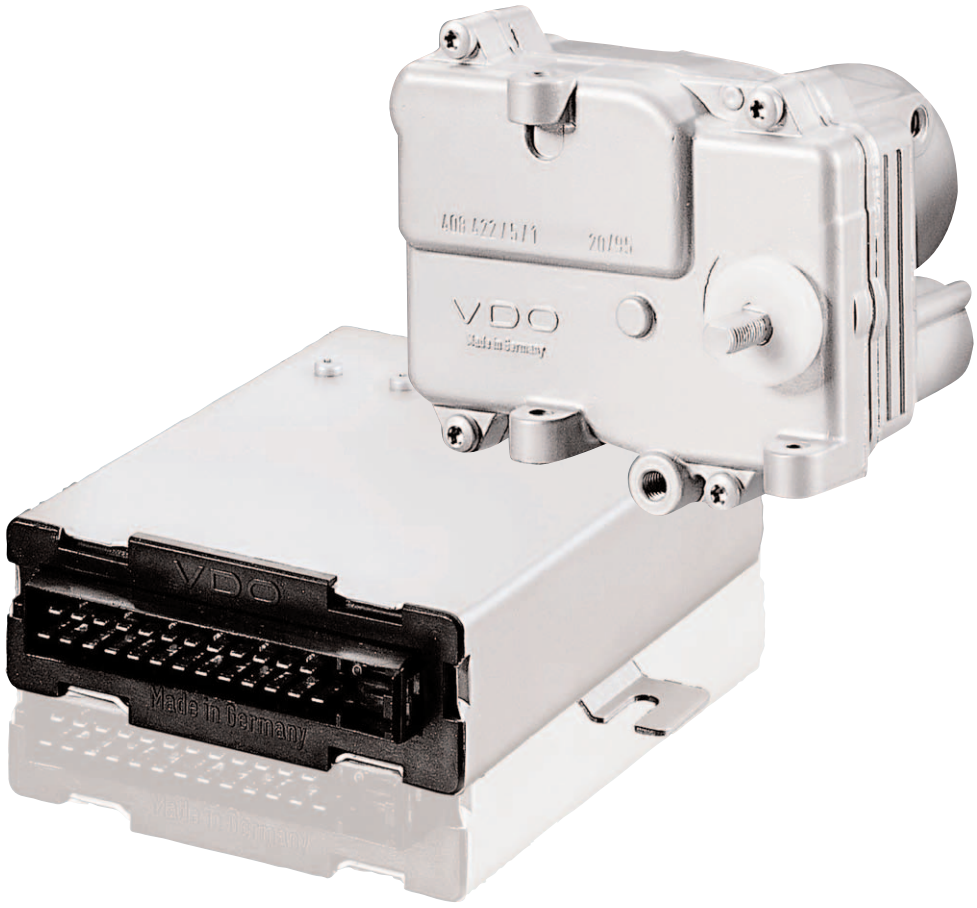
Product Manual

www.vdo.com

AGB III

Automatic Speed limiting



VDO - A trademark of the Continental Corporation

Product Manual AGB III

Overview of Chapter

Topic	Chapter
Short description AGB III	1
Fitting AGB III	2
Testing equipment AGB III	3
Delivery volume, spare parts, accessories AGB III	4
Data Sheets	5

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All right reserved in the event of the grant of a patent, utility model or design.

Abbreviations

AGB	automatic speed limiting
conn.	connection
DIN	German Industrial Standard
EEPROM	Electrically Erasable Programmable, Read-only Memory
EC	European Community
EMC	Electromagnetic compatibility
EWG	Europäische Wirtschaftsgemeinschaft
Hall	Hall-Effect Sensor
ISO/DIS	International Organization for Standardization/ Designation and Illustration of Symbols
PC	Personal Computer
PWM	pulse with modulated signal
RQ	idling- and end number or rotations control unit (injection pump control unit)
RQV	All-number of rotations control unit (injection pump control unit)
SI	Service Information
StVZO	Straßenverkehrs-Zulassungsordnung (German law for traffic)
TU	Technical dokument
VDA	Association of German Automobile industry
VO	Verordnung (regulations)

Product Manual AGB III
1. Short description

Contents

Short description	**2**
Volume of operation	**2**
Advantages	**3**
Fitting Overview	**4**
Operation Description Override Element	**5**
Operation Description Scissors System I	**6**
Operation Description Scissors System II	**7**
Diagram of connections for stations	**8**
AGB II-Testing adapter with interface and testing software for PC	**9**
Operation	**10**

Product Manual AGB III
1. Short description

Short description

AGB III is the third generation of automatic speed limiters. Its construction corresponds to the European Regulations.

In addition to the top speed limiter which limits the vehicle at pre-programmed value, the unit consists also of a variable speed limiter (above 30 km/h and the maximum speed limit). The driver can choose any speed within the above mentioned value and the controller limits the speed according to the drivers demand. The driver has to press the accelerator pedal for this function. Alternative the unit can also be pre-programmed for an additional second speed limit below the maximum speed limit.

The electronic control unit is self-diagnosable.

The electrical actuator is a construction part being proved and experienced for many years in manifold operations of every day's tasks.

Various attaching sets are available for fitting the application parts.

Volume of operation

AGB III limits the maximum speed v-max of vehicles through an electronic control unit of an actuator working on the diesel pump.

The maximum speed v-max can be regulated at the production of the appliance respectively through an authorized position, in a range between 2 km/h and 200 km/h.

All inputs and outputs are secured against short cuts.

The appliance can diagnose itself.

The appliance corresponds to the following requirements:

- EU guideline 95/54 Electromagnetic compatibility
- EU guideline 92/24 Speed limiter

The appliance is equipped with an EEPROM.

The nominal value for the maximum speed is regulated through programming the EEPROM.

Product Manual AGB III
1. Short description

Advantages

High accuracy:

- Errors of speed determination < 0.5 km/h or 0.5% relative to C3-signal
- High control performance

Robust electronic control unit:

- All in-/outputs shortcut-resistant against mass and U bat
- EMC-disturbance according to DIN ISO 11452-4 (2000-3) 150 mA
- Disturbance radiation disturbance grade 3 according to VDE 0879-3
- Stabile little casing

Ability to self-diagnostics:

- According to ISO/DIS 9141
- Error recognition and memorizing

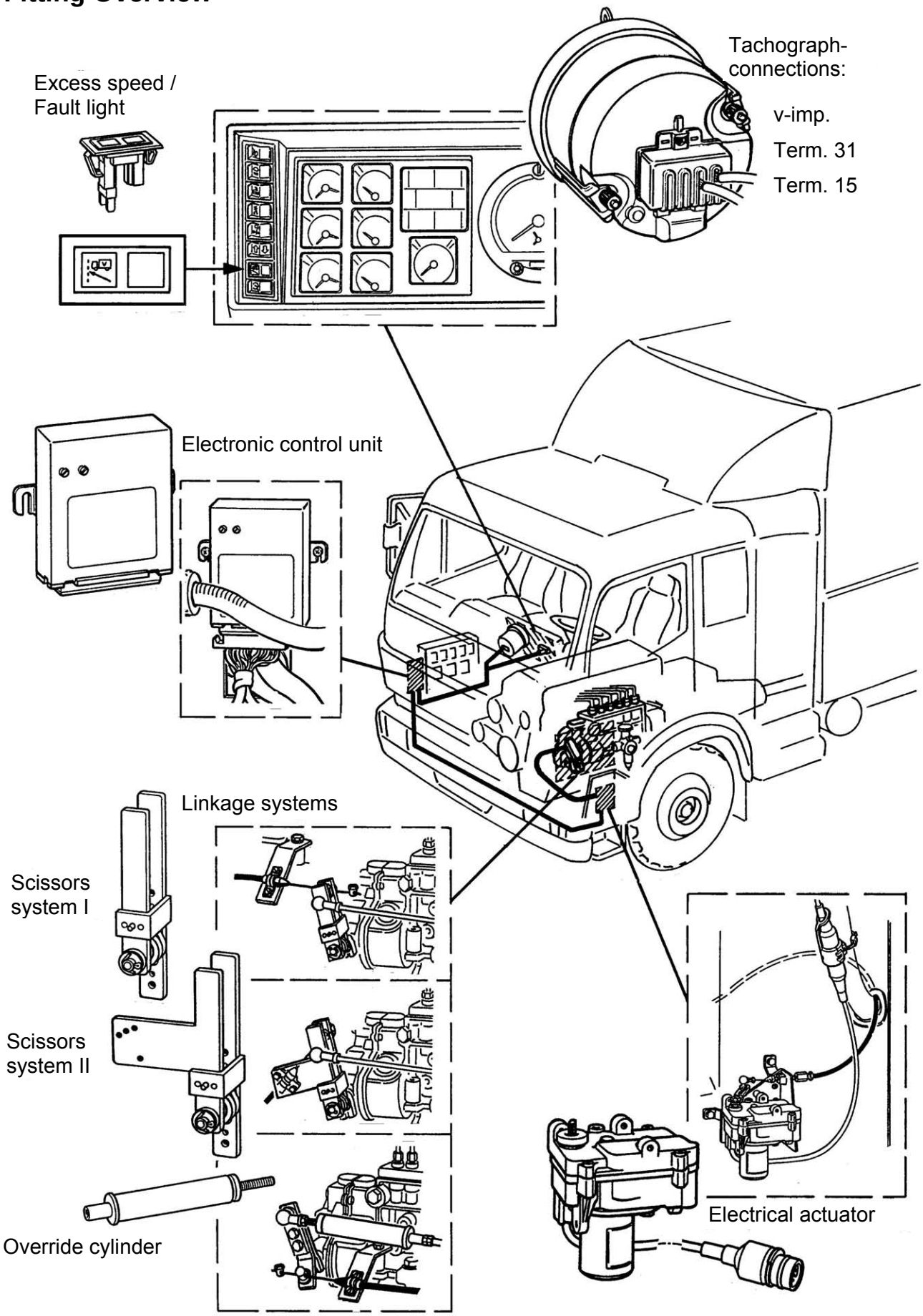
Universal operation possibilities:

- Programmable electronic controller
- Various fitting sets
- Only 2 different plants (12 V, 89 km/h / 24 V, 89 km/h)

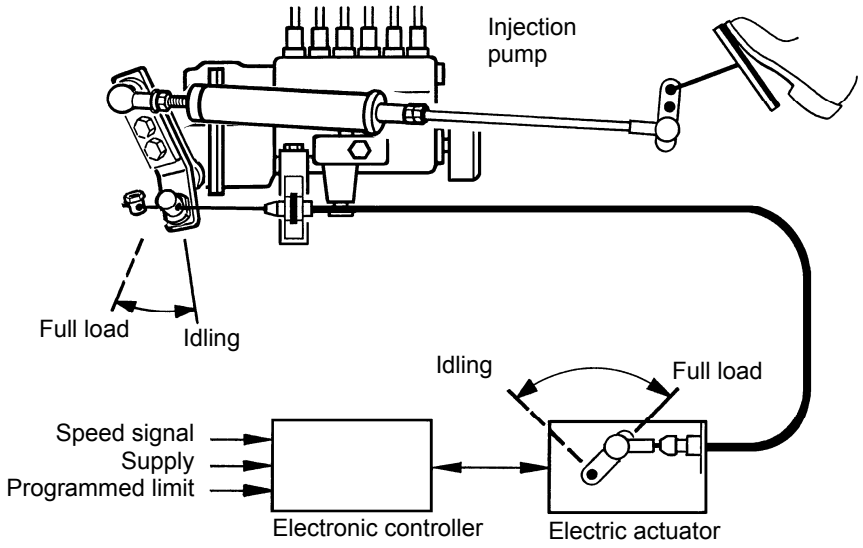
Product Manual AGB III

1. Short description

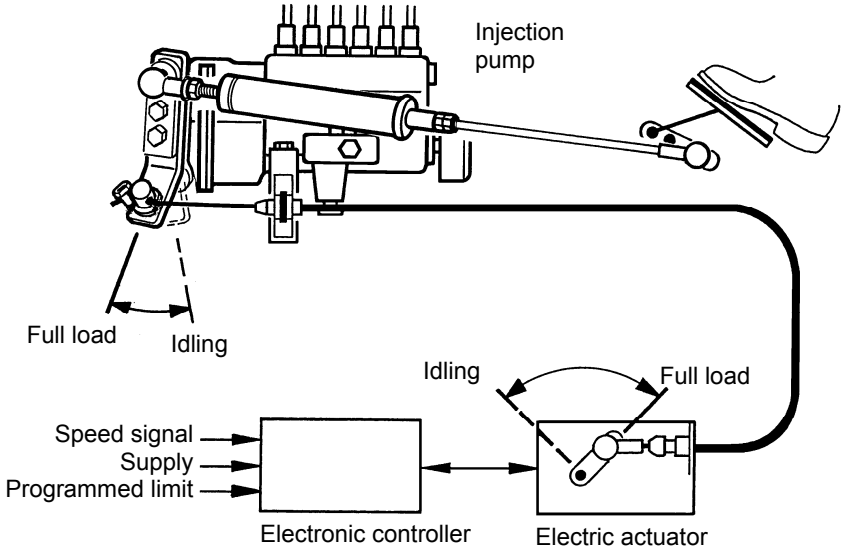
Fitting Overview



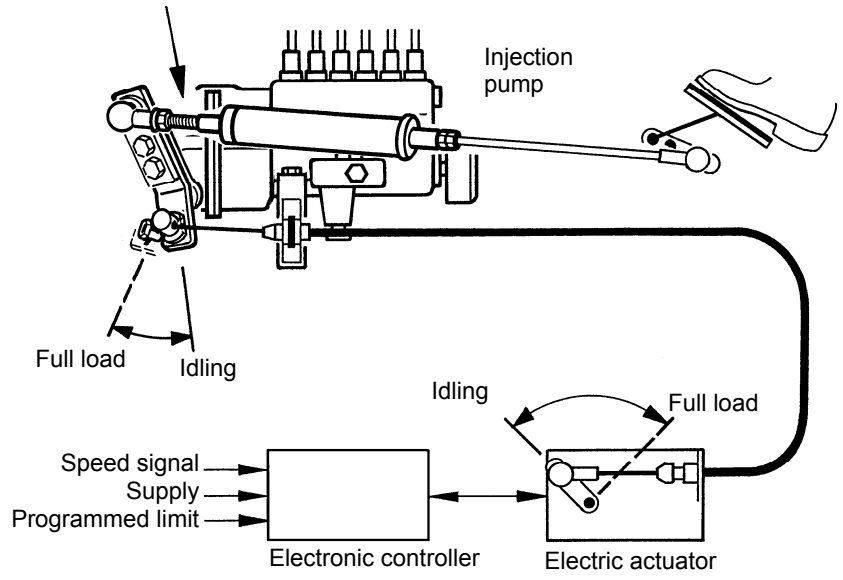
Operation Description Override Element



Idling position

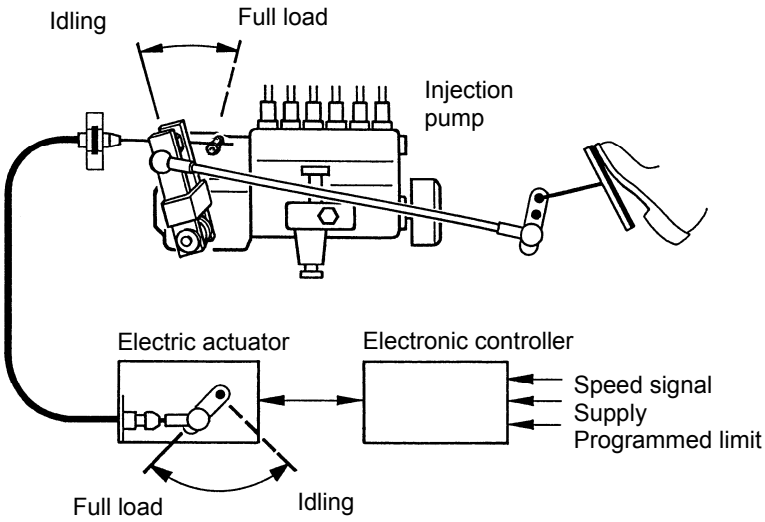


Full load position (before reaching coded max. speed)

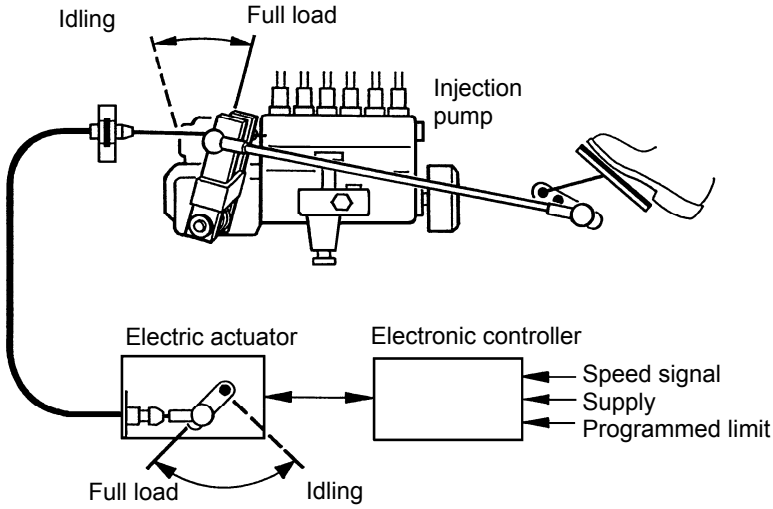


Full load position (after reaching coded max. speed)

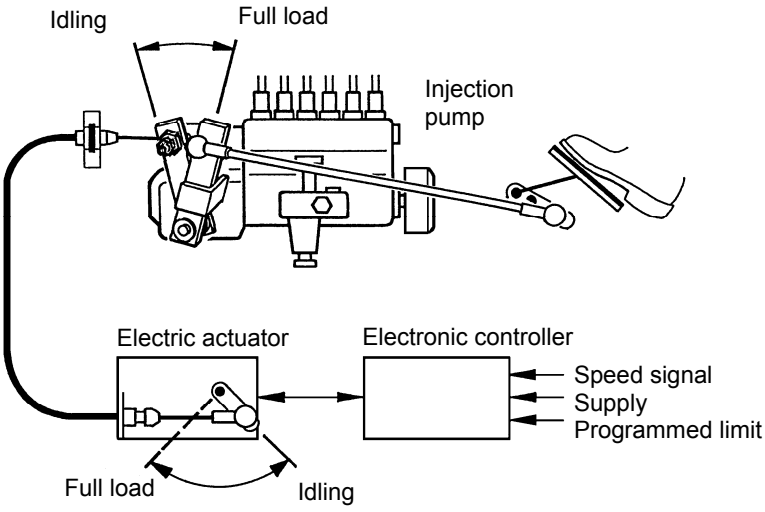
Operation Description Scissors System I



Idling position



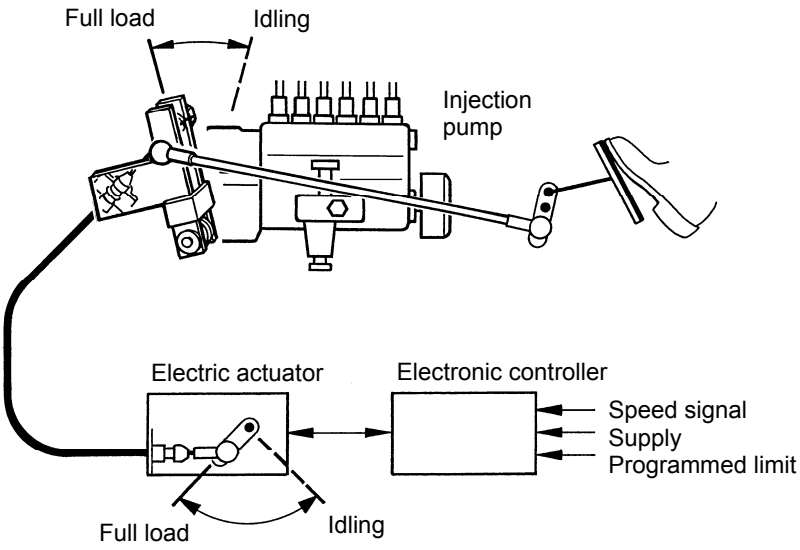
Full load position (before reaching coded max. speed)



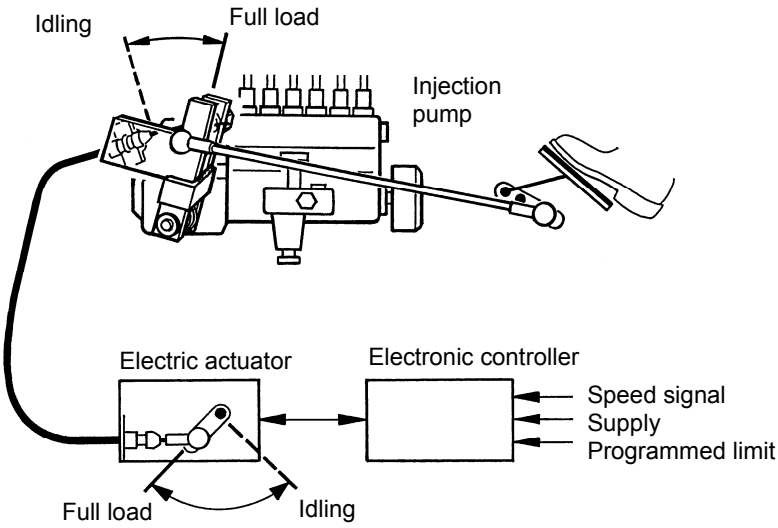
Full load position (after reaching coded max. speed)

Product Manual AGB III
1. Short description

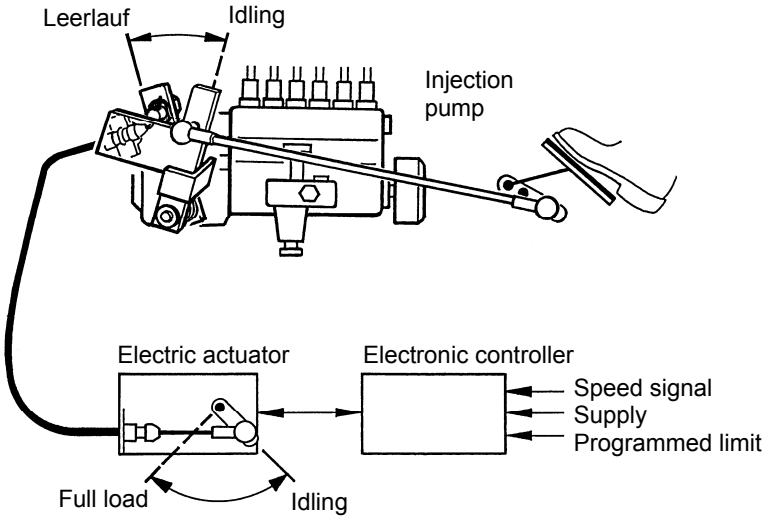
Operation Description Scissors System II



Idling position



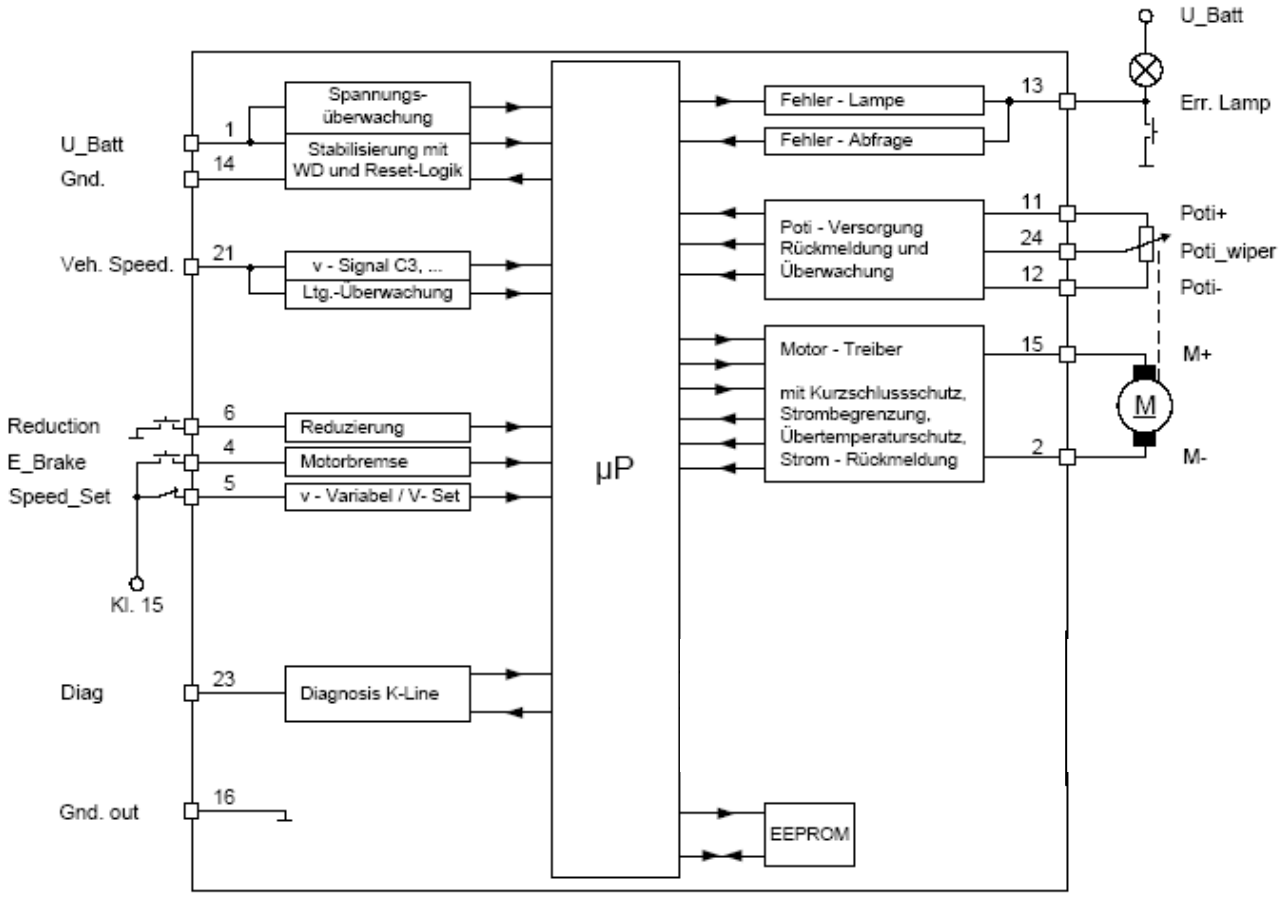
Full load position (before reaching coded max. speed)



Full load position (after reaching coded max. speed)

Product Manual AGB III
1. Short description

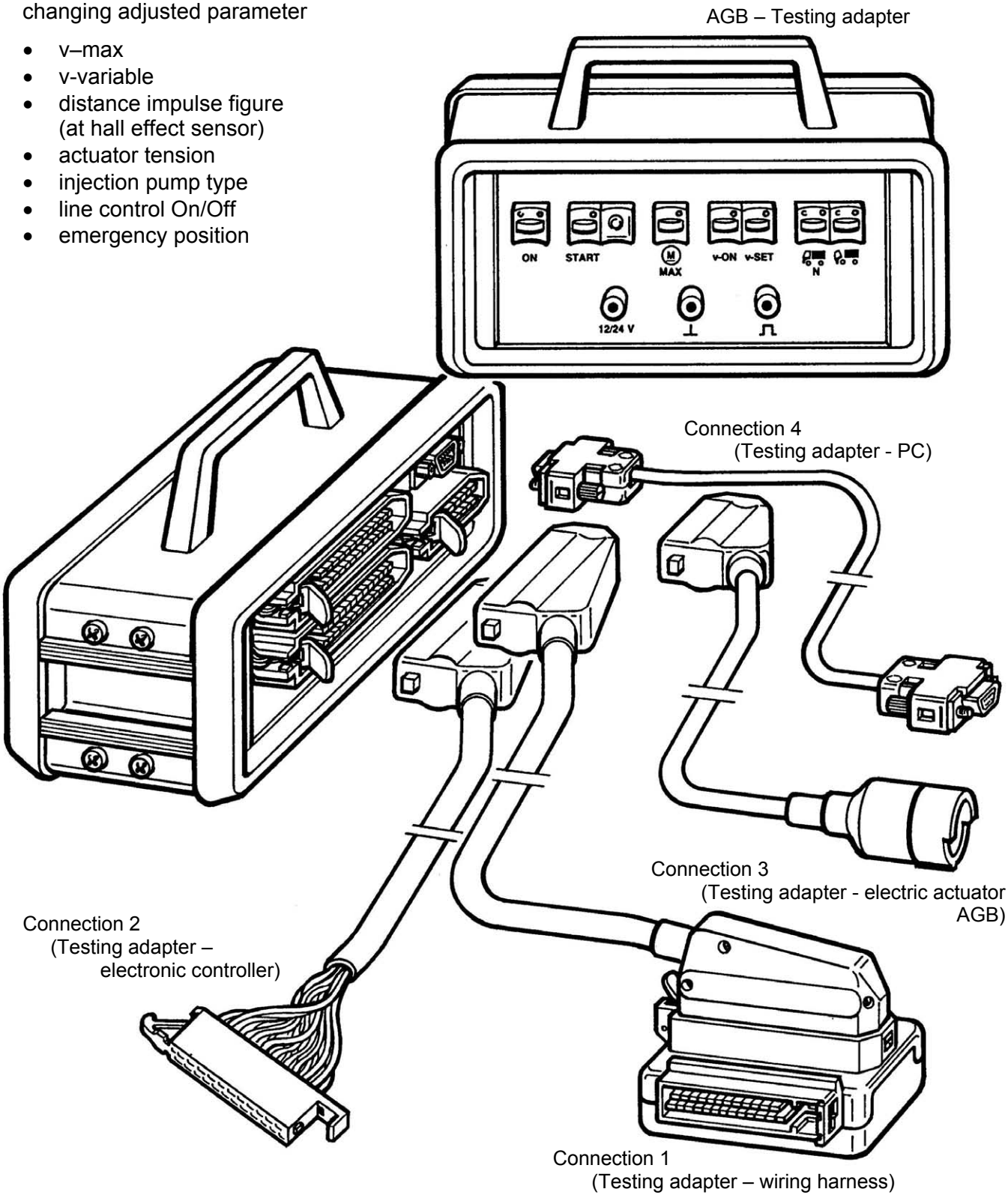
Diagram of connections for stations



Product Manual AGB III
1. Short description

AGB II-Testing adapter with interface and testing software for PC

- Operation test
- reading/deleting error memory
- Diagnostics
- changing adjusted parameter
  - v–max
  - v-variable
  - distance impulse figure (at hall effect sensor)
  - actuator tension
  - injection pump type
  - line control On/Off
  - emergency position



Product Manual AGB III
1. Short description

Operation

Components in/at the dashboard and its functions:

1. Excess speed/fault light

   The excess speed light is switched on as soon as the programmed max. speed is exceeded by more than 2 km/h h (e.g. at downward run with regulated injection pump) and is switched off again by reaching the regulated max. speed. For checking the light, it is being approached by turning on the ignition and beams for approx. 1 second. In case of an error in the plant the excess speed/fault light beams permanently.

