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of Transportation

**National Highway
Traffic Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

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TRANSPORTATION SCIENCES CENTER
ACCIDENT RESEARCH GROUP

Division of Arvin/Calspan
Buffalo, New York 14225

CALSPAN REMOTE NON-DEPLOYMENT AIR BAG INVESTIGATION

CALSPAN CASE NO. 92-14

VEHICLE - 1991 ALFA ROMEO 164

LOCATION [REDACTED] FL

ACCIDENT DATE - [REDACTED] 1991

Contract No. DTNH22-87-C-27169

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 92-14		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Calspan Remote Non-Deployment Air Bag Investigation Vehicle - 1991 Alfa Romeo 164 Location - [REDACTED], FL				5. Report Date [REDACTED] 1992	
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				11. Contract or Grant No. DTNH22-87-C-27169	
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				14. Sponsoring Agency Code	
15. Supplementary Notes Remote investigation of a non-deployment air bag crash that involved a 1991 Alfa Romeo 164, 4 dr. sedan. Based on photographs of the frontal damage, the Alfa Romeo did not sustain a sufficient velocity change that is required for deployment.					
16. Abstract <p>This remote investigation focused on a 1991 Alfa Romeo that was equipped with a supplemental driver's air bag system. The Alfa Romeo was traveling in a southerly direction on a four lane roadway at a driver estimated speed of 48-56 KPH (30-35 mph). A 1986 Chevrolet Cavalier exited a parking lot driveway and initiated a left turn across the southbound travel lanes, directly in front of the Alfa Romeo. The driver of the Alfa Romeo did not have sufficient time to initiate avoidance action (i.e., braking).</p> <p>The center frontal area of the Alfa Romeo impacted the left front corner area of vehicle #2 which resulted in 20-25 cm (8-10") of bumper crush to the Alfa Romeo. The impact rotated vehicle #2 in a clockwise direction which allowed the right front bumper area of the Alfa to engage against the left front wheel of vehicle #2. The vehicles subsequently separated and came to rest near the point of impact.</p> <p>The driver's air bag system in the Alfa Romeo did not deploy during the crash sequence. Although the vehicle sustained a 12 o'clock impact force and moderate frontal damage, it did not sustain a sufficient longitudinal deceleration required for deployment. The ΔV was estimated at 16-19 KPH (10-12 mph), near the threshold required for deployment.</p>					
17. Key Words Intersection type collision Center frontal impact Velocity change less than required threshold Non-deployment crash			18. Distribution Statement General Public		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 18	
				22. Price	

CALSPAN REMOTE NON-DEPLOYMENT AIR BAG INVESTIGATION

CALSPAN CASE NO. 92-14

VEHICLE - 1991 ALFA ROMEO 164
LOCATION - [REDACTED] FL

SUMMARY

This remote investigation focused on a 1991 Alfa Romeo that was equipped with a supplemental driver's air bag system. The Alfa Romeo was involved in a front to side impact configuration with a 1986 Chevrolet Cavalier at the junction of a four lane roadway and a shopping center driveway. The crash occurred on [REDACTED] 1991, during daylight hours. The air bag system did not deploy as a result of the crash which caused over \$10,000 of frontal damage to the Alfa Romeo 164.

The Alfa Romeo was traveling in a southerly direction on the inboard travel lane of a four lane roadway at a driver estimated speed of 48-56 KPH (30-35 mph). The Chevrolet Cavalier initiated a left turn across the Alfa Romeo's path of travel and was traveling at an estimated speed of 16-24 KPH (10-15 mph). The center frontal area of the Alfa Romeo impacted the left front corner area of the Chevrolet. The impact rotated the Chevrolet which allowed the right frontal area of the Alfa to engage with the left front wheel and fender area of the Cavalier. Resultant directions of force were within the 12 o'clock sector for the air bag equipped vehicle and probably within the 10 o'clock sector for the Cavalier. Maximum crush was estimated at 20-25.4 cm (8-10") at the center of the front bumper of the Alfa Romeo. As a result of the crash, the Alfa Romeo underwent an estimated velocity change of 16-19 KPH (10-12 mph).

The impact rotated the Chevrolet Cavalier approximately 90° in a clockwise direction and displaced it south of the point of impact (POI). The Alfa Romeo continued forward before coming to rest approximately 4.6 m (15') south of the POI. The Alfa Romeo was occupied by the 15 year old male driver and four passengers. The four occupants in the outboard seated positions were restrained by the manual 3-point lap and shoulder belt system. A center rear occupant was restrained by the 2-point manual lap belt. All occupants initiated a forward trajectory and loaded the active belt systems. The driver and left rear passenger were not injured. The right front adult female passenger sustained thoracic back strain (AIS-1) from the impact force and subsequent restraint loading. The center rear and right rear passengers sustained abdominal abrasions (AIS-1) from loading the lap belt of their respective restraint systems.

The Alfa Romeo was towed to a local body shop that repaired the vehicle. All major frontal components inclusive of the bumper, hood, both front fenders, and radiator support panel were replaced. The vehicle was subsequently towed to an [REDACTED] dealership where the air bag system was inspected and tested for defects or faults. No problems were found by an experienced service technician.

Based on photographs of the vehicle, interviews with the owner, and review of the repair order and the police accident report, [REDACTED] believes that the Alfa Romeo did not sustain a sufficient deceleration that is required for deployment. The estimated velocity change was near the threshold required for deployment.

