13.8 Anti–Theft Alarm (ATA)
Model 163

Central locking (CL) and Anti–Theft Alarm (ATA) can be used via the IR transmitter key as well as the mechanical key.

Diagnosis – Function Test

Preparation for Test:

1. Review 20, 22, 31,
2. Fuses OK,
3. Battery voltage 11 – 14 V,
4. Voltage supply to All-Activity-Module is OK, if not see DM, B&A, Vol. 2, 23,
5. Version coding has been done: "ATA installed", see 31,
6. RCL for CL is OK,
7. CL is OK,
8. Side windows are open,
9. All doors are closed.

Electrical wiring diagrams:

Electrical Troubleshooting Manual, Model 163, group 82, (available in Work Shop Information System [WIS] only).

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0 Arm Anti-theft alarm (ATA)	• Lock vehicle completely using RCL.	Confirmation signal via blinker system. ATA status indicator LED illuminates for 10 seconds and then blinks.	A door is not closed completely and/or locked completely. ATA is not armed, see 14, ATA status indicator (E33), see 23 ⇒ 2.0
⇒ 2.0 Disarm ATA	• Unlock vehicle using RCL.	Confirmation signal via blinker system. ATA status indicator LED illuminates for 10 seconds.	23 ⇒ 2.0
⇒ 3.0 Trigger ATA via opening a door	• Close all vehicle doors. • Arm ATA via RCL. • Open one of the doors from inside vehicle.	ATA activates alarm: Alarm Horn (H3) sounds for 30 seconds and blinkers flash for 3.5 minutes.	14

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 4.0 Interrupt alarm function.	• Arm or disarm ATA while alarm is sounding.	Alarm is interrupted.	All-Activity Module (N10)
⇒ 5.0 ATA self-arming function	• Remove ignition key form ignition. • Close all vehicle doors. • Wait 60 seconds.	Vehicle locks its self. ATA is armed as a result.	Check version coding, see 31 All-Activity Module (N10)
⇒ 6.0 Trigger ATA via anti-tow protection	• With ATA armed, tilt vehicle at lift point using vehicle jack until one wheel clears ground.	ATA triggers alarm, alarm horn (H3) sounds for 30 seconds and blinkers flash for 3.5 minutes.	23 ⇒ 8.0
⇒ 7.0 Deactivate anti-tow protection and interior motion sensor (IMS)	• Turn off ignition and within 30 seconds press one of the buttons on the trip computer control module (N41)	For vehicle **with** Code 245 (Trip computer): Display in trip computer changes from "ON" to "OFF". For vehicles **without** Code 245: Repeat test step 6.0, ATA alarm is **not** to trigger.	23 ⇒ 8.0

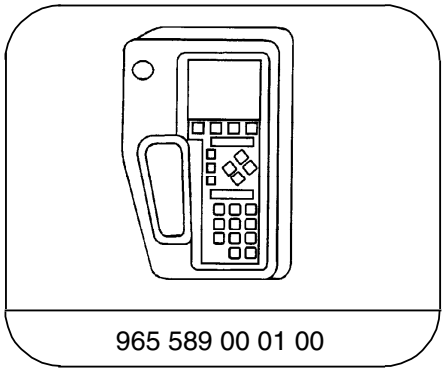
[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Preparation for Test:

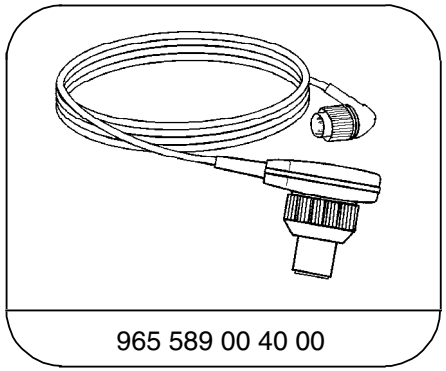
1. Review information regarding All-Activity Module (AAM), see AD54.12-P-2000GH,
2. Check fuses, OK,
3. Voltage supply to AAM is OK,
4. Connect Hand-Held Tester (HHT) according to connection diagram shown in section 0.
5. Check HHT serial-interface, if not ok, see AD54.21-P-6000-02GH.

