



Working Instruction

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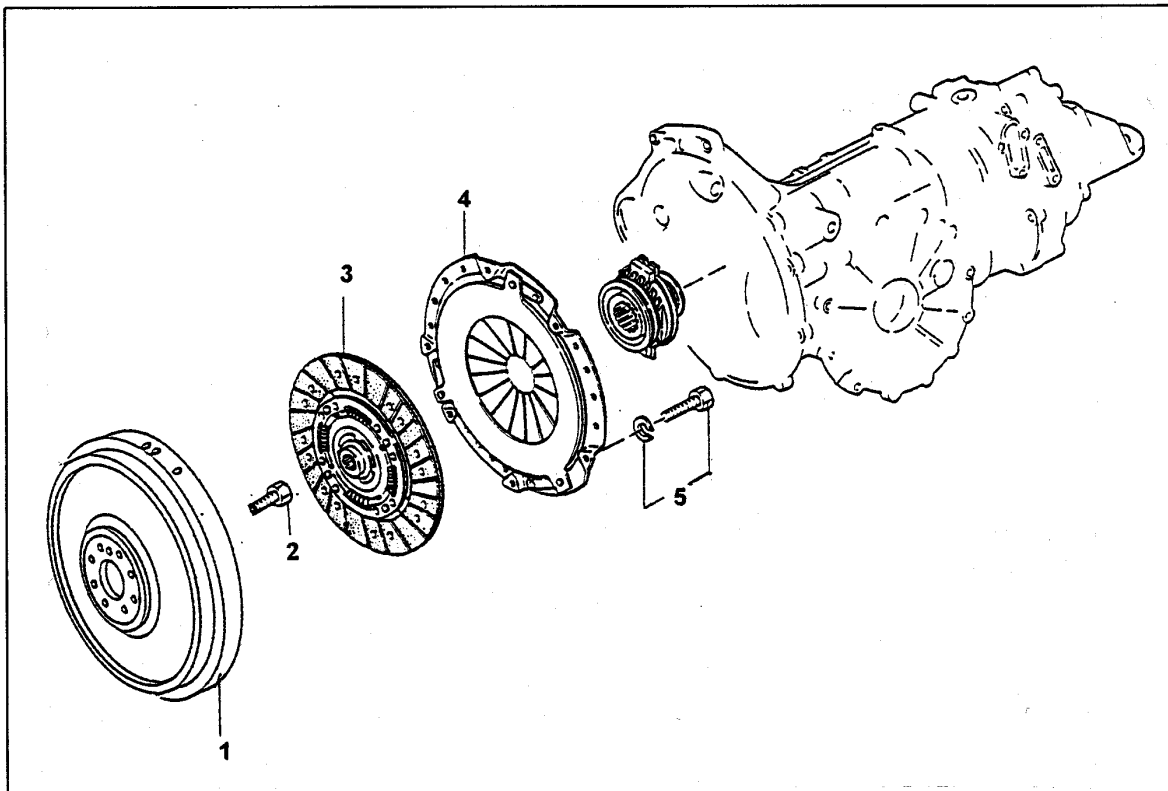


Working Instructions

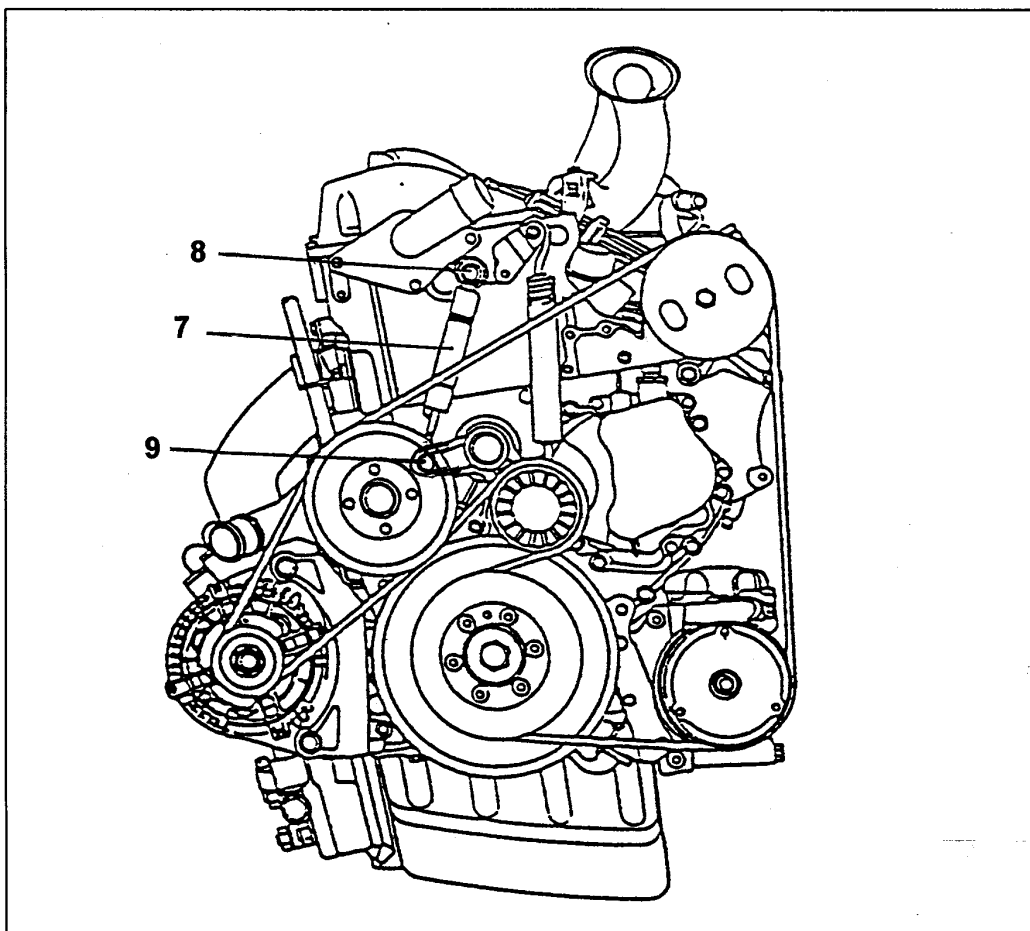
Group 03/1



MB 100 Series Installation of Dual Mass Flywheel For OM 662 Engine Only



No.	Description	Single Mass Flywheel Part no.	Dual Mass Flywheel Part no.	Quantity
1	Flywheel	102 030 25 05	662 030 30 13	1
2	Flywheel mounting bolt	661 032 31 71	111 990 03 12	8
3	Clutch disc	662 250 36 03	662 250 37 03	1
4	Clutch pressure plate	662 250 35 04	662 250 36 04	1
5	Clutch pressure plate mounting bolts & spring washers	Bolt -91808 08181 Spring washer - 661 991 30 25		6

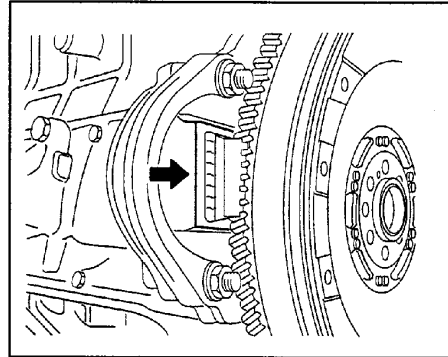
1. Belt tensioner damper

NO.	Description	SMF	DMF	QTY
7	Belt tensioner damper	661 200 34 14	604 200 02 14	1
8	Bolt-Comi M8X 30 (Upper)	914007 008054		1
9	Bolt-Comi M7X 35 (Lower)	914008 007000		1

2. Removal of Single Mass Flywheel & Clutch Assembly

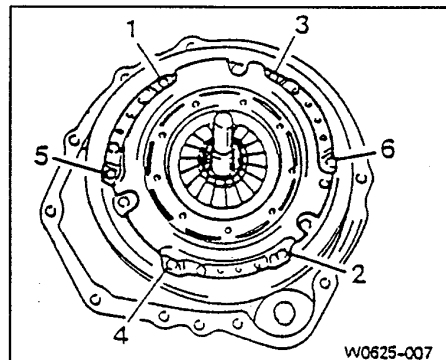
**Preceding work: Removal of transmission
(please refer to 26-1200)**

- Remove starter motor and install engine lock (part no. 602 589 00 40 00) to flywheel ring gear

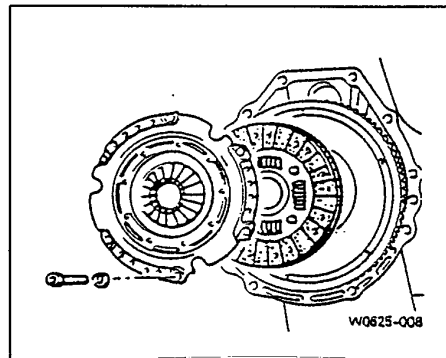


- Insert centering mandrel (part no. 661 589 15 00) to center spline of the clutch and slacken clutch assembly mounting bolts in diagonal pattern (see drawing) by 1~ 1½ per turn to remove tension.

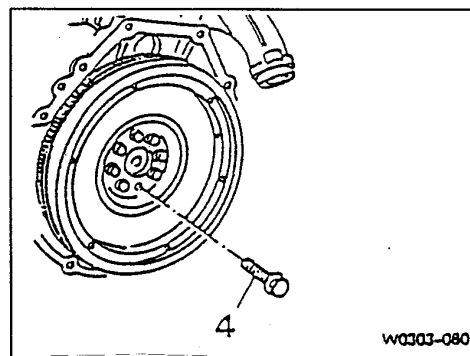
Note: If bolts are unscrewed one by one at a time, the clutch pressure plate can be distorted or other damage can occur.



- Unscrew bolts completely and remove clutch assembly
Note: Do not drop the pressure plate or clutch disc.



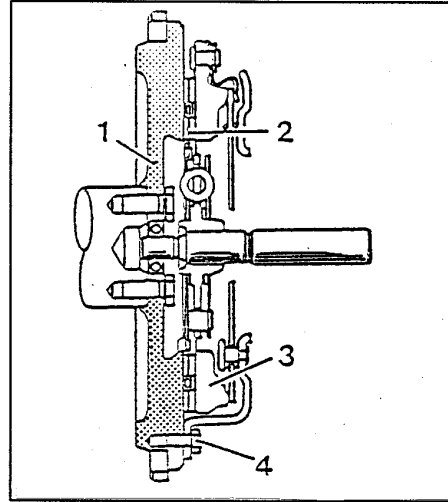
- Unscrew twelve sided stretch bolts (4) and remove flywheel



3. Installation of Dual Mass Flywheel

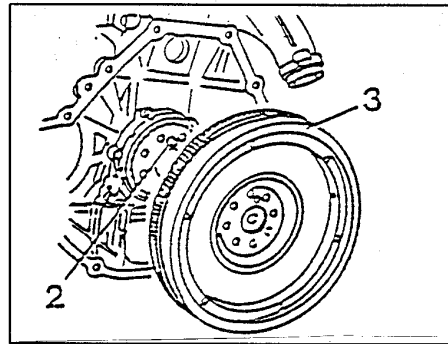
- Note: Clean pressure plate and flywheel surface with suitable commercial alcohol base solvent to remove any oil film on the surface.

1. Dual mass flywheel
2. Clutch disc
3. Pressure plate
4. Fixing bolt

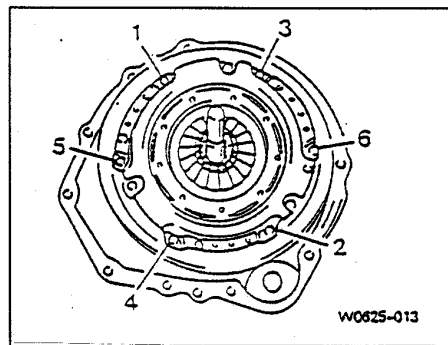


- Install dual mass flywheel (part no. 662 030 3013) to the crankshaft end and ensure it is seated onto the dowel pin (2). Tighten the flywheel (3) with twelve sided stretch bolts and torque to 45 Nm + 90° angle of rotation

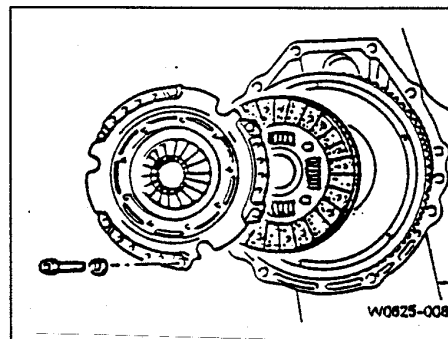
Note: As the twelve-sided stretch bolts are subject to a permanent stretch after tightening, they must be replaced if the maximum length of 18mm is exceeded



- Install clutch disc (part no. 662 250 3703) and clutch pressure plate (part no. 662 250 36 04) together to flywheel using a centering mandrel. (part no. 661 589 00 1500)



- Install clutch assembly and ensure the clutch pressure plate (part no 662 250 36 04) is correctly seated into the dowel pin of the flywheel. Tighten mounting bolts with spring washer (part no. 91808 08181 & 661 991 30 25) 1 to 1 ½ turns at a time diagonally, 25± 2.5 Nm.
- Remove centering mandrel and engine lock.
- After installation of transmission, check and adjust release lever (refer to repair microfiche page 29-1565) and check and adjust the clutch pedal free play (refer to repair microfiche page 29-3260).





Working Instructions

Group 09/1



MB 100 Series Engine Hydrostatic Lock Modification

While driving through wet areas, the water running down from the windscreen is entering the engine/service compartment. This water can cause:

- Engine Hydrostatic Lock- When water is been sucked in through the air cleaner
- Contamination of steering fluid- Water entering into the power steering reservoir from the filler neck
- Dirtying and causes corrosion to various parts of the components in the service compartment

Production remedy : From June 97, chassis serial no. 050865 onwards, maintenance flap weather seal are installed .

From December 97, chassis serial no. 059700 onwards, the new air cleaner intake duct and intake duct cover are installed.

From chassis serial no. 060719 onwards, the modified body cowl will be installed

Service remedy : Vehicles with chassis serial no. up to 050864, modification are to be done by installing the maintenance flap weather seal, the new air cleaner duct and the intake duct cover.

Vehicles with chassis serial no. from 050864 to 059699, modification are to be done by installing the new air cleaner duct and the intake duct cover.

Required spare parts for modification per vehicle:

No.	Spare Part No.	Description	Quantity
1	661 750 32 77	Weather seal	1
2	98464-5012D	Tapping screw	2
3	661 528 35 04	Air cleaner duct	1
4	661 831 30 39	Air intake duct cover	1
5	94206 40790	Blind rivets	4

NOTE:

- The fixing points of the weather seal in series production (part no. **661 750 31 77**) and the modification solution (part no. **661 750 32 77**) are different.
- Part no. **661 750 31 77** : Newly drilled bores in the maintenance flap
- Part no. **661 750 32 77** : Paint drain slot holes of the maintenance flap

Warranty cost settlement : According to Standard Text, Operation code 09 0099

Installation of maintenance flap weather seal & air intake duct modification Flat Rate = 0.3 M/hour

Modification of air intake duct Flat Rate = 0.2 M/hour

Damage Code: 09 910 69

Installation of Maintenance Flap Weather Seal

1. Install the new weather seal over the whole length between both maintenance flap hinges, onto the inner side of the flap.

See figure 1 distance "A" :1396mm

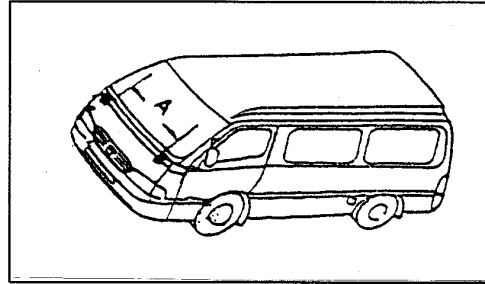


Figure 1

2. Open maintenance flap fully
Mark two additional bores positions from both outer flap edges (distance D) to centerline of paint drain slot holes. (refer to figure 2)

D : Distance from outer flap edges 93.0mm

B : Paint drain slot holes on inner panel

▲ : Paint drain slot holes center line

Drill both bores into inner flap panel to \varnothing 2.0mm.

After drilling, chamfer bore edges and carry out anti- corrosion measure at the bores.

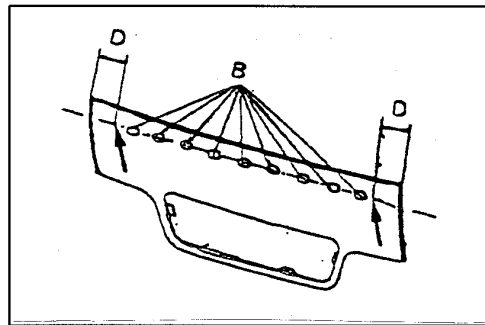


Figure 2

3. Install new weather seal with supplied clips (10 pieces), starting from center of flap to the right and left side equally.

Refer to figure 3 for correct mounting position (A) of clips.

A : Clips mounting position

B : Paint drain slot holes on inner panel side

Fasten both ends of weather seal with two tapping screws (98464-50120) at newly drilled bores.

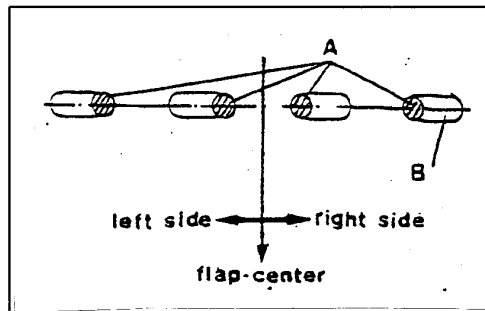


Figure 3

4. After installation, close maintenance flap and check for proper sealing at inner flap (3), body cowl (1) & weather seal (2)

Refer to figure 4

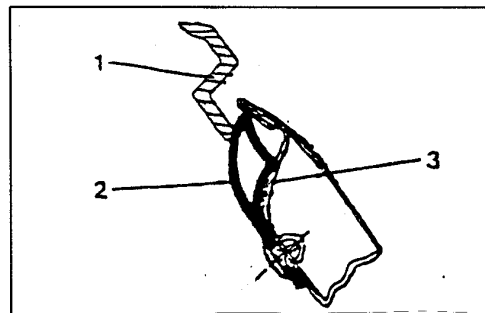


Figure 4

Installation of Air Intake Duct & Cover

1. Remove air cleaner cover (A)
Drill out the pop rivet at air cleaner duct (arrow)
Remove old air cleaner duct (C) from air cleaner cover.
Install new air cleaner duct (B) into air cleaner cover (A) and Blind rivet (arrow)

Refer to figure 5

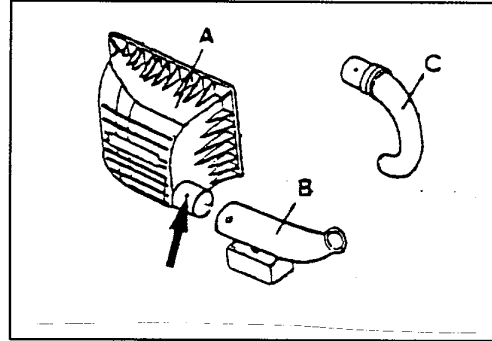


Figure 5

2. Using the new air intake cover (E) as template, mark three bores (arrows) to be drilled onto fresh air intake cover (D).
Refer to both shapes alignment.

Drill the three bores to $\varnothing 4.2\text{mm}$ (arrow).
Installed new air duct cover (E) onto fresh intake cover (D) and fix it with three Blind rivets

Install air cleaner cover to air cleaner housing
Refer to figure 6

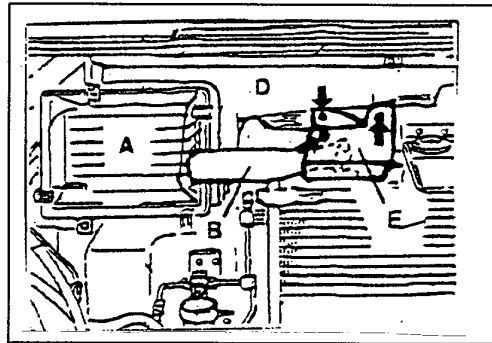


Figure 6

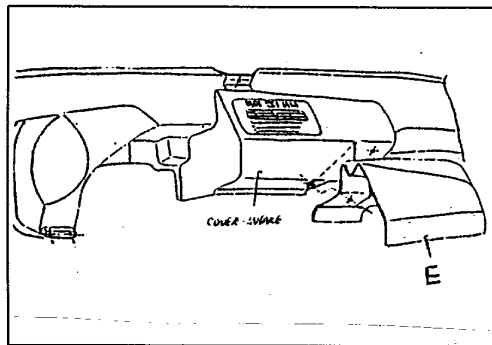


Figure 7



Working Instructions

Group 09/2



MB 100 Series

Engine Hydrostatic Lock Modification (RHD Vehicles)

While driving through wet areas, the water running down from the windscreen is entering the engine/service compartment that can cause:

- Engine Hydrostatic Lock- When water is been sucked in through the air cleaner
- Contamination of steering fluid- Water entering into the power steering reservoir from the filler neck
- Dirtying and causes corrosion to various parts of the components in the service compartment

Production remedy : From June 97, chassis serial no. 050865 onwards, maintenance flap weather seal (p/no.661 750 31 77) are installed .

From, chassis serial no. 063079 onwards, the new air cleaner and air intake duct cover are modified.

From chassis serial no. 060719 onwards, the modified body cowl are installed

Service remedy : **Modification "A"**
Vehicles with chassis serial no. up to 050864, modifications are to be done by installing the maintenance flap weather seal.

Modification "B"
Vehicles with chassis serial no. up to 063078 the new air cleaner and air intake duct cover.

Required spare parts for modification per vehicle:

No.	Part No.	Description	Quantity
1	661 750 32 77	Weather seal	1
2	98464-5012D	Tapping screw	2
3	661 090 39 01	Air cleaner	1
4	661 528 30 10	Air intake duct cover	1
5	661 988 02 28	X-mas tree clip	1
6	94591 08000	Screw clamp	2

NOTE:

- The fixing points of the weather seal in series production (part no. **661 750 31 77**) and the modification solution (part no. **661 750 32 77**) are different.
- Part no. **661 750 31 77** : Newly drilled bores in the maintenance flap
- Part no. **661 750 32 77** : Paint drain slot holes of the maintenance flap

Warranty cost settlement : According to Standard Text, Operation code 09 0099

1. Installation of maintenance flap weather seal flat rate = 0.2 M/hour
2. Installation of air cleaner and air intake duct cover flat rate = 0.5 M/hour
3. Installation of maintenance flap weather seal, air cleaner and air intake duct cover flat rate = 0.6 M/hour

Damage Code: 09 910 69

Modification "A"

Installation of Maintenance Flap Weather Seal

1. Install the new weather seal over the whole length between both maintenance flap hinges, onto the inner side of the flap.