CALSPAN REMOTE NON-DEPLOYMENT AIR BAG INVESTIGATION

CALSPAN CASE NO. 92-14

VEHICLE - 1991 ALFA ROMEO 164
LOCATION - [REDACTED], FL

ACCIDENT DATA

Location/Street: Intersection of a county road and parking lot driveway
City/Township: [REDACTED], FL
Area Type: Urban/Commercial
Accident Date/Time: [REDACTED] 1991, daylight hours
Investigating Police Agency: [REDACTED] Police Department
Accident Type: Car/car, front to side impact configuration
Air Bag Vehicle Occupant Injury Severity: Minor (AIS-1)


AMBIENCE

Lighting Conditions: Daylight
Weather: Clear
Precipitation: None
Road Surface: Dry

HIGHWAY

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Location:	County road	Parking lot driveway
Number of Lanes:	4	2
Surface:	Asphalt	Asphalt
Vertical Alignment:	Level	Level
Horizontal Alignment:	Straight	Straight
Traffic Density:	Moderate	Moderate
Speed Limit:	35	Unknown if posted
Traffic Controls:	None	None

VEHICLES

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Year:	1991	1986
Make:	Alfa Romeo	Chevrolet
Model:	164	Cavalier
Body Style:	4 dr. sedan	4 dr. sedan
V.I.N.:	ZAREA33A3M6 (production number)	
Odometer:	11,181.5 km (6,945 miles)	Unknown
Tow Status:	Towed due to damage	Towed due to damage
Previous Repairs:	None, routine maintenance	Unknown

VEHICLE DAMAGE

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Object Struck:	Vehicle #2	
Event Number:	1	
Damage Location:	Center and right frontal area	Left front corner and fender area
CDC:	12-FZEW-2	10-LFEW-3
Estimated Maximum Crush:	20-25.4 cm (8-10")	Unknown, no photographs
Damaged Components:	Front bumper, grille, hood, radiator support panel, both front fenders (refer to attached repair order)	Front bumper, left front fender, left front tire and wheel
Repair Estimate:	10,211.69	Total loss

COLLISION SEQUENCE

Pre-Crash: The air bag equipped 1991 Alfa Romeo 164 was proceeding in a southerly direction on the inboard travel lane of the four lane county road at a driver estimated speed of 48-56 KPH (30-35 mph). The driver of vehicle #2 was exiting a shopping center parking lot and was attempting a left turn across the southbound travel lanes. Due to moderate to heavy traffic volume, the driver of vehicle #2 apparently attempted to "beat" the Alfa Romeo across the roadway and initiated her left turn directly in front of the southbound vehicle. As a result, the driver of the Alfa Romeo did not have sufficient time to initiate avoidance actions (i.e., braking).

COLLISION SEQUENCE (CONT'D.)

Crash: The center frontal area of the Alfa Romeo impacted the left front corner area of vehicle #2. The owner and rear seated passenger of the Alfa Romeo estimated vehicle #2's speed at impact at 16-24 KPH (10-15 mph). Due to the left turning action of vehicle #2, the vehicle was diagonal to the south-bound travel lane at impact. Initial contact involved the center frontal area of the Alfa Romeo and the left front corner area of vehicle #2. The impact rotated vehicle #2 in a clockwise direction which resulted in additional engagement between the right frontal area of the Alfa and the left front wheel and fender area of vehicle #2. Resultant directions of force were within the 12 o'clock sector for the air bag equipped vehicle and probably within the 10 o'clock sector for vehicle #2. Based on the attached photographs of the Alfa Romeo, the vehicle underwent an estimated velocity change of 16-19 KPH (10-12 mph), which was near the threshold required for air bag deployment.

Post-Crash: The Alfa Romeo came to rest approximately 4.6 m (15') forward of the point of impact, facing in a southerly direction. Vehicle #2 was rotated in a clockwise direction and displaced forward of the final rest position of the Alfa Romeo. At rest, vehicle #2 was facing in a southeasterly direction diagonal to the travel lane.

HUMAN FACTORS/OCCUPANT DATA

	<u>Air Bag Vehicle</u>
Driver:	15 year old male
Height:	72"
Weight:	160 lbs.
Manual Restraint System Usage:	3-point lap and shoulder belt
Usage Source:	Interview, police report
Eyewear:	None
Vehicle Familiarity:	3 months
Route Familiarity:	Unknown
Manner of Leaving Scene:	Private vehicle
Type of Medical Treatment:	None, not injured

DRIVER INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Not injured	N/A	N/A

DRIVER KINEMATICS

The driver of the Alfa Romeo was reportedly in a normal driving position at impact with both hands on the steering wheel. He was properly restrained by the manual 3-point lap and shoulder belt system. In response to the front impact sequence, the driver initiated a forward trajectory and loaded the manual belt system which prevented him from contact with interior components and probable injury.

PASSENGER DATA

Right Front Passenger:	43 year old female
Height:	Unknown
Weight:	Unknown
Manual Restraint System Usage:	3-point lap and shoulder belt system
Usage Source:	Interview data, police report
Manner of Leaving Scene:	Ambulance
Type of Medical Treatment:	Treated at a local hospital and released

RIGHT FRONT PASSENGER INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Thoracic back strain	Minor (BSTM-1)	Impact force/ restraint loading

RIGHT FRONT PASSENGER KINEMATICS

The right front passenger of the Alfa Romeo was properly restrained by the manual 3-point lap and shoulder belt system. She was in a normal seated position; however, as she detected vehicle #2 approaching from her right, the right front passenger turned to her left in an attempt to shield herself from the impending impact. As a result of the 12 o'clock impact force, the right front passenger was displaced forward and loaded the manual belt system. Due to her abnormal posture and subsequent restraint loading, the passenger sustained strain to the mid back area. She was transported by ambulance to a local hospital where she was treated for her injury and released.

HUMAN FACTORS/OCCUPANT DATA (CONT'D.)

PASSENGER DATA

Left Rear Occupant:	45 year old male
Height:	Unknown
Weight:	Unknown
Manual Restraint System Usage:	3-point lap and shoulder belt
Usage Source:	Interview data, police report
Manner of Leaving Scene:	Private vehicle
Type of Medical Treatment:	None, not injured

LEFT REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Not injured	N/A	N/A

LEFT REAR OCCUPANT KINEMATICS

The left rear occupant was in a normal seated position at impact and was properly restrained by the manual 3-point lap and shoulder belt system. He initiated a forward trajectory in response to the frontal impact force and loaded the belt system which prevented him from probable injury.

