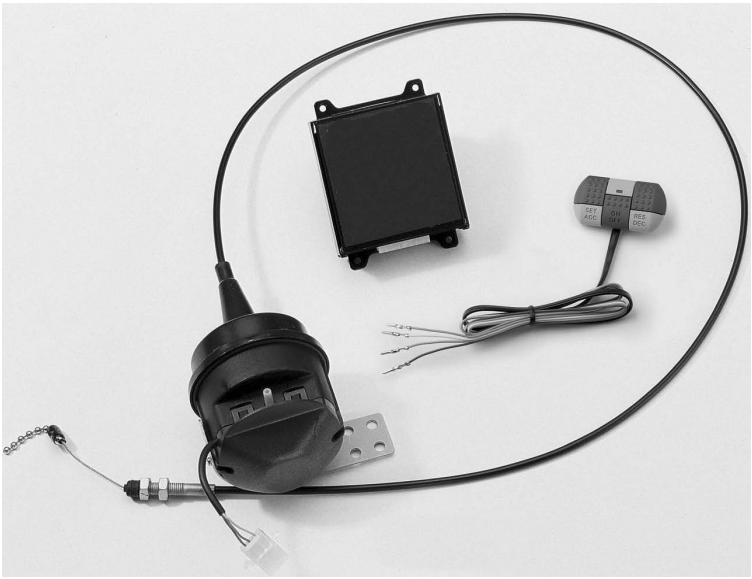
WAECO
mobile solutions



MagicSpeed MS300

Cruise control
Installation and Operating Manual

CONTENTS

1.0 INTRODUCTION

With the **MagicSpeed MS300** automatic cruise control, you can always drive just as fast as you want. But never faster than allowed.
As soon as you have reached the desired speed, simply enter it in the microcomputer at the touch of a button. The microcomputer constantly compares the actual speed with the setting. Any deviation is automatically corrected.
These instructions contain all the explanations and information needed to install the **MagicSpeed MS300** in the proper manner. Therefore please read them carefully before beginning with installation work.
Installing the **MagicSpeed MS300** requires a general knowledge of motor vehicle technology and must be done very carefully because in some areas the safety of the vehicle may be affected, for instance at the connection of the Bowden wire to the throttle control mechanism or the control lever of the diesel pumps.

The **MagicSpeed MS300** can be fitted in almost any vehicles with 12 volt electrics, regardless of whether it has manual or automatic transmission.

The delivery kit includes all the mechanical and electrical components needed for installation.

2.0 INFORMATION FOR USING THESE INSTALLATION INSTRUCTIONS

Warning! Safety precaution: Failure to observe this warning may result in injury to persons or damage to material.

Caution! Safety precaution: Failure to observe this warning will result in damage to material and affect the proper functioning of the MagicSpeed MS300.

To ensure problem-free fitting, read these installation and operating instructions carefully before starting work. In particular, pay attention to the "Prerequisites for Installation of the MagicSpeed MS300" on page 5

3.0 GENERAL SAFETY AND INSTALLATION INSTRUCTIONS

Warning! Because of the risk of short circuits, always disconnect the negative battery terminal before working on vehicle electrics. In the case of vehicles with a supplementary battery, also disconnect this negative terminal.

Warning! Improper cable connections may result in short circuits which can cause:

- cablefires
- triggering of the airbag
- damage to electronic control functions
- failure of electrical functions (blinkers, brake lights, horn, ignition, lights)

Therefore please note the following:

When working on wiring, the following terminal designations are used:

30 (input direct from positive battery terminal)
15 (switched plus, behind battery)
31 (return cable from battery, earth)

Only use insulated cable lugs, tabs and connectors. Never use crimp connections or lustre terminals.

The safest form of connection is by soldering and then insulating the connection. Use crimping pliers for connecting the cables.

For cable connections to 31 (earth):
Screw the cable with lug and tooth-lock washer to an earth screw already fitted on the vehicle or with a lug and metal screw to the bodywork.

Ensure a good connection to earth.

Caution! On disconnecting the negative terminal of the battery, all the impermanent memories of the convenience electronics will lose their stored data.

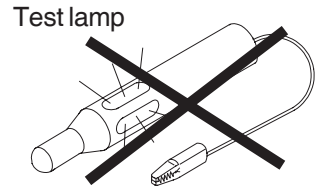
Depending on the vehicle's equipment, the following may have to be reprogrammed:

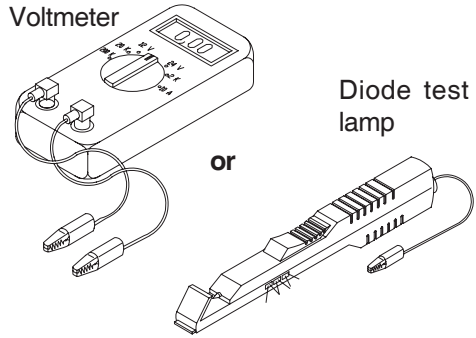
-Radio code
-Clock
-Timer
-On-board computer
- Seat position

Instructions on how to reset them can be found in the relevant operating instructions.

Warning! The components of the MagicSpeed MS300 which are mounted inside the passenger compartment must be securely fixed so that they cannot come loose and injure the vehicle's occupants under any circumstances (emergency braking, traffic accident).

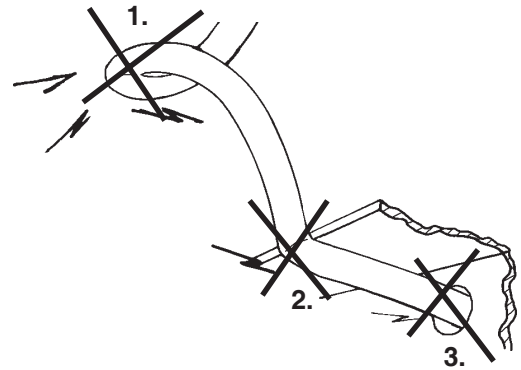
Caution! To check the voltage in electric cables, only a diode test lamp or voltmeter must be used. Test lamps which light up use too much current and the vehicle electronics may be damaged.



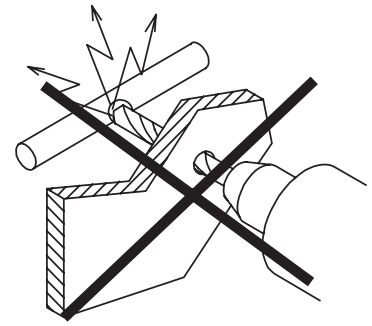


Caution! When laying electric cables, always ensure:

1. that they are not kinked or twisted
2. that they are not rubbing on sharp edges
3. that they are not laid through sharp-edged apertures without protection.



Caution! To avoid damage, always ensure that there is enough clearance for the drill bit to emerge.