See figure 1 distance "A" :1396mm

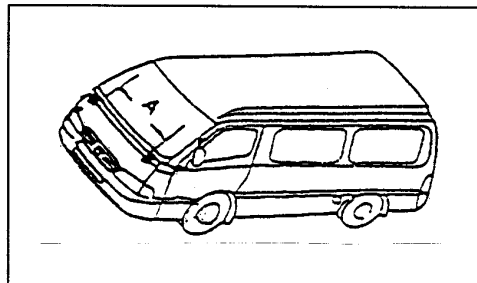


Figure 1

2. Open maintenance flap fully
Mark two additional bores positions from both outer flap edges (distance D) to centerline of paint drain slot holes. (refer to figure 2)

D : Distance from outer flap edges 93.0mm

B : Paint drain slot holes on inner panel

▲ : Paint drain slot holes center line

Drill both bores into inner flap panel to \varnothing 2.0mm.

After drilling, chamfer bore edges and carry out anti-corrosion measure at the bores.

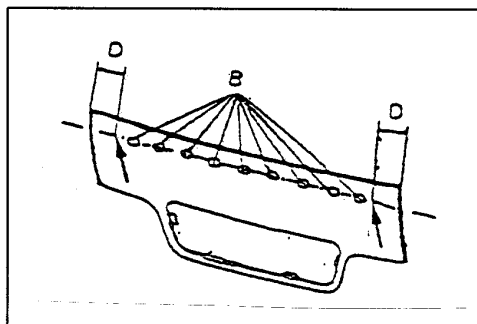


Figure 2

3. Install new weather seal with supplied clips (10 pieces), starting from center of flap to the right and left side equally.

Refer to figure 3 for correct mounting position (A) of clips.

A : Clips mounting position

B : Paint drain slot holes on inner panel side

Fasten both ends of weather seal with two tapping screws (98464-5012D) at newly drilled bores.

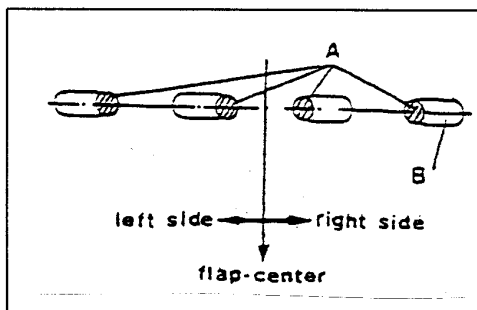


Figure 3

4. After installation, close maintenance flap and check for proper sealing at inner flap (3), body cowl (1) & weather seal (2)

Refer to figure 4

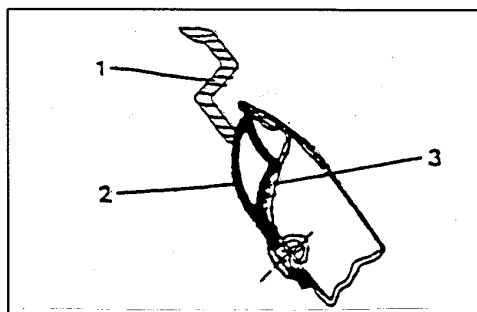


Figure 4

Modification " B"

Installation of Air Cleaner & Air Intake Duct Cover

1. Remove air intake cover (A), using the new air intake duct cover (B) as a template, mark three bores (arrows) then drill this three bores with $\varnothing 8\text{mm}$ drill bit onto the air intake cover (A) and check hole alignment.

Refer to figure 5

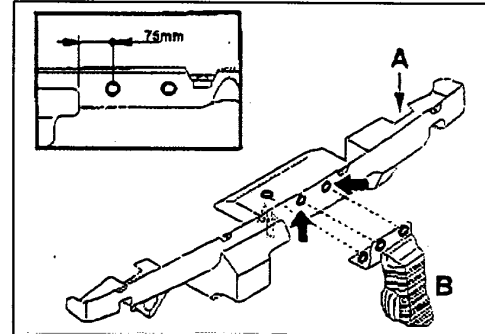


Figure 5

2. Remove old air cleaner
3. Cut off the expansion tank deaeration hose 25mm at both ends to prevent touching with the air cleaner duct. (refer to figure 6)

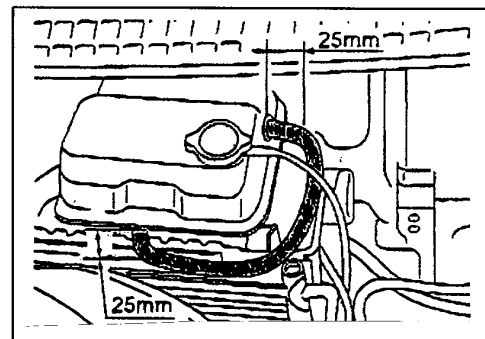


Figure 6

4. Install new air cleaner (C)
5. Install air intake cover.
6. Install new air intake duct (D) on the air intake duct cover and fix it with 2 screw clamps & 1 X-mas tree fastener (refer to figure 7)

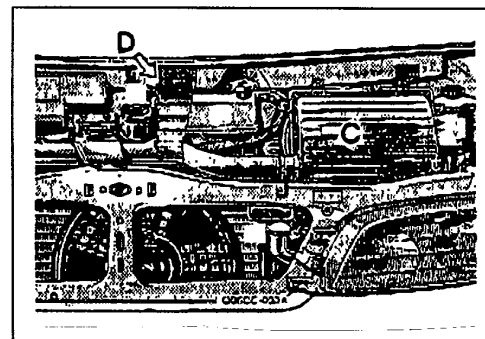


Figure 7



Working instructions

Group 15/1



Checking of battery terminals/ wires

Chassis serial numbers : From VIN : 000300 up to VIN : 014007

To prevent contact and wearing of the starter motor wires (+ 30 / 50) a rerouting has to be carried out.

Production remedy : As from March 96, chassis serial numbers 014007 all vehicles are modified.

Service remedy : For all vehicles up to chassis serial numbers 014006, battery terminals and wire have to be checked and modify if necessary.

Carry out the following modification.

1. Check gap between both wires
(see arrow figure 1, battery + 30
and 50) at starter motor.
If necessary enlarge gap by moving
wires as far as possible apart.
Retighten wires at terminals.

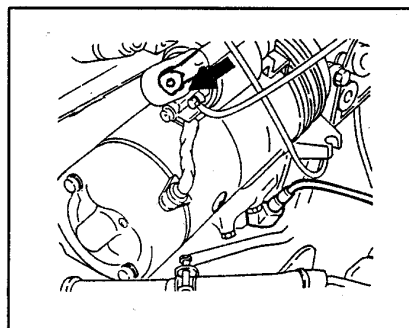


Figure 1

2. Check terminal + 30 protecting
boot of proper installation.
The boot has to cover the whole
terminal, if necessary reset.
See arrow figure 2 .

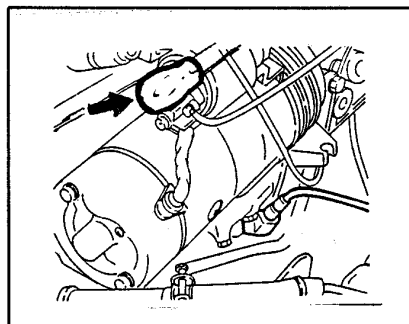


Figure 2

Warranty cost settlement : According to Standard Text/Flat Rate = 0.2 M/hour

Damage Code: 1590053



Mercedes-Benz

Service

Working Instructions

Group 26/1



MB 100 Series Transmission Gearshift Lever-Hard Shifting

For the MB100 Series Van/Coaches, there are some cases where the effort required to downshift from 5th gear to neutral is excessive. At other times, it is difficult to engage reverse gear from neutral position even when the vehicle is completely stationary.

This is caused by transmission oil pressure at the end of the reverse/5th gear-shifting rod. The pressure builds up when it cannot drain out quickly from the chamber between the end of the shifting rod & the inner face of the differential cover.

Service remedy: A notch has to be cut on the differential cover at the point where it meets the reverse/5th gear shifting rod bore. This will relieve any pressure build-up.

Warranty cost settlement: According to Standard Text, Operation code 26 0099
Remove & install differential cover + Cut notch = **1.3 M/hr**

Damage Code: 2610197

Carry out the following modification.

1. First remove left side drive shaft & axle assembly as detailed in repair instructions microfilm 33-1265.
2. Drain out transmission fluid.
3. Remove differential cover
4. Remove shaft seal & O-ring.
5. Place the cover on a worktable with its internal surface pointing upwards. Locate the cover reinforcement stiffner Y that is between the filling /inspection plug & the mounting hole X.
6. Mark the notch outlines with one end aligned with stiffner Y as shown in Figure 2. The depth & width is indicated as A & B in Table 1.

Table 1 :

Notation	Dimension
A	7 to 8 mm
B	10 to 15 mm

7. Cut & deburr the notch.



Ensure the notch is not cut too deep as it will interfere with the O- ring groove.

8. Clean cover.
9. Renew the shaft seal & O-ring.
10. Lightly lubricate the O-ring with transmission fluid before installing the cover.
11. Clean & lightly lubricate the drive shaft & seal.
12. Install driveshaft & axle assembly as detailed in repair instruction microfilm 33-1265.
13. Fill up transmission fluid.
14. Perform road test and check for leakage and smooth gear shifting.

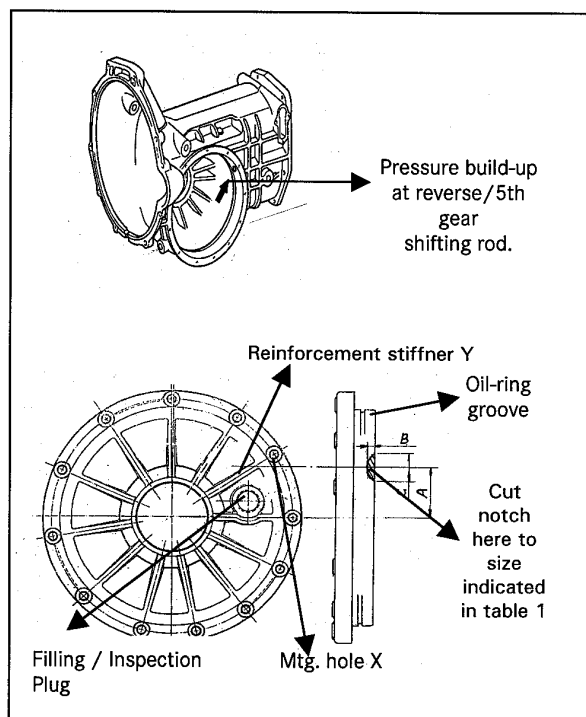


Figure 1

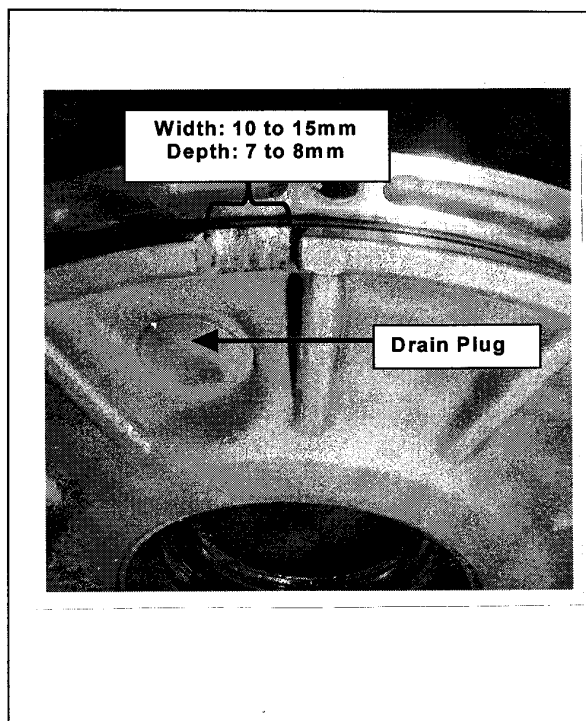


Figure 2



Working Instructions

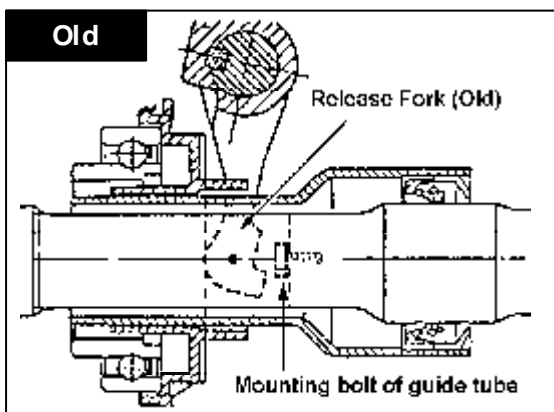
Group 26/2

MB100 Series

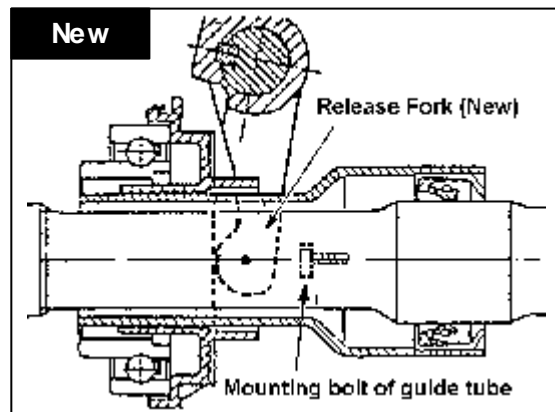
Checking of the Clutch Release Fork

Due to the wear of the clutch disc, the clearance between clutch release fork and the head of the mounting bolt of the guide tube is reduced. Hence, there is possibility for back of clutch release fork touching the head of mounting bolt of the guide tube after releasing clutch pedal. The clutch slip problem may occur.

■ **Production remedy** : Clutch release fork was changed from January 1998, Chassis number 061110~



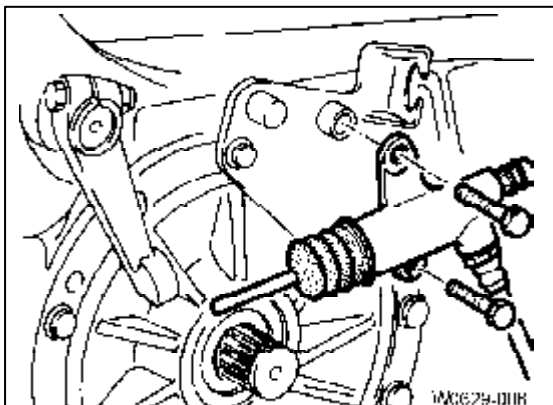
(Figure.1)



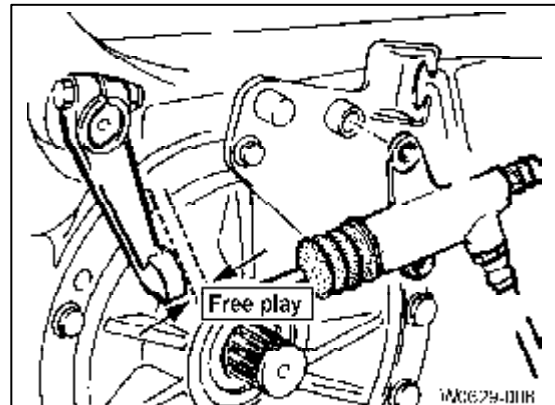
(Figure.2)

■ **Service remedy** : In case of premature wear of clutch disc under normal operation, clutch release fork should be checked. It is possible to check the clearance between the release fork and the mounting bolt of guide tube before remove transaxle.

- 1) Remove the clutch sleeve cylinder. (refer to Figure.3)
- 2) Check the free play of release lever. (refer to Figure.4)



(Figure.3)



(Figure.4)

If there is no free play, release fork might touch the mounting bolt of guide tube. Then remove the transaxle. If you find out an extension at the back of arm of the release fork touching the head of mounting bolt of guide tube, the release fork should be replaced by new one. (Part no :661 293 3111)

Note

- It is a tolerance problem which therefore not occurs at every vehicle.
- When you reinstall the clutch sleeve cylinder after checking, refer to Workshop manual 29-1565/2



Working instructions

Group 35/1



Installation of Rear Wheel Hub Cap Sealing

Due to insufficient sealing of the rear wheel hub cup, under certain circumstances water may enter into the wheel hub and bearing damages are possible

Chassis serial numbers : From 000400 up to 018536.

Production remedy : As from June 13th chassis serial numbers 018537, rear wheel hub caps are installed with a sealing compound at the sealing surface of the wheel hub cap. As from December chassis serial numbers 036197 additional thrust washers are installed, to prevent the wheel hub from moving off the steering spindle in case of bearing damage.

Service remedy : For all vehicles up to chassis serial numbers 018537 have to be checked for bearing corrosion and additional thrust washers installed.
For all vehicles up to chassis serial numbers 018537 to 036196 only the additional thrust washers have to be installed.

Carry out the following modification.

1. Remove both rear wheels
Remove both brake drums
Remove both wheel hub, refer to workshop manual page 35-5300/2 to /3

Check inner and outer bearings for corrosion.
(see figure 1 arrows)

If no corrosion is found;
Replace seal ring only if damaged.
Install wheel hub using additional thrust washer, refer to paragraph 3 and appendix of this Working Instruction.
Fill wheel hub cap with 30g GLS-2 DBL 6804.20 grease and coat hub cap sealing surface with Omnifit or Loctite 573 or Hylomar.
(see figure 2 arrows)

- If corrosion is found;**
2. Replace rear wheel bearings, refer to workshop manual 35-0100/1 to /7. 35-5300/1 to /7
Install wheel hub using additional thrust washer, refer to paragraph 3 and appendix of this Working Instruction.

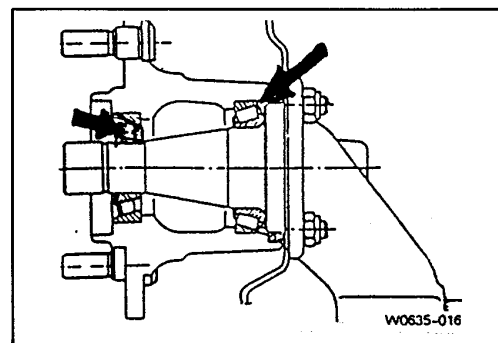


Figure 1.

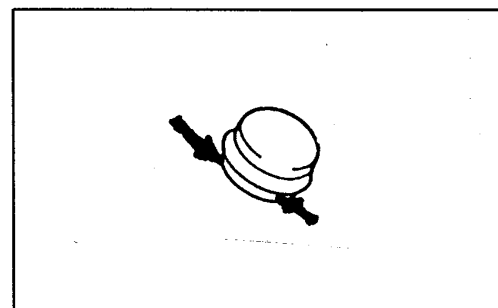


Figure 2.



Group 35/1



3. To prevent the wheel hub from moving off the steering spindle after a bearing damage, an additional thrust washer has to be installed between the outer bearing and the inner slotted nut at ALL times.
(see figure 3 arrow).
spare part no. 661 994 31 51
4. After modification is completed, mark the wheel hub cap with a yellow paint spot for identification.

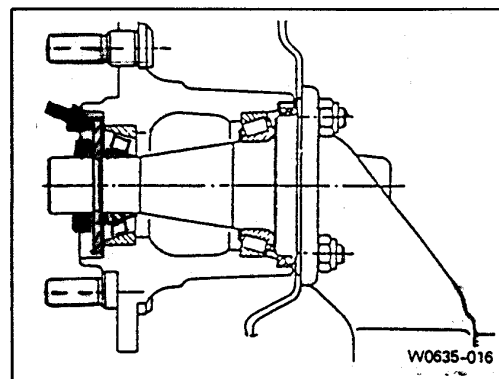


Figure 3

Note :

For installation of the additional thrust washer refer to the appendix of this Working Instruction.

Required spare parts for modification per vehicle:

Spare Part No.	Description	Quantity
661 994 31 51	Thrust Washer	2
631 994 01 12	Lock	2
661 997 30 46	Seal ring	2 *
661 980 31 02	Taper roller bearing RR	2 *
661 980 37 02	Taper roller bearing RR-OTR	2 *

2* Replacement is only necessary if parts are damaged, a maximum of 30% of seal ring and 20% of each bearing should be order.

Warranty cost settlement : According to Standard Text & Flat Rate,

Chassis no. from 000400 to 018536

Operation Code 35.5360 = Installation & removal of wheel hub
(Included installation of thrust washer) 2.0 M/hour

Operation Code 35.5702 = If necessary, replacement of bearings per wheel hub 0.3 M/hour

Chassis no. from 018536 to 036196

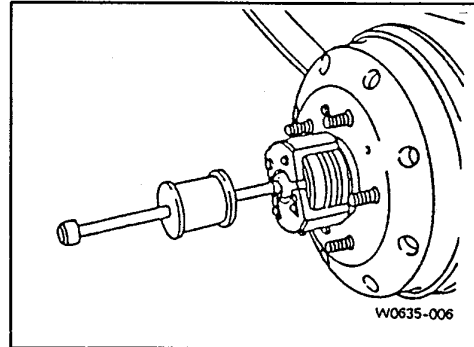
Operation Code 35.0099 = Installation of thrust washer 1.0 M/hour

Damage Code: 3593057

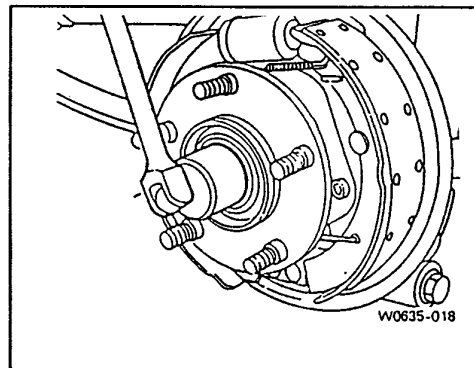
Appendix to Working Instructions 35/1

Installation of an additional thrust washer at the rear wheel hub bearing :
Spare Part No. 661 994 31 51

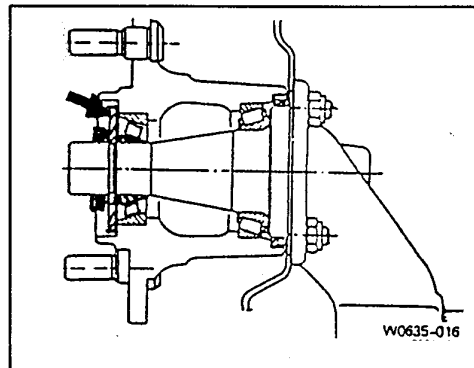
1. Using a puller remove hub cap.



