

EA02-025

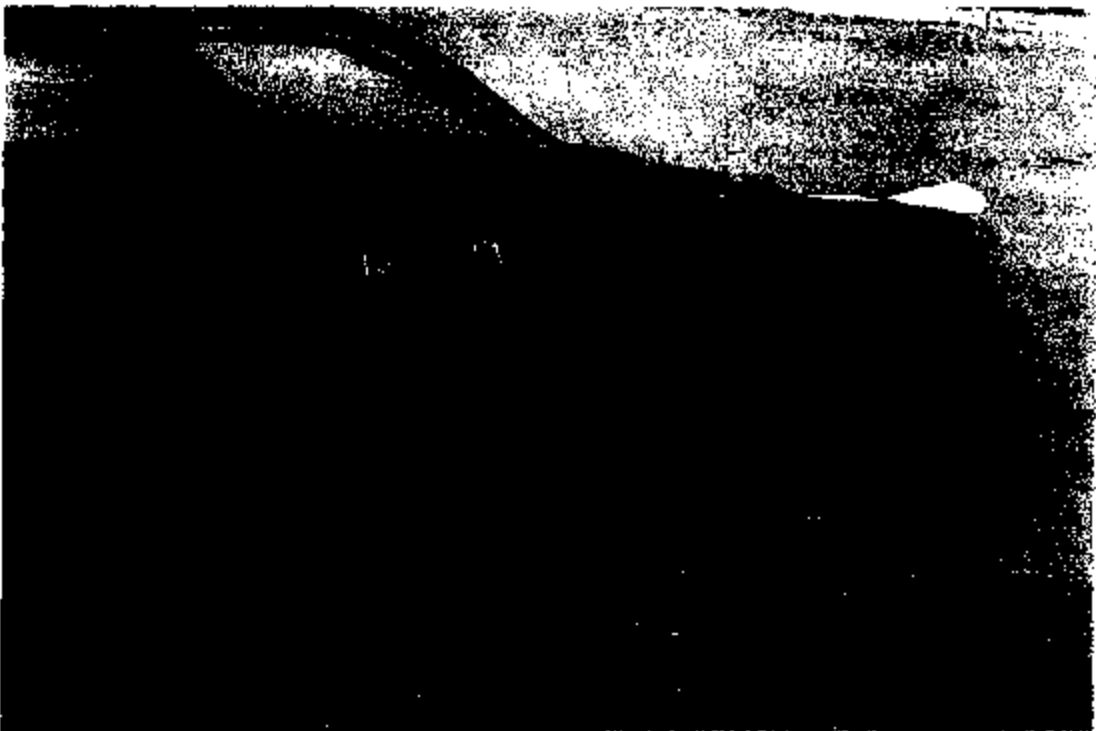
FORD 10/27/03

APPENDIX N

BOOK 22 OF 61

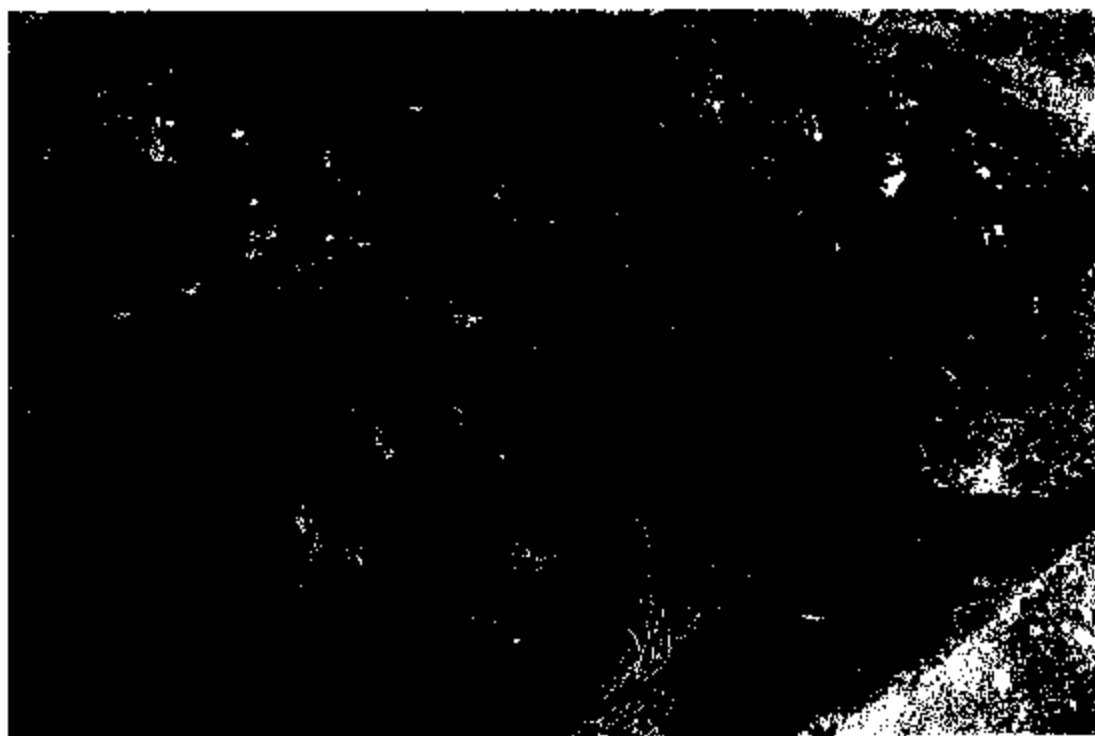
PART 4 OF 4





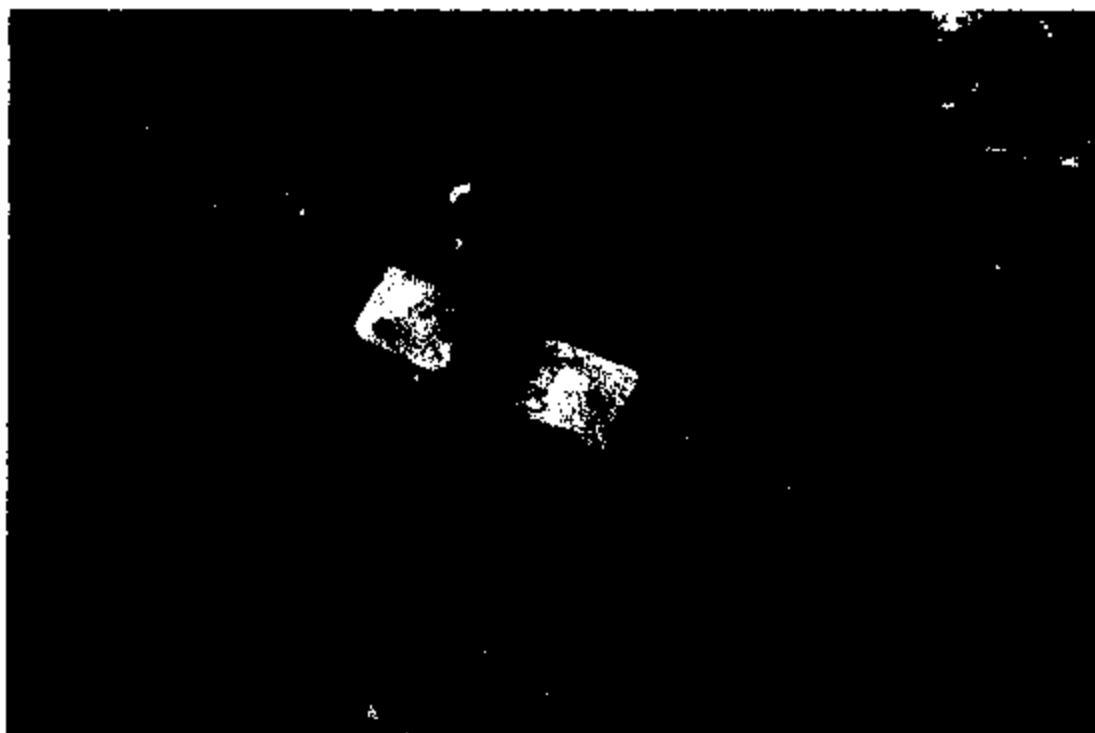




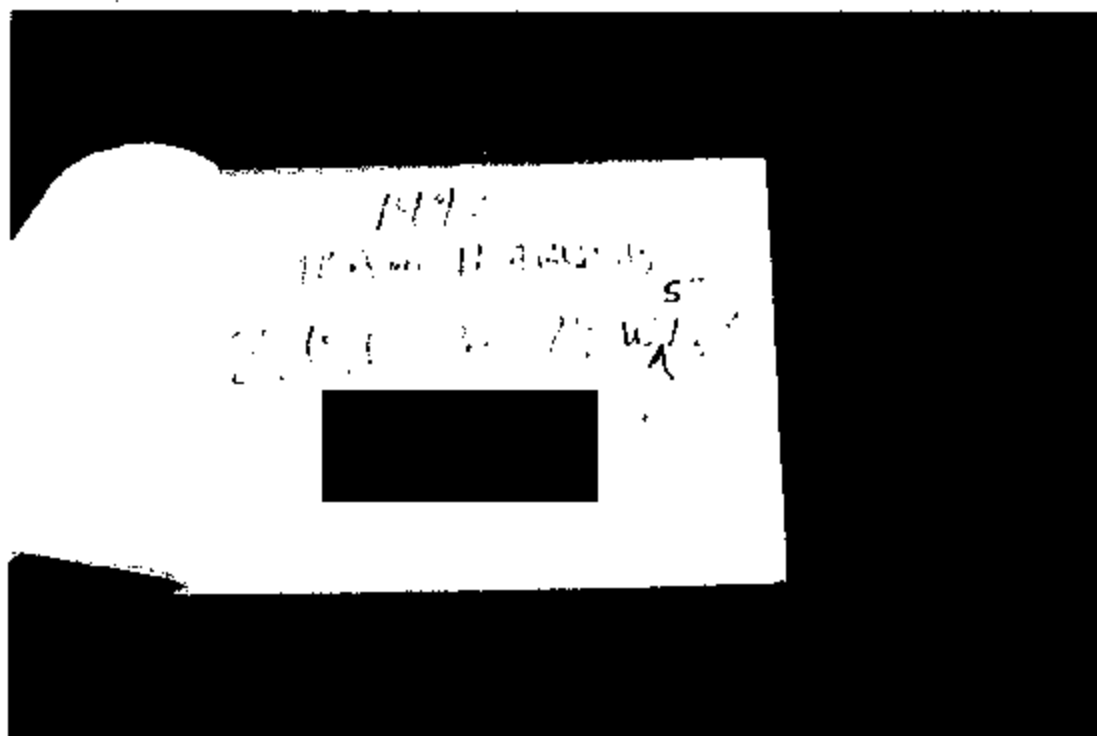


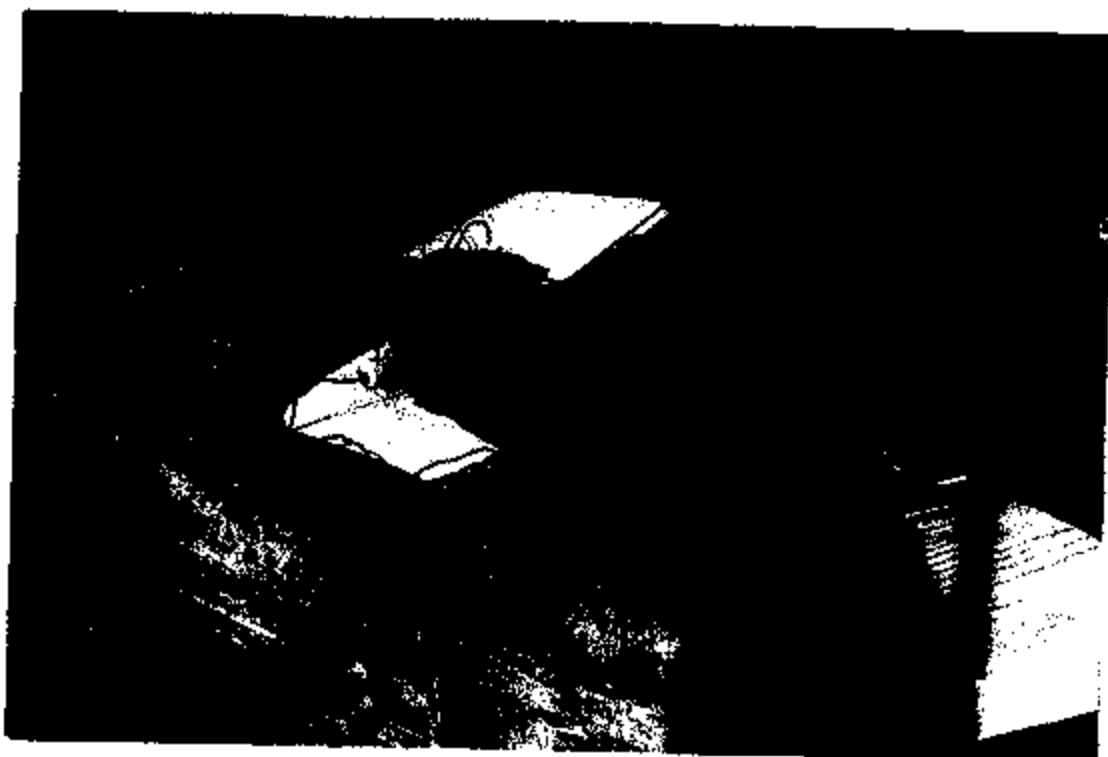


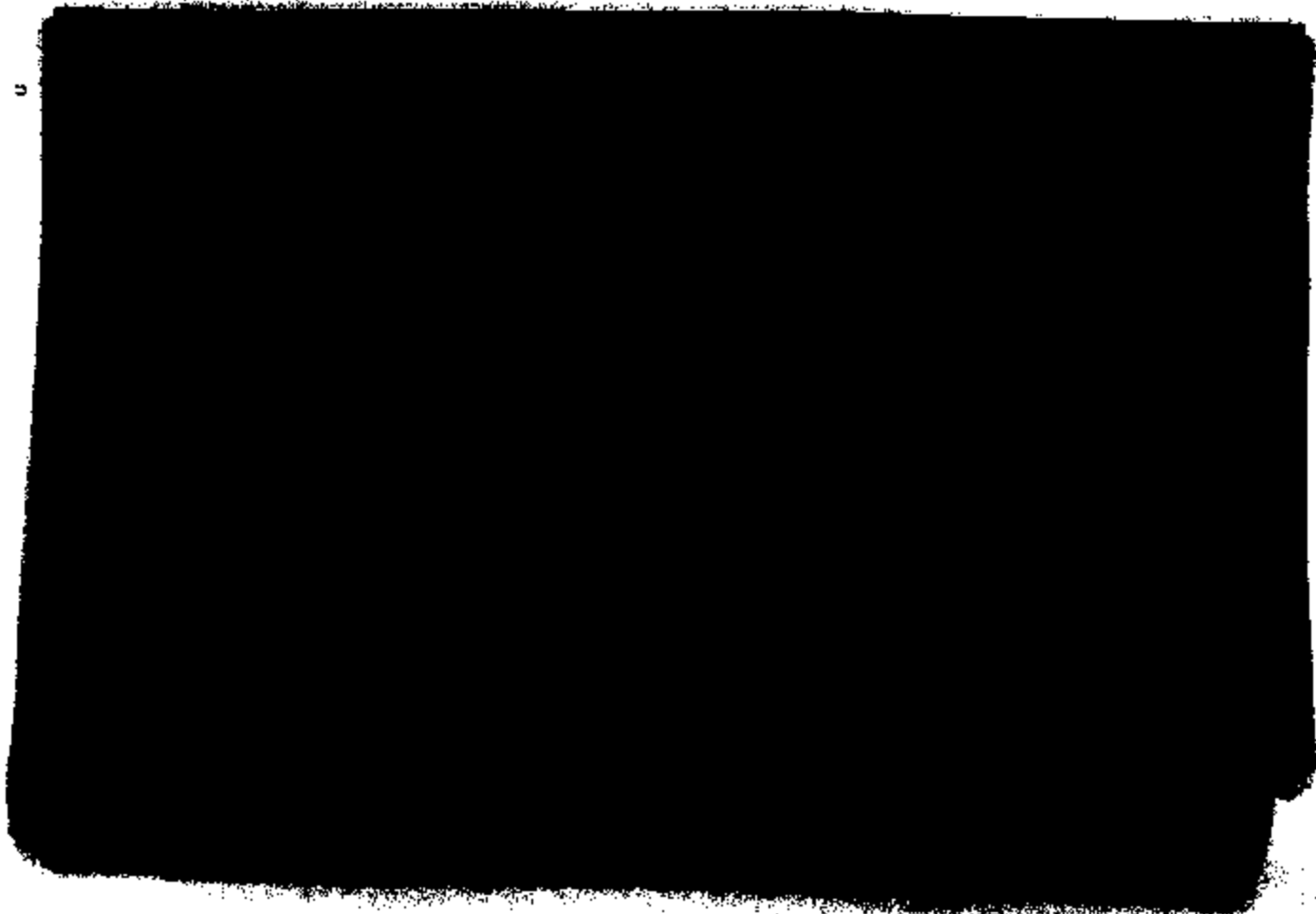












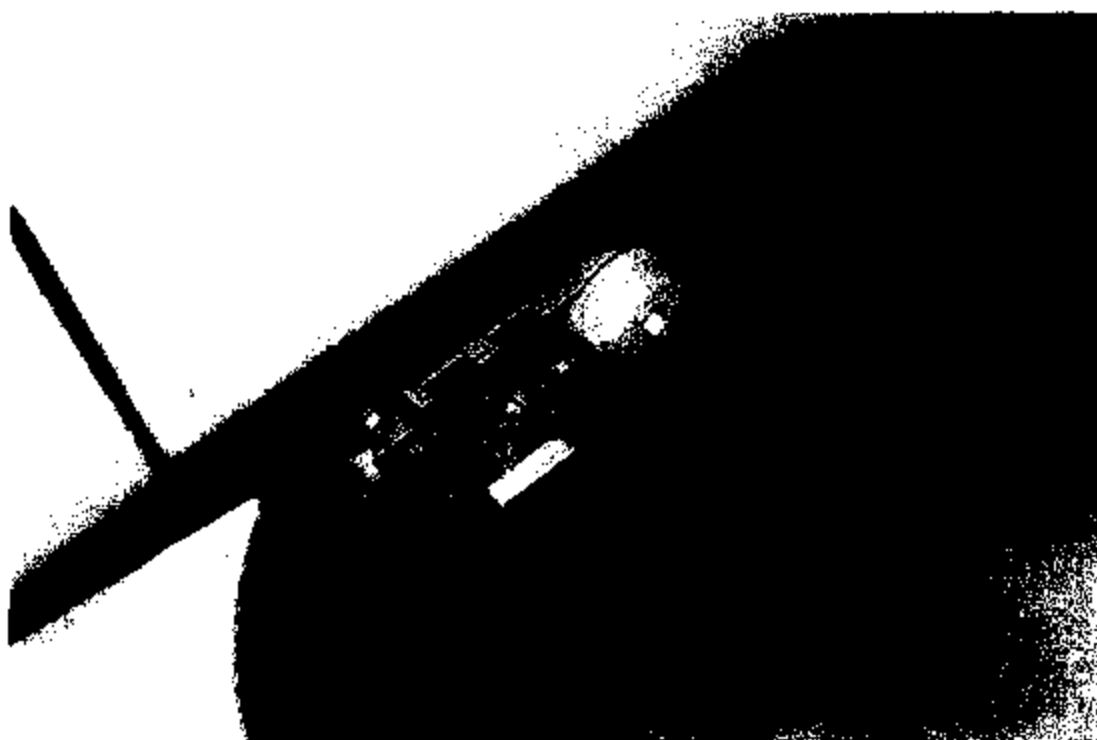




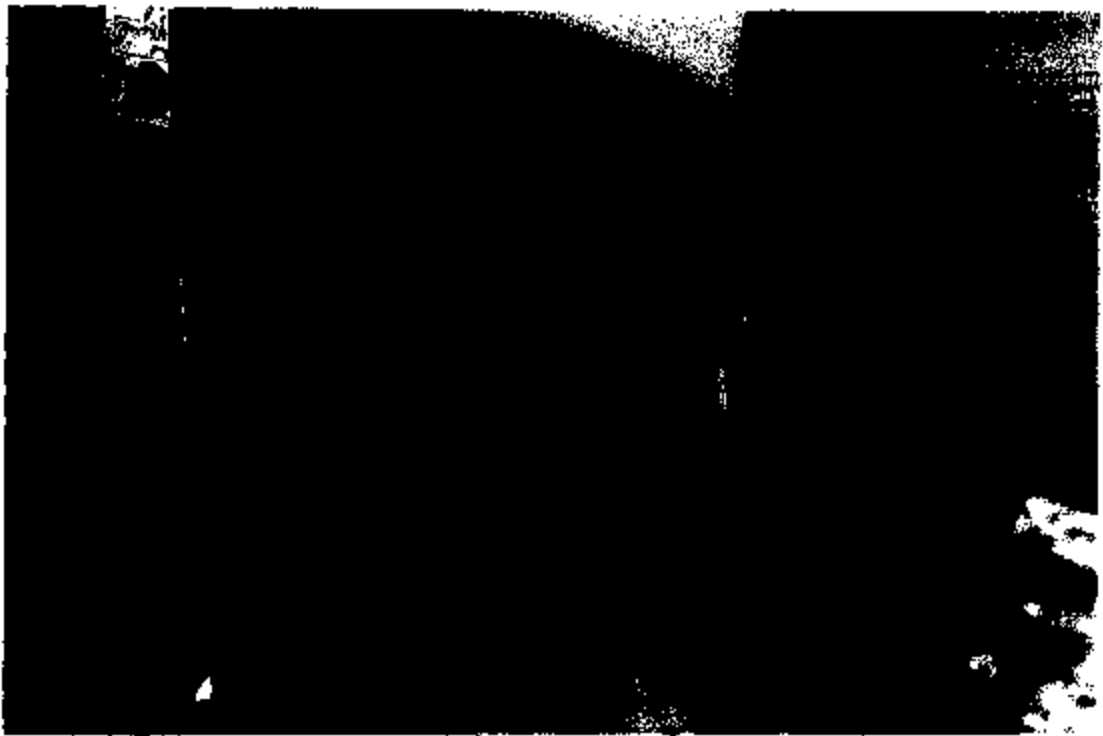






