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FINAL REPORT NUMBER 401-NSA-04-006

SAFETY COMPLIANCE TESTING FOR FMVSS 401 Interior Trunk Release

2004 Volvo S-80 4-Door
NHTSA No. C45901

Prepared by:
NHTSA
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 7th Street, SW
Washington, D.C. 20590

March 31, 2004

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Prepared By: _____
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Accepted By: SSe
Stuart Seigel

Date: 3/31/04

TECHNICAL REPORT STANDARD TITLE PAGE

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9. Performing Organization Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 400 Seventh Street, SW Room 6111 Washington, DC 20590		10. Work Unit No.	
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report	
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15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2004 Volvo S-80 4-Door, NHTSA No. C45901, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-401-01 for the determination of FMVSS 401 compliance. The test was conducted at a Volvo Dealership in Northern Virginia, by NHTSA personnel on March 10, 2004. Test failures identified were as follows: NONE			
17. Key Words Compliance Testing Safety Engineering FMVSS 401 2004 Volvo S-80 4-Door		18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Mail Code: NAD-52 400 Seventh Street, SW, Room 5108 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this compliance test was to determine whether the subject vehicle, a 2004 Volvo S-80 4-Door, meets the performance requirements of FMVSS 401, Interior Trunk Release.

The test was conducted in accordance with the U. S. Department of Transportation, National Highway Traffic Safety Administration's Laboratory Test Procedure TP-401-01.

The test was conducted at a Volvo Dealership in Northern Virginia on March 10, 2004 by NHTSA Office of Vehicle Safety Compliance test engineers.

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS

Based on the test performed, the 2004 Volvo S-80 4-Door, NHTSA No. C45901 appeared to meet the requirements of FMVSS 401.

The vehicle was tested by entering the trunk and closing the lid. The release slide lever was easily observed in the darkened, enclosed trunk. A force gauge was attached to the release handle and 3 separate attempts were made to exit the trunk by applying a load to the instrument. For each attempt, the trunk released from the single latching position at a force level of approximately 18.0 newtons (4.0 lbs.) or less.

3.0 COMPLIANCE TEST DATA

DATA SHEET 1

FMVSS 401 - VEHICLE DESCRIPTION

VEHICLE MY/MAKE/MODEL 2004/VOLVO S-80/4DOOR

BODY STYLE: 4-DOOR

VEH. NHTSA NO.: C45901 ; VIN: YV1TS59H741366724

DATE OF TEST: 03/10/04 TEST LAB: BY OVSC @ DEALER

GVWR: 2073 KG MANUFACTURED DATE: 12/03

TRUNK LOCATION: REAR X FRONT

If Front, Front Opening? na

NUMBER OF TRUNK LID LATCHING POSITIONS: 1

INTERIOR TRUNK RELEASE: MANUAL X ; AUTOMATIC ;

BOTH

POWER OPERATED CLOSURE: na

OWNER'S MANUAL DESCRIPTION OF TRUNK RELEASE: YES X

NO

REMOVABLE EQUIPMENT DELIVERED IN TRUNK:

SPARE TIRE: X (SIZE)

TIRE JACK: X

LUG WRENCH: X

TOOL BOX: - (SIZE) -

PARTITIONS: -

OTHER: -

REMARKS:

RECORDED BY: SSe DATE: 03/10/04

APPROVED BY: S. Seigel

3.0 DATA SHEETS....Continued

DATA SHEET 2 (1 of 2)

FMVSS 401 - All trunks except for front trunk compartments with front opening hoods

MANUAL TRUNK RELEASE OPERATION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004/VOLVO S-80/4-DOOR

VEH. NHTSA NO.: C45901_____ ; VIN: YV1TS59H741366724

DATE OF TEST: 3/10/04

Method used to actuate interior trunk release: T-shaped grab handle to cable

(Grab handle, Rotating lever, etc.)