PASSENGER DATA

Center Rear Occupant:	10 year old female
Height:	Unknown
Weight:	Unknown
Manual Restraint System Usage:	Lap belt
Usage Source:	Interview data
Manner of Leaving Scene:	Private vehicle
Type of Medical Treatment:	None

CENTER REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Abdominal abrasions	Minor (MCAI-1)	Lap belt

CENTER REAR OCCUPANT KINEMATICS

The center rear occupant was restrained by the manual 2-point lap belt. She initiated a forward trajectory in response to the 12 o'clock impact force and loaded the manual belt which abraded her abdominal area. The child's parents declined medical treatment for the minor, superficial injury.

PASSENGER DATA

Right Rear Occupant:	18 year old male
Height:	Unknown
Weight:	Unknown
Manual Restraint System Usage:	3-point lap and shoulder belt
Usage Source:	Interview data
Manner of Leaving Scene:	Private vehicle
Type of Medical Treatment:	None

RIGHT REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Abdominal abrasions	Minor (MCAI-1)	Lap belt webbing of the 3-point system

RIGHT REAR OCCUPANT KINEMATICS

The right rear occupant was reportedly in a normal seated position at impact. He was properly restrained by the manual 3-point lap and shoulder belt system. At impact, he initiated a forward trajectory and loaded the manual belt system which abraded his abdominal area. The superficial injury did not require medical attention.

AIR BAG SYSTEM

The 1991 Alfa Romeo 164 was equipped with a supplemental driver's air bag system. The system consisted of two front mounted crash sensors, a diagnostic unit, an air bag indicator lamp, the clockspring assembly, and the steering wheel mounted air bag module assembly. The crash sensors were mounted on the top surface of the inner fenders approximately 30 cm (12") rearward of the radiator support panel. Basic air bag data from the Owner's Manual is included as an attachment to this report.

The Alfa Romeo was involved in a front to side impact sequence with a 1986 Chevrolet Cavalier that resulted in moderate frontal damage to the air bag equipped vehicle. Frontal crush was estimated at 20-25.4 cm (8-10") located at the center portion of the front bumper. The Alfa Romeo sustained a 12 o'clock impact force that resulted in an estimated longitudinal velocity change of 16-19 KPH (10-12 mph). The supplemental driver's air bag system did not deploy as a result of the crash which produced over \$10,000 of frontal damage to the Alfa Romeo 164.

The owner of the vehicle was concerned that the air bag failed to deploy and notified [REDACTED]. The notification was subsequently assigned to [REDACTED] as a remote type investigation. Data for the investigation was obtained from multiple interviews with the owner, photographs of the damaged Alfa Romeo, the Police Accident Report, and the vehicle repair order. These items are included as attachments to this report.

The owner stated that he leased the vehicle new and was the primary driver of the Alfa Romeo. He did not experience problems with the vehicle or with the air bag system prior to the crash. The owner further stated that the air bag indicator lamp would illuminate for approximately six seconds as the ignition was turned to the on and run positions, then go out and remain off during the operation of the vehicle. He assumed this sequence had occurred prior to the crash.

Following the crash and repair of the Alfa Romeo, the body shop transported the vehicle to an [REDACTED]. The air bag system was tested and inspected by a service technician who found no problems or faults in the system. The vehicle was returned to the owner following the collision repair with all original air bag components.

Based on the attached photographs, the vehicle and all data associated with the case, [REDACTED] believes that the vehicle did not sustain a sufficient longitudinal deceleration required to deploy the air bag system. The vehicle did, however, sustain a velocity change that was near the deployment threshold.