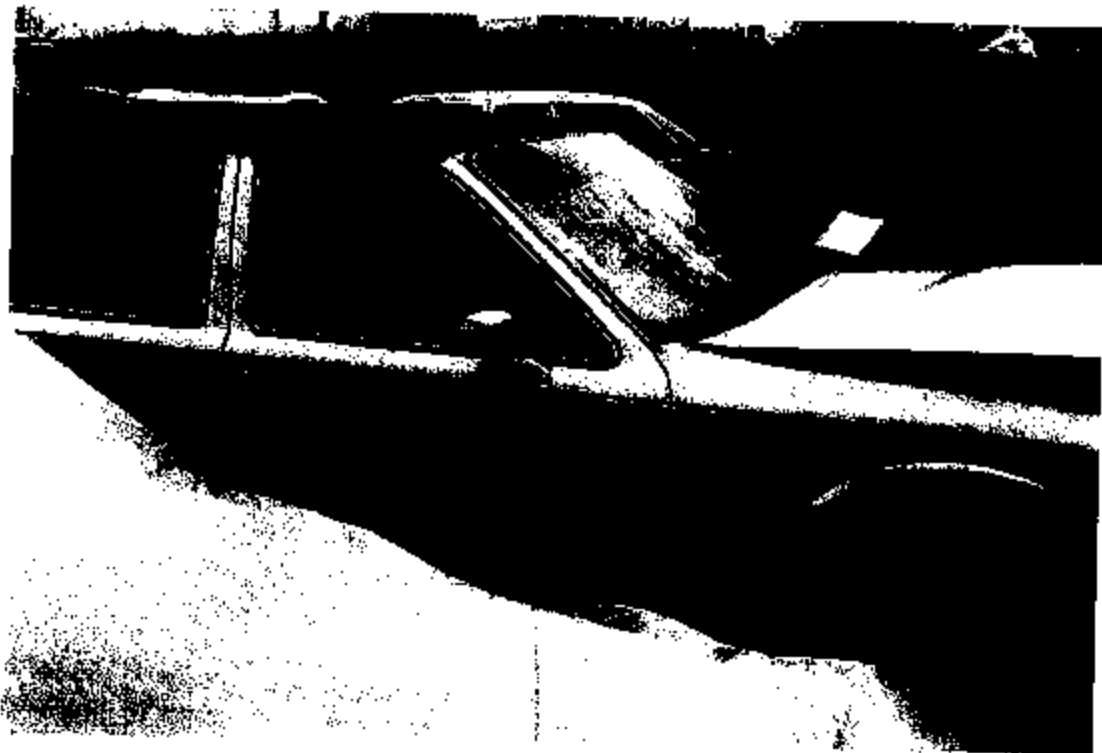


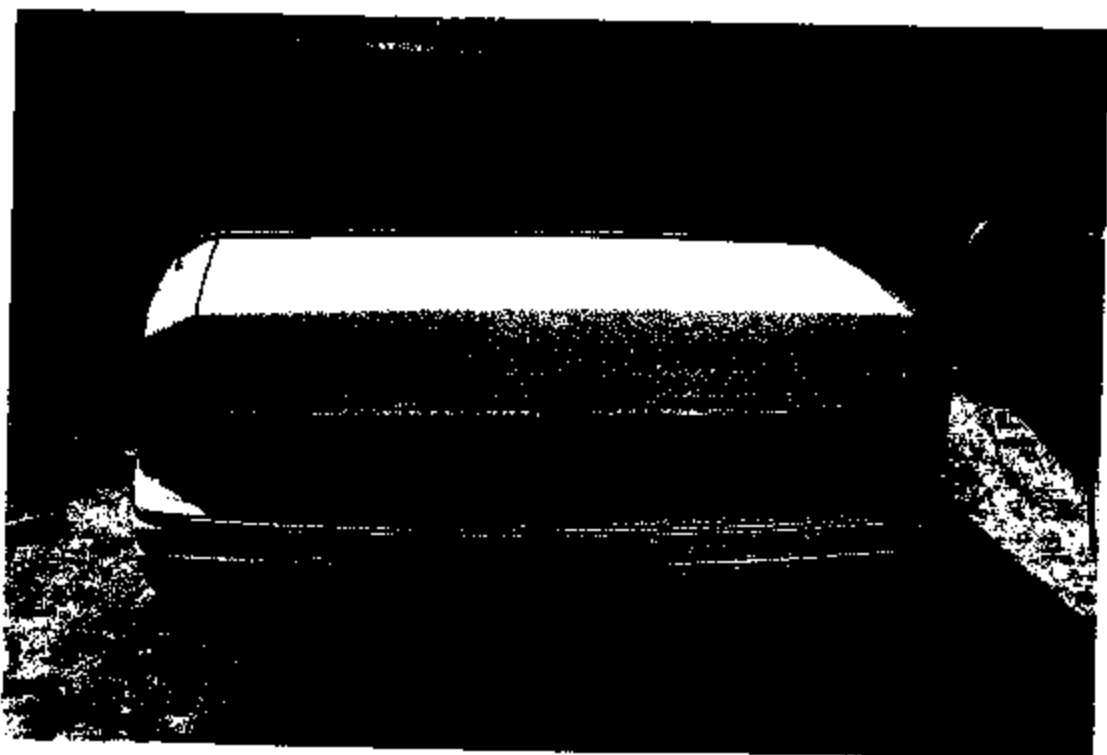




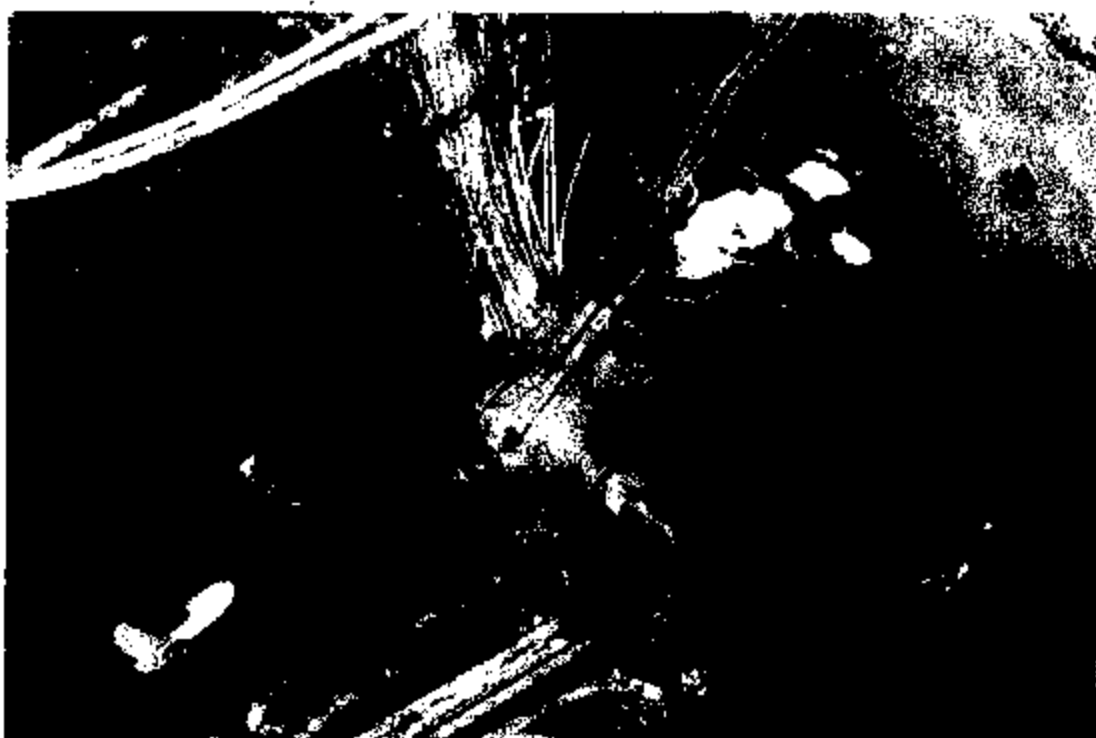






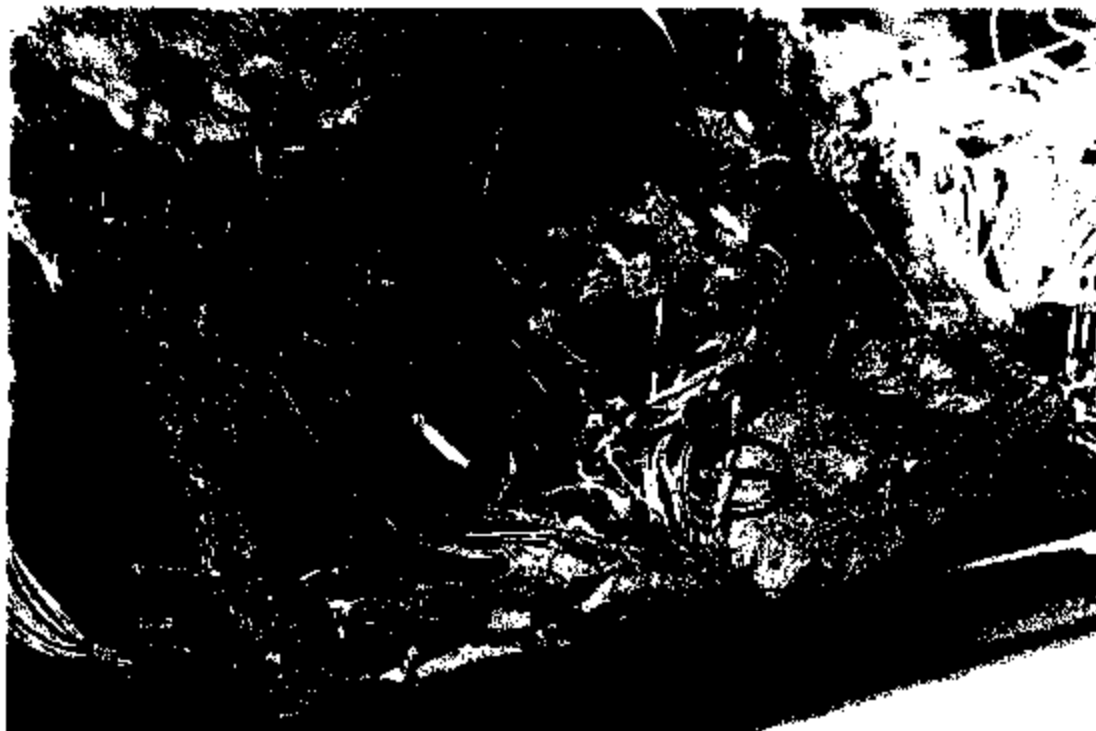






























93 TOWN CAR

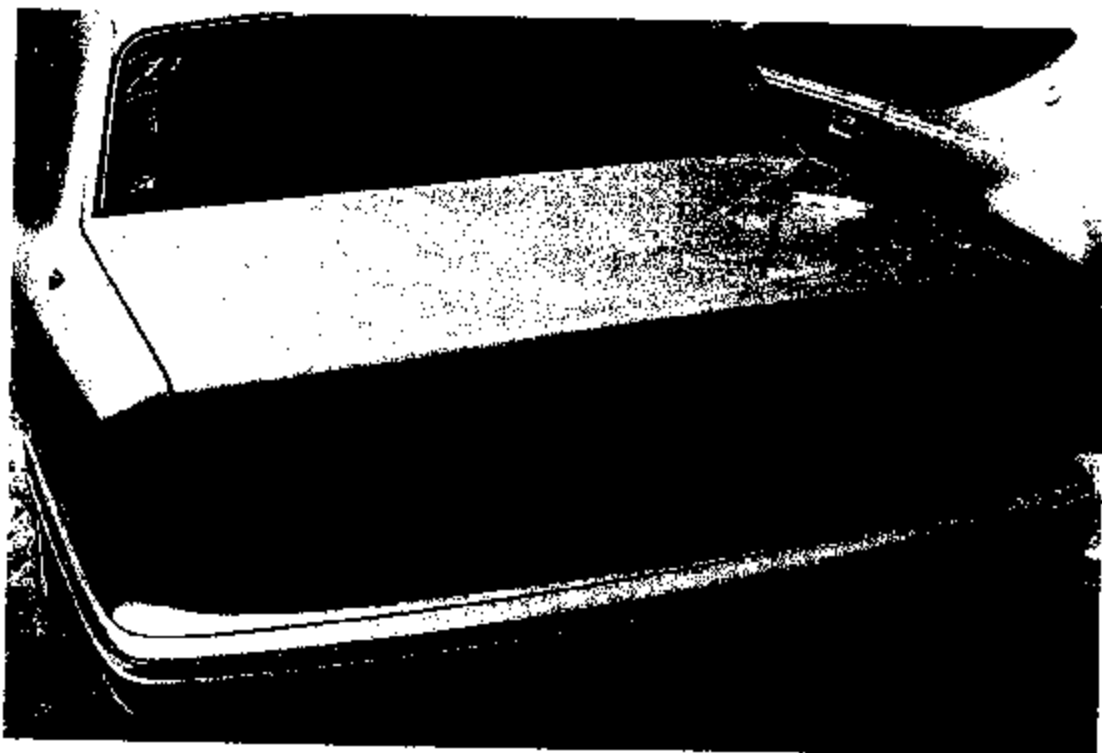
JACKSONVILLE, FL

8-11-99

VIN



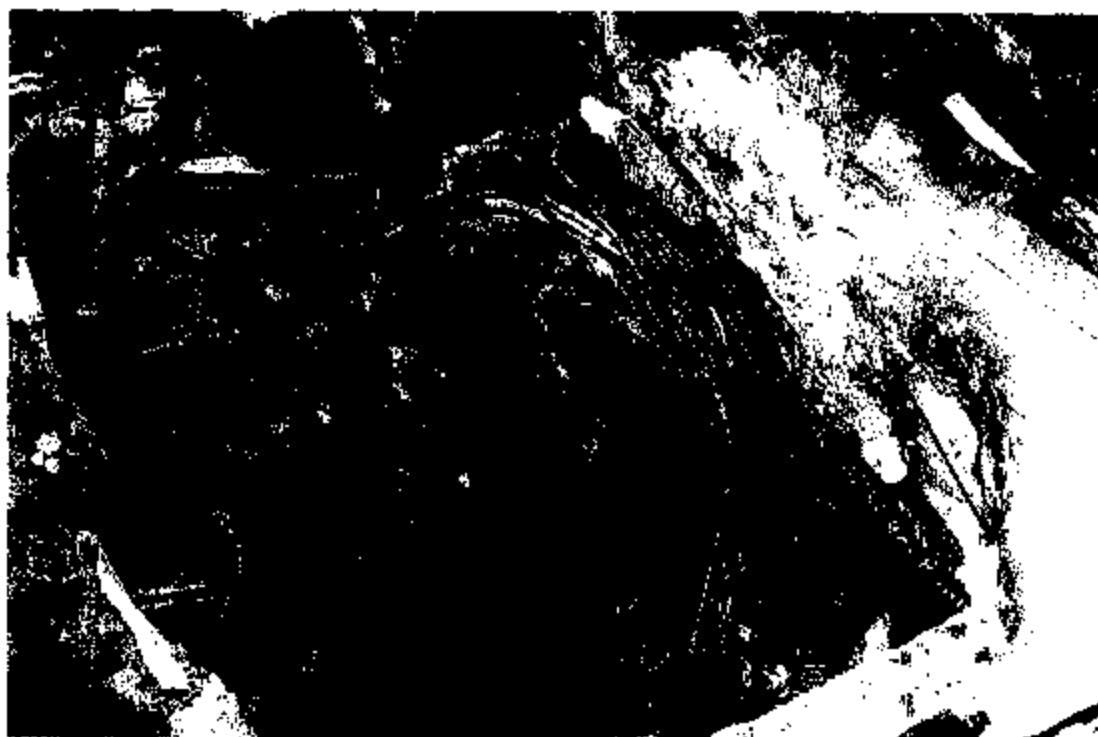






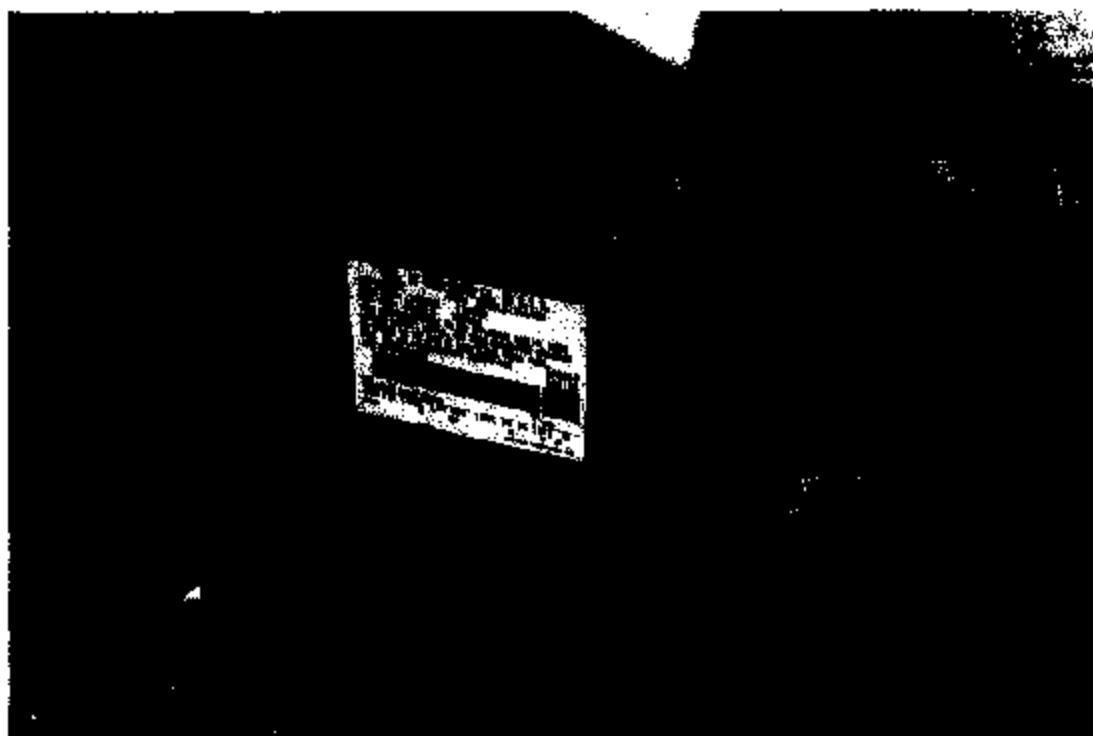
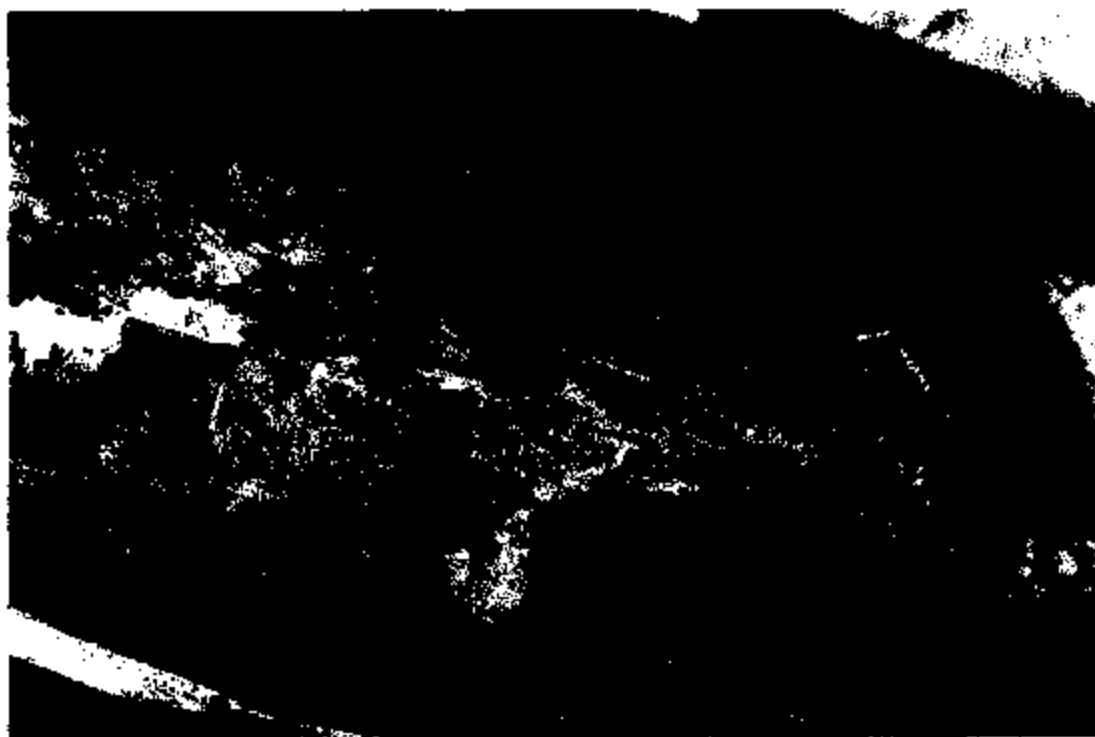