Can test personnel enter trunk and be closed within: Yes X No____

If Yes, size of occupant: At least 50th percentile male

Is there access to the trunk compartment by folding down rear seat or partition:

Yes X No_

Does Release Mechanism require electric power: Yes ___ No X

Can release mechanism be easily seen inside the closed trunk: Yes X No____

Describe method used by vehicle manufacturer to ensure that release mechanism is visible in a closed trunk compartment: Phosphorescence
(Phosphorescence, auxiliary lighting, etc)

Describe laboratory test method used to determine visibility of release mechanism: Trunk Entry (Trunk entry, darkened room, etc.)

Vehicle Stationary (0 km/h) **NO KEY IN IGNITION**	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from All latching positions	Pass/Fail
Attempt 1	18 N - 4.0 pounds	Yes	pass
Attempt 2	14 N - 3.0 pounds	Yes	pass
Attempt 3	14 N - 3.0 pounds	Yes	pass
Average -	15N - 3.3 pounds		

3.0 DATA SHEETS....Continued

DATA SHEET 2 (2 of 2)

FMVSS 401 - MANUAL TRUNK RELEASE OPERATION (continued)

NOTE: Interior Trunk Release is a totally mechanical system with its operation and functioning not dependant upon engine operation or vehicle speed. The release mechanism will function identical to that of the stationary vehicle with the no key in the ignition (as previously tested) and thus the following tests were not required to be conducted.

Vehicle Stationary (0 km/h) **ENGINE IDLING**	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

Vehicle Speed (km/h)	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from **All** latching positions	Pass/Fail
10			
20			
30			

Describe method used to propel vehicle:_____

PASS __X__ FAIL_____ REMARKS:

RECORDED BY: SSe DATE: 3/10/04

APPROVED BY: S. Selgel

3.0 DATA SHEETS....Continued

DATA SHEET 3

FMVSS 401 - TEST SUMMARY

	PASS	FAIL	COMMENTS
Automatic or Manual release mechanism inside the trunk compartment. S4.1	X		**Manual release lever handle**
If manual release, lighting feature is included. S4.2(a)	X		**Self Lighting**
If automatic release, unlatches trunk lid within 5 minutes. S4.2(b)	Na		
Except as provided by S4.3(b), actuation of release mechanism required by S4.1 completely releases trunk lid from all latching positions of the trunk lid latch. S 4.3(a)	X		**Single Latch Position Only**
For front trunk compartments, front opening hoods, when vehicle is stationary latch releases trunk lid from all locking positions. When moving forward at a speed less than 5km/h, must release the primary latch and may release all latches. At speeds greater than 5km/h must release the primary latch only. S4.3(b)	Na		