ATTACHMENTS

Police Accident Report

Vehicle Repair Order

Vehicle Photographs

Owner's Manual Air Bag System Data

FLORIDA TRAFFIC ACCIDENT REPORT

MAIL TO: DEPT. OF HIGHWAY SAFETY & MOTOR VEHICLES
TRAFFIC ACCIDENT RECORDS

DO NOT WRITE IN THIS SPACE

BEST AVAILABLE COPY

Time & Location	DATE OF ACCIDENT 9/1		TIME OF ACCIDENT 3 PM		TIME OFFICER NOTIFIED 3 PM		TIME OFFICER ARRIVED 3 PM		INVEST. AGENCY REPORT NUMBER		HSMV ACCIDENT REPORT NUMBER				
	COUNTY/CITY CODE		CITY OR TOWN (Check if in City or Town)												
	AT NODE NO.		FEET OR MILES		FROM NODE NO.		NEXT NODE NO. ON		NO. OF LANES		ON STREET, ROAD OR HIGHWAY				
	AT INTERSECTION OF		OR 500		FEET/MILES		OR 500		FEET/MILES		ST.				
Vehicle	DRIVER 1 Phantom ACTION 2 Hit & Run 3 N/A		YEAR	MAKE	TYPE	VEH. LICENSE NUMBER	STATE	VEHICLE IDENTIFICATION NUMBER		POINT OF IMPACT CIRCLE AREA OF DAMAGE 18 Undercarriage 19 Overturn 20 Windshield 21 Fire 22 Trailer					
	3		86	Chevrolet	01	GMPIIK	FL	1G1JC69P66		14					
	TRAILER OR TOWED VEHICLE INFORMATION		VEHICLE TRAVELING		ON		At 15		EST. MPH	Posted Speed	EST. VEHICLE DAMAGE	1 Disabling 2 Functional 3 No Damage	EST. TRAILER DAMAGE		
										35	\$1000.00	1			
	INSURANCE CO. (LIABILITY OR PIP)		POLICY NUMBER		VEHICLE REMOVED BY:		1 Tow Rotation List 2 Tow Owner's Request 3 Driver 4 Other				1				
	OWNER'S FULL NAME (Check if Driver)		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE								
	OWNER'S FULL NAME (Trailer or Towed Vehicle)		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE								
	DRIVER (Exactly as on Driver's License)/Pedestrian		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE		DATE OF BIRTH						
	DRIVER'S LICENSE NUMBER		STATE	LC TYPE	BAC TEST		RESULTS	AL/DRUG	PHYS. DEF.	RES	RACE	SEX	HL	S. EQUIP.	EJECT.
			FL	1	1 Blood 2 Breath 3 Urine 4 Refused 5 None		5		1	1	1	2	3	2	1
Pedestrian	HAZARDOUS MATERIALS BEING TRANSPORTED		1 None 2 Flammable Liquid 3 Explosives 4 Poisonous Gas 5 Corrosive Materials 6 Radioactive Materials 7 Other		Driving Ability Questionable 1 YES 2 NO 3 NOT APPLICABLE		If YES, Explain in Narrative		2		Driver's Phone No.				
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		AGE		LOC	HL	S. EQUIP.	EJECT.			
	1.						43		3	3	2	1			
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		45		4	1	2	1			
	2.						10		6	1	2	1			
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE										
	3.														
Vehicle	DRIVER 1 Phantom ACTION 2 Hit & Run 3 N/A		YEAR	MAKE	TYPE	VEH. LICENSE NUMBER	STATE	VEHICLE IDENTIFICATION NUMBER		POINT OF IMPACT CIRCLE AREA OF DAMAGE 18 Undercarriage 19 Overturn 20 Windshield 21 Fire 22 Trailer					
	3		91	ALFA	01		FL	ZAREA33A3		1					
	TRAILER OR TOWED VEHICLE INFORMATION		VEHICLE TRAVELING		ON		At 35		EST. MPH	Posted Speed	EST. VEHICLE DAMAGE	1 Disabling 2 Functional 3 No Damage	EST. TRAILER DAMAGE		
										35	\$15,000.00	1			
	INSURANCE CO. (LIABILITY OR PIP)		POLICY NUMBER		VEHICLE REMOVED BY:		1 Tow Rotation List 2 Tow Owner's Request 3 Driver 4 Other				1				
	OWNER'S FULL NAME (Check if Driver)		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE								
	OWNER'S FULL NAME (Trailer or Towed Vehicle)		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE								
	DRIVER (Exactly as on Driver's License)/Pedestrian		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE		DATE OF BIRTH						
	DRIVER'S LICENSE NUMBER		STATE	LC TYPE	BAC TEST		RESULTS	AL/DRUG	PHYS. DEF.	RES	RACE	SEX	HL	S. EQUIP.	EJECT.
			FL	1	1 Blood 2 Breath 3 Urine 4 Refused 5 None		5		1	1	1	1	1	2	1
Pedestrian	HAZARDOUS MATERIALS BEING TRANSPORTED		1 None 2 Flammable Liquid 3 Explosives 4 Poisonous Gas 5 Corrosive Materials 6 Radioactive Materials 7 Other		Driving Ability Questionable 1 YES 2 NO 3 NOT APPLICABLE		If YES, Explain in Narrative		2		Driver's Phone No.				
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		AGE		LOC	HL	S. EQUIP.	EJECT.			
	1.						43		3	3	2	1			
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		45		4	1	2	1			
	2.						10		6	1	2	1			
	# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE										
	3.														
Code Information	VEHICLE TYPE		RESIDENCE (DRIVER ONLY)		PHYSICAL DEFECTS		ALCOHOL/DRUG USE		LOCATION (IN VEHICLE)						
	01 Passenger Vehicle 02 Passenger Van 03 Recreational 04 Truck (Light) Pickup 05 Truck (Heavy) 06 Truck-Tractor 07 Motorcycle 08 Off-Road Vehicle 09 Moped 10 Bicycle 11 Law Enforcement Vehicle 12 Fire Vehicle 13 Ambulance 14 Rescue Unit		15 Taxicab 16 Public School Bus 17 Private School Bus 18 City Transit Bus 19 Commercial Bus 20 Other Type Bus 21 Special Mobile Equipment 22 Farm Equipment 23 Government 24 Military 25 Train 26 Trailer 27 Towed Vehicle 28 Other		1 County of Accident 2 Elsewhere in State 3 Non-Resident State 4 Foreign 5 Unknown		1 No Defects Known 2 Eyesight Defect 3 Fatigue/Asleep 4 Hearing Defect 5 ILL 6 Seizure, Epilepsy, Blackout 7 Other Physical Defect		1 Not Drinking or Using Drugs 2 Alcohol-Under Influence 3 Drugs-Under Influence 4 Alcohol & Drugs-Under Influence 5 Had Been Drinking 6 Pending BAC Test Result		1 Front Left 2 Front Center 3 Front Right 4 Rear Left 5 Rear Center 6 Rear Right 7 In Body of Truck 8 Bus Passenger 9 Other				
	LICENSE TYPE		RACE		SEX		INJURY SEVERITY		SAFETY EQUIPMENT IN USE		EJECTED				
	1 Operator 2 Chauffeur 3 Res. Operator 4 Motor-cycle 5 None		1 White 2 Black 3 Hispanic 4 Other		1 Male 2 Female		1 No Injury 2 Possible Injury 3 Non-Incapacitating Injury 4 Incapacitating Injury 5 Fatal (Within 90 Days) Injury 6 Non-Traffic Fatality		1 Not in Use 2 Seat Belt/Shoulder Harness 3 Child Restraint 4 Safety Helmet/Eye Protection 5 Air Bag 6 Other		1 No 2 Yes 3 Partial				
	INVESTIGATOR — NAME AND SIGNATURE		ID/BADGE NUMBER		DEPARTMENT				1 FHP 2 SO 4 OTHER						