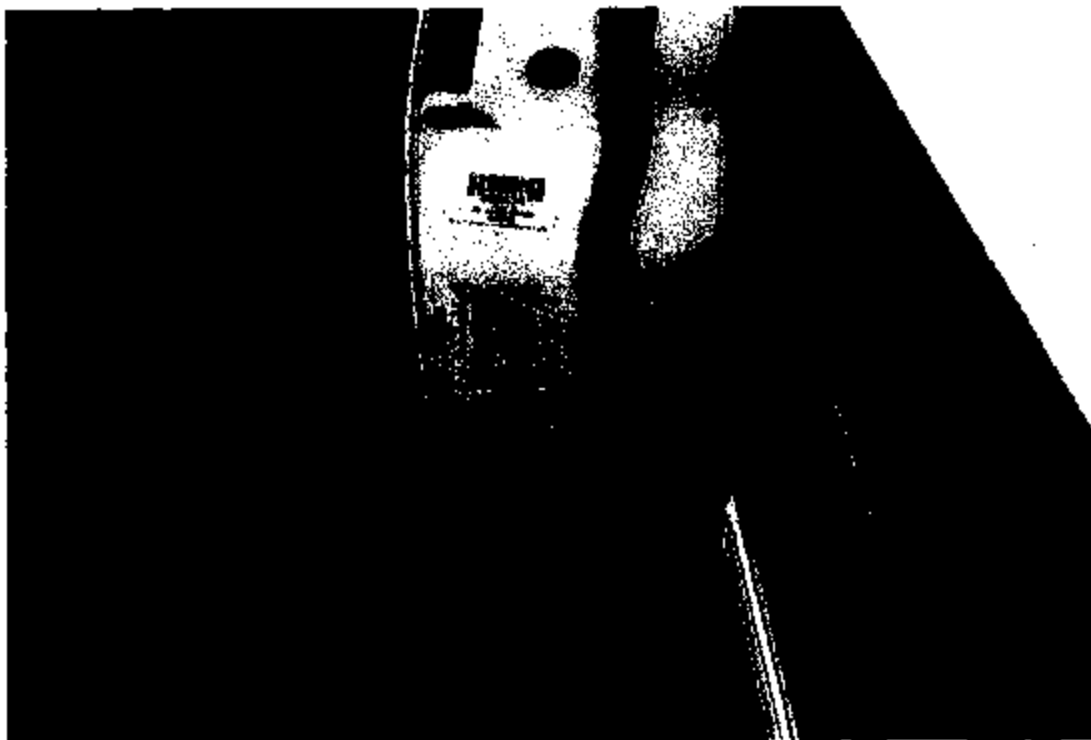


95 FORD MARQUIS

VIN [REDACTED]

5-11-99

JACKSONVILLE, FL
[REDACTED]

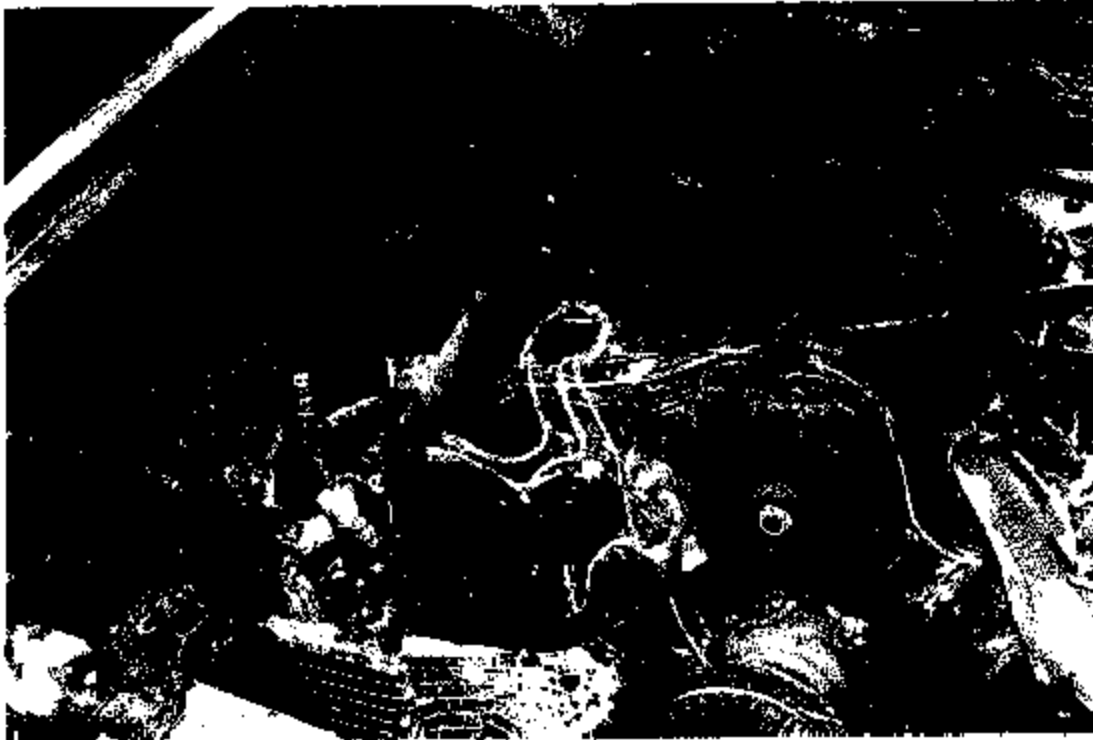
















3713 4830



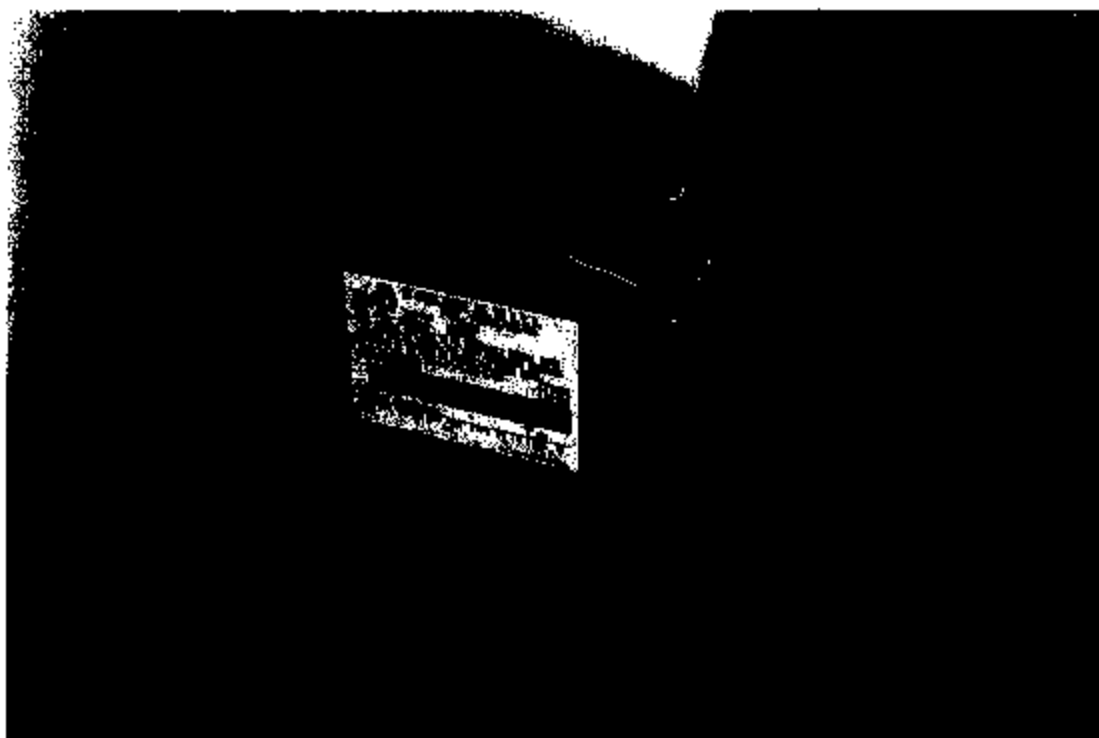


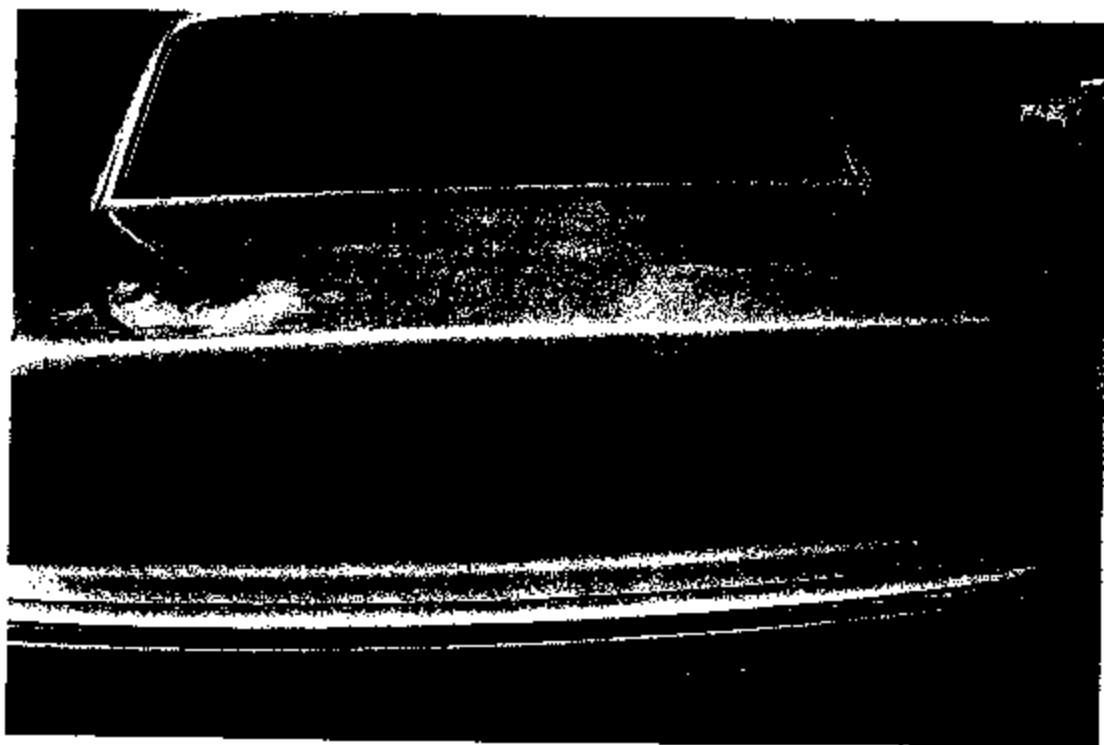
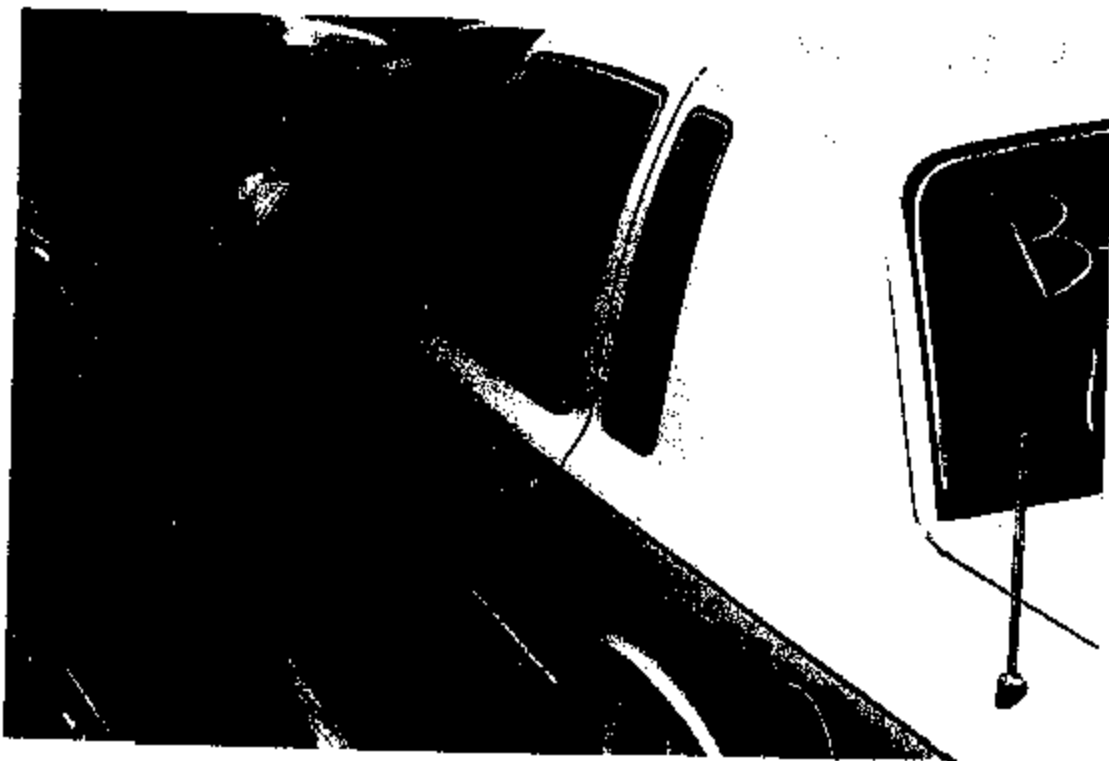