4.0 PREREQUISITES FOR INSTALLATION

- Vehicle electrics with 12 volts

- Throttle control cable or lever

- Under-pressure, vacuum

- Electronic speed or RPM signal

5.0 TOOLS REQUIRED

The following tools are needed for installation and fitting:

- Measure
- Prick punch
- Hammer
- Set of metal bits
- Drilling machine or cordless screwdriver
- Set of slit and cross-head screwdrivers of different sizes
- Flat and half-round files
- Pencil or felt tippen
- Set of ring or open-jaw spanners
- Set of sockets
- Jack or vehicle stands

The following are needed for making and testing the electrical connections:

- Diode test lamp or voltmeter
- Crimping pliers
- Insulating tape
- Cable binders
- Heat-shrinkable hose
- Hot air blower
- Soldering iron
- Solder

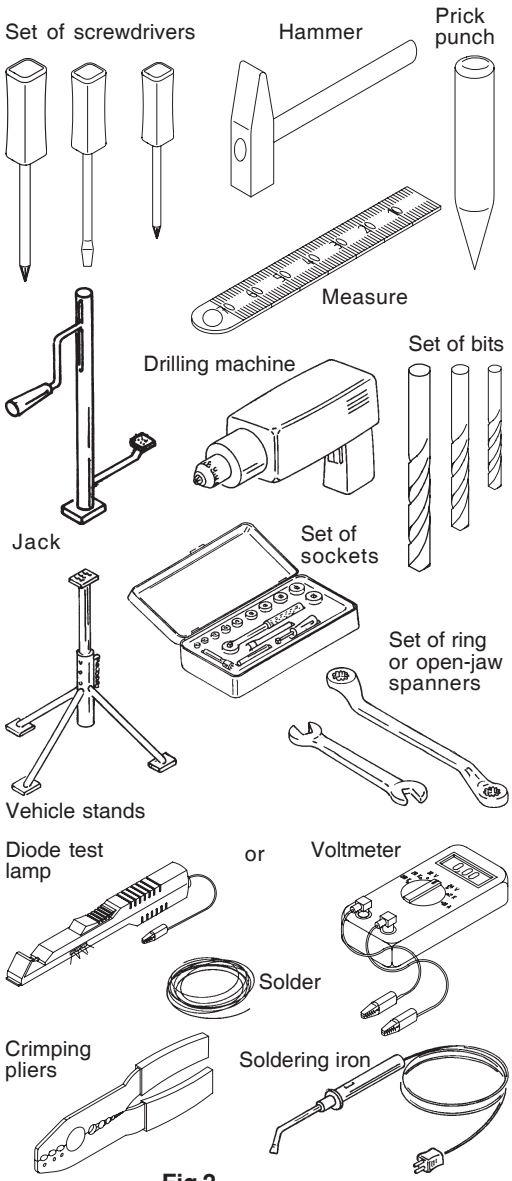


Fig 2

6.0 DELIVERY KIT

Serial No.	Art. No.	Description	Quantity
		Command module kit	**1**
1		- Command module	1
2			
3		- Connector housing 4 pol.	1
4			
5		- Double-sided adhesive tape	1
6	**AS4490A**	**Vacuum servo unit**	**1**
7	**WH5415A**	**Cable set with 16-pin and 4-pin connector**	**1**
8	**AS72530**	**Electronic module**	**1**
	AB11000	**Clutch switch kit**	
9		- Clutch switch	1
10		- Fixing bracket	1
11		- Metal screws 3 x 12 mm	2
12		- Metal screws 6.3 x 19 mm	2
13		- Double-sided adhesive tape	1
	AS4016B	**Installation kit**	**1**
14		- Cable binders	10
15		- Junction connector	4
16		- Cable bush	1
17		- 3-pin connector	1
	AS72920	**Bowden wire kit**	**1**
18		- Bead chain connector (big ring)	1
19		- Bead chain coupling	1
20		- Protective shrink hose	1
22		- Bowden clamp	1
23		- Wire linkage	3
24		- Rubber ring	1
25		- Tooth-lock washers M 5	3
26		- Nuts M 5	3
27		- Bolts M 5 x 15	3
28		- Metal screws 6.3 x 19 mm	4
29		- T pieces for vacuum connection	3
30		- Bolts M 6	2
31		- Nuts M 6	2
32		- Mounting bracket for Bowden wire	1
33		- Throttle bracket	1
34		- Bead chain connector (small ring)	1
35		- Bolt M 5	1
36		- Nut M 5	2
37		- Spring washer	1
38		- Special tooth-lock washer	1
39		- Disconnector	1
40		- Double-sided adhesive tape	1
41		- Metal screws 4,2 x 12 mm	4
42		**Vacuum hose**	**1**

