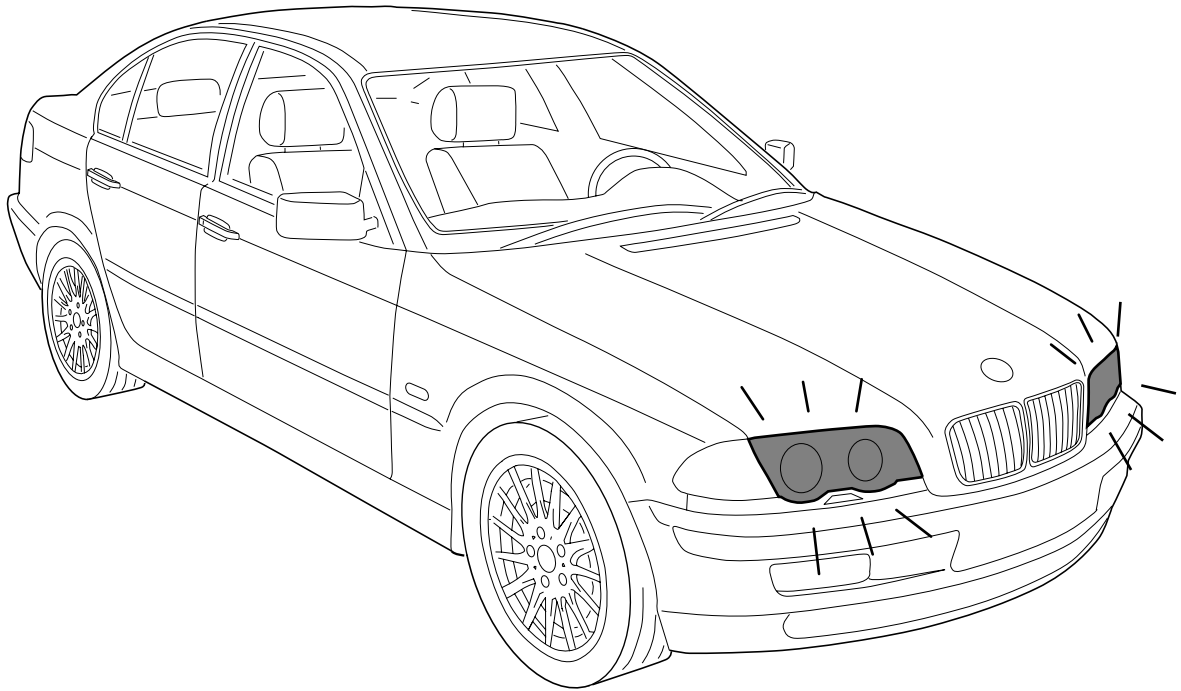




BMW Parts and Accessories Installation Instructions



F 46 0103 EVA

Xenon lights with automatic headlight vertical aim control for BMW 3 Series (E46) LHD

Technical knowledge is required

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1. Important notes

(Only for use within the BMW trading organisation).

Installation time approx. 5 hours.

Installation time can vary according to the condition and fittings of the vehicle.



This retrofit system may only be operated in ECE countries in association with a headlight cleaning system. ◀

All maintenance, repair, installation and resetting work on BMW motor vehicles should be carried out on own authority.

All operations should be carried out with the aid of the current BMW

- repair instruction manuals

- circuit diagrams

- maintenance manuals

- work instructions

- diagnostics manuals

in a logical sequence using the prescribed tools (special tools) whilst observing the current health and safety regulations.

Safety instructions

Before carrying out the installation, please note the following:

The current repair instructions manuals should be referred to for all tightening torques and these should be complied with unreservedly.

Make sure that cables and/or leads are not kinked or damaged when they are installed in the vehicles and that free movement of other components is not handicapped.

Should specified pins or pin spaces be already assigned, bridges, double crimping or parallel connections will have to be made.

Required tools and auxiliary materials

Phillips screwdrivers

Flat-tip screwdrivers

Socket wrenches SW 8 mm, 10 mm

Ring spanner SW 10 mm

Fork wrench SW 9 mm

Torque spanners

1/2 inch reversible ratchet

1/2 inch extension

1/2 inch socket wrench insert SW 16 mm, 17 mm, 19 mm

1/4 inch reversible ratchet

1/4 inch extension

1/4 inch socket wrench insert SW 7 mm, 8 mm, 10 mm

Side-cutting pliers

Crimping pliers

Lamp

2. Installation

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2.1 Preparatory work

Print out error memory.

Disconnect battery; in 4-cylinder models dismantle battery and battery bracket.

Remove wheel, front right.

Dismantle wheel arch trim panel, front right.

Dismantle washer fluid container.

Dismantle glove box.

Dismantle trim panel below glove box.

Dismantle sill strip, right.

Dismantle A-pillar trim panel, lower right.

Dismantle B-pillar trim panel, lower right.

Dismantle covering of pedals and steering column.

Dismantle storage compartment, left.

Dismantle rear seat bench and seat back.

Dismantle boot covering.

Open fold-out page 2-3

2.2 Install level sensor, front right (BMW Part No. 1 093 697)

A, B, C



The drillholes (1) on the frame are used for attaching the bracket (3) of the level sensor (5). The drillhole (2) in the swinging arm is used for attaching the angle joint (7). ◀

Attach bracket (3) to the drill holes (1) on the frame with a self-locking nut M6 (4).
Attach level sensor (5) to bracket (3) using two hexagon socket head cap screws M5x10 (6).
Attach angle joint (7) to the drill hole (2) in the swinging arm using a self-locking nut M8.
Join angle joint (7) and the lever of the level sensor (5) and fasten with a self-locking nut M6 (8).