93 TOWN CAR
JACKSONVILLE FL
5-11-99

VIN

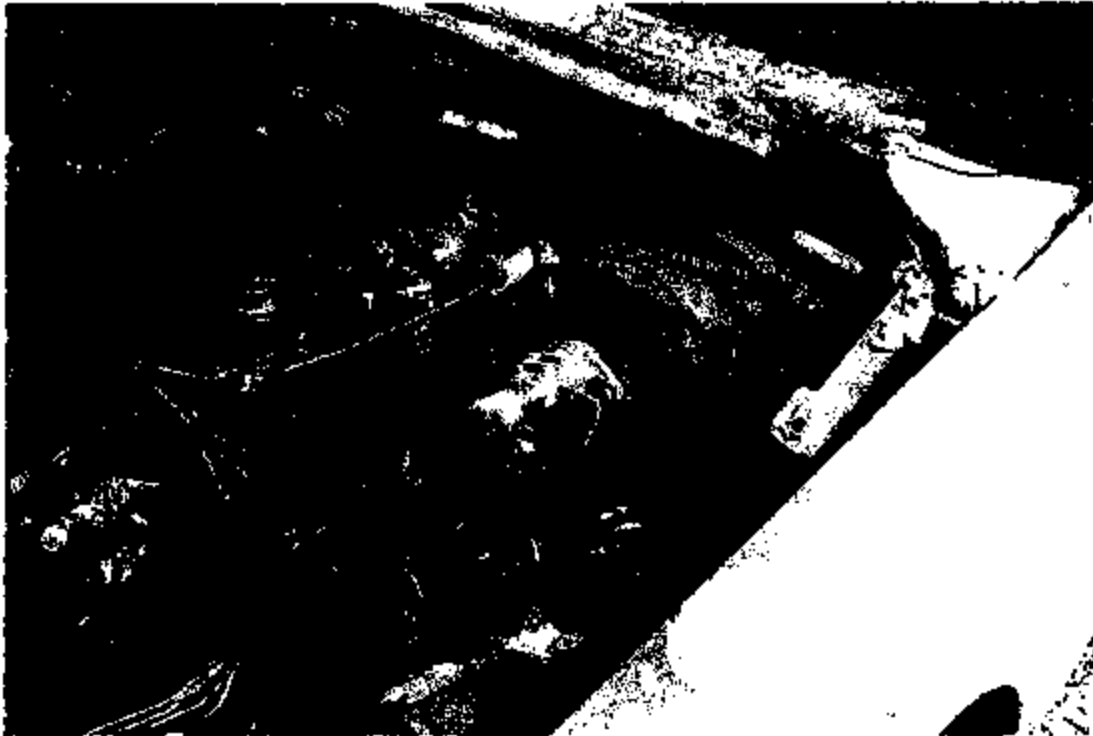




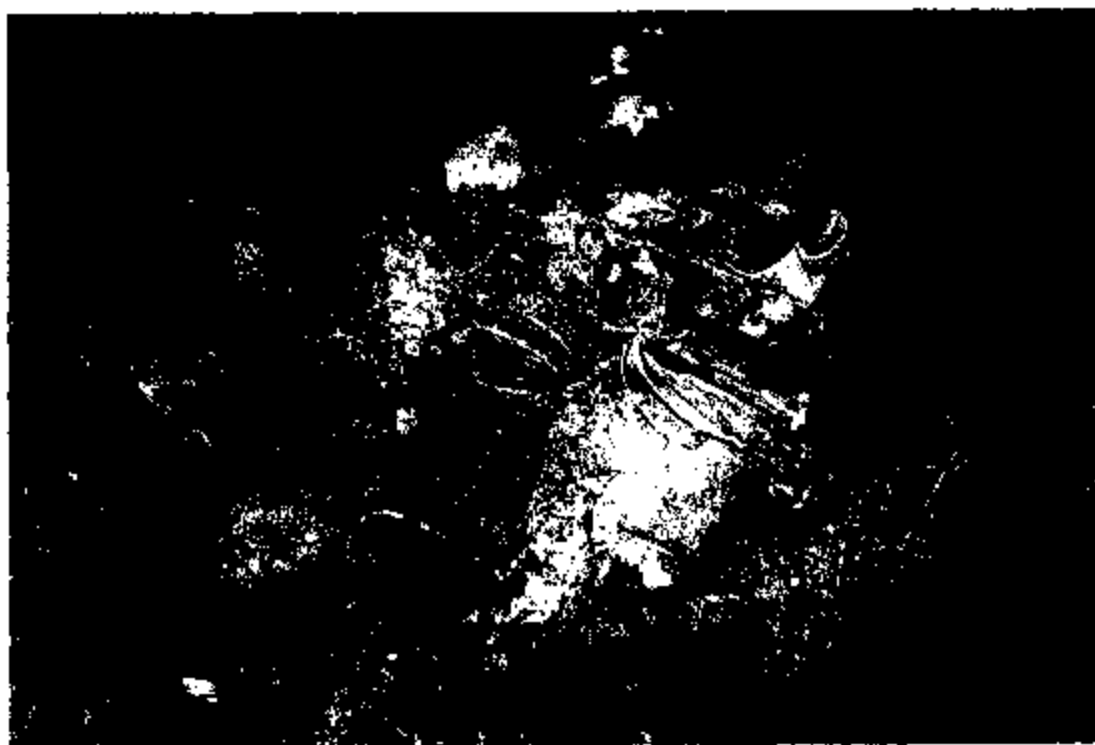




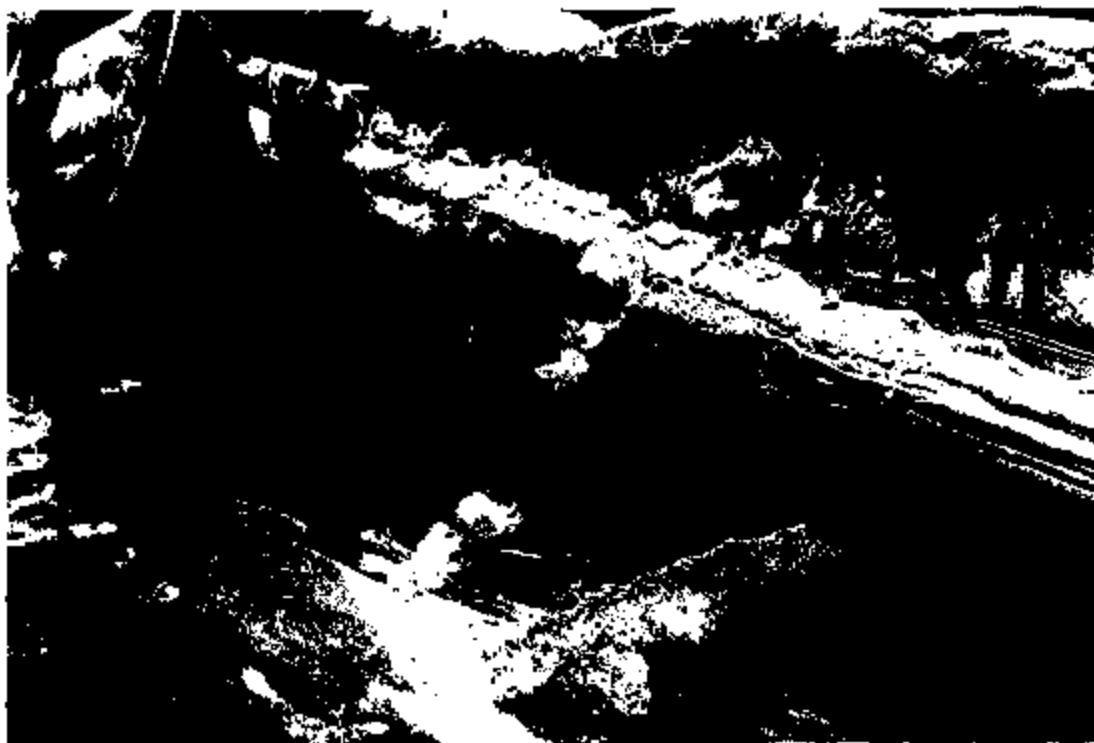






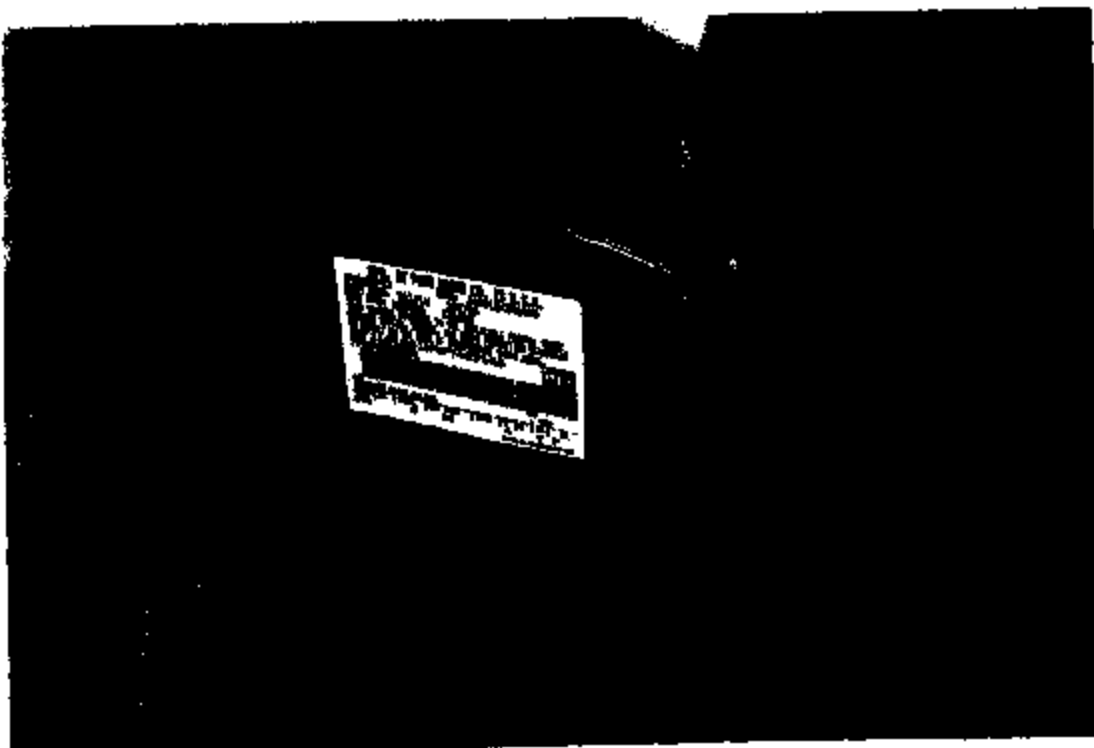
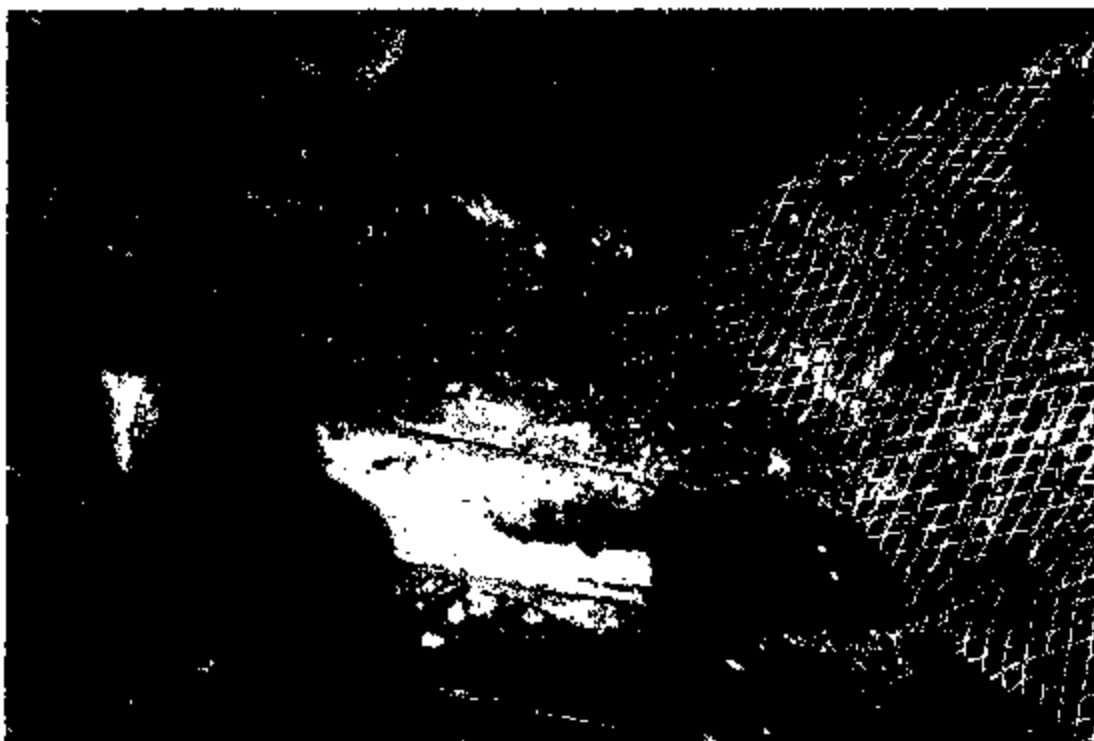




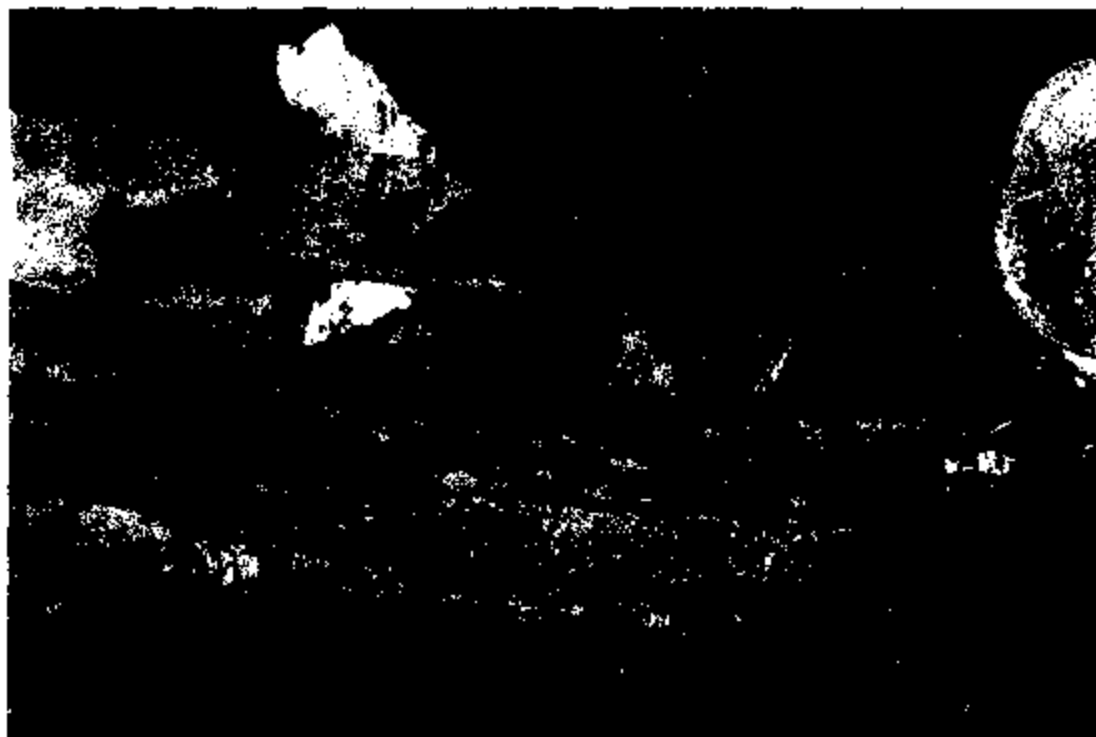


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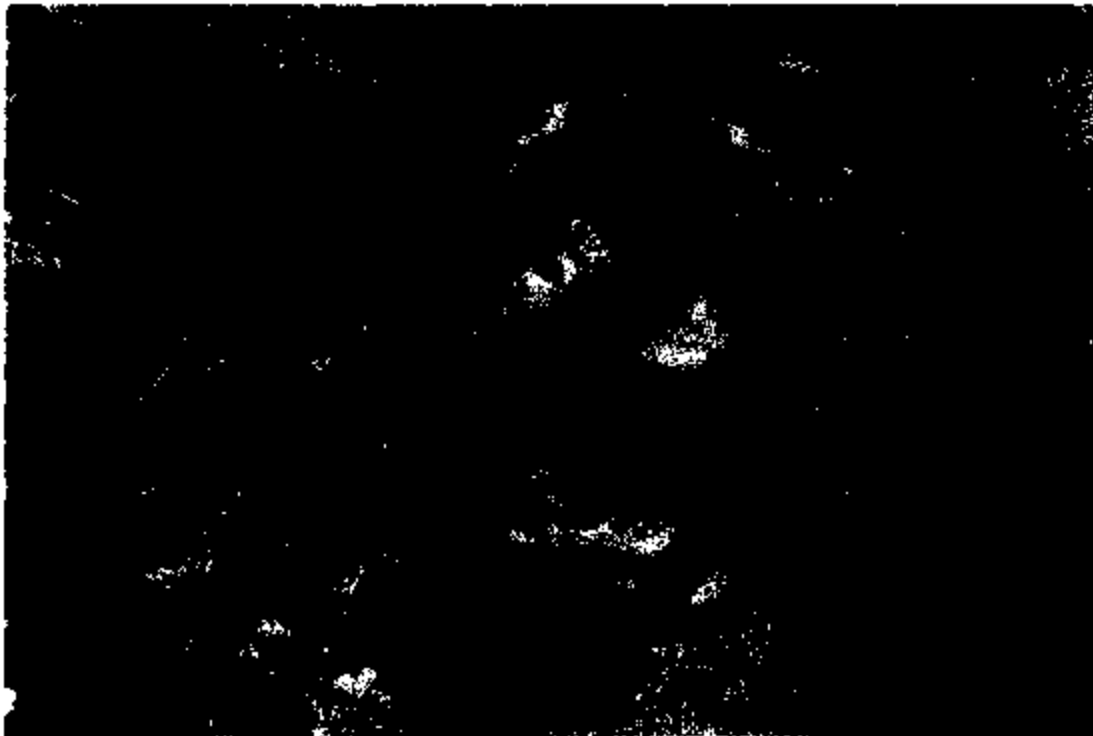




VERACE, R. C0054N
93 CROWN VIC
VIN [REDACTED]
FIRE 4-14-99
CHARLES WALTHAM





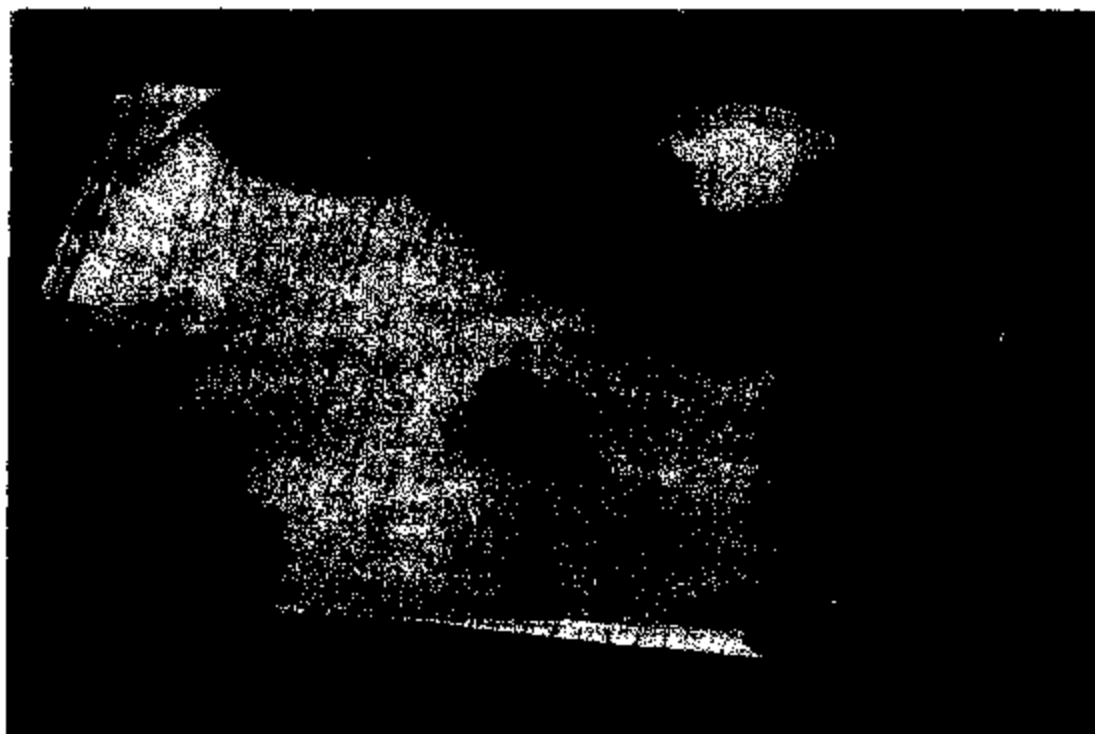


3713 4851









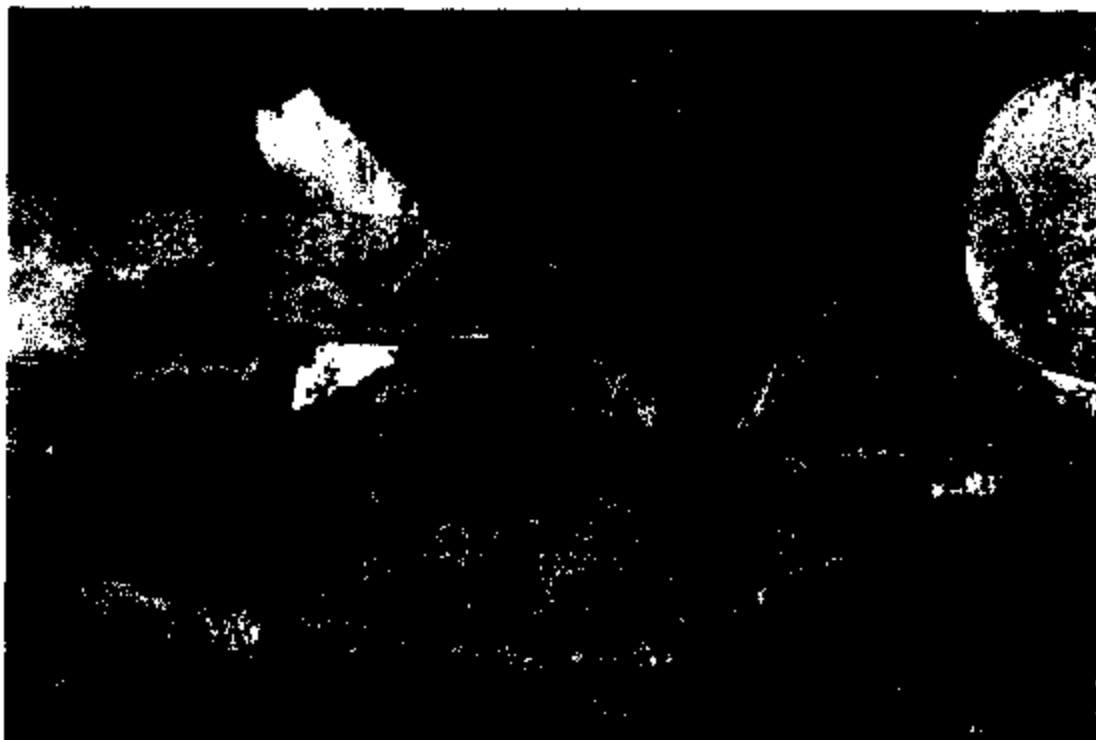




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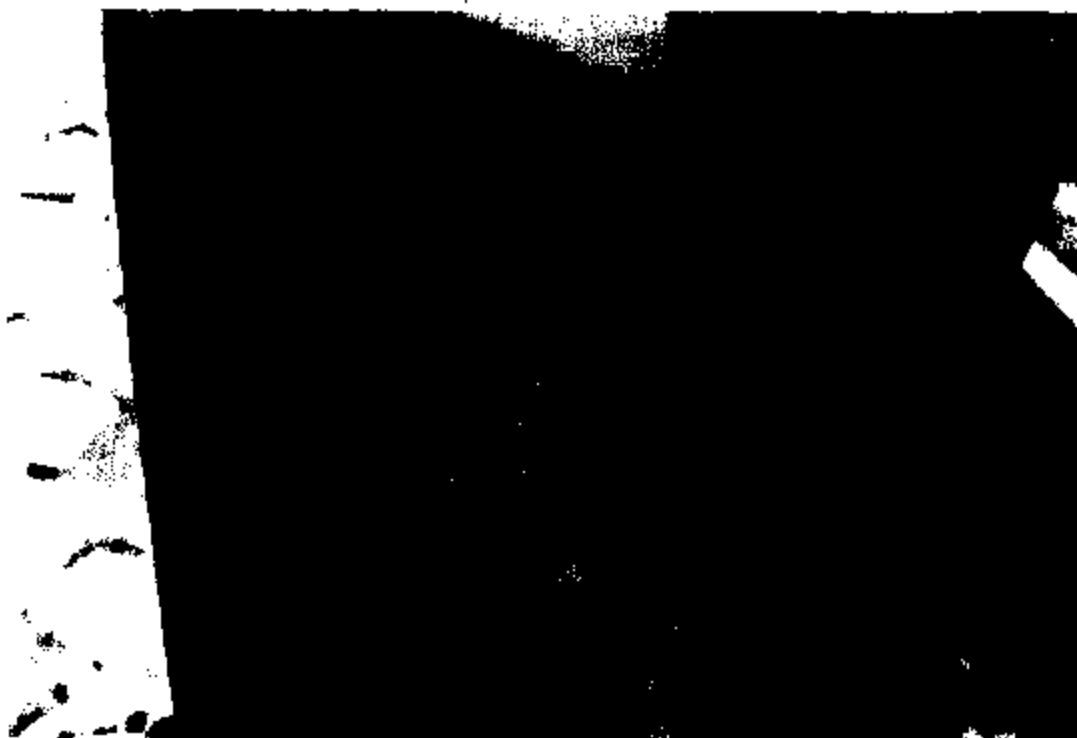