Section 3

ACTION 2 M & R 3 N/A		VEHICLE INFORMATION		VEHICLE TRAVELING () N () S () E () W ON		STATE		VEHICLE IDENTIFICATION NUMBER		POINT OF IMPACT CIRCLE AREA OF DAMAGE 18 Undercarriage 19 Overturn 20 Windshield 21 Fire 22 Trailer			
TRAILER OR TOWED VEHICLE INFORMATION		VEHICLE DAMAGE		EST. VEHICLE DAMAGE		1 Disabling 2 Functional 3 No Damage		EST. TRAILER DAMAGE		1 Tow Rotation List 2 Tow Owner's Request 3 Driver 4 Other			
INSURANCE CO. (LIABILITY OR PIP)		POLICY NUMBER		VEHICLE REMOVED BY:									
OWNER'S FULL NAME (Check if Driver ())		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE							
OWNER'S FULL NAME (Trailer or Towed Vehicle)		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE							
DRIVER (Exactly as on Driver's License)/Pedestrian		CURRENT ADDRESS (Number and Street)		CITY AND STATE		ZIP CODE		DATE OF BIRTH					
DRIVER'S LICENSE NUMBER		STATE		LIC. TYPE		BAC TEST		RESULTS		AL/DRUG			
HAZARDOUS MATERIALS BEING TRANSPORTED		1 None 2 Flammable Liquid 3 Explosives 4 Poisonous Gas 5 Corrosive Materials 6 Radioactive Materials 7 Other		Driving Ability Questionable		1 YES 2 NO 3 NOT APPLICABLE		If YES, Explain in Narrative		Driver's Phone No.			
# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		AGE		LOC		ILL			
# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		AGE		LOC		ILL			
# PASSENGER'S NAME		CURRENT ADDRESS		CITY & STATE/ZIP CODE		AGE		LOC		ILL			
# PROPERTY DAMAGED - OTHER THAN VEHICLES		EST. AMOUNT		OWNER'S NAME		ADDRESS		CITY		STATE			
# PROPERTY DAMAGED - OTHER THAN VEHICLES		EST. AMOUNT		OWNER'S NAME		ADDRESS		CITY		STATE			
CONTRIBUTING CAUSES-DRIVER/PED.		VEHICLE DEFECT		VEHICLE MOVEMENT		VEHICLE FUNCTION							
01 No Improper Driving/Action 02 Careless Driving 03 Failed to Yield Right-of-Way 04 Improper Backing 05 Improper Lane Change 06 Improper Turn 07 Alcohol-Under Influence 08 Drugs-Under Influence 09 Alcohol & Drugs-Under Influence 10 Followed Too Closely 11 Disregarded Traffic Signal 12 Exceeded Safe Speed Limit 13 Disregarded Stop Sign 14 Failed to Maintain Equip./Vehicle 15 Improper Passing 16 Drove Left of Center 17 Exceeded Stated Speed Limit 18 Obstructing Traffic		01 No Defects 02 Def. Brakes 03 Worn/Smooth Tires 04 Defective/Improper Lights 05 Puncture/Blowout 06 Steering Mech. 07 Windshield Wipers 08 Equipment/Vehicle Defect 77 All Other (Explain in Narrative)		01 Straight Ahead 02 Slowing/Stopped/Stalled 03 Making Left Turn 04 Backing 05 Making Right Turn 06 Changing Lanes 07 Entering/Leaving Parking Space 08 Properly Parked 09 Improperly Parked 10 Making U-Turn		01 None 02 Pulling Semi-Trailer 03 Pulling Other Veh. 04 Emergency Operation 05 Pulling Tandem Trailer/Double Bottom 06 Pulling Tank Trailer 07 Pulling House Trailer 08 Pulling Small Trailer 09 Veh. Being Towed/Pushed 10 Pulling Pole Trailer							
19 Improper Load 20 Disregarded Other Traffic Control 21 Driving Wrong Side/Way 77 All Other (Explain in Narrative)		VEHICLE MODIFIED		LOCATION ON ROADWAY		PEDESTRIAN ACTION							
		01 Yes 02 No 03 Not Applicable		01 On Road 02 Not On Road 03 Shoulder 04 Median 05 Turn Lane/Safety Zone		01 Crossing Not at Intersection 02 Crossing at Intersection 03 Walking Along Road With Traffic 04 Walking Along Road Against Traffic 05 Pushing/Working on Vehicle in Road 06 Other Working in Road 77 All Other (Explain) 88 Unknown							
FIRST/SUBSEQUENT HARMFUL EVENT		ROAD SYSTEM IDENTIFIER		LIGHTING CONDITION									
01 Collision With MV in Transport (Rear-end) 02 Collision With MV in Transport (Angle) 03 Collision With MV in Transport (Left Turn) 04 Collision With Parked Car 05 Collision With MV in Transport (Sidewipe) 06 Collision With MV in Transport (Backed Into) 07 Collision With MV in Transport (Right Turn) 08 MV Hit Other Fixed Object 09 MV Hit Utility Pole/Light Pole 10 Collision With MV in Transport (Head-on) 11 Collision With Pedestrian 12 Collision With Moped 13 MV Hit Tree/Shrubbery 14 Collision With Bicycle		15 Collision With Bicycle (Bike Lane) 16 MV Ran Into Ditch/Culvert 17 Ran Off Road Into Water 18 Overturned 19 MV Hit Fence 20 Collision With MV on Other Roadway 21 MV Hit Sign/Sign Post 22 MV Hit Guardrail 23 Collision With Fixed Object Above Road 24 Fire 25 Collision With Animal 26 Collision With Moveable Object On Road		27 MV Hit Concrete Barrier Wall 28 MV Hit Bridge/Pier/Abutment Rail 29 Occupant Fell From Vehicle 30 Tractor/Trailer Jackknifed 31 Collision With Construction Barricade/Sign in Road 32 Collision With Traffic Gate 33 Collision With Crash Attenuators 34 Collision With Train 35 Explosion 77 All Other (Explain)		01 Interstate 02 U.S. 03 State 04 County 05 Local 06 Turnpike 07 Other Full Control 08 Other Major Arterial 77 All Other (Explain)		01 Daylight 02 Dusk 03 Dawn 04 Dark (Street Light) 05 Dark (No Street Light) 88 Unknown					
CONTRIBUTING CAUSES-ROAD		CONTRIBUTING CAUSES-ENVIRONMENT		TRAFFIC CONTROL		SITE LOCATION		TRAFFICWAY CHARACTER					
01 No Defects 02 Obstruction With/Without Warning 03 Road Under Repair/Construction 04 Loose Surface Materials 05 Shoulders-Soft/Low/High 06 Holes/Ruts/Unsafe Paved Edge 07 Standing Water 08 Worn/Polished Road Surface 77 All Other (Explain)		01 Vision Not Obscured 02 Inclement Weather 03 Parked/Stopped Vehicle 04 Trees/Crops/Bushes 05 Load on Vehicle 06 Building/Fixed Object 07 Signs/Billboards 08 Fog 09 Smoke 10 Glare 77 All Other (Explain)		01 No Control 02 Speed Control Zone 03 Traffic Signal 04 Stop Sign 05 Yield Sign 06 Flashing Light 07 Railroad Signal 08 Officer/Guard/Flagman 09 Posted No U-Turn 77 All Other (Explain)		01 Not At Intersection/RR X'ing/Bridge 02 At Intersection 03 Influenced By Intersection 04 Driveway Access 05 Railroad Crossing 06 Bridge 07 Entrance Ramp 08 Exit Ramp 09 Parking Lot-Public 10 Parking Lot-Private		01 Straight-Level 02 Straight-Upgrade/Downgrade 03 Curve-Level 04 Curve-Upgrade/Downgrade 05 Shoulder 01 Paved 02 Unpaved					
WITNESS-NAME		ADDRESS		CITY & STATE		ZIP							
VIOLATOR		FL STATUTE NUMBER		NAME		CHARGE		CITATION NUMBER					
V1		316.122				Failure to Yield Right-Way							