2. For the operation of variable speed limiter an additional switch is necessary (is not in the scope of VDO supply).With this switch the any speed can be chosen from the driver between 30 km/h and the maximum speed limit and will be controlled from the AGB III controller.

Product Manual AGB III
2. Fitting AGB III

Contents

2.1 System Components **2**

2.2 Technical Data **3**

2.2.1 Electronic Controller **3**

2.2.3 Electrical actuator **4**

2.3 Fitting the components **5**

2.3.1 Fitting the electronic controller **5**

2.3.2 Fitting the electric actuator **6**

2.3.3 Fitting the linkage system **8**

Fitting the override cylinder 8
Fitting the scissors system I 10
The scissors system II (retaining bracket at lever arm) 13

2.3.4 Fitting the excess speed/fault light **16**

2.4 Electrical connection **17**

2.4.1 Laying the wiring harness **17**

2.4.2 Electrical connection diagram **18**

2.5 Adjustment of the linkage **19**

2.5.1 Adjustment with Scissors System I and Override Element **19**

2.5.2 Adjustment with Scissors System II (retaining bracket at lever arm) **21**

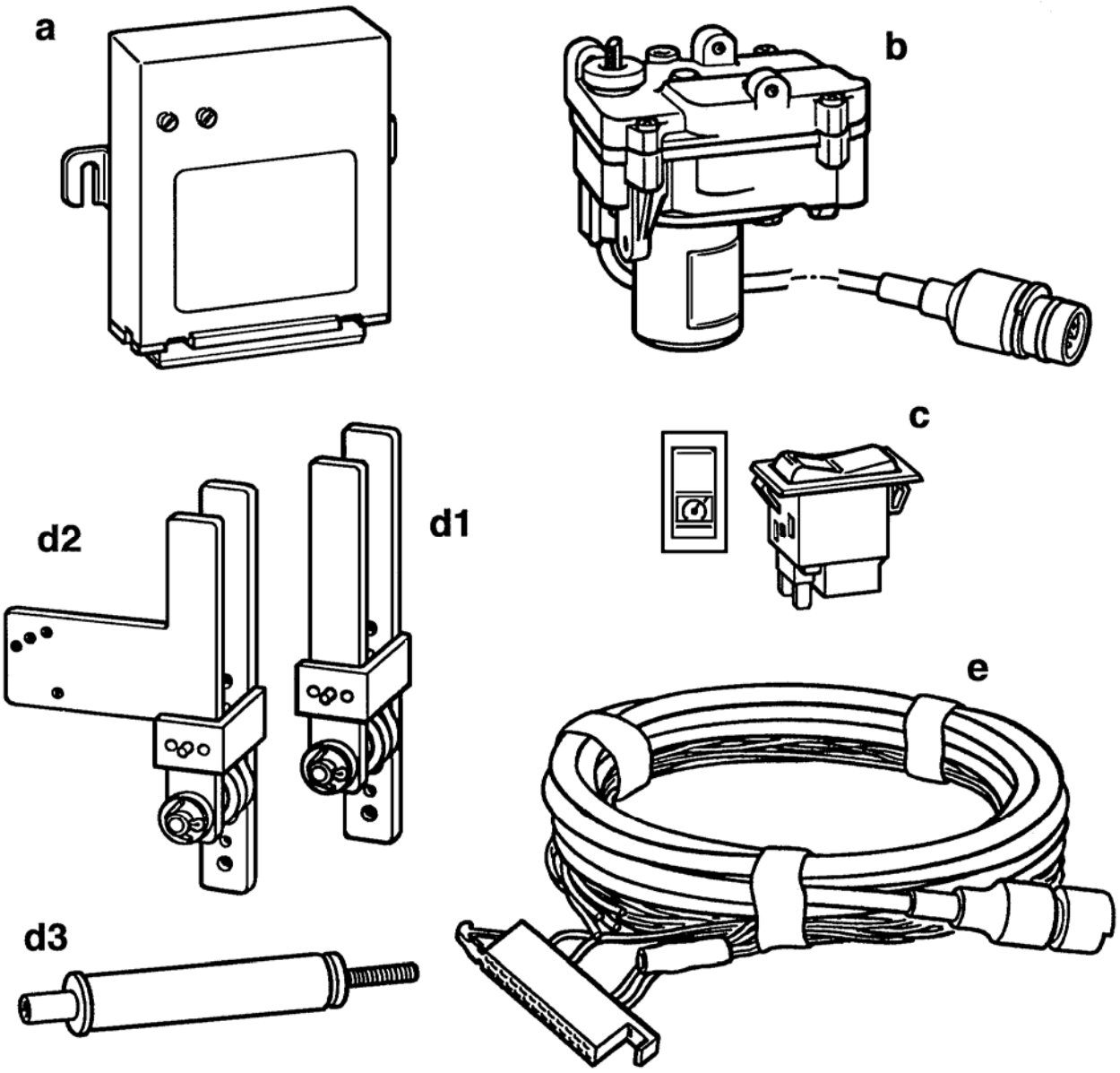
2.6 After the fitting **23**

2.7 Sealing the plant **24**

Product Manual AGB III
2. Fitting AGB III

2.1 System Components

a) Electronical controller
b) Electric Actuator
c) Switch for variable v-max limitation (option)
d) Linkage systems for gas regulation
   d1) Scissors system I
   d2) Scissors system II
   d3) Override element
e) Wiring harness

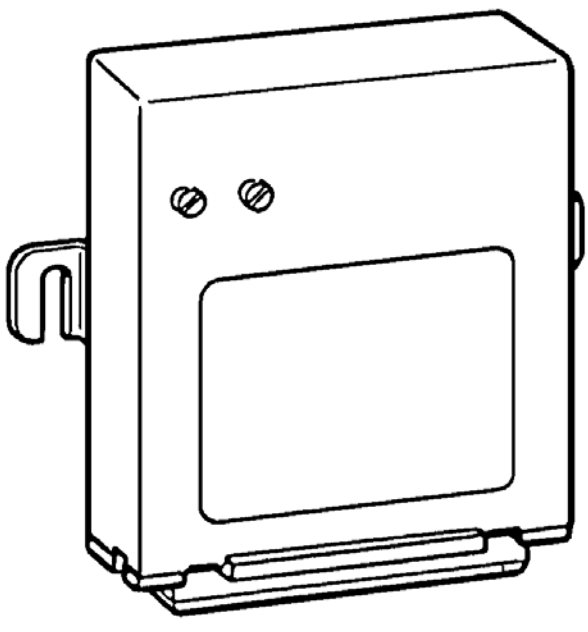


2.2 Technical Data

2.2.1 Electronic Controller

Electrical Data:

Polarity reversal protection	according to ISO 16750-2; 28 V, Duration 1 min.
Over voltage protection	400 ms - 60 Volt
Nominal voltage	12 V or 24 V
Operating voltage range 12V	9.5 V to 16 V
Operating voltage range 24V	20 V to 32 V
Tachograph	< 0.5 V level >6.0 V
Hall-effect sensor signal	< 1.5 V level > 6.0 V l
Number of pulses	2400 to 250000 pulses / km
Temperatures:	
Operating temperature range	– 40°C to + 70°C
Storage temperature range	– 40°C to + 80°C
Protection Class:	IP 50 DIN 40 050, IP 53 installation position with plug downwards
Casing dimensions:	The dimensions of the casing may if required are found in a special Customer Drawing.
Programming:	- 89 km - RQV - Speed signal control "Off" - Emergency running position free - PWM speed signal of the tachograph



2.2 Technical Data

2.2.3 Electrical actuator

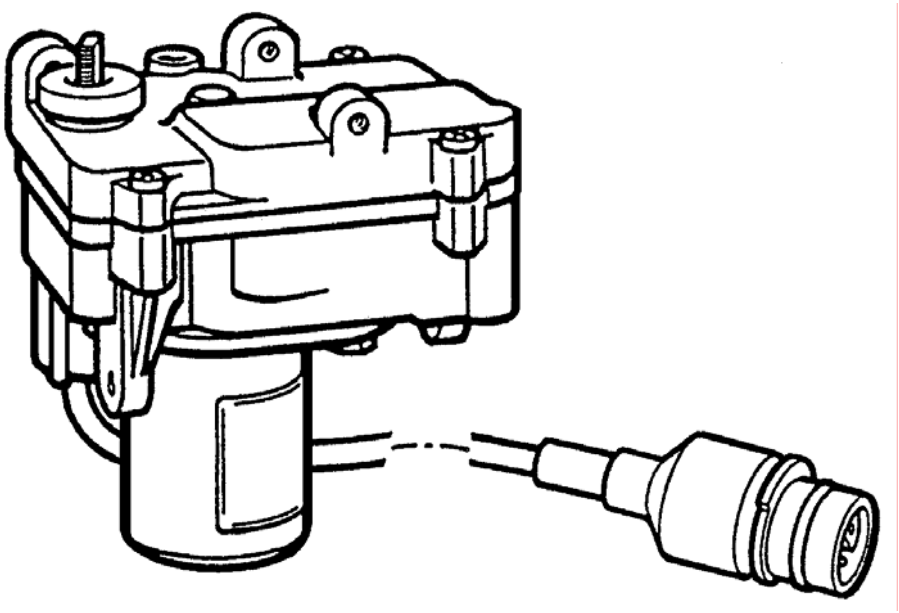
Electrical Data:

Nominal voltage range	12 V or 24 V (depending on electrical actuator)
Operating voltage	of electronic controller
Regulation response time	<2s
Insulation resistance	> 500 kΩ

Temperatures:

Operating temperature range	– 25°C to + 100°C
Storage temperature	– 35°C to + 115°C

Protection class:	IP 56 DIN 40 050
Nominal torque:	400 Ncm
Casing dimensions:	The dimensions of the casing may if required are found in a special Customer Drawing.



2.3 Fitting the components

2.3.1 Fitting the electronic controller

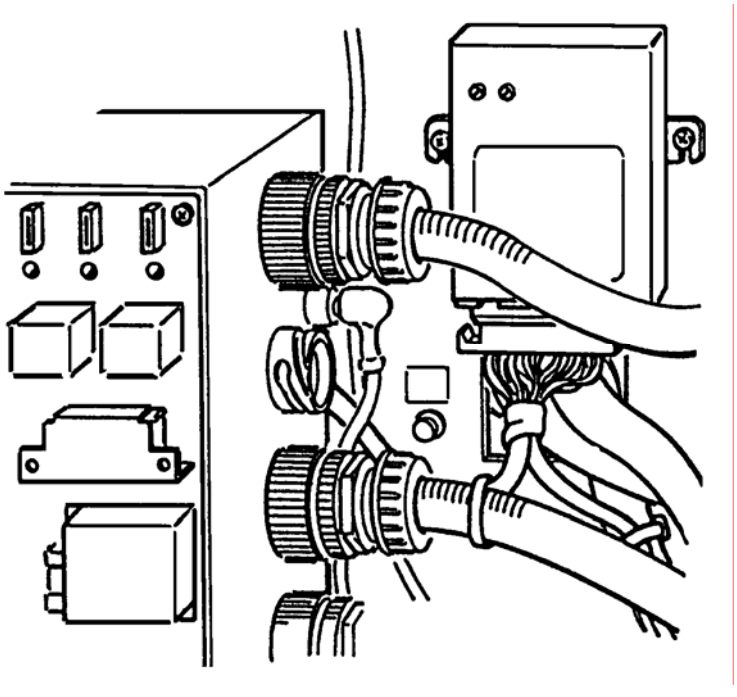
The electronic controller should be mounted in the passenger compartment or cab (if possible close to the central electrical unit). Mounting in a damp place, e.g. in the engine compartment, may lead to failures and should therefore be avoided. The plug socket on the control unit must face downwards.

If the controller is to be mounted on its side, the plug socket must face downwards at an angle of > 5°.
Please note protection class:
ECU Installation with connector downwards: IP53

a) Disconnect the battery.

b) Mark where holes are to be drilled (pay attention to air lines etc.).
Use the fitting bracket as a template. The space required for insertion and removal of the plug is 70 mm.

c) Drill 3.9 mm diameter and attach electronic controller.

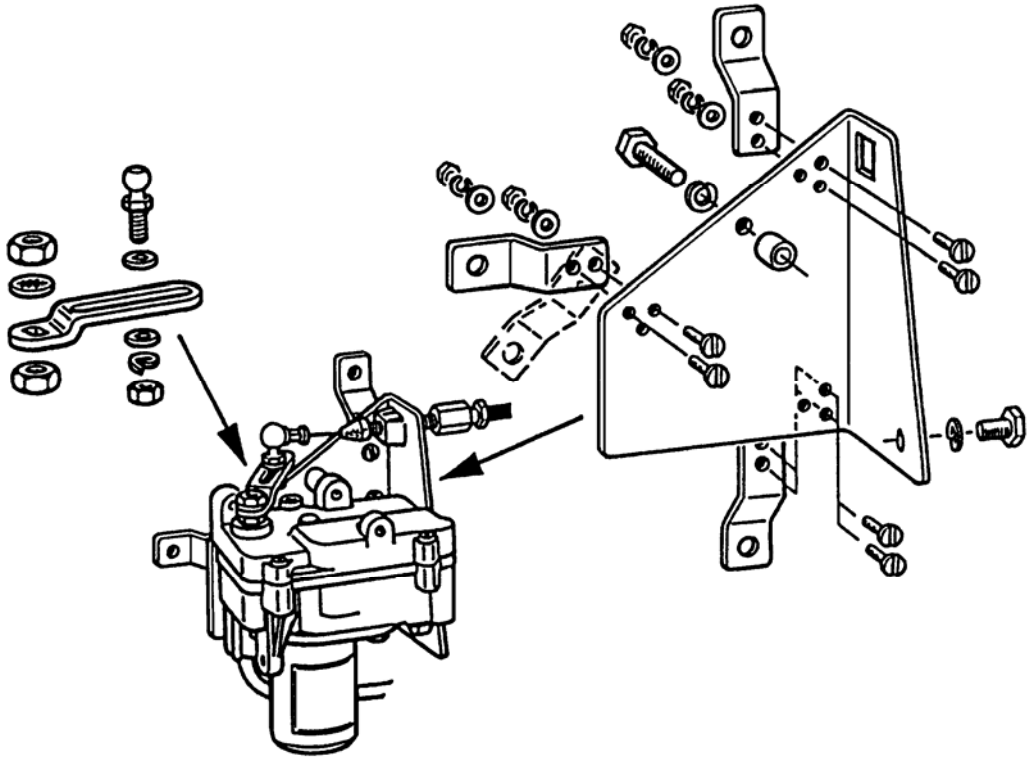


2.3 Fitting the components

2.3.2 Fitting the electric actuator

a) Attach the actuator retainer to mounting attachments; pre-fit the actuator to bracket and screws must be tightened in manually-screwed way.

   Complete linkage lever arm with link pin and attach it to actuator axle.



b) Select mounting position.
   The actuator should be mounted on the supporting frame or on the bodywork. The actuator must not be mounted on the engine because of the excessive vibration occurring there. Mounting on a tilt cab is also not usually suitable, as these are sprung and movements may be transferred to the injection pump via the Bowden cable. The mounting position should be selected so that the Bowden cable is led to the injection pump by a short route. When laying the Bowden cable, a minimum radius of curvature of 150 should be maintained. Care should be taken to ensure that the cable is positioned at an adequate distance from moving parts and is kept away approx. 200 mm from hot parts as exhaust system, turbo-supercharger or compressor air lines.

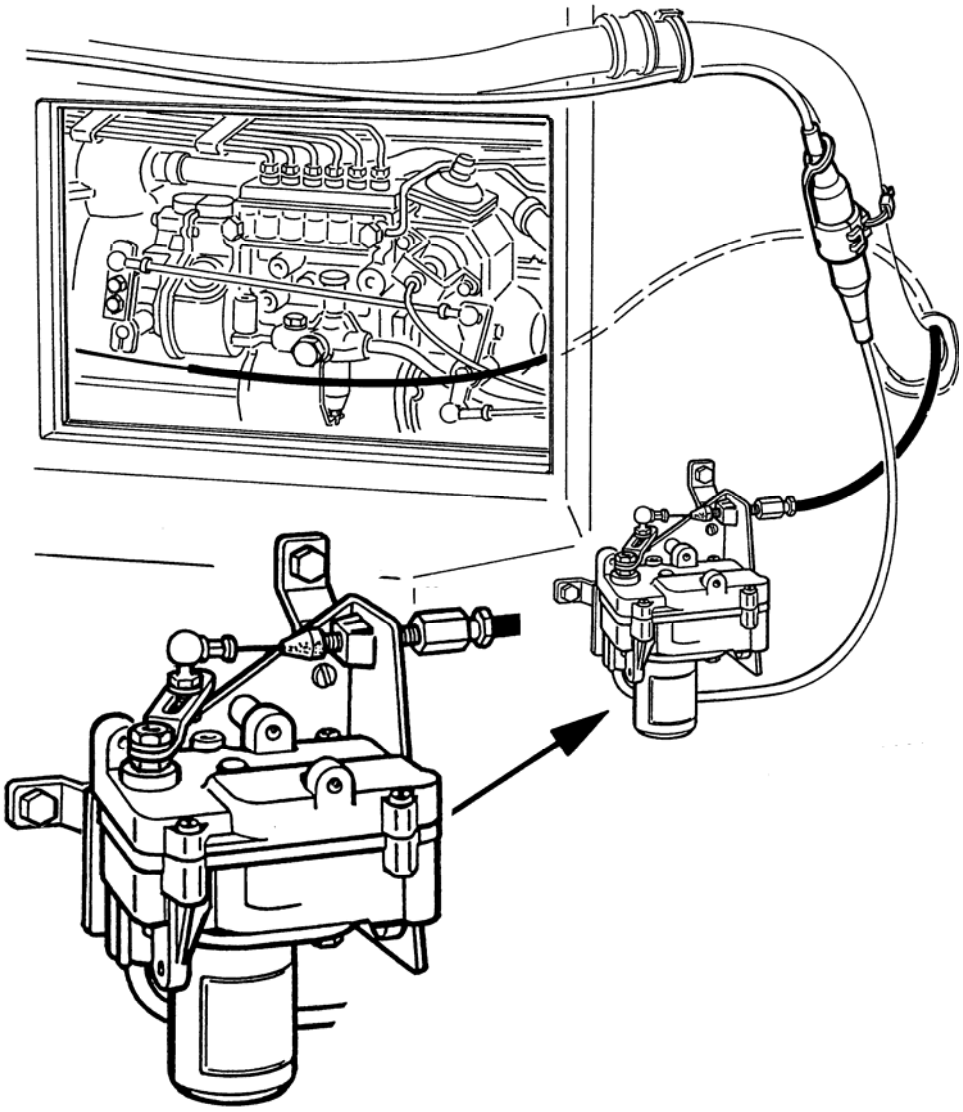
c) Remove actuator from bracket and fit mounting attachments as necessary. Attach actuator to bracket.

d) Offer up actuator and mark drilling positions.

2.3 Fitting the components

2.3.2 Fitting the electric actuator

e) Drill holes 6.1 mm diameter and attaches actuator.
Fitting example of the electric actuator



f) Fit Bowden cable to actuator into cable retaining bracket.

2.3 Fitting the components

2.3.3 Fitting the linkage system

Moving parts in the linkage system should always be greased prior to fitting.

Fitting the override cylinder

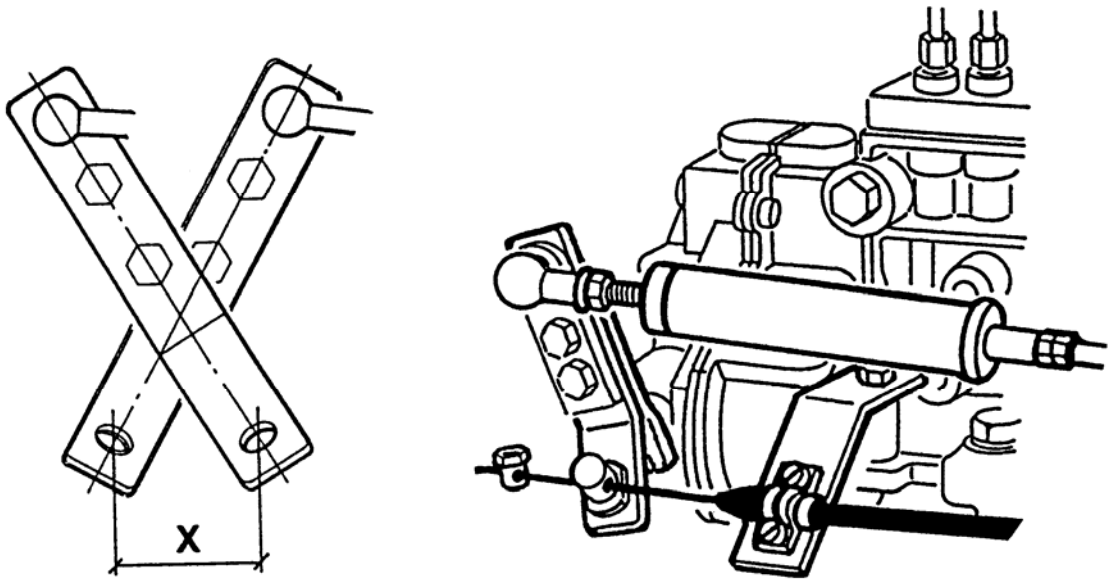
The override cylinder may be fitted only in vehicles equipped with pulling fuel control linkages. Fitting in a linkage which already includes for example a cut-off cylinder should be avoided (linkage may break under vibration if too heavy). The maximum override is 50 mm.

a) Remove fuel control linkage and measure its length.

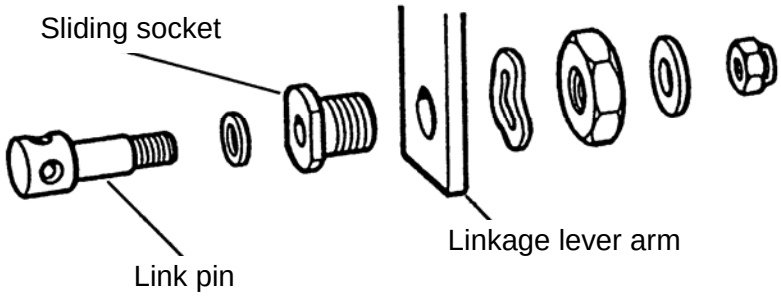
b) Shorten linkage (length of override cylinder = 166.5 mm). Fit override cylinder and set to length as measured in a) above. If necessary, use the threaded adapters provided.

c) Fit the linkage lever arm on the pump arm and locate the link pin in such a way that it covers a distance of 30 to 55 mm between idling and full load positions for two-lever pumps (Diameter of hole for link pin = 10.1 mm).

Fitting link pin



Measurement **X** (Link pin) 0 30 to 55 mm



2.3 Fitting the components

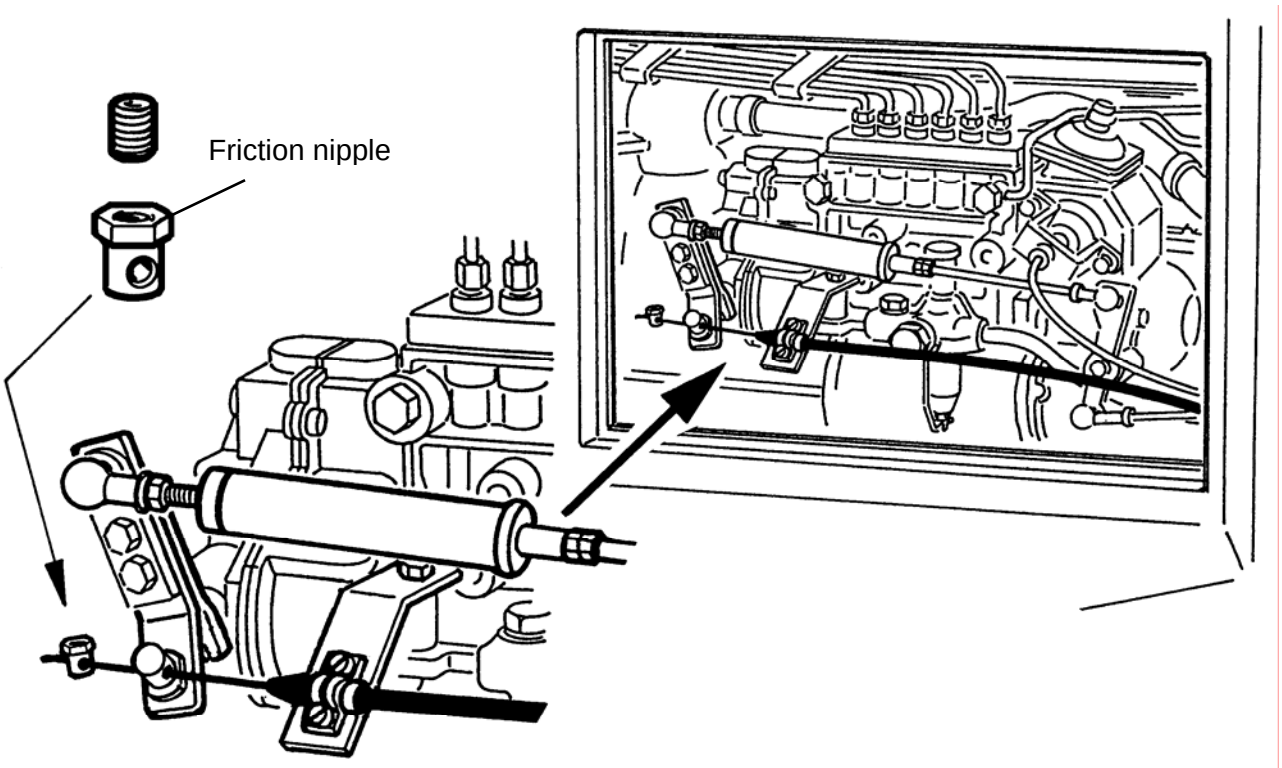
2.3.3 Fitting the linkage system

d) The outer cable retaining bracket must be mounted on the engine in such a way that the Bowden cable is on the same level as the link pin. In many cases one of the injection pump bolts may be used for this. Loose screw and attach holder that it lays at the control unit case and thus becomes fixed. Tighten screw (Pay attention to the torque)

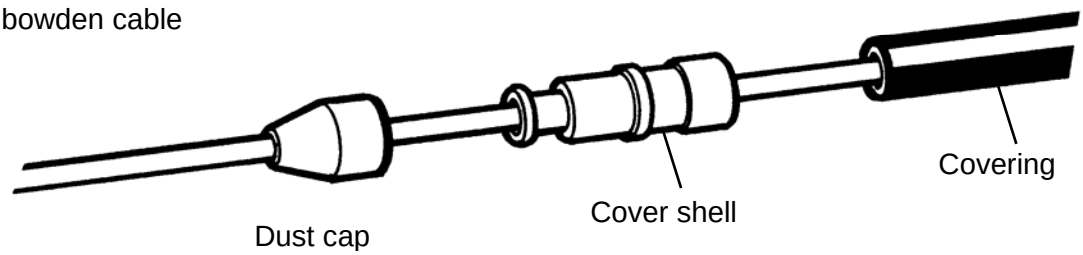
e) Hang-up the Bowden cable into cable retaining bracket and push inner cable through link pin. Shorten inner cable only after adjustment (page 3 - 19).

In case the bowden cable is longer than needed it must be shortened as follows:
Pull inner cable out of the covering and shorten it to the needed length (saw slightly and break it). Push in the inner cable and attach the cover shell with enclosed clamp. Cover with dust cap.

Fitting example Override element



Shorten bowden cable



2.3 Fitting the components

2.3.3 Fitting the linkage system

Fitting the scissors system I

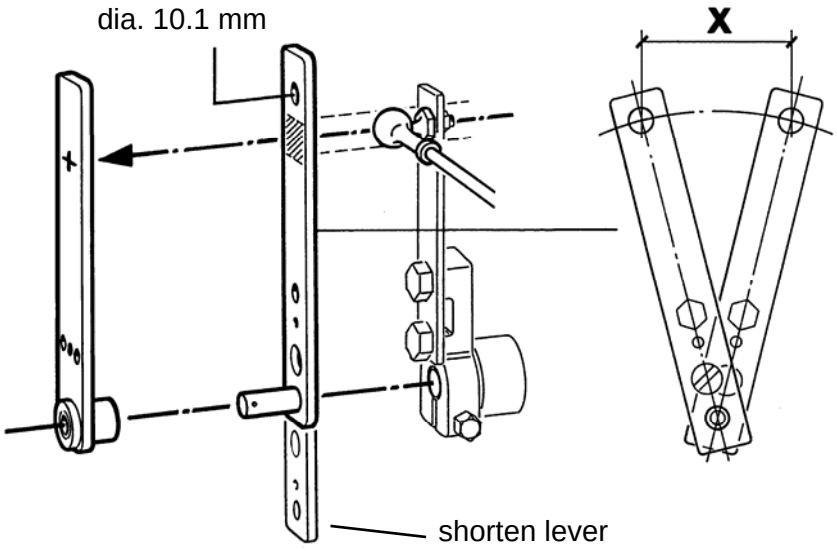
The scissors system may be fitted on the injection pump lever arm in vehicles with pulling or pushing fuel control linkages and Bowden cable fuel control systems.

Tolerances: Injection pumps regulator adjustment force max. 45 N (must be determined with running motor). With adjustment force > 45 N to max. 75 N use torsion spring diameter 3.2 mm, according to need left or right hand wrapped (is part of the delivery volume).

a) Measure the distance between the centre of the pump shaft and the centre of the ball stud and mark off this dimension on the front lever arm of the scissors system. Drill as appropriate and attach original ball stud.

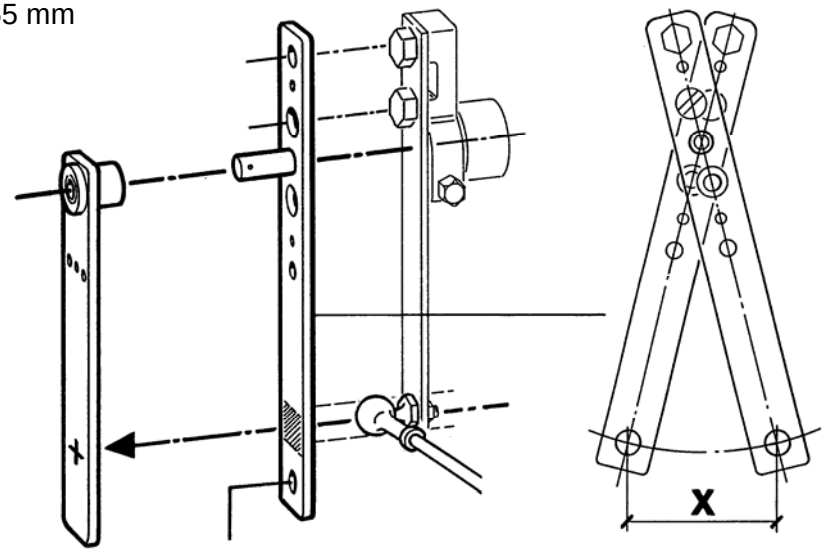
b) Install the back lever and find out the measurement for the link pin. The link pin should, depending on the injection pump movement angle, have a movement of 30 to 55 mm.