Special Tools



965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable

Diagnosis – Diagnostic Trouble Code (DTC) Memory Survey of fault codes – Alarm triggering circuit

DTC	Fault text	Possible cause	Test step/Remedy
(No communication with HHT possible)		Diagnostic line	See AD54.12-P-6000-02GH
No fault		No fault recognized In case of complaint; perform entire diagnostic test in specific system.	CL: SeeWIS, 20.1, 13 RCL: See WIS, 4.11, 13 ATA, 13
B1040	No CAN message: -from engine control module (N3) -from traction system control module (N47) -from instrument cluster (A1) -from transfer case control module (N78) -from trip computer control module (TRIP) (N41)	CAN data bus, corresponding control module	AD54.21-P-6000-03GH AD54.21-P-6000-04GH AD54.21-P-6000-05GH AD54.21-P-6000-06GH AD54.21-P-6000-07GH AD54.21-P-6000-08GH
B1703	Transponder: -cannot be read -fixed code invalid -fixed code in order but variable code invalid -fixed code valid but not enabled -fault when describing	i Observe hints on replacing AAM Defective transmitter key Transponder coil (L11) Invalid transmitter key Transmitter key disabled Transponder coil (L11)	AD54.21-P-2000-03GH Transmitter key, RCL: See WIS, 4.11, 11 L11

Diagnosis – Diagnostic Trouble Code (DTC) Memory Survey of fault codes – Alarm triggering circuit

DTC	Fault text	Possible cause	Test step/Remedy
B1716	ATA interior/anti-tow sensor defective No pulse signal, when configured	N41/N10 signal line, Trip computer control module (N41)	23 ⇒ 8.0
B1783	Umplausible confirmation signal (CL) from driver's door	Microswitch (CL) (M14/6s1)	See WIS, 20.1, 23
B1784	Umplausible confirmation signal (CL) from passenger side door	Microswitch (CL) (M14/5s1)	See WIS, 20.1, 23
B1786	Umplausible confirmation signal (CL) from tailgate	Microswitch (CL) (M14/7s1)	See WIS, 20.1, 23
B1787	Umplausible confirmation signal (CL) from left rear door	Microswitch (CL) (M14/8s1)	See WIS, 20.1, 23
B1788	Umplausible confirmation signal (CL) from right rear door	Microswitch (CL) (M14/9s1)	See WIS, 20.1, 23
	Radio signal: -Format OK, but fixed code invalid -Fixed code valid, but variable code invalid -Fixed code valid, but not enabled -Synchronization not possible	 Transmitter key Transmitter not synchronized Transmitter key blocked Wiring, antenna, N10	 Transmitter key See WIS, 4.11, C/1 See WIS, 4.11, C/1 See WIS, 4.11, 23

Diagnosis – Complaint Related Diagnostic Chart

Preparation for Test:

1. Battery voltage 11 – 14 V,
2. Voltage supply to All-Activity Module is OK, see WIS, 2.2, 23
3. Fuses OK,
4. Version coding: "ATA installed", see 31
5. RCL system functional,
6. CL system functional,
7. All doors closed

Electrical wiring diagrams:

Electrical Troubleshooting Manual, Model 163,
(available in Work Shop Information System [WIS] only)

Complaint/Problem	Possible cause	Test step/Remedy [1]
Entire ATA system does not function.	All-Activity Module (N10)	Version coding, see 31 N10
No confirmation signal when arming ATA	ATA is **not** armed **or** not **completely** armed	23 ⇒ 1.0
ATA status indicator does not function.	ATA status indicator (E33)	23 ⇒ 2.0
After locking using the transmitter key, the alarm is triggered.	Door separation points (X35/1, X35/2, X35/3, X35/4) Left/right rear door rotary tumbler microswitch (S87/2, S87/3) Left/right front door rotary tumbler microswitch (S87/6, S87/7) Rotary tumbler/trunk lid microswitch (S88/1) Engine hood switch (ATA) (S62)	Check connections at door separation points. 23 ⇒ 4.0 23 ⇒ 5.0 23 ⇒ 6.0 23 ⇒ 3.0
When opening one of the front doors, the alarm is not triggered.	Left front door rotary tumbler (S87/7) Right front door rotary tumbler (S87/6) Microswitch (CL) (M14/6s1) Microswitch (CL) (M14/5s1)	23 ⇒ 4.0 See WIS, 20.1, 23