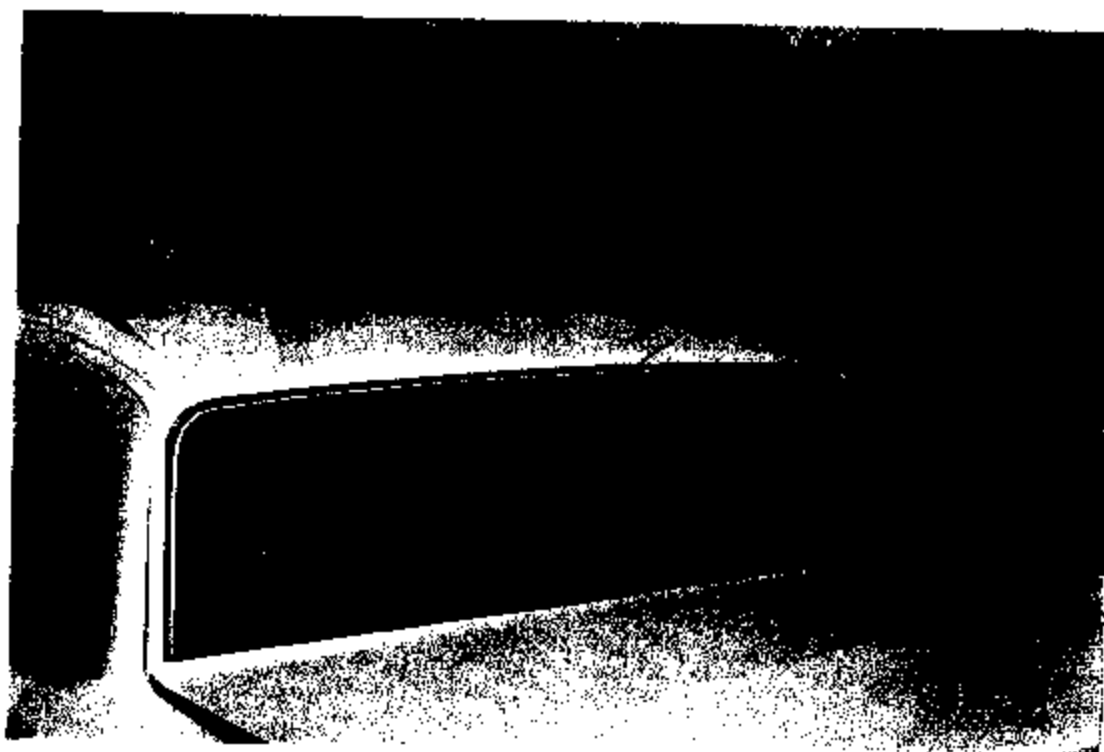
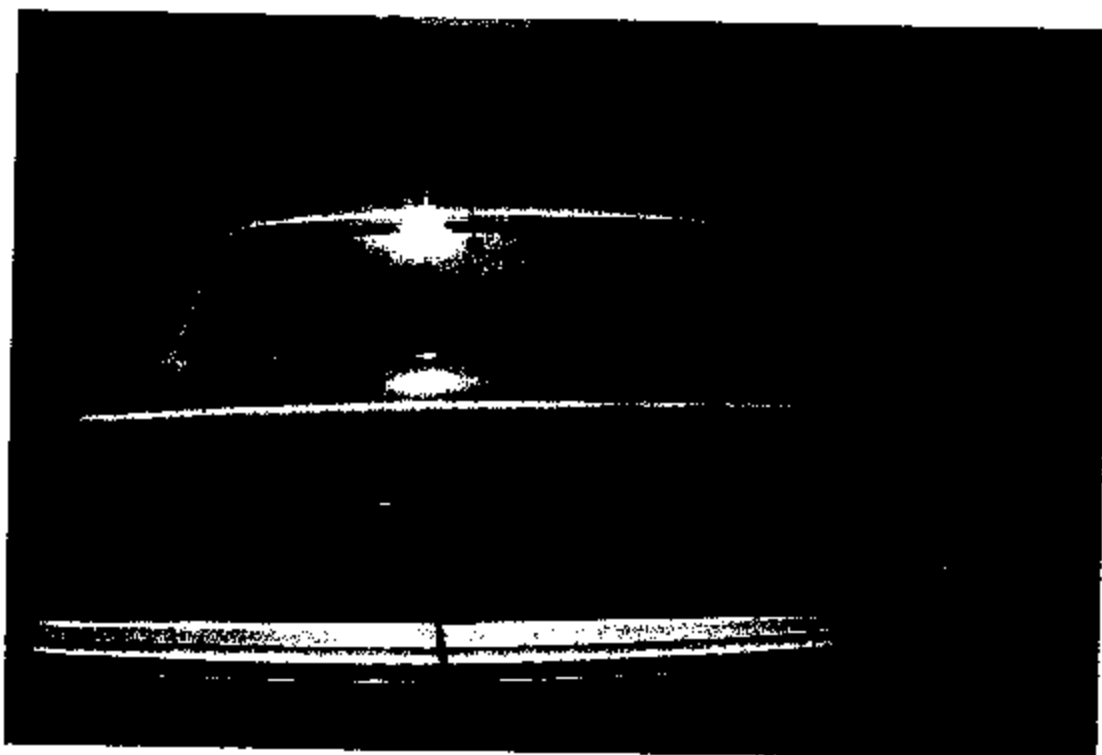




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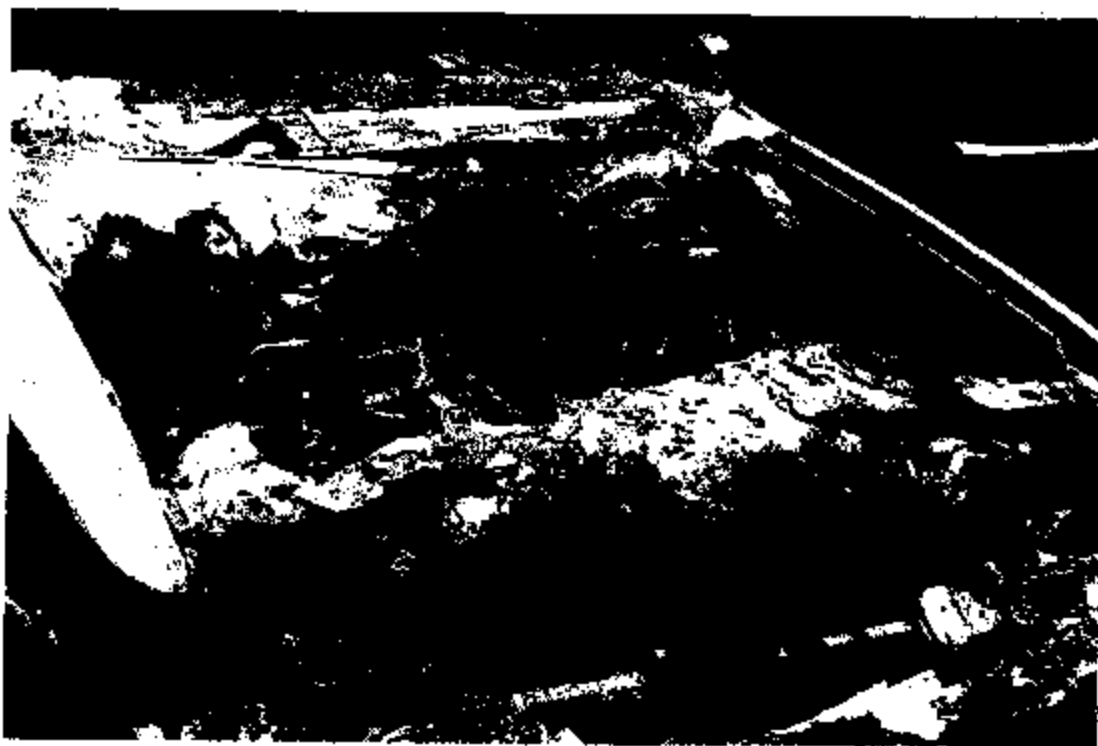
[REDACTED]
RT MYERS FL
INCIDENT DATE 4-23-99
VIA [REDACTED]
INVESTIGATION 5-18-99
DAVID BURNETT ZAA