Determine linkage measurements



Fit lever arm upright

Measurement **X** (Link pin) = 30 to 55 mm



Fit lever arm hanging down

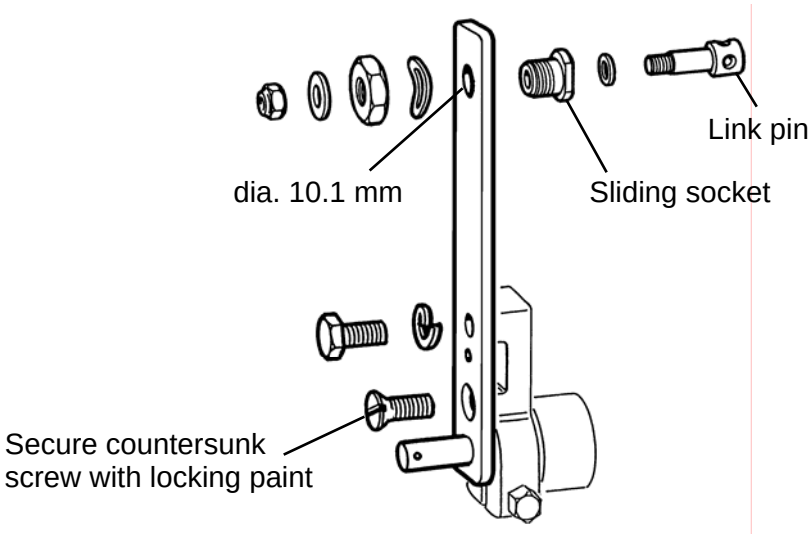
dia. 10.1 mm

2.3 Fitting the components

2.3.3 Fitting the linkage system

c) Remove the lever arm and drill a 10.1 mm diameter hole for the link pin. You must be able to move the link pin slightly in its sliding socket.

Fitting the link pin



d) Screw together the rear lever with the pump lever (the fulcrum of the injection pump lever and the fulcrum of the scissors system must overlap).

e) Mount back square at front lever full load side. According to working direction use left or right-hand wrapped torsion spring, fit together scissors system, stretch and secure with disc and bolt.

f) Fit bowden cable retaining bracket.

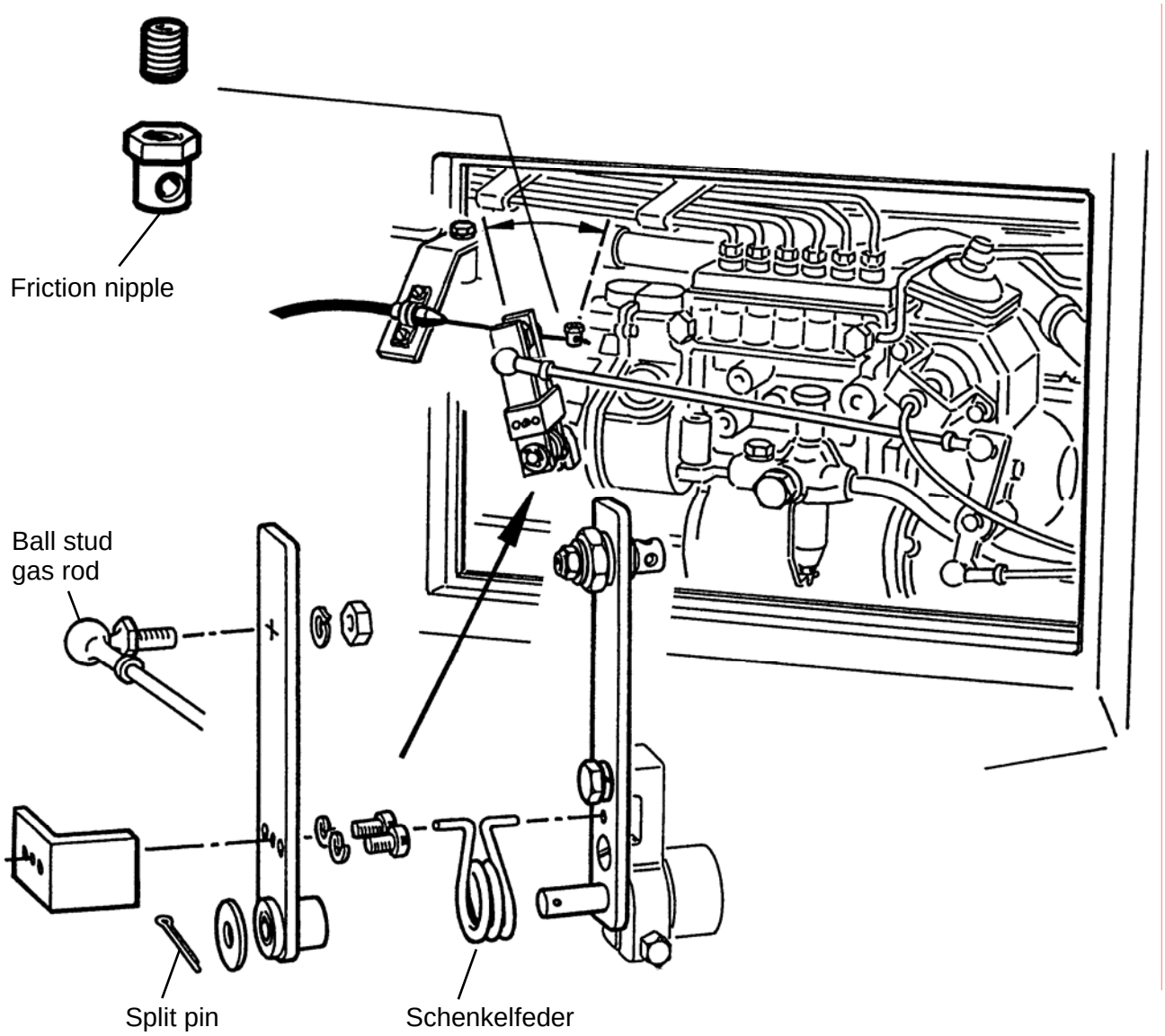
g) Hang-up the Bowden cable into cable retaining bracket and push inner cable through link pin. Shorten inner cable only after adjustment (page 2 - 19).

In case the bowden cable is longer than needed it must be shortened as follows:
Pull inner cable out of the covering and shorten it to the needed length (saw slightly and brake it). Push in the inner cable and attach the cover shell with enclosed clamp. Cover with dust cap.

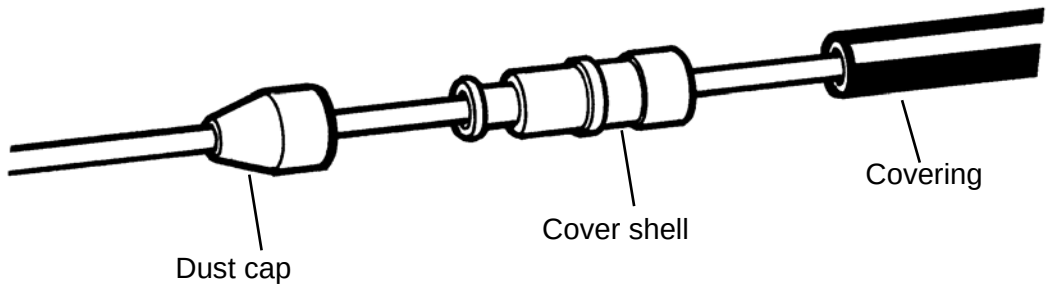
2.3 Fitting the components

2.3.3 Fitting the linkage system

Fitting example Scissors system I



Shorten Bowden cable



2.3 Fitting the components

2.3.3 Fitting the linkage system

The scissors system II (retaining bracket at lever arm)

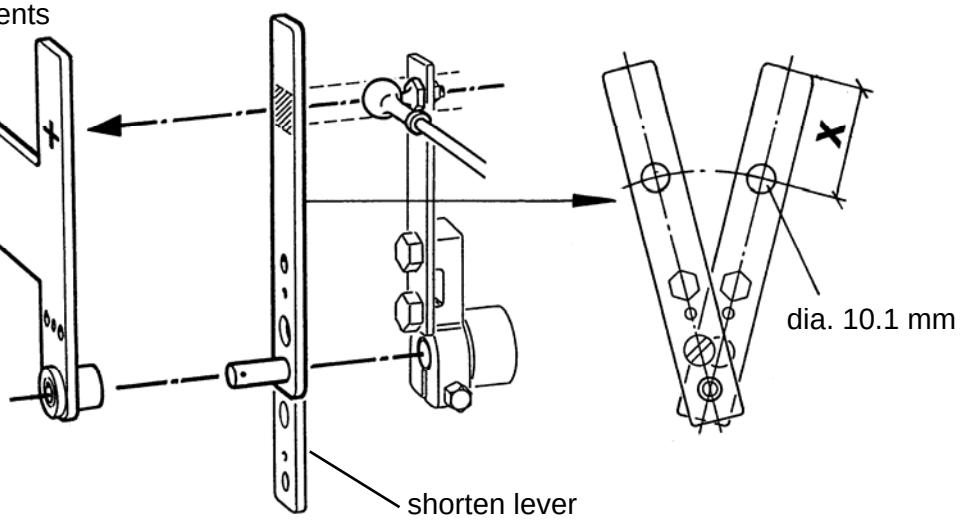
According to the resp. operation use the fitting set scissors system II A or fitting set scissors system II B (Chapter 4).
The scissors system II may only be used with injection pumps with fixed idling limit stop, e.g. two-lever arm or distributor injection pumps with separate stop.
The bowden cable retaining bracket is realized with the outer lever arm.

Tolerances: Regulator angle of the injection pump 12° to max. 35°.
Injection pumps regulator adjustment force max. 45 N (must be determined with running motor). With adjustment force > 45 N to max. 75 N use torsion spring dia. 3.2 mm, according to need left or right hand wrapped (is not part of the delivery volume).

a) Measure the distance between the centre of the pump shaft and the centre of the ball stud and mark off this dimension on the front lever arm of the scissors system. Drill as appropriate and attach original ball stud.

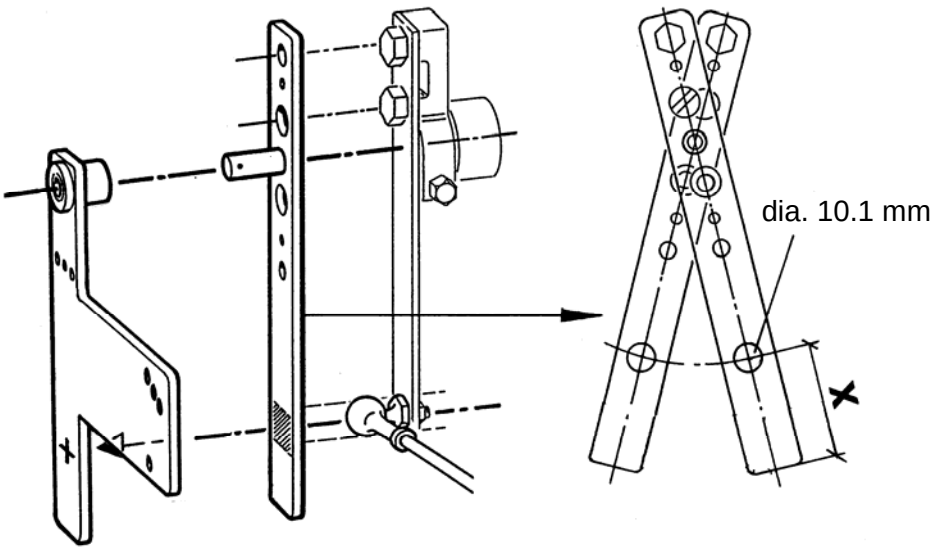
b) Determine measurement X for the linkage pin with the position of the bowden cable retaining bracket.

Determine linkage measurements
Position: 1
2
3



Fit lever arm upright
(Figure: Scissors System II B)

Measurement **X** (Link pin):
Position 1 = 52 mm
Position 2 = 43 mm
Position 3 = 32 mm



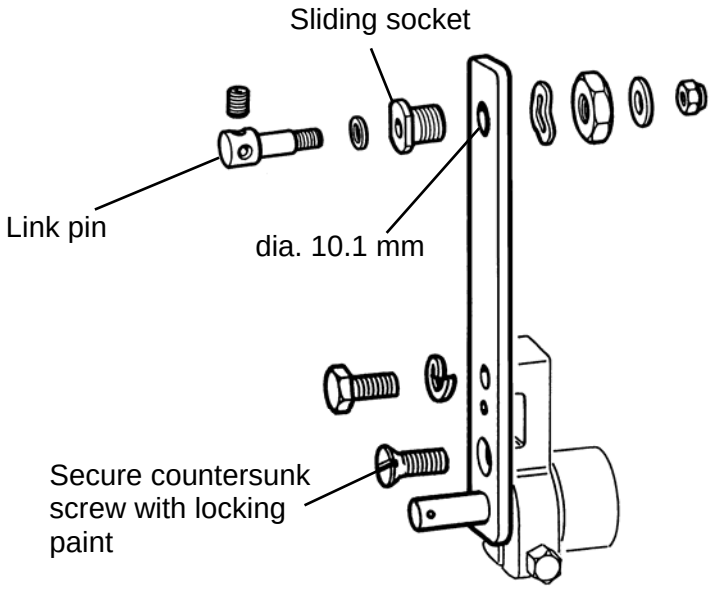
Fit lever arm hanging down
(Figure: Scissors System II B)

2.3 Fitting the components

2.3.3 Fitting the linkage system

c) Remove the lever arm and drill a 10.1 mm diameter hole for the link pin. You must be able to move the link pin slightly in its sliding socket.

Fitting the link pin



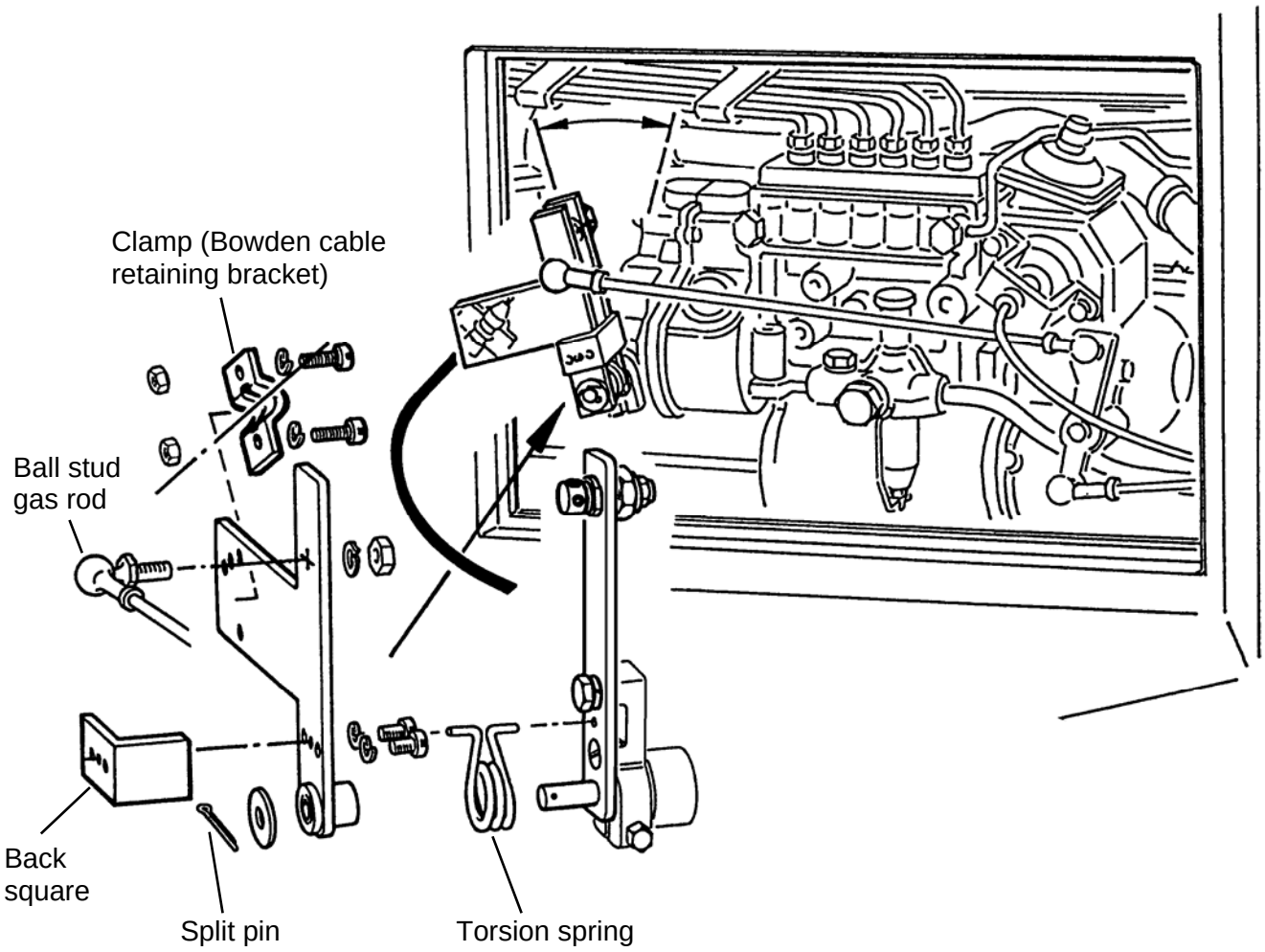
d) Screw together the rear lever arm with the pump lever arm (the fulcrum of the injection pump lever arm and the fulcrum of the scissors system must overlap).
e) Mount back square at front lever full load side. According to working direction use left or right-hand wrapped torsion spring, fit together scissors system, stretch and secure with disc and bolt.
f) Hang-up the Bowden cable into cable retaining bracket and push inner cable through link pin. Shorten inner cable only after adjustment (page 3 - 19).
In case the bowden cable is longer than needed it must be shortened as follows:
Pull inner cable out of the covering and shorten it to the needed length (saw slightly and break it).
Push in the inner cable and attach the cover shell with enclosed clamp. Cover with dust cap.

Assure that the bowden cable has enough free space and does not slide with the engine or the bodywork in idling position - and full load position.

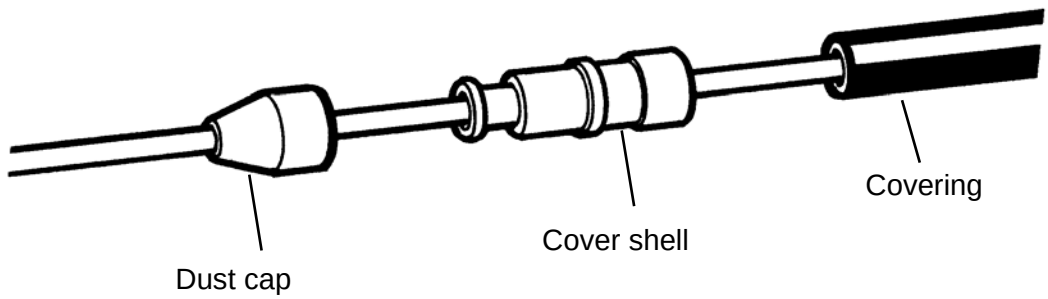
2.3 Fitting the components

2.3.3 Fitting the linkage system

Fitting example Scissors system II (retaining bracket at lever)



Shorten Bowden cable



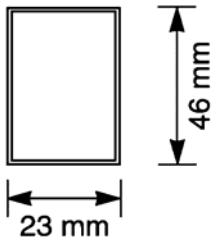
2.3 Fitting the components

2.3.4 Fitting the excess speed/fault light

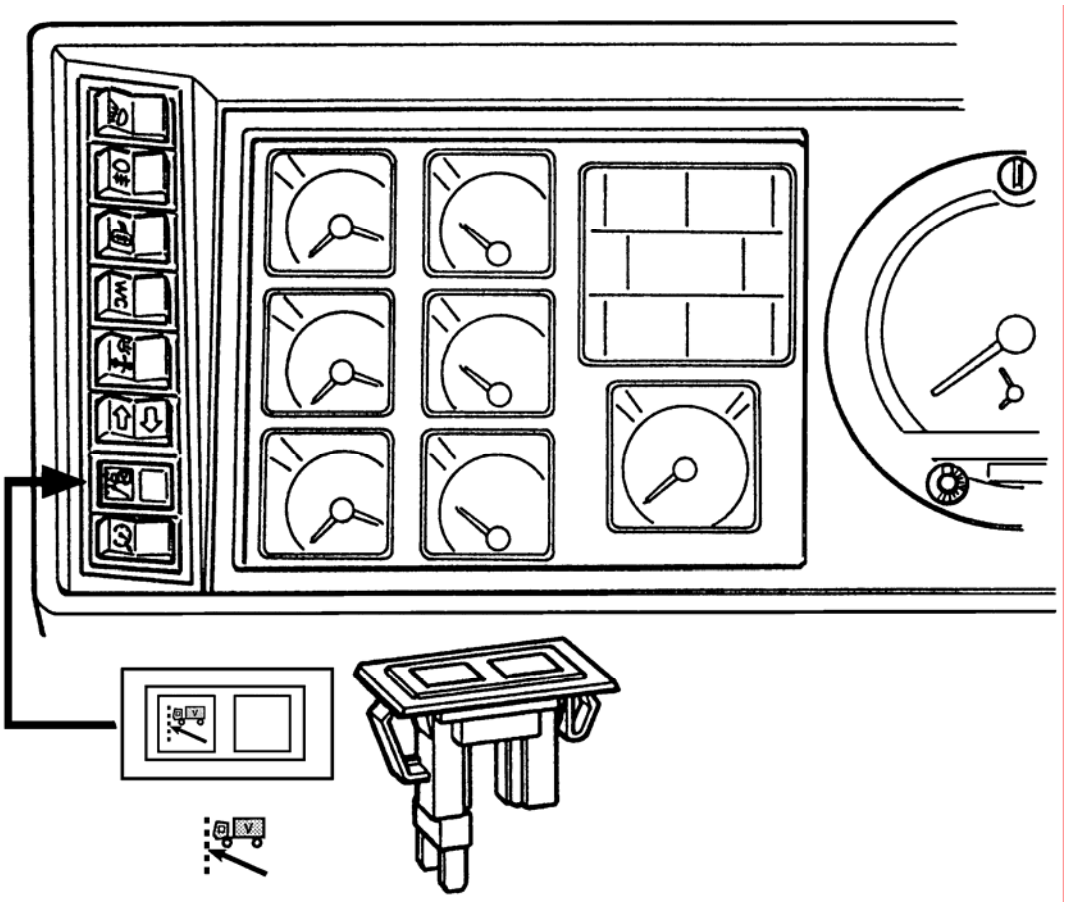
The light should be fitted on the dash board in a position which is easily visible to the driver. Cutouts are already available in some vehicles, and these are blanked off. If there are no cutouts, then fit the light as follows:

a) Select a suitable position. Note the depth required (60 mm). Mark off the dimensions on the dash board and cut out as required.

b) Insert light . Fitting dimensions for light:



Excess speed and fault light



2.4 Electrical connection

2.4.1 Laying the wiring harness

a) Lay the actuator cable from the electric actuator to the electronic controller, fit with cable holders and secure plugging connection with safety cap. Plug in the plug of the actuator cable according to connection diagram (page 2 - 18).

b) Lay the cables fixed at the system plug from the electronic controller to the dash board and secure with cable holders.

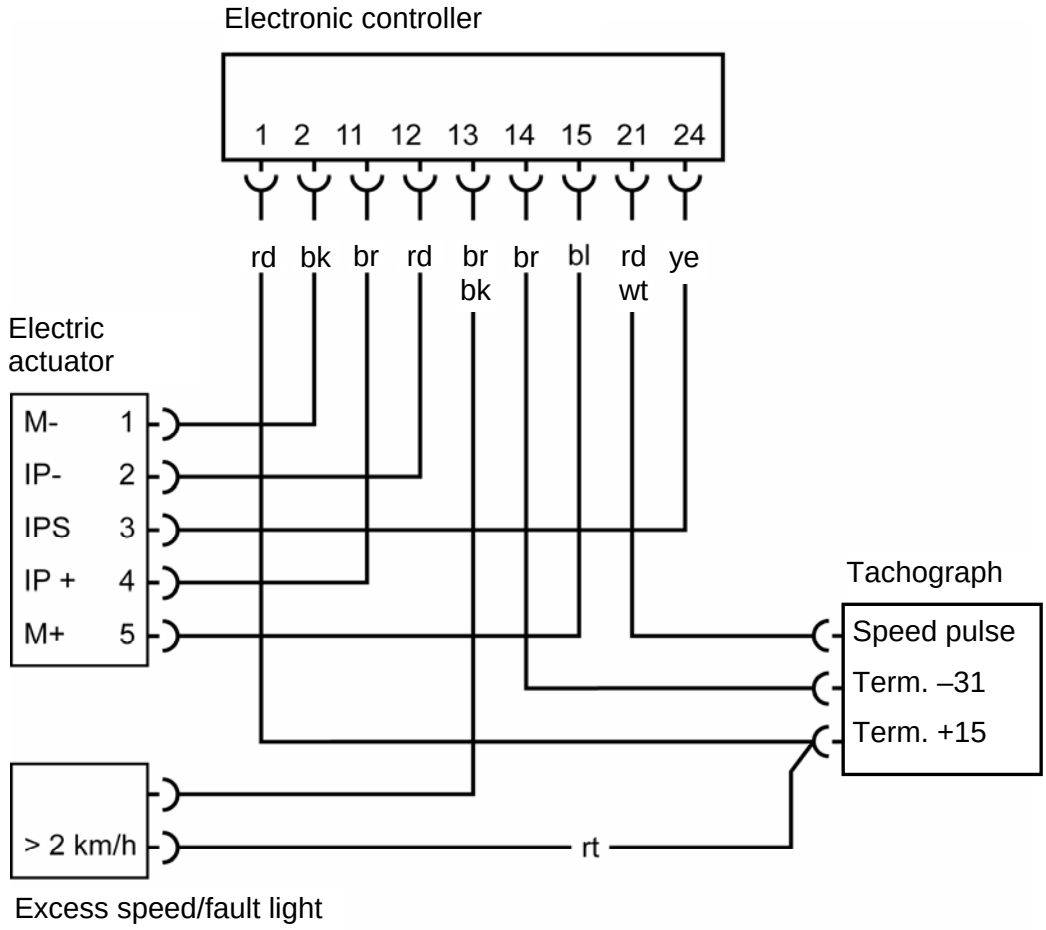
c) Lead the cable for the tension supply (rd and br) and speed signal cable (rd - wt) to the tachograph and shorten it if necessary, remove the safety cap for connection cable to the tachograph. Produce connection according to connection diagram (page 2 - 18).

d) Lead cable excess speed/fault light (br-bl) and cable tension supply (rd) from tachograph to light, shorten it if necessary, and produce connection according to connection diagram (page 2 - 18). Mount safety cap and seal tachograph. Follow the regulations of 05% StVZO for Germany, resp. the VO (EEC) No. 3821185 for the other European countries.

e) Connect battery.

2.4 Electrical connection

2.4.2 Electrical connection diagram



Manufacturer	Type:	Speed impulse	Terminal 15	Terminal 31
VDO VDO	414.-.2 414.-.5	C3 B7	A4 A3	A6 A6
Kienzle Kienzle Kienzle Kienzle	1310 1314 1318 1319	C3 C3 B7 B7	A4 A4 A3 A3	A6 A6 A6 A6
Jaeger Jaeger Jaeger Jaeger	G 130 G 134 G 50 G 54	E3 B7 B7 B7	A4 A3 A3 A3	A6 A6 A6 A6
Veeder-Root Veeder-Root	1426 8300	D3 B7	C4 A3	C6 A6
MotoMeter MotoMeter	EGK 100 EGK 100-1	B7 B7		

2.5 Adjustment of the linkage

Connect AGB - test adapter between systems plug and electronic controller. Switch on ignition. Engine of the electrical actuator runs into its idling position (not regulated).

2.5.1 Adjustment with Scissors System I and Override Element

a) Adjust ball stud at actuator lever arm. Transfer the measurement of the regulation range in which the link pin at the linkage lever arm moves between idling position and full load position to the actuator lever arm. Fix ball stud.

b) Push injection pump lever against full load limit stop, move the friction nipple onto the link pin and fix the inner cable of the bowden cable with the setscrew.

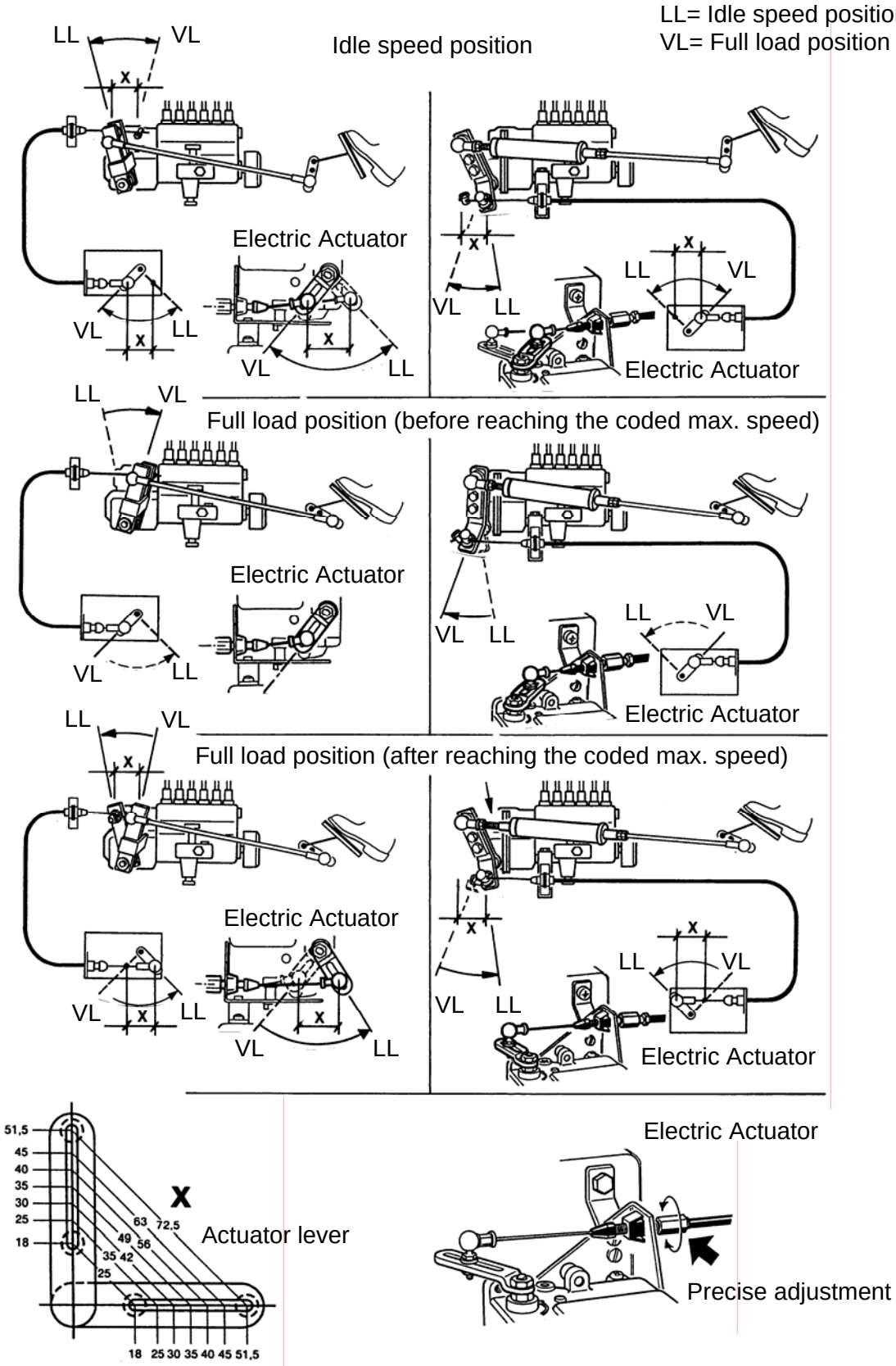
c) Push gas pedal or push regulation before the linkage into full load position and hold it. Operate lever arm full load test at **AGB - Test adapter.** Injection pump lever arm must be in idling position. Through regulating the precise adjustment screw of the bowden cable at the electric actuator the adjustment can be corrected.

