIUS

TIME	TC 11, CAR 1	TC 11, CAR 2	DIFFERENCE
1045.0	27.7	29.2	-1.4
1050.0	27.4	29.1	-1.8
1055.0	26.9	27.1	-.2
1100.0	28.3	29.3	-1.0
1105.0	30.0	30.6	-.7
1110.0	30.0	30.6	-.6
1115.0	28.2	26.9	1.4
1120.0	26.0	25.9	.1
1125.0	26.8	27.0	-.2
1130.0	28.9	31.6	-2.7
1135.0	30.5	29.6	.9
1140.0	31.1	28.3	2.8
1145.0	30.6	31.3	-.7
1150.0	28.5	29.4	-.9
1155.0	28.4	28.3	.1
1200.0	28.7	27.9	.7
1205.0	27.0	29.1	-2.1
1210.0	25.2	25.1	.2
1215.0	24.8	25.5	-.8
1220.0	20.6	21.7	-1.1
1225.0	21.4	21.0	.4
1230.0	23.2	23.4	-.2

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16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

The effect of tinting in the glass of windshields on the air temperature in automobile passenger compartments was investigated. Measurements were performed with two nearly identical vehicles, one equipped with tinted windshield glass and one equipped with clear windshield glass. All other glass in both vehicles was tinted. Tests were performed statically, with the cars parked facing south, and dynamically, with the cars driven at approximately 80 km/h. In the static tests, the interior air temperatures as determined by liquid-in-glass thermometers were typically 2 to 3 °C cooler in the vehicle with the tinted windshield. In the dynamic tests, the differences in the interior air temperatures were smaller, typically about 0.5 to 1.5 °C. The interior air temperature differences determined with thermocouples varied with the thermocouple position. The differences typically ranged from a negligible amount (less than 1 °C) to about 6 °C; temperature differences as large as 16 °C were observed on the car dash.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)* Automobile windshields; automobile compartment temperatures; glazing materials; transmittance of vehicle glazing materials.

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