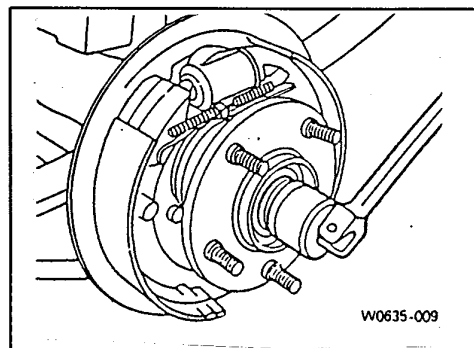
2. Using a suitable drift, unlock both wheel hub nuts.
Using the Pin spanner unscrew outer nut and remove lock washer.
Using the Pin spanner unscrew inner nut.



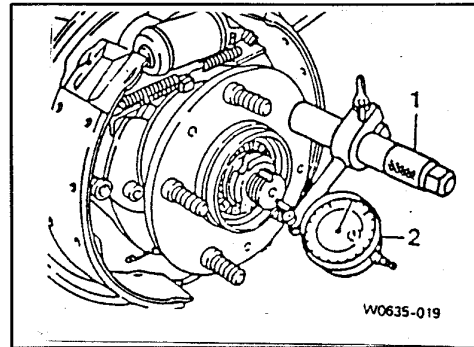
3. Install thrust washer onto the steering spindle as shown in the picture (arrow).
Install inner slotted nut.



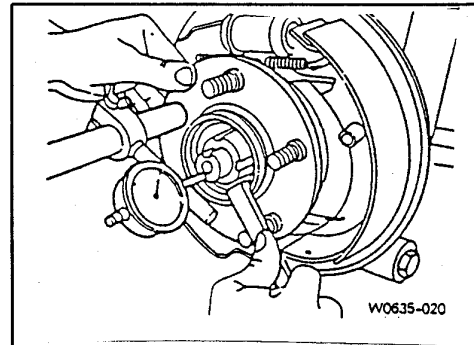
4. Tighten inner slotted nut to 80 Nm
While tightening turn the hub several revolutions
Then turn inner slotted nut back by approx. 90° - 100° angle of rotation.



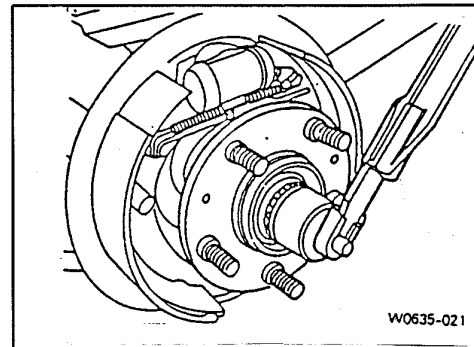
5. Install dial gauge holder/dial gauge.
Measure axial clearance, approx. 0.20 mm
Readjust if necessary, paragraph 6.



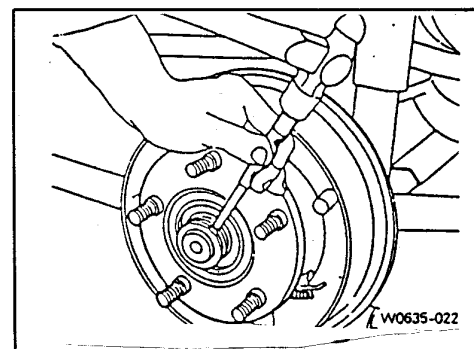
6. Important:
In order to achieve the specified axial clearance of 0.01 to 0.05 mm after tightening the outer nut, the inner nut must be tightened so that the axial clearance is approx. 0.20 mm. Adjusting is carried out with the hook wrench.



7. Install lock washer and coat with oil.
Tighten outer nut to 80 Nm with the Pin spanner.
Check axial clearance again. Nominal Value 0.01 - 0.05 mm.
If necessary readjust, paragraph 6.



8. Secure both nuts with a lug of the lock washer.
Fill grease cap with 30g of GLS-2 DBL 6804.20 grease. Coat cap sealing surface with Omnifit, Loctite 573 or Hylomar and install, by using the puller 631 589 05 33 00
Install brake drums and wheels.





Working instructions

Group 42/3



Modification on Front brake hoses

Chassis serial numbers : From 000300 up to 021543

While driving, and turning the steering to full right or left turn, the front tires can touch the front brake hoses and wear them out. This can cause brake failure !

Production remedy : As from July 96, chassis serial number 021544, all vehicle have been modified by :
Steel-coil armoured brake hoses chassis serial number 661 428 47 35 (2x)
and 661 428 48 35 (2x)
Mounting position at the brake caliper is now fixed to 15° angle.
Mounting bracket at the frame has been reangled from 145° to 95°.

Service remedy : For all vehicles up to chassis serial number 021543 have to be modified.

Carry out the following modification.

Inspect all four front brake hoses for traces of wear.
After inspections, two repair solutions are possible:

- A. Brake hoses are not damaged
- B. Brake hoses are already damaged

A. Brake hoses are NOT damaged

1. Remove both brake hoses from the right and left hand side mounting brackets at the frame.
Bend the mounting brackets to an approx. angle of 95° using a grip pliers and two self made steel plates 70x30x4 mm. (see figure 1 arrow)
Reinstall all brake hoses/pipes and tighten to 18 Nm. If necessary reroute pipes.
Air-bleed brake system, refer to the workshop manual page 42-1351/1 to /2

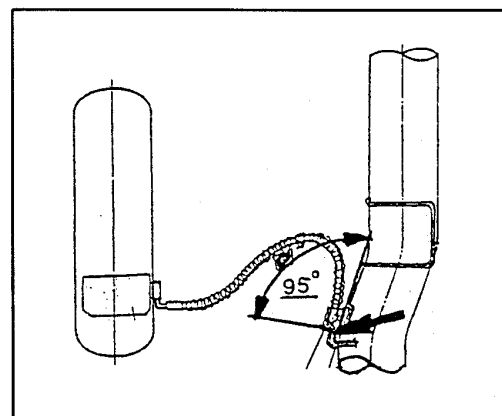


Figure 1



B. Brake hoses are ALREADY damaged

In this case, only the damaged brake hose(s) have to be replaced by the steel armoured version.

All additional jobs, as described in section " A " paragraph 1 have to be carried out as well.

1. When new brake hoses are installed, pay attention to the correct mounting position at the front brake calipers. The fixing hooks of the brake hoses must be fixed into the lower bores at the calipers (mounting angle 15°). For the position of fixing hooks/bores (see figure 2 arrows).

Bend the mounting brackets at the frame as described in paragraph "A"

Air-bleed brake system, refer to the workshop manual page 42-1351/1 to /2.

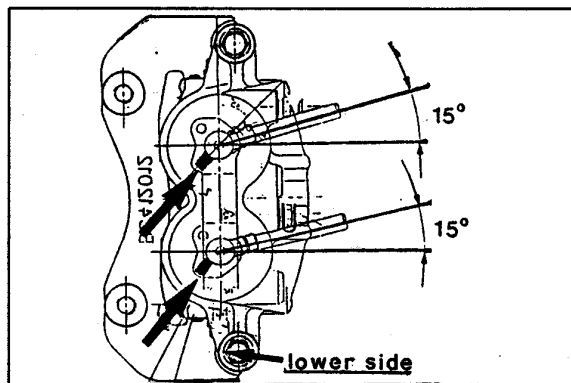


Figure 2

Required spare parts for modification per vehicle:

Spare Part No.	Description	Quantity
661 428 47 35	Brake hose (Left side)	2
661 428 48 35	Brake hose (Right side)	2

Replacement is only necessary if brake hose(s) are damaged, a maximum of 10% should be order.

Warranty cost settlement : According to Standard Text/ Flat Rate

Repair solution " A " = 1.3 M/hours

Repair solution " B " = 1.3 M/hours

Damage Code: 4293070



Working Instructions

Group 42/4



MB 100 Series (Bm.661) Modification of ABS-wiring harness

The MB100 Series Anti-lock braking system (ABS) may encounter failures (that is, ABS – Warning light comes 'ON') due to water entering into the ABS – Electronic Control Unit (ECU) via its wiring harness connector.

Production remedy: A. Applicable to LHD and RHD vehicles.

The securing screw of ABS-ECU wiring harness connector has been additionally sealed and the band clip has been changed as from chassis serial number 052167.

B. Applicable to RHD vehicle only.

The wiring harness connector (6-pins) position has been changed as from chassis serial number 055663.

Service Remedy: Modification "A"

Refer to list of affected vehicles, modifications are to be done by sealing the securing screw of ABS-ECU wiring harness connector and by renewing the band clip.

Modification "B"

Refer to list of affected RHD vehicles, modifications are to be done by re-positioning ABS wiring harness.

Warranty cost settlement: Damage Code 54 910 85

According to Standard Text, Operation code

42.0099	Seal securing screw and renew band clip	= 0.5 hour
42.0099	Re-position ABS wiring harness	= 0.5 hour

Where applicable, according to Standard Text, Operation code

42.8601	Replace ABS hydraulic modulator	= 2.2 hour
42.8220	Replace ABS wiring harness	= 2.0 hour

Modification "A"

Sealing of securing screw of ABS-ECU wiring harness connector and renewing band-clip

1. Disconnect battery negative terminal.
2. Remove hydraulic modulator cover.
3. Disconnect ABS-ECU wiring connector from hydraulic modulator and check connector terminal for corrosion. If corrosion is found, renew ABS wiring harness.
4. Check pins of hydraulic modulator port for corrosion. If corrosion is found, remove it using wire brush and dry compressed air duster. If any of the pins are broken due to corrosion, renew ABS hydraulic modulator.
5. Apply silicon sealant (commercially available) on the securing screw (part A, figure 1) of ABS-ECU harness connector to prevent water from entering.
6. Remove band-clip (part B, figure 1).
7. Install new band-clip on the rubber grommet and fasten tightly.
8. Connect ABS-ECU harness connector on hydraulic modulator and install hydraulic modulator cover.

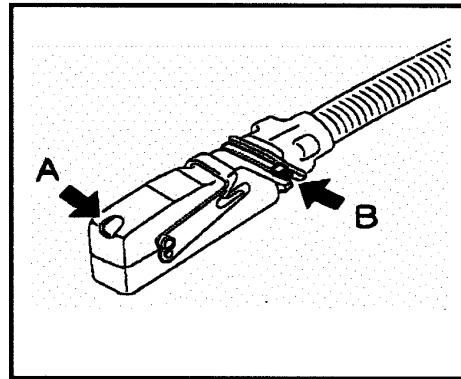


Figure 1

Note: Ensure the ABS-ECU harness connector and hydraulic modulator port are dry and free from traces of water.

9. Connect battery negative terminal.

Note: If the ABS warning light comes 'ON' before carrying out above service remedy, remove error code recorded in ABS-ECU with HHT.

10. Check ABS-ECU for error code and correct as necessary.

Required spare parts for modification per vehicle:

S/No	Description	Part Number	Qty/Veh
1	Band-clip	94561-02000	1
2	Silicon Seal	Commercially available	Small quantity

Additional spare parts (where applicable)

S/No	Description	Part Number	Remarks
1	ABS hydraulic modulator	661 431 33 12	All
2	ABS wiring harness	a) 661 540 31 06 b) 661 540 32 06 c) 661 540 36 06 d) 661 540 37 06 e) 661 540 70 06 f) 661 540 71 06 g) 661 540 72 06 h) 661 540 73 06	a) LWB, LHD, OM661/662 b) SWB, LHD, OM661/662 c) LWB, RHD, OM661/662 d) SWB, RHD, OM661/662 e) LWB, LHD, M161 f) SWB, LHD, M161 g) LWB, RHD, M161 h) SWB, RHD, M161

Modification "B"

Re-route ABS wiring harness

1. Disconnect battery negative terminal.
2. Remove band-clip which hold ABS wiring and battery sub-wiring to air-cond pipe. (figure 1 – view from underneath, engine compartment left side.)
3. Remove chassis wiring from the bracket hole by pulling out chassis wiring clip-mounting.
4. Remove sponge pad of chassis wiring connector, which is connected to the ABS wiring connector (6-pins). Install new clip-mounting on it and insert into bracket hole. (figure 2)
5. Arrange and tie chassis wiring, battery sub-wiring and ABS wiring harness to air-cond pipe with band-clip. (part A, figure 3)

Note: The ABS wiring connector (6- pins) is arranged in such a way that it is in a horizontal position as shown in figure 4. This is to prevent water from seeping into the connector (6-pins).

6. Fasten the battery sub-wiring and ABS wiring with weld clip. (part B, Figure 3)
7. Connect battery negative terminal.

Note: If the ABS warning light comes 'ON' before carrying out above service remedy, remove error code recorded in ABS-ECU with HHT.

8. Check ABS-ECU for error code and correct as necessary.

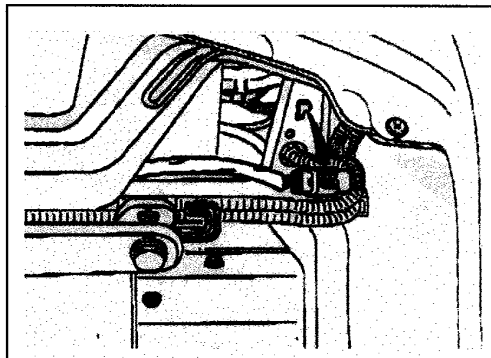


Figure 1

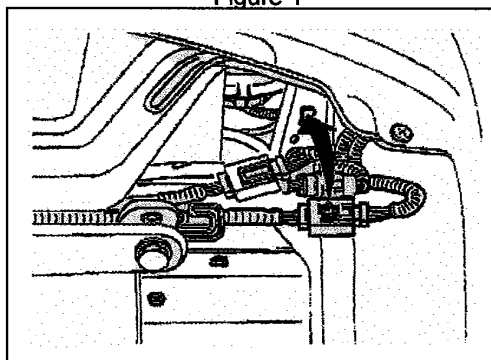


Figure 2

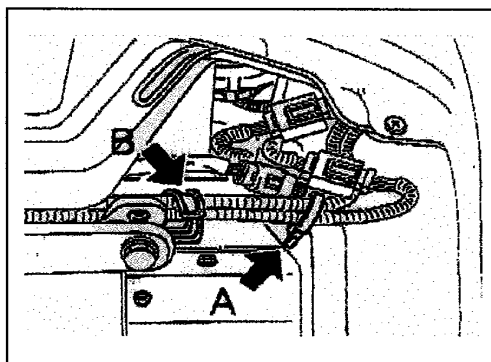


Figure 3

Required spare parts for modification per vehicle:

S/No	Description	Part Number	Qty/Veh
1	Clip-cable	94561-06000	1
2	Clip-mounting	MG630521	1

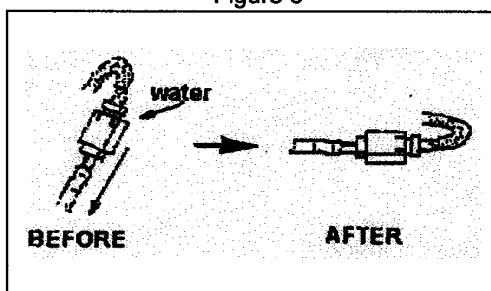


Figure 4



Working Instructions

Group 42/6



MB 100 Series

Transaxle Rear Damper & ABS Brake Pipe Interference

The insufficient clearance between the transaxle rear damper and the ABS pipe may cause vibration noises or ABS brake pipe damage. This is caused by variation and deformation of the ABS pipe during installation.

Production remedy: From 15 March 1999 onward, the routing of the ABS brake pipe has been changed on all vehicles.

Service remedy: Refer to the list of affected vehicle(s).

Inspections are to be carried out to ensure that the transmission rear damper is not pushing against the ABS brake pipe.

Warranty cost settlement: Damage code: 42 930 73

According to Standard Text, Operation code

42.0099	Flat rate	= 0.2 M/hour
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Carry out the following modification

1. Check that the clearance between the transmission rear damper and the ABS brake pipe is not least than 7mm.
2. If required, adjust the pipe properly by hand to obtain the clearance.

3.

A	Transmission Damper
B	No.3 Cross- Member
C	ABS Brake Pipe

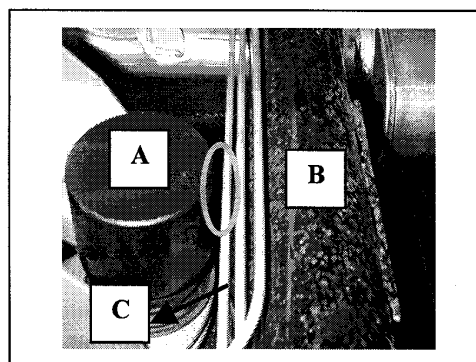


Figure 1

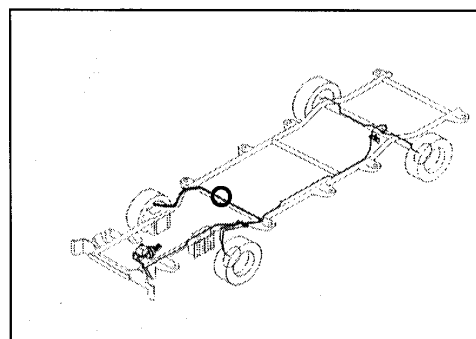


Figure 2



Working Instructions

Group 63/1

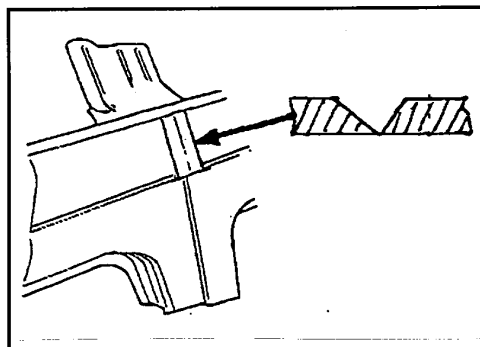


MB 100 Series Upper C-pillar Body Cracks

These repair instructions refer to cracks which develop in the area just above the sealant-filled line of the outer body side panels.

1. Open the crack at the upper C-pillar by grinding it to a "V" shape cut.

Refer to figure 1.



2. Fill in "V" shaped cut with weld material from MIG welding process.

Grind away excess weld from weld seam until the area is flush.

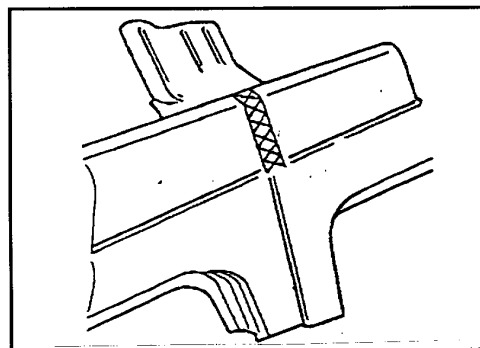
Brush off burned paint around the weld area.

Prime bare metal surface with MB 2-component primer filler.

Repaint as necessary.

Apply preservation agent in hollow cavities.

Refer to Figure 2.



NOTE :

In case the panel material around the crack has become too thin for the abovementioned repair, carry out instead the repair as described in paragraph 3 to 6.

3. Remove inner head lining.

Cut a sheetmetal plate of size 35.0 x 70.0 mm and of between 0.8 to 1.0 mm thickness.

Shape the plate according to the curve of the body panel.

From inside, drill 2 holes of \varnothing 3.0 mm between the panel inner flange and the crack, near the ends of the crack.

Cut a slot in the roof panel to join the 2 holes.

Grind the paint down to bare metal in the repair area.

Refer to figure 3.

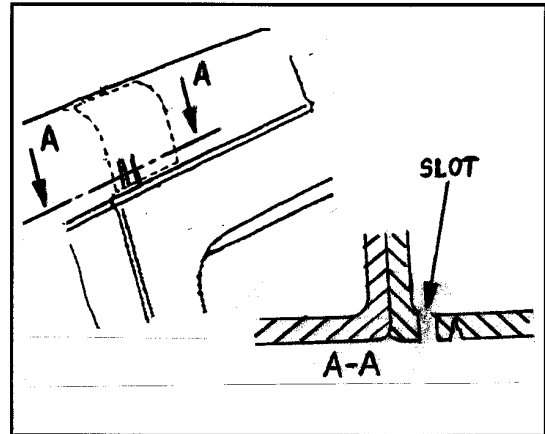


Figure 3

4. Drill a series of staggered holes \varnothing 4.0 mm beside the crack.

The pattern of holes should cover the area of the plate and allow the plate to cover the slot.

Refer to figure 4.

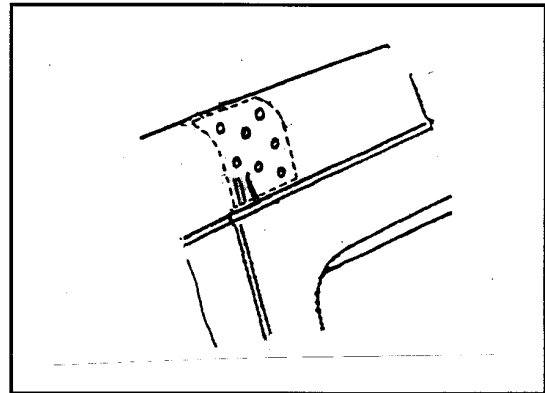


Figure 4

5. Insert the plate through the inner pillar opening onto the roof panel. Place the plate next to the flange and flush with the panel. Tack weld the plate to the panel through the holes. Weld the slot and flange close from outside. Weld the plate and panel together by closing the holes. Close up the crack by welding. Grind away excess weld until the area is flush with the panel surface..

6. Clean the area and prime the metal with MB 2-component primer filler. Repaint as necessary. Apply preservative agent in hollow cavities.