Attention: This adjustment must be made very precisely. In case the injection pump lever arm does not reach its idling position, over shootings of the coded max. speed of the vehicle can occur. In case the injection pump lever arm lays at the idling position and the electric actuator has not yet reached its electrical full load position, it blocks and through this becomes damaged (braking of the toothed wheels). With one-lever arm pumps a wrong adjustment above the idling position leads to switching-off the engine in case gears are changed during fully limited adjustment position (down-hill driving).This must anyhow be avoided for operations safety steering support without operation or changing gears without running engine).

2.5 Adjustment of the linkage

2.5.1 Adjustment with Scissors System I and Override Element.

Transfer the measurement **X**, in which the link pin moves between idling position and full load position, to the actuator lever arm.



2.5 Adjustment of the linkage

2.5.2 Adjustment with Scissors System II (retaining bracket at lever arm)

a) Adjust ball stud at actuator lever arm. Transfer the measurement of the regulation range in which the link pin at the linkage lever arm moves between idling position and full load position to the actuator lever arm. Fix ball stud.

b) Fix the inner cable of the bowden cable with the setscrew (pump lever arm is in idling position).

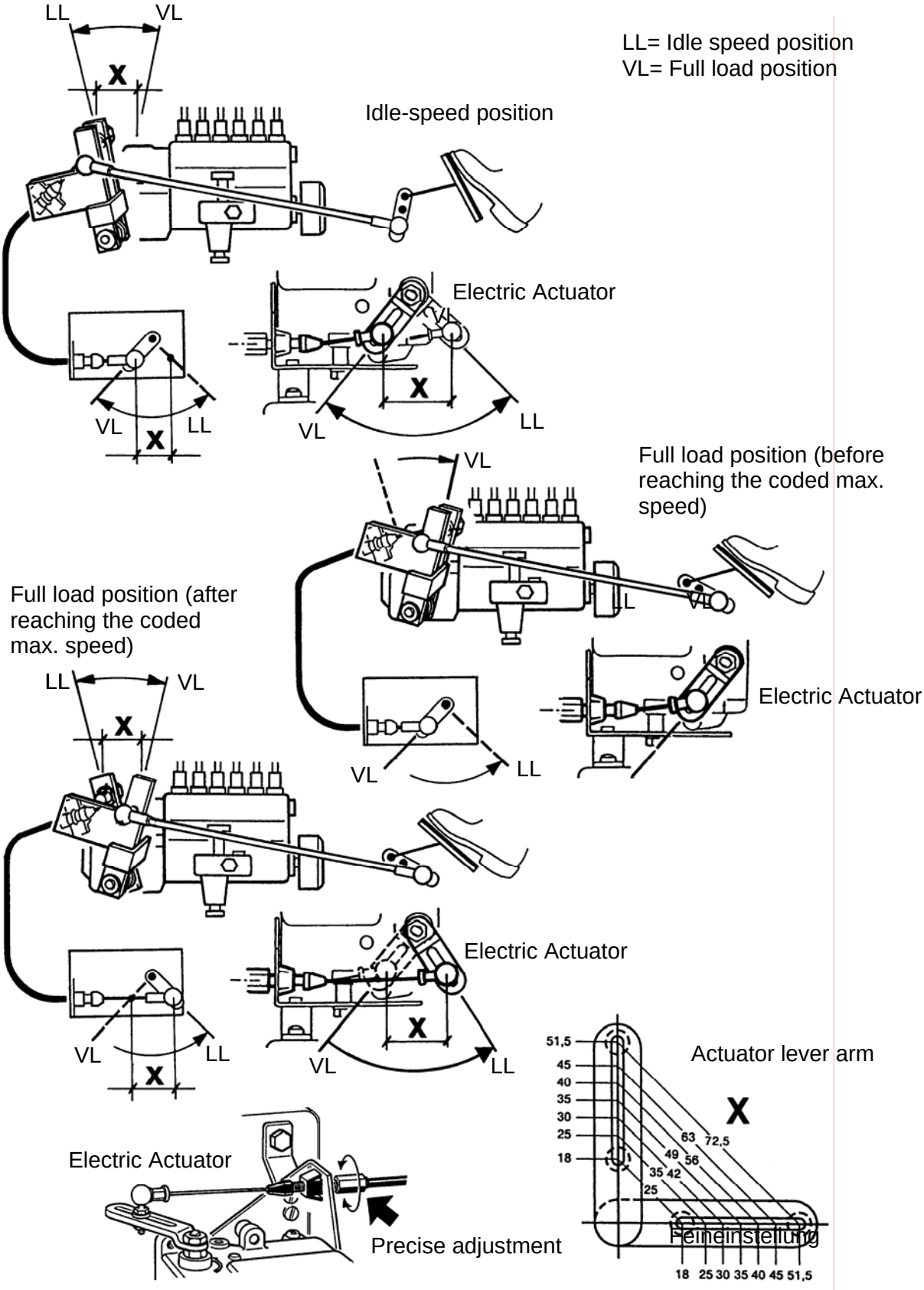
c) Push front lever arm of scissors system to full load position and hold it. Operate lever full load test at **AGB – Test adapter**. Injection pump lever arm must be in idling position. Through regulating the precise adjustment screw of the bowden cable at the electric actuator the adjustment can be corrected.

Attention: This adjustment must be made very precisely. In case the injection pump lever arm does not reach its idling position, over shootings of the coded max. speed of the vehicle can occur. In case the injection pump lever arm lays at the idling position and the electric actuator has not yet reached its electrical full load position, it blocks and through this becomes damaged (braking of the toothed wheels).

2.5 Adjustment of the linkage

2.5.2 Adjustment with Scissors System II (retaining bracket at lever arm)

Transfer the measurement **X,** in which the link pin moves between idling position and full load position, to the actuator lever arm.



2.6 After the fitting

Delete all eventually memorized faults by use of the **AGB - Test adapter**.

Execute a check of the AGB III plant according to the regulation for the execution of test according to § 57d StVZO.

Then start a test driving for checking the perfect operation of the AGB III plant and the tachograph.

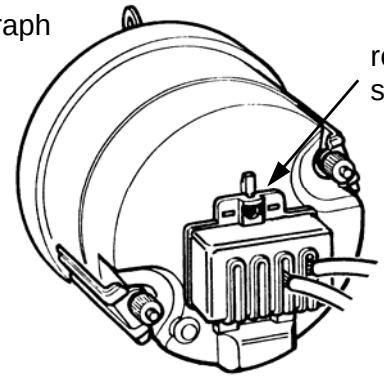
2.7 Sealing the plant

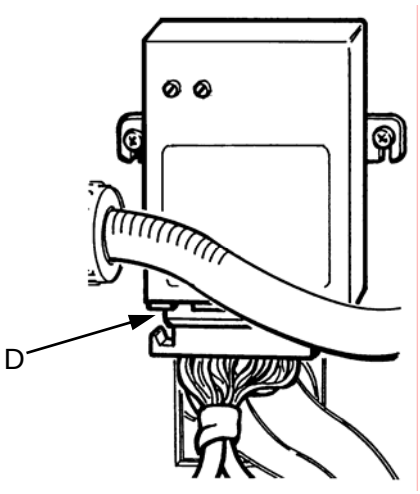
After successful test driving and perfect operation the plant must become sealed according to scheme.

Letter L for paint sealing,
Letter D for wire sealing.

Sealing

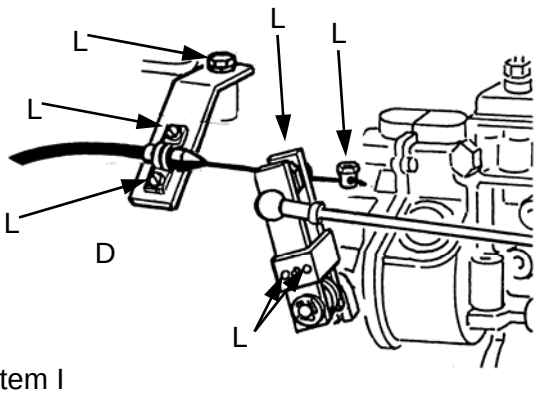
Tachograph



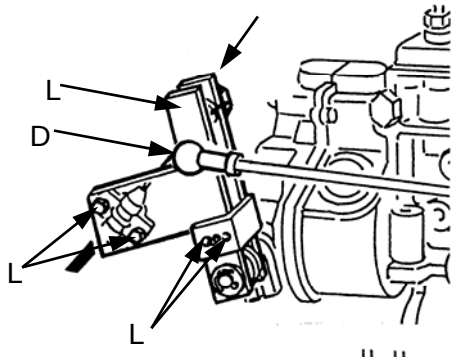


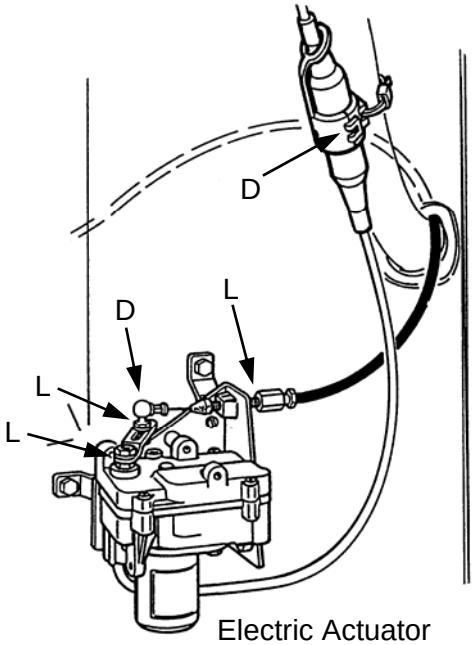
Electronic Controller

Linkage
Scissors system I



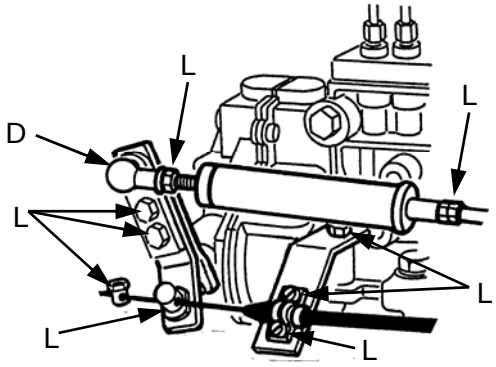
Linkage
Scissors system II





Electric Actuator

Linkage
Override element



Product Manual AGB III
3. Testing equipment AGB III

Contents

3.1 Test adapter **2**

3.1.1 Complete concept **2**

System components 2
Operating elements and connection possibilities 3

3.1.2 Operation description **4**

Plus- and minus pole socket [1, 2] 4
External frequency input [3] 4
Lever arm On/Off [4] 4
Press error memory read / delete [5] 5
Fault light / excess speed [6] 6
Lever arm actuation position min/max [7] 6
Lever arm variable intermediate speed on/S + B [8] 6

3.2 Test description **7**

3.2.1 Testing in the vehicle **7**

3.2.2 Test in the workshop **8**

3.2.3 Fault determination, possible reasons, and relief **9**

3.2.4 Control respectively adjustment with the PC **11**

3.3 Testing software **12**

3.3.1 Program code data **12**

System requirements 12

3.3.2 Description of program **13**

User surface 13
Operation 14

3.3.3 Description of the menu items for AGB III **15**

Main menu File 15
Main menu View 15
Main menu Parameter 15
Main menu Test 18
Main menu Options 21
Main menu Extras 22
Main menu Window 23
Main menu Help 23

Product Manual AGB III
3. Testing equipment AGB III

3.1 Test adapter

3.1.1 Complete concept

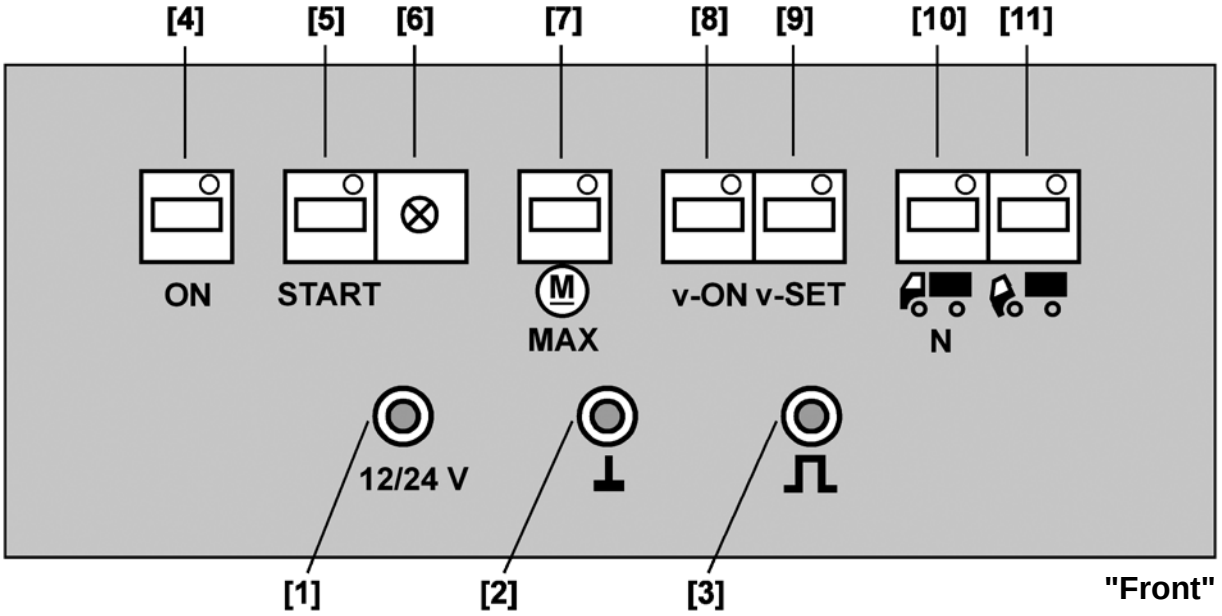
System components

Link 5 (converter USB- serial RS232)
Link between connection 4 and PC.
(For PC without serial com port, not in the scope of VDO supply).

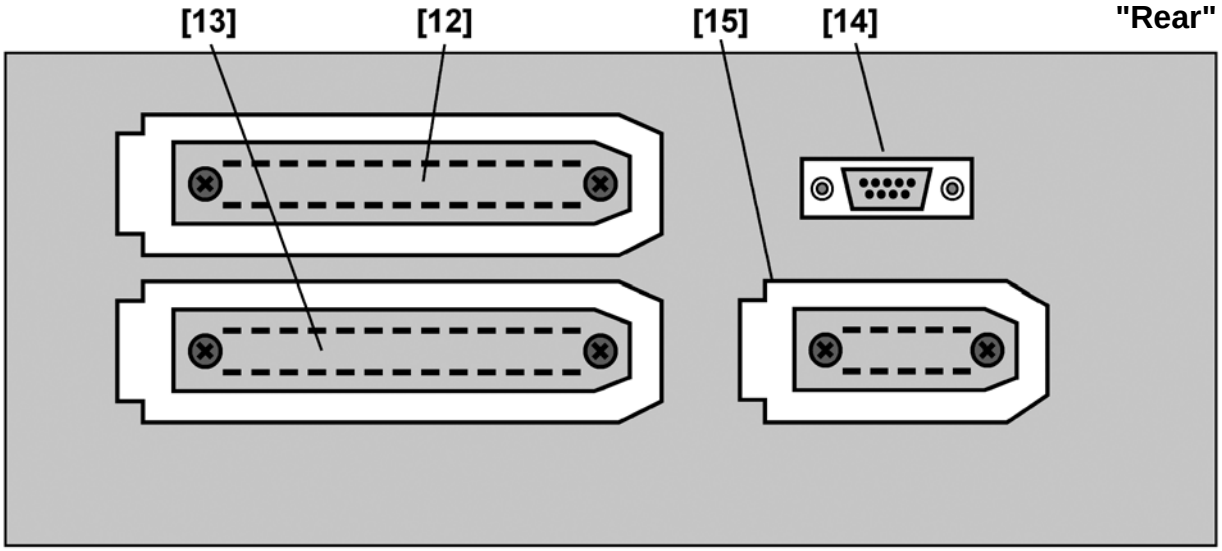


3.1.1 Complete concept

Operating elements and connection possibilities



[1] Plus-pole socket } external
[2] Minus-pole socket } tension supply
[3] External frequency input (speed signal)
[4] Lever arm on/off
[5] Press error memory read/delete
[6] Excess speed / fault light
[7] Lever arm actuator position min/max
[8] Lever arm variable intermediate speed on/S+B
[9] Press variable intermediate speed set/S-B **(without Function at AGB III)**
[10] Press control gear idling external **(without Function at AGB III)**
[11] Lever arm gear idling switch-off **(without Function at AGB III)**
[12] Plug socket for wiring harness connection
[13] Plug socket for electronic unit control connection
[14] PC-Connection
[15] Plug socket for actuator connection (external control AGB)



3.1.2 Operation description

Plus- and minus pole socket [1, 2]

Both sockets [1] and [2] must be supplied by an external power suppy with 12/24 V during a workshop test.

External frequency input [3]

A speed signal can be connected to this input for the workshop control. This signal can either be delivered by a tachograph with a pulse-width moduled signal output, a hall effect sensor signal or a frequency generator.

Signal from tachograph:	Low level	< 0.5V
	High level	> 6.0V
	Inner resistance after low	1.8 kΩ ± 50%
	Inner resistance after high	2.7 kΩ ± 50%
	Specific resistance	2.2 nF
Signal from hall effect sensor:	Low level	< 1.5V
	High level	> 6.0V
	Inner resistance after low	< 4.0 kΩ
	Inner resistance after high	< 4.5 kΩ
	Specific resistance	< 10 nF.

The device operates with a distance impulse between 2400 Imp/km and 25000 Imp/km.

Signal from frequence generator:	Low level	< 0.5V
	High level	> 6.0V

The pulse-width moduled signal has for example at 100 Hz a press influence of 20% and an offset of 2V. Thus the vehicle speed can be diversified by frequency adjusting.

Lever arm On/Off [4]

The AGB II - test adapter is being switched on or off with this lever arm. Switching on, the fault light beams for a moment [6]. During operation the red control diode beams constantly at the lever arm [4].

3.1.2 Operation description

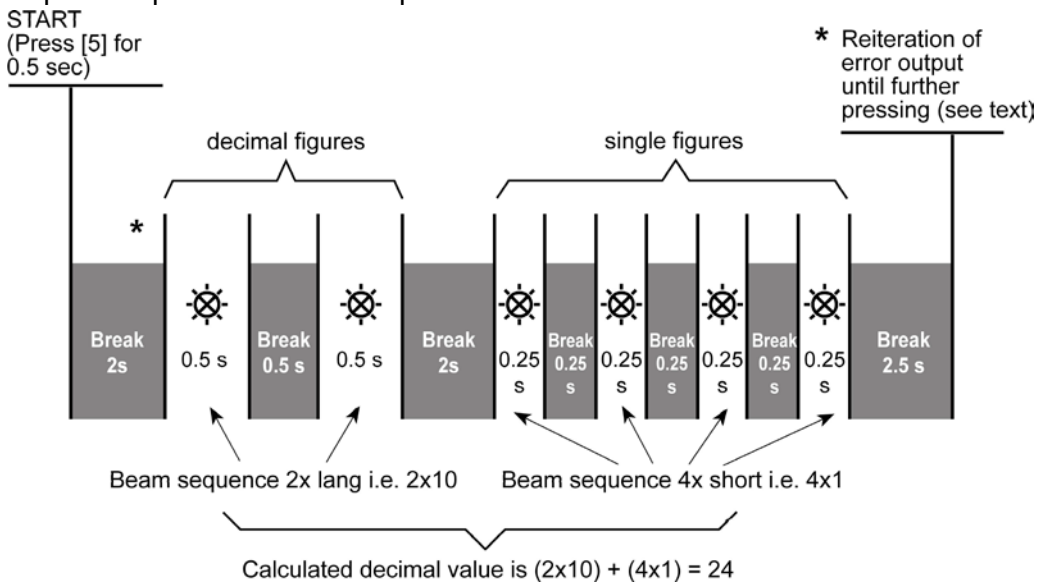
Press error memory read / delete [5]

Error memory read:
After pushing the press for at least 0.5 seconds (during this time the light (6) beams), the error output starts via the error light (6) in form of a blinking code. The errors are shown as decimal figure with two decimal positions. The connection between blinking code and respective error shows the blinking code table.

Blinking code table:

Blinking code	Error
11	fault lamp short to ground
22	speed signal short to ground
24	speed signal fault / line interruption
31	actuator potentiometer fault
33	internal electronic fault
34	road speed pulses implausible
35	configuration data implausible
41	internal wiring short curcuit / actuator wiring short curcuit
42	actuator wiring short to ground
43	actuator motor overload
44	actuator motor wiring interruption
45	actuator lever blocked

The error output is explained in an example and looks as follows:



The blinking code shown above corresponds to the decimal figure 24. From the blinking code table can be seen that their must be a signal fault. An error is so long shown until through further pushing the fault press (5) the output of the next fault is required. If there is no more fault the light turns back to its previous position after releasing the fault press (5). The fault inquiry can only be executed with standing vehicles!

3.1.2 Operation description

Delete error memory:
For deleting the errors the AGB II - test adapter press (5) must be pushed before and during switching on and be hold for at least two seconds after switch on. During this period the light (6) is beaming. Here the speed of the vehicle must be zero! For testing the deleting process the press (5) must be pushed. Now there should not be shown a blinking code error at the fault light (6). In case the error memory is not yet empty, the deleting process must be repeated. Actual errors can not be deleted.

Fault light / excess speed [6]

The fault light has various operations. Stored errors can be shown by a blinking code. (See error memory read/delete). Furthermore an actual fault position of the complete system is signalised through switching on the fault light. In case the speed regulation Vset is crossed by more than 2 km/h and the actuator is fully regulated, the excess speed light is being switched on. It extinguishes in case the speed is below the max. speed regulation V_{set} +0.25 km/h.

Lever arm actuation position min/max [7]

Operating the lever arm (7) the actuator turns into the fully limited position. This operation is being signalised through the green control diode at the leverarm (7).

Lever arm variable intermediate speed on/S + B [8]

Operating the lever arm (8) the chosen intermediate speed is the limit and not the max. regulation speed (see above). During this process the green control diode at the lever arm (8) is beaming.

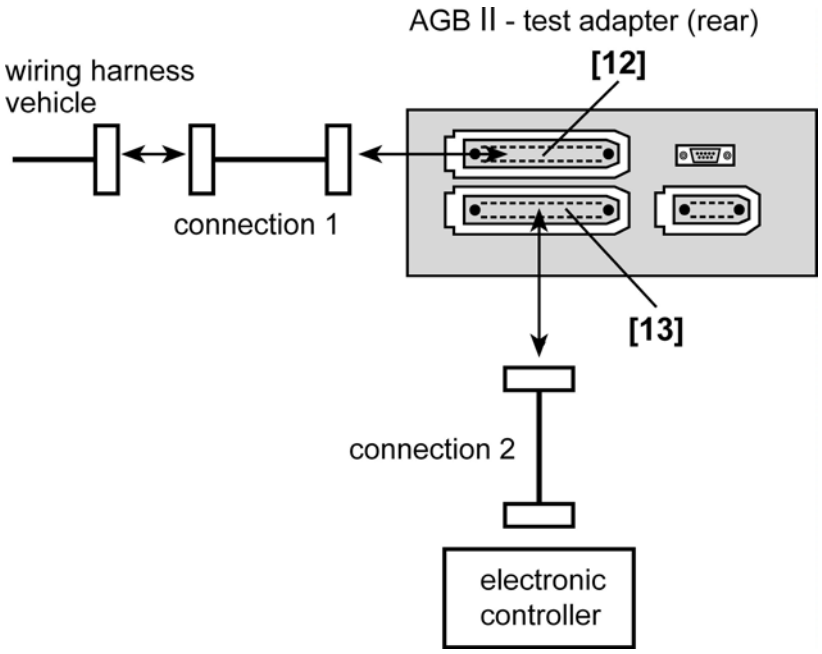
3.2 Test description

3.2.1 Testing in the vehicle

1. Pull off the AGB - vehicle plug from the electronic unit control - ignition is switched off - and plug with connection 1 (test adapter wiring harness) to plug socket (12) at AGB - test adapter.

2. The electronic unit control must be connected with the plug socket (13) at the AGB - test adapter with the connection 2 (test adapter electronic unit control)

Test description:



Needed connections:

Connection 1:	wiring harness vehicle	–	test adapter
Connection 2:	electronic controller	–	test adapter

At switched on ignition the AGB - test adapter must be switched on with the lever arm (4). The red control diode at the lever arm (4) beams, if

a) the connection in the vehicle and to the AGB – test adapter are faultless
b) the tension supply is 12/24V.

The fault light (6) and all control diodes at the AGB - test adapter are beaming by operating the respective lever arms or presses in the vehicle or directly at the AGB - test adapter

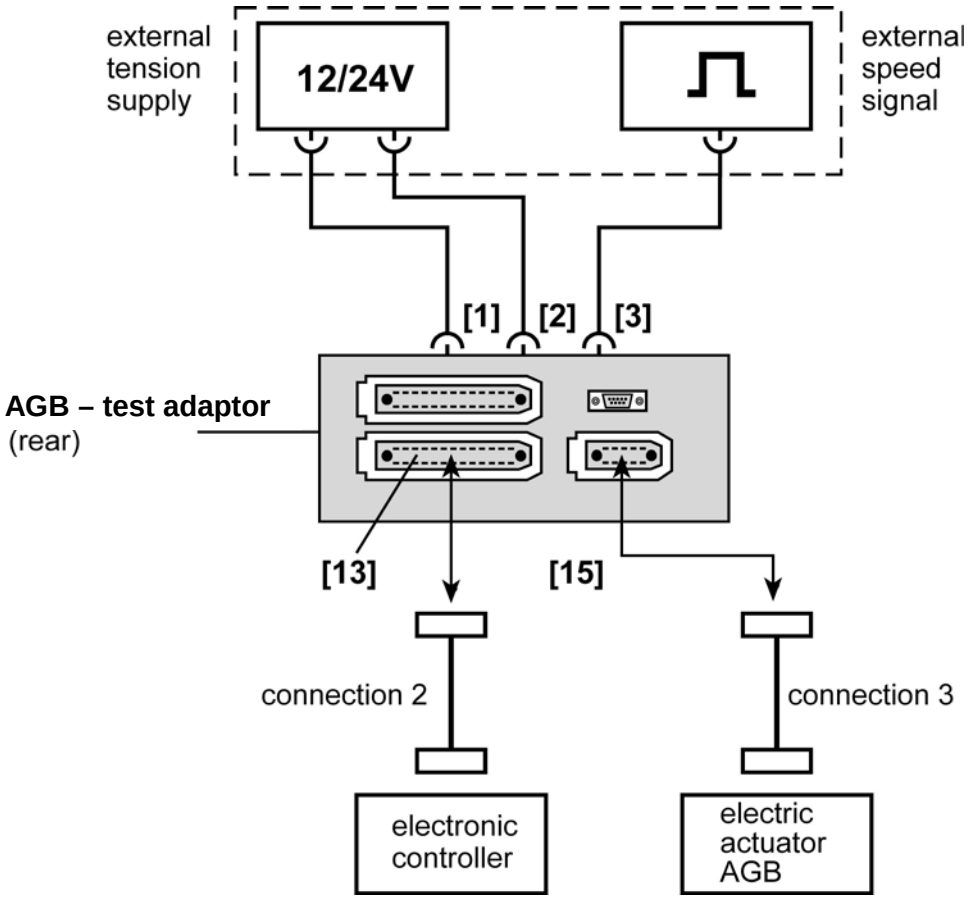
3.2.2 Test in the workshop

1. The electronic unit control is connected to the plug socket [13] with the connection 2 (test adapter electronic controller) to the AGB - test adapter.

2. The actuator is connected with the connection 3 (test adapter actuator) to the AGB - test adapter plug socket [15].

3. The tension supply and the speed signal is connected to the input plugs [1, 2, 3].

Test description:



Needed connections:
Connection 2: electronic controller – test adapter
Connection 3: electric actuator – test adapter
In addition the connection from the external tension supply and the external speed signal to the test adapter is necessary.

The AGB - test adapter is to be switched on with the lever arm [4] with switched on tension supply. The red control diode at the lever arm [4] beams, if the connections to AGB - test adapter are faultless.

The fault light [6] and all control diodes at the AGB - test adapter are beaming if the according lever arms or presses at the AGB - test adapter are operated.

3.2.3 Fault determination, possible reasons, and relief

The next page describes a little support in case of an uncorrect operation of the AGB III. In a table some possible causes and its possibilities of elimination are listed according to the respective blinking code. With the support of this table the possible cause can be determined and be mended.