PASS __X__ FAIL_____

REMARKS: RECORDED BY: ___SSe_____

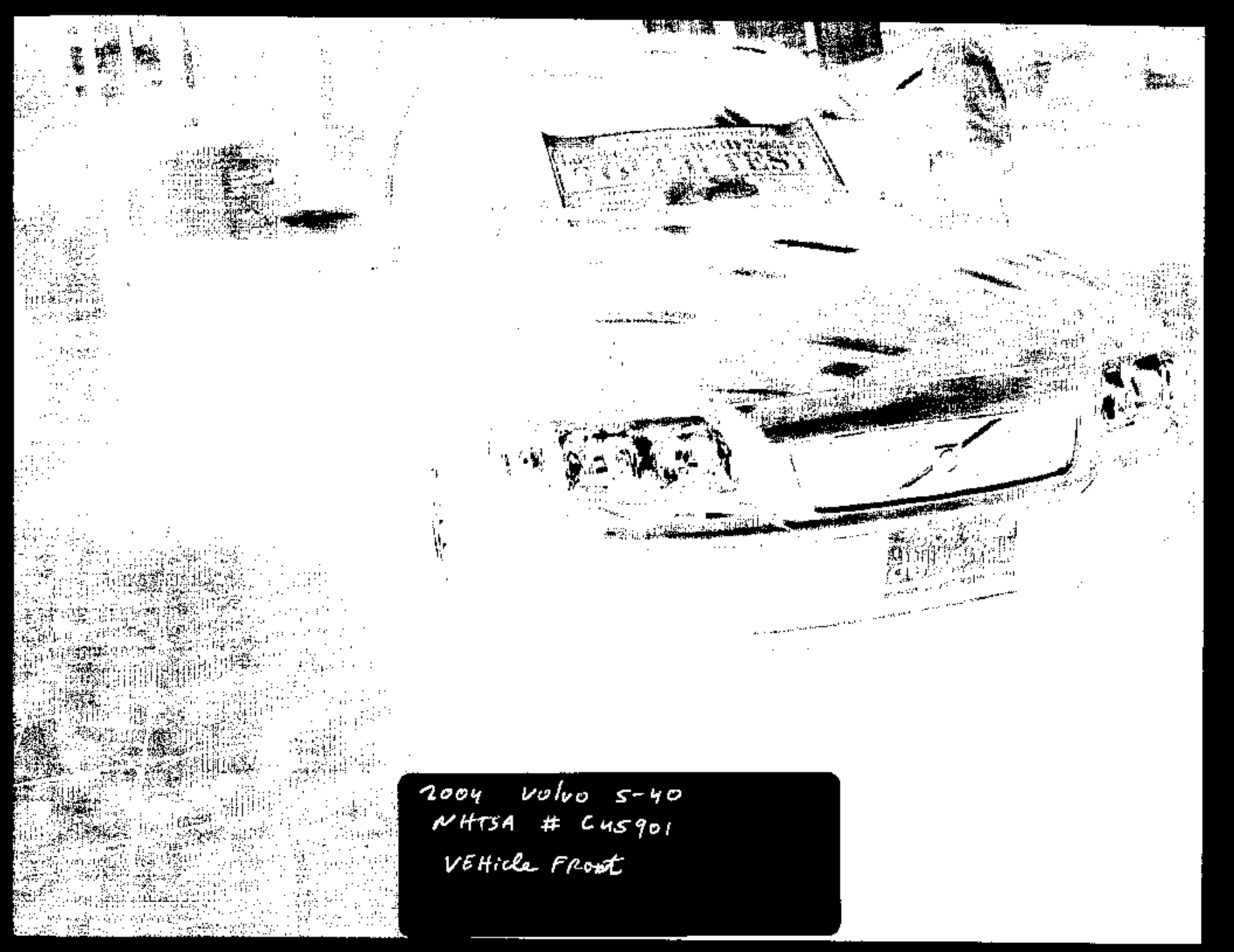
APPROVED BY; S.Seigel_____

DATE: ___3/10/04___

4.0 - Test Equipment List and Calibration Information