FLORIDA TRAFFIC ACCIDENT REPORT

NARRATIVE AND DIAGRAM

MAIL TO: DEPT. OF HIGHWAY SAFETY & MOTOR VEHICLES
TRAFFIC ACCIDENT RECORDS & FORMS MANAGEMENT

DO NOT WRITE IN THIS SPACE

INVEST. AGENCY REPORT NUMBER

HSMV ACCIDENT REPORT NUMBER

V1 was exiting the parking Lot of [REDACTED], crossed over the south bound lane and was struck by V2, who was southbound on CR# [REDACTED] at the time of impact. V1 was attempting to make a left turn to proceed northbound on CR# [REDACTED].

V1 and V2 passengers [REDACTED] were transported to [REDACTED] by paramedics. V1 was complaining of upper body pain. V2 states she was treated for upper back pain.

FIRST AID GIVEN BY - NAME:

Rescue

☐ 1. Physician or Nurse
☒ 2 Paramedic Or EMT
☐ 3 Police Officer
☐ 4 Certified 1st Aider
☐ 5 Other

INJURED TAKEN TO:

BY - NAME:

Rescue

WAS INVESTIGATION MADE AT SCENE?

☒ 1 Yes
☐ 2 No-Where?

IS INVESTIGATION COMPLETE?

☒ 1 Yes
☐ 2 No-Why?

DATE OF REPORT

[REDACTED] 9/1

PHOTOS TAKEN?

☐ 1 Yes
☒ 2 No

☐ 3 Investigating Agency

☐ 4 Other

INVESTIGATOR - RANK AND SIGNATURE

ID/BADGE NUMBER

DEPARTMENT

1 ☐ FHP 25 CPD
2 ☐ SO 4 ☐ OTHER

DIAGRAM



INDICATE NORTH
WITH ARROW

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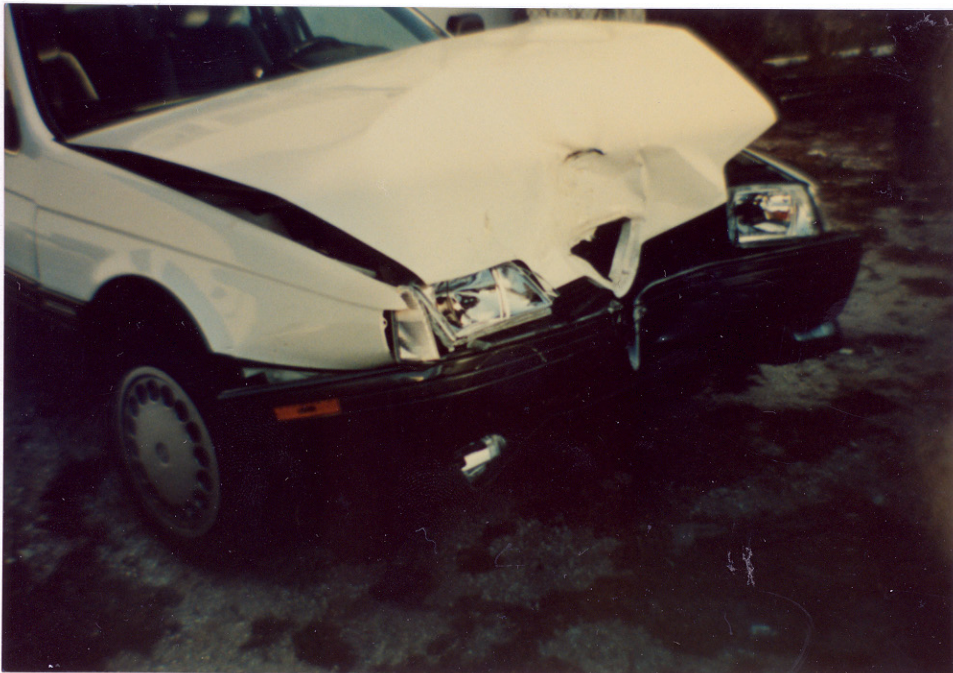
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QUAN	PART	DESCR	AMOUNT	
	Pipe Rnd Cooling		24 40	✓
	Air Filter Element Support		23 82	✓
	Air Filter Element		32 30	✓
	Alternator		534 71	✓
	Fog Light Bracket Right		6 54	✓
	" " " Left		6 54	✓
	Support		110 82	✓
	Bumper Support		35 45	✓
	Relay		27 30	✓
	Relay Cover		2 02	✓
	Relay Cover		2 07	✓
	Actuator Cruise		316 47	✓
	Tube		4 05	✓
	Pipe At Huse		132 98	✓
	Grille Housing		113 43	✓
	Shield		26 87	✓
	Crossmember		26 29	✓
	Resistor		26 67	✓
	Skirt L Fender		14 91	✓
	Decals for engine Comp		20 00	✓
Total This Page #2			1497 80	
Page #1			5373 56	
Total Parts			6871 36	
	4 Wheel Alignment		49 00	
	Air Bag Check		49 00	