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
When opening one of the rear doors, the alarm is not triggered.	Left rear door rotary tumbler microswitch (S87/2) Right rear door rotary tumbler microswitch (S87/3) Microswitch (CL) (M14/8s1) CL microswitch (M14/9s1)	23 ⇒ 5.0 See WIS, 20.1, 23
When opening tailgate, the alarm is not triggered.	Rotary tumbler/trunk lid microswitch (S88/1) Microswitch (CL) (M14/7s1)	23 ⇒ 6.0 See WIS, 20.1, 23 See WIS, 20.1, 23
When opening engine hood, the alarm is not triggered.	Engine hood switch (ATA) (S62)	23 ⇒ 3.0
ATA "acoustical" alarm does not sound.	Alarm horn (H3) All-Activity Module (AAM) (N10)	23 ⇒ 7.0
ATA "optical" alarm does not function.	Blinker system All-Activity Module (AAM) (N10)	Check blinker system.

[1] Observe Preparation for Test, see 22.

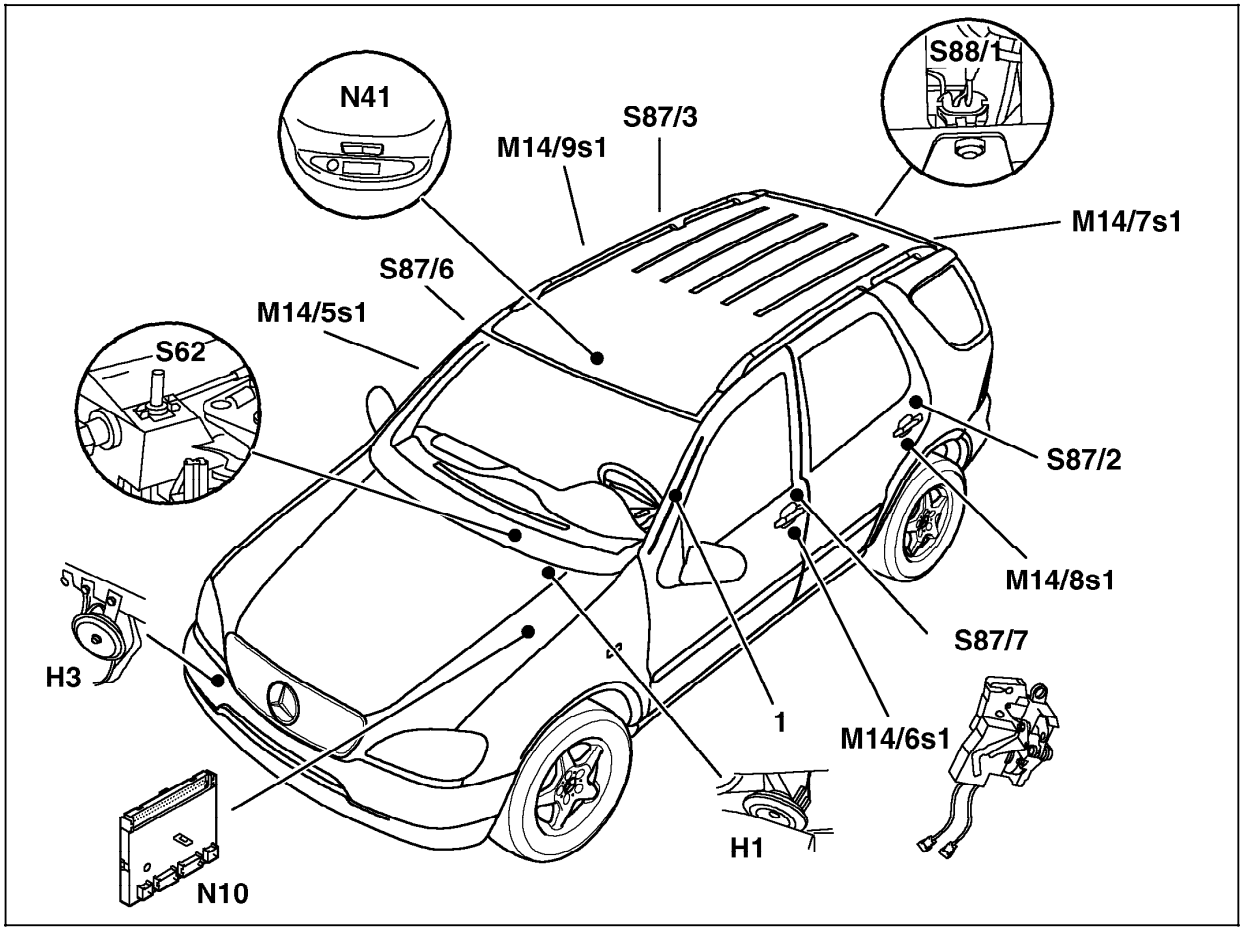
Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
ATA will not cancel via remote control.	RCL system	See WIS, 4.11, 13
ATA will not cancel via ignition **ON**	RCL system	See WIS, 4.11, 13
ATA will not **self-arm** itself.	Version coding not proper All-Activity Module (AAM) (N10)	See 31
Anti-tow protection and interior motion sensor do not function.	Wiring Trip computer control module (N41) ATA tow sensor (B33)	23 ⇒ 8.0
Anti-tow protection and interior motion sensor can not be turned OFF.	Trip computer control module (N41)	N41