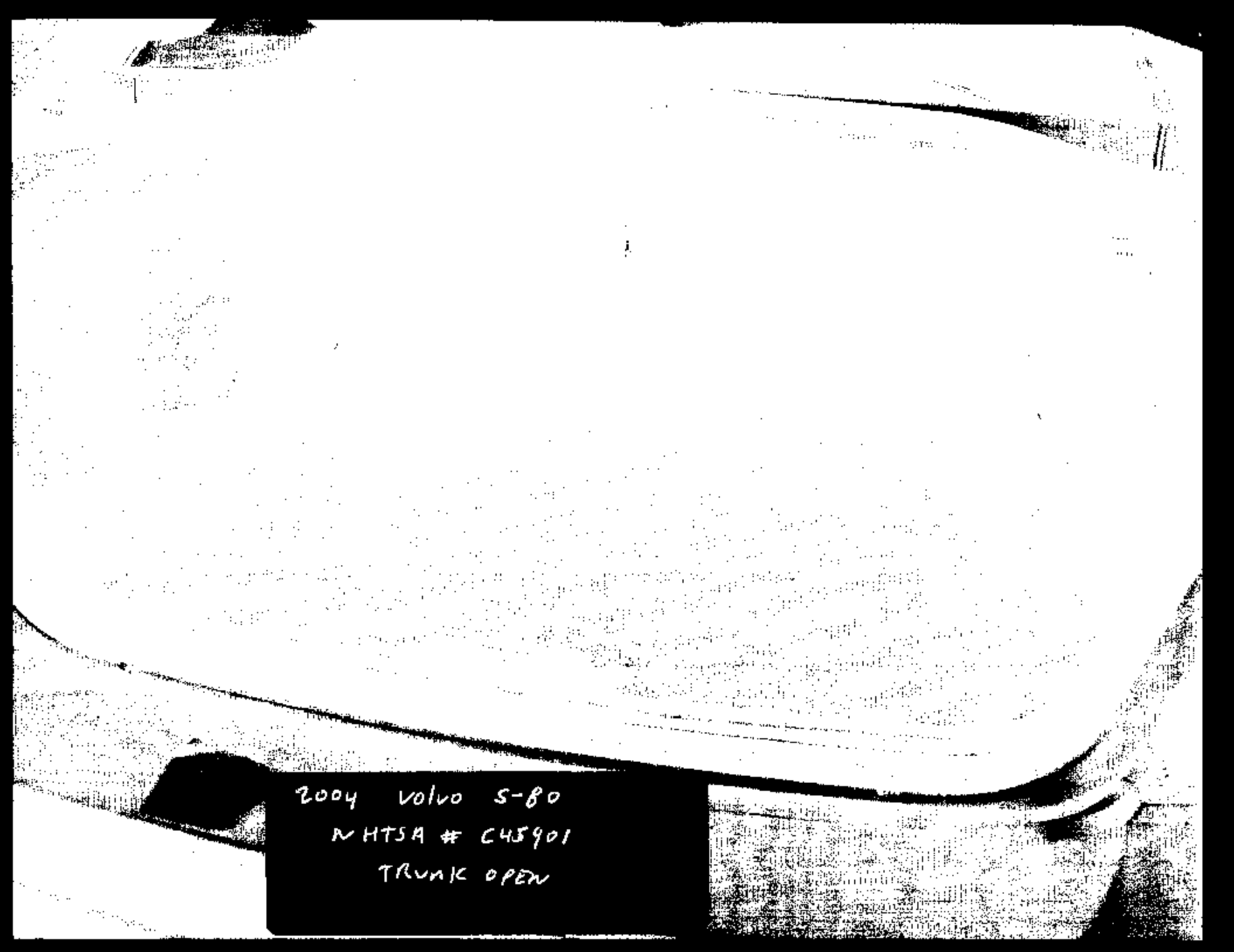
EQUIPMENT	DESCRIPTION	MODEL/SERIAL NO.	CALIBRATION DATE	NEXT CAL. DATE
Force Transducer	Viking Jr. Hanson Instrument	Model 890	Manufacturer	Manufacturer