3713 4863

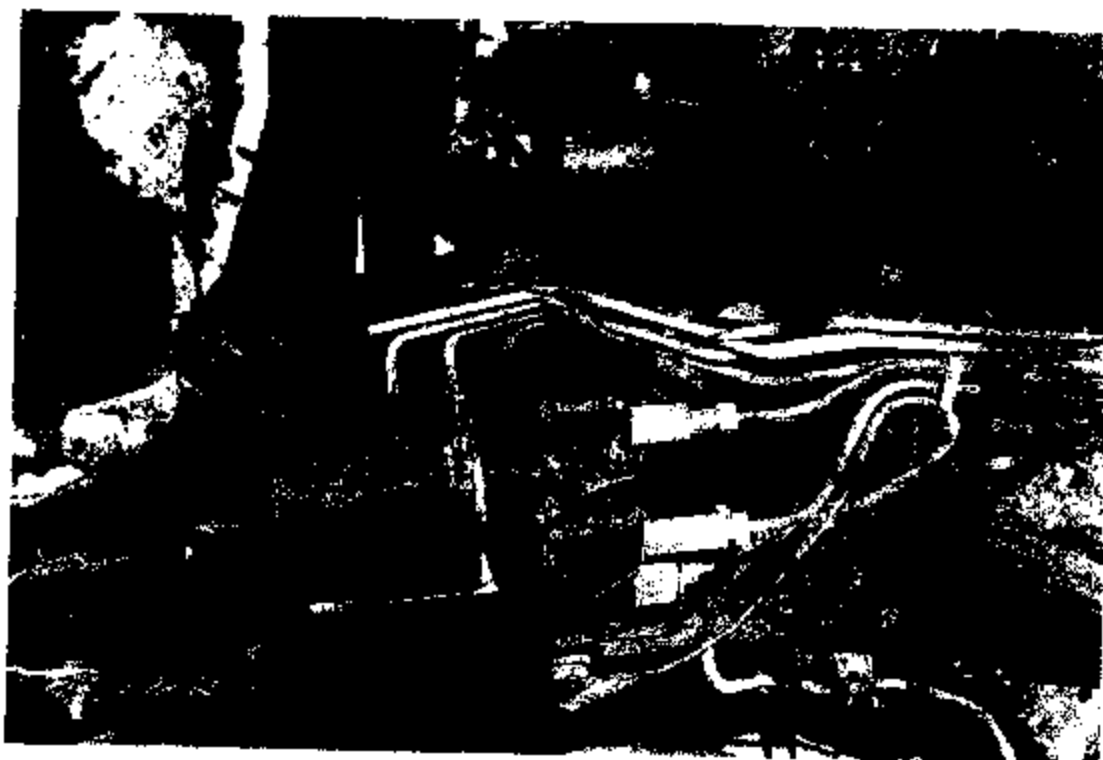




















4





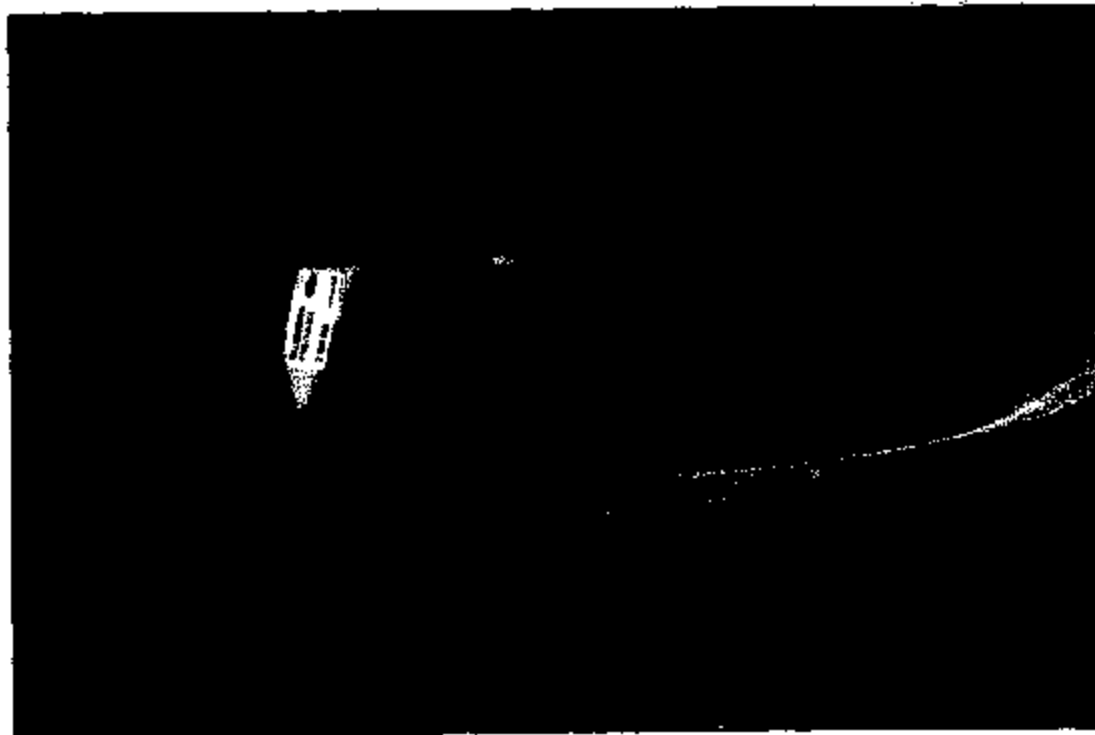








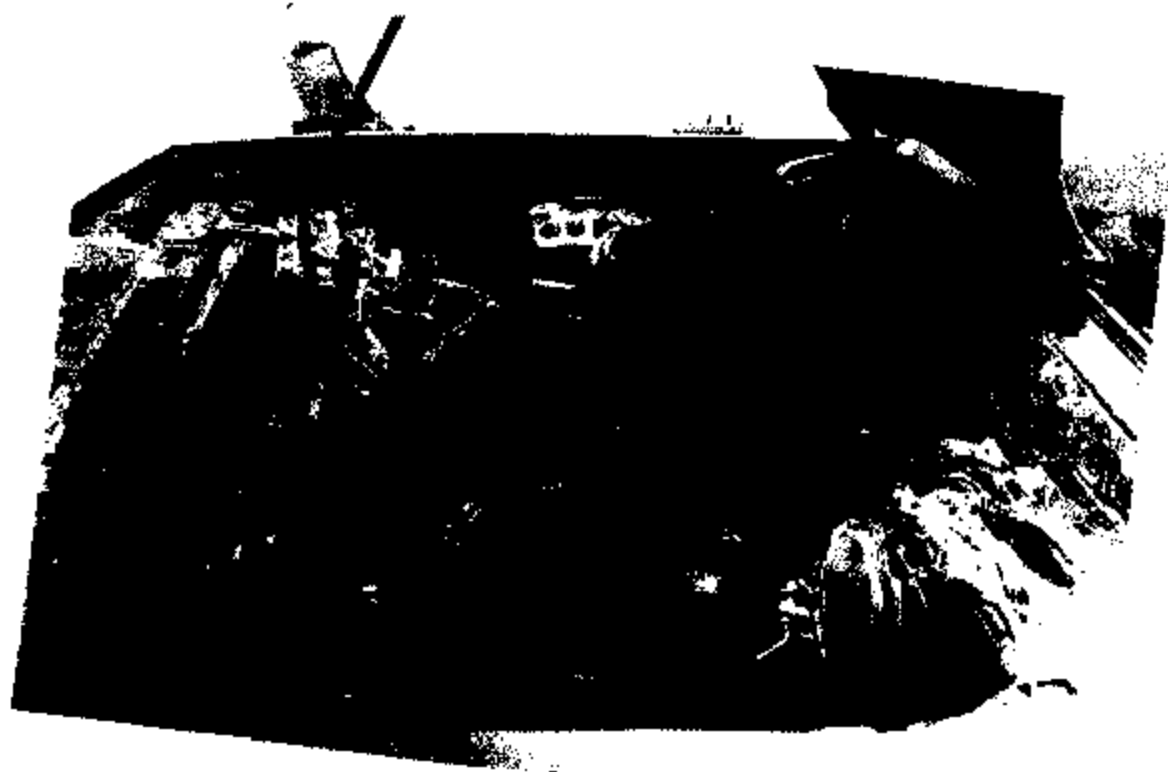




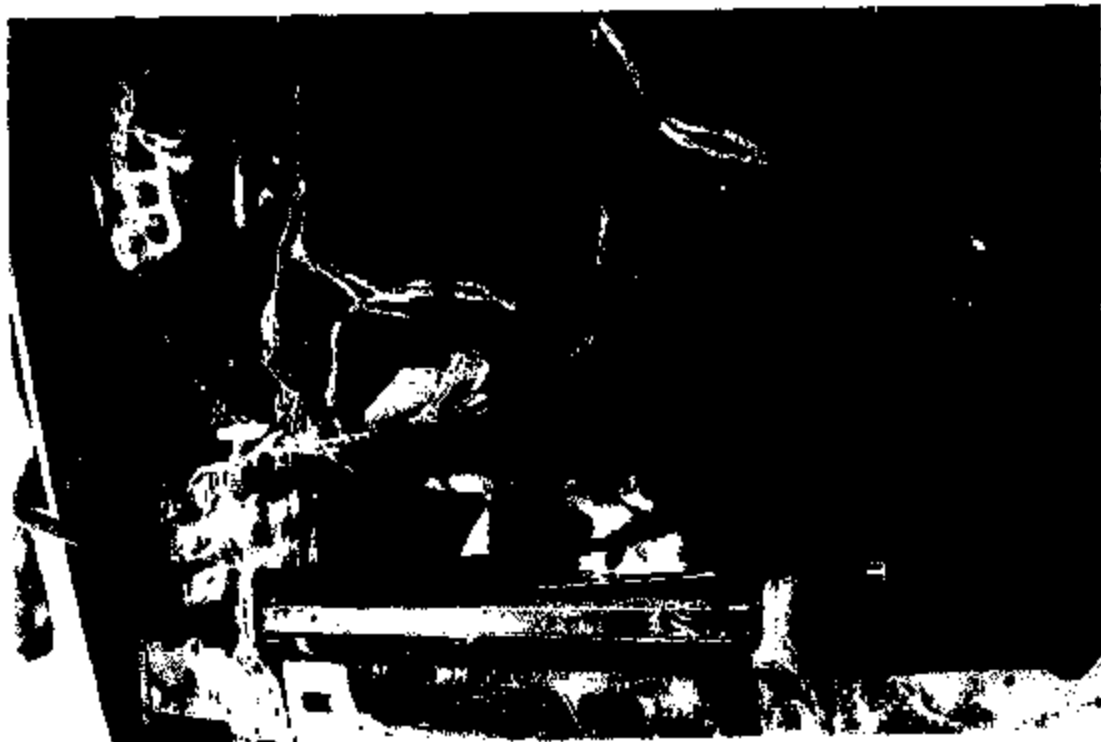












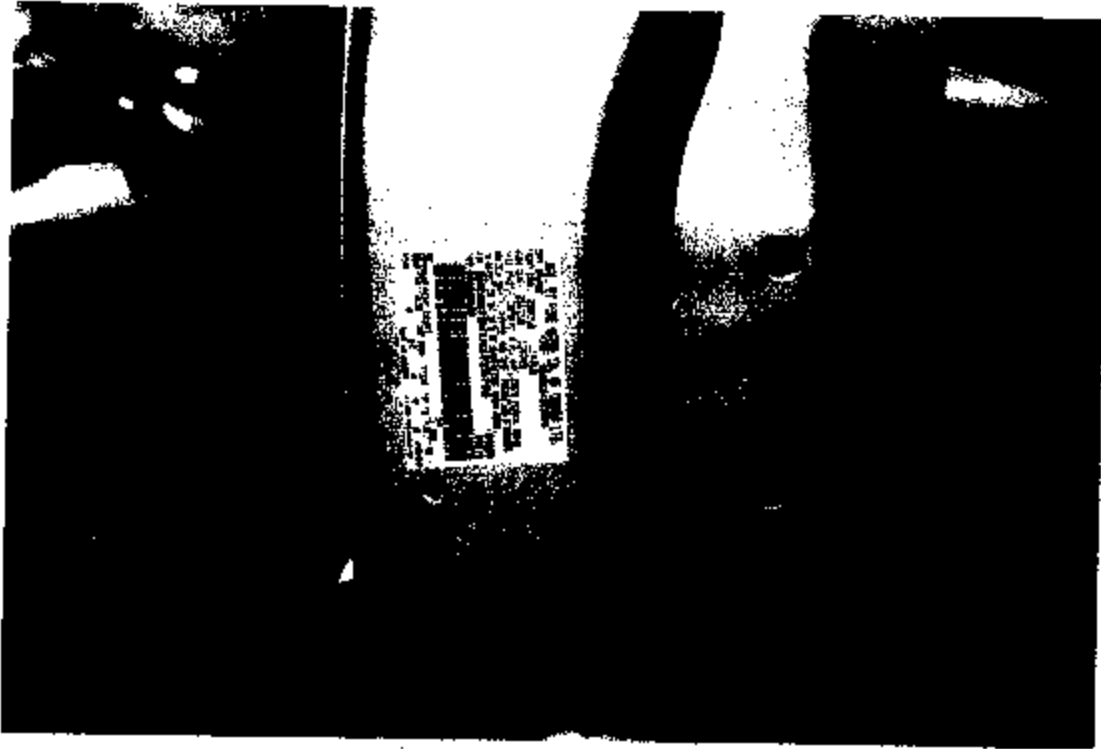




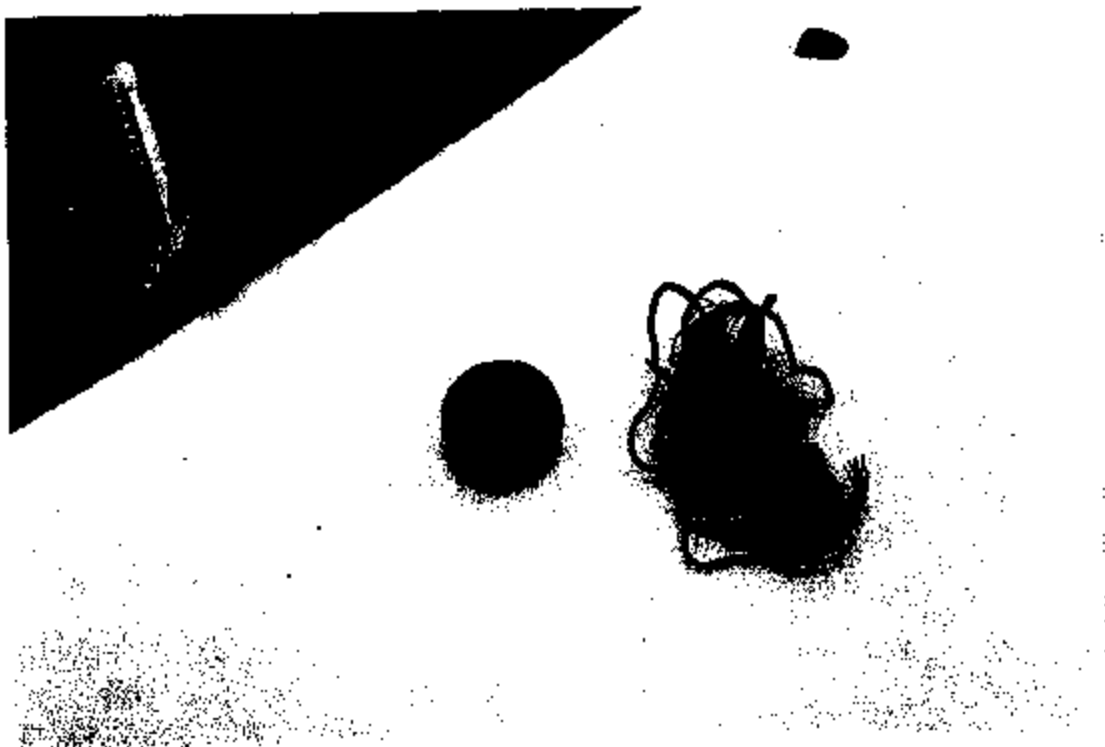
V10

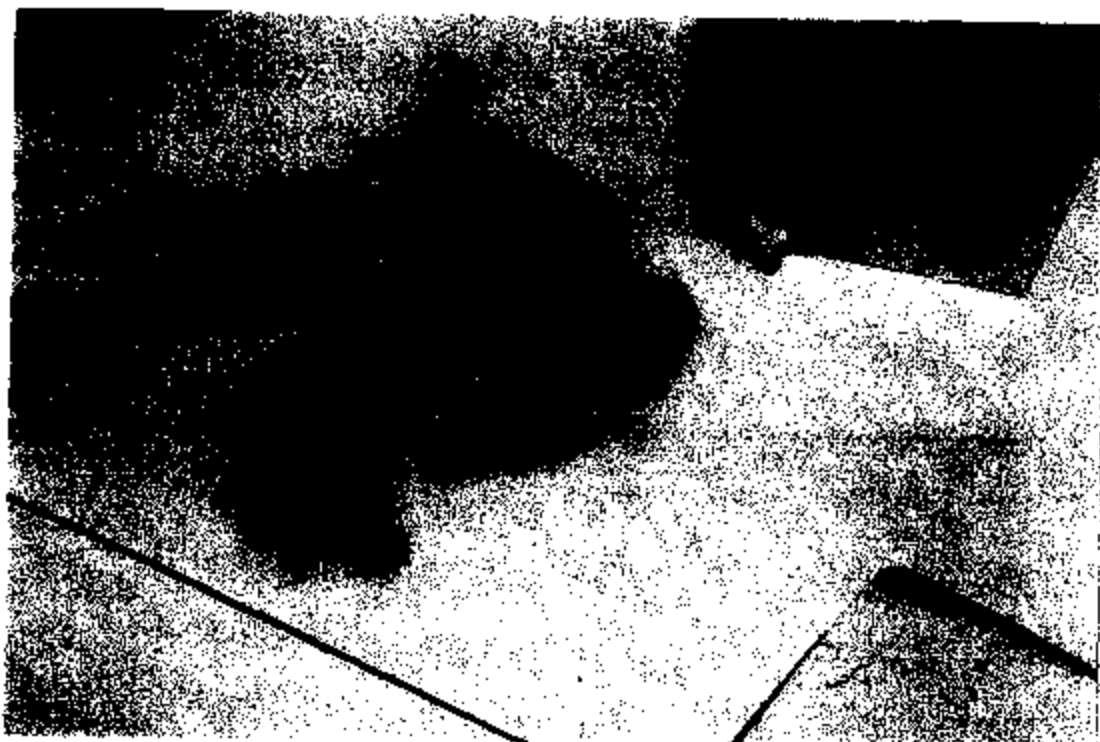
42 G/M Case-31

STATE FARM





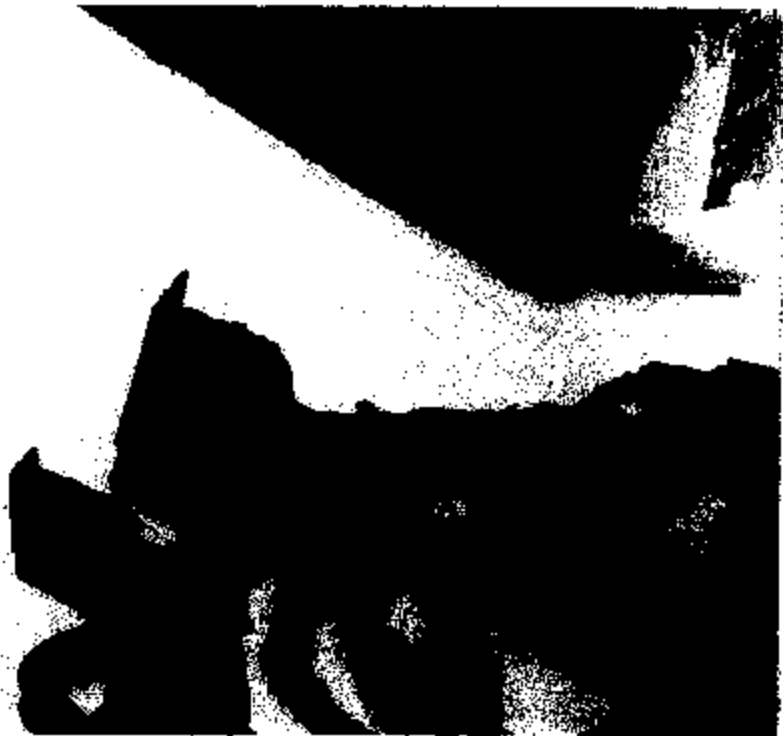
































424464			
4074			
City		State	
Date 1/30		Time 4	
Firm		Double Prints	
☐ Kodak ☐ Fuji ☐ S-8 ☐ _____	ASA ☐ 100 ☐ 200 ☐ 400 ☐ 1000	Size ☐ 35 ☐ 110 ☐ _____	Frames ☐ 12 ☐ 24 ☐ 36
Yes		No	
Printer Sold		30/12	
Special Instructions			
3 SETS PRINTS		1724	
#997		0 78742 22594 4	
SCAN THIS ITEM		PRICE	

 1 HOUR PHOTO

WAL-MART

Ask
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FREE
film developing
punch card

WAL-MART
1 HOUR PHOTO

FREE ROLL OF SINGLE COLORPRINT FILM PROCESSING
With Every 8 Rolls Processed
Good At Any Wal-Mart 1-Hr Photo Lab

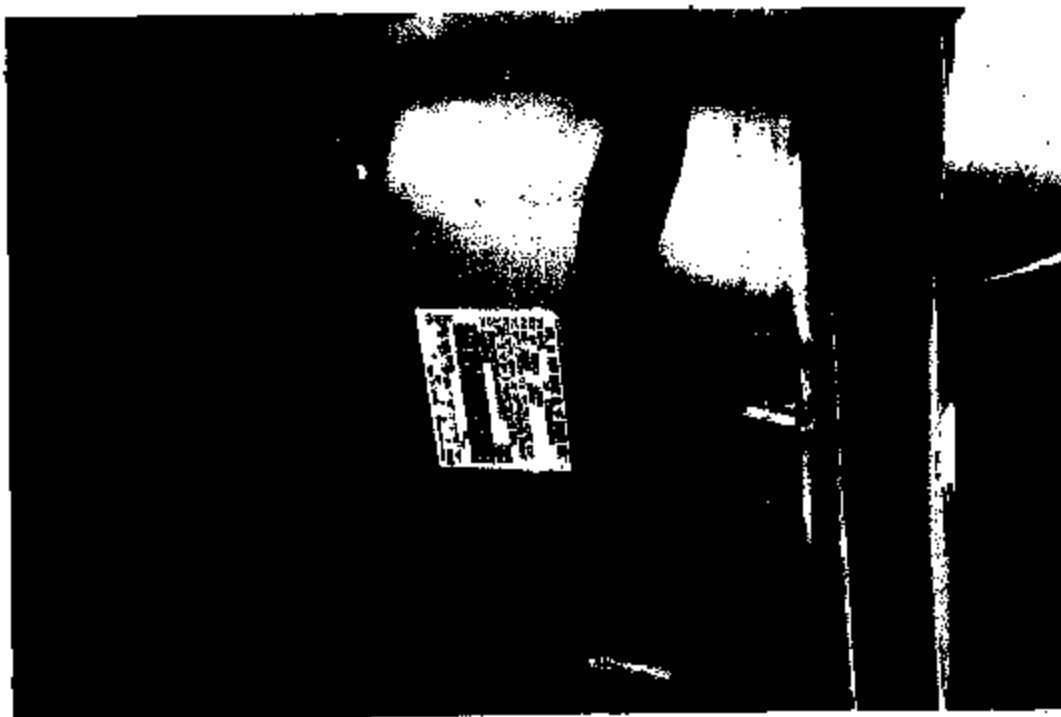
1	2	3	4	5	6	7	8	PRICE
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(This Offer Applies Only To 1-Hr Roll Processing)
SEE WALMART WITH ANY ORDER OFFER

3713 4909

VIN [REDACTED]
426/MARQUIS
ORLANDO FL





3713 4912



3713 4913



3713 4914





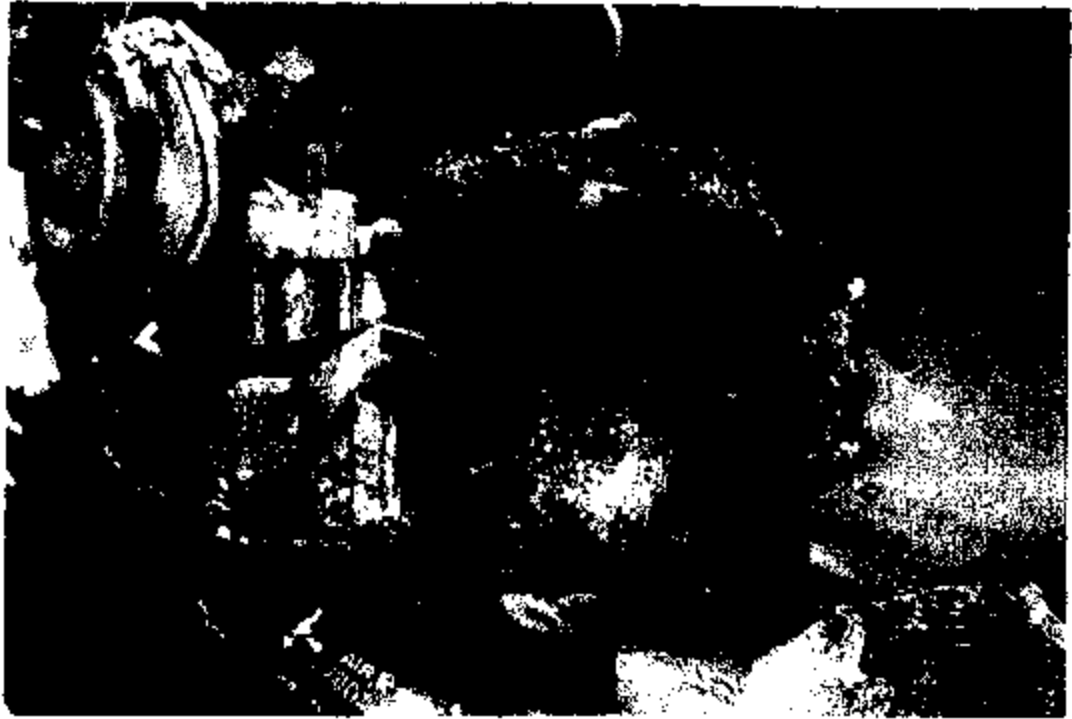
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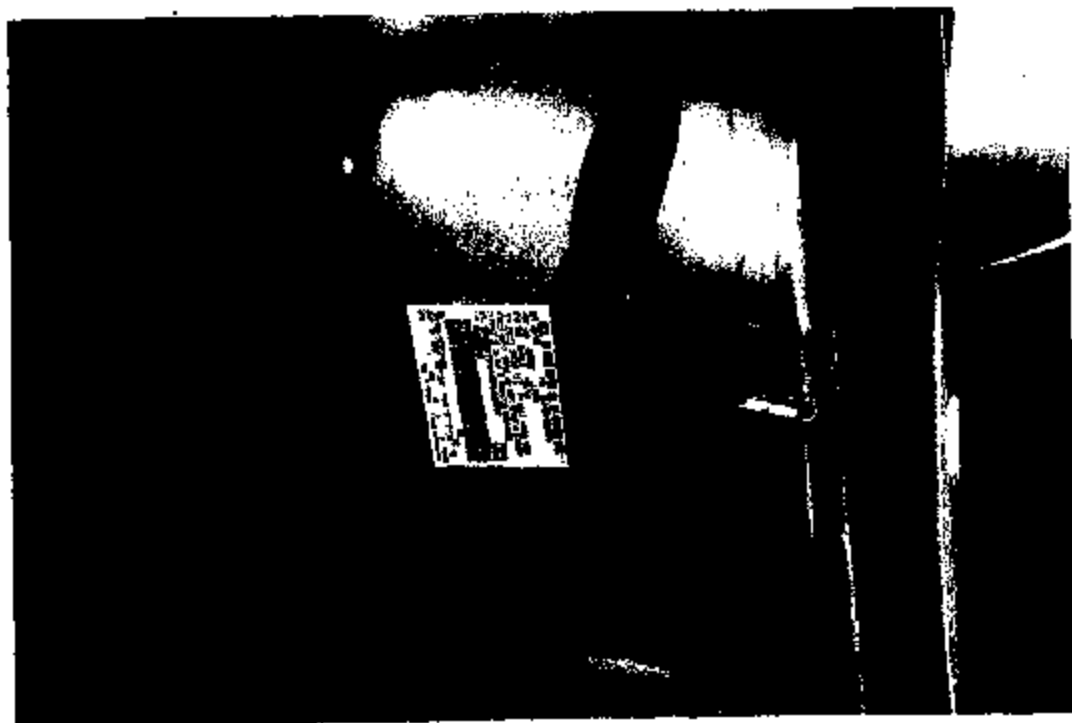