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (ATA)

Component Location



P82.50-0654-06

Figure 1

1	Antenna
H1	Two-tone horn
H3	Alarm horn
M14/5s1	Microswitch (CL)
M14/6s1	Microswitch (CL)
M14/7s1	Microswitch (CL)
M14/8s1	Microswitch (CL)
M14/9s1	CL microswitch
N10	All-Activity Module
N41	Trip computer control module
S62	Engine hood switch (ATA)
S87/2	Left rear door rotary tumbler microswitch
S87/3	Right rear door rotary tumbler microswitch
S87/6	Right front door rotary tumbler microswitch
S87/7	Left front door rotary tumbler microswitch
S88/1	Rotary tumbler/trunk lid microswitch

Electrical Test Program - Preparation for Test

Preparation for Test:

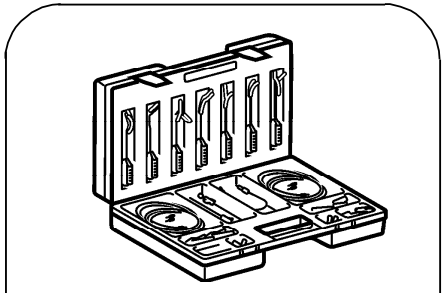
1. Review section 0,
2. Review 20, 22, 23, 31,
3. Voltage supply to All-Activity Module is OK, see WIS, 2.2, 23,
4. Battery voltage 11 – 14 V,
5. Fuses OK.

Electrical wiring diagrams:

Electrical Troubleshooting Manual, Model 163,
(available in Work Shop Information System [WIS] only).

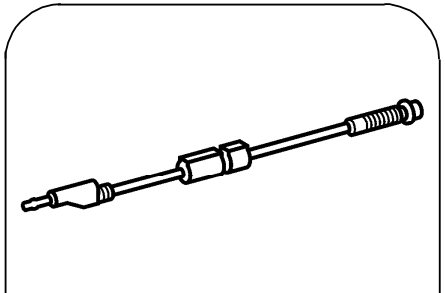
Diagnosis using the HHT of ATA, is only possible in the **unarmed** state, see AD82.50-2000-06GH

Special Tools



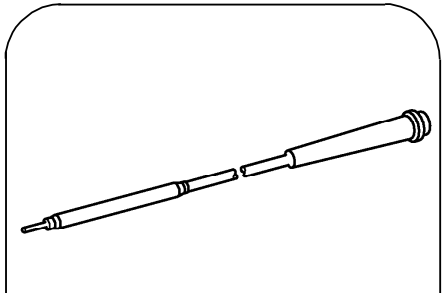
201 589 00 99 00

Electrical connecting set



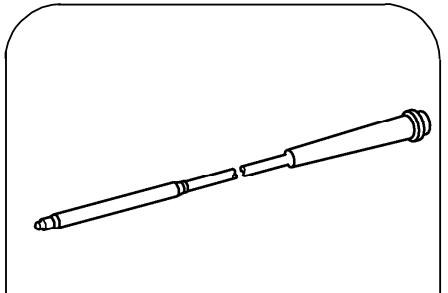
124 589 37 63 00

Fused cable



210 589 06 63 00

Adapter cable



210 589 05 63 00

Adapter cable

Test equipment; See MBUSA Standard Service Equipment Program

Description	Brand, model, etc.
Digital multimeter	Fluke models 23, 77 III, 83, 85, 87
HHT	
Test cable (Multiplex)	