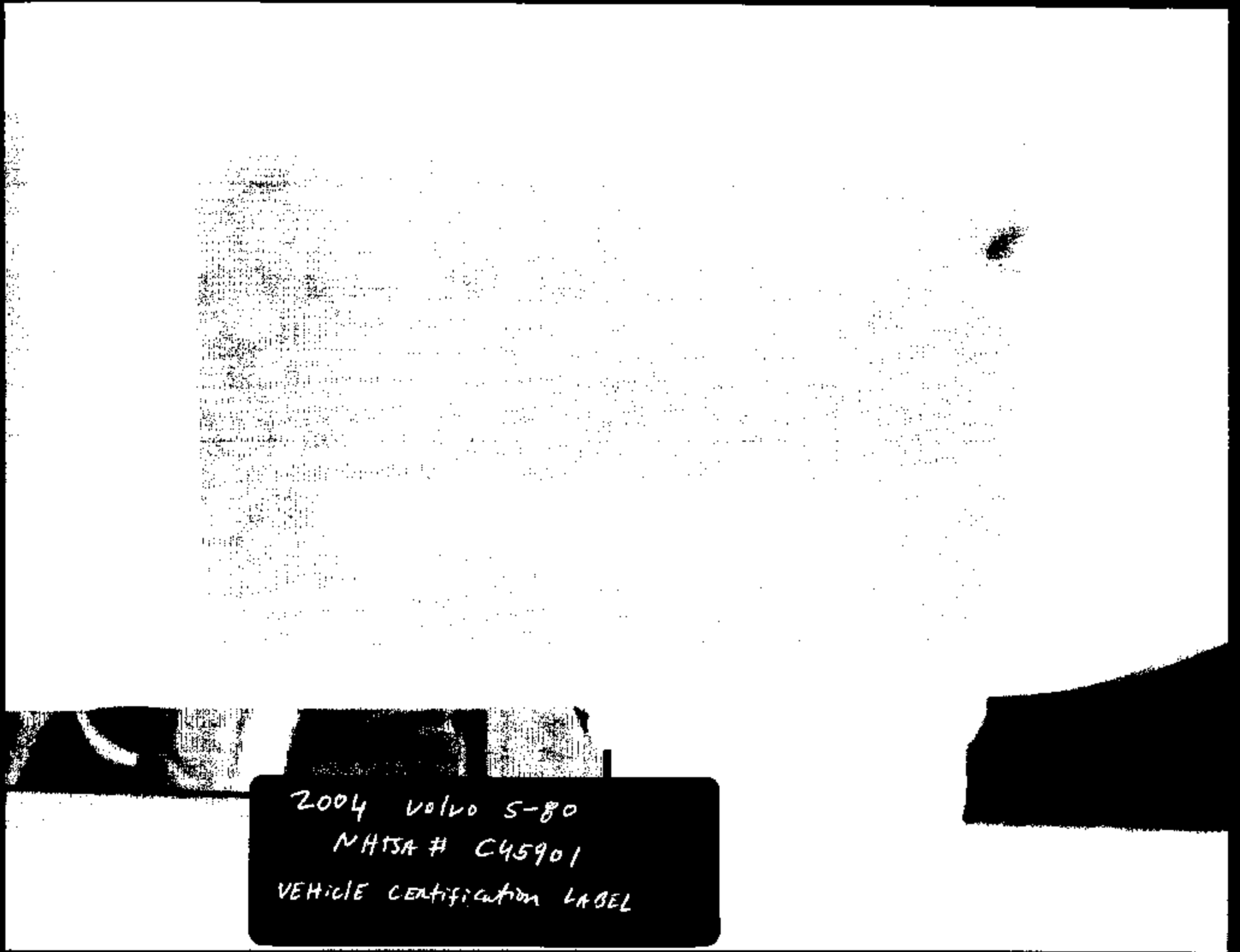
5.0 - Photographs



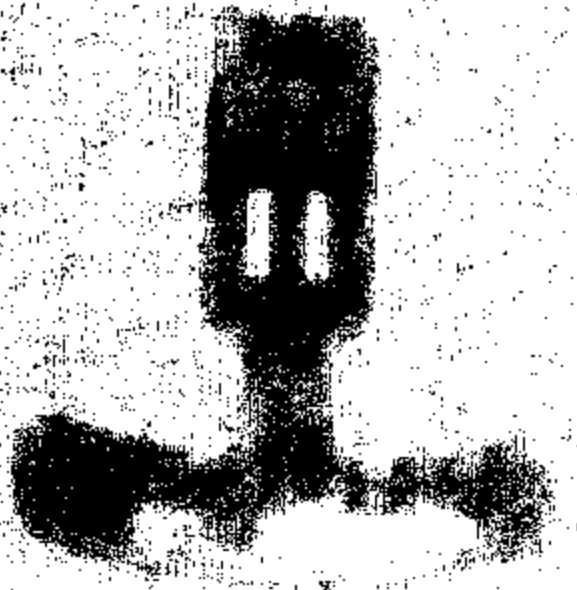
2004 Volvo S-40
NHTSA # C45901
Vehicle Front