Warranty cost settlement : According to Standard Text, Operation Code 63.0099

Flat Rate = ZM



Working Instructions

Group 63/2



MB 100 Series Lower B-pillar Body Cracks

These repair instructions refer to cracks which develop in the area of the B-pillar panel near the front door switch.

1. Drill a $\varnothing 2.0$ mm bore at the end of the crack in order to stop the crack from developing further.

Refer to arrow of figure 1.

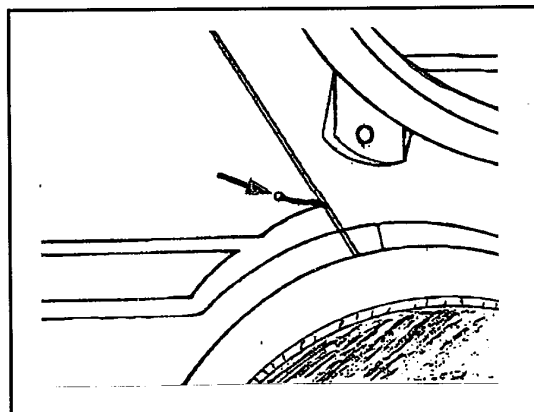


Figure 1

2. According to measurements given in figure 2, mark and drill four $\varnothing 5.0$ mm bores beside the crack.

A = 40.0 mm

B = 15.0 mm

C = 10.0 mm

D = 75.0 mm

Refer to Figure 2.

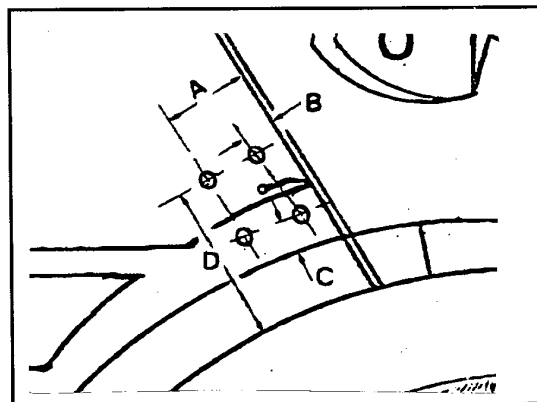


Figure 2

NOTE

Adjust the number and spacing of the $\varnothing 4.0$ mm bores according to the size of the crack.

3. Using a portable angle grinder and a pneumatic jig saw, cut a slot of approximately 3.0 mm x 50.0 mm in the B-pillar outer corner, leaving approximately 0.5 mm spacing from the outer body edge.

Refer to figure 3.

L = approx. 50.0 mm

E = approx. 3.0 mm

F = approx. 0.5 mm

Grind paint down to bare metal in the whole area.

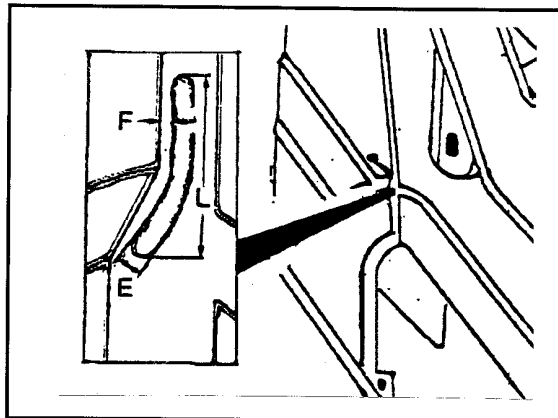


Figure 3

4. Cut a piece of 2.0 mm thick sheetmetal plate to the size of 40.0 mm x 100.0 mm. Form the plate according to the shape of the outer body panel. Bend the plate by 120° a distance of 25.0 mm from one edge approximately. Treat the plate with zinc primer suitable for spot welding.

Refer to figure 4.

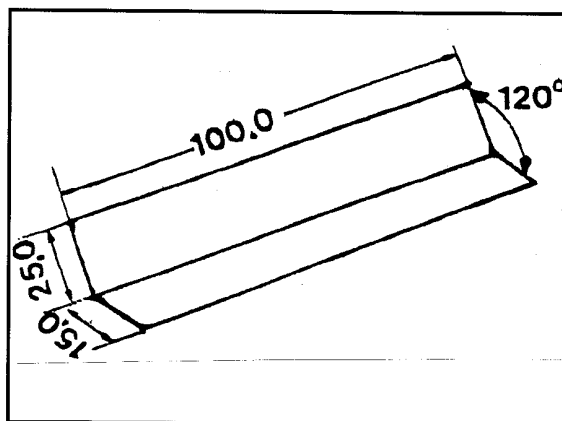


Figure 4

5. Using a hot air blower, warm up the whole area of repair in order to separate the hollow cavity foam from the outer body panel. After warm up, insert the plate into the slot to a depth (G) of approximately 55.0 mm – 60.0 mm and fix it tight below the crack. Weld the outer body panel and the plate together by closing the four $\varnothing 5.0$ mm bores and the edge (x). Weld the crack close.

Refer to figure 5.

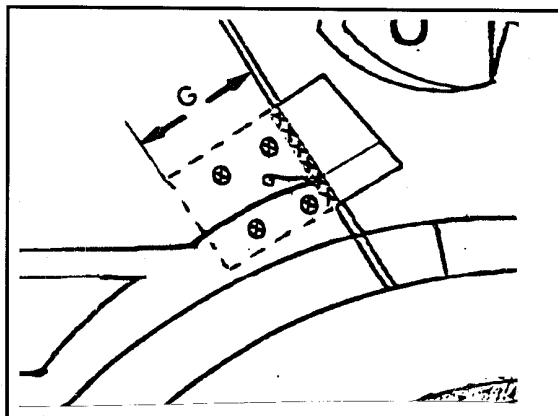


Figure 5

NOTE

Adjust the size of the slot and the plate according to the size of the crack and the $\varnothing 5.0$ mm bores.

6. Cut away the excess plate material, leaving approximately 2.0 mm (H) protruding. Cover the slot opening by bending the remaining plate over it. Close up the slot by welding the body panel corner and the plate protrusion together.

Refer to figure 6.

Grind off all excess weld material until the whole repair area is flush.

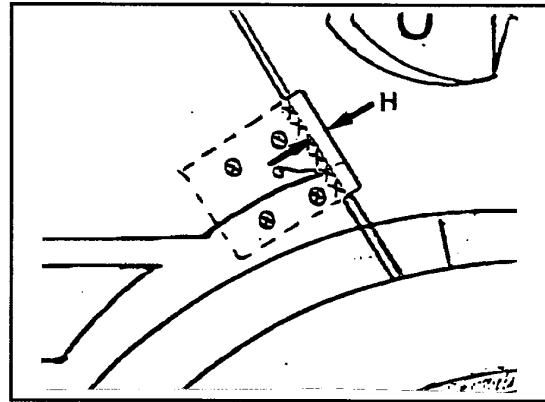


Figure 6

7. Brush off burnt paint in the worked area. Prime bare metal surface with MB 2-component primer filler. Paint area as necessary. Apply preservation agent in hollow cavities.

Warranty cost settlement : According to Standard Text, Operation Code 63.0099
Flat Rate = ZM



Working Instructions

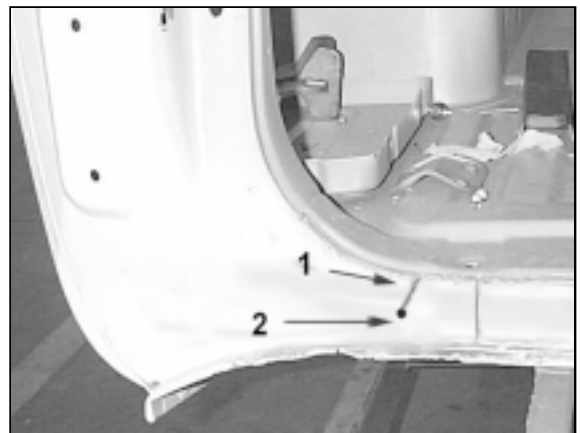
Group 63/3

MB100 Series

1. Body Cracks between lower D-pillar and rear end member

These repair instructions refer to cracks which develop in the area of between lower D-pillar and rear end member near the tailgate.

1. Drill a 2.0mm bore at the end of the crack in order to stop the crack developing further.



1. Crack
2. Drill hole (2.0mm)

2. Grind paint down to bare metal in the whole area.
3. Brush off remaining paint the whole area of repair.



4. Prepare D-pillar assembly for cutting.

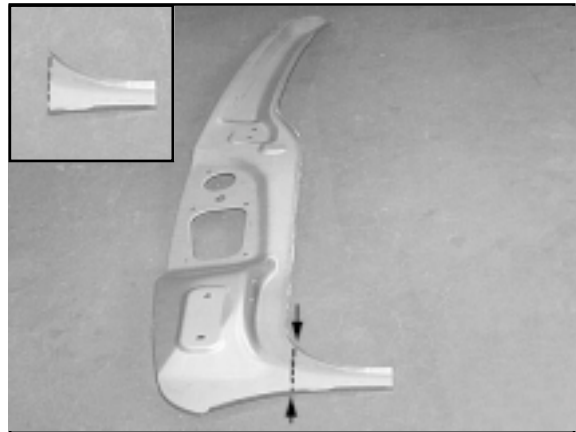
D-Pillar outer panel part number (LH) : 661 630 32 13

(RH) : 661 630 33 13

5. Mark cutting area approx. 100mm from edge of D-pillar and Cut D-pillar at the cutting point(arrows).
Leave sufficient overlap.

Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.



6. Prepare rear end cross member for cutting.

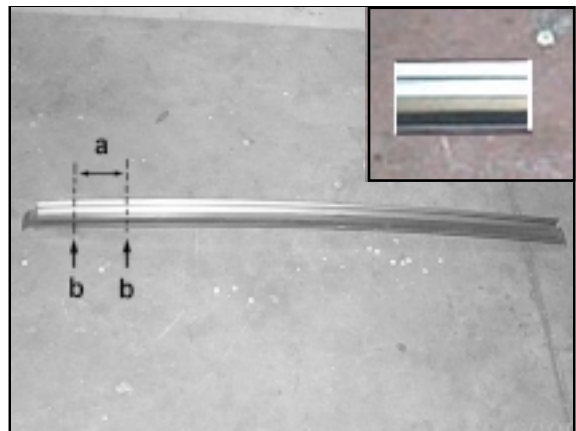
7. According to measurement given in figure, mark and cut rear end cross member at cutting point.

a = approx. 80~85mm

Rear end cross member part number : 661 610 95 15

Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.



8. Install cutted pieces (1) and (2) to repair area with clamps.

9. Weld together on joint surfaces(a) between (1) and (2) slightly.



a. Welding point

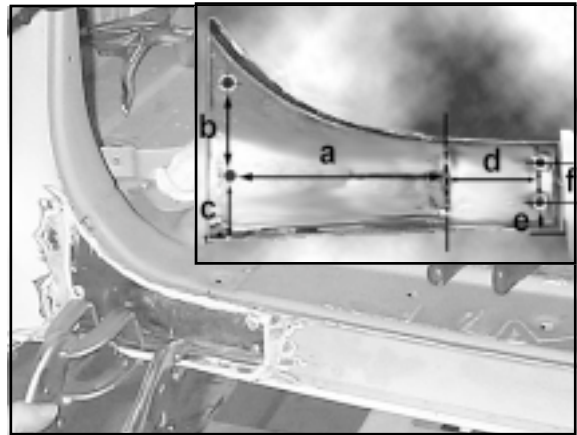
10. Straighten the welded pieces to fit in rear cross end member and D-pillar.



1. Hammer

11. According to measurement given in figure, mark and drill four 4.5mm bores for riveting.

a = 120mm
b = 45mm
c = 30mm
d = 40mm
e = 20mm
f = 15mm

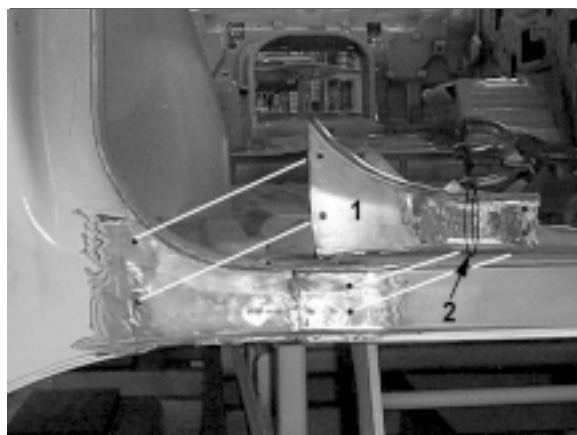


Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.

12. Remove welded piece(1) in rear roof and weld together on joint surface(2) completely.

13. Grind off weld seam in area of welds.



14. Clean bare metal surface and welded piece with acetone.



1. Acetone

15. Spread bonding material, Epoxi Karosseriefaser-kleiber (1) and Haerter (2) on mixing plate(4).

1) Epoxi Karosseriefaser kleiber

Order No : 4Kg : 893 451, 1Kg : 893 4510

2) Haerter

Order No : 1Kg : 893 452, 0.25Kg : 893 4520

Bonder Maker Address :

Adolf Wuerth GmbH & Co. KG D-7 74650 Kuenzelsau Germany



3) Special gloves

Order No : 004 989 28 71

4) Mixing plate

5) Mixing tool(plate)

16. Mix Epoxi Karosseriefaser kleiber (1) and Haerter (2) with mixing plate.

Note

Use special gloves (3) when you mix or apply Epoxi Karosseriefaser kleiber (1) and Haerter (2) to vehicle.



17. Apply bare metal surfaces of piece and rear end member with mixed bonding materials.



18. Attach piece in rear end cross member with clamps.

19. Rivet attached piece to rear end cross member through the slots.



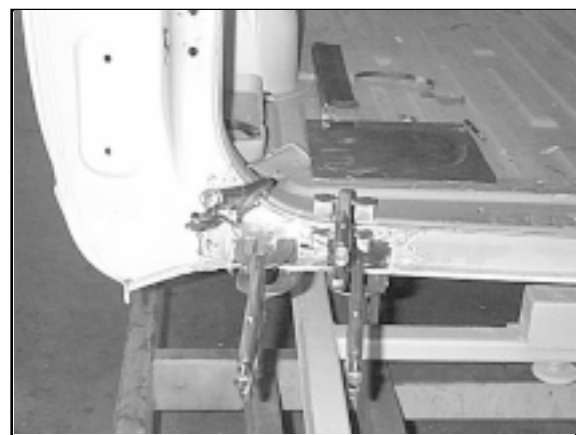
1. Riveting tool

20. Tack piece to rear end cross member with clamps and dry it as follow.

23 °C: approx. 24hr

60 °C: approx. 2hr

21. Grind off all excess adhesive agent and edge of attached piece.
22. Prime bare metal surface with MB 2-component primer and paint repair area as necessary.
23. Apply preservation agent in hollow cavities.



MB100 Series

2. Body Cracks between upper D-pillar and rear roof

These repair instructions refer to cracks which develop in the area of between upper D-pillar and rear roof near the tailgate.

1. Drill a 2.0mm bore at the end of the crack in order to stop the crack developing further.
2. Remove tailgate hinge (3).



1. Crack
2. Drill hole (2.0mm)
3. Tailgate hinge

3. Grind paint down to bare metal in the whole area.
4. Brush off remaining paint the whole area of repair.



5. Prepare D-pillar assembly for cutting.

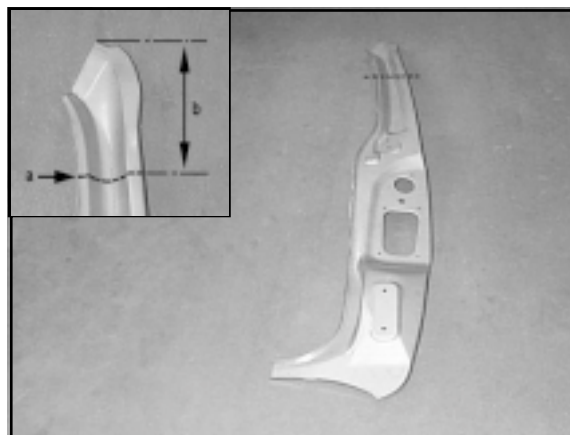
D-Pillar outer panel part number (LH) : 661 630 32 13

(RH) : 661 630 33 13

6. Mark cutting area approx. 190mm(b) from edge of D-pillar and cut rear end cross member at the cutting point.

Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.



7. Prepare roof assembly for cutting.

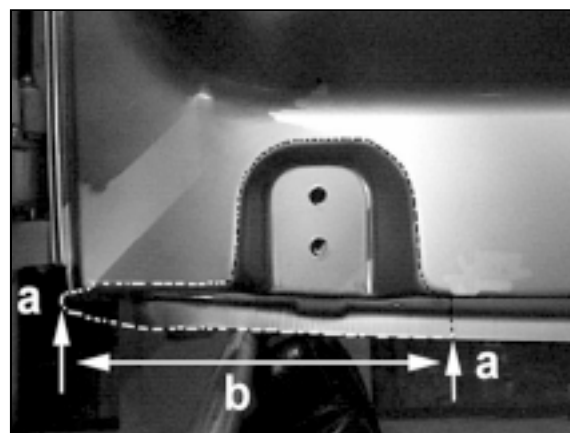
Semi roof rear panel part number : 661 657 34 09

8. According to measurement given in figure, mark and cut rear roof at cutting area (a).

b = approx. 280~285mm

Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.



9. Install cutting pieces (1) and (2) to repair area with clamps.

10. Weld together on joint surfaces between (1) and (2) slightly.

11. Straighten the welded piece to fit in rear roof and D-pillar.

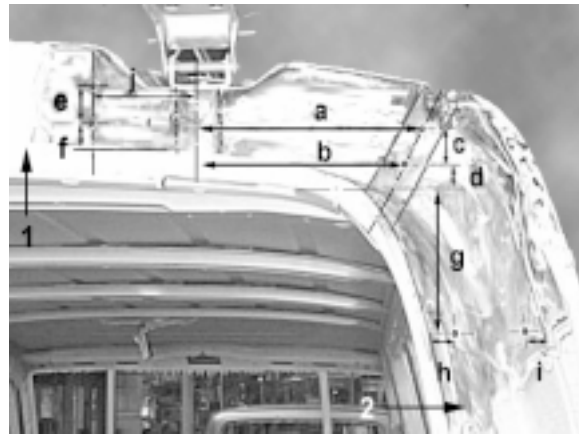


12. According to measurement given in figure, mark and drill four 4.5mm bores for riveting.

a = 175mm	b = 155mm
c = 40mm	d = 20mm
e = 45mm	f = 20mm
g = 110mm	h, i = 10mm
j = 80mm	

Note

In case of there is a bigger crack on vehicle, the dimensions have to be bigger size than above mentioned dimensions.



1. Roof
2. D-pillar

13. Remove welded piece(1) in rear roof and weld together on joint surface(2) completely.

14. Grind off weld seam in area of welds.



15. Clean bare metal surface and welded piece with acetone.



1. Acetone

16. Spread bonding material, Epoxi Karosseriefaserkleiber (1) and Haerter (2) on mixing plate(4).

1) Epoxi Karosseriefaserkleiber

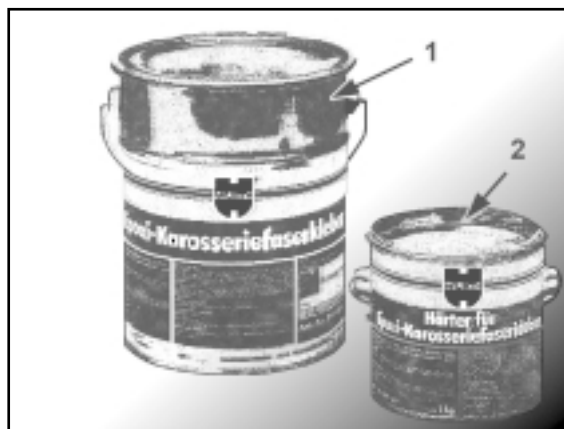
Order No : 4Kg : 893 451, 1Kg : 893 4510

2) Haerter

Order No : 1Kg : 893 452, 0.25Kg : 893 4520

Bonder Maker Address :

Adolf Wuerth GmbH & Co. KG D-7 74650 Kuenzelsau Germany



3) Special gloves

Order No : 004 989 28 71

4) Mixing plate

5) Mixing tool(plate)

17. Mix Epoxi Karosseriefaserkleiber (1) and Haerter (2) with mixing plate.

Note

Use special gloves (3) when you mix or apply Epoxi Karosseriefaserkleiber (1) and Haerter (2) to vehicle.



18. Apply bare metal surfaces of piece and rear end member with mixed bonding materials.

19. Apply bare metal surface of rear roof and upper D-pillar with 2-K Epoxid harzklebstoff.

20. Tack attached piece to rear roof and upper D-pillar with clamps



21. Rivet attached piece to rear roof and upper D-pillar through the slots.



22. Tack attached piece to rear roof and upper D-pillar with clamps and dry it as follow.

23 °C: approx. 24hr

60 °C: approx. 2hr

23. Grind off all excess adhesive agent and edge of attached piece.

24. Prime bare metal surface with MB2-component primer and paint repair area as necessary.

25. Apply preservation agent in hollow cavities.





Working instructions

Group 72/1



Replacement of Door Opening Lever

From chassis no. 025000 onwards, several batches of door handle have been supply with incorrect material specification of handle lever.

The critical chassis no. are expected between 025000 to 032000.

Service remedy :

Chassis no. 025000 to 040154 if vehicle is reported with broken door levers, all door levers have to be replaced .

Chassis no. 025000 to 032000 vehicles not delivered to customer, the door lever have to be replaced as a preventive measure.

Carry out the following modification

1. Remove the damaged outside handle from the vehicle.
2. Remove the broken opening lever by removing the spring and lock pin.
3. Install new opening lever outside handle.
4. Install the modified o/s handle on the door.

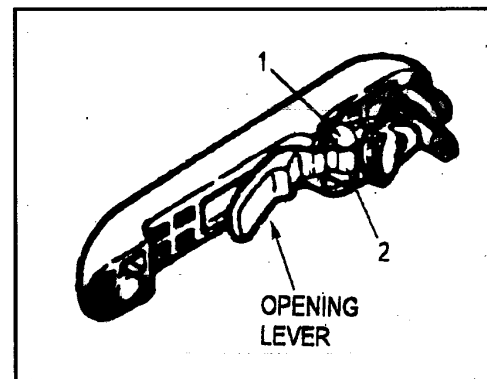


Figure1

Required spare part for replacement per vehicle:

Spare Part No.	Description	Quantity
661 766 31 01	Door opening lever	3

Warranty cost settlement : According to Standard Text, Operation code 72 0099

Flat Rate : Replacement of one O/S handle lever = 0.4 M/hour.