6.0 DELIVERY KIT

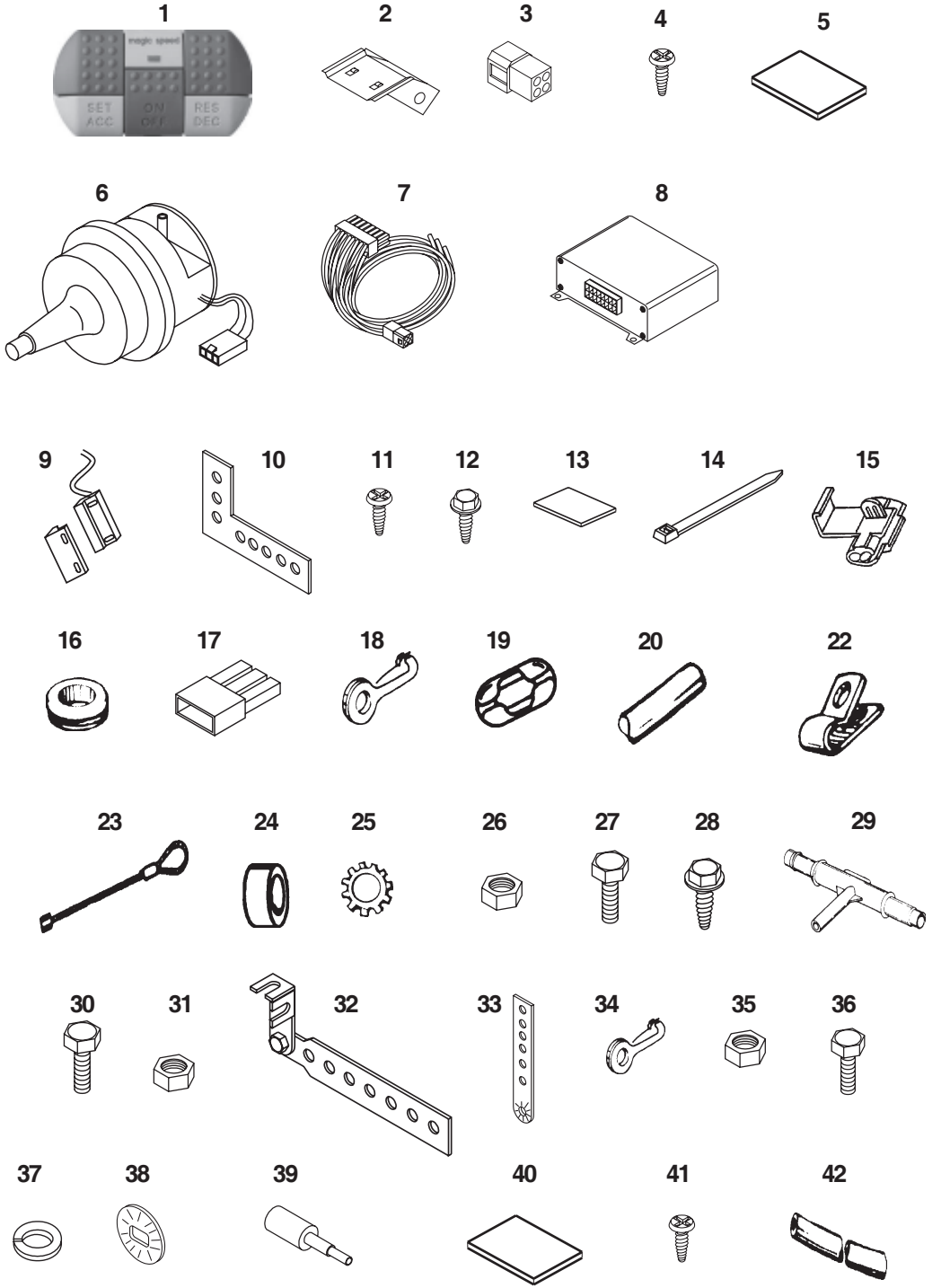


Fig. 3

7.0 INSTALLING THE VACUUM SERVO UNIT

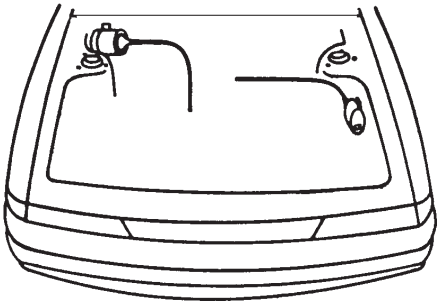


Fig. 7.0

The vacuum servo unit (6) regulates the throttle setting and controls the speed of the vehicle. The kit contains a vacuum servo unit with flexible Bowden wire. The best places for installation in the engine compartment are the bulkhead and the inside wheel arches. In order to avoid damage to the electronics and mechanics, make sure that temperatures of 100°C are not exceeded. Figs. 7.1 – 7.5 illustrate various methods for attaching the wire to the carburettor. The following points describe how to attach the wire to the carburettor. To ensure perfect functioning of the cruise control, the throttle control lever must be in good condition (e.g. not slack, not seized, etc.). If your vehicle has fuel injection, the installation instructions refer to the throttle control lever and not to the carburettor, and in the case of diesel engines to the diesel injection pump.

1. Decide which method to choose for attaching the bead chain to the throttle control lever.

   Note: The vacuum servo has a maximum travel of about 40 mm. Choose an attachment point on the throttle control lever that allows all the travel to be used. Too little travel will mean excessive strain on the vacuum servo unit. An attachment point on the throttle control lever that requires more than 40 mm of travel between idling and full engine speed means that a condition of ”full throttle” would not be reached. The sideways pull must be not more than 20°.

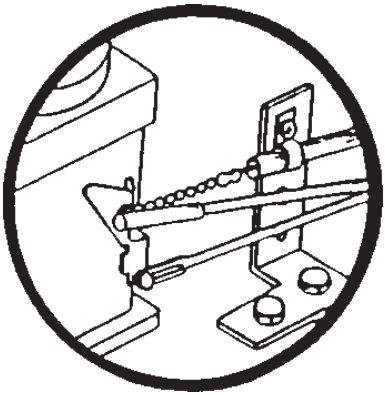
2. Using the metal screws (28), mount the vacuum servo unit on an inside wheel arch or the bulkhead.
3. Attach the bead chain using the bead chain connector (18 and 34) or the wire linkage (23) and coupling (19) to the throttle control of the carburettor, the injection unit or the injection pump (see Figs. 7.1 to 7.6).

CAUTION!	The bead chain must be long enough to have sufficient slack when the accelerator is depressed.

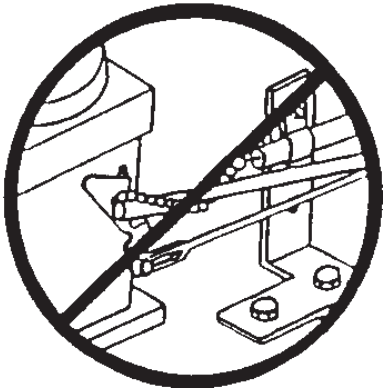
CAUTION!	The Bowden wire must be kept away from rotating parts or hot surfaces.

4. Attach the Bowden wire to the engine but do not yet tighten it (Fig. 7.6). Now tighten the Bowden wire until the bead chain has a small amount of slack. Ensure that the carburettor or injection pump is in idling position (with warm engine). When there is still a small amount of slack in the bead chain, finally tighten up the Bowden wire. It may be necessary to remove some of the beads from the chain. However, the bead chain must be not shorter than 20 mm.

5. become caught on anything. Operate the control lever of the throttle or diesel pump by hand so that the bead chain is loose, and check with the other hand whether the chain could become caught on anything. If this is the case, the Bowden wire must be relocated.



Correct



Incorrect

WARNING! The cruise control has been designed with numerous safety features in order to ensure safe and reliable functioning of the electronic components. However, none of these safety features can prevent the engine from suddenly speeding up out of control if this is due to the throttle lever becoming jammed. So check carefully several times.

CAUTION! Make sure that all disconnected cables and hoses are reconnected as otherwise the engine may be damaged or excessive exhaust values may occur.