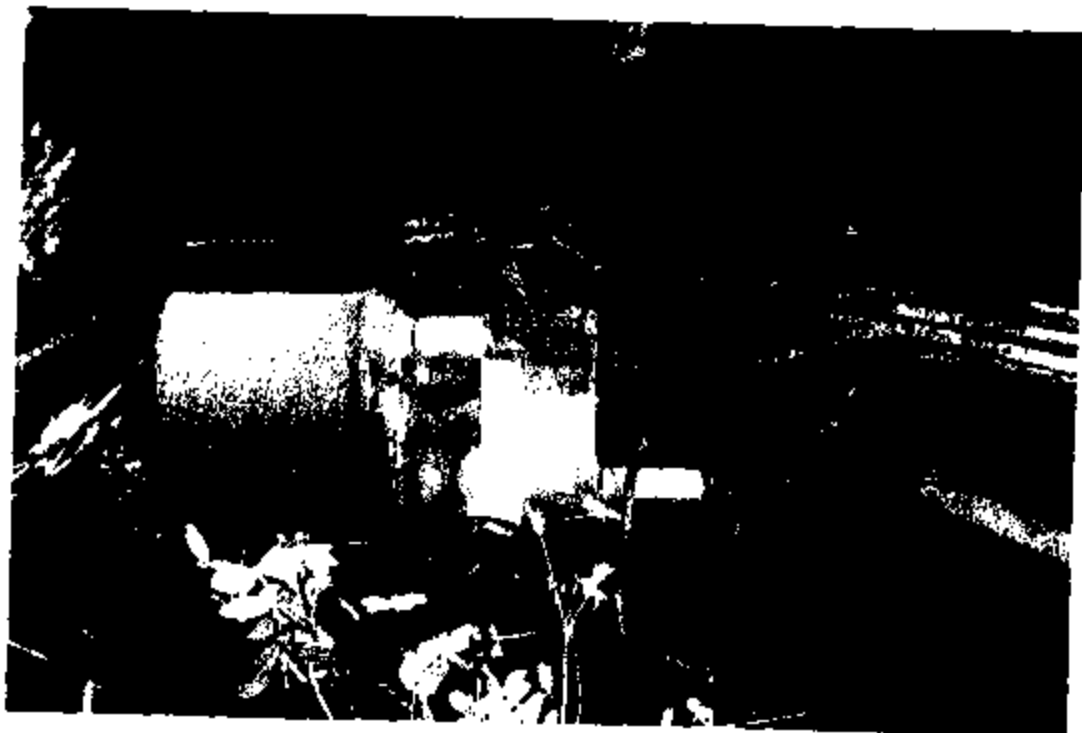
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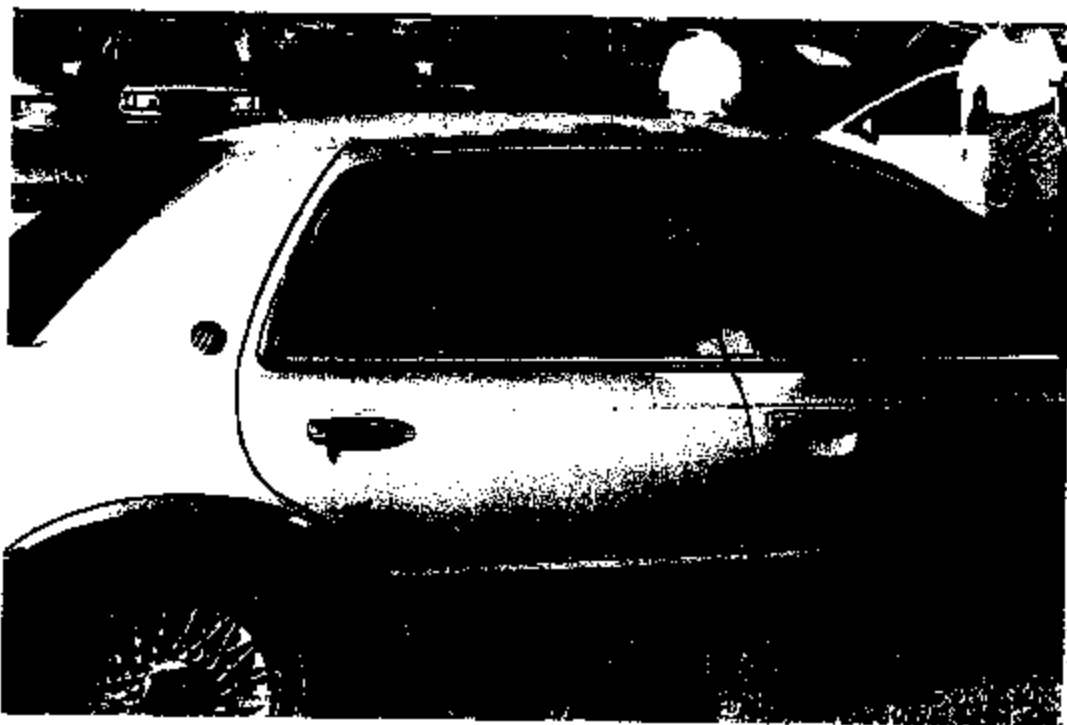


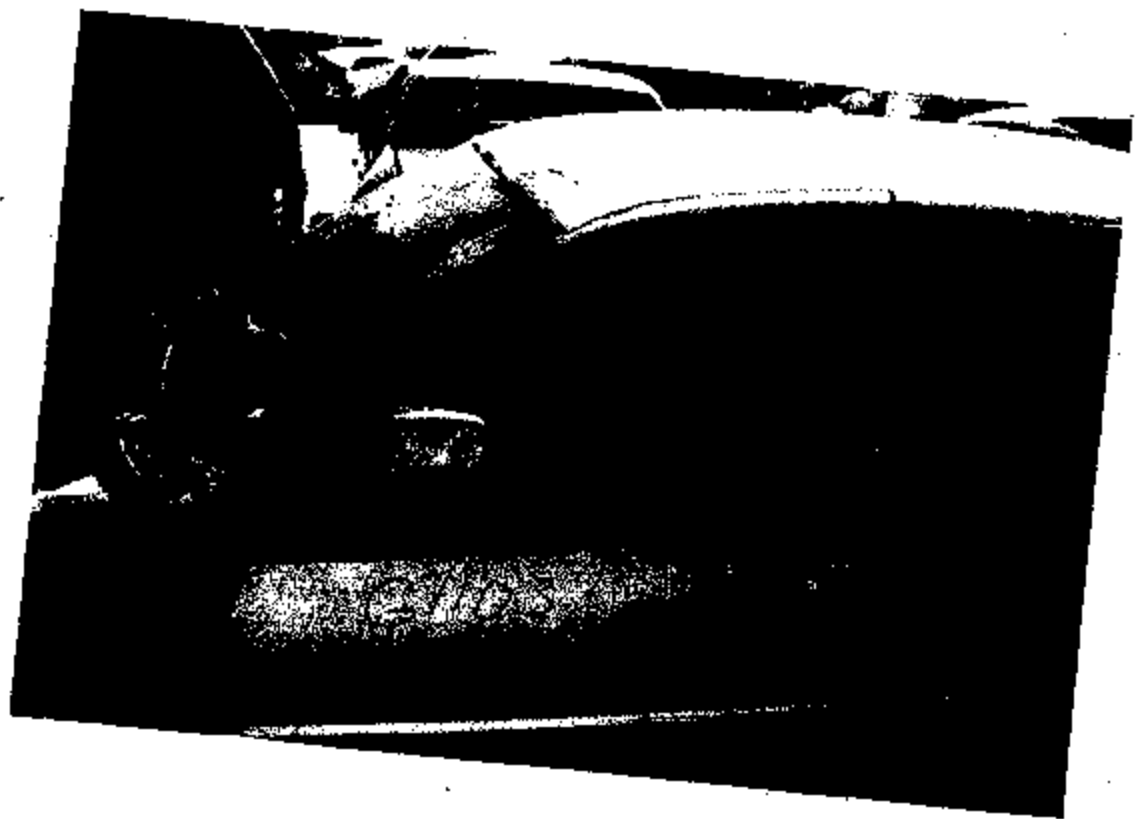






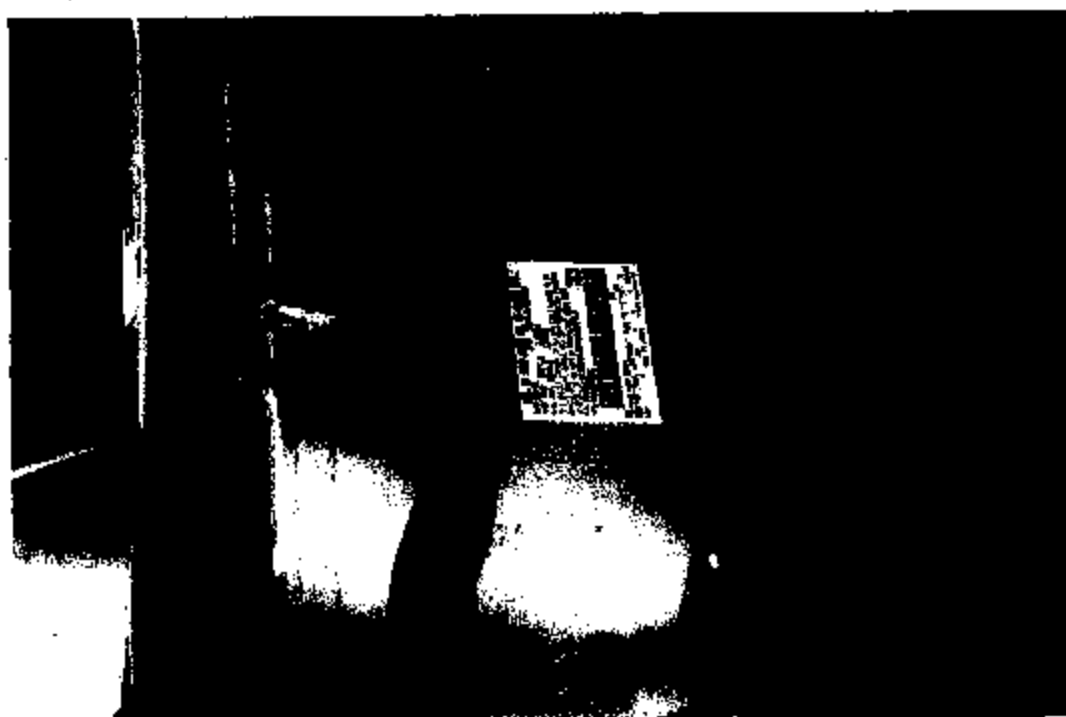








3713 4933



[Redacted]				424465	
[Redacted]				Toll Check 8/07	
City				State	
Phone		Date	Time Processed		GOING BRILLIANT
Film	ASA	Size	Frames	Double Prints	
☐ Kodak	☐ 100	☐ 35	☐ 18	Yes	No
☐ Fuji	☐ 200	☐ 110	☐ 24	Prints Sold	
☐ 35M	☐ 400	☐ 135	☐ 36		
☐ []	☐ 1600	☐ []	☐ 80		
Special Instructions PHOTO 3 SETS PRINTS				 78742 22594 SCAN THIS ITEM	
				PRICE 11.25	

 1 HOUR PHOTO

WAL-MART

Ask
about your
FREE
film developing
punch card

WAL-MART
1 HOUR PHOTO

FREE ROLL OF SINGLE COLORPRINT FILM PROCESSING
With Every 8 Rolls Processed
Good At Any Wal-Mart 1-Hr. Photo Lab

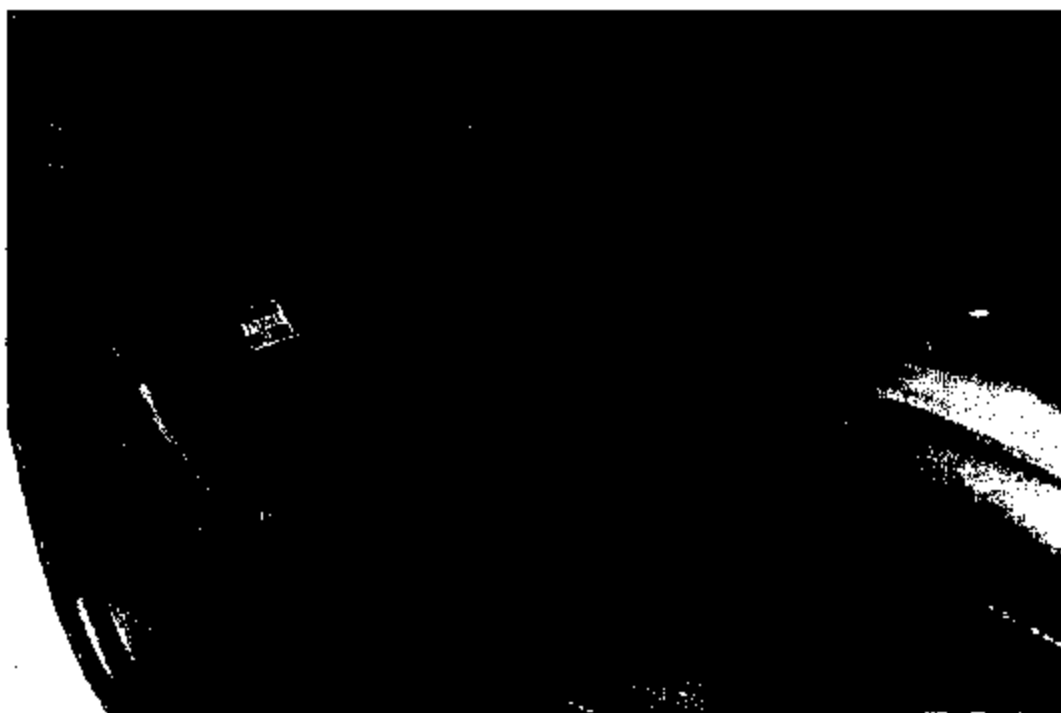
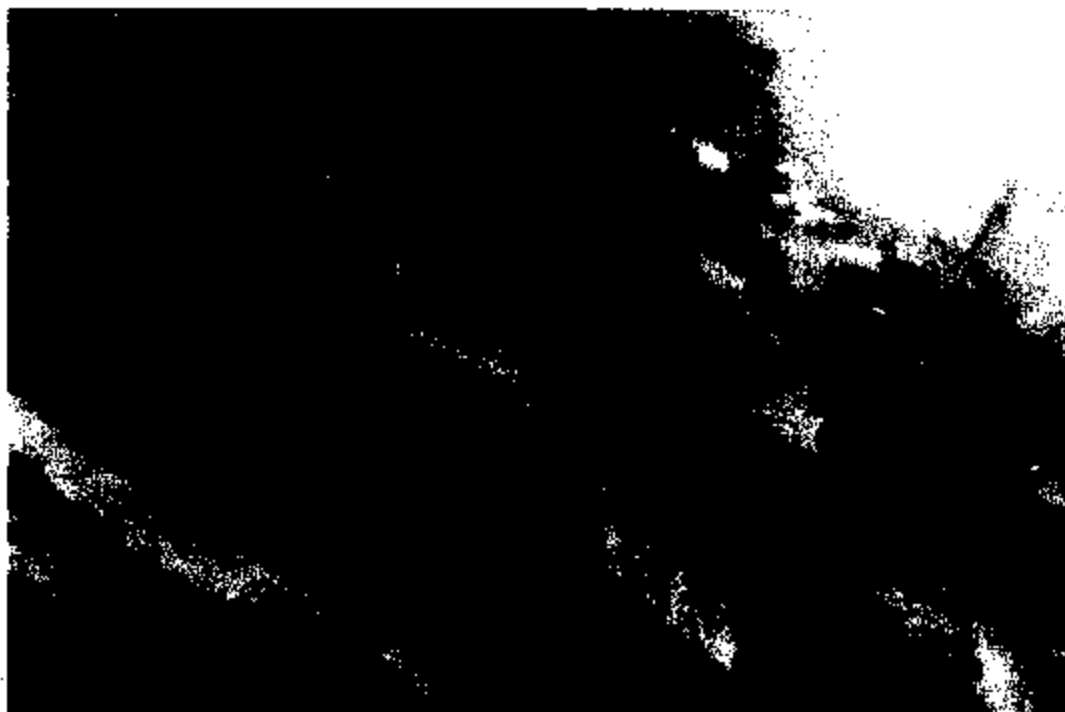
1	2	3	4	5	6	7	8	FREE
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(This Offer Applies Only To 1-Hr. Roll Processing)
NOT VALID WITH ANY OTHER OFFER

93 TOWN CAR

PALMETO, FL

VIN





3713 4998







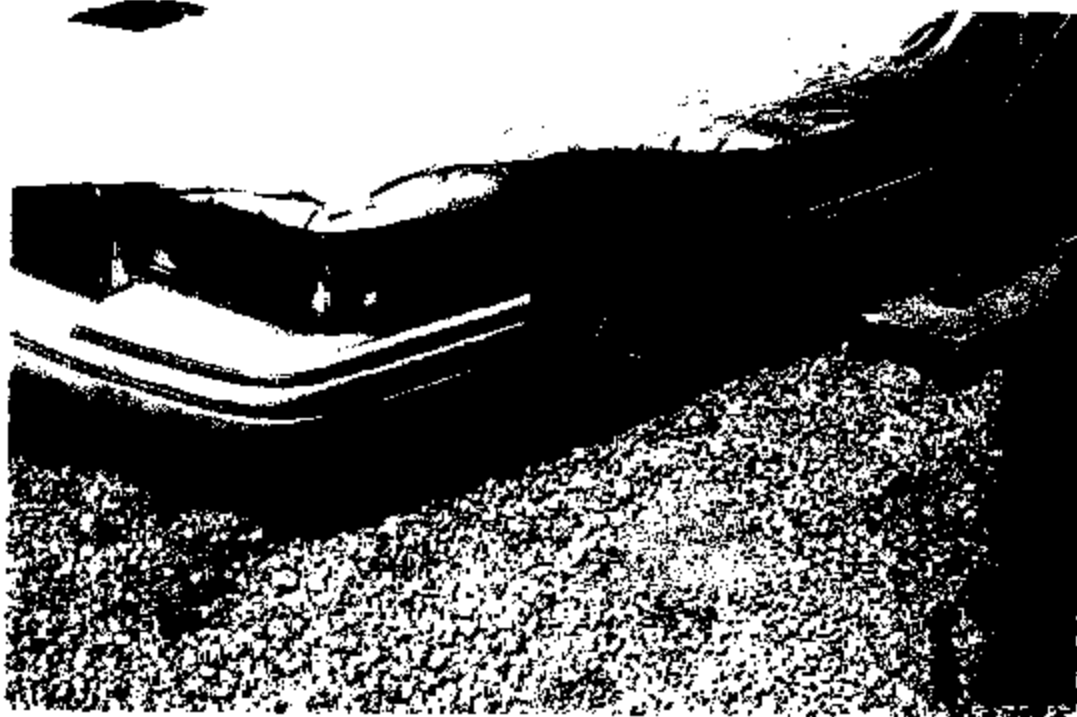














Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Monday, March 22, 1999 3:41 PM
To: dbudzyna@visteon.com; ghuberts@visteon.com
Cc: tschrody@visteon.com
Subject: RE: Brake Pressure Switch In Ground Return Circuit

Dan and Garland: I have scheduled tomorrow morning Tues at 8am to 8:30 to review Brake Pressure Switch In Grd Circuit status with Scott in his office. Please attend if you want.

Note: Tom Schrody is coming.

Regards, Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBLZ)
Mailing Address: EVB, 1WE05
*** Forwarding note from 88MPS03-VISTEON 03/21/99 14:44 ***
To: FKOHL -FORDMAIL Kohl, Fred (F.H.)
cc: DBUDZYNS-VISTEON Budzynski, Dan (D).

From: Simpson, Scott (S.L.)
Subject: RE: Brake Pressure Switch In Ground Return Circuit

Please set up a meeting to brief me on this. We don't need more than 30 minutes.

Scott Simpson
Manager, Powertrain Electronic Systems and Applications
Powertrain Control Systems/Visteon
Phone: (313) 621-7959 Fax: (313) 322-1630

-----Original Message-----

From: Fred Kohl [mailto:fkohl@gw.ford.com]
Sent: Thursday, March 18, 1999 11:53 AM
To: dbudzyna@visteon.com; fporter@gw.ford.com; ghuberts@visteon.com;
erlmere@gw.ford.com; selmpeo3@visteon.com; tschrody@visteon.com
Cc: fkohl@gw.ford.com
Subject: Brake Pressure Switch In Ground Return Circuit

Fred Porter and Steve Reimers:

Attached file (GrdReturn.doc) details what it would take at a minimum to place the brake pressure switch (deactivation switch) in the ground return circuit.

Please note a complete design analysis would be needed to determine if other changes are required.

Visteon does not feel this change is a viable solution for fixing the issue. We will continue to support you and the teams efforts to resolve the issue.

A reply on Visteon letterhead will come next week.