The correct process is as follows:

1) evaluate blinking code
2) determine error
3) determine possible reasons in the table
4) mend error
5) delete error memory
6) test correct operation

Blinking code with respective error description

11	fault lamp short to ground
22	speed signal short to ground
24	speed signal fault / line interruption
31	actuator potentiometer fault
33	internal electronic fault
34	road speed pulses implausible
35	configuration data implausible
41	internal wiring short curcuit / actuator wiring short curcuit
42	actuator wiring short to ground
43	actuator motor overload
44	actuator motor wiring interruption
45	actuator lever blocked

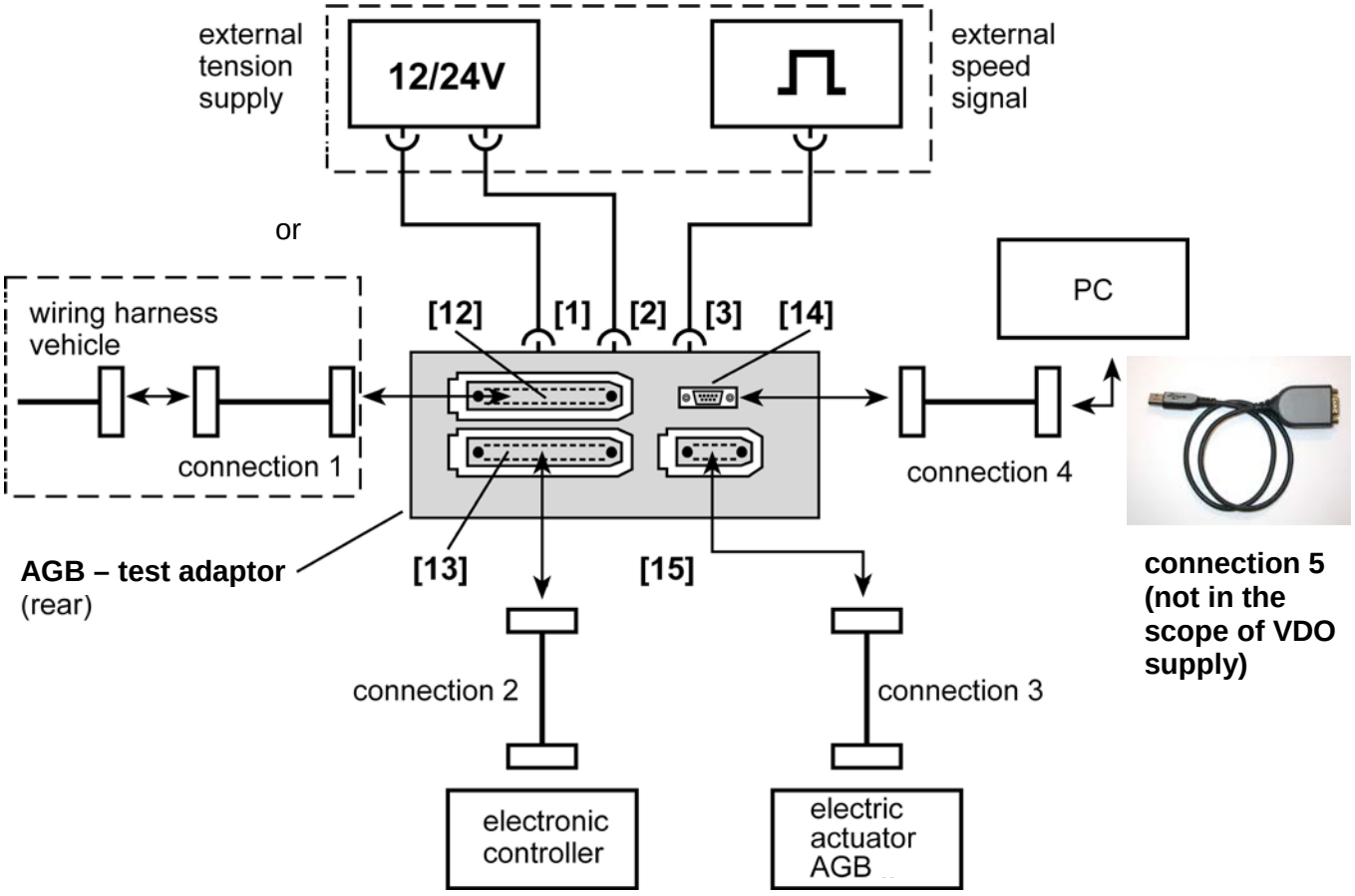
3.2.3 Fault determination, possible reasons, and relief

Blinking code	Possible reasons	Relief	Notes
beam permanently	a) operation voltage is below 9.5 V. b) there are one or more actual faults.	a) Test or supply operation voltage. b) Read out error and repair system.	After relief or error, delete error memory.
11	This error can only be determined and read out with the AGB III – test software as fault light is defect.	Repair fault light.	At pushing the START press, the light must beam.
22	a) Supply line, short circuit to minus. b) Tachograph speed impulse output or additional device at speed impulse output is defect	a) Repair supply line. b) Disconnect additional device, test again. Repair tachograph or additional device.	This control can be switched off in the electronic controller.
24	a) Supply line, short circuit to plus or interruption. b) Tachograph speed impulse output or resp. device at speed impulse output is defect	a) Repair supply line. b) Disconnect additional device, test again. Repair tachograph or additional device.	This control can be switched off in the electronic controller.
31	Short circuit to plus, minus or interruption of the actuator potentiometer or supply line. *	Renew actuator or repair supply line.	Actuator and supply line must always be tested.
33	An error occured while reading or writing to the actuator's EEPROM	Renew electronic controller.	
34	Wheel pulse implausible (only with hall signal). wheel pulse > than allowed.	Check wheel pulse and adjust according to specification.	
35	The electronic controller was initialized with false data.	Repeat last change.	
41	Short circuit, actuator engine or supply line against plus. *	Renew actuator or repair supply line.	Actuator and supply line must always be tested.
42	Short circuit, actuator engine or supply line to minus. *	Renew actuator or repair supply line.	Actuator and supply line must always be tested.
43	Short circuit, plus and minus, actuator engine or supply line. *	Renew actuator or repair supply line.	Actuator and supply line must always be tested.
44	Actuator engine or supply line is interrupted.	Renew actuator or repair supply line.	
45	Actuator toothed wheel destroyed through overstressing or defective adjustment	Correct adjustment of idling and full load, renew actuator	
* In case of short circuits to plus or minus the output driving of the electronic controller are switched off current.			

3.2.4 Control respectively adjustment with the PC

In this version with the support of the AGB III - testing software and the AGB - Test adapter all controls of the complete system and additional adjustments of the system configuration (EEPROM) are possible to be made directly in the vehicle or in the workshop. The test preparations are to be executed the same way as with a vehicle or workshop test (see page 3-7 and 3-8). Additionally with the connection 4 (test adapter - PC) the serial interface of the PC is to be connected with the 9-pole SUB-D socket [14] of the AGB III - test adapter. When using a PC without serial port, connection 5 (converter serial – USB) is necessary additionaly.

Test description:



Needed Connections:

Connection 1: wiring harness vehicle – connection of the external tension supply and of the external speed dignal to the test adapter.
Connection 2: electronic controller – test adapter
Connection 3: electric actuator – test adapter
Connection 4: PC – test adapter
Connecton 5: PC - USB - serial converter

With operating ignition or external tension supply the AGB - test adapter is to be switched on with the lever arm [4]. The red control diode at lever arm (4) beams, if the connections to vehicle and to AGB - test adapter are faultless

Now the delivered AGB III - testing software can be startet and the test or adjusting operations can be executed with the support of the AGB III - testing software and the AGB - test adapter. The description of the AGB III – testing software contains all necessary information.

3.3 Testing software

3.3.1 Program code data

Name of program: AGBDIAG3
Workshop number: D 0000*
Description of version: 1.6.3 *

* The description of version will be given by the manufacturer; the workshop number will be given to the respective country represenation and administerd. The workshop number contains in addition the country code (here "D" for Germany).

Task:

AGBDIAG3 serves as device for the diagnostics of the electronic controller.

Beside the operation test of the actuator it offers support to further operation tests of the AGB III for maintenance or installation works.

Furthermore AGBDIAG3 offers the possibility to read and delete the error memory of the electronic controller. Faults are herewith shown in clear text description.

For the installation and the adjustment of the AGB III to the respective vehicle AGBDIAG3 offers the possibility to change the most important parameter of the system.

The communication takes place via a diagnostics interface according to IS09141 through the AGB - test adapter.

Important!

Before the application is able to read data submitted by the electronic controller, the communication port has to be set in the Main menu, Options, Submenu Program (see p. 3-21).

The individually given workshop number of the customer is being written in the electronic controller for all parameter changes and thus allows to control who has made the last change of a parameter in the connected electronic controller.

System requirements

The following minimum equipment is expected for the operation of the AGBDIAG3:

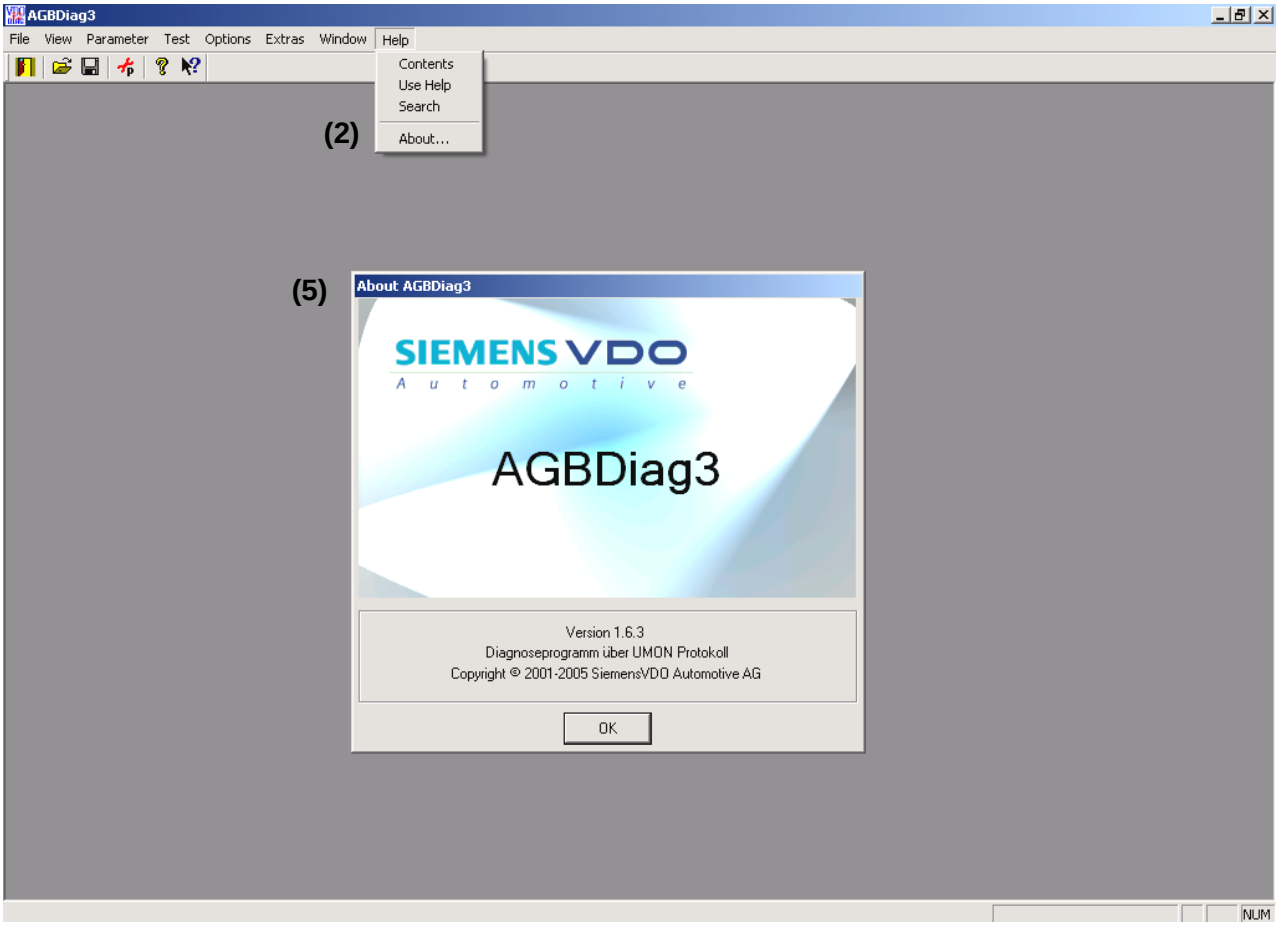
- PC with operating system Windows 98 SE, ME, 2000 or XP
- 650 KB free disc space
- min. 128 MB RAM
- USB or RS232 port
- AGB - Test adapter for the connection of the electronic controller
- Microsoft-mouse (or compatible) installed at 2nd serial port

3.3.2 Description of program

User surface

AGBDiag3 starts with a welcome screen, showing the name of the program. After few seconds the main screen appears. The main screen of AGBDiag3 has the Main Menu Bar **(1)** with Pulldown Menus **(2)**, the Tool Bar **(3)** with shortcuts for the submenus and a Status Bar **(4)**. The Version Number and the Copyright details are shown on the About Screen **(5)**, which can be reached from the Help Menu **(2)**.

Typical AGBDiag3 Main Window: Main Menu **Help**, Submenu **About**.



3.3.2 Descripton of program

Operation

Call-in of AGBDIAG3:
The Programm AGBDIAG3 starts with double klick on the program name.

Program call-in: AGBDIAG3.exe

Exit from the welcome screen:
The welcome screen of AGBDIAG3 shuts down automatically after 3 seconds.

Selection from the menu (mouse operated)

Mouse operating
All menues could be opened with the mouse arrow.

Dialogue with the user
The Information, in- and output windows are consiting of predifined posibitities or numerical input windows. The predifined posibilitie are choosing with the mouse and klick on the parameter.
In the numerical windows the values are changed by direct input with the buttons 0 to 9. Wrong inputs are displayed in a separate window.

Using of changed values in the controller
Changed values will be used from the controller after sending the data to the ECU and an **ignition reset.**

Exit the program
With going to the menue Exit the programm will be closed.

3.3.3 Description of the menu items for AGB III

Main menu File

Submenu "Load all Parameters"
Load an existing AGB III parameter file from the PC.

Submenu "Save all Parameters"
Save the AGB III parameter file to the PC.

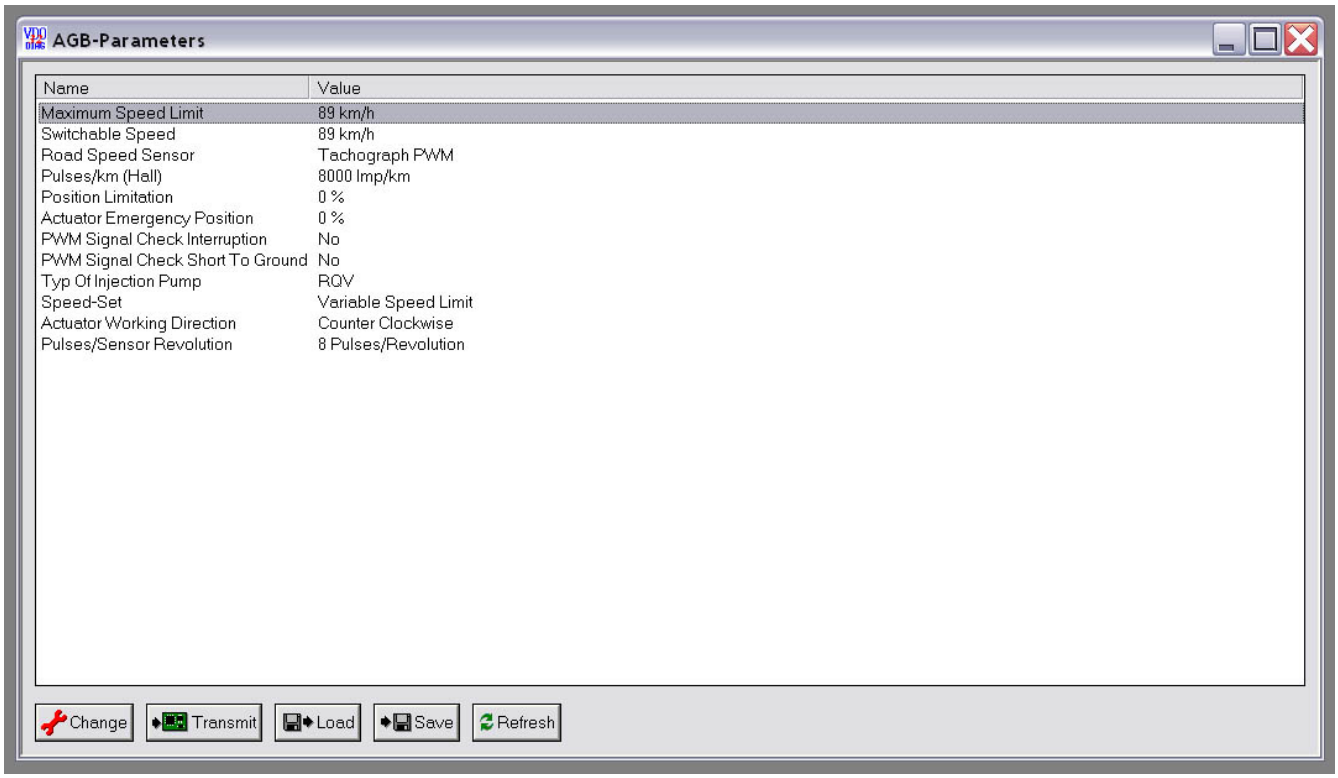
Submenu "Exit"
Quit the program.

Main menu View

Show or hide Tool- and Status Bar

Main menu Parameter

AGB III AGBDIAG3-screen: Main menu **Parameter**, Submenu **AGB Parameters**



Main menu Parameter

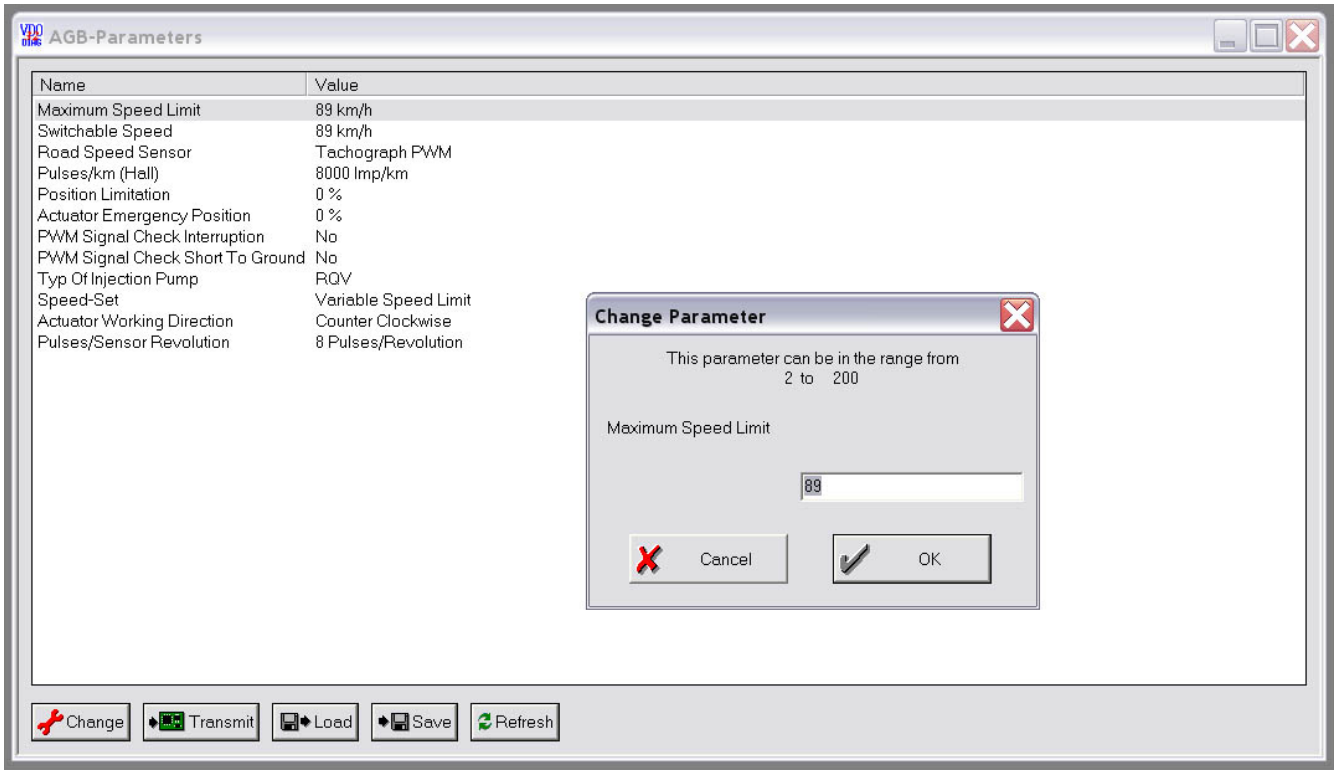
Changes could be mad with a double klick on the choosed line.

To store the parameter it has to be transmit to ECU and make an ignition reset.

Submenu "Maximum Speed Limit" v_{set}

The max. speed limit v_{set} which shall regulate the electronic controller can directly be entered within the range from 2 – 200 km/h in steps of 0.1 kmh.

AGB III AGBDIAG3-screen:
Main menu **Parameter**, Submenu **Change "Maximum Speed Limit" v_{set}**



Main menu Parameter

Submenu "Pulses/km (Hall)" (not with PWM Signal: C3/B7)
Hall sender direkt signal from gearbox sender (the pulses per km must be in range of 2.400 to 250.000 pulses per km). The sum of pulses/km x max. speed must be < 5.000.000.

Submenu "Position Limitation" (Ground to Pin 6)
Here a position limit of the actuator can be preprogrammed (0% no limitation 100% full limitation) in steps of 0.1%.
The actuator will be driven to the position as soon as Pin no.6 has a ground signal.

Submenu "Actuator Emergency Position"
The emergency position of the actuator can here directly be entered within the range from 0% (no limitation) - 100% (full limitation) limit in steps of 1%. This actuator emergency position take place of any fault of the speed signal by using the PWM signal from the tachograph (C3 or B/).

Submenu "PWM Signal Check Interruption" Interruption/ Short to plus and short to ground
The monitoring of the PWM signal from the tachograph can be monitored on to different variants:

* Interruption/ Short to U_{bat}
* Short to ground

The fault recognition activates a position limitation of the activator (see submenu "Actuator Emergency Position").

Submenu "Type Of Injection Pump"
The injection pump used in the AGB II - system can be adjusted here. At present two different types can be selected:
* RQ-injection pump
* RQV-injection pump
* SPEC Special Modulator (customer specific value)

By operating this menu the regulation parameter set of the selected injection pump in the electronic controller is being stored.

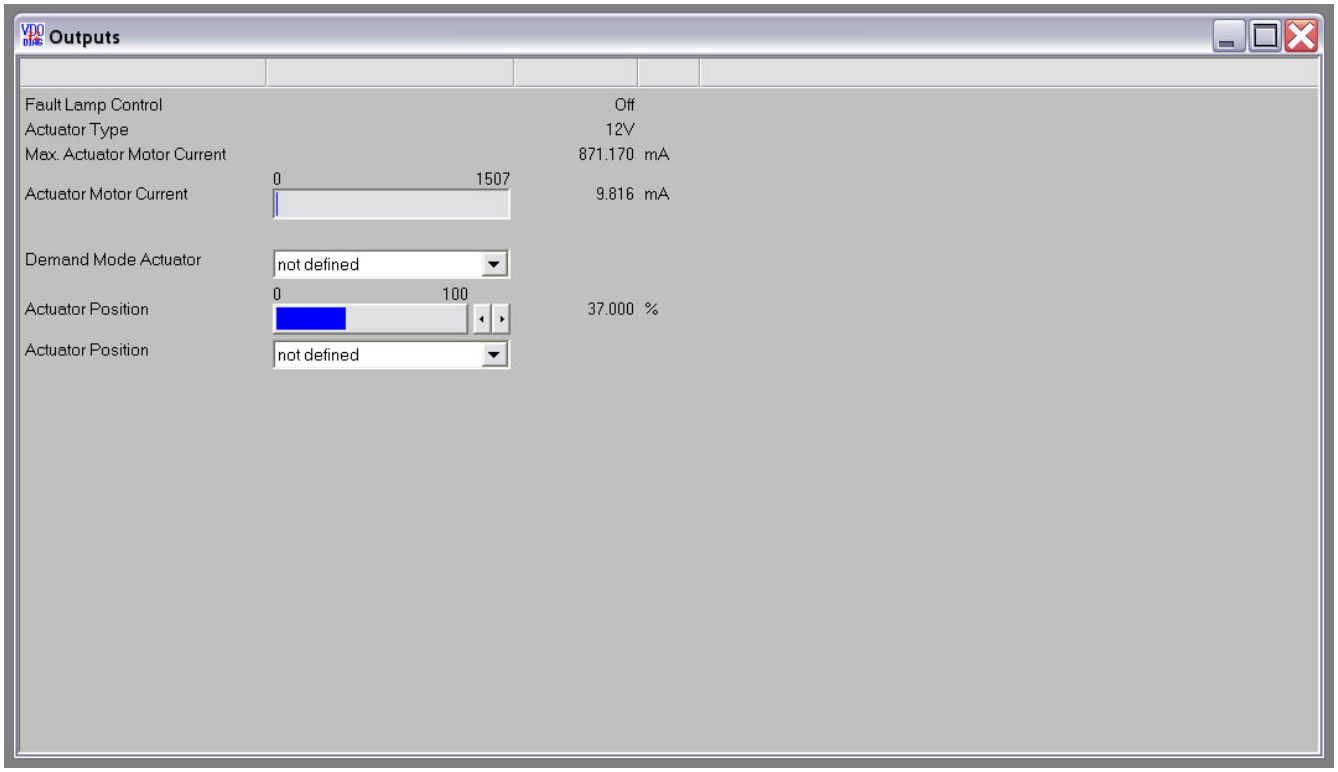
Submenu "Speed-Set"
The functionality of the input no. 5 can be fixed with this programming. There are two posibilities:
Variable Speed Limit
Switchable Speed

Submenu "Actuator Working Direction"
The working direction of the actuator is defined.
* Counter clockwise
  This is the default setting for a usual AGB III installation
* Clockwise

Submenu "Pulses/ Sensor Revolution"
Here there could be choosen the pulses/ sensor revelution. This is necessary to middle the speed value. The standard programming is 8 pulses/ revelution.

Submenu "Outputs"
The window outputs showing the fault light status and used actuator current.
The vehicle condition has to be a stillstanding vehicle (no speed signal). With the manual operation mode, the actuator can be driven between 0% and 100% limitation.

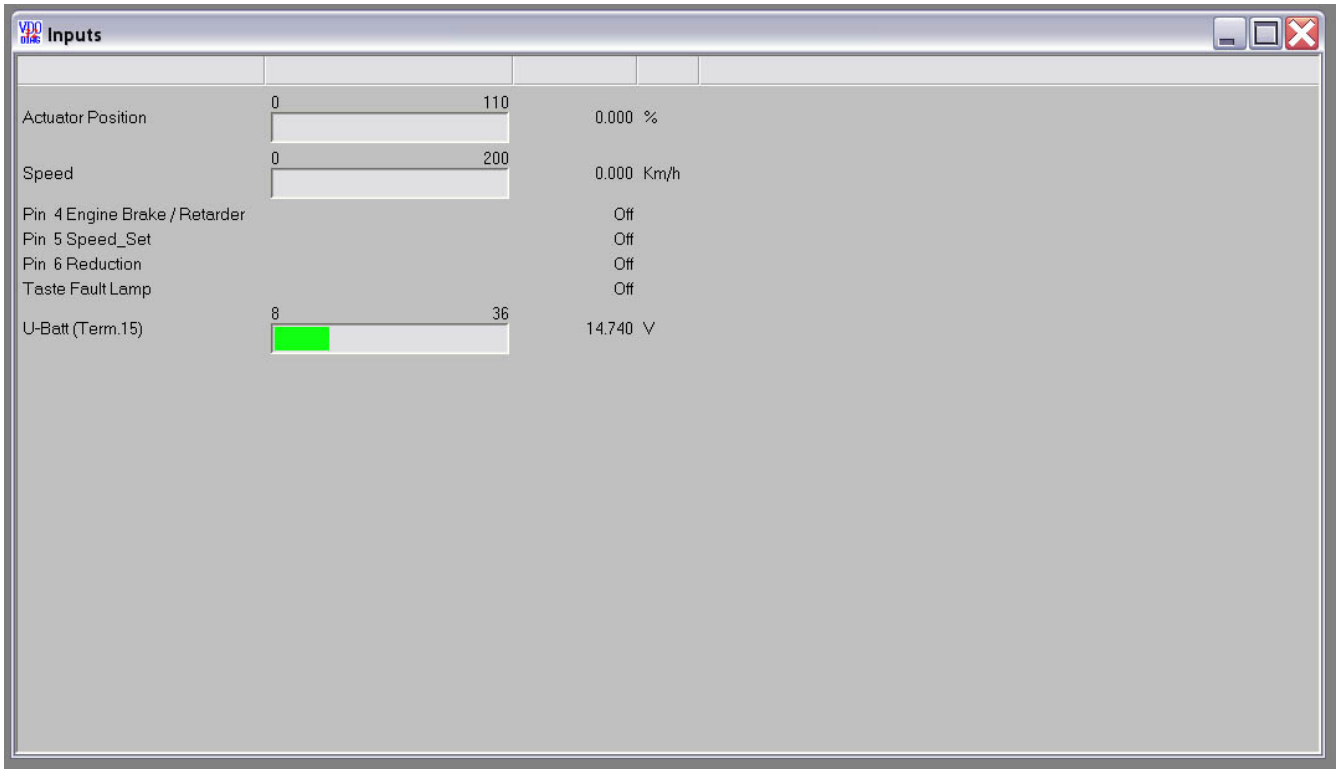
AGB III AGBDIAG3-screen: Main menu **Test**, Submenu "**Outputs"**



Main menu Test

Submenu "Inputs"
Here the connection of the switching inputs and the signal inputs of the electronic controller can be tested. According to the switching and potential the display of the respective pins are shown with "Off" or "On".