THROTTLE CONNECTION

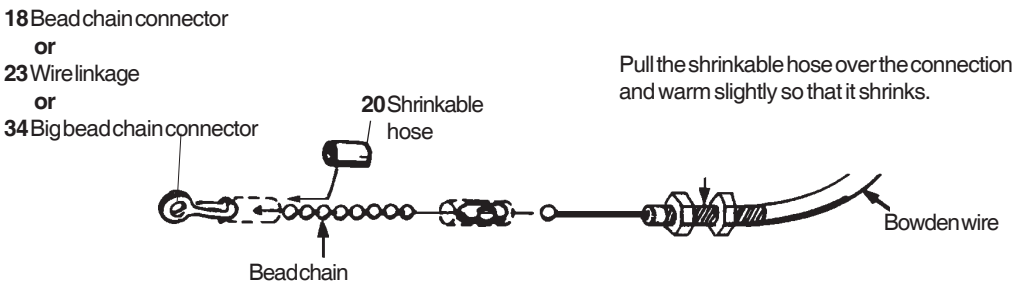


Fig. 7.1

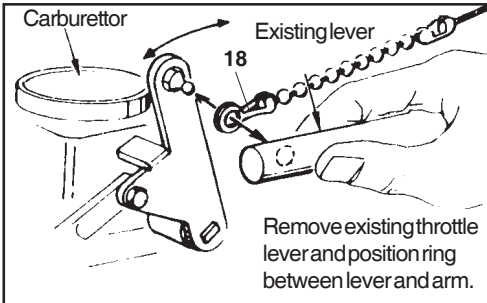


Fig. 7.2 Throttle lever with ball pivot

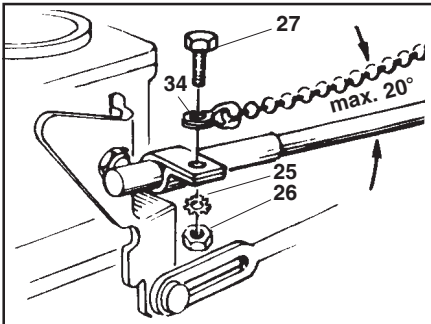


Fig. 7.3 Throttle lever with clamp connection

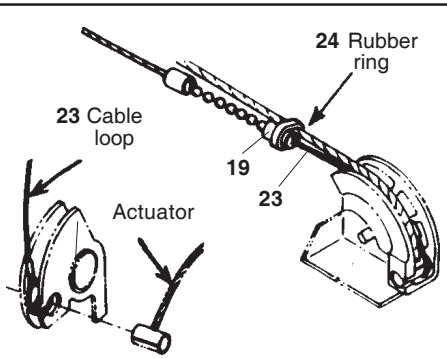


Fig. 7.4 Throttle actuator with pulley

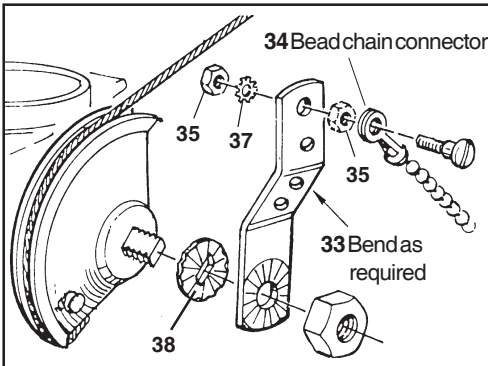


Fig. 7.5 Ford connection adapter

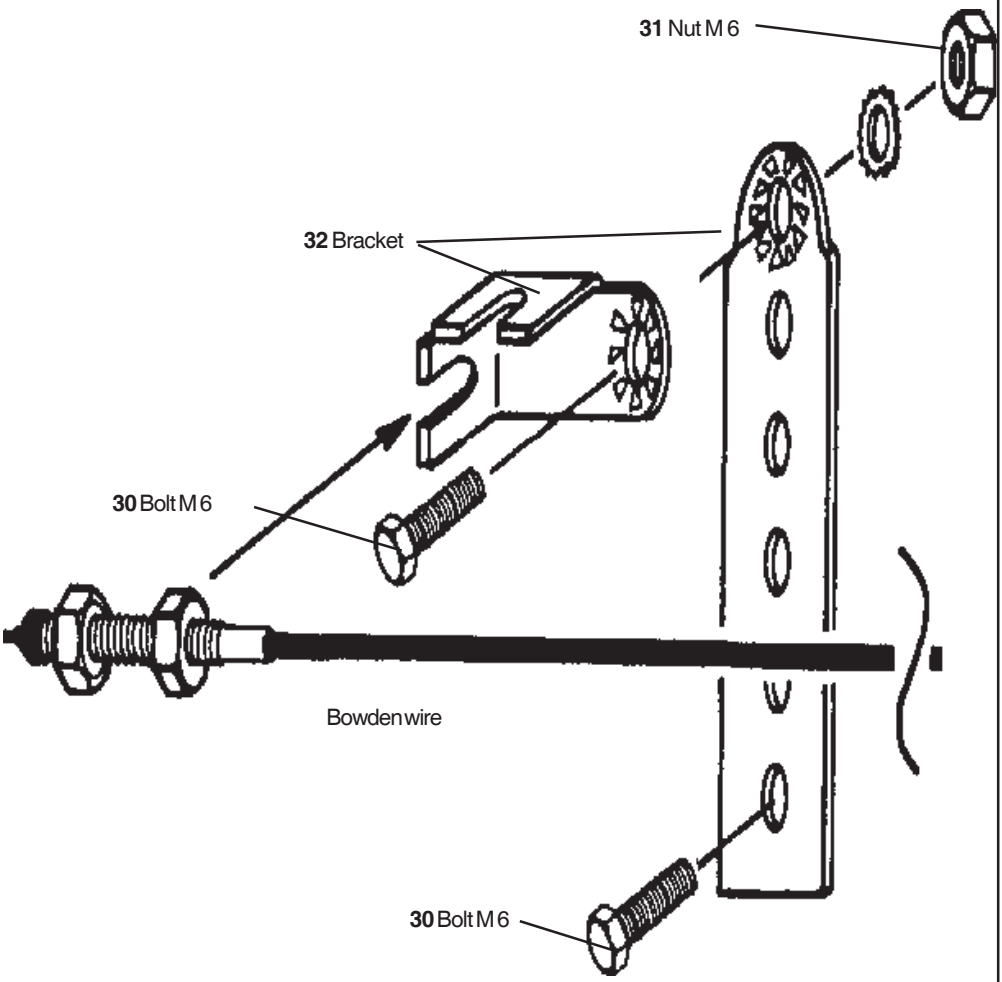


Fig. 7.6

Always cut the vacuum hose between the non-return valve and the intake manifold or vacuum pump (engine side)

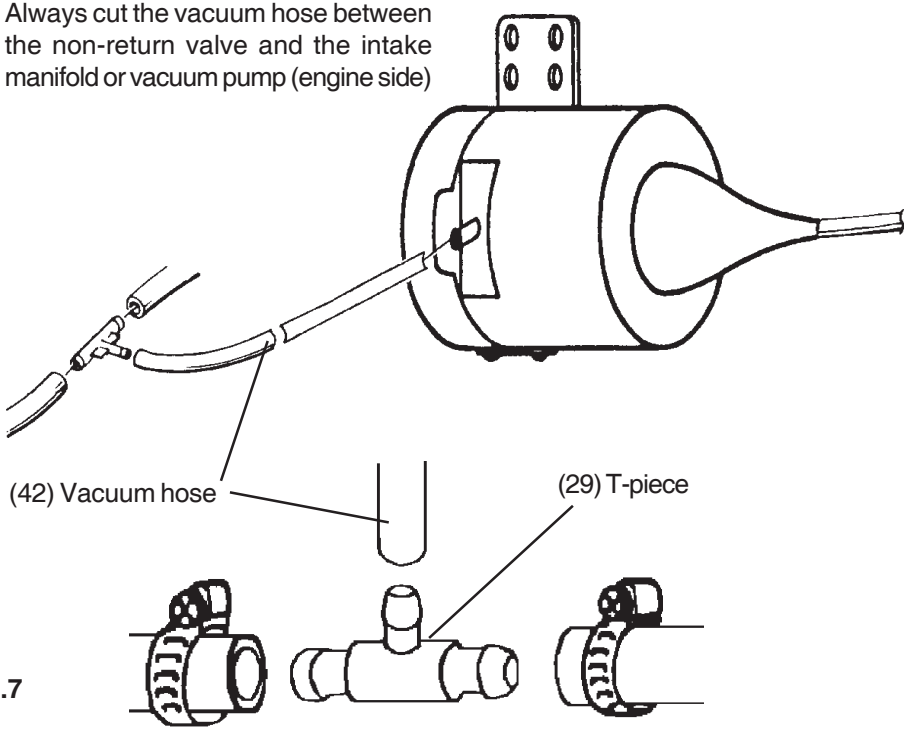


Fig. 7.7

6. Cut the vacuum hose between the non-return valve and the intake manifold or vacuum pump (motor side).
7. Always cut the vacuum hose between the non-return valve and the intake manifold or vacuum pump (engine side)Insert a suitable T piece (29) in the cut vacuum hoses and secure with hose clamps.
8. Connect the vacuum servo unit and the connection of the T piece with the vacuum hose (42).

WARNING! Push the vacuum hoses on as far as they will go. Make sure to reconnect all vacuum hoses as otherwise damage to the engine or excessive exhaust values may occur. Ensure that the vacuum hoses are correctly secured and recheck at regular intervals. Defective or loose vacuum hose connections will prevent proper functioning of the connected components.