2.3 Install level sensor, rear right (BMW Part No. 1 093 698)

D, E



The bracket (12) of the level sensor (14) is attached to the drillholes (9) on the frame. The bracket (16) of the angle joint (18) is fastened to the drillholes (10) in the swinging arm. The notch (11) serves for freedom of movement of the angle joint (18). ◀

Attach bracket (12) to the drill holes (9) in the frame using two hexagon-head screws M6x12 with washers (13).
Attach level sensor (14) to bracket with two hexagon socket head cap screws M5x10 (15).
Attach bracket (16) to the drill hole (10) on the swinging arm using one hexagon-head screw M6x16 (17) and one self-locking nut M6.
Attach angle joint (18) to the bracket (16) using a self-locking nut M6.
Using the extension (19), make the join between the lever of the level sensor (14) and the angle joint (18) and fasten with two self-locking nuts M6 (20).

2.4 Install xenon headlights



If the vehicle is having the headlight cleaning system (SRA) retrofitted also, installation of the xenon headlights should be carried out in association with the SRA retrofit. ◀

F

Dismantle headlights using the current version of the repair instructions and transfer the headlight cleaning nozzles (22) to the supplied xenon headlights (21).
Install xenon headlights (21) and connect SRA (headlight cleaning system) hose assembly (23).

G



Check and if necessary change the pin assignment of the 2-pole connectors X130 (left) and X135 (right) of the low-beam lights. ◀

The pins of the 2-pole grey connectors X130 and X135 must be assigned as follows:

Pin 1 (24): earth (cable colour brown)

Pin 2 (25): power supply (cable colour yellow/green (left), and yellow/blue (right)) respectively.

H

only BMW 3 Series compact (E 46/5):

When connecting the bi-xenon headlights, the adapter cables contained in the parts kit must be connected between the connectors X134 (high beam right) and X131 (high beam left) respectively of the vehicle wiring harness, and the high-beam connectors (38) of the headlights.

The free connectors X10106 and X10107 respectively of the adapter cables are connected to the corresponding connectors (39) of the bi-xenon headlights.

2.5 Connection overview of xenon wiring harness

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Connection outline

Item.	Designation	Cable colour	Connection point in vehicle	Code designation/ plug-in place
A1	Blade terminal contact	grey/white	Light module on driver's side	X12/19
A2	Blade terminal contact	grey/green	Light module on driver's side	X12/22
A3	Blade terminal contact	grey/brown	Light module on driver's side	X12/23
A4	Blade terminal contact	black/grey	Light module on driver's side	X12/26
A5	Blade terminal contact	black/green	Light module on driver's side	X12/14
A6	Blade terminal contact	black/white	Light module on driver's side	X12/46
B	6-pole socket housing	-	Level sensor, front right	X1451
B1	Blade terminal contact	grey/white	Level sensor, front right	X1451/1
B2	Blade terminal contact	grey/green	Level sensor, front right	X1451/4
B3	Blade terminal contact	grey/brown	Level sensor, front right	X1451/5
C	66-pole socket housing	-	Level sensor, rear right	X13251
C1	Blade terminal contact	black/white	Level sensor, rear right	X13251/1
C2	Blade terminal contact	black/green	Level sensor, rear right	X13251/4
C3	Blade terminal contact	black/grey	Level sensor, rear right	X13251/5
D	Grommet	-	Cable feed-through in boot	

2.6 Install xenon wiring harness and exchange light module

Open fold-out page 2-8

A

Overview of the connection sites

Branch cables A1 to A6 are installed from the front passenger footwell to the light module on the driver's side and are there connected to the 54-pole connector X12.

Branch cables B1 to B3 are installed from the front passenger footwell, through the engine compartment, to the level sensor, front right, and are there connected into the 6-pole socket housing X1451 (B).

Branch cables C1 to C3 are installed from the front passenger footwell, along the right-hand side vehicle wiring harness, through the grommet into the boot, continuing further to the level sensor, rear right and there connected into the 6-pole socket housing X13251 (C).



The cables of the xenon wiring harness are installed along the vehicle wiring harness and should be fastened in such a way as to prevent them from handicapping other components and to exclude rattling noises. ◀

B



All branch cables are installed going out from the front passenger footwell. In the front passenger footwell, branch cables A1 to A6 run behind the relay carrier (26) towards the left; branch cables B1 to B3 and C1 to C3 separate from each other in the area of the A-pillar. ◀

Install branch cables A1, cable colour grey/white, A2, cable colour grey/green, A3, cable colour grey/brown, A4, cable colour black/grey, A5, cable colour black/green and A6, cable colour black/white going out from the A-pillar of the front passenger footwell, behind the relay carrier (26) towards the left, through the corrugated tube to the driver's side and continuing along the vehicle wiring harness to the light module.

C, D

Unclip finisher, left, at instrument panel, screw out attachment screws (28) of the light module (29) and pull out light module (29).

Disconnect 54-pole connector X12 (30), remove light module and dismantle 54-pole connector X12 (30).



The light module (29) is no longer required. ◀

Connect branch cables A1 to A6 of the xenon wiring harness as follows:

Branch cable A1, cable colour grey/white, engage at plug-in place 19 of the 54-pole connector X12 (30).

Branch cable A2, cable colour grey/green, engage at plug-in place 22 of the 54-pole connector X12 (30).