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		**ATA Armed** HHT actual values		All doors are closed and locked. Arm ATA using transmitter key.	YES	All-Activity Module (N10).
1.1		ATA status indication HHT actual values		All doors are closed and locked. Arm ATA using transmitter key.	ON	If values are OK: 23 ⇒ 2.0, If values are not OK: ⇒ 1.2 N10
1.2		ATA Rotary tumbler microswitch and CL confirmation signal HHT actual values		All doors are closed and locked. Arm ATA using transmitter key.	Both actual values are: Closed	Check the corresponding microswitch: 23 ⇒ 4.0, see WIS, 20.1, 23. Front doors: 23 ⇒ 5.0, see WIS, 20.1, 23. Tailgate: 23 ⇒ 6.0, see WIS, 20.1, 23. Engine hood: 23 ⇒ 3.0

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0		**ATA status indicator (E33)** Activation	S97/6 B — E	HHT activation: ATA status indicator ON	11 – 14 V	If the values are OK: E33 Wiring –//– ⊥ If the values are not OK: Wiring –//– N10
3.0		**Engine hood switch (S62)** Function	S62	Switch not pressed: Switch pressed:	< 1 Ω >20 kΩ	S62
4.0		**Left/right front door rotary microswitch** **CLOSED** HHT actual values		Door is closed (left or right being checked).	CLOSED	If the values are OK: ⇒ 4.1 If the values are not OK: ⇒ 4.2
4.1		Left/right front door rotary microswitch OPEN HHT actual values		Open door.	OPEN	If the values are OK; No fault If the values are not OK: ⇒ 4.3

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.2		Left/right front door rotary microswitch Separation point connector disconnected HHT actual values		Open door, disconnect (X35/1, X35/2) left/right front door separation connector.	CLOSED	If the values are OK: Left front door rotary tumbler microswitch (S87/7), Right front door rotary tumbler microswitch (S87/6) Wiring ⌜⌝– If the values are not OK: Wiring ⌜⌝– N10
4.3		Left/right front door rotary microswitch Switch bridged HHT actual values	X35/1 (X35/2) 2 (A) — 1 (A) 	Connectors of X35/1, X35/2, see end of 23	OPEN	If the values are OK: S87/7, S87/7 Wiring –//– If the values are not OK: Wiring –//– N10
5.0		**Rotary tumbler microswitch for rear doors CLOSED** HHT actual values		Both rear doors are closed.	CLOSED	If the values are OK: ⇒ 5.1 If the values are not OK: ⇒ 5.5

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.1		Left rear door rotary tumbler microswitch OPEN HHT actual values		Open left rear door.	OPEN	If the values are OK: ⇒ 5.2 If the values are not OK: ⇒ 5.3
5.2		Right rear door rotary tumbler microswitch OPEN HHT actual values		Close left rear door. Open right rear door.	OPEN	If the values are OK: No fault If the values are not OK: ⇒ 5.4
5.3		Left rear door rotary tumbler microswitch Switch bridged HHT actual values		Disconnect connector X35/3	OPEN	If the values are OK: S87/2 Wiring –//– If the values are not OK: Wiring –//–
5.4		Right rear door rotary tumbler microswitch Switch bridged HHT actual values		Disconnect connector X35/4	OPEN	If the values are OK: S87/3 Wiring –//– If the values are not OK: Wiring –//–

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.5		Left rear door rotary tumbler microswitch Switch disconnected HHT actual values		Both rear doors are closed. Disconnect connector X35/3	CLOSED	If the values are OK: S87/2 Wiring ⌜⌝– If the values are not OK: ⇒ 1.6
5.6		Right rear door rotary tumbler microswitch Switch disconnected HHT actual values		Both rear doors are closed. Disconnect connector X35/4	CLOSED	If the values are OK: S87/3 Wiring ⌜⌝– If the values are not OK: Wiring ⌜⌝– N10
6.0		**Tailgate rotary tumbler microswitch** **CLOSED** HHT actual values		Tailgate is closed.	CLOSED	If the values are OK: ⇒ 6.1 If the values are not OK: ⇒ 6.2
6.1		Tailgate rotary tumbler microswitch OPEN HHT actual values		Tailgate is open.	OPEN	If the values are OK: No fault If the values are not OK: ⇒ 6.3