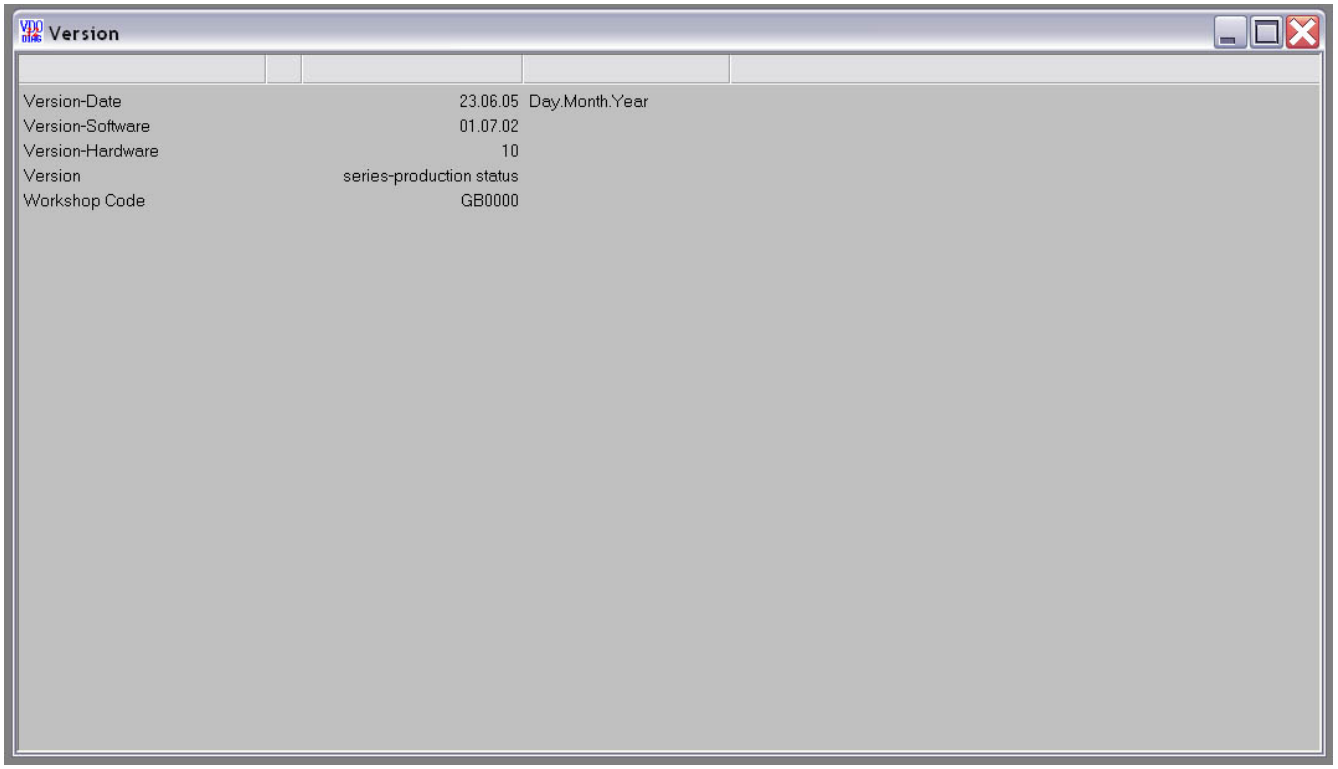
AGB III AGBDIAG3-screen: Main menu **Test**, Submenu "**Inputs"**



Main menu Test

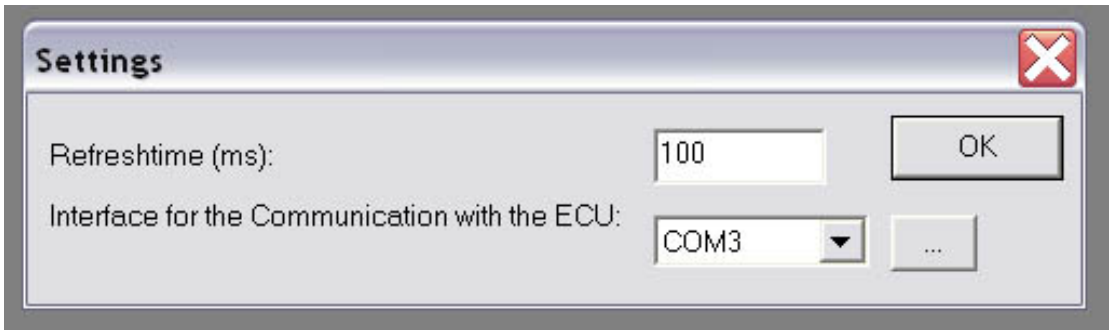
Submenu "Version"
The controller version and the workhop number which has done the last change is displayed in this window.

AGB III AGBDIAG3-screen: Main menu **Test**, Submenu "**Version"**



Main menu Options

Submenu "Program"
Set of the communication port from the PC (in connection with the AGB III controller).
AGB III AGBDIAG3-screen: Main menu **Options**, Submenu "**Program"**

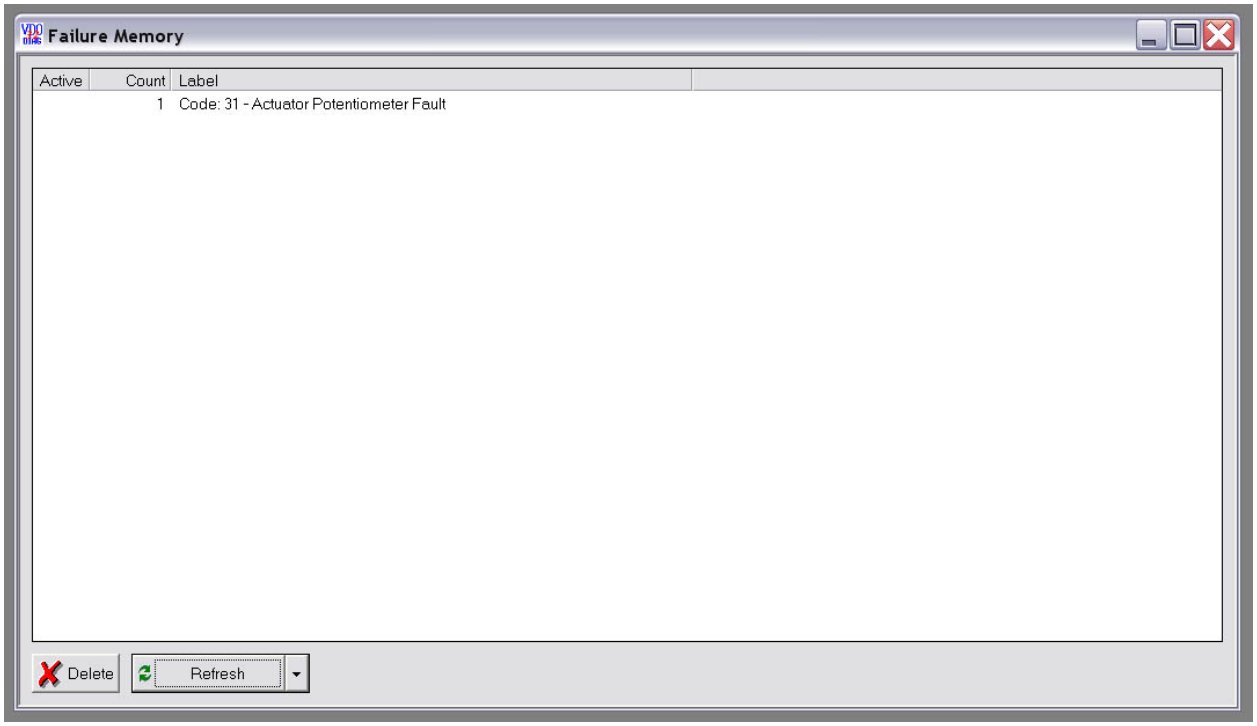


Submenu "Font"
The textfont for the displayed submenus can be selected.

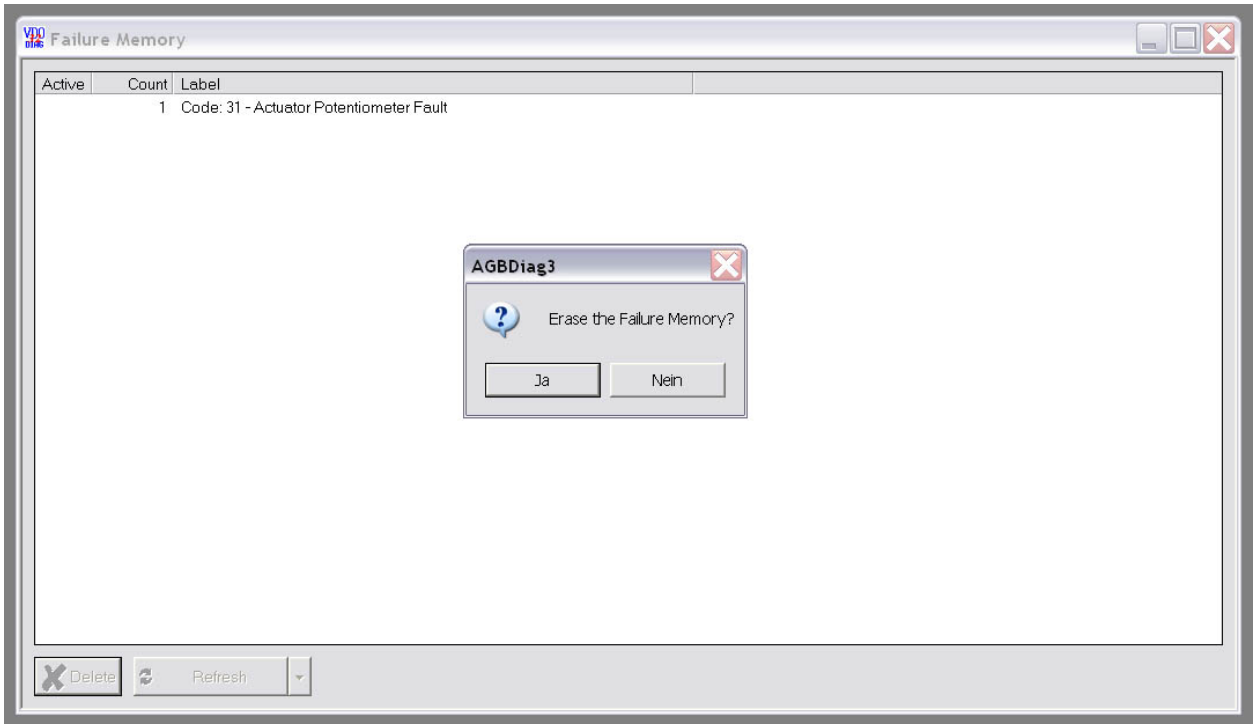
Main menu Extras

Submenu "Failure Memory"
All faults which are stored in the AGB III controller are diplayed in this window. Actua faults are displayed with the "√". The Controller stores also the count the faults (max.15 invents). With the Delete button the memory could be ereased.

AGB III AGBDIAG3-screen: Main menu **Extras**, Submenu "**Failure Memory"**



Submenu "Failure Memory" Delete
The faults within the ECU will be deleting. It will be displayed if there are actual faults in the system.



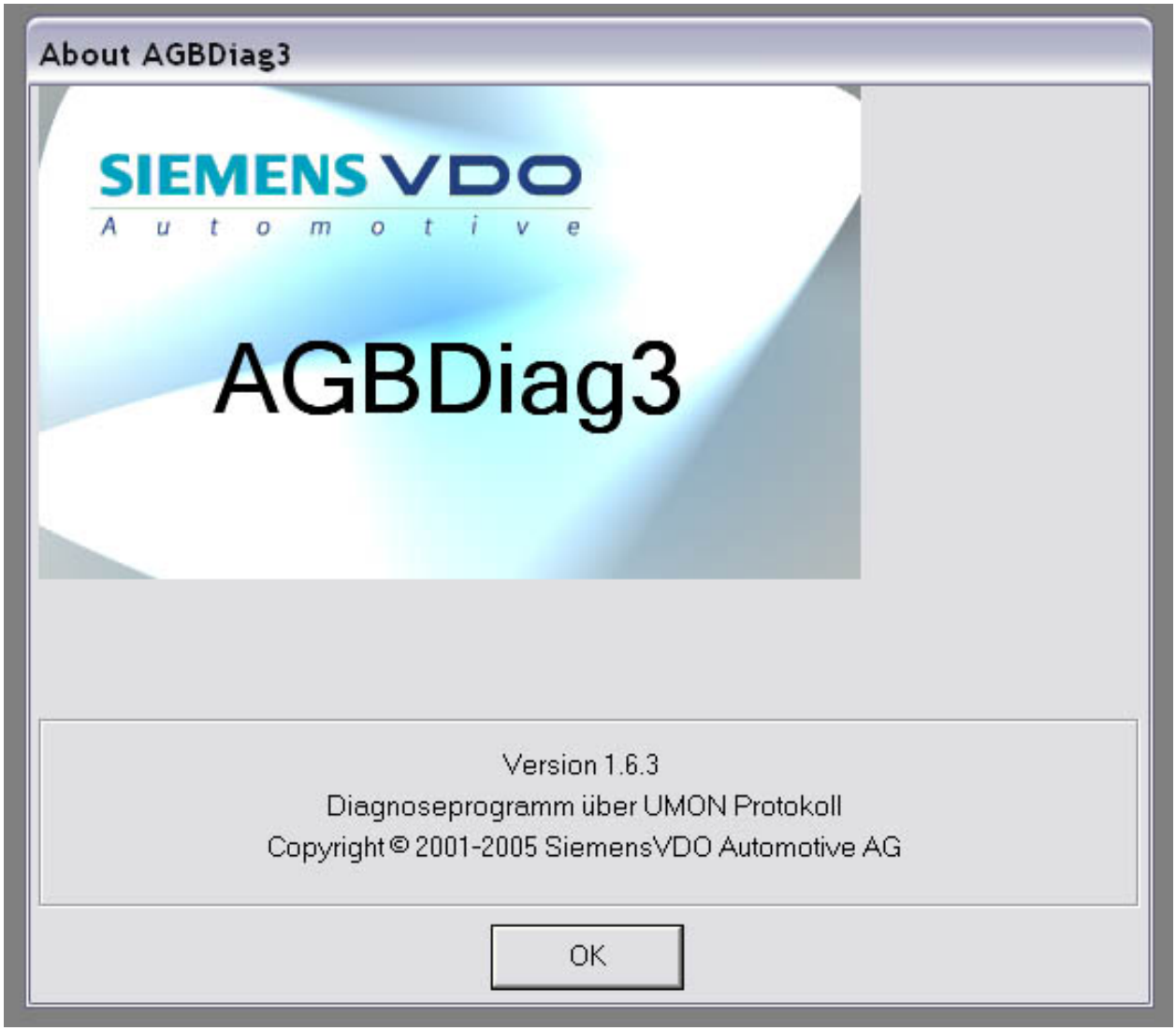
Main menu Window

Here the adjustment of the windows could be fixed.

Main menu Help

Only submenu "About..." can be chosen.

AGB III AGBDIAG3-screen: Main menu **Help**, Submenu "**About...**" (Software version information)



Product Manual AGB III

4. Delivery volume, spare parts, accessories AGB III

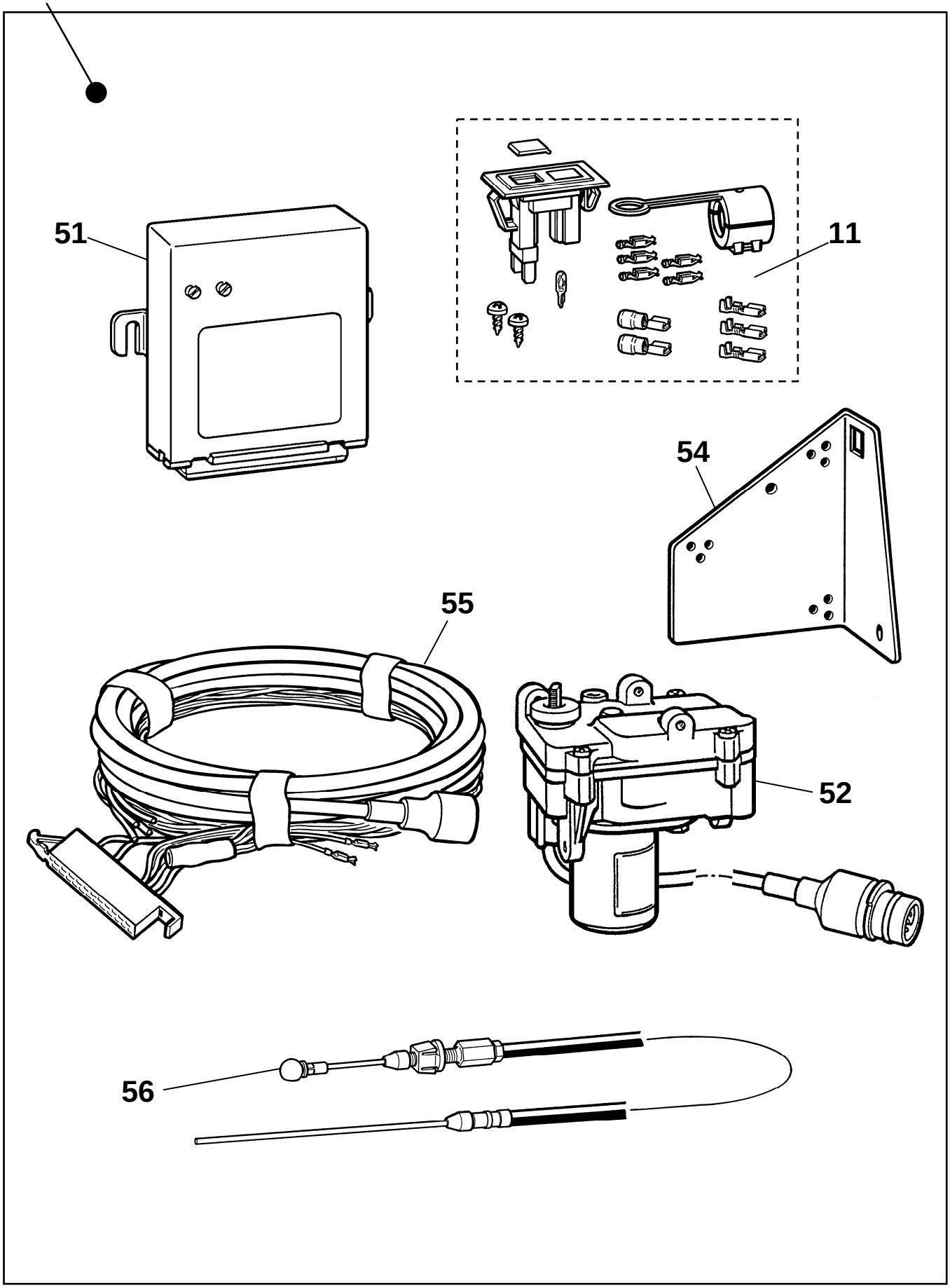
Contents

AGB III – Plant 24 Volt, 85 km/h	**2**
AGB III – Plant 12 Volt, 85 km/h	**3**
Electro kit	**4**
Fitting set Override element	**5**
Fitting set Scissors system I	**6**
Fitting set Scissors system II A	**7**
Fitting set Scissors system II B	**8**
Fitting set Scissors system I MB	**9**
Fitting set Scissors system II MB	**10**
Basic kit for fitting sets AGB III	**11**
AGB – Test adapter with interface	**12**
Accessories	**13**
Order Numbers	**14**

Note: Parts on pages 4-2 to 4-13 are indicated with reference numbers. For designations and order numbers see pages 4-14 to 4-16.