Branch cable A3, cable colour grey/brown, engage at plug-in place 23 of the 54-pole connector X12 (30).

Branch cable A4, cable colour black/grey, engage at plug-in place 26 of the 54-pole connector X12 (30).

Branch cable A5, cable colour black/green, engage at plug-in place 14 of the 54-pole connector X12 (30).

Branch cable A6, cable colour black/white, engage at plug-in place 46 of the 54-pole connector X12 (30).

Assemble 54-pole connector X12 (30), connect into newly supplied light module and lock it.

Install light module, fasten with screws (28) and clip finisher in.

B, E, F

Install branch cables B1, cable colour grey/white, B2, cable colour grey/green and B3, cable colour grey/brown, through the grommet (27) from the front passenger footwell into the engine compartment, continuing along the Macpherson strut tower, through the cable feed-through (31) into the wheel arch and attach to the clips (32).

Connect branch cables B1 to B3 as follows into the 6-pole socket housing X1451 (33):

Branch cable B1, cable colour grey/white, engage at plug-in place 1 of the 6-pole socket housing X1451 (33).

Branch cable B2, cable colour grey/green, engage at plug-in place 4 of the 6-pole socket housing X1451 (33)

Branch cable B3, cable colour grey/brown, engage at plug-in place 5 of the 6-pole socket housing X1451 (33).

Seal off plug-in places 2, 3 and 6 with the supplied dummy grommets.

Secure the blade terminal contacts with the pink retainers.

Connect socket housing X1451 (33) to the level sensor, front right

G, H

all models except for BMW 3 Series compact (E 46/5):

Guide branch cables C1, cable colour black/white, C2, cable colour black/green and C3, cable colour black/grey from the front passenger footwell out along the sill wiring harness towards the rear, and install onwards at the battery cable through the cable feed-through (34) into the boot.

Put on supplied grommet (D), fasten with insulating tape, by this means replacing the dummy plug at the floor of the boot.

I

only BMW 3 Series compact (E 46/5):

Guide branch cables C1, cable colour black/white, C2, cable colour black/green and C3, cable colour black/grey from the front passenger footwell out along the sill wiring harness towards the rear, and install onwards at the vehicle wiring harness behind the right trim panel of the boot. Behind the trim panel, branch cables C1 to C3 run downwards.

Put on supplied grommet (D), fasten with insulating tape, by this means replacing the dummy plug at the floor of the boot.

J

all models except for BMW 3 Series compact (E46/5):

Guide branch cables C1 to C3 through, between plastic covering (35) and underbody, and attach them to the frame with cable strap and a clip (36).

K

all models:

Guide branch cables C1 to C3 over the frame to the level sensor and fasten with a cable strap (37).

Connect branch cables C1 to C3 as follows into the 6-pole socket housing X13251 (C):

Branch cable C1, cable colour black/white, engage at plug-in place 1 of the 6-pole socket housing X13251 (C).

Branch cable C2, cable colour black/green, engage at plug-in place 4 of the 6-pole socket housing X13251 (C).

Branch cable C3, cable colour black/grey, engage at plug-in place 5 of the 6-pole socket housing X13251 (C).

Seal off plug-in places 2, 3 and 6 with the supplied dummy grommets.

Secure blade terminal contacts with the pink retainers.

Connect 6-pole socket housing X13251 (C) into level sensor, rear right.



If the vehicle is having the headlight cleaning system (SRA) retrofitted also, install now the SRA wiring harness. ◀

2.7 Fix warning sticker and reassemble vehicle

L

Clean crossmember in area of the headlights and attach warning sticker.

Reassemble vehicle in the reverse order of disassembly.

2.8 Coding

This retrofit system is coding-relevant.

Coding is necessary in order that the retrofit system is made fully functional and in association with the other electrical vehicle systems excludes malfunctions and faults.


In addition, the retrofit system is stored in the central coding key of the IKE/instrument cluster.

Coding is done with DIS/MoDIC and is carried out automatically with the respective current coding programme in the "Retrofit" path.

The sequence is user-guided and you should note the relevant text instructions when carrying out the individual steps.

Print out error memory and execute a function check.