Replacement of all three O/S handle lever = 1.0 M/hour.

Damage Code: 7290054



Working instructions

Group 73/1



Sliding Door Stopper Modification

Chassis serial numbers : From 000300 up to 028459

While opening the sliding door and slamming it to the stop, the door will no longer be flush to the body and damages at the lower part of the C-pillar are possible. To prevent these damages several modifications at the sliding door and the C -pillar have been introduced in the series production over the last months.

Production remedy : As from chassis serial numbers 028460 ,all vehicles have been modified by :

- Reinforcement of the inner C -pillar.
- Modifications on the lower roller guiding rail.
- Modifications on the door roller assemblies
- Removal of the lower sliding door stopper rubber.
- Installation of a new sliding door stopper rubber close to the middle guiding rail at the door panel.

Service remedy : For all vehicles up to chassis serial numbers 028459 have to be modified.

Carry out the modifications as described in this Working Instructions appendix.

Required spare parts for modification per one vehicle:

Spare Part No.	Description	Quantity
661 760 36 29	Middle rubber door stopper	1
661 730 48 14	Door stopper mounting bracket	1
93514 - 5012D	Screw (M 5.0 mm)	2
98054 - 0620D	Screw (M 6.0 mm)	3
661 727 00 30	Plastic cover	1 *
Com. available	Suitable adhesive	-----

*Installation is only necessary if damages on C-pillar have been already occurred, a maximum of 30% of plastic cover should be order.

Warranty cost settlement : According to Standard Text, Operation code 73.0099

Flat Rates = Sliding door stopper modification - 0.8 M/hour
= C - pillar repairs (if necessary) ZM

Damage Code: 7491052

Appendix to Working Instructions 73 / 1

Working instructions for the sliding door stopper modification :

1. Remove old rubber stopper from the lower roller assembly bracket.
(Figure 1 arrow)

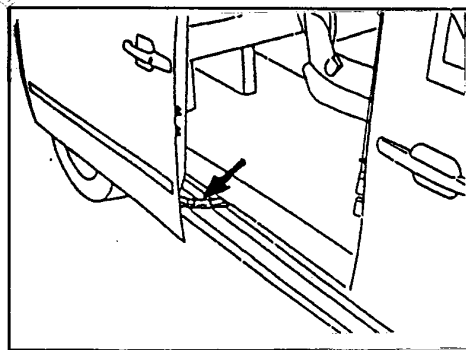


Figure 1

2. Remove door lining and sealing foil from the sliding door, refer to the workshop manual page 72-1260/1
Remove central lock actuator switch from the inner door panel.(Figure 2 arrows).

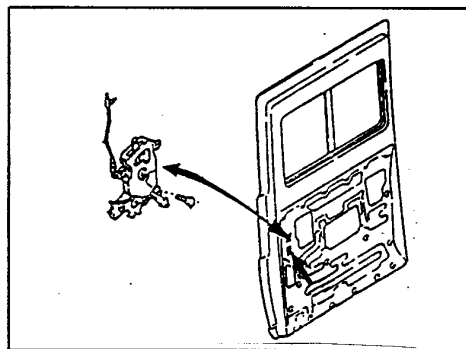


Figure 2

3. With two 8.0mm pins/bolts fix the paper template onto the inner door panel.
(Figure 3 arrows no. 1 bores).
Mark the additional 5 bore positions :
Figure 3, two Bores no. 2 drill to $\varnothing 6,2$ mm
three Bores no. 3 drill to $\varnothing 10.0$ mm
Bores no. 1 are mounting bores for the central lock actuator, template reference point.

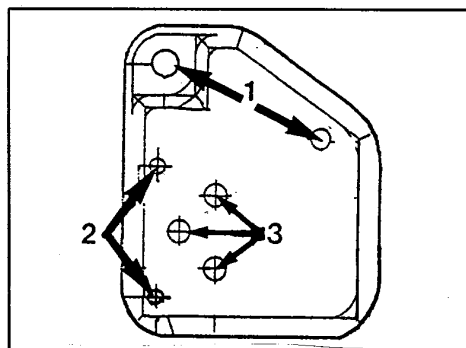


Figure 3

Remove paper template.
Drill bores into the inner door panel.
After drilling, chamfer all bore edges and carry out anticorrosion measures at the bores.

4. Insert the new door stopper mounting bracket no. 661 730 48 14, into the door, and tighten it to the panel with the two 5.0mm screws. (Figure 4 arrows, tightening torque 8.0 Nm)
Reinstall central door lock actuator switch (Tightening torque 10.0 Nm)
Reinstall sealing foil and cut holes into the foil for the 3 additional stopper screws. (see Figure 4, no. 3 = 10.0 mm bores)

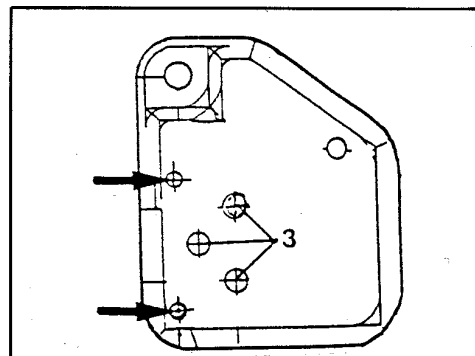


Figure 4

5. Place the removed door lining onto a flat surface. Mark " X " shape of the upper lining as shown in figure 5. (355.5 mm from upper lining edge, mark cut 50.0 X 106.5 mm).
Using a sharp knife, cut the lining according to the " X " shape shown in figure 5. The three triangles will be folded inwards after cutting the hard board (see arrows figure 5)

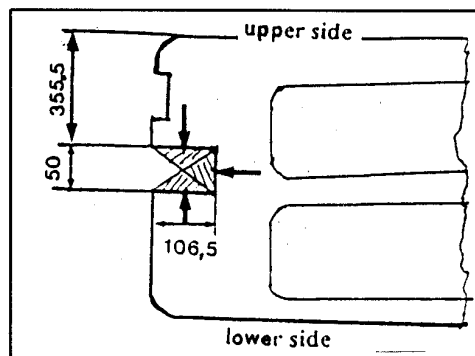


Figure 5

6. Mark " U " shape of the hard board as shown in figure 6. (355.5 mm from upper lining edge, mark cut 50.0 X 106.5 mm)
Using a sharp knife or hacksaw, cut the hard board to the " U " shape as shown in figure 6. Chamfer all cutting edges.
Apply a suitable adhesive to the lining edges, bend the lining around the " U " shaped cutting and glue it to the inner side of the hard board.
Install door lining onto the sliding door.

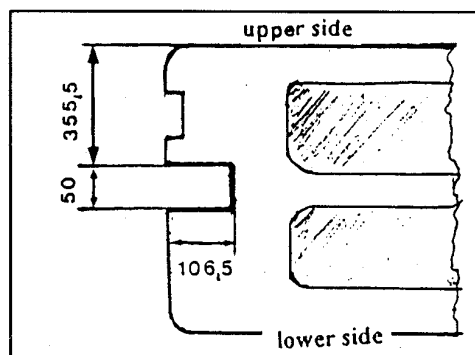


Figure 6

7. Install the new middle door stopper, part no. 661 760 36 29 with the three 6.0mm screws (3) and tighten them slightly. (see figure 7)

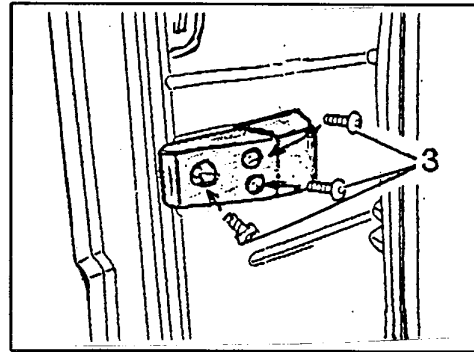


Figure 7

8. Close sliding door carefully and check that the door is flush to the body and all gaps are within specifications. (Figure 8 arrows, a - b - c). If necessary readjust alignment and gaps at the upper / middle / lower - roller assembly brackets. Refer to workshop manual page 72 -1260/1

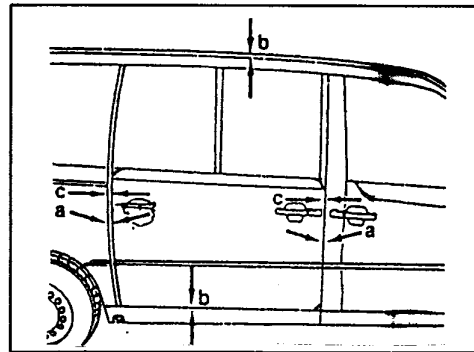


Figure 8

9. After the adjustment, open the sliding door carefully until the lower roller has just passed the pre-stop at the lower guide rail. In this position, the new middle rubber stopper (2) has to touch the edges of the C - pillar. (Figure 9 arrows). If necessary, adjust the rubber stopper and tighten the three 6.0 mm screws to 12.0 Nm.

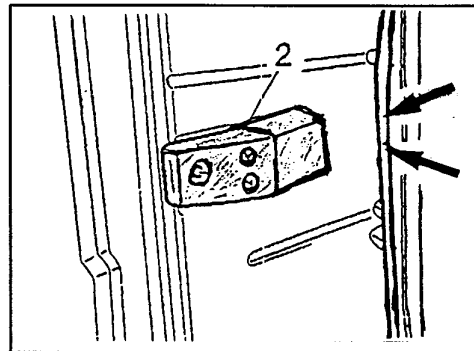


Figure 9

10. Check for damages at the C - pillar in the area of the previous lower rubber stop.

(Figure 10 arrow)

Minor damages,such as dents etc, do not need any repairs,this will be covered by the additional plastic cover,which has to be installed at all times.

Major damages,such as cracks etc,where the plastic cover does not cover the damaged area,have to be repaired as necessary.

Always carry out anti-corrosion measures

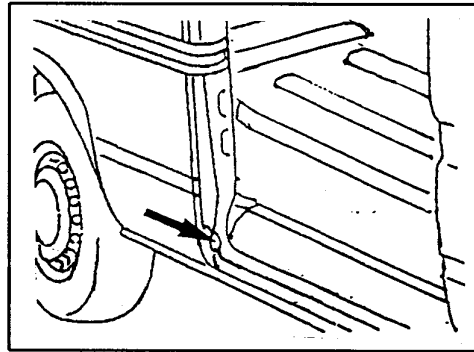


Figure 10

11. The supplied Plastic cover has to be installed if any damages at the C - pillar are visible.

Clean the installation area for the Plastic cover at the C - pillar.(see Figure 11)

Apply a suitable adhesive onto the back of the plastic cover. (e.g. Loctite depend Kit 20251, includes 330 adhesive + 7387 activator).

Glue the plastic cover onto the C - pillar, by following the instructions of the adhesive manufactures.

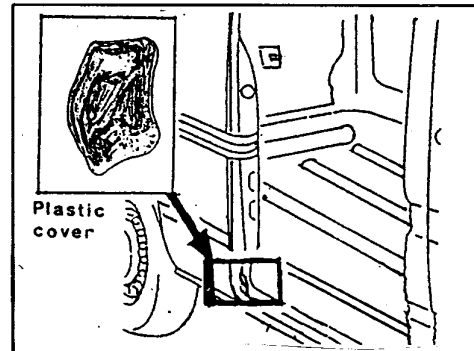
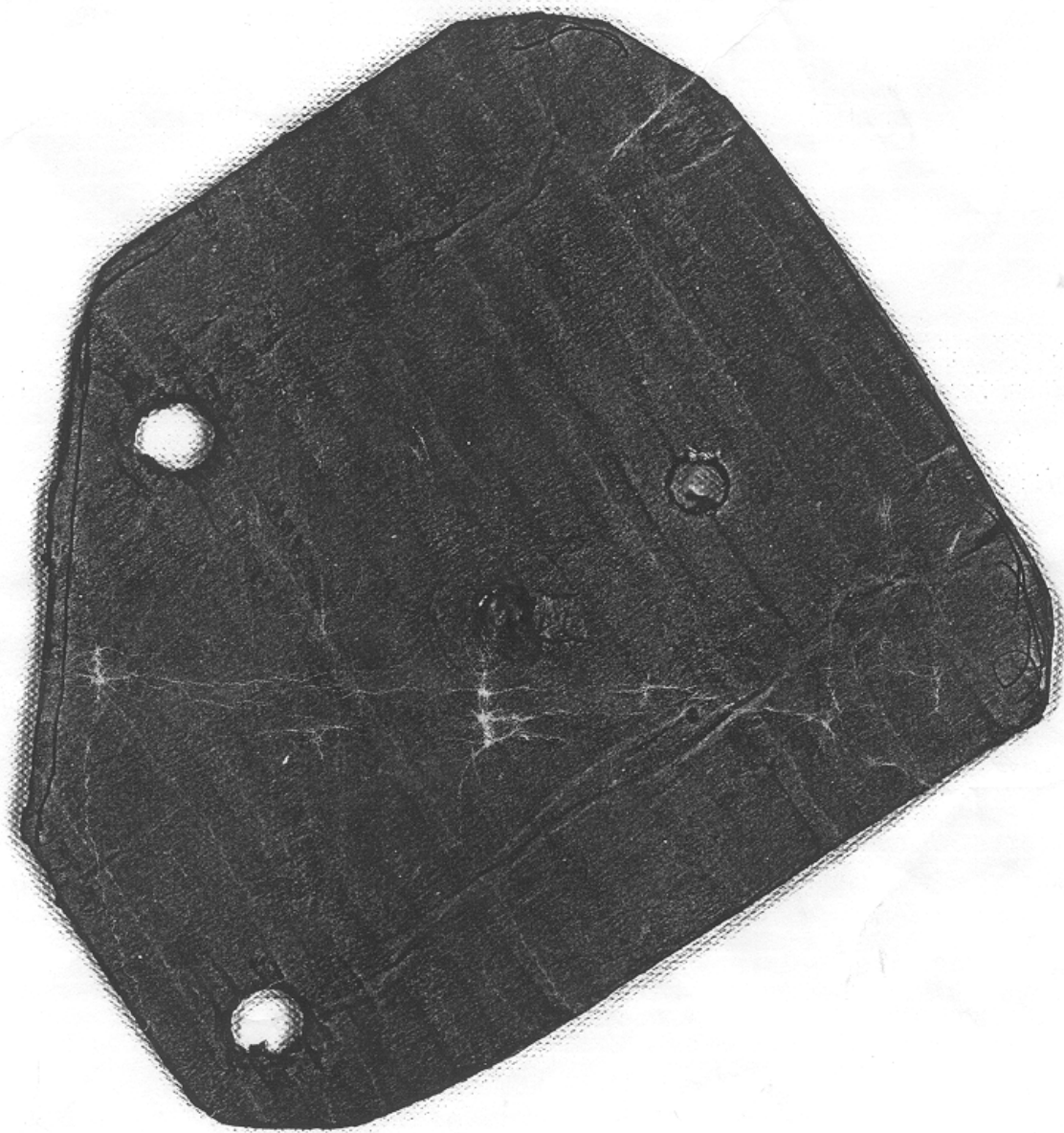


Figure 11





Working Instructions

Group 82/1



MB 100 Series

Replacement of Windshield Wiper Linkage Dust Cover

The windshield wiper linkage may be separated from the wiper motor during operation. This is caused by the dust cover of the windshield wiper linkage being rolled up.

Production remedy: From 10th April 1999, chassis serial no. 077625 onward, the new improved dust cover has been installed on all vehicles.

Service remedy: Refer to the list of affected vehicle(s).


For all affected vehicles, modification has to be done by replacing the old wiper linkage dust cover to the new improved supplied dust cover (one piece per vehicle).

Warranty cost settlement: Damage code: **829 0052**

According to Standard Text, Operation code

82.0099	Flat rate	= 0.4 M/hour
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Carry out the following modification

1. Remove air intake duct
 2. Separate wiper linkage from wiper motor, without removing the whole wiper rod.
 3. Apply grease/ lubricate on the new dust cover.
 4. Replace the old dust cover (X) with the new improved dust cover.
-  Check and ensure that the new dust cover is not seized in the wiper linkage.
5. Install in reverse order.

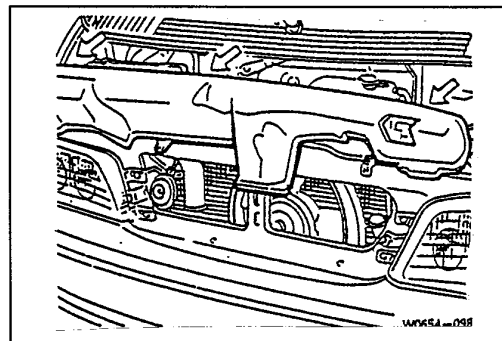


Figure 1

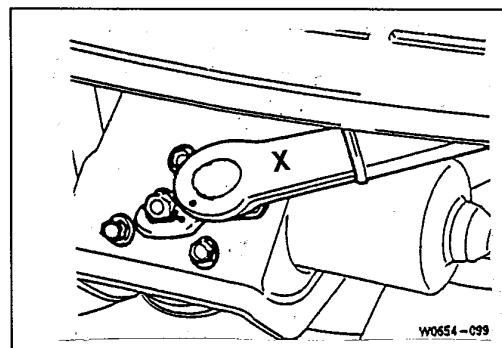


Figure 2



Mercedes-Benz

Service

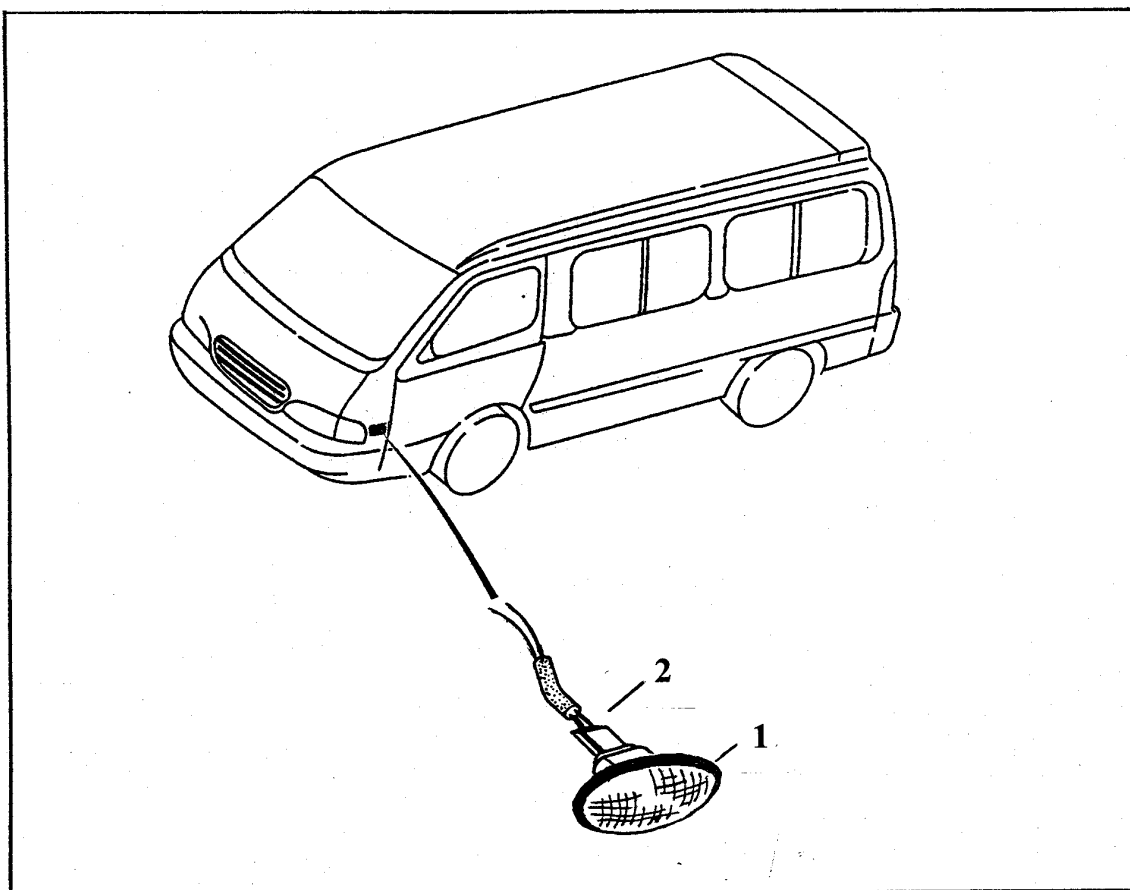
Working Instructions

Group 82/1



MB 100 Series

Installation of side indicator lights

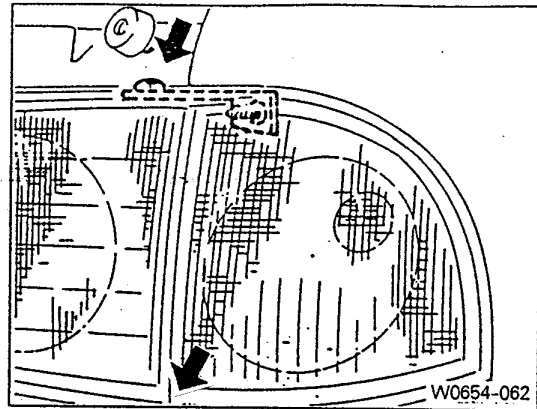


1. Side indicator lights parts no. 661 820 35 21
2. cable set (special part without part number)

Operation time : electrical work
body & painting
total

1.0 hrs (* including preparation for the job)
1.0 hrs
2.0 hrs

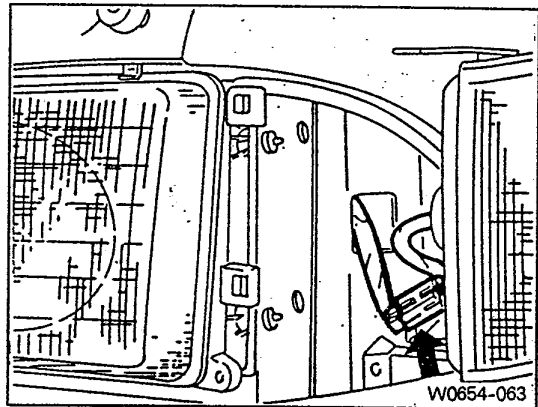
1. Remove fixing bolts on turn signal light.
2. Pull out turn signal light.