8.0 WIRING AND ASSEMBLY OF THE ELECTRONIC MODULE

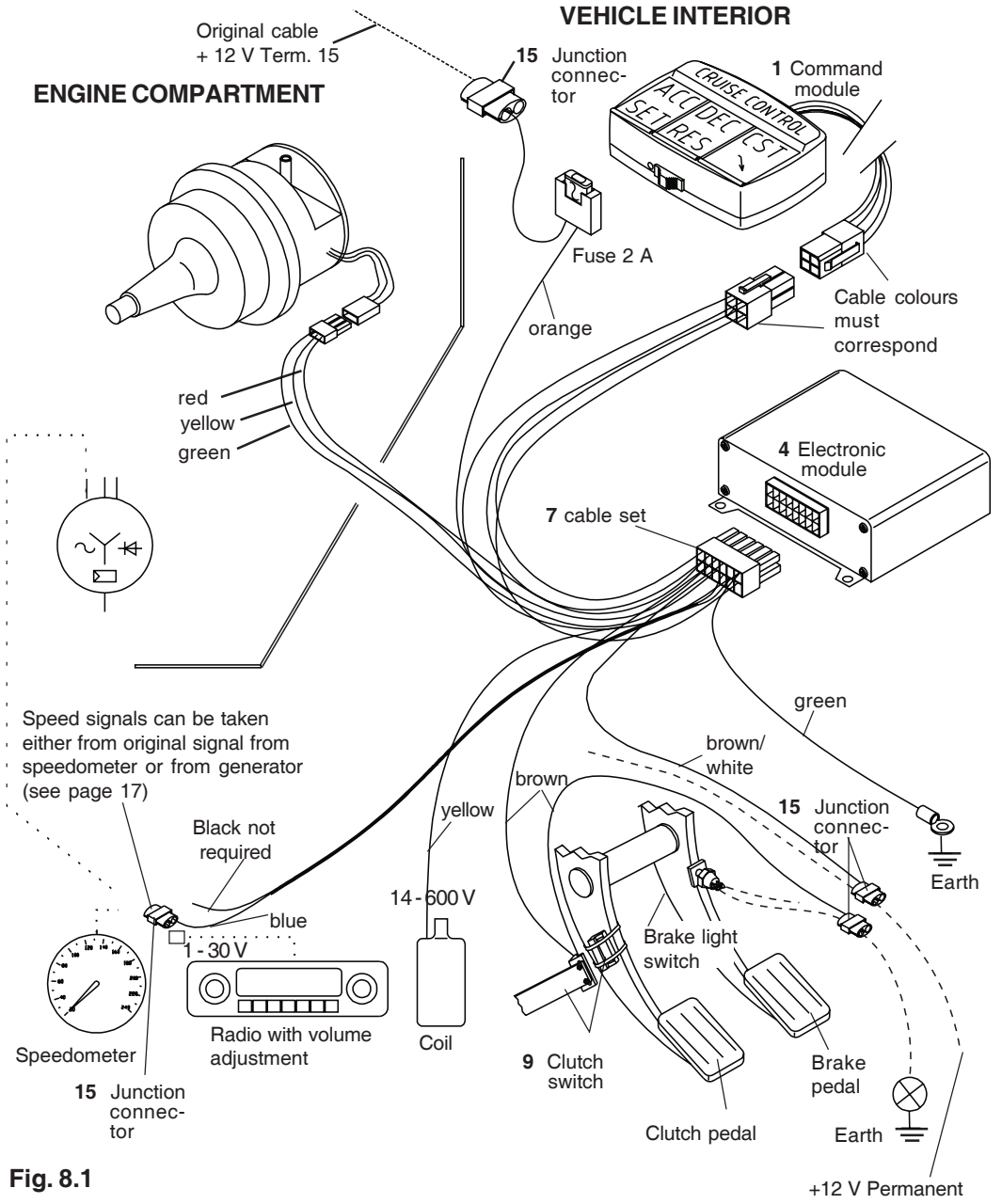


Fig. 8.1

Note! Use the yellow wire **or** the blue wire for picking up a speed or RPM signal.

Connection cable of MagicSpeed MS300

Original vehicle cable

Term. = terminal

CONNECTION DIAGRAM

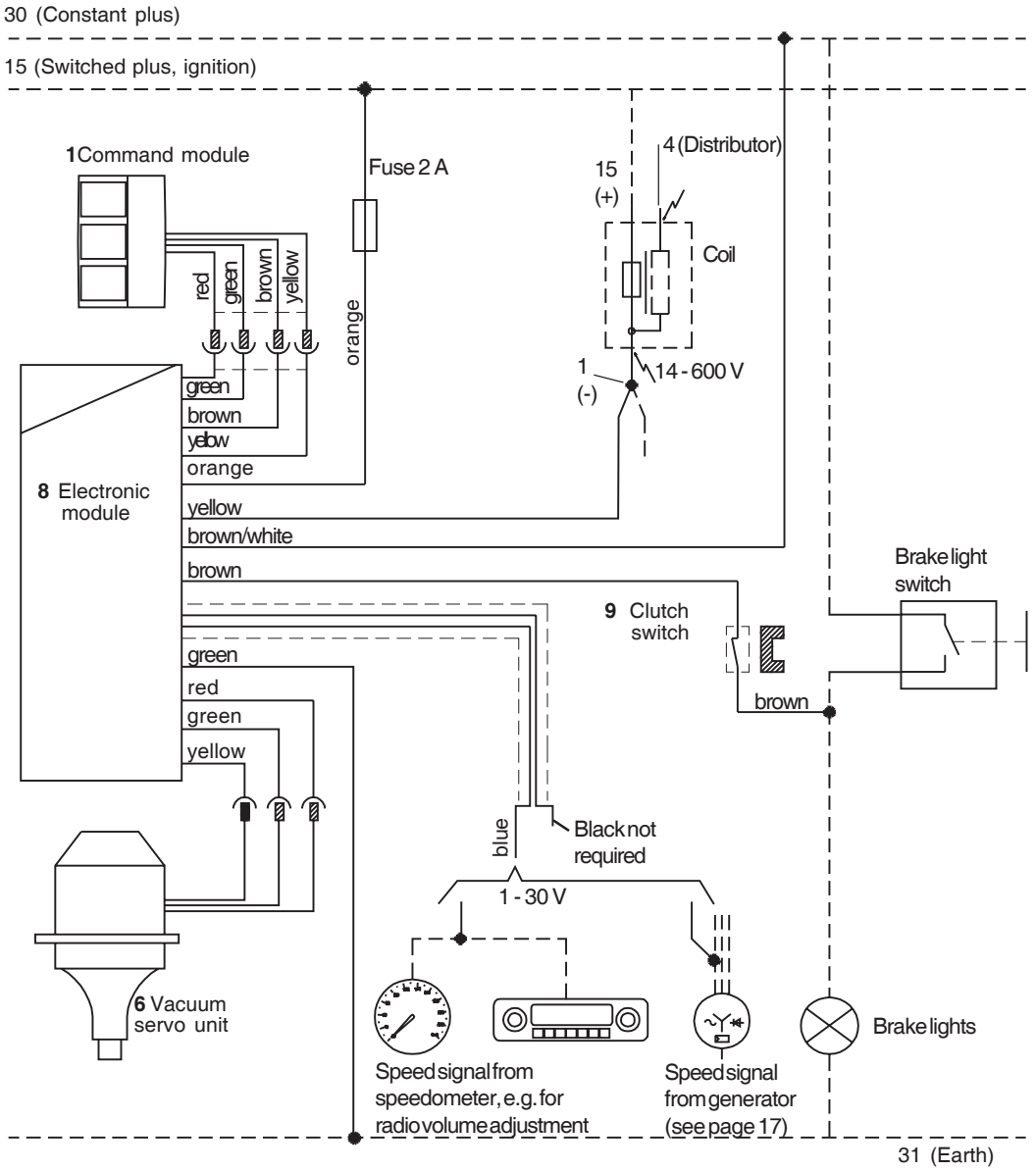


Fig. 8.2

— — — — Original vehicle cable

——— Connection cable of MagicSpeed MS300

— — — — Shielded connection cable of MagicSpeed MS300

Note! Use the yellow wire **or** the blue wire for picking up a speed or RPM signal.