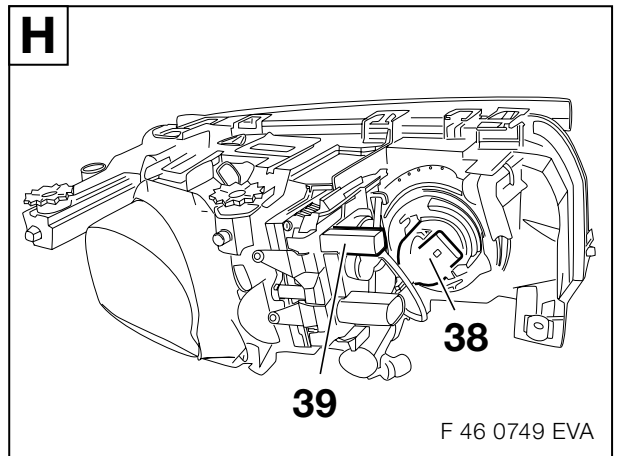
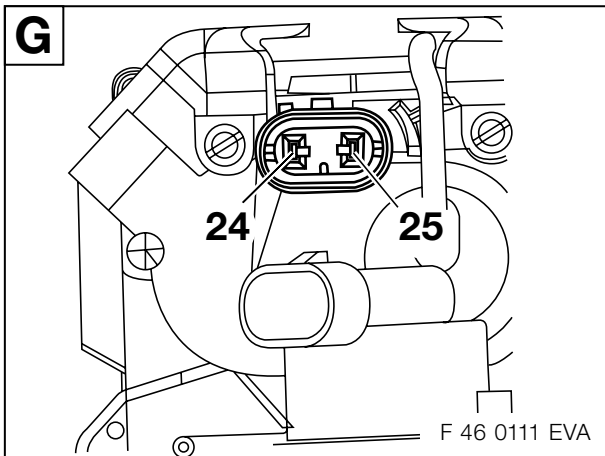
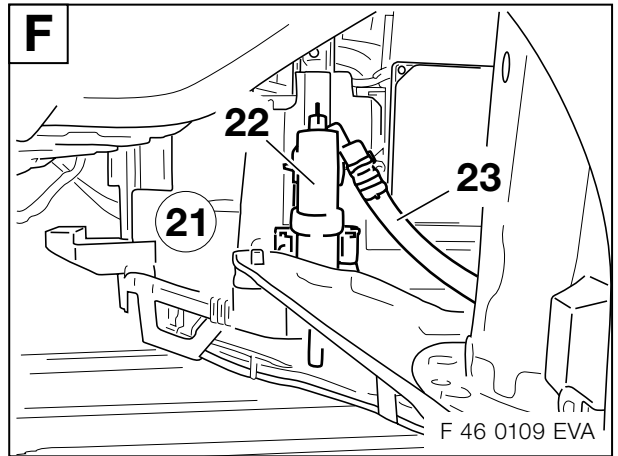
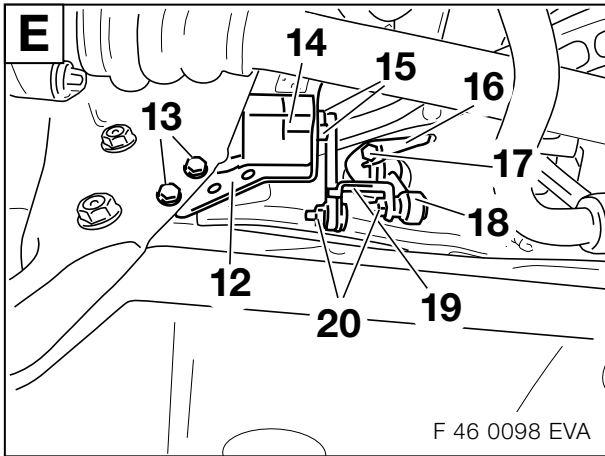
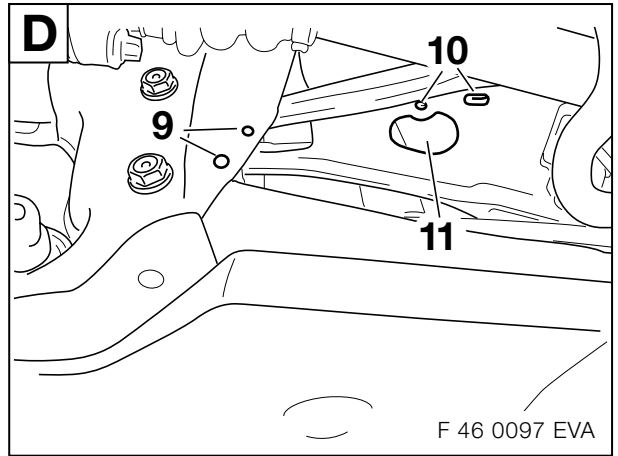
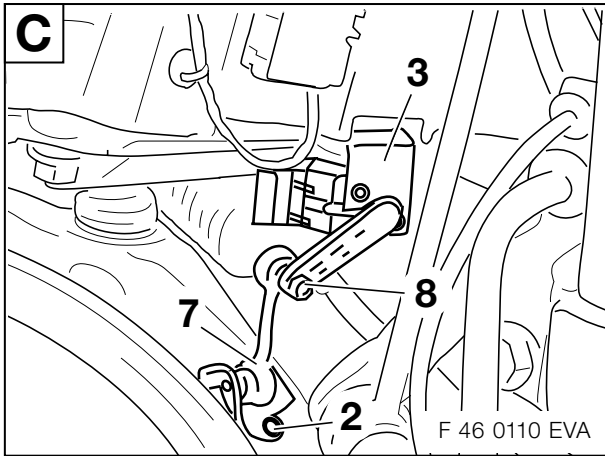
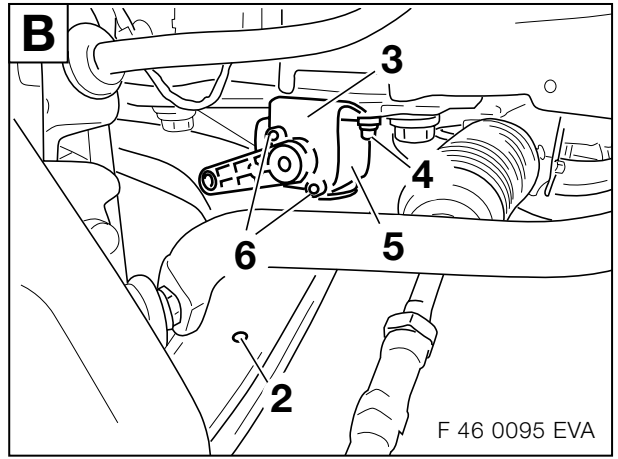
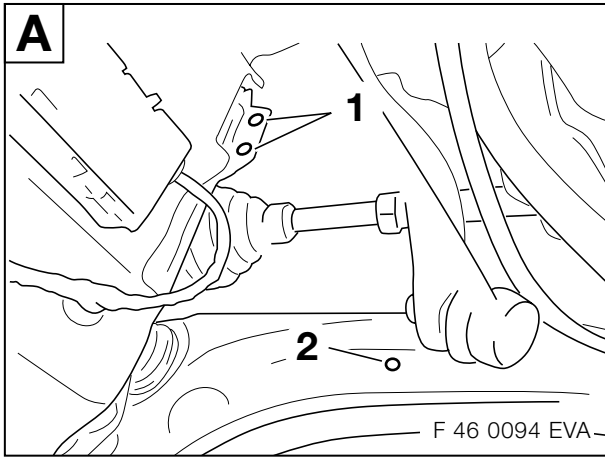
2.9 Function test