3. Remove the wiring connector.

Note

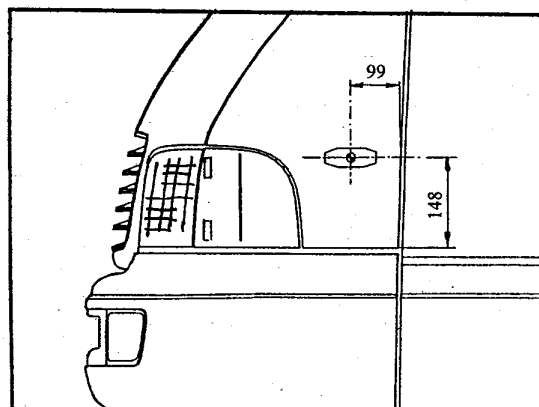
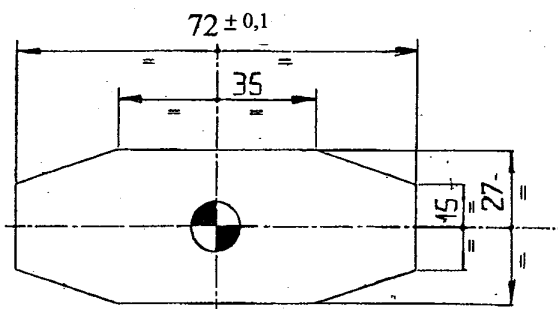
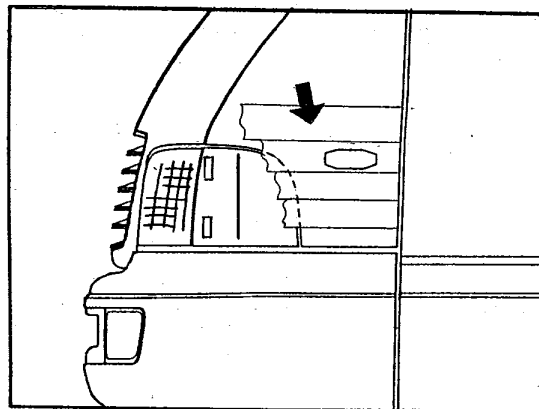
Do not remove the bulb forcibly, handle with care.



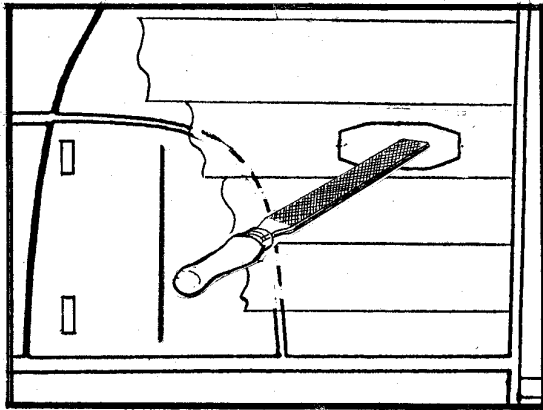
4. Protect area where the opening for side indicator is placed with masking tape.
5. Mark opening by using the attached template.
6. Drill hole Ø10mm and cut out opening with a jig saw.

Note

Keep length of opening strictly within the tolerance.

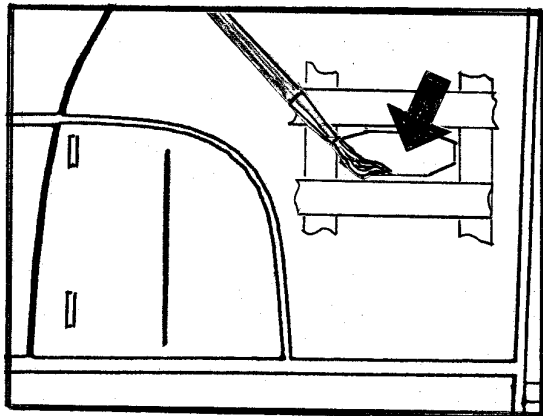


7. File opening to the final size and deburr the edges.

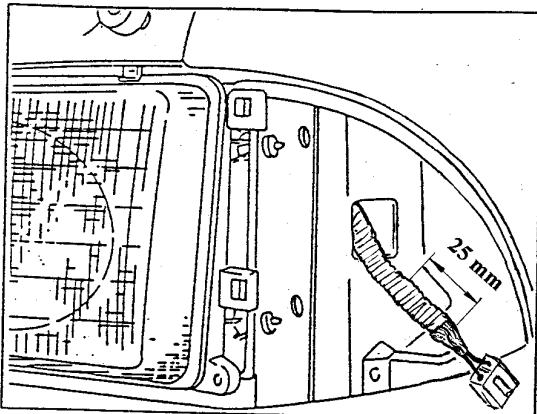


8. Clean edges with thinner and apply anticorrosion primer.

9. Paint edges with top coat.

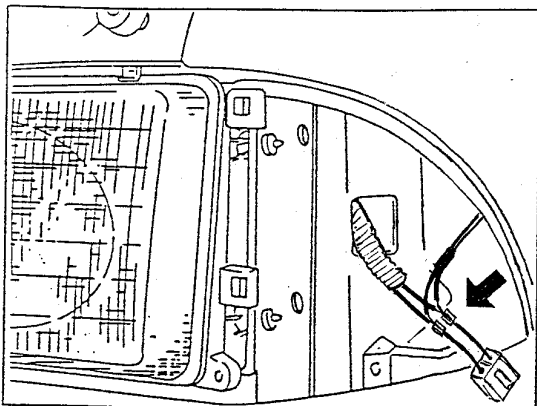


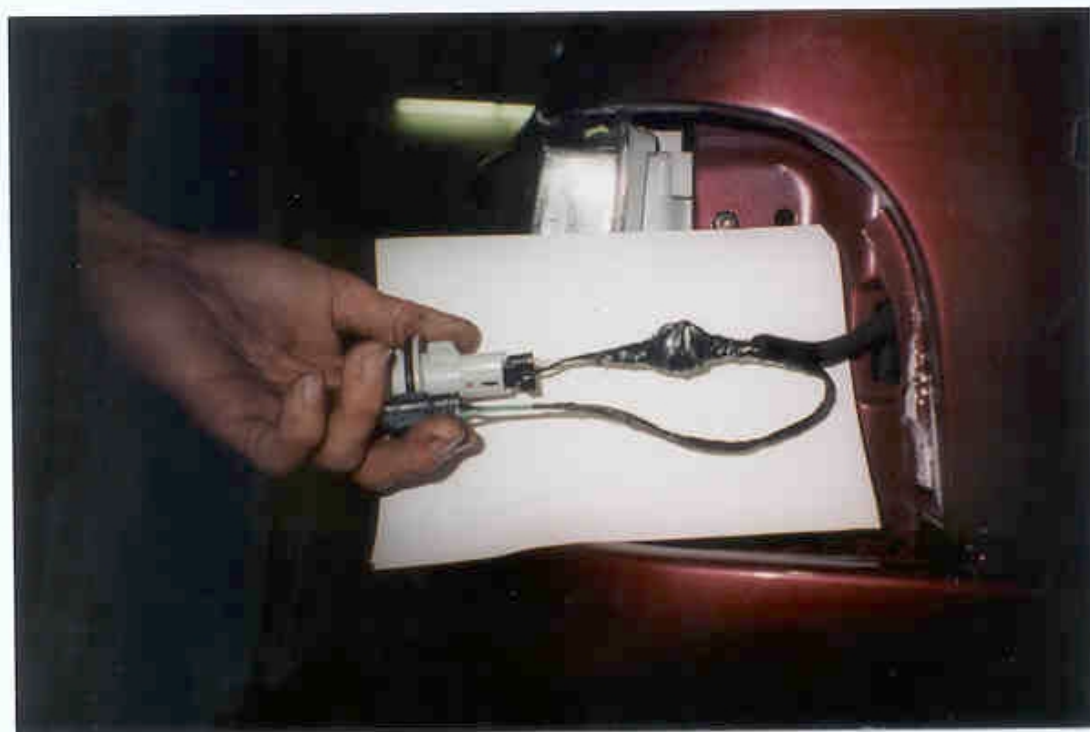
10. Cut off existing flexible harness protector by approx. 25 mm.



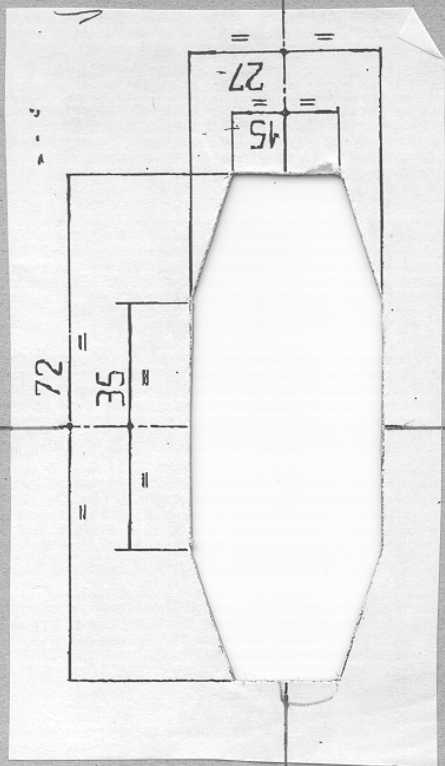
11. Cut insulation of wires for front indicator lights and splice wires for side indicator light with cable connector (or solder it together)

12. Install front and side indicator lights and check function of signal lights.









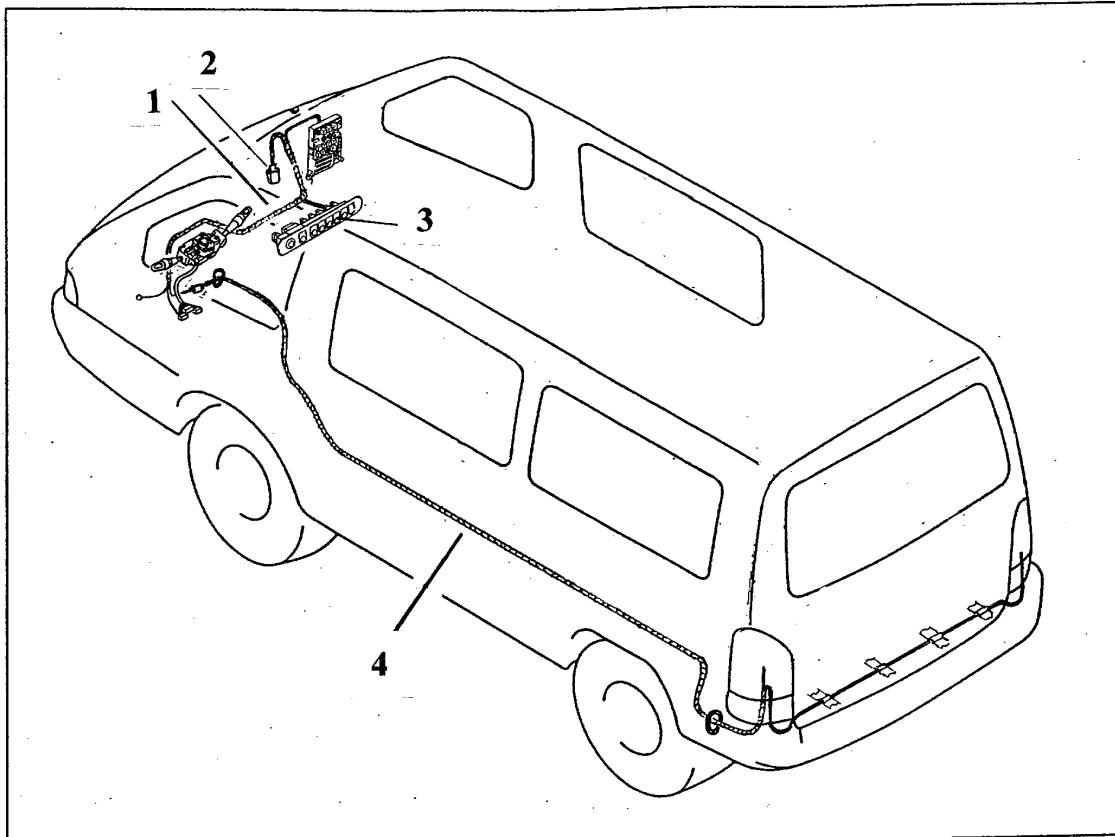


Working Instructions

Group 82/2

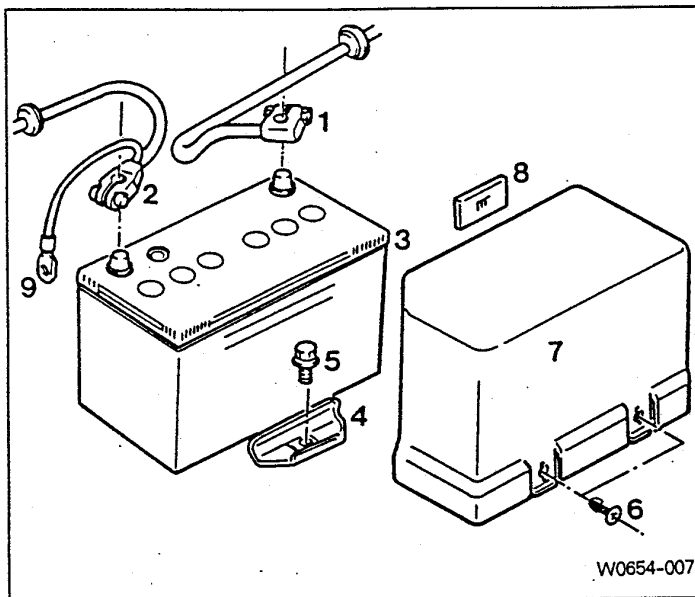


Rear Fog light : installation of wiring harness



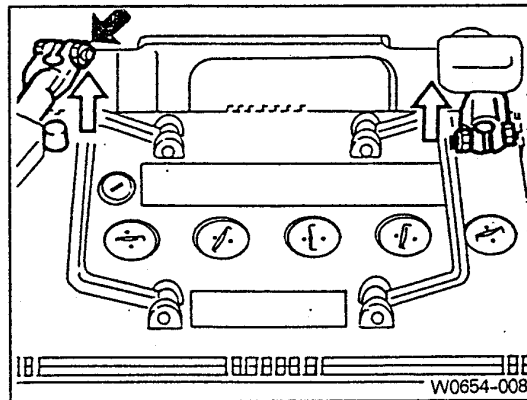
1. Fog light wiring, dashboard (special part without parts number)
2. Fog light relay parts no 84150 01300
3. Fog light switch parts no 661 545 41 07 (special part)
4. Fog light wiring, main (special part without parts number)

Operation time : total 3.5 hrs (including preparation for the job)
Place vehicle on a pit or hoist/lift

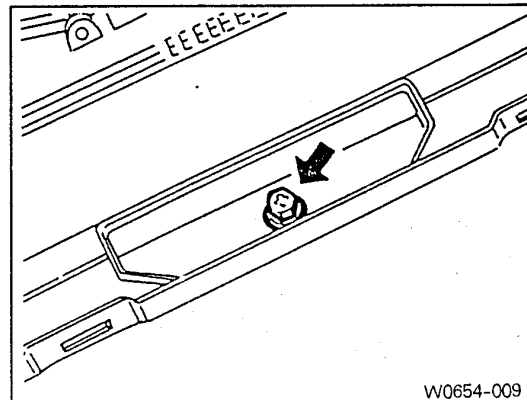


Remove Battery

1 Disconnect (-) terminal first and disconnect (+) terminal.

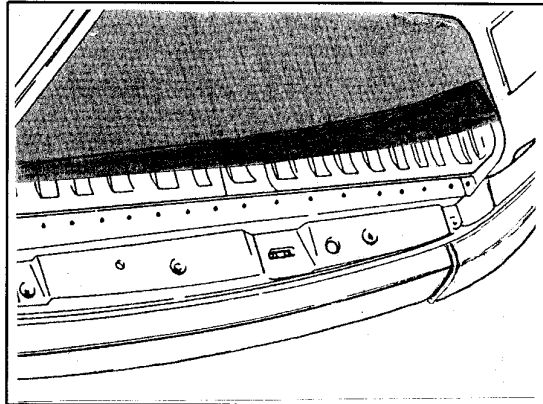


2 Unscrew bolts on battery fixing bracket and remove the battery.

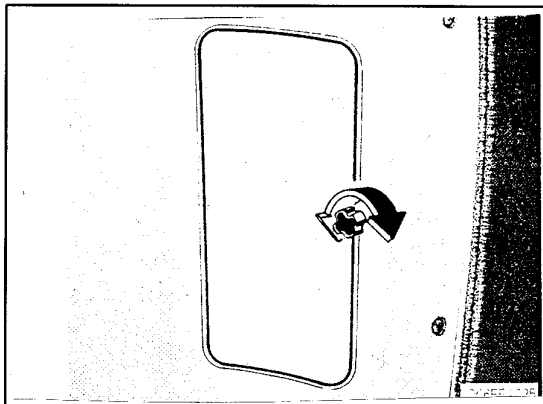


Laying of fog light wiring to the tail lights.

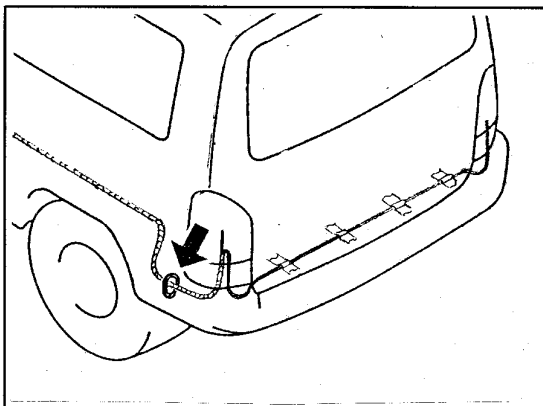
1 Remove step plate for tailgate and fold back floor carpet.



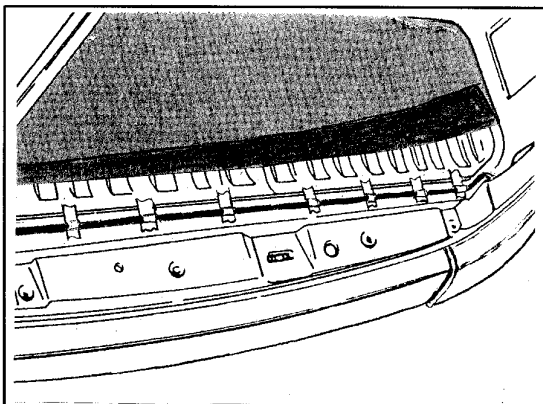
2 Open both rear combination lamp compartment covers.



3 Pull fog light main wiring from inside through the grommet for the battery (+) cable and out to the undercarriage.



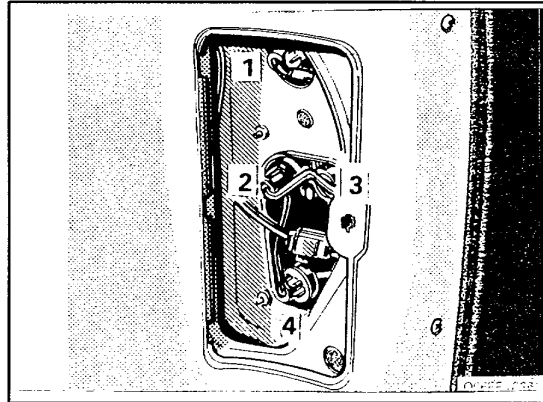
4 Lay the wiring to the rear left combination lamp.



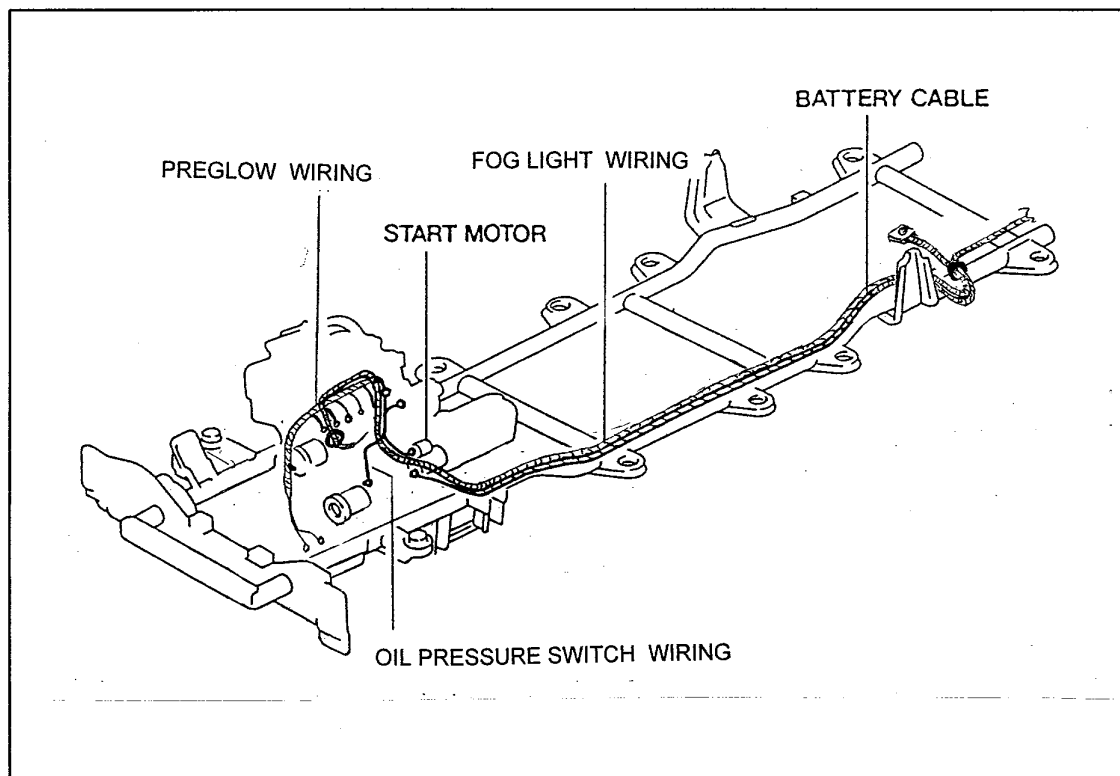
5 Lay the wiring to the rear right combination lamp along the floor. Fix wiring with gluing tape.