Regards, Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBLZ)
Mailing Address: EVB, 1WE05

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Thursday, March 18, 1999 11:53 AM
To: dbudzyna@visteon.com; fporter@gw.ford.com; ghuberts@visteon.com;
sreimers@gw.ford.com; salmpso3@visteon.com; tschrody@visteon.com
fkohl@gw.ford.com
Cc:
Subject: Brake Pressure Switch in Ground Return Circuit

Fred Porter and Steve Reimers:

Attached file (GrdReturn.doc) details what it would take at a minimum to place the brake pressure switch (deactivation switch) in the ground return circuit.

Please note a complete design analysis would be needed to determine if other changes are required.

Visteon does not feel this change is a viable solution for fixing the issue. We will continue to support you and the teams efforts to resolve the issue.

A reply on Visteon letterhead will come next week.

Regards, Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOH Phone (313) 32-21601 Pager (888) 377-6280
IBM Mail(USFMCBLJZ)
Mailing Address: EVB, 1WE05



grdretn_1.doc

Schrody, Thomas (T.P.)

From: Steve Reimers [sreimers@gw.ford.com]
Sent: Thursday, February 25, 1999 4:15 PM
To: wboyer1@visteon.com
Cc: fkohl@gw.ford.com; tschrody@visteon.com; gdygert@visteon.com; ghuberts@visteon.com; Porter, F.J.
Subject: RE: Speed control servo

Thanks for the technical info. Did the bad R44 NGSC batch include any MY92 or MY 93 Town cars built after 11/1/91? If so, was there any corrective action for the vehicles already delivered? Also, are there other failure modes internal to the NGSC which result in the clutch coil being energized when it should be off?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03285 SREIMERS sreimers@ford.com fax 39-03285 >
*** Forwarding note from WBOYER1 -VISTEON 02/25/99 15:51 ***

To: SREIMERS-FORDMAIL Reimers, Steve (S.)
cc: FKOH -FORDMAIL Kohl, Fred (F.H.) TSCHRODY-VISTEON Schrody, Thomas (T)
GDYGERT -VISTEON Dygert, Greg (G.J.) DBUDZYNS-VISTEON Budzynski, Dan (D.)
GHUBERTS-VISTEON Huberts, Garlan (G)

From: Boyer, Wes (W.D.)
Subject: RE: Speed control servo

Steve,

Greg Dygert helped me with this. He ran a dynamic transient response analysis on the flyback voltage appearing at the BPS - Deao node (our J1-9 terminal) when the clutch is engaged and switched off by the external BPS. With the flyback clamping resistor in place, the transient is limited to a relatively clean, exponentially decaying impulse peaking at about -50 volts, with or without the 22 nF capacitor in our module, confirming my description of 2/22/1998.

Without the 82 ohm resistor and diode across the clutch winding, the voltage is an underdamped oscillation that theoretically peaks at +/- 1000 volts and whose envelope decays exponentially. It is very likely that the switch and/or capacitor (rated at 100 volts dc, 200 v pk) would break down at a much lower voltage. The energy stored in the clutch winding could cause the switch to arc. For this to occur the ignition must be ON and speed control must have been "SET" (or #1 fault = shorted MOSFET driver) AND the flyback resistor, R44, is open (fault #2) AND the brake pressure builds up to open the switch. If fault #1 occurs without the switch opening, a continuous current of about 0.5 amp drains the battery rather rapidly (overnight) and the driver will be aware that something is wrong. Fault #2 is known to have caused fault #1 and the drained battery on a small population of vehicles built with Thin FR4 (non-ceramic) circuits and a bad batch of R44 resistors from the supplier. I do not believe these are in the same generation of NGSC modules as the present concern.

Please copy Huberts, Garlan (G.J.) and/or Dygert, Greg (G.J.) with any reply or response to this message.

Regards,

Wee (W. D.) Boyer Phone: (313) 248-8417
Visteon Automotive Systems Fax: (313) 322-3529
Precision Speed Control - Electronic Design E-mail: [REDACTED]
(Usually at work, Wednesday + Thursday, only; Personal e-mail: [REDACTED])

> ---Original Message---

> From: Steve Reimers [SMTP:sreimers@gw.ford.com]

> Sent: Monday, February 22, 1999 12:18 PM

> To: wboyer1@visteon.com

> Cc: fkoehl@gw.ford.com

> Subject: RE: Speed control servo

> Can you model this with the flyback resistor disconnected?

> Steve Reimers building 5 SC043

> AVT Chassis E/E System Applications mail drop 5011

> 38-08286 SREIMERS sreimers@ford.com fax 38-08286 >

> *** Forwarding note from SREIMERS-FORDMAIL 02/22/99 10:00 ***

> To: SREIMERS-FORDMAIL Reimers, Steve (S. WBOYER1 -VISTEON Boyer, Wee

> (W.D.)

> cc: FKOHL -FORDMAIL Kohl, Fred (F.H.) TSCHRODY-VISTEON Schrody,

> Thomas (T)

> From: Boyer, Wee (W.D.)

> Subject: RE: Speed control servo

> The transient pulse will be an identical mirror image of the one shown in

> the previous traces. That is, instead of floating at the Vbatt level,

> "charging" the inductance at zero [the Vds(on) of the MOSFET] and flying

> back to a positive voltage, the pulse on the BPS side (referenced to

> ground)

> will fly back to a negative voltage limited by the I^2R drop across the

> clamping resistor. There will be a small difference in the dynamics due

> to
> a capacitor at the BPS-Deac node that doesn't enter the picture when the
> FET
> is switched. I will look into that on Wednesday.
>
> Wes
> w.d.boyer@ieee.org
>
> -----Original Message-----
> From: Steve Reimers
> To: wboyer1@visteon.com
> Cc: fkoehl@gw.ford.com; tschrody@visteon.com
> Sent: 2/18/99 5:46 PM
> Subject: RE: Speed control servo
>
> Please re-run this model with the following condition: No Fly-back and
> FET always
> on and use the Brake Pressure switch to create the switching
> transient.
> What is the voltage at the brake pressure switch?
>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 6011
> 89-08286 SREIMERS sreimers@ford.com fax 313-322-3629 ;>
> *** Forwarding note from WBOYER1 -VISTEON 02/17/99 10:58 ***
> To: DPORTER1-VISTEON Porter, David (D.L. SREIMERS-FORDMAIL Reimers,
> Steve (S.
> cc: FKOHL -FORDMAIL Kohl, Fred (F.H.) TSCHRODY-VISTEON Schrody,
> Thomas (T
> DBUDZYNS-VISTEON Budzynski, Dan (D.
>
> From: Boyer, Wes (W.D.)
> Subject: RE: Speed control servo
>
> Attached is an analysis of the idealized flyback pulse of the turn-off
> transient on the clutch winding:
> <<Cl_82r44.pdf>>
>
> Regards,
> Wes (W. D.) Boyer Phone: (313) 248-8417
> Visteon Automotive Systems Fax: (313)
> 322-3629
> Precision Speed Control - Electronic Design E-mail:
> WBoyer1@visteon.com
> (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> w.d.boyer@ieee.org)
>
> -----Original Message-----
> From: Porter, David (D.L.)
> Sent: Wednesday, February 17, 1999 10:28 AM
> To: Steve Reimers
> Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
> Subject: RE: Speed control servo
>
> Steve, the inductance of the clutch was at one time called out as
> 83-112
> M.H. This is measured at 1 KHz and in parallel.
>
> Dave Porter dporter1@Visteon.com Phone: 313-390-8874
> Fax
> 313-322-3629
>
> -----Original Message-----
> From: Steve Reimers [SMTP:sreimers@gw.ford.com]

>> Sent: Wednesday, February 17, 1999 9:58 AM
>> To: dporter1@vistcon.com; fkohl@gw.ford.com
>> Subject: FW: Speed control servo

>> Fred Kohl will bring the parts to Visteon. These were retrieved
>> from junkyards
>> as part of a sampling process related to Brake Pressure switch
>> function. The
>> Brake Pressure switch ES spec defines 300 millHenry as the
>> minimum
>> test induc
>> tance for life testing. Is this a good number? Can you measure
>> the
>> inductance
>> to establish a minimum and maximum?

>> Steve Reimers building 5 3C043
>> AVT Chassis E/E System Applications mail drop 6011
>> 30-03266 SREIMERS sreimers@ford.com fax 30-03266 :>
>> *** Forwarding note from DPORTER1-VISTEON 02/17/99 08:18 ***
>> To: SREIMERS-FORDMAIL Reimers, Steve (S.
>> cc: FKOHL -FORDMAIL Fred Kohl (E-mail) WBOYER1 -VISTEON Wea
>> Boyer (E-mail)

>> From: Porter, David (D.L.)
>> Subject: FW: Speed control servo

>> Steve, the clutch resistance should be in the neighborhood of 24
>> Ohms. If
>> the clutch winding is intact, and nothing is mechanically
>> damaged,
>> etc. I
>> would assume the parts are functional. There is no specified
>> inductance on
>> the clutch, because it varies with gear position (open or
>> closed).
>> If I
>> is important to check functionality of these parts, bring them
>> to
>> our lab,
>> and I can bench test them for you. Are these parts off vehicles,
>> or
>> just
>> unused parts that have been lying in a corner for a few years?
>> You
>> did not
>> mention motor phase inductance or resistance. Generally, the
>> motors
>> are OK
>> if they rotate freely, and the three phases all have a
>> resistance of
>> about
>> 2.5 Ohms.

>> Dave Porter dporter1@Visteon.com Phone:
>> 313-390-8674
>> Fax
>> 313-322-8526

>> > —Original Message—
>> > From: Boyer, Wes (W.D.)
>> > Sent: Wednesday, February 17, 1999 8:05 AM
>> > To: Porter, David (D.L.)
>> > Subject: FW: Speed control servo

>> >
>> >
>> >f.y.i.
>> >Regards,
>> >Wee (W. D.) Boyer Phone: (313)
>> 248-9417
>> >Visteon Automotive Systems Fax (313)
>> 322-9529
>> >Precision Speed Control - Electronic Design E-mail:
>> WBoyer1@visteon.com
>> >(Usually at work, Wednesday + Thursday, only; Personal e-mail:
>> >w.d.boyer@ieee.org)
>> >
>> >-----Original Message-----
>> >From: Fred Kohl [SMTP:fkohl@gw.ford.com]
>> >Sent: Tuesday, February 16, 1999 3:48 PM
>> >To: wboyer1@visteon.com; tschrody@visteon.com
>> >Subject: RE: Speed control servo
>> >
>> >fyi
>> >
>> >Regards, Fred Kohl, Precision Speed Control (Panther)
>> >PROFB ID: FKOH1 Phone TBD Pager (888) 977-8280
>> >IBM Mail(USFMCB.JZ)
>> >Mailing Address: ETC C376
>> >*** Forwarding note from SREIMERS--DRBN007 02/16/99 12:38 ***
>> >To: FKOH1 --DRBN007
>> >
>> >FROM: Steve Reimers USAET(UTC
>> -05:00)
>> >Subject: RE: Speed control servo
>> >These are from MY92 and 93. No known failures. Just want to
> know
>> if
>> >there
>> >clutch control function has degraded.
>> >
>> >Steve Reimers building 5 9C049
>> >AVT Chassis E/E System Applications mail drop 5011
>> >39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
>> >*** Forwarding note from FKOH1 --FORDMAIL 02/16/99 10:35 ***
>> >To: TSCHRODY--VISTEON Schrody, Thomas (T
>> >cc: DBUDZYNB--VISTEON Budzynski, Dan (D. FKOH1 --FORDMAIL
> Kohl,
>> Fred
>> >(F.H.)
>> >SREIMERS--FORDMAIL Reimers, Steve (S.
>> >
>> >From: Boyer, Wee (W.D.)
>> >Subject: RE: Speed control servo
>> >
>> >I'll send a copy of the complete clutch-dump analysis when I
> get
>> in on
>> >Wednesday.
>> >
>> >What model year clutches are we talking about? And, Why from
> this
>> >"junkyard?"
>> >
>> >Wee
>> >w.d.boyer@ieee.org
>> >-----Original Message-----
>> >From: Schrody, Thomas (T.P.)

>> > To: Boyer, Wes (W.D.)
>> > Sent: 2/16/99 10:13 AM
>> > Subject: FW: Speed control servo
>> >
>> > Wes,
>> >
>> > I don't think you're in today, but if you are... Could you
> respond
>> to
>> > Steve Reimers? I'm busy at NPEF and will return tomorrow.
>> >
>> > -----Original Message-----
>> > From: Fred Kohl
>> > To: techrody@visteon.com
>> > Cc: dbudzyns@visteon.com; fkohl@gw.ford.com;
> sreimers@gw.ford.com
>> > Sent: 2/16/99 7:59 AM
>> > Subject: Speed control servo
>> >
>> > Can you answer Steve questions?
>> >
>> > Regards, Fred Kohl, Precision Speed Control (Panther)
>> > PROFS ID: FKOH1 Phone TBD Pager (888) 377-6280
>> > IBM Mail(U8FMCBJZ)
>> > Mailing Address: ETC C375
>> > *** Forwarding note from SREIMERS-DRBN007 02/16/99 18:14 ***
>> > To: FKOH1 -DRBN007
>> >
>> > FROM: Steve Reimers USAET(UTC
> -05:00)
>> > Subject: Speed control servo
>> > What is the inductance and resistance of the clutch? What is
> used
>> to
>> > clamp the
>> > flyback voltage? What is the magnitude of the flyback
> voltage?
>> > I have collected at least ten speed servos from junk yards.
> Can
>> you test
>> > them if
>> > or function?
>> >
>> > Steve Reimers building 5 3C043
>> > AVT Chassis E/E System Applications mail drop 5011
>> > 39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
>
> Attachments sent separately:
>
> Data Type File Name
> BINARY CL_82R44.PDF_PC

Schrody, Thomas (T.P.)

From: Steve Reimers [ereimers@gw.ford.com]
Sent: Wednesday, February 24, 1999 9:49 AM
To: techrody@visteon.com
Cc: fkoehl@gw.ford.com
Subject: RE: Speed Control Output

I agree a stuck on condition would drain the battery. The other thing it does is provide a potential for arcing at the brake pressure switch contacts every time the switch actuates.*****

I am interested in ANY failure mode where the clutch output circuit provides a ground path when it should not. Does your DFMEA address this mode of failure?*****

One possible cause could be a FET latching fault (something I came across years ago). This fault results in the FET being turned on by some internal parasitic mechanism (usually triggered by an over-voltage).
thanks,

Steve Reimers building 5 SC043
AVT Chassis E/E System Applications mail drop 5011
39-03288 SREIMERS ereimers@ford.com fax 39-03288 >
*** Forwarding note from TSCHRODY-VISTEON 02/24/99 07:24 ***
To: SREIMERS-FORDMAIL Reimers, Steve (S.
cc: FKOHL -FORDMAIL Kohl, Fred (F.H.)

From: Schrody, Thomas (T.P.)
Subject: RE: Speed Control Output

I'm not sure I understand your question. A continuously energized clutch circuit is not considered a failure mode. The FET is in the "latched" on state whenever the speed control is engaged. When the brake pressure switch disconnects the power from the clutch, the microprocessor will detect it and turn the FET off. When power is re-applied to the clutch, it would be off.

A shorted clutch driver IS a potential failure mode (however, I did not see this failure mode on the one badly burned unit I examined). If the FET were shorted, the clutch would be on whenever the brake pressure switch was closed. Aside from draining the battery when the ignition is off, this would pose no problem. The amount of current drawn by the circuit would be no greater than when the speed control was engaged.

From a safety standpoint, our system will still disengage because the amplifier will see the SOC switch and cancel. In addition, the removal of power by the brake pressure switch will also cancel the system. In both cases, the servo is spooled to the zero (throttle released) position and the clutch is released.

I'll try to make it to your 2:00 meeting this afternoon. I don't have badge access to Building 5. Do you know who I can contact to gain access?

Regards,

Thomas Schrody
Product Design Engineer ETC, C-895
Precision Speed Control Tel: (313) 323-8895
Visteon Automotive Systems Fax: (313) 322-3529

> ---Original Message---

> From: Steve Reimers [SMTP:sreimers@gw.ford.com]
 > Sent: Tuesday, February 23, 1999 5:25 PM
 > To: fkohl@gw.ford.com
 > Cc: techrody@visteon.com
 > Subject: Speed Control Output
 >
 > Does your FMEA include a condition where the clutch is continuously
 > energized b
 > ecause the FET output driver is latched in the ON-state? Is this a
 > failure mod
 > e for the output FET circuit? When the Brake pressure switch disconnects
 > the p
 > ower to the clutch would that cause the FET to unlatch? When the
 > Brake pressure switch re-applies power to the clutch would the FET
 > re-latch or
 > stay OFF?
 >
 > Steve Reimers building 5 3C043
 > AVT Chassis E/E System Applications mail drop 5011
 > 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: Boyer, Wes (W.D.)
 Sent: Monday, February 22, 1999 10:00 AM
 To: Reimers, Steve (S.J.); Boyer, Wes (W.D.)
 Cc: Kohl, Fred (F.H.); Schrody, Thomas (T.P.)
 Subject: RE: Speed control servo

The transient pulse will be an identical mirror image of the one shown in the previous traces. That is, instead of floating at the V_{batt} level, "charging" the inductance at zero (the V_{ds(on)} of the MOSFET) and flying back to a positive voltage, the pulse on the BPS side (referenced to ground) will fly back to a negative voltage limited by the I²R drop across the clamping resistor. There will be a small difference in the dynamics due to a capacitor at the BPS-Deao node that doesn't enter the picture when the FET is switched. I will look into that on Wednesday.

Wes
 w.d.boyer@ieee.org

-----Original Message-----

From: Steve Reimers
 To: wboyer1@visteon.com
 Cc: fkohl@gw.ford.com; techrody@visteon.com
 Sent: 2/18/99 5:46 PM
 Subject: RE: Speed control servo

Please re-run this model with the following condition: No Fly-back and FET always on and use the Brake Pressure switch to create the switching transient.
 What is the voltage at the brake pressure switch?

Steve Reimers building 5 3C043
 AVT Chassis E/E System Applications mail drop 5011
 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
 *** Forwarding note from WBOYER1 -VISTEON 02/17/99 10:58 ***
 To: DPORTER1-VISTEON Porter, David (D.L SREIMERS-FORDMAIL Reimers, Steve (S.
 cc: FKohl -FORDMAIL Kohl, Fred (F.H.) TSCHRODY-VISTEON Schrody, Thomas (T
 DBUDZYN8-VISTEON Budzynski, Dan (D.

From: Boyer, Wes (W.D.)

Subject: RE: Speed control servo

Attached is an analysis of the idealized flyback pulse of the turn-off transient on the clutch winding:
<<CL_82r44.pdf>>

Regards,
Wes (W. D.) Boyer Phone: (313) 248-8417
Visteon Automotive Systems Fax (313)
322-3529
Precision Speed Control - Electronic Design E-mail:
WBoyer1@visteon.com
(Usually at work, Wednesday + Thursday, only; Personal e-mail:
w.d.boyer@ieee.org)

> ---Original Message---
> From: Porter, David (D.L.)
> Sent: Wednesday, February 17, 1999 10:29 AM
> To: Steve Reimers
> Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
> Subject: RE: Speed control servo
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> Steve, the inductance of the clutch was at one time called out as
> 53-112
> MH. This is measured at 1 KHz and in parallel.
>
> Dave Porter dporter1@Visteon.com Phone: 313-380-8674
> Fax
> 313-322-3529

> ---Original Message---
> From: Steve Reimers [SMTP:sreimers@gw.ford.com]
> Sent: Wednesday, February 17, 1999 9:59 AM
> To: dporter1@visteon.com; fkohl@gw.ford.com
> Subject: FW: Speed control servo
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> Brake Pressure switch ES spec defines 300 mill-Henry as the
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> test inductance for life testing. Is this a good number? Can you measure
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> inductance
> to establish a minimum and maximum?

>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 6011
> 36-03288 SREIMERS sreimers@ford.com fax 36-03288 ;>
> *** Forwarding note from DPORTER1-VISTEON 02/17/99 08:18 ***
> To: SREIMERS-FORDMAIL Reimers, Steve (S.
> cc: FKOHL -FORDMAIL Fred Kohl (E-mail) WBOYER1 -VISTEON Wes
> Boyer (E-mail)

> From: Porter, David (D.L.)
> Subject: FW: Speed control servo

>
> Steve, the clutch resistance should be in the neighborhood of 24
> Ohms. If
> the clutch winding is intact, and nothing is mechanically
> damaged,
> etc. I