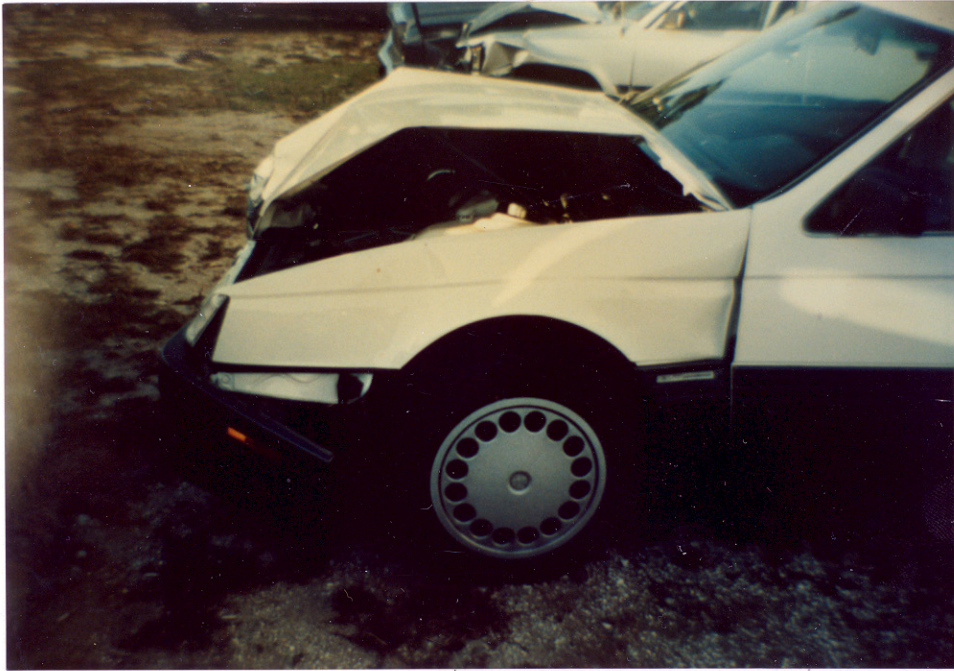
TOTAL PARTS

NAME		DATE	
ADDRESS		TIME PROMISED	TERMS
CITY		A.M. P.M.	CUSTOMERS ORDER
YEAR	TYPE OR MODEL	PHONE WHEN READY ?	LICENSE NUMBER
1991	Alfa Romeo		6945
REPAIR ORDER — LABOR INSTRUCTIONS			
OPER NO	ORDER WRITTEN BY		
LUBRICATE <input type="checkbox"/> CHANGE OIL <input type="checkbox"/> FLUSH TRANS <input type="checkbox"/> FLUSH DIFF <input type="checkbox"/> WASH <input type="checkbox"/> POLISH <input type="checkbox"/> \$			
VIN # 2 AREA 33A3M Chain #			
Repair Per [redacted] estimate plus Additional Parts on Page 2 of 2			
Refer to Part # [redacted] for Page 1 of 2			
Total Bill \$ 10,211.69			
... I REQUEST A WRITTEN ESTIMATE. ... I DO NOT REQUEST A WRITTEN ESTIMATE AS LONG AS THE REPAIR COST DO NOT EXCEED \$ [redacted] THE SHOP MAY NOT EXCEED THIS AMOUNT WITHOUT MY WRITTEN OR ORAL APPROVAL. ... I DO NOT REQUEST A WRITTEN ESTIMATE.		2346 28 TOTAL LABOR 6871 36 TOTAL PARTS 98 00 GAS. OIL. GREASE 98 00 OUTSIDE WORK 228 00 TIRES. TUBES 228 00 PAINT & MATERIAL 9547 64 SUB TOTAL 668 05 TAX 10211 69 TOTAL AMOUNT	
SIGNED _____ DATE _____			
QTS OIL @			
LBS GREASE @			

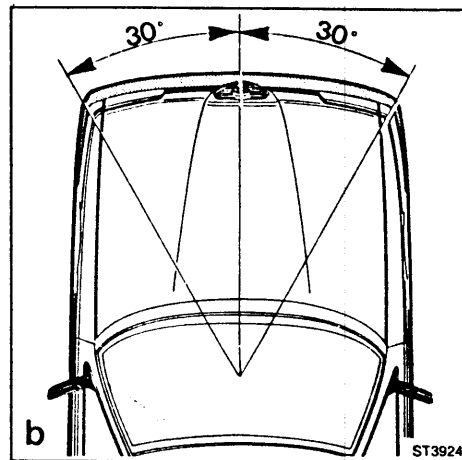
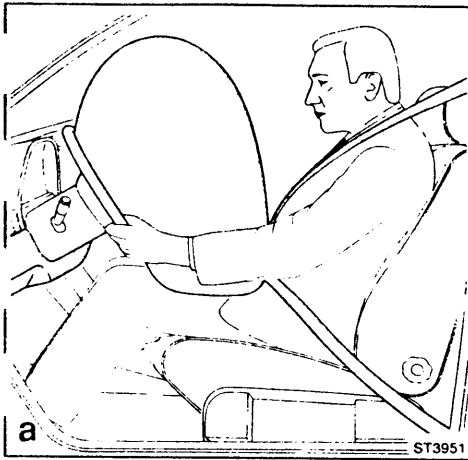
VEHICLE PHOTOGRAPHS



Overall Views Of The Frontal Damage To The Alfa Romeo.



Perpendicular Views Showing The Extent Of Crush.



a-b Airbag

An additional safety device (airbag) is fitted to your vehicle.

In the case of a frontal impact, or impact with reduced angle (not lateral), the airbag inflates instantaneously between the steering wheel and the driver, thus preventing the driver from hitting the steering column, the windshield or the door post.

After activation due to impacts, the airbag deflates in a very short time, thus allowing the driver to eventually recover control of the vehicle.

The efficiency of the various airbag system components is checked during the starting phase by the Alfa Romeo Control unit. Correct system operation is indicated by illumination of the relevant indicator light for a few seconds; during this period all the components of the system are checked and, if found efficient, the indicator light will go off. The indicator light remains on for a few seconds after the other indicator lights are extinguished.

If during the check the indicator light does not illuminate, have your vehicle checked as soon as possible by an Alfa Romeo dealer.