1. Before starting on the wiring, the battery must be disconnected.
2. Make sure that the electronic module (8) and the cable (7) of the cruise control are fitted or laid at a distance of at least 30 cm from the distributor, ignition coal and ignition cable.
3. Locate a suitable position for fitting the electronic module (8) in the passenger compartment. Suitable positions are under the dashboard, behind the glove compartment or in the centre instrument panel. When choosing the position, remember that you will have to be able to make adjustments to the electronic module (8). Also take the length of the cable which has to be laid into account.
4. If necessary, remove any panelling.
5. To secure the electronic module (8), it is necessary to drill four holes of Ø 2.5 mm. To do this, hold the electronic module in the desired position and mark the drill holes. Before drilling, check to make sure that there is sufficient clearance on the other side for the drill to emerge.
6. Secure the electronic module with the metal screws (41).
7. Determine how to pick up the speed signal on your vehicle.

Option 1: Use an original speed signal. Many vehicles have an original speed signal, e.g. for automatic regulation of the radio volume depending on speed. Your authorised vehicle dealer will be able to tell you whether your vehicle has an original speedometer drive signal.

Option 2: Use the speed signal of the generator (see table on page 16). **Caution!** Not suitable for vehicles with automatic transmission.

Option 3: Use the ignition signals.
Caution! Not suitable for vehicles with automatic transmission.

Option 4: Use a speedometer drive generator (not included in kit) – **WAECO Article No. AS-AA-144**. The speedometer drive generator is installed between the speedometer drive and the connection of the speedometer drive on the gearbox. This system is only suitable for vehicles with bolted-on speedometer drive.

Option 5: Use a magnet sensor set (not included in kit) **– WAECO Article No. AS71430**. The magnet sensor set is fitted on the propeller shaft or drive shaft. The magnet sensor set generates a suitable speed signal.

Note! The signals (Options 2 and Possibility 3) are rev speed signals which depend on the gear engaged.

12-pin connector of the connection cable set

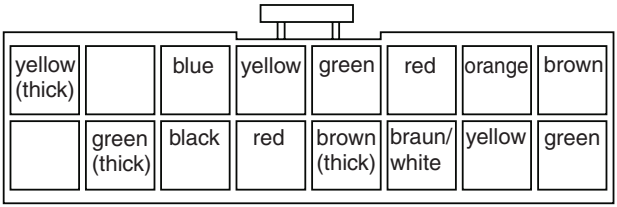


Fig. 8.3

Warning! Switch off the ignition before connecting the orange cable. Is the negative cable (earth) disconnected from the battery?

Note! Ensure a constant 12 V connection (+ terminal 15). Never use a fluctuating 12 V connection, e.g. air conditioning, fan, etc. as the cruise control will switch off in the event of current fluctuations.

9. Plug in the 16-pin connector of the cable set (7) to the electronic module.
10. Lay the 3-wire cable (yellow, green, red) for the vacuum servo unit through a suitable hole into the engine compartment. Depending on where the speed or rev count signal is picked up, the shielded 2-wire black cable (with the blue and black wires, 1-30 V) or the yellow cable (14-600 V) must also be laid into the engine compartment.
11. Connect the green cable to earth.

Note! In the case of cable connections to 31 (earth):

Connect the cable with lug and tooth-lock washer to an original earth screw on the vehicle or by a lug and metal screw to the bodywork.

Make sure of a good earth connection!

12. Connect the orange cable with the fuse block to + 12 V terminal 15 (ignition current), using the junction connector (15).
13. Connect the 2-wire cable (with brown and brown/white wires) by junction connector to the brake light switch (see Fig. 8.1). In the case of vehicles with manual gearbox, the clutch switch must also be installed and connected (see Chapter 9).
14. Using the 4-pin connector (3), connect the command module to the electronic module, ensuring connection of matching cable colours (see Chapter 10).
15. If an original speedometer signal is used, connect the blue wire of the 2-wire cable to the corresponding original cable. The black wire of the 2-wire cable is not required and must be insulated.

When using the ignition coil signal, the yellow cable must be connected to the negative connection of the ignition coil.

Caution! The rev count signal must not be used on vehicles with automatic transmission.

16. Insert the connector of the 3-wire cable (yellow, green, red, servo motor connection) into the 3-pin plug (17).
17. Plug the connector (17) into the counter-piece of the vacuum servo unit.
18. Pull any excess length of cable in the engine compartment back into the passenger compartment and secure all loose cables with the cable binders (14).
19. Do not replace the panelling until all work has been completed and a function test/road test has been successfully carried out (Chapter 13-17).

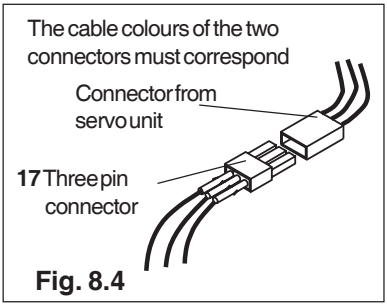


Fig. 8.4

Generator manufacturer	**Rev count signal pick-up** Terminal designations on generator
Bosch	W,R
Delco-Remy	W,S
Ducellier	W,S
Femsa	W
FIAT	W
Hitachi	P
Iskra	W
Lucas	StA
Marelli	W
Mitsubishi	P
Motorola	W
Nippondenso	P
Paris-Rone	W,R
SEV-Marchal	W
SEV-Motorola	W
Valeo	W

9.0 INSTALLING THE CLUTCH SWITCH

Vehicles with manual gearbox must be fitted with a clutch switch (9). The clutch switch consists of a magnet and a reed contact switch. The magnet is cemented on to the clutch pedal and secured with cable ribbons. The reed contact switch is mounted on the chassis or the buffer for the clutch. The clutch switch (9) is connected as shown in the diagram on page 13 and 14 (Fig. 8.1 and 8.2). The magnet and the reed contact switch must be separated when the clutch is operated.

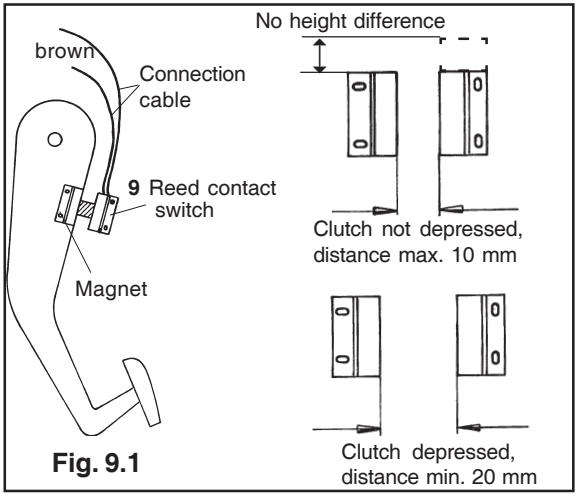


Fig. 9.1

10.0 INSTALLING THE COMMAND MODULE

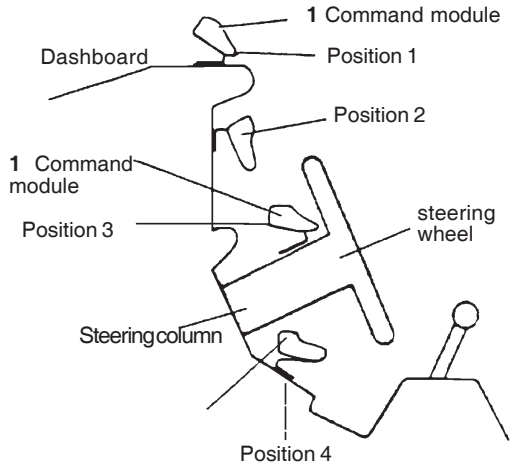


Fig. 10.1

The driver's commands are entered in the command module which transmits them to the microprocessor in the electronic module. The command module must be fitted in a suitable position to allow the driver easy operation of the controls even in dangerous situations. Suitable locations are: on the dashboard, on/in an instrument panel or on the steering column (see Fig. 10.1).