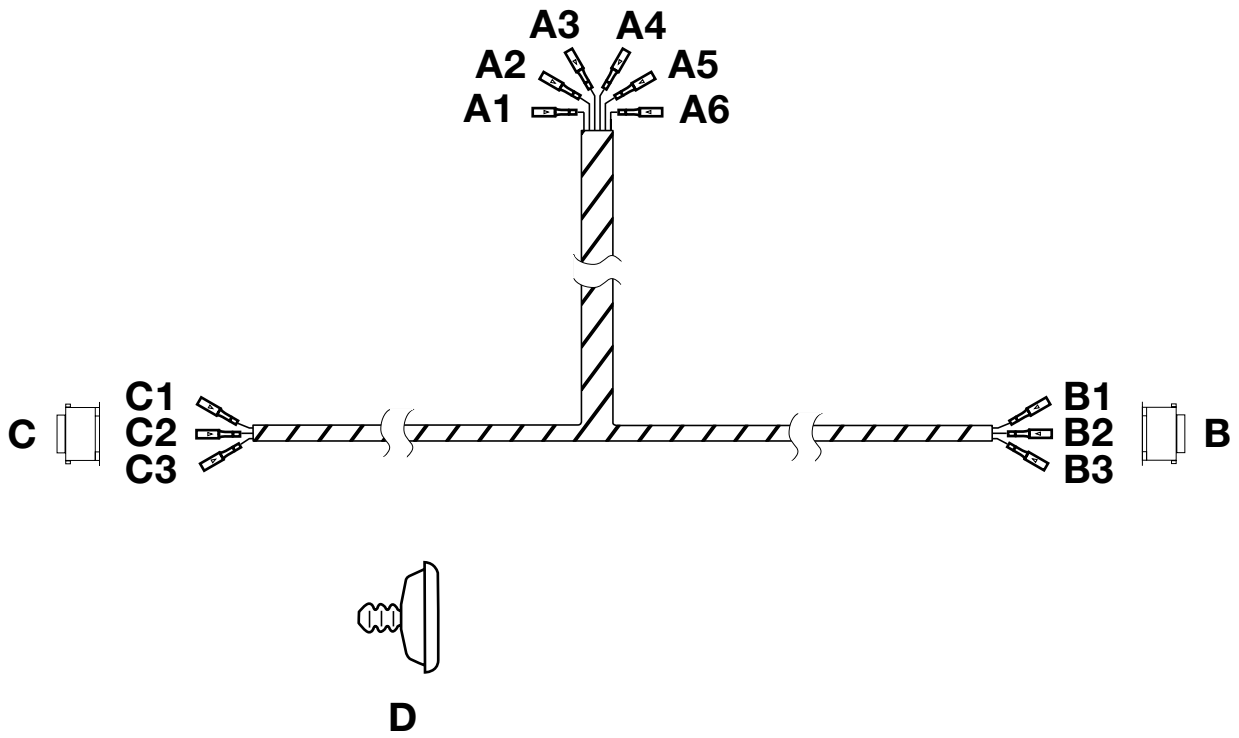
 When the low-beam lights are operated, the headlights must adjust themselves automatically. ◀

Test the function of the automatic headlight vertical aim control by loading the front and rear part of the vehicle respectively (delay time approx. 15 seconds).

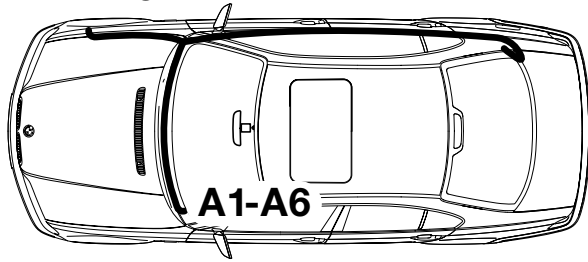
2.10 Adjust headlights

Check basic setting of the headlights in accordance with manufacturer's specifications, if necessary adjust.