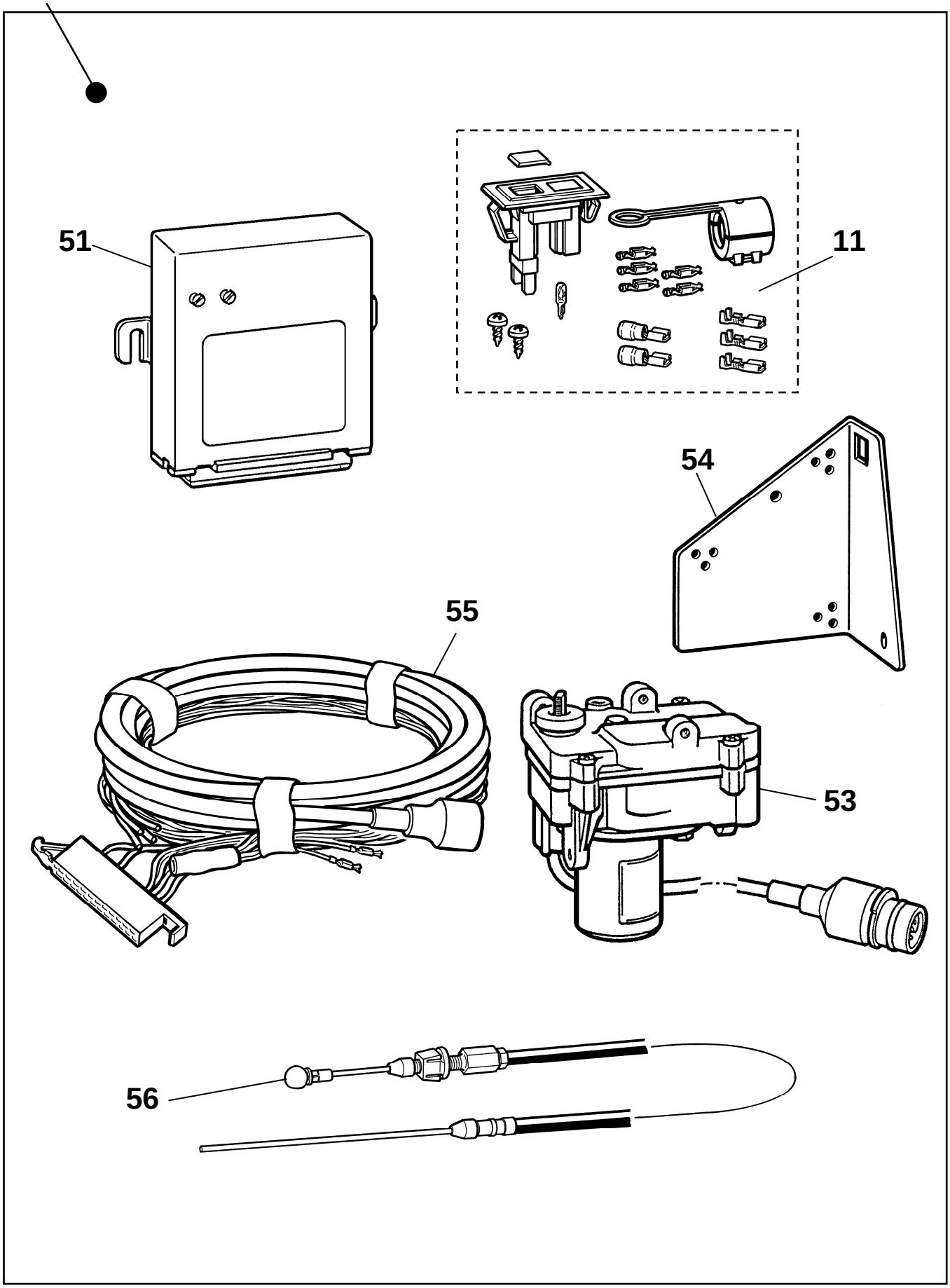
AGB III – Plant 24 Volt, 85 km/h

Complete 1



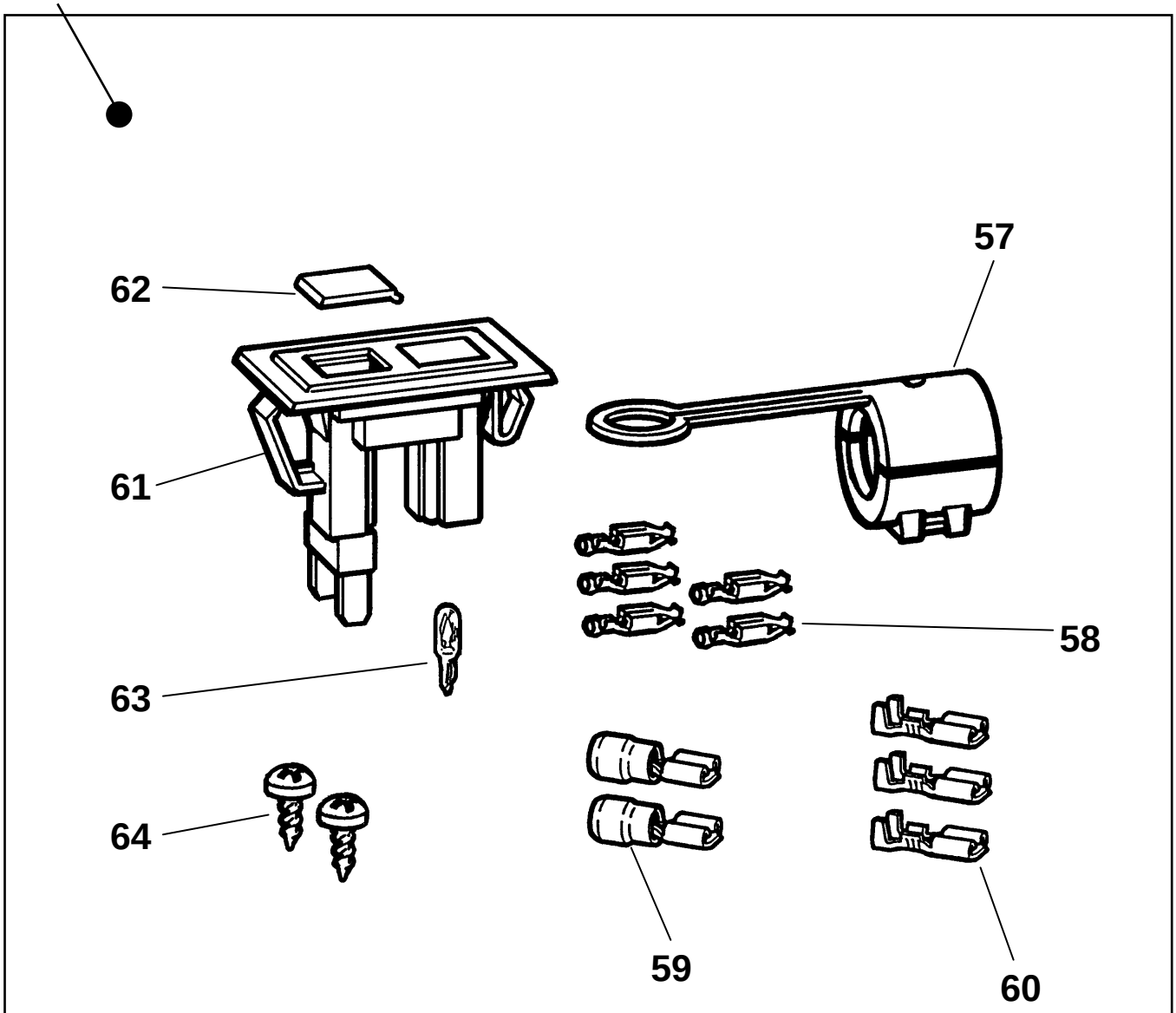
AGB III – Plant 12 Volt, 85 km/h

Complete 2



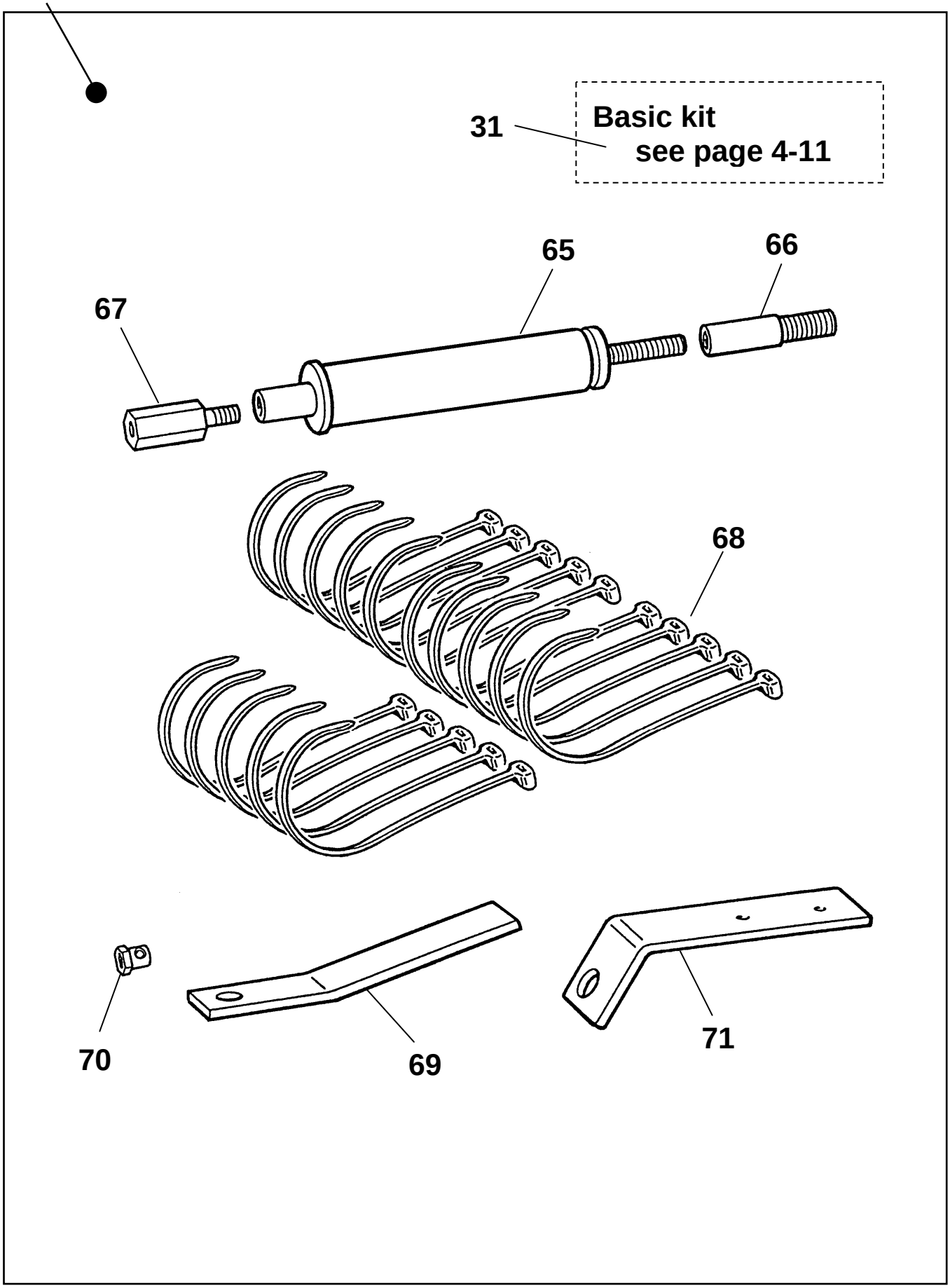
Electro kit

Complete 11



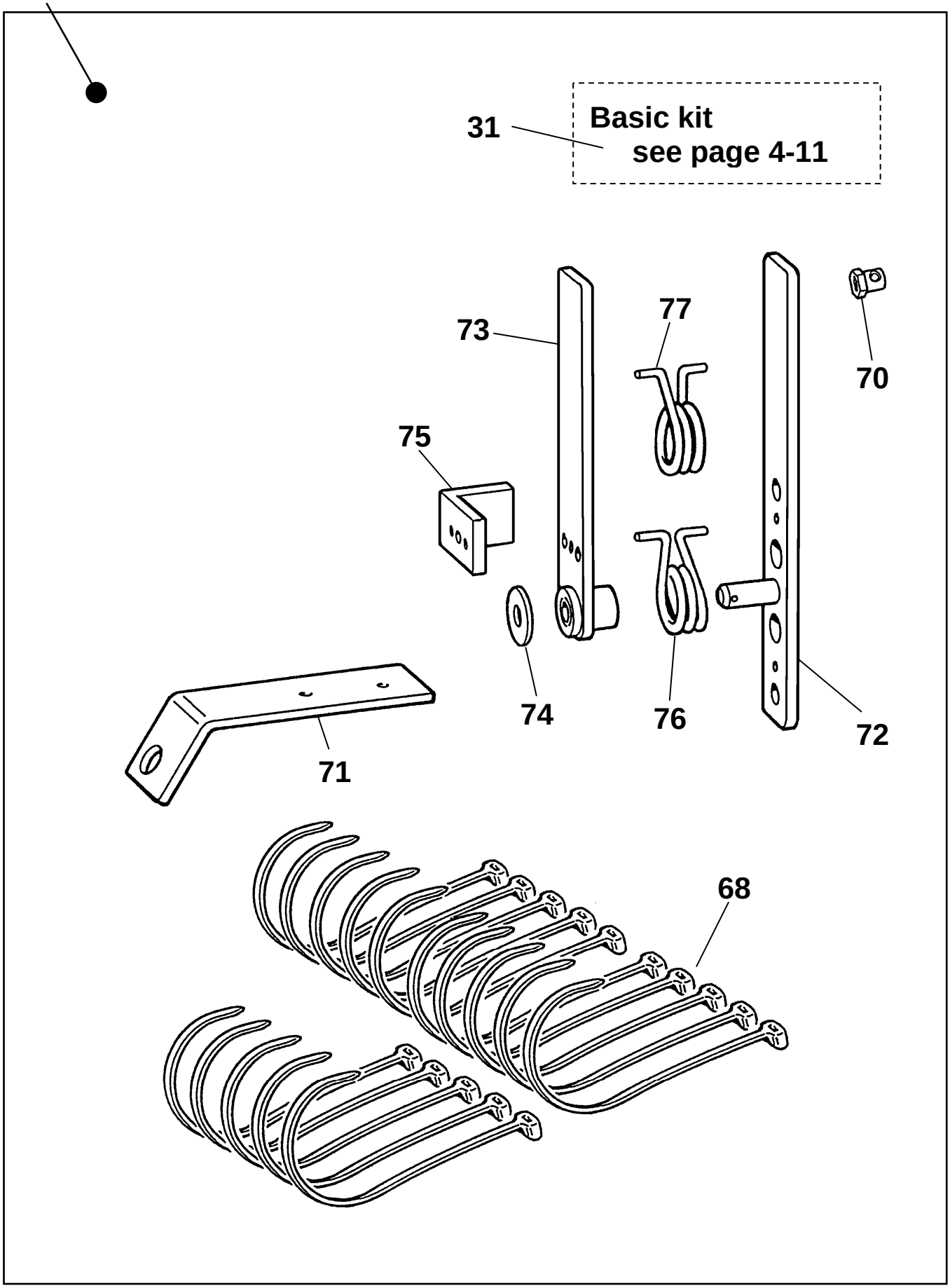
Fitting set Override element

Complete 21



Fitting set Scissors system I

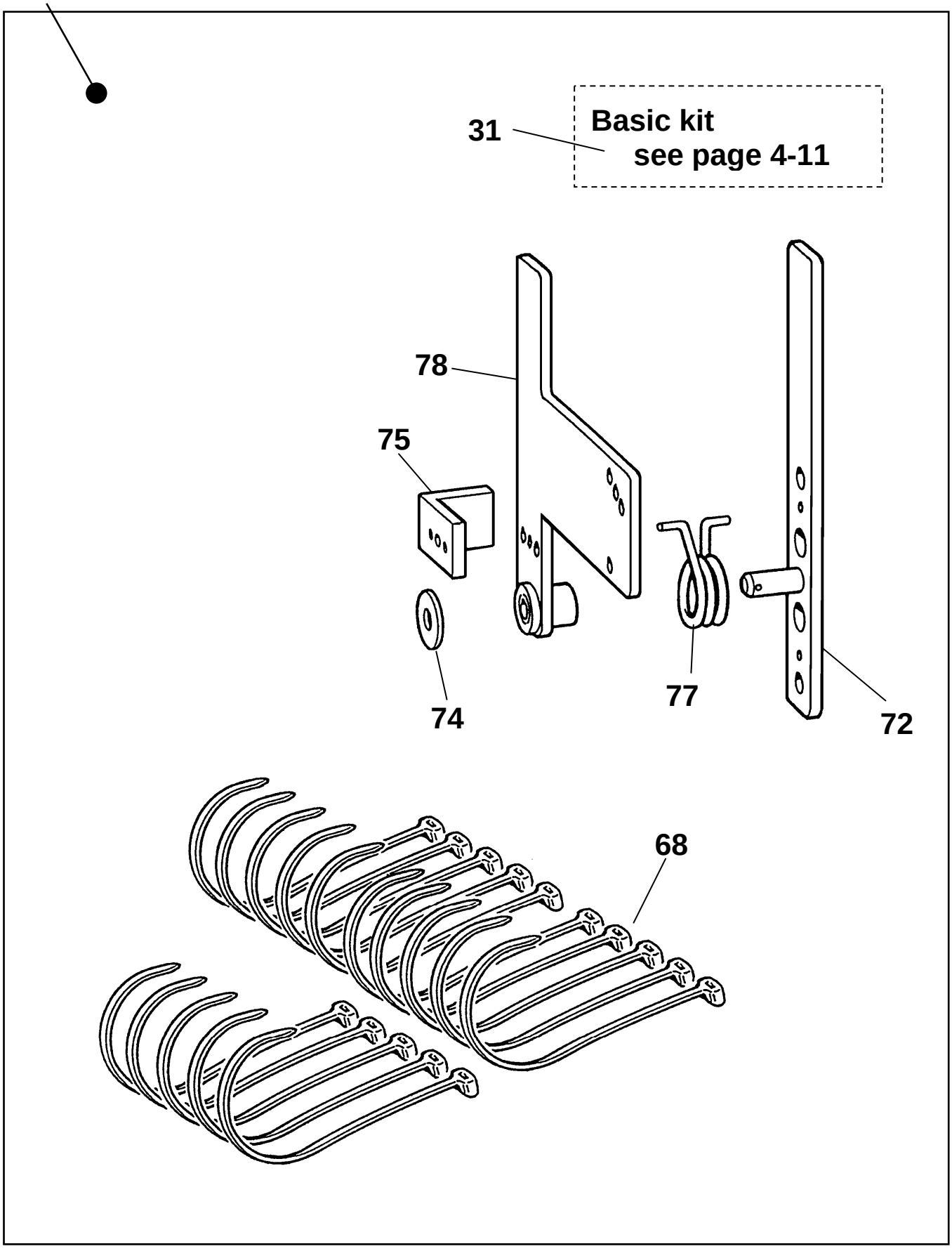
Complete 22



Fitting set Scissors system II A

Torsion Spring: right-hand lapped

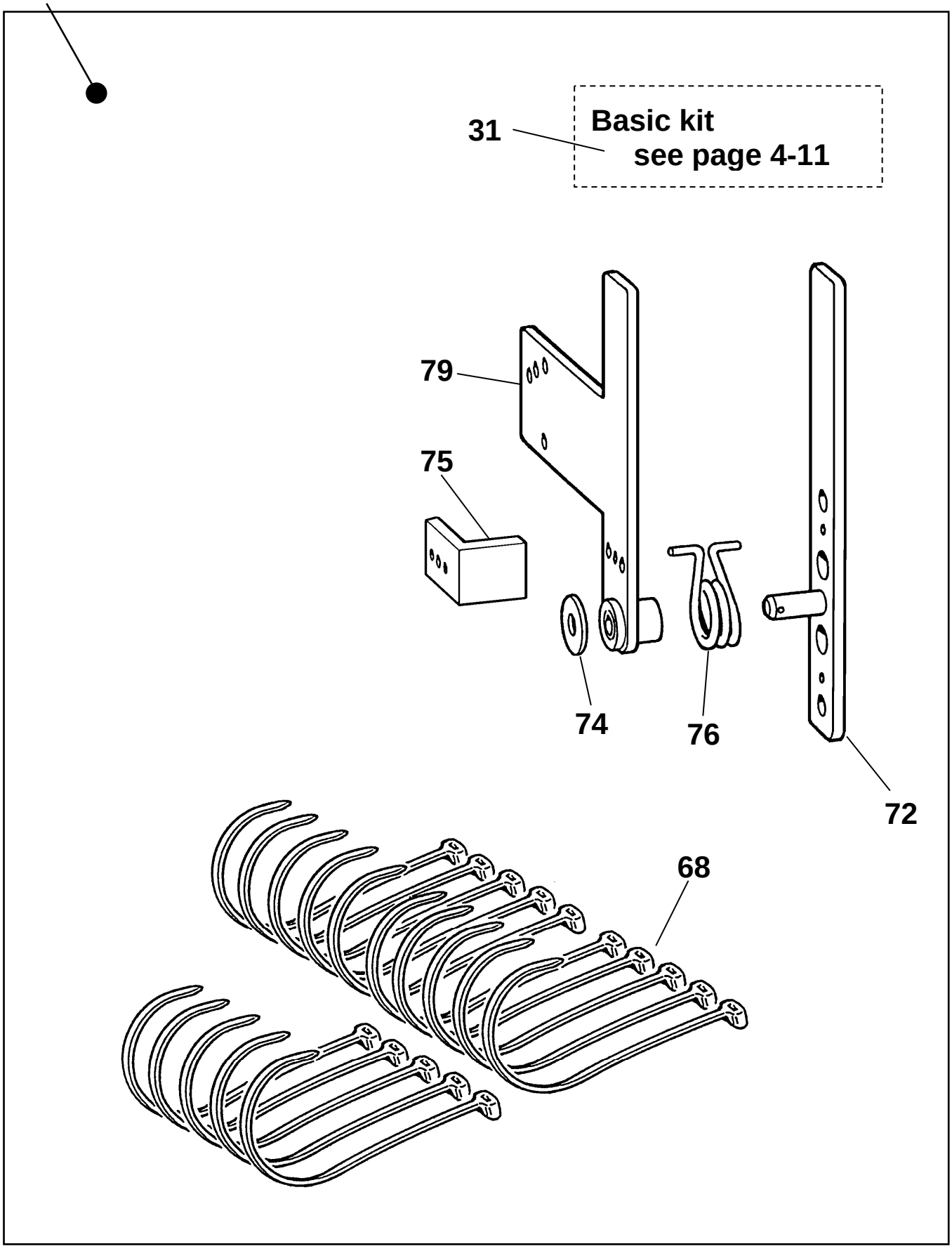
Complete 23



Fitting set Scissors system II B

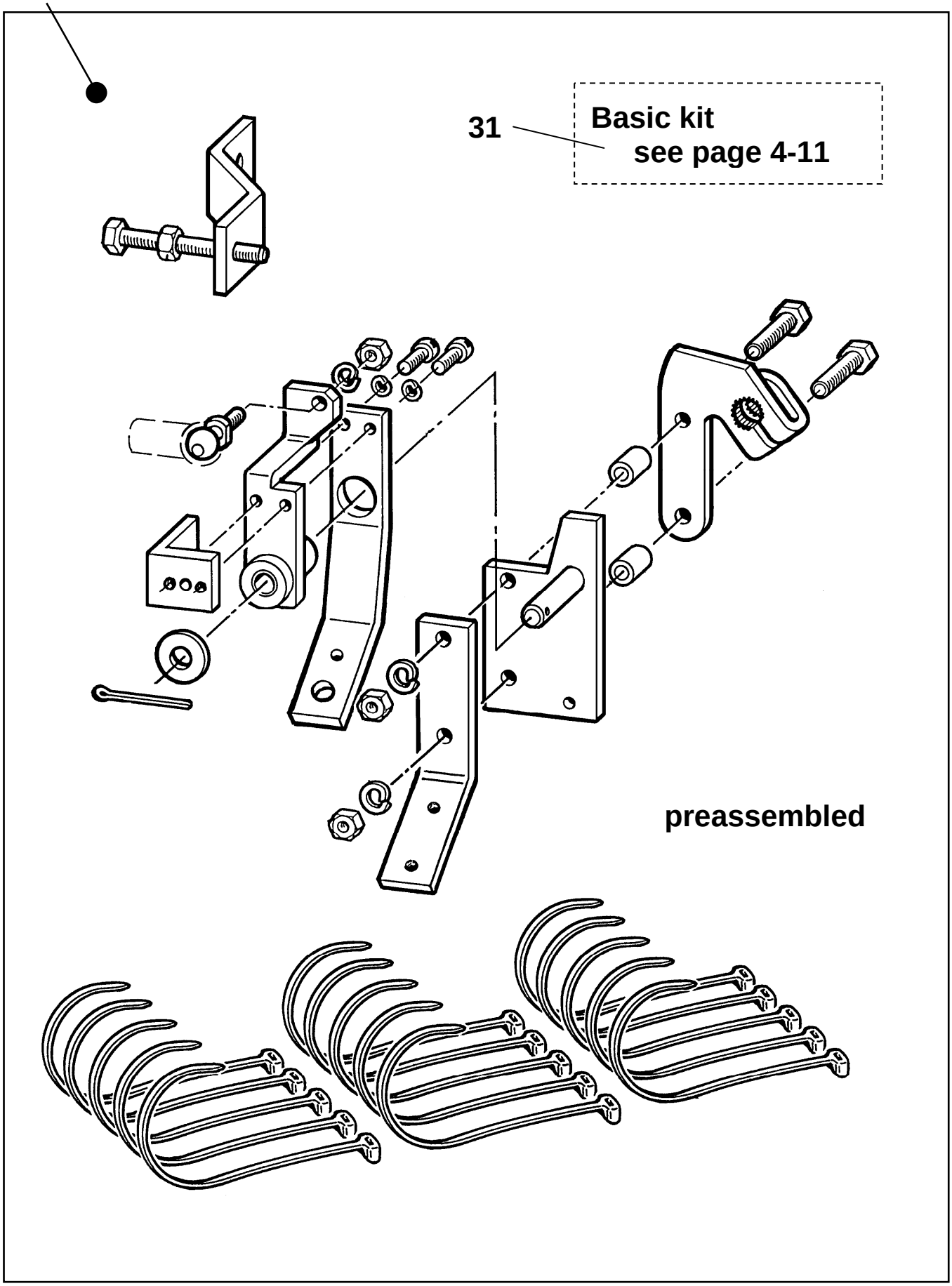
Torsion Spring: left-hand lapped

Complete 24



Fitting set Scissors system I MB

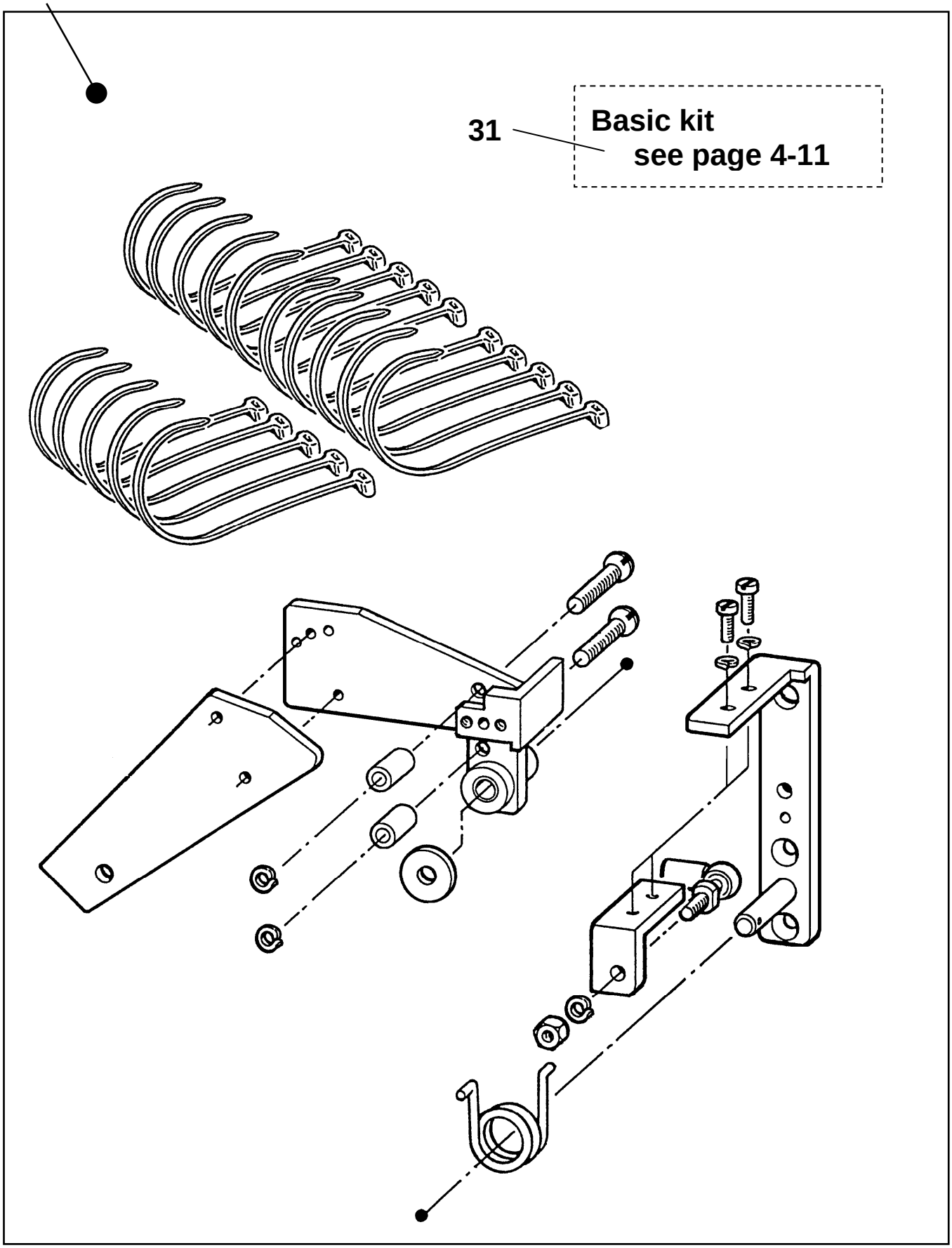
Complete 25



Fitting set Scissors system II MB

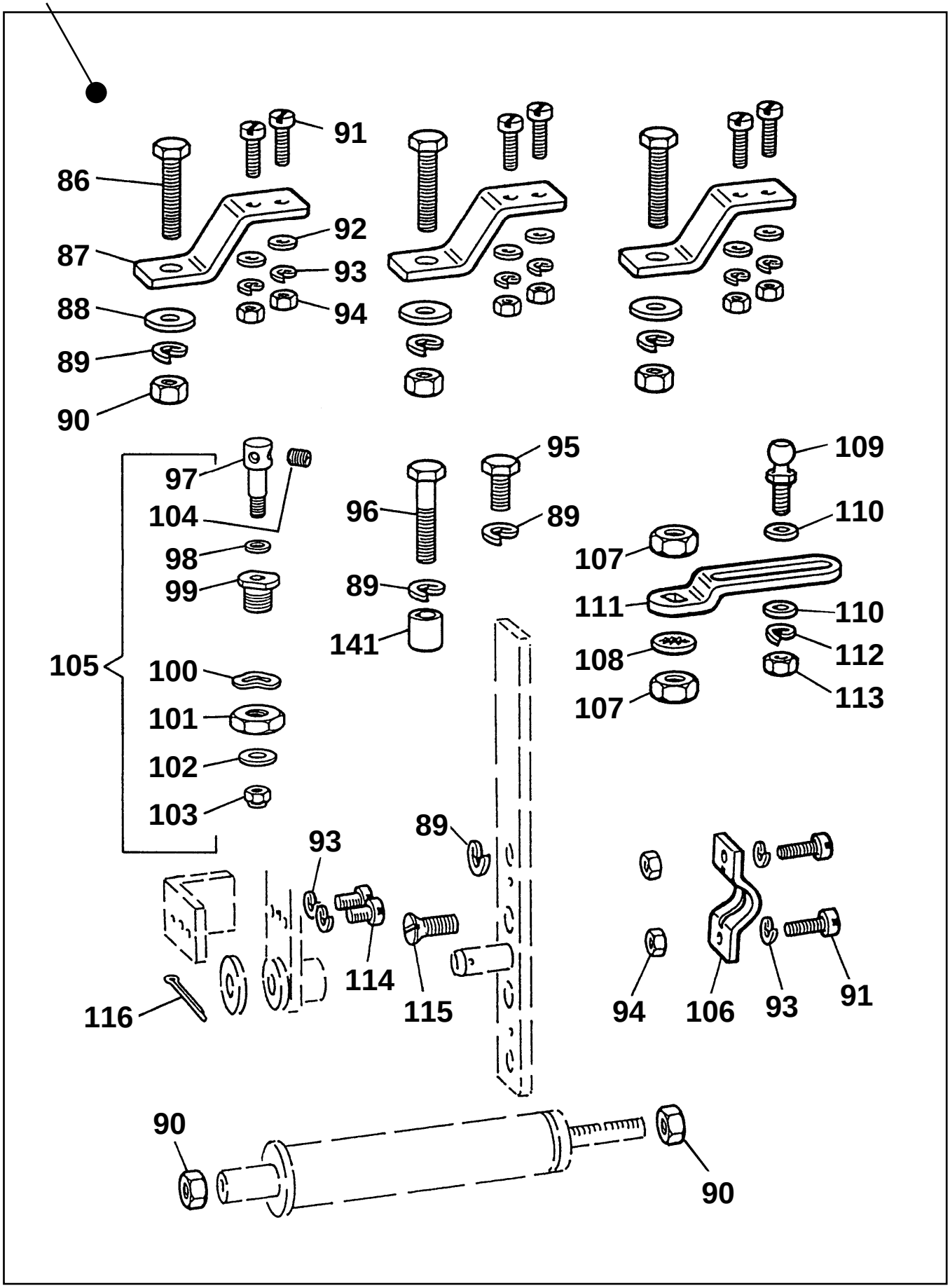
Torsion Spring: left-hand lapped

Complete 26



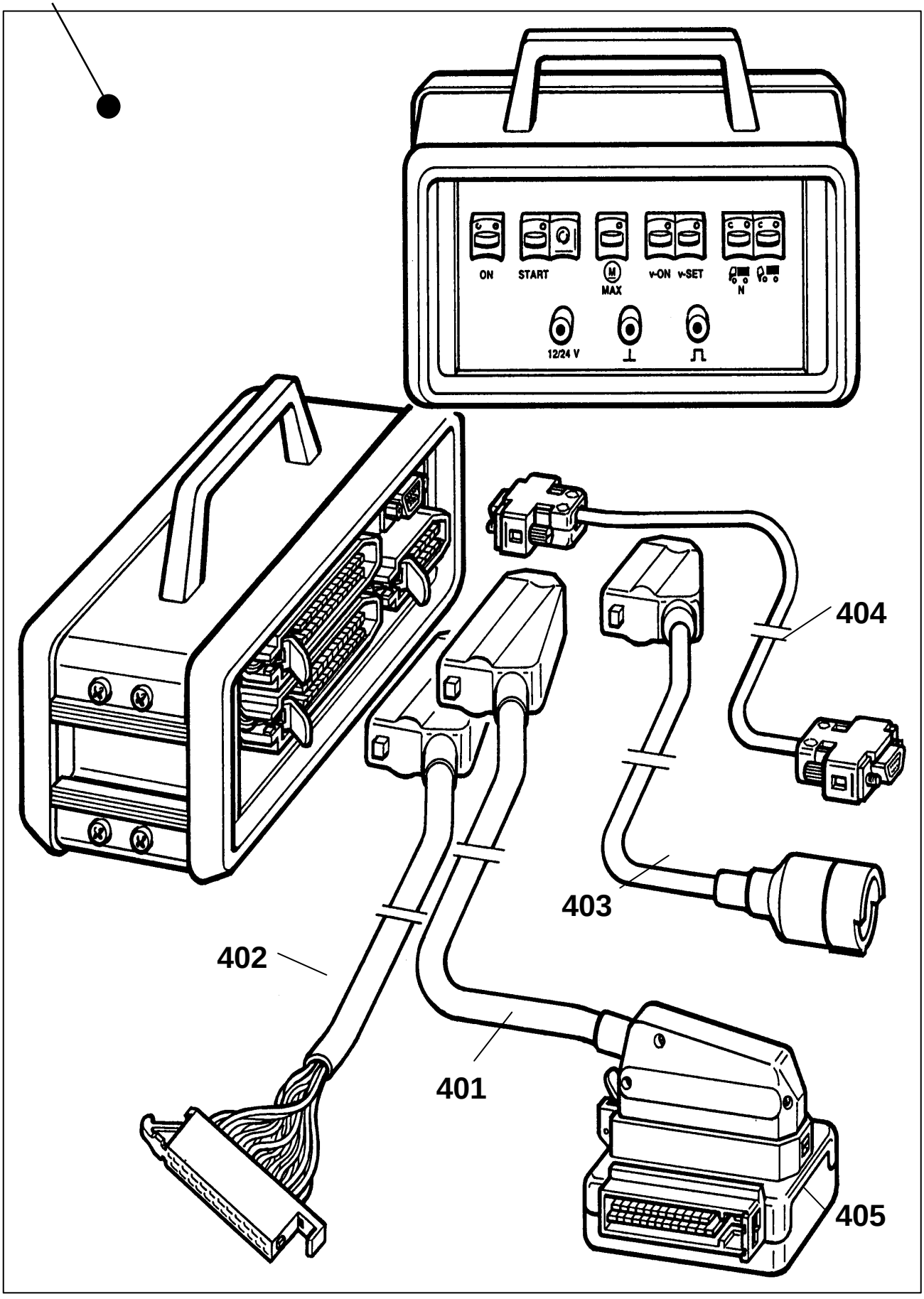
Basic kit for fitting sets AGB III

Complete 31

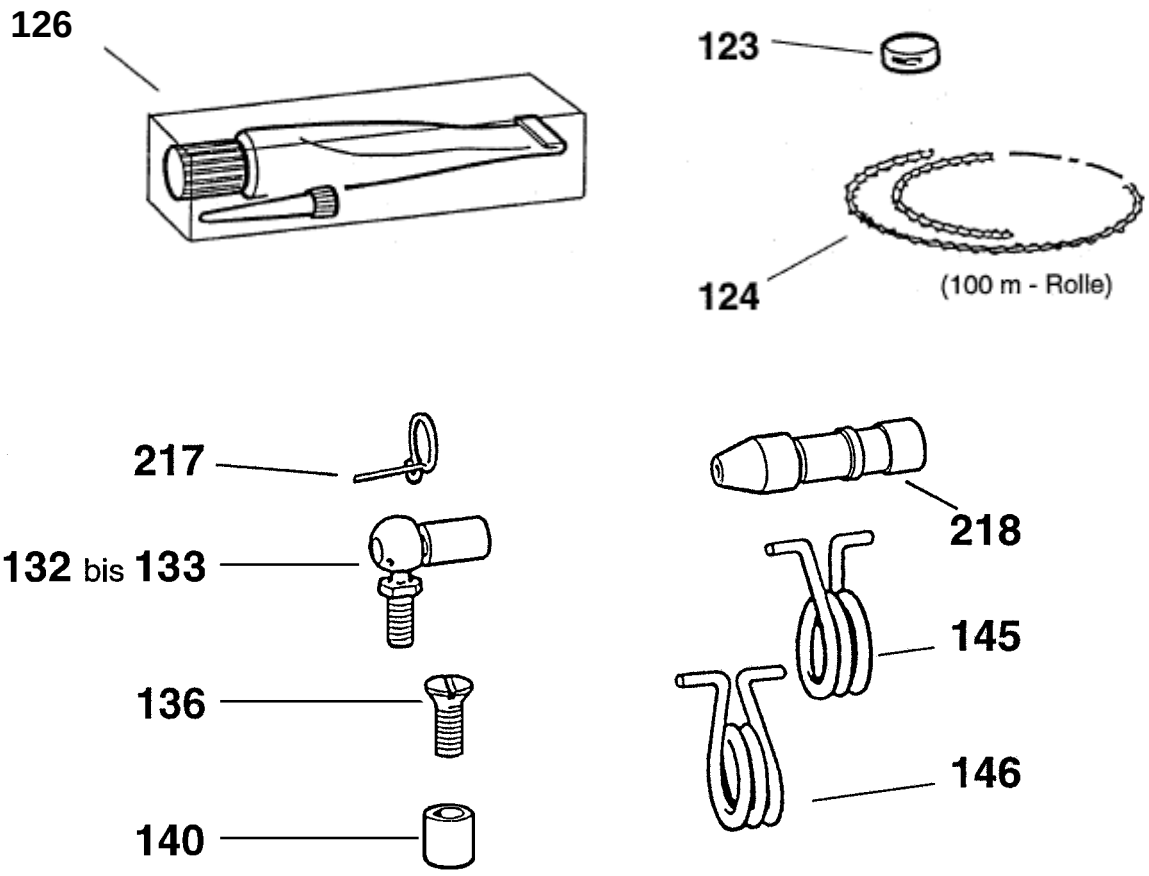


AGB – Test adapter with interface

Complete 41



Accessories



Product Manual AGB III
4. Delivery volume, spare parts, accessories AGB III

Order Numbers

Recommendation: The parts marked with (*) should be in stock in corresponding piece number.
Example: (*2) = 2 pieces.

Ref. No.	Description		Order No. AGB III
1	AGB III – Plant 24V, 85 km/h		X10-397-109-132
2	AGB III - Plant 12 V, 85 km/h		X10-397-109-131
11	Electro kit		X39-397-109-027
21	Fitting set Überhubelement		X39-397-109-048
22	Fitting set Scissors system I		X39-397-109-049
23	Fitting set Scissors system II A		X39-397-109-050
24	Fitting set Scissors system II B		X39-397-109-051
25	Fitting set Scissors system I MB		X39-397-109-084
26	Fitting set Scissors system II MB		X39-397-109-075
31	Basic kit for fitting sets AGB II		X39-397-109-062
41	Test adapter with interface		X12-397-034-001
51	Electronic controller	(*1)	A2C53091782
52	Electrical actuator, 24 V	(*1)	408-422-001-014 G
53	Electrical actuator, 12 V		408-221-001-001 P
54	Holder		X11-397-001-033
55	Wiring harness	(*1)	X39-397-109-030
56	Bowden cable	(*1)	X39-397-109-047
57	Fuse clamp	(*1)	81 378 001
58	Receptacle	(*20)	X11-397-109-004
59	Flat receptacle, isolated, 6.3		
60	Flat receptacle, 6.3		
61	Control lamp, 24 V	(*1)	X11-397-109-019
62	Symbol plate v–max	(*2)	X11-397-109-020
63	Bulb, 12 V, 1.2 W, DIN 72601, W 5/1.2		
64	Cylinder parker screw, 4.2 x 9.5 DIN 7981		
65	Override element	(*1)	X39-397-109-006
66	Reducer, M6 – M8	(*4)	X39-397-109-008
67	Reducer, M8 – M6	(*4)	X39-397-109-007
68	Cable binder		
69	Holder (Full load)		X11-397-109-061
70	Clamp nipple	(*2)	X11-397-109-058
71	Holder (Outer cable retaining bracket)		X11-397-109-002
72	Add. Holder	(*1)	X39-397-109-045
73	Add. turning lever	(*1)	X39-397-109-044
74	Disc, dia. 20 x dia. 8 x 0.5	(*5)	X11-397-109-018

Order Numbers

Recommendation: The parts marked with (*) should be in stock in corresponding piece number.
Example: (*2) = 2 pieces.