WARNING! The command module must be installed in such a position that the driver does not have to reach through the steering wheel to operate it.

For laying the connection cables, whenever possible always use existing cable passages or other suitable apertures, e.g. the edges of panelling, air inlet grids or blind switches. Where no such passages are available, a hole of Ø 6 mm must be drilled. Before drilling, make sure there is enough clearance for the drill to emerge on the other side.

1. Select a suitable location (see Fig. 10.1) for the command module (1).
2. Clean the area of the mounting position
3. Stick the command moduleith the adhensive tape
4. If no passageways are already available for the cable of the command module, drill an appropriate hole near the command module (1).
5. All holes which are drilled in metal must be deburred and treated with rust-proofing agent.
6. All sharp-edged passageways must be fitted with a cable bush.
7. Push the cable through the drill hole behind the dashboard.
8. Connect the cables with the 4-pin connector (3). Make sure that the cable colours correspond (see Fig. 10.2).
9. Connect the cable from the command module to the cable set (7) using the 4-pin connector (3).

Fig. 10.2

If you are using an original command module, for connection to the MagicSpeed MS300 you will need an interface, **WAECO Article No. MS-IF-02**.

Fig. 12.1

"SET" BUTTON:

1. The current speed is set by pressing and immediately releasing the SET button. This speed is then maintained until:

   a) the brake or clutch pedal is depressed
   b) the cruise control is switched off via the ON/OFF switch
   c) the speed of the vehicle is below the bottom activation speed
   d) the speed drops on a hill by more than about 25%.

2. If the SET button is held depressed, the vehicle will accelerate. When the button is then released, the cruise control will store and maintain the speed then reached.

"RES" BUTTON:

If the RES button is pressed and then immediately released, the last speed that was stored is re-entered, provided that:

a) the cruise control has been switched on via the ON/OFF switch
b) the speed of the vehicle is not below the minimum speed
c) the brake or clutch pedal is not depressed
d) the ignition has not been switched off in the meantime
e) the current speed is not less than 50% of the memorised speed.

ACCELERATING AND DECELERATING

When the cruise control is activated, you can also make fine adjustments. Tapping the SET button once increases the speed by approx. 1.5 kph. Tapping the RES button reduces the speed by approx. 1.5 kph. This function allows you to adjust the speed of your vehicle to the traffic flow or a speed limit. The cruise control has a memory that stores the number of taps. For example, if you tap the SET button 3 times or the RES button 5 times, the cruise control will increase or decrease the speed of the vehicle by approx. 4.5 and 7.5 kph respectively.

NOTE: If you want to considerably reduce the speed of your vehicle, do not use the RES button. Use the OFF switch, the brake, clutch and then set the new speed with the SET button.

12.0 INITIAL OPERATION AND ROAD TEST

The electronic module is equipped with a diagnostics program to enable all the functions and electrical connections to be tested before the initial road test (see Chapter 15 on pages 24-27). Display is by an LED on the electronic module.

The cruise control cannot be tested properly when the vehicle is jacked up or on a test stand because the mass inertia factor is lacking.

Your cruise control has been pre-adjusted in the factory. If it is properly installed, it should work satisfactorily in most vehicles. It is best to carry out the road test on a quiet road, with a second person in the vehicle to observe the LED. To find out whether any additional adjustment is necessary, please carry out a test drive as follows:

1. Switch the cruise control on using the ON/OFF switch.
2. Drive at a speed of approx. 40 to 50 kph. Press the SET button – the cruise control should take over this speed. This is the minimum operating speed. If the cruise control does not take over this speed of between 40-50 kph but only at a higher speed, it is necessary to lower the setting of the pulse values (see page 23). The cruise control should be able to control the speed up to about 180 kph (on the motorway). If it will not take over this high speed but only a significantly lower one, the setting of the pulse values must be raised (see page 23).

3. Increase the speed of your vehicle to 80 kph. Now press the SET button and slowly take your foot off the accelerator. The cruise control should take over smoothly and maintain a constant speed.

– If the vehicle loses speed or responds too slowly when the cruise control is in operation, increase the sensitivity setting by adjusting the dip switches (see page 23). Before doing so, switch off the ignition and briefly depress the brake to cancel the memory in the electronic module.

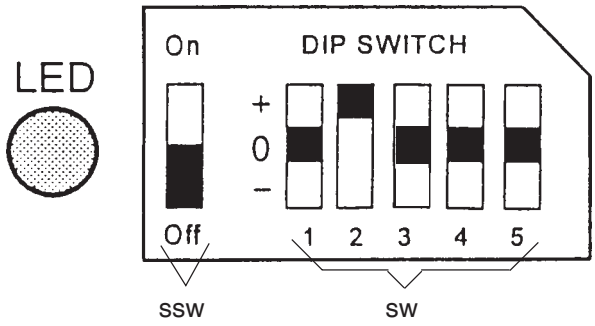
– If the vehicle gains speed when the cruise control is in operation or if it operates jerkily, reduce the sensitivity setting by adjusting the dip switches (see page 23). Before doing so, switch off the ignition and briefly depress the brake to cancel the memory in the electronic module.

4. Drive at a speed of approx. 80 kph. and activate the cruise control. When this has taken over, deactivate the cruise control by braking or by operating the On/Off switch. Now reduce speed to approx. 60 kph. Then press the RES button, and the cruise control should slowly accelerate the vehicle to the previously set 80 kph.

5. While driving with the cruise control activated, depress the clutch. The clutch switch should deactivate the cruise control. If this is not the case, check the wiring and the distance between the magnet and the reed contact. (see Chapter 9.0 ”INSTALLING THE CLUTCH SWITCH”).

13.0 ADJUSTING THE DIP SWITCHES

When the components have all been installed, the settings for processing the speed signal have to be adjusted. To do this, there are six dip switches under the rubber cover on the front of the electronic module (see Fig. 13.1).



Factory setting
(6000 PPM)

Fig. 13.1

1. ssw Range selection of PPM settings

„off“ 1000 - 12000 PPM
„on“ 16000 - 192000 PPM

2. sw3 Wahl der Impulsquelle

”+” blue cable for signal voltages from 1 V to 30 V
”-” yellow cable for signal voltages from 60 V to 600 V

3. Pulse count setting via sw1 and sw2

Switch									
ssw ”off”	1000	2000	3000	4000	5000	6000	8000	10000	12000
ssw “on”	16000	32000	48000	64000	80000	96000	128000	160000	192000
sw1	**-**	**-**	**-**	**0**	**0**	**0**	**+**	**+**	**+**
sw2	**-**	**0**	**+**	**-**	**0**	**+**	**-**	**0**	**+**

4. Sensitivity adjustment after first test drive

Switch	low	<	<	<	medium	>	>	>	high
sw4	-	-	-	0	0	0	+	+	+
sw5	-	0	+	-	0	+	-	0	+

14.0 SAFETY INFORMATION

The cruise control can be switched off as follows:

a) by depressing the brake pedal

b) by depressing the clutch pedal

c) by switching off using the ON/OFF switch

d) by reducing the speed of the vehicle to approx. 25% below the memorised speed

e) by switching off the ignition. But never remove the ignition key while the vehicle is travelling as this will block the steering wheel.