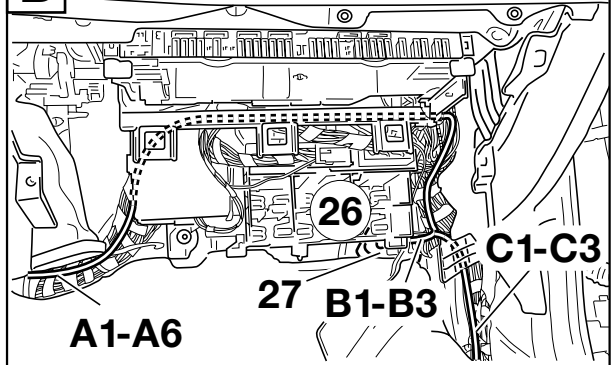




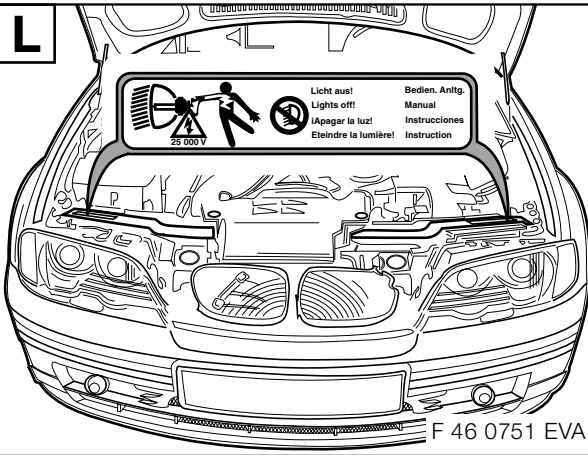
F 46 0104 EVA

A**B1-B3****C1-C3****A1-A6**

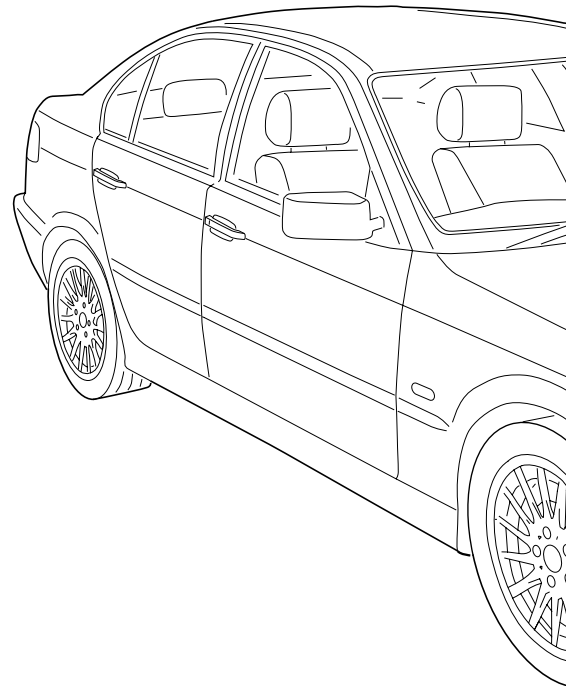
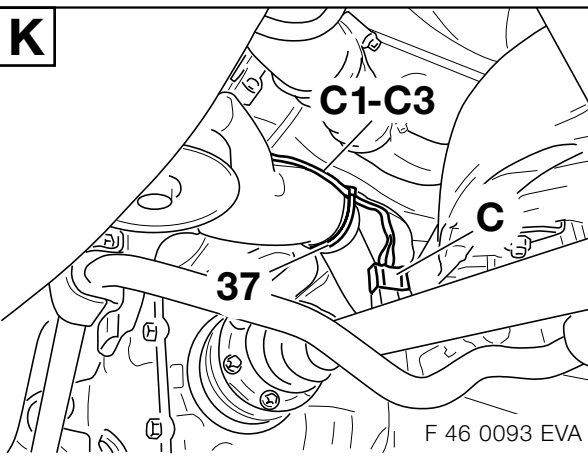
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B**C1-C3****27 B1-B3****A1-A6**