6 Connect fog light wire to the lower stop light (4). Cut off wire for lower stop light (green) and tail light (4) approx. 25mm from socket. Connect fog light wire to the green wire (stop light 21W) on the socket. Insulate all cables with insulation tape.

7 Remove engine cover.



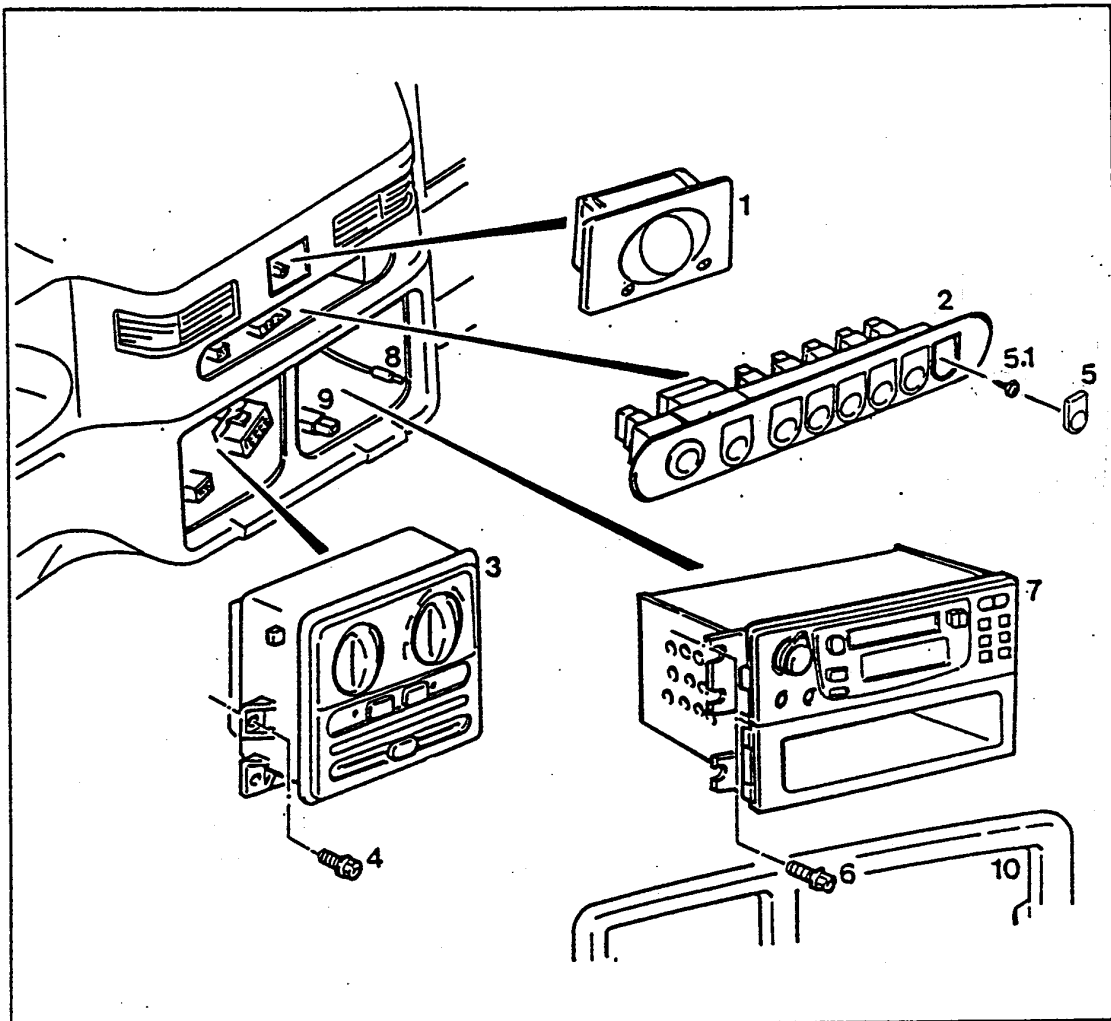
- 1 Stop light/tail light
- 2 Turn signal light
- 3 Back up light
- 4 Stop light/tail light



8 Lay fog light wiring to the front along the battery (+) cable route on the chassis frame and from starter along the oil pressure switch wiring/ preglow wiring route. Secure the wiring with cable ties. Pull cable through the grommet on the left side of engine tunnel into the driver footwell.

Remove switch panel (and car-stereo set)

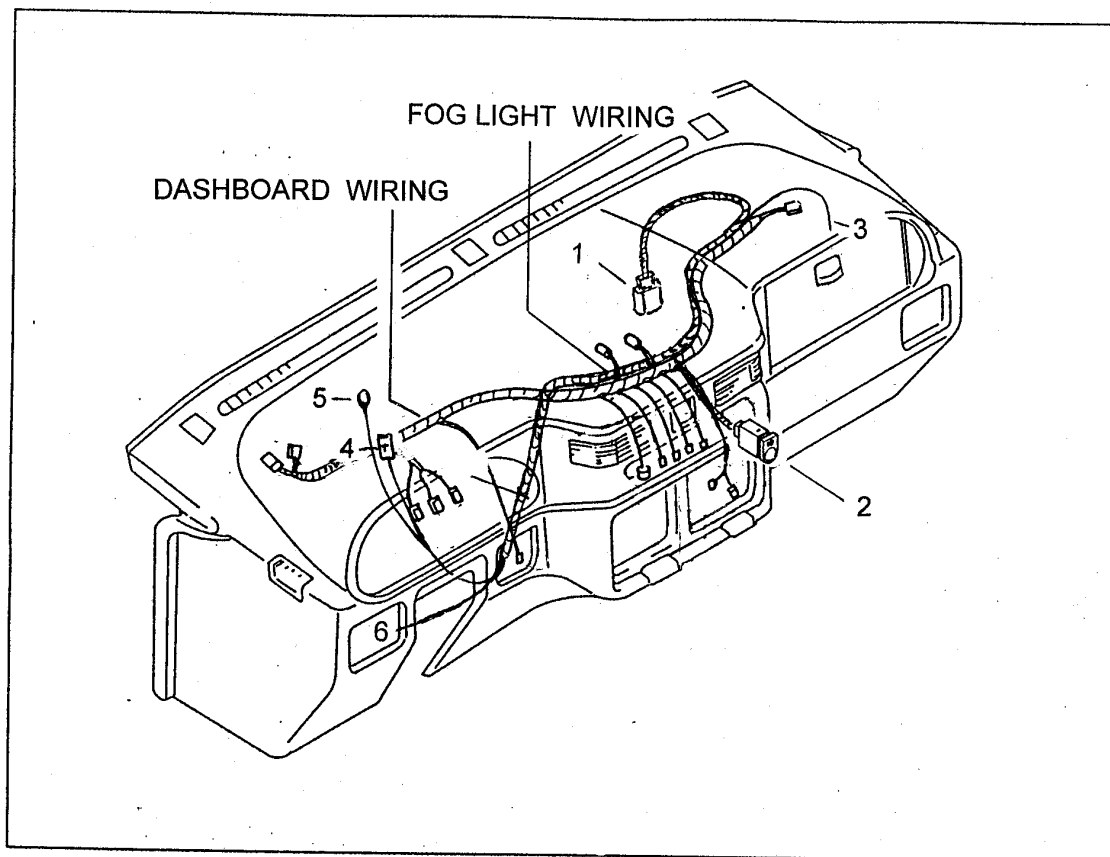
- 1 Remove cover 5 (switch blank) and screw 5.1 from switch panel. Pull out switch panel.
- 2 Pull off cover 10 for car stereo set. Remove screws 6 and pull out stereo set, disconnect car stereo set wiring 9 and antenna cable 8.



- | | |
|--|-------------------------|
| 1 Clock | 4 Screw |
| 2 <u>Switch panel</u> | 5 <u>Cover</u> |
| - Hazard light switch | 5.1 <u>Screw</u> |
| - Rear defogger | 6 Screw |
| - Rear blower switch | 7 <u>Car stereo set</u> |
| - Rear main interior light | 8 Antenna cable |
| 3 Heater and air-conditioner control box | 9 Car stereo set wiring |
| | 10 <u>Cover</u> |

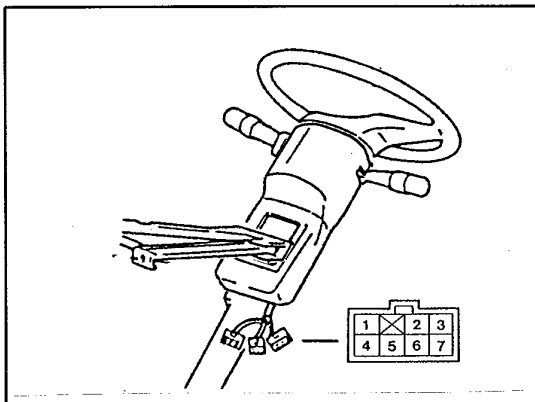
Laying of fog light wiring on the dashboard

- 1 Lay wire end with the relay along the dashboard wiring route to the fuse and relay box in the co-driver footwell.
- 2 Lay the other wire end along the dashboard wiring route to the driver footwell.
- 3 Secure the wire with cable ties.
- 4 Connect the wire to the fog light switch 2 and install switch on the switch panel.



- 1 Fog light relay
- 2 Fog light switch
- 3 Wire (green/white) to fuse no. 22
- 4 Wire (red with white marks) to fog light wiring tail light
- 5 Wire (black) ground (-)
- 6 Wire (light green/white) to multi-function light switch connector on steering column

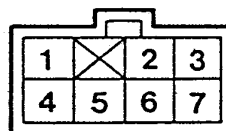
5 Connect wire 6 (light green/white) of fog light dashboard wiring to the wire (light green/white) on terminal 4 of the multi function switch connector. Use cable connector or solder both wires together.



Multi function switch connector

Head lamp

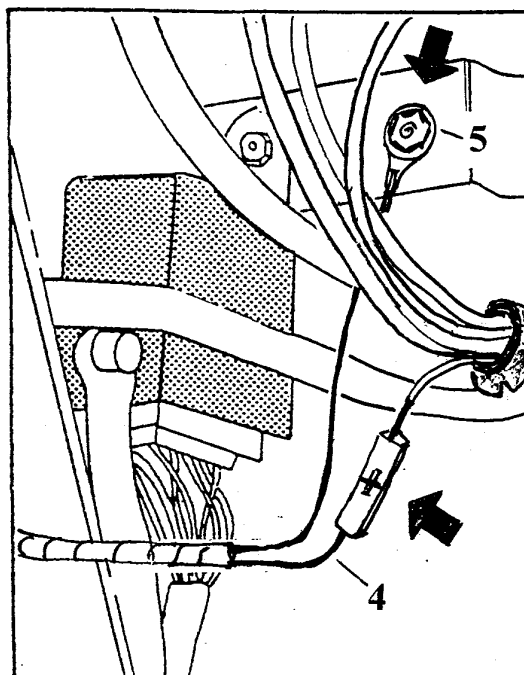
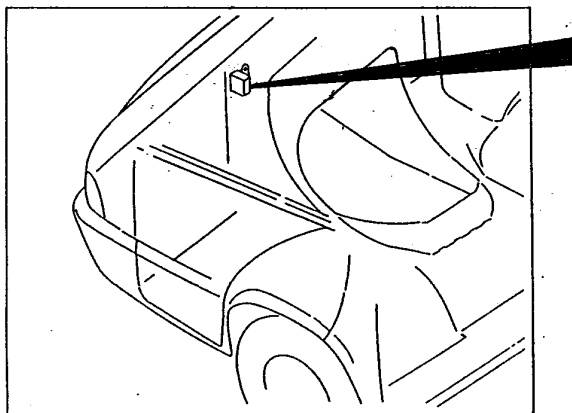
1	Ground
2	Head light relay B+
3	Multi-function switch HI
4	Fog light
5	Position light
6	Ground
7	Multi-function switch LO



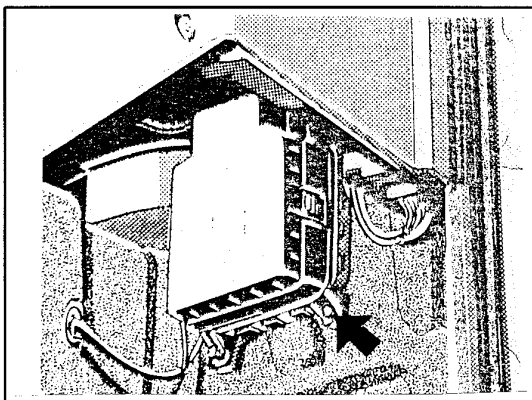
W0654-060

6 Connect wire 4 (red) of fog light dashboard wiring from dashboard to the fog light main wiring using a single plug connector.

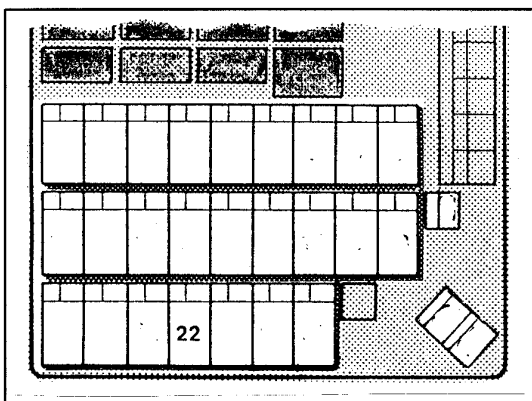
7 Bolt ground wire 5 (black) of the fog light dashboard wiring from dashboard to the bracket for the door lock relay.



8 Remove the four fixing bolts for the relay/fuse box. Remove the cover and turn relay/fuse box around, facing the back. Remove rear cover on the box.



9 Connect wire 3 (dark green with white stripe) to fuse 22 - choose any wires going to the upper fuse terminal and splice (using soldered joints) in wire 3 at approx. 40mm from the upper terminal. Tape up the soldered connections.

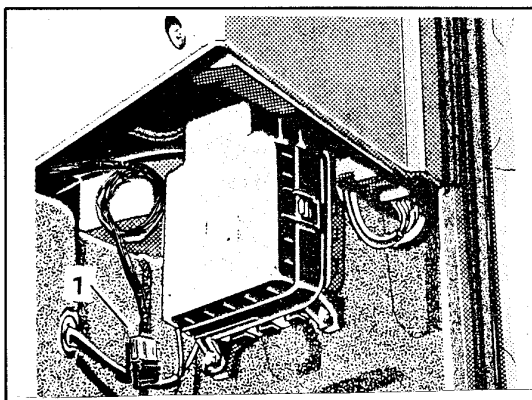


10 Install relay/fuse box in the reverse order.

11 Make a sticker (masking tape) marked "Rear Fog Light Relay" and stick it on the relay.

12 Coil up the slack wiring to the relay and secure with a cable tie to the dashboard wiring.

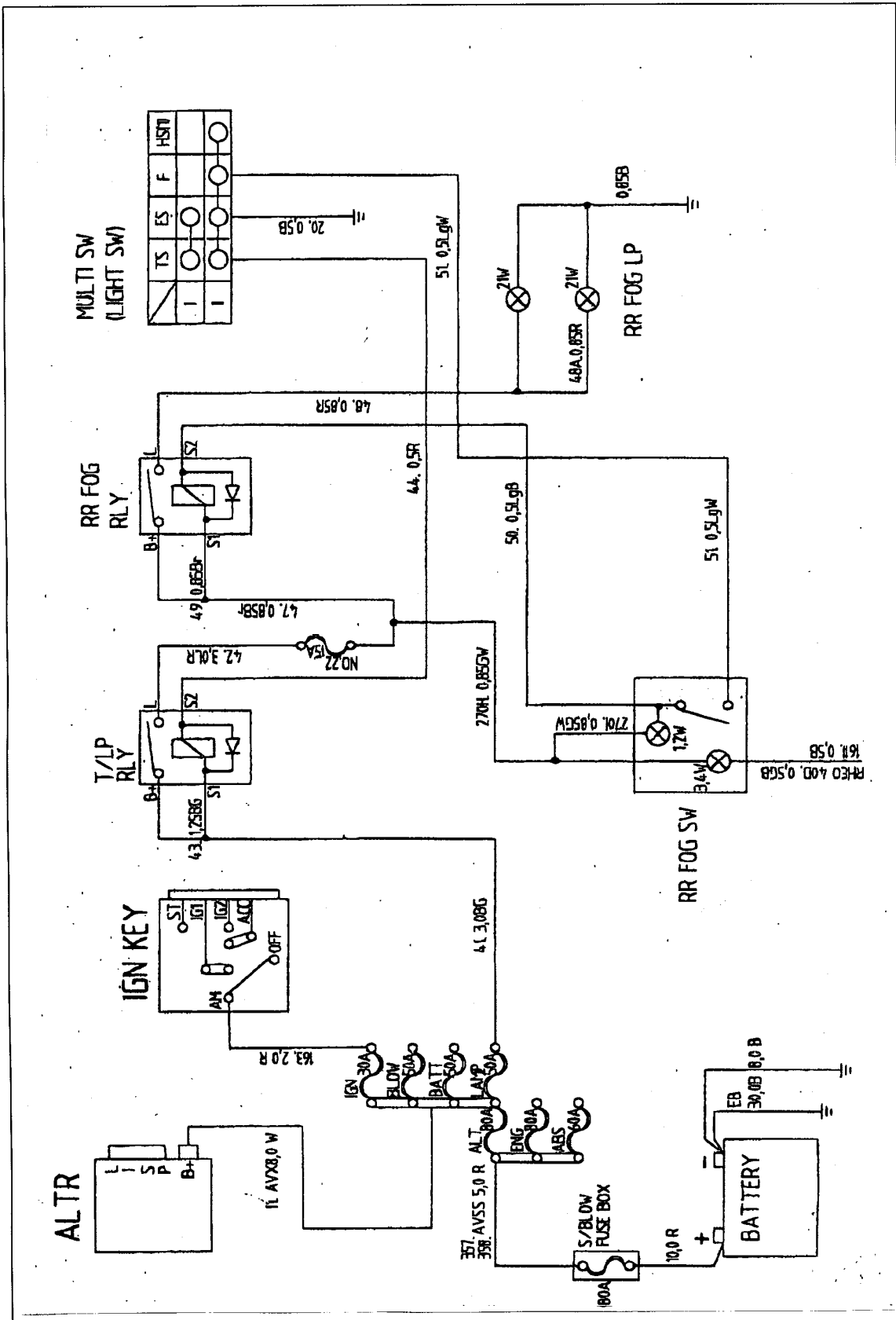
13 Secure fog light relay 1 with a cable tie on to the bracket for alternator wiring.



14 Carry out function test for rear fog light. Rear fog light can be switched on only when front fog light is on.

15 Install all removed parts in reverse order.

Rear fog light





Working Instructions

Group 82/3



MB 100 Series (Bm. 661) ECU wiring harness modification (Gasoline Vehicles only)

On some gasoline vehicles, the ECU wiring harness sagged too long and chaffed against steering pump pulley or v-belt.

Production Remedy: As from chassis end-number: 065403, ECU wiring harness has been fastened to the power steering reservoir hose tightly with clip cable.

Service Remedy: Refer to list of affected vehicles.
Inspections are to be carried out to ensure that the ECU wiring harness do not chaffed against steering pump pulley or v-belt.

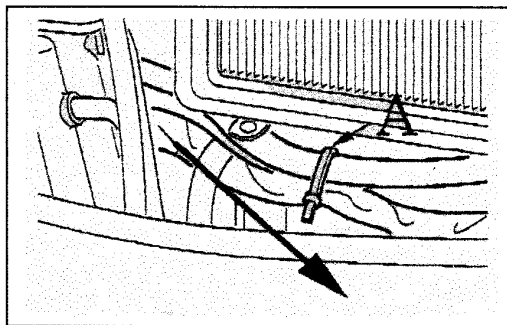
Warranty cost settlement: Damage Code 00910 65

According to Standard Text, Operation code

82.0099	Inspect ECU wiring harness against chaffing	= 0.2 hour
---------	---	------------

Required Spare Parts per vehicle: 1 x Clip Cable (Commercially available)

1. Open maintenance flap fully.
2. Remove the air cleaner cover.
3. Pull out the ECU wiring harness toward front in the direction of arrow. (see figure)
4. Fasten the ECU wiring harness to the power steering reservoir hose tightly by using clip cable. (see figure)
5. Install the air cleaner cover.



Note: Check ECU wiring harness is secured and not sagging near steering pump pulley.

Figure 1



Working Instructions

Group 88/1



MB 100 Series Installation of front bumper guard

1. Remove front bumper. (refer to workshop manual page 88-1102/1-2)

Remove steel beam (arrows) from rear of bumper, by cutting the plastic screw rivets (A). With a sharp knife and remove the two 6.0mm screws at both ends.

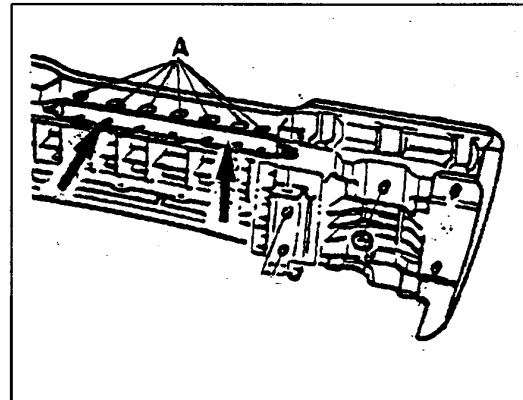


Figure 1

2. Insert both new mounting brackets into inner side of the steel beam (refer to location of right/left side bracket). Locate brackets into position (distance B = 20mm from edges)

Weld both brackets to steel beam at point "C" (upper/lower sides).

Brush off burnt paint in area of welding.
Prime bare metal with MB-2 component primer filler and paint area.

Install steel beam to bumper using new plastic screw rivets

Install bumper guard temporary at upper brackets.