The cruise control is also deactivated if electrical connections are interrupted or if a brake light should be defective. The electronic module and the vacuum servo unit are equipped with various safety features. If one or more components should fail, the cruise control switches off automatically.

To ensure safe and economic operation, **NEVER** activate the MagicSpeed MS300.

- in stop-and-go driving conditions
- on wet or slippery (icy) roads!

NOTE: If a situation should ever occur in which the MagicSpeed MS300 cruise control cannot be deactivated by any of the means stated under points a) to c) above, it can be switched off by turning off the ignition. However never remove the ignition key while the vehicle is travelling as this will block the steering wheel.

15.0 TROUBLESHOOTING

Installation of the MagicSpeed MS300 has been completed and the battery has been reconnected.
Now carry out the tests in the sequence A, B and then C.

TEST A – Testing of electronic components and electrical connections

Turn the ignition on. The LED on the electronic module does not light up.

Operate the brake pedal.
Does the LED light up?

NO → Check the electrical connections of the MagicSpeed MS300 to the brake light/clutch switch.
Check the brake lights.

YES

Operate the clutch.
Does the LED light up?

NO → Check the electrical connections of the MagicSpeed MS300 to the clutch/brake light switch.
Check the installation of the reed contacts (see Chapter 9.0, page 18).

YES

Operate the SET button on the command module.
Does the LED light up?

NO

YES

Operate the RESET button on the command module.
Does the LED light up

NO

YES

Check the electrical connections of the MagicSpeed MS300 at the 4-pin connector
(see Fig. 10.2, page 19).

If all the functions are present, the electronic components and the electrical connections are in order.

TEST B – Testing the vacuum servo unit and its connections

Turn the ignition off. Briefly depress the brake to cancel the memory in the electronic module. Put the manual or automatic gearbox into neutral (with the handbrake on).
Start the engine with the SET button depressed. When the engine is running, release the SET button.
Switch the cruise control on.
The cruise control is now in diagnostics mode.

Hold the SET button depressed. The engine speed should slowly increase (Caution: Do not over-rev the engine). As soon as the SET button is released, the engine speed at that point should be maintained.

NO

Check the wiring from the servo unit (see Chapter 8.0 on pages 13-17). Check the vacuum connections. Check the throttle control lever connection (Bowden wire) (see Chapter 7.0 on pages 8-12).

YES

Hold the RESET button depressed. The engine speed should slowly decrease. As soon as the RESET button is released, the engine speed at that time should be maintained.

NO

YES

Depress the clutch or brake. The engine sped should fall to idling revs.

NO

Check the wiring from the servo unit and clutch switch.

YES

If all the functions are present, the servo unit and its connections are in order.

TEST C – Testing the speed signal

If a rev count signal is used, the test can be performed at a standstill. If a speed signal is used, the test must be performed on the road.

Start the engine or drive the vehicle at a speed of approx. 50 kph. Switch on the cruise control with the ON/OFF switch.

The red LED in the E module is blinking.

NO

Check the wiring of the signal cable (yellow or blue). Check the speed signal.

YES

The red LED is blinking approx. 1 time per second

NO

If the red LED is blinking faster than approx. 1 time per second, the PPM setting must be raised (see page 23).

NO

If the red LED is blinking faster than approx. 1 time per second, the PPM setting must be raised (see page 23).

YES

The speed signal is in order.

WAECO
mobile solutions

Headquarters

(D) **WAECO International GmbH** · Hollefeldstraße 63 · D-48282 Emsdetten
Fon: +49 2572 879-195 · Fax: +49 2572 879-322 · E-Mail: info@waeco.de · Internet: www.waeco.de

Europe

(CH) **WAECO Schweiz AG**
Riedackerstrasse 7a
CH-8153 Rümlang (Zürich)
Fon: +41 44 8187171
Fax: +41 44 8187191
E-Mail: info@waeco.ch

(DK) **WAECO Danmark A/S**
Tværvej 2
DK-6640 Lunderskov
Fon: +45 75585966
Fax: +45 75586307
E-Mail: waeco@waeco.dk

(E) **WAECO IbØrica S.A**
Camí del Mig, 106
Poligono Industrial Les Corts
E-08349 Cabrera de Mar
(Barcelona)
Fon: +34 93 7502277
Fax: +34 93 7500552
E-Mail: info@waeco.es

(F) **WAECO Distribution SARL**
ZAC 2 · Les Portes de L'Oise
Rue Isaac Newton – BP 59
F-60230 Chambly (France)
Fon: +33 1 30282020
Fax: +33 1 30282010
E-Mail: info@waeco.fr

(FIN) **WAECO Finland OY**
Mestarintie 4
FIN-01730 Vantaa
Fon: +358 20 7413220
Fax: +358 9 7593700
E-Mail: waeco@waeco.fi

(I) **WAECO Italcold SRL**
Via dell'Industria 4/0
I-40012 Calderara di Reno (BO)
Fon: +39 051 727094
Fax: +39 051 727687
E-Mail: sales@waeco.it

(N) **WAECO Norge AS**
Leif Weldingsvei 16
N-3208 Sandefjord
Fon: +47 33428450
Fax: +47 33428459
E-Mail: firmapost@waeco.no

(NL) **WAECO Benelux B.V.**
Ecustraat 3
NL-4879 NP Etten-Leur
Fon: +31 76 5029000
Fax: +31 76 5029090
E-Mail: verkoop@waeco.nl

(S) **WAECO Svenska AB**
Gustaf Melins gata 7
S-42131 Västra Frölunda
(Göteborg)
Fon: +46 31 7341100
Fax: +46 31 7341101
E-Mail: info@waeco.se

(UK) **WAECO UK Ltd.**
Dorset DT2 8LY · Unit G
Roman Hill Business Park
UK-Broadmayne
Fon: +44 1305 854000
Fax: +44 1305 854288
E-Mail: sales@waeco.co.uk

Overseas + Middle East

(AUS) **WAECO Pacific Pty. Ltd.**
1 John Duncan Court
Varsity Lakes QLD 4227
Fon: +61 7 55076000
Fax: +61 7 55221003
E-Mail: sales@waeco.com.au

(HK) **WAECO Impex Ltd.**
Headquarters
Suites 3210-12 · 32/F · Tower 2
The Gateway · 25 Canton Road
Tsim Sha Tsui · Kowloon
Hong Kong
Fon: +852 2 4632750
Fax: +852 24639067
E-Mail: info@waeco.com.hk

(ROC) **WAECO Impex Ltd.**
Taipei Office
2 FL-3 · No. 56 Tunhua South Rd, Sec 2
Taipei 106, Taiwan
Fon: +886 2 27014090
Fax: +886 2 27060119
E-Mail: marketing@waeco.com.tw

(UAE) **WAECO Middle East FZCO**
R/A 8, SD 6
Jebel Ali, Dubai
Fon: +971 4 8833858
Fax: +971 4 8833868
E-Mail: waeco@emirates.net.ae

(USA) **WAECO USA, Inc.**
8 Heritage Park Road
Clinton, CT 06413
Fon: +1 860 6644911
Fax: +1 860 6644912
E-Mail: customercare@waecousa.com

3.03.06.01445 10/2005

www.waeco.com