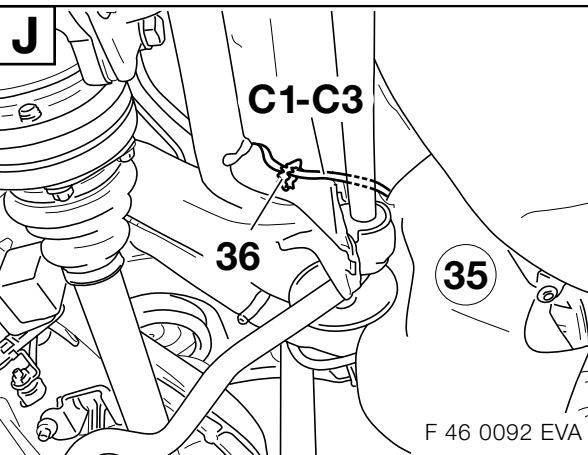
F 46 0106 EVA

L

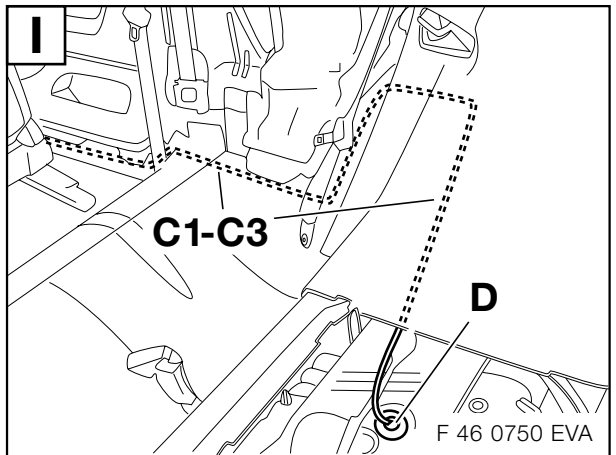
F 46 0751 EVA

**K****C1-C3****C****37**

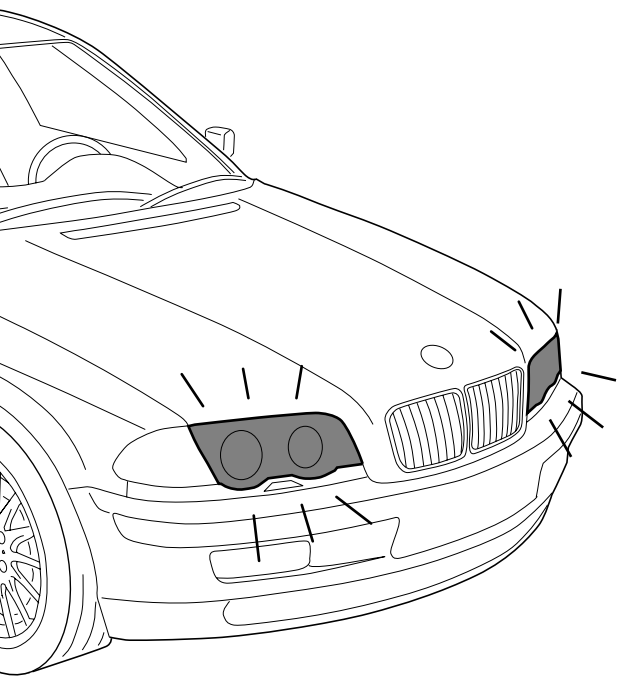
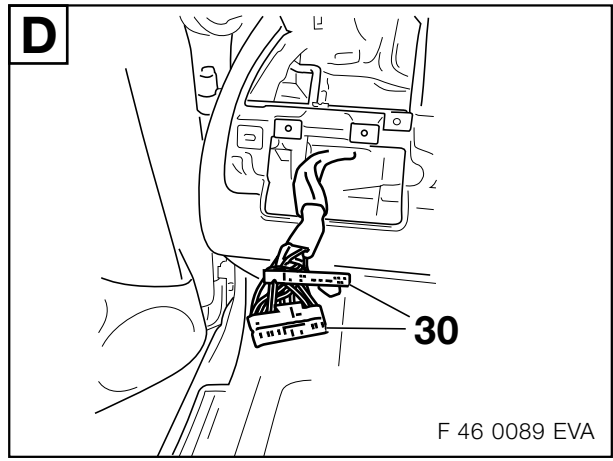
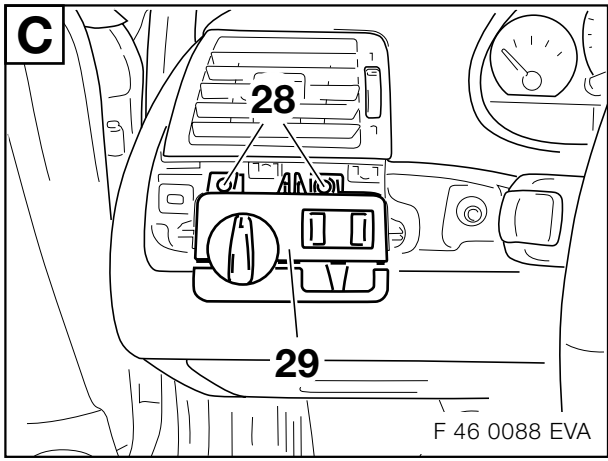
F 46 0093 EVA

J**C1-C3****36****35**

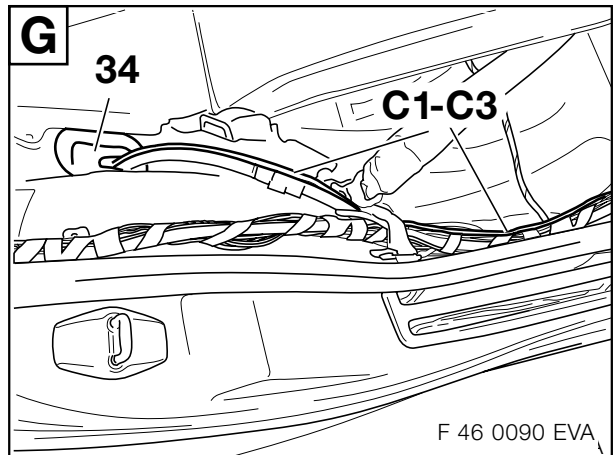
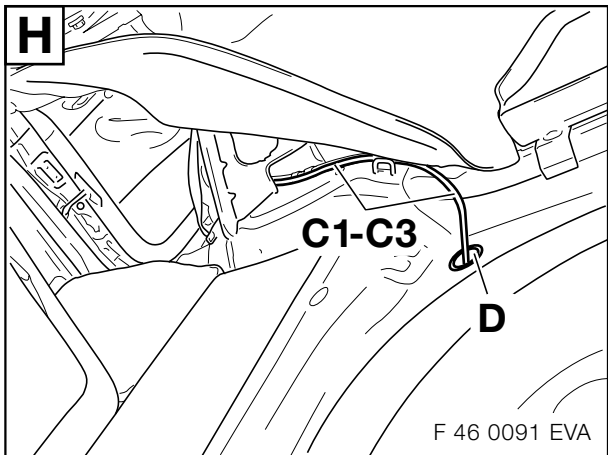
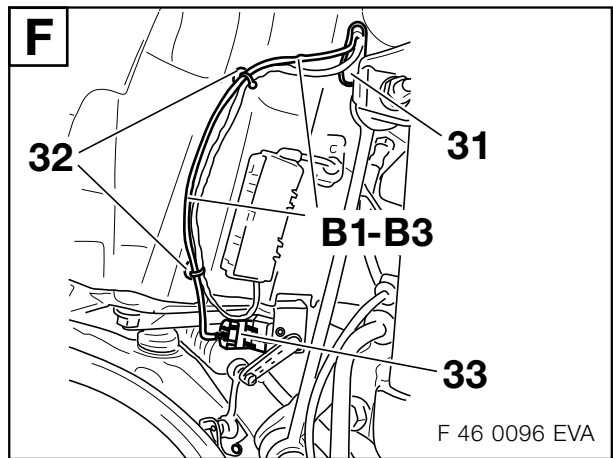
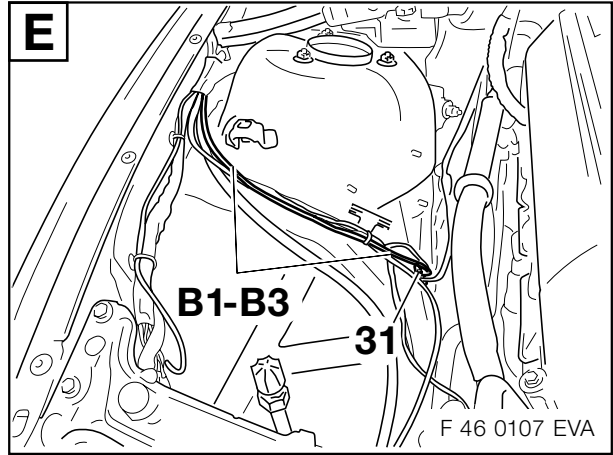
F 46 0092 EVA