2004 Volvo S-80
NHTSA # C45901
Vehicle rear

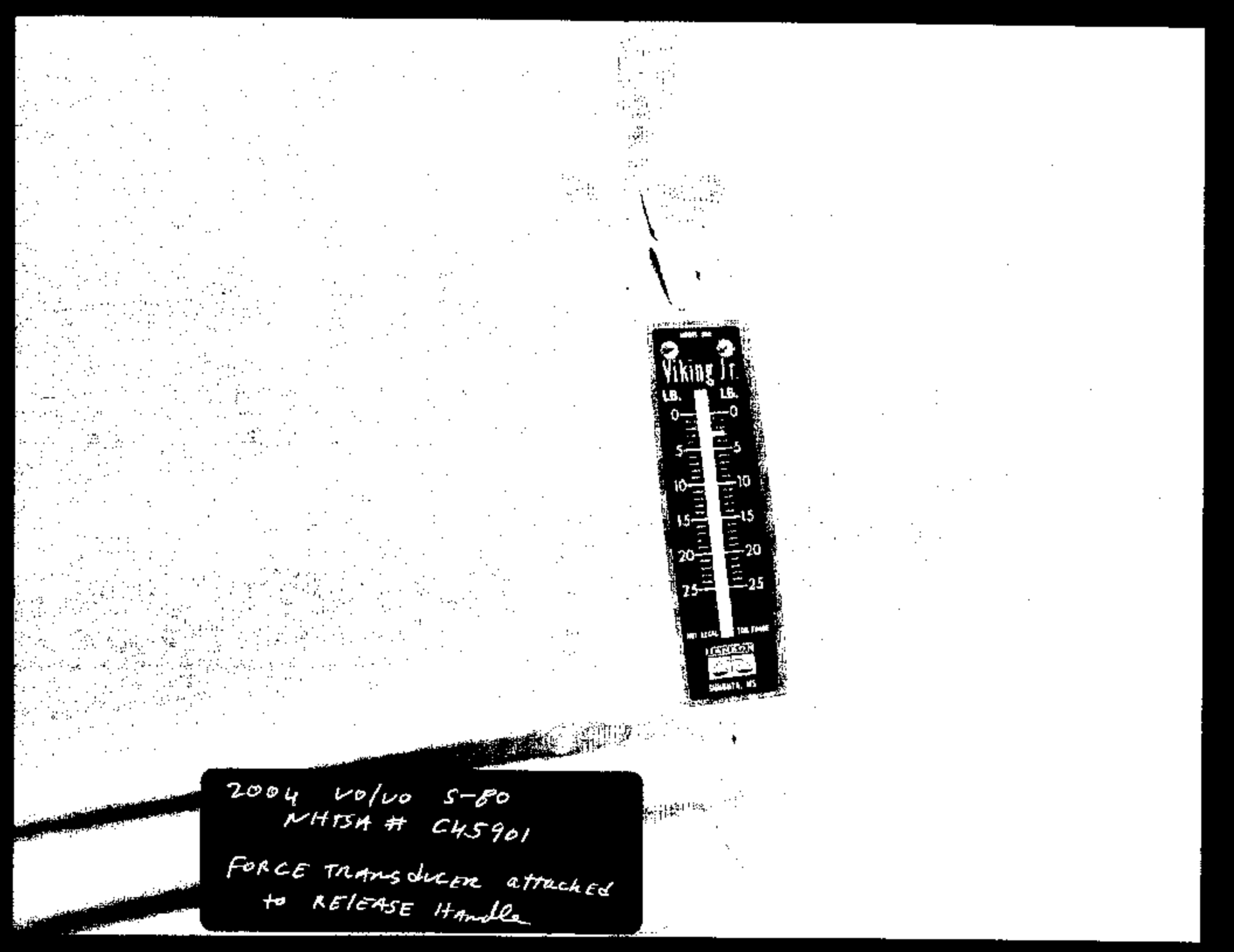

2004 Volvo S-80
NHTSA # C45901
TRUNK OPEN



2004 Volvo S-80
NHTSA # C45901
VEHICLE CERTIFICATION LABEL



2004 Volvo S-80
NHTSA# C45901
TRUNK RELEASE HANDLE



2004 VOLVO S-80
NHTSA # C45901

FORCE TRANSDUCER attached
to RELEASE Handle

6.0 Vehicle Owner's Manual (applicable pages)