Ref. No.	Description		Order No. AGB III
75	Back square	(*1)	X11-397-109-017
76	Torsion Spring dia. 3, left-hand lapped	(*1)	X11-397-109-012
77	Torsion Spring dia. 3, right-hand lapped	(*1)	X11-397-109-011
78	Add. Turning lever A	(*1)	X39-397-109-028
79	Add. Turning lever B	(*1)	X39-397-109-029
86	Hexagon-Screw, M6 x 30 DIN 933-8.8		X11-397-109-054
87	Holding square		X11-397-109-025
88	Disc, A6.4 DIN 9021		
89	Split washer, A6 DIN 127		
90	Hexagon-Screw nut, M6 DIN 934		
91	Cylinder Screw, M4 x 12 DIN 84		
92	Disc, A4,3 DIN 125		
93	Split washer, A4 DIN 127		
94	Hexagon-Screw nut, M4 DIN 934		
95	Hexagon-Screw, M6 x 10 DIN 933-8.8		X11-397-109-055
96	Hexagon screw with collar, M6 x 30 DIN 933-8.8		X11-397-109-056
97	Linking pin	(*1)	X11-397-109-059
98	Disc, dia. 10 x dia. 6.7 x 0.32	(*10)	14 016 111
99	Socket	(*1)	X11-397-109-025
100	Conical spring washer, A 10 DIN 137		X11-397-109-028
101	Hexagon screw nut, flat, M10 DIN 439		X11-397-109-027
102	Disc, dia. 14 x dia. 5.2 x 1	(*1)	14 016 226-1141
103	Hexagon screw nut, self-securing, M5		X39-397-106-115
104	Setscrew, with cone M5 x 6 DIN 915 / ISO 4028		X11-397-109-060
105	Add. linking pin	(*1)	X39-397-109-052
106	Clamp		X11-397-001-030
107	Hexagon screw nut, M8 DIN 934	(*2)	4 079 001-1161
108	Tooth lock washer, 8.4 DIN 6797	(*1)	4 095 001-1162
109	Ball stud	(*2)	X11-397-109-057
110	Disc, A 5.3 DIN 125		
111	Linking lever	(*1)	X11-397-001-031
112	Split washer, A5 DIN 127		
113	Hexagon screw nut, M5 DIN 934		
114	Cylinder. screw, M4 x 8 DIN 84		
115	Countersunk screw, M6 x 16 DIN 963	(*5)	4 003 037
116	Split-pin, 2 x 25 DIN 94		
117	Crimp connector	(*20)	X39-397-106-143

Order Numbers

Recommendation: The parts marked with (*) should be in stock in corresponding piece number.
Example: (*2) = 2 pieces.

Ref. No.	Description		Order No. AGB III
123	Plastic seal		81 129 003
124	Sealing wire, 100 m-roll		X11-000-002-027
126	Safety varnish	(*1)	X11-000-002-216
132	Angle joint, 8	(*5)	X11-397-109-043
133	Angle joint, 10	(*5)	X11-397-109-044
136	Countersunk screw, M6 x 20 DIN 963	(*5)	X11-397-109-047
140	Distance socket, dia. 6 x 5	(*5)	X11-397-109-034
145	Torsion Spring dia. 3,2, right-hand lapped	(*4)	X11-397-109-022
146	Torsion Spring dia. 3,2, left-hand lapped	(*4)	X11-397-109-023
217	Retaining clamp (dia. 7 inside)		X11.397-109-126
218	Sealing (bowden cable)		X11.397-109-128
401	Connecting cable 1 (cable harness)		X12-397-033-002
402	Connecting cable 2 (electron. controller)		X12-397-033-003
403	Connecting cable 3 (AGB actuator)		X12-397-033-004
404	Connecting cable 4 (PC)		X12-397-034-002
405	Adapter connector (cable harness)		X12-397-033-005

Elektrisches Stellglied

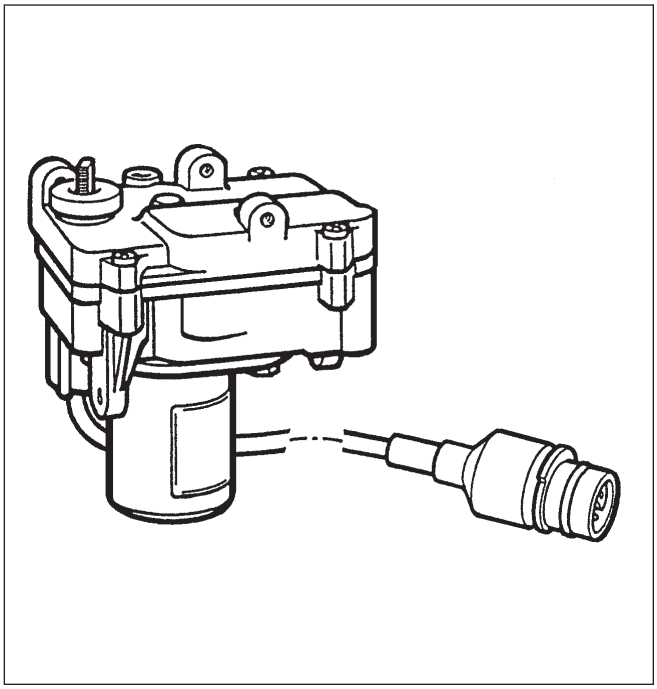
Systemkomponente für AGB II, AGB III

Beschreibung:

Das elektrische Stellglied wurde von VDO zur Betätigung des Einspritzpumpenhebels von Dieselmotoren in Zusammenhang mit elektronischen VDO Reglern konzipiert.
Die elektrische Ansteuerung des permanenterregten Gleichstrommotors erfolgt durch ein pulsweitenmoduliertes Signal.
Aufbau:
Wasserdichtes Alu-Druckgussgehäuse mit PTFE-Membrane zum Druckausgleich. Dreistufiges Getriebe, das in permanentem Eingriff zur Abtriebsachse steht.
Leitplastikpotentiometer zur Rückmeldung.
Anschlusskabel mit Stecker.

Electric Actuator

System component for RSL II, RSL III



Description:

VDO has designed an electric actuator for actuating the injection-pump lever of diesel engines to be used with VDO electronic control systems.
A width modulated (PWM) signal controls the electric motor (permanently activated direct-current motor).
Design:
Waterproof aluminium diecast housing with a PTFE membrane for pressure compensation. Three-speed gearbox in permanent connection with the output axle.
Conuctive-plastic feedback potentiometer.
Connecting cable with plug.

Technische Daten:

Nennspannung:	12 V
Nenndrehmoment:	400 Ncm
Aufregelzeit:	< 2 Sek.
Isolationswiderstand:	> 500 KΩ
Durchschlagfestigkeit:	500 V
Betriebstemperatur:	– 25°C bis + 100°C
Schutzart:	IP56 DIN 40050 Teil 9
Max. Anzugsdrehmoment für die Antriebsachse:	10 Nm
Max. Anzugsdrehmoment für die Befestigungsschrauben:	12Nm (bei 9mm Einschraubtiefe)
Mechanischer Winkel:	103° ± 5°
Verstellwinkel:	87,5° ± 3°
Anschlussstecker:	ITT Canon Sure Seal, 7polig

Technical Data:

Rated voltage:	12 V
Rated torque:	400 Ncm
Up-regulation time:	< 2 sec.
Insulating resistance:	> 500 KΩ
Dielectric strength:	500 V
Operating temperature:	– 25°C to + 100°C
Protection:	IP56 DIN 40050 part 9
Maximum tightening torque for the output shaft:	10 Nm
Maximum tightening torque for fastening screws:	12 Nm (relating to a screw depth of 9mm)
Mechanical angle:	103° ± 5°
Angle of displacement:	87.5° ± 3°
Connecting plug:	ITT Canon Sure Seal, 7-pole

VDO – a Trademark of the Continental Corporation

Technische Änderungen vorbehalten I Technical details subject to change

TU00-0781-5504620 I 0108 I

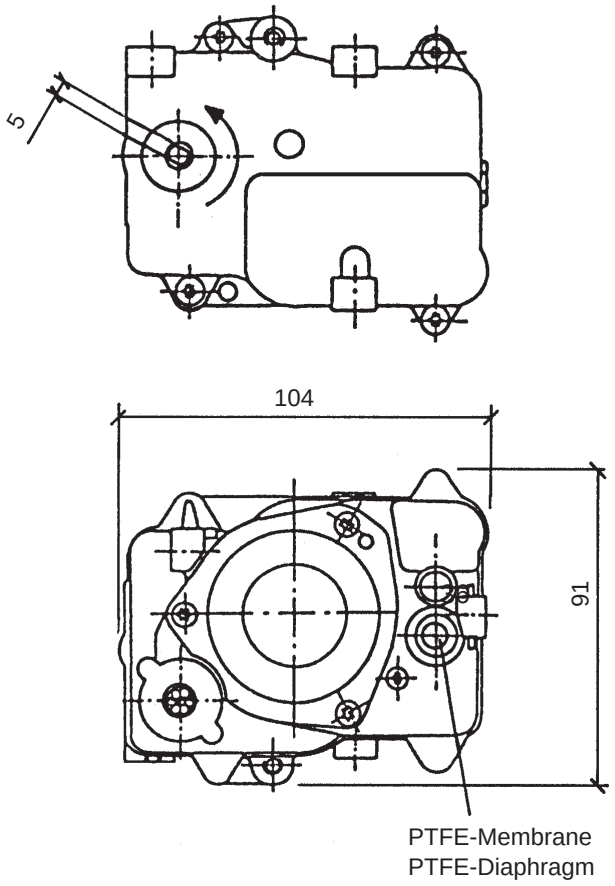
Elektrisches Stellglied

Systemkomponente für AGB II, AGB III

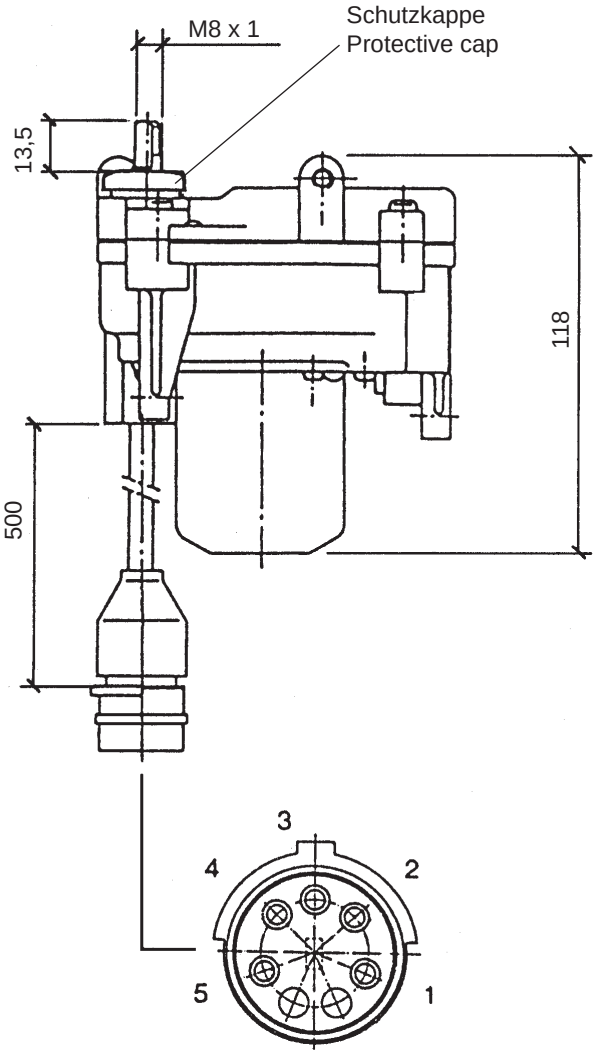
Electric Actuator

System component for RSL II, RSL III

Abmaße (mm):



Dimensions (mm):



Anschlussbelegung:

1	Motor (–)
2	Potentiometer (IP–)
3	Potentiometer (IPS)
4	Potentiometer (IP+)
5	Motor (+)

Terminal Connection:

1	Actuator (–)
2	Potentiometer (IP–)
3	Potentiometer (IPS)
4	Potentiometer (IP+)
5	Actuator (+)

Bestell-Nr. / Order No. 408-221-001-001P

Zubehör:	**Accessories:**	**Best.-Nr. / Order No.:**
Dämpfungselemente (Teilesatz)	Damping components (parts kit)	240-110-001-001P
Stellgliedhaltersatz (motorfeste Montage)	Actuator bracket kit (engine mounting)	X39-397-112-014

Elektrisches Stellglied

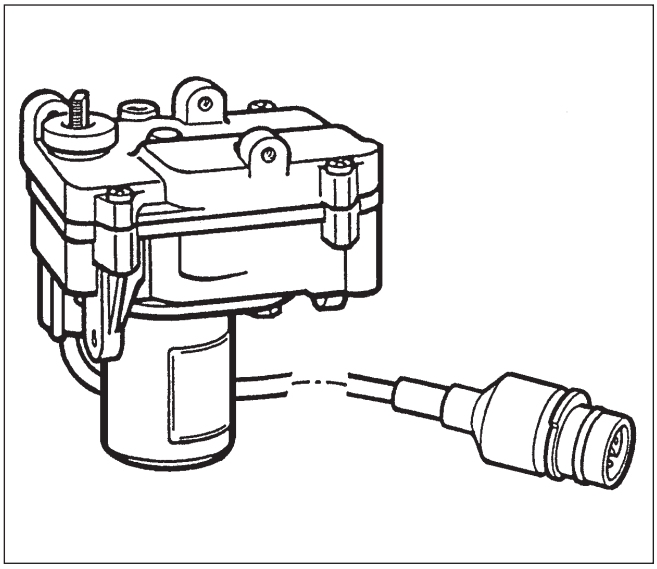
Systemkomponente für AGB II, AGB III

Beschreibung:

Das elektrische Stellglied wurde von VDO zur Betätigung des Einspritzpumpenhebels von Dieselmotoren in Zusammenhang mit elektronischen VDO Reglern konzipiert.
Die elektrische Ansteuerung des permanenterregten Gleichstrommotors erfolgt durch ein pulsweitenmoduliertes Signal.
Aufbau:
Wasserdichtes Alu-Druckgussgehäuse mit PTFE-Membrane zum Druckausgleich. Dreistufiges Getriebe, das in permanentem Eingriff zur Abtriebsachse steht.
Leitplastikpotentiometer zur Rückmeldung.
Anschlusskabel mit Stecker.

Electric Actuator

System component for RSL II, RSL III



Description:

VDO has designed an electric actuator for actuating the injection-pump lever of diesel engines to be used with VDO electronic control systems.
A width modulated (PWM) signal controls the electric motor (permanently activated direct-current motor).
Design:
Waterproof aluminium diecast housing with a PTFE membrane for pressure compensation. Three-speed gearbox in permanent connection with the output axle.
Conuctive-plastic feedback potentiometer.
Connecting cable with plug.

Technische Daten:

Nennspannung:	24 V
Nenndrehmoment:	400 Ncm
Aufregelzeit:	< 2 Sek.
Isolationswiderstand:	> 500 KΩ
Durchschlagfestigkeit:	500 V
Betriebstemperatur:	– 25°C bis + 100°C
Schutzart:	IP56 DIN 40050 Teil 9
Max. Anzugsdrehmoment für die Antriebsachse:	10 Nm
Max. Anzugsdrehmoment für die Befestigungsschrauben:	12 Nm (bei 9mm Einschraubtiefe)
Mechanischer Winkel:	103° ± 5°
Verstellwinkel:	87,5° ± 3°
Anschlussstecker:	ITT Canon Sure Seal, 7polig

Technical Data:

Rated voltage:	24 V
Rated torque:	400 Ncm
Up-regulation time:	< 2 sec.
Insulating resistance:	> 500 KΩ
Dielectric strength:	500 V
Operating temperature:	– 25°C to + 100°C
Protection:	IP56 DIN 40050 part 9
Maximum tightening torque for the output shaft:	10 Nm
Maximum tightening torque for fastening screws:	12 Nm (relating to a screw depth of 9mm)
Mechanical angle:	103° ± 5°
Angle of displacement:	87.5° ± 3°
Connecting plug:	ITT Canon Sure Seal, 7-pole

VDO – a Trademark of the Continental Corporation

Technische Änderungen vorbehalten I Technical details subject to change

TU00-0781-5604620 I 0108 I

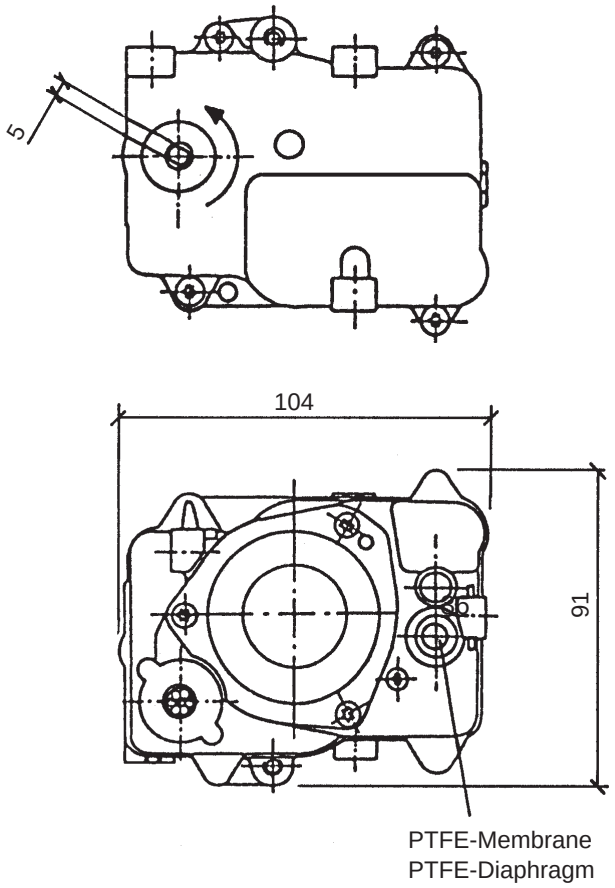
Elektrisches Stellglied

Systemkomponente für AGB II, AGB III

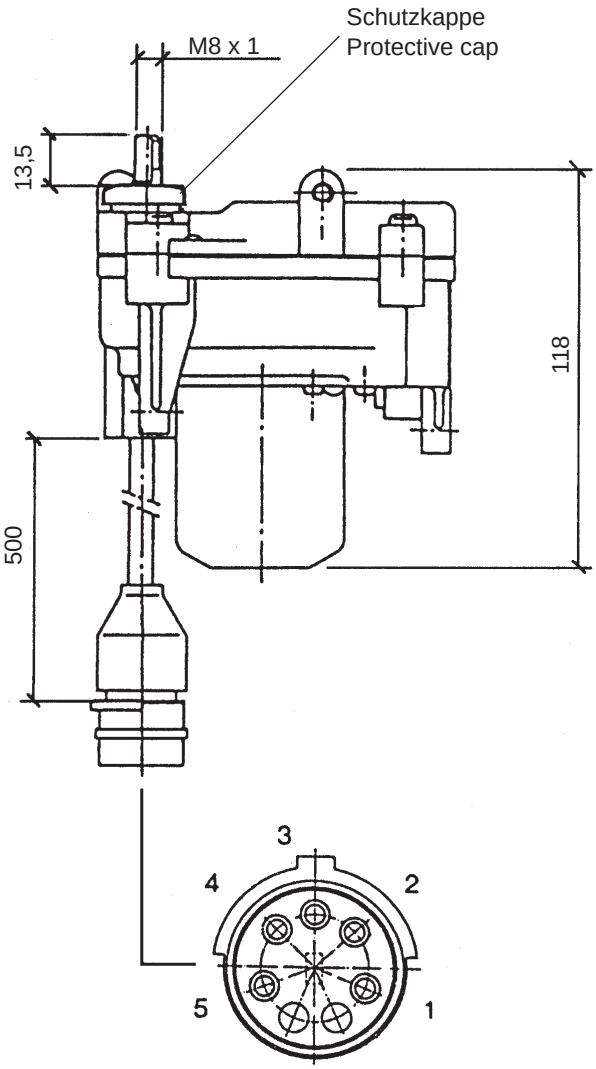
Electric Actuator

System component for RSL II, RSL III

Abmaße (mm):



Dimensions (mm):



Anschlussbelegung:

1	Motor (–)
2	Potentiometer (IP–)
3	Potentiometer (IPS)
4	Potentiometer (IP+)
5	Motor (+)

Terminal Connection:

1	Actuator (–)
2	Potentiometer (IP–)
3	Potentiometer (IPS)
4	Potentiometer (IP+)
5	Actuator (+)

Bestell-Nr. / Order No. 408-422-001-014P

(Weitere Dokumentation siehe “Technische Kunden-Unterlage” 408-422-001-014P. /
Further documentation see ‘Technical Customer Documentation’ 408-422-001-014P.)

Zubehör:	**Accessories:**	**Best.-Nr. / Order No.:**
Dämpfungselemente (Teilesatz)	Damping components (parts kit)	240-110-001-001P
Stellgliedhaltersatz (motorfeste Montage)	Actuator bracket kit (engine mounting)	X39-397-112-014

Elektronischer Regler

Systemkomponente für AGB III

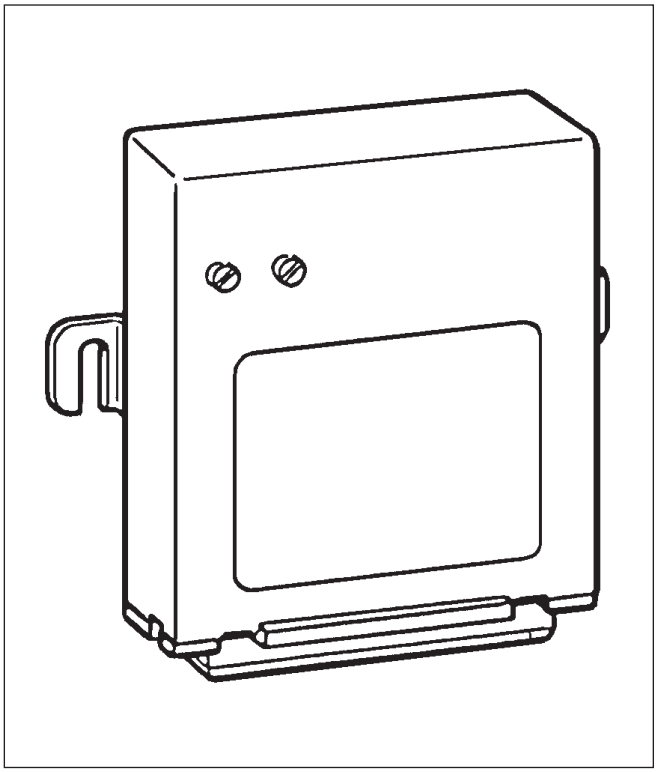
Beschreibung:

Der elektronische Regler wurde für den Einsatz in Bussen und Lkws konzipiert.
Der Regler verstellt ein elektrisches Stellglied zur Begrenzung der Maximalgeschwindigkeit eines Fahrzeuges. Ein integrierter Prozessor verarbeitet sämtliche Eingangs- und Ausgangssignale. Über eine Diagnoseschnittstelle werden sämtliche Parametrierungen mit einer speziellen Software (PC) vorgenommen und der Fehlerspreicher bei Bedarf ausgelesen.
Der Regler entspricht folgenden Normen:

- EG RL 95/54 EMV in Kfz
- EG RL 92/24 Geschwindigkeitsbegrenzer

Electronic Controller

System component for RSL III



Description:

The electronic regulator has been designed for application in buses and trucks.
The regulator commands an electric actuator to limit the maximum speed of a vehicle.
An integrated processor controls all input and output signals. A specific software (PC) linked to an interface allows parameterization and reading-out of the fault memory.
The regulator complies with the following directives and standards:

- EU Directive 95/54 EMC in vehicles
- EU Directive 92/24 Road-Speed Limiter

Technische Daten:

Nennspannung:	12V oder 24V
Betriebsspannung:	9,5V bis 32V
Betriebstemperatur:	– 40°C bis + 70°C
Schutzart:	IP53 DIN 40050
Einbauort:	Innenraum
Einbaulage:	elektrischer Anschluss nach unten (mindestens 5°)
Steckanschluss:	25polig AMP

Programmierung: Grundeinstellung
– Max. Abregelgeschwindigkeit (V_{set}): 89 km/h
– Var. Zwischengeschwindigkeit (V_{var}): 89 km/h
– Wegimpulszahl: C3 Tachograph
– Stellgliedposition Notlauf: 0 %
– Leitungsüberwachung: Aus
– Einspritzpumpentyp: RQV

Technical Data:

Rated voltage:	12V or 24V
Operating voltage:	9.5V to 32V
Operating temperature:	– 40°C to + 70°C
Protection:	IP53 DIN 40050
Installation place:	interior
Installation position:	electrical connector facing downward (at least 5°)
Push-on connector:	25-pole AMP

Program: Default
– Max. cut-off speed (vset): 89 km/h
– Variable speed (vvar): 89 km/h
– Tacho o/p: C3 Tachograph
– Actuator emergency position: 0 %
– Speed signal supervision: Off
– Type of injection pump: RQV

VDO – a Trademark of the Continental Corporation

Technische Änderungen vorbehalten I Technical details subject to change

TU00-0782-5704620 I 0108 I

Elektronischer Regler

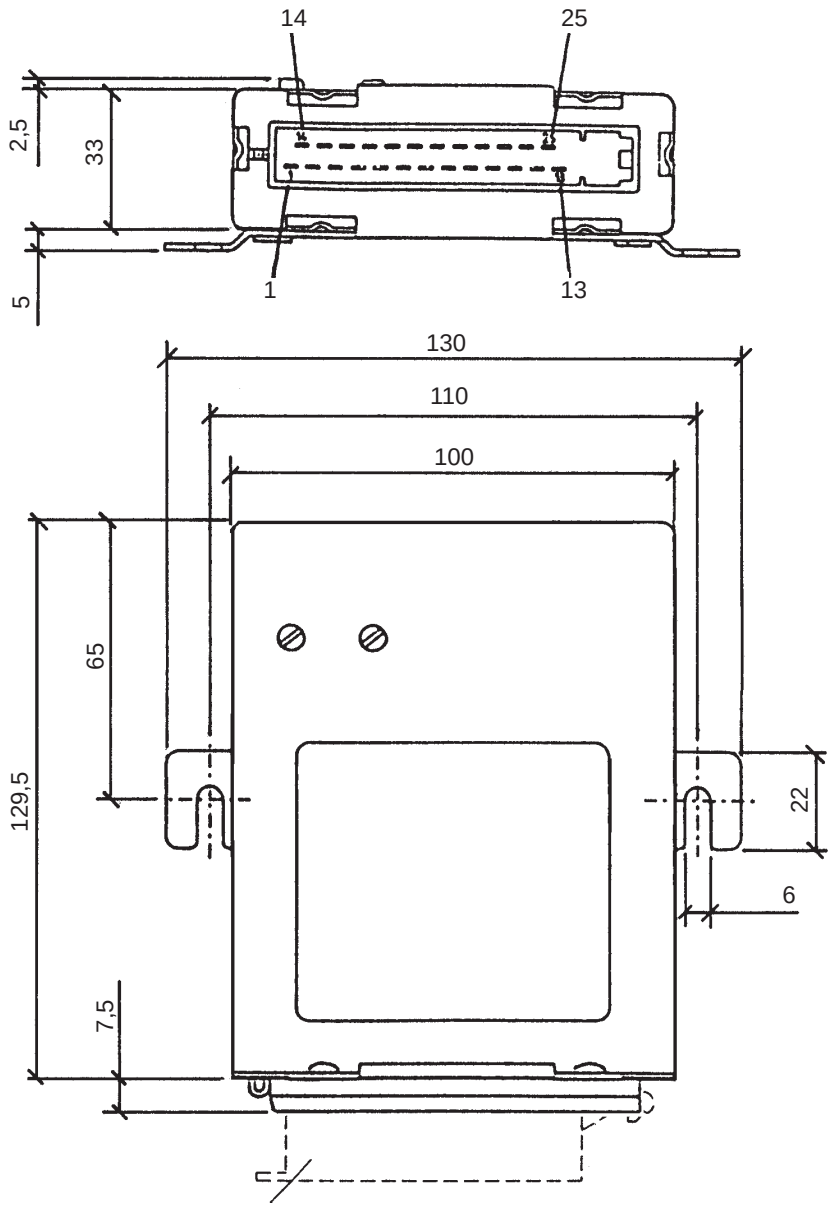
Systemkomponente für AGB III

Electronic Controller

System component for RSL III

Abmaße (mm):

Dimensions (mm):



Zubehör: Gegenstecker
Accessoriers: Receptacle shell

Anschlussbelegung:

1	Klemme 15 (U_{Batt})
2	Motor –
3	—
4	Motorbremse-Schalter
5	Variable Geschwindigkeit ein
6	Reduzierung
7	—
8	—
9	—
10	—
11	Poti +
12	Poti -
13	Fehlerlampe
14	Kl. 31 (Masse)
15	Motor +
16	Masse Ausgang
17	—
18	—
19	—
20	—
21	Geschwindigkeitssignal
22	—
23	Diagnose K
24	Poti-Schleifer
25	—

Terminal Assignment:

1	Term. 15, Ignition-battery +
2	Actuator negative
3	—
4	Exhaust brake
5	Variable speed on
6	—
7	—
8	—
9	—
10	—
11	Potent. pos. contact
12	Potent. neg. contact
13	Failure lamp
14	Term. 31, Ground
15	Actuator positive
16	Ground out
17	—
18	—
19	—
20	—
21	Speed signal
22	—
23	Diagnostic K
24	Potent. sliding concact
25	—

Bestell-Nr. / Order No.: A2C53091782

Zubehör:		Accessories:		Best.-Nr. / Order No.:
Gegenstecker:	Steckerleiste, schwarz	Receptacle shell:	Terminal block cover, black	X11-397-109-003
	Steckerhülse		Female connector	X11-397-109-004

Product Manuel AGB III

Change Overview

Date	**Chapter-Page**	Comment
0107	**4 - 15**	X12-397-034-001 was 12-397-034-001
0807	**4-14 / 4-17**	removed: X11-397-109-045, X11-397-109-048, X11-397-007-005, X11-397-109-035, X11-397-109-036, X11-397-109-037, 81 375 000
0907	**4-12 / 4-14+16**	removed: wire set KOM (p.12), X39-397-109-035, cable 5-pole 15m, heat shrinking tube
0408	**complete**	Corporate design changed
0508	**4-15**	with cone M5 x 6 DIN 915 / ISO 4028 *was* M5 x 5 DIN 913-A2
0112	**3-17**	Changed: (Ground to Pin 6); as Pin no6 has a ground signal.