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.1		Tailgate rotary tumbler microswitch OPEN HHT actual values		Open tailgate.	OPEN	If the values are OK: No fault If the values are not OK: ⇒ 6.3
6.2		Tailgate rotary tumbler microswitch Switch disconnected HHT actual values		Disconnect connector X18/1 Tailgate open.	CLOSED	If the values are OK: S88/1 Wiring ⌜⌝– If the values are not OK: N10 Wiring ⌜⌝–
6.3		Tailgate rotary microswitch Switch bridged HHT actual values	X18/1 2 — (A) — (A) — 1		OPEN	If the values are OK: S88/1 Wiring –//– If the values are not OK: N10 Wiring –//–
7.0		**ATA Alarm Horn (H3)**		ATA alarm triggered.	ON	N10

Electrical Test Program – Test

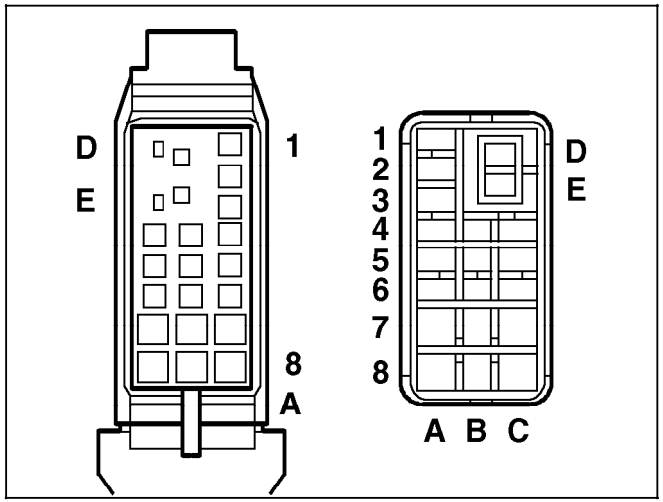
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.1		ATA Alarm Horn (H3) Function	H3 – V +	HHT activation: Alarm horn (H3)	11 – 14 V	If the values are OK: H3 If the values are not OK: Wiring, ⇒ 7.2
7.2		Alarm horn relay (F1k31) Activation	F1K31 86 – V + 85	HHT activation: alarm horn (H3)	11 – 14 V	If the values are OK: F1K13 If the values are not OK: N10

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0		**ATA Anti-tow protection/interior motion sensor Installed** HHT actual values		ATA armed using transmitter key.	YES	Check version coding of ATA, see 31
8.1		ATA Anti-tow protection/interior motion sensor Signal HHT actual values		ATA armed using transmitter key.	ON	Trip computer control module (N41).
8.2		ATA Anti-tow protection/interior motion sensor Pulse signal HHT actual values		ATA armed using transmitter key.	√	Data line to N10, N41

Electrical Test Program – Test

Connector Layout - Left front door separation point (X35/1), Right front door separation point (X35/2), Left rear door separation point (X35/3), Right rear door separation point (X35/4)



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Version Coding

Version coding
Version coding must be performed using the HHT, after the replacement of the All Activity Module (AAM). The version coding is menu driven.
Access to version coding is gained via: Body and Accessories-AAM-Control Module Adaption-Version Coding.

The All Activity Module (AAM) (N10), the transmitter keys and the engine control modules are "married together", meaning that the All Activity module and the engine control module must "learn" the key code of the vehicle. Additionally, the AAM "learns" the numerous key codes of the tramsmitter key. These assignments can not be changed later on.

Which means that with a defective All Activity Module (N10):

- Order a new AAM along with a master key, after advising of the identification code from your facing PDC.
- Using the HHT, reset the engine control module and allow engine control module to "relearn".

Continued...

Version Coding

Version coding

Version	Selection
Engine	M112/M113
Country Version	Norway/Sweden/Finland/Canada/ Great Britain/Netherlands/ Switzerland/Rest of World
Left-/right Hand steering vehicle	Right Hand Drive/Left Hand Drive
Transmission	Mechanical/Automatic
Country setting for fog lamps/rear foglamp	USA/Rest of World
Foglamps as auxiliary driving lamp	ON/OFF
Air Conditioning	Installed/Not installed
Heated Seats	Installed/Not installed
Trip Computer	Installed/Not installed
Convenience Feature	Possible with Door OPEN/Only with circuit 15

Continued.

Version Coding

Version coding (continued)

Version	Selection
ATA	Installed/Not installed
ATA interior protection/Anti-tow protection	Installed/Not installed
ATA self arming	ON/OFF
CL confirmation	ON/OFF
Automatic CL locking after 1 minute	ON/OFF
Automatic CL locking when driving	ON/OFF
CL automatic opening	ON/OFF
Panic Alarm	ON/OFF