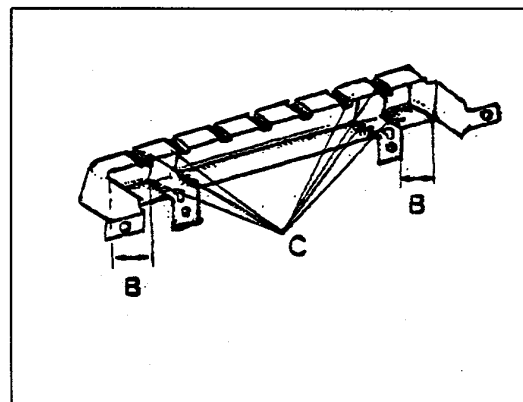


Figure 2

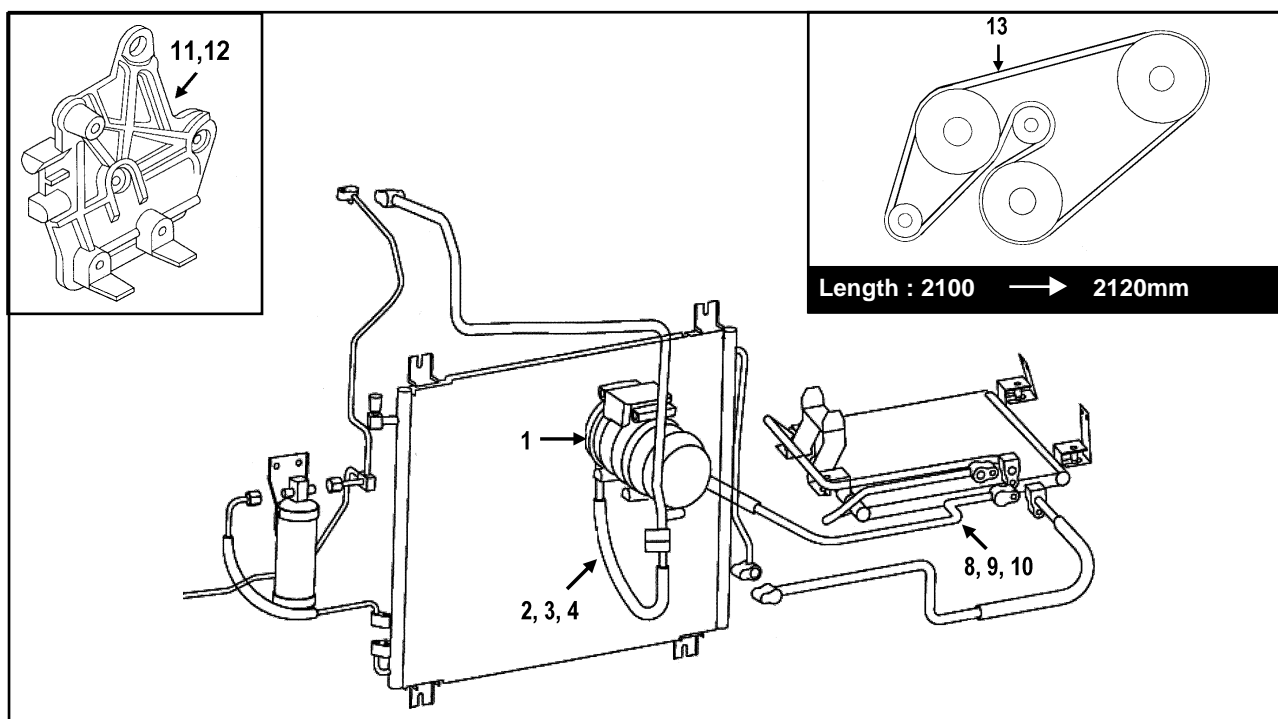


MB100 Series

Changed air conditioner parts

For the MB100 Series Van/Coaches from VIN number 103230 onwards, the changed pipes, hoses and compressor of air conditioner system including poly V-belt have been equipped to simplify the specification of a/con compressor.

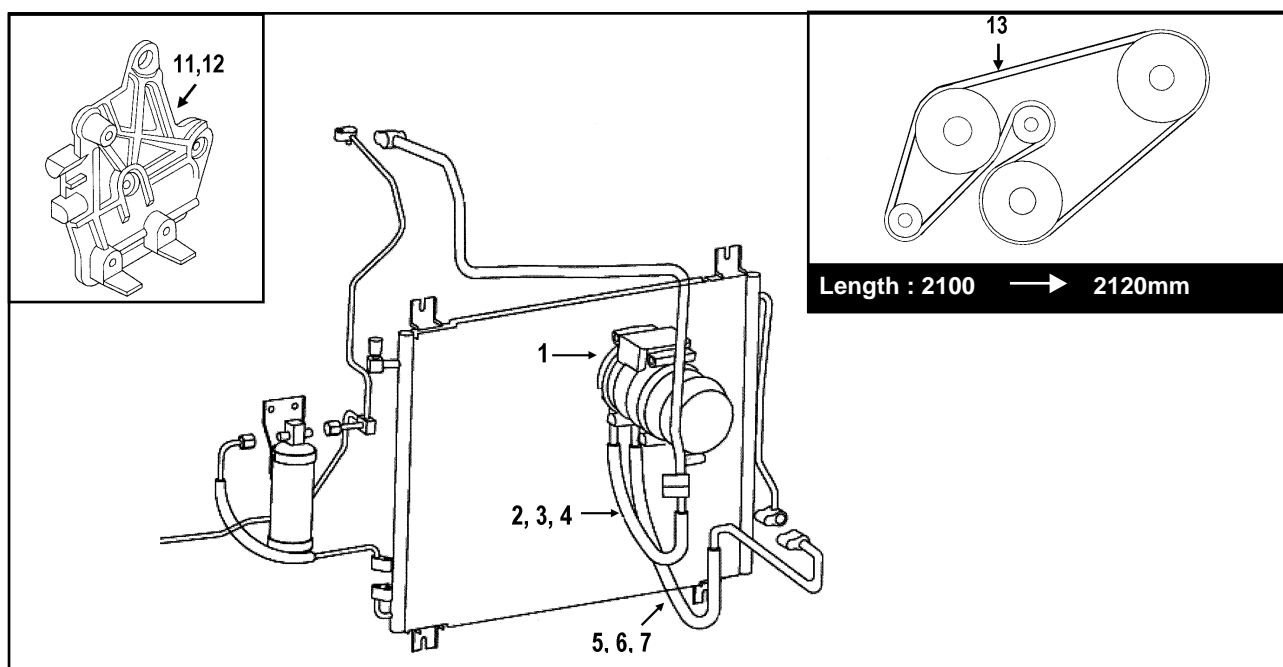
1 Front air conditioner system with sub condenser



	Part description	Part No. (Old)	Part No. (New)	Interchangeability	Engine
1	Compressor ASSY - A/CON	661 130 34 15 (DSL) 161 130 30 15 (GSL)	661 830 38 15	No	OM601,2 & M161
2	Hose- SUCT, COMP	661 830 30 97	661 830 52 97	No	OM601
3	Hose -SUCT, COMP	661 830 31 97	661 830 46 97	No	OM602
4	Hose -SUCT, COMP	661 830 32 97	661 830 49 97	No	M161
8	Hose- DISCH, COMP to SUB/C	661 830 36 97	661 830 54 97	No	OM601
9	Hose- DISCH, COMP to SUB/C	661 830 37 97	661 830 48 97	No	OM602
10	Hose- DISCH, COMP to SUB/C	661 830 38 97	661 830 51 97	No	M161
11	BRKT ASSY-A/C COMP	661 230 44 39	661 230 46 39	No	DSL

	Part description	Part No. (Old)	Part No. (New)	Interchangeability	Engine
12	BRKT ASSY-A/C COMP	161 230 31 42	161 230 35 42	No	GSL
13	Poly V-belt Grooved	008 997 90 92	008 997 34 92	No	Only DSL E/G

2 Front air conditioner system without sub condenser



	Part description		Part No. (New)	Interchangeability	Engine
1	Compressor ASSY - A/CON	661 130 34 15 (DSL) 161 130 30 15 (GSL)	661 830 38 15	No	OM601,2 & M161
2	Hose- SUCT, COMP	661 830 30 97	661 830 52 97	No	OM601
3	Hose -SUCT, COMP	661 830 31 97	661 830 46 97	No	OM602
4	Hose -SUCT, COMP	661 830 32 97	661 830 49 97	No	M161
5	Hose- DISCH, COMP	661 830 33 97	661 830 53 97	No	OM601
6	Hose- DISCH, COMP	661 830 34 97	661 830 47 97	No	OM602
7	Hose- DISCH, COMP	661 830 35 97	661 830 50 97	No	M161
11	BRKT ASSY-A/C COMP	661 230 44 39	661 230 46 39	No	DSL
12	BRKT ASSY-A/C COMP	161 230 31 42	161 230 35 42	No	GSL
13	Poly V-belt Grooved	008 997 90 92	008 997 34 92	No	Only DSL E/G

Note

1. There is no interchangeability between old parts and new parts.
2. According to change the size of a/con compressor housing and position of mounting, length of poly V-belt was changed.

3. Install lower brackets onto front cross Member according to this measurements (refer figure 3)

Distance D=57mm bracket edge/bore center

Distance D=5mm bracket edge/cross member lower edge bore center

Weld brackets at right/left/upper side edges to cross member.

Brush off burnt paint in area of welding.
Prime bare metal with MB-2 component primer filler and paint area.

Install bumper together with bumper guard to vehicle. Center bumper guard by adjusting brackets and tighten all bolts to 30Nm.

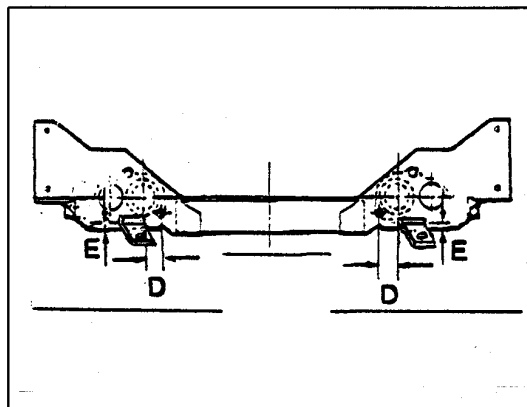


Figure 3

Spare parts required for installation per vehicle

Spare Part No.	Description	Quantity
661 880 30 55 AAA	Frt. Guard Assy	1
661 885 33 88	Bracket-Crossmember	2
661 885 40 88	Bracket-Steel beam (LH)	1
661 885 41 88	Bracket-Steel beam (RH)	1
92884 0800D	Nut Hex Flg (M8 X1.25)	2
95917 0825D	Bolt Hex Sem (M8 X1.25 X 25)	2
95937 1030D	Bolt Hex Flg (M10 X1.25 X 25)	2
79717 05000	Screw Rivet-M7	6
78872 05000	Screw Rivet-M8	6

~~78872 05000 with longy color code~~

Service Information

	Group No.	Descriptions
1	03-1	Dual mass flywheel
2	05-1	New special tools for removing/Installation of valve springs
3	13-1	Engine poly-V belt tensioner shock absorber
4	18-1	Retightening/Removing -Installing of the oil cooler
5	18-2	New improved design engine oil cooler
6	29-1	Clutch and brake free play
7	40-1	Tire inflating pressure
8	42-1	Brake -Juddering / Shuddering
9	42-2	ABS5.0 Diagnosis MB100Series (Bm.661)
10	54-2	4Mbyte commercial vehicles Diagnosis module
11	65-1	Roof luggage carrier
12	82-1	Interior fluoresscent lamp (Coach only)
13	82-2	Clutch Interlock sysytem
14	83-1	New rear air-con expansion valve

Dual Mass Flywheel

The dual mass flywheel is introduced for the MB100 Series Van/ Coaches with OM662 diesel engine from chassis serial number 059280 onwards (refer to figure1).

This flywheel is an enhancement to customer comfort.

On some vehicles below chassis serial number 059280, a low-pitched resonant rattling noise emanates from the transmission when the vehicle is accelerated from low speed. It disappears normally at engine speeds between 1200 and 2000 rpm. The noise is most pronounced with open windows and when the vehicle is driven alongside a wall, building or other sound reflecting barrier. This noise is caused by a slight oscillation in the engine speed. The dual mass flywheel is designed to dampen these noises.

Please note: This noise is not caused by any design defect and does not affect the durability or reliability of the vehicle.

Therefore, conversion to dual mass flywheels cannot be claimed under warranty or goodwill terms.

Enclosed please find repair instructions for the installation & removal of dual mass flywheel which will be included in the next microfilms update.

Mercedes-Benz Asia Pte Ltd.
Service MB100

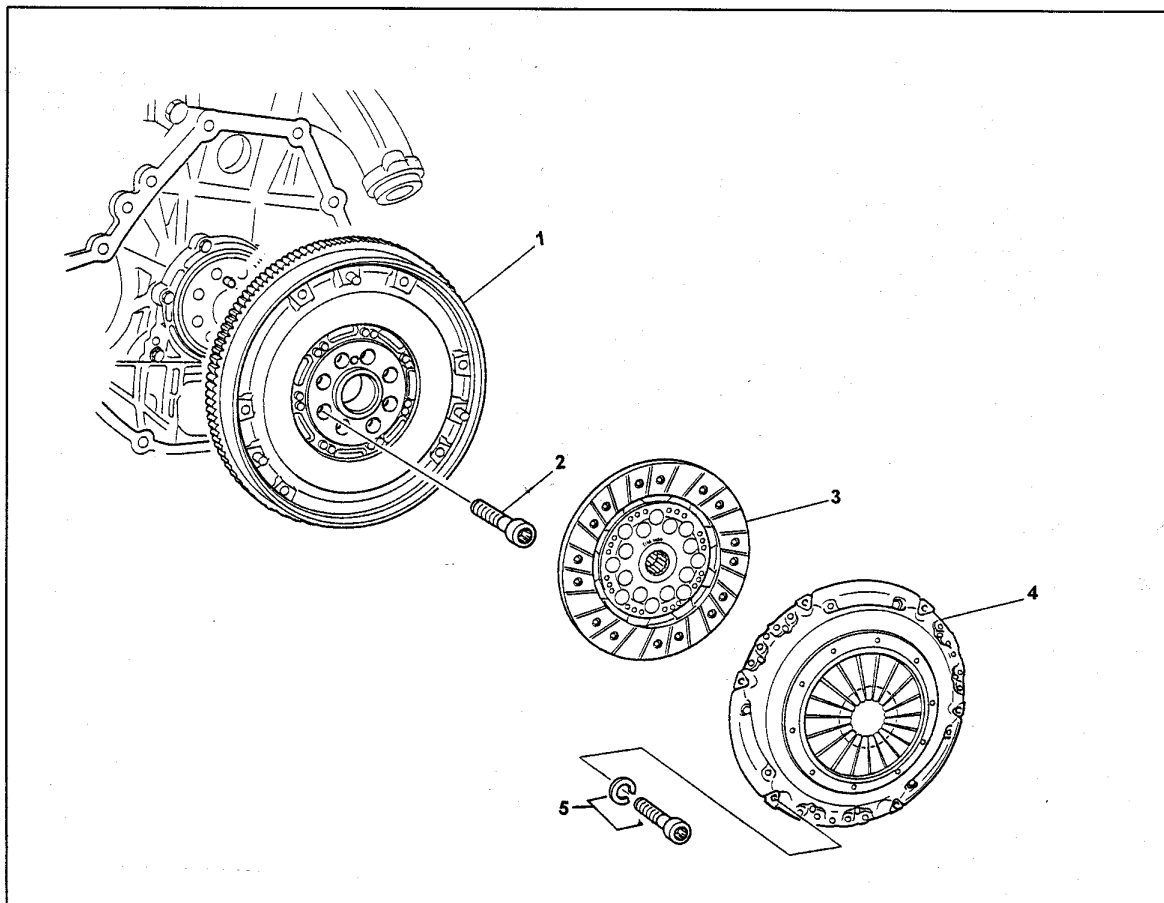


Figure 1

No.	Description	Dual Mass Flywheel Part no.	Quantity	Tighten torque
1	Flywheel	662 030 30 13	1	--
2	Flywheel mounting bolt	111 990 03 12	8	45Nm+ 90° angle of rotation
3	Clutch disc	662 250 37 03	1	-- --
4	Clutch pressure plate	662 250 36 04	1	-- --
5	Clutch pressure plate mounting bolts & spring washers	Bolt -91808 08181 Spring washer – 661 991 30 25	6	1 to 1½ turns at a time diagonally 25± 2.5 Nm
Not shown	Belt tensioned damper	604 200 02 14	1	-- --

Note: When installing of clutch disc, ensure that the clutch disc surface which is marked “T/M Side” faces toward the transmission.



Mercedes-Benz

service information

17.04.1998

Distribution S1/1

Group 05/1



MB 100 Series

New Special Tool for Removal / Installation of Valve Springs Engines OM661, 662 & M161

A new special tool is available for removal and installation of valve springs. With this installation tool the lever press is supported by braces in the present threaded holes in the cylinder head.

On engines with bucket tappets the valve retainer can be removed and installed automatically using installation cartridges when the valve springs are pressed down

Special Tool

Designation	Part no.	Set
New installation tool for valve springs In plastic case	111 589 25 61 00	B

Note:

The three M161 special tools listed below are no longer available from DBAG -GLC
Germersheim, Germany as they are superseded by the above new special tool for valve springs.

Special tools for Engine M161.971

- ⇒ P/No. 111 589 01 59 00 Supporting Bridge
- ⇒ P/No. 111 589 18 61 00 Lever Pusher
- ⇒ P/No. 111 589 25 63 00 Thrust Piece

The two OM661/662 special tools listed below are still available at DBAG -GLC. However, they can still be substituted with the above new special tool.

Special tools for Engine OM661.911 /662.911

- ⇒ P/No. 601 589 02 59 00 Supporting Bridge
- ⇒ P/No. 667 589 00 31 00 Lever Pusher

Enclosed please find updated pages that includes the above new special tool for your insertion to the MB100 Series Special Tools Catalogue and please discard the old pages.

Special Tool Part Number Register

Part Number	Page	Set	Part Number	Page	Set
53					
▼					
000 589 10 53 00	05 - 01	C	115 589 00 53 00	05 - 06	C
000 589 21 53 00	05 - 02	C	115 589 01 53 00	05 - 07	C
<hr/>					
59					
▼					
115 589 03 59 00	67 - 01	K	601 589 02 59 00	05 - 11	B
601 589 01 59 00	05 - 09	C			
<hr/>					
61					
▼					
111 589 25 61 00	05 - 16	B			
<hr/>					
62					
▼					
631 589 01 62 00	32 - 01	B	661 589 02 62 00	46 - 06	C
661 589 00 62 00	26 - 16	A	661 589 03 62 00	35 - 05	B
661 589 01 62 00	01 - 05	A			
<hr/>					
63					
▼					
102 589 00 63 00	05 - 03	C	346 589 00 63 00	05 - 14	C
102 589 08 63 00	05 - 04	C	601 589 15 63 00	05 - 12	C
115 589 34 63 00	01 - 02	C	661 589 00 63 00	33 - 02	B
116 589 06 63 00	05 - 08	B	661 589 02 63 00	46 - 07	C
119 589 04 63 00	07 - 08	B	661 589 03 63 00	46 - 07	C
124 589 02 63 00	67 - 01	K	661 589 04 63 00	01 - 06	C
124 589 21 63 00	67 - 02	K	667 589 02 63 00	05 - 14	C
124 589 45 63 00	07 - 08	B	667 589 04 63 00	07 - 06	C
<hr/>					
66					
▼					
601 589 00 66 00	01 - 04	C	601 589 00 66 03	01 - 04	C
<hr/>					
68					
▼					
000 589 00 68 00	07 - 01	C	000 589 10 68 00	05 - 01	C
<hr/>					
99					
▼					
201 589 00 99 00	15 - 01	C	201 589 00 99 21	15 - 02	C

Special Tool Disposition List

Part Number	Part Description	Page
Group 03		
Set C		
000 589 04 14 00	Tensioning strap	03 - 01
116 589 07 15 00	Drift	03 - 03
601 589 07 21 00	Measuring device	03 - 05
667 589 01 21 00	Locating tool	03 - 06
000 589 25 33 00	Internal puller	03 - 01
000 589 33 33 00	Countersupport	03 - 02
102 589 05 33 00	Puller	03 - 02
601 589 02 40 00	Retaining lock	03 - 06
615 589 01 33 00	Gripper	03 - 07
Group 05		
Set A		
102 589 03 40 00	Magnetic lifter	05 - 04
Set B		
116 589 20 33 00	Impact-type extractor	05 - 08
116 589 02 34 00	Threaded pin	05 - 07
603 589 01 40 00	Holding wheel	05 - 13
601 589 02 43 00	Punch	05 - 10
601 589 02 59 00	Supporting bridge	05 - 11
116 589 06 63 00	Special magnet	05 - 08
606 589 00 37 00	Puller	05 - 15
104 589 01 01 00	Open end wrench	05 - 15
111 589 25 61 00	Installation tool for valves springs	05 - 16
111 589 03 15 00	Retaining pin	05 - 17
119 589 00 43 00	Drift	05 - 18
119 589 02 15 00	Drift	05 - 18
Set C		
103 589 02 15 00	Drift	05 - 05
103 589 03 15 00	Drift	05 - 05
601 589 05 15 00	Mandrel	05 - 11
601 589 06 15 00	Mandrel	05 - 12
102 589 00 23 00	Mandrel	05 - 03
117 589 03 23 00	Mandrel	05 - 09
601 589 02 23 00	Mandrel	05 - 10
667 589 00 31 00	Lever press	05 - 13
606 589 00 37 00	Plier	05 - 06
000 589 58 43 00	Pressing-on tool	05 - 02
000 589 10 53 00	Reamer	05 - 01
000 589 21 53 00	Reamer	05 - 02

05 B**111 589 25 61 00**

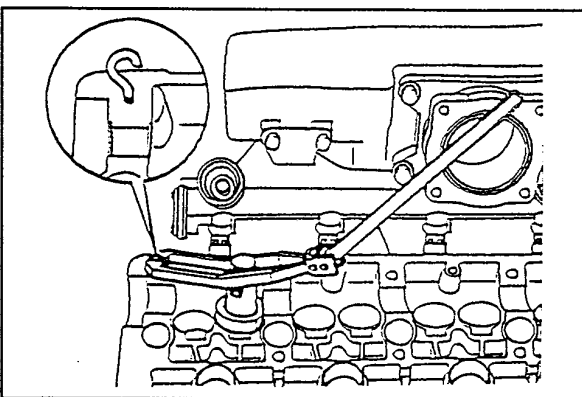