The airbag system is continuously monitored by the control unit even after the indicator light has gone off; in case of any malfunction the indicator light will start to flash.

In case the indicator light comes on after the starting phase, or at any time during driving, have your vehicle checked as soon as possible by an **Alfa Romeo dealer**, since proper operation of the air bag could be affected.

The airbag system has been designed to operate **ONLY** in the event of a frontal impact, because its additional protection function is effective only with this type of impact.

The main safety protection is always provided by the seat belt, which is assisted by the airbag only in case of frontal impact.

For maximum protection in case of a collision, **Alfa Romeo recommends that you always fasten your safety belts when traveling.**

safety warnings

- The activation of the airbag is accompanied by the emission of a small amount of smoke, harmless for the occupants, and by a loud inflation noise.
- Proper operation of the airbag is guaranteed until the expiration date shown on the label located on the L.H. central post:

VEHICLE EQUIPPED WITH AIR-BAG SYSTEM. SYSTEM LIFE DURATION: TEN YEARS. SYSTEM MAINTENANCE: EVERY TWO YEARS MINIMUM. TIME REFERENCE: COMPLIANCE SEE LABEL. FURTHER DETAILS AND VEHICLE SCRAPPING PROCEDURES: SEE OWNERS' MANUAL.

On expiration, have the system checked by an Alfa Romeo dealer, which will apply the next verification date on the label.

- Following the activation of the airbag, it is necessary to transport your vehicle to an Alfa Romeo dealer for refurbishing of the system.

In this event, and for your own safety, it is **advisable** to replace also the seats belts, screws and brackets which were stressed by the collision (Also refer to "Seat Belts" section).

Do not carry-out any maintenance activity and/or mechanical and electrical modifications of the system or associated components.

Any activity on the electrical system should only be carried-out after the engine has been shut-off, the ignition key has been removed and, finally, the negative pole of the battery has been disconnected.

Any maintenance activity (e.g. fitting of a radio set) must **always** be carried-out by an Alfa Romeo dealer.

- Do not place or fix any object to the steering wheel, or in the adjacent area.
- Any activity or unauthorized handling of the system may cause inadvertent operation of the airbag. In this event, contact an Alfa Romeo dealer.
- Drivers are advised not to travel holding objects such as drink cans or bottles, pipes, etc, which could be distractive or cause injuries in case of activation of the airbag.
- In case the vehicle is sold; inform the new owner that the vehicle is fitted with the airbag system.

Also provide the new owner with this manual, and recommend him to read carefully the information relevant to the use of the airbag and of the seat belts.

When any welding is carried-out on the vehicle it is **mandatory** to disconnect the airbag control unit and the battery terminals.

- If the vehicle is placed in an oven for curing of the paintwork it is **mandatory** to disconnect and remove the airbag module from the steering wheel until the paint curing is over.

Disassembly and reassembly of the airbag module in the steering wheel must be carried out by specialized operators at an authorized Alfa Romeo dealer only, and following applicable procedures.

- In case the vehicle is scrapped, alert the people in charge about the presence of the airbag, so that the proper procedures and precautions can be adopted (discharge system pressure).

Important notes

- Always fasten your seat belts before starting travel, and ensure they are properly adjusted.
 - To reduce slack, immediately after "buckle up", if necessary, adjust the lap portion of the belt by moving the buckle.
 - To ensure maximum protection when traveling, all occupants must wear their respective seat belts.
 - Do not strap more than one person with each belt. Ensure the belt is not swung over your neck.
 - A seat belt assembly installed at the driver's seating position is adjustable for fit persons whose corpulence varies from the 50th percentile adult female to the 95th percentile adult male.
 - For all seating positions the installed assembly is adjustable to fit persons whose corpulence varies from the 50th percentile 6 year-old child to the 95th percentile adult male.
 - Seat belts must **never** be worn by a child sitting on the knees of a passenger.
 - Pregnant women must ensure the seat belt is placed so that no pressure is felt on their abdomen. Be sure the lap portion of the belt is as low on your hips as possible. Whenever possible, it is advisable to accommodate the pregnant women on seats provided with lap belts only.
 - The belt buckle and tongue should always be kept on top of seat, ready for use.
 - To avoid injuries do not wear belts over rigid or breakable objects or on clothing, such as eye glasses, pens, keys, etc.
 - Several layers of heavy clothing may interfere with proper positioning of belts.
 - Never rub belts against sharp objects.
 - Ensure the automatic retractors are kept free of any obstruction that could prevent secure locking.
 - The belts could lock tight during sudden or sharp turns, when disengaged too rapidly, or during acceleration or braking of the vehicle.
 - All seat belts, including retractors and attaching hardware, which have been subject to high stress or in use during a collision should be replaced. Even if the belts show no damage, the original strength could have been weakened. Replacement belts should be of an Alfa Romeo approved type.
 - **Always** replace the belts if worn or not operating properly.
- Replacement of the belts must be carried out by an **Alfa Romeo dealer**, since unskilled persons could compromise the safety and proper operation of the belts.
- Any modification to, or disassembly of the belts, may not conform to the original strength characteristics, and in any case the best performance and safety are obtained in their original design.
- To minimize the risk of personal injury in the event of a collision or a sudden stop,

both the driver and the front passenger reclining seatbacks must be in a fairly upright position while the vehicle is in motion. If the seat back is significantly reclined, the risk of slipping off the belts in the event of a collision is highly increased.

- Verify that the retractors lock correctly by sharply tugging the webbing: the belt should lock. The belt should retract rapidly and without any interference.

Care of seat belts

- Ensure the belts are never twisted and that they are always correctly reeled in when not in use.
- Frequently remove any dust or dirt from the webbing and from the buckle and tongue using a clean dry cloth; do not rub excessively.
- **Never lubricate** any component of the seat belts, and particularly the buckles, the automatic retractors and the tongues.
- If the belts require cleaning, a mild soap and water solution should be used. **Under no circumstances should** chemical agents such as gasoline, alcohol, kerosene, etc. be used since they are extremely flammable and may also weaken the webbing material.
- When the belts have been washed, keep them reeled out until completely dry.
- **Never** use dye or bleaching agents on the seat belts.