I**C1-C3****D**

F 46 0750 EVA



F 46 0103 EVA



3. Circuit diagram

Open fold-out page 3-2.

A3 Light module

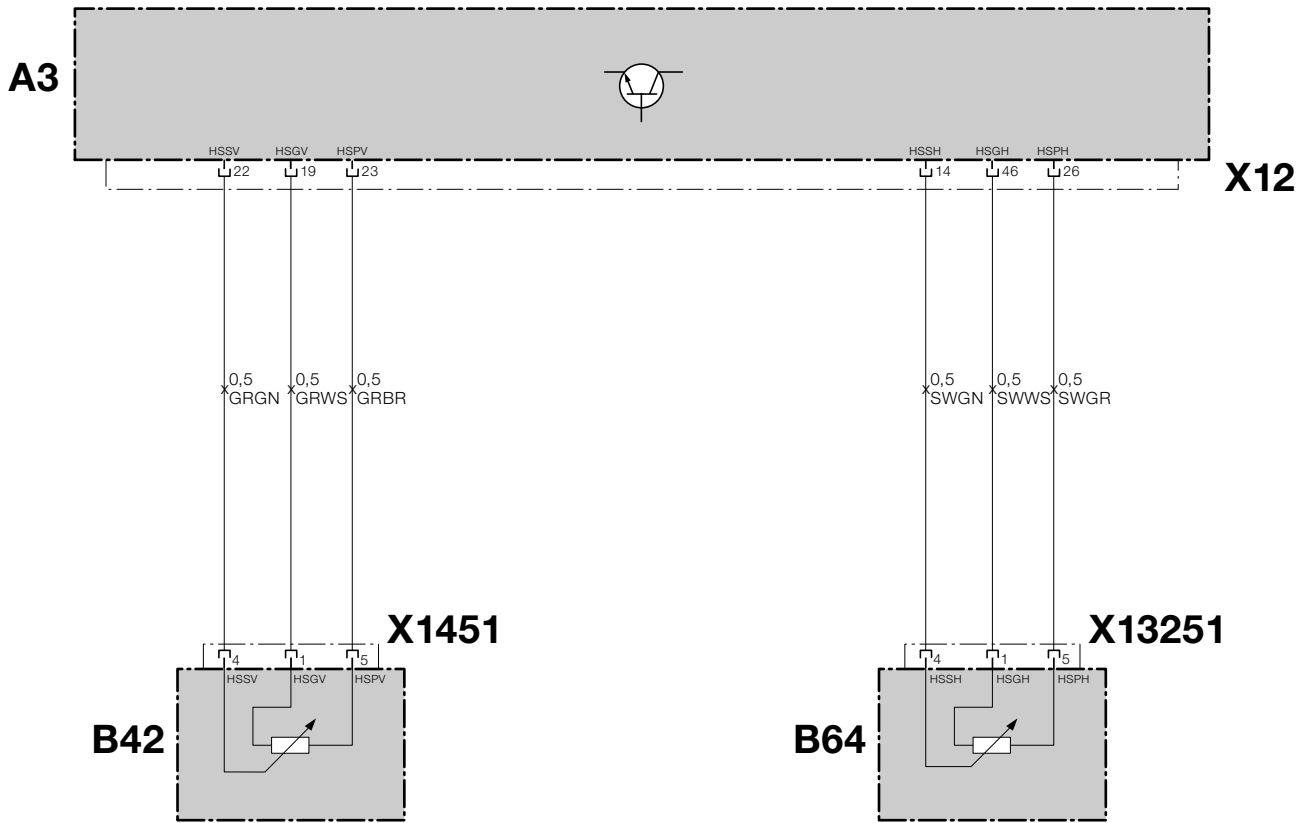
B42 Load sensor, front LWR

B64 Load sensor, rear LWR

X12 54-pole connector at light module

X1451 6-pole socket housing, load/level sensor right

X13251 6-pole socket housing, load sensor, rear LWR



F 46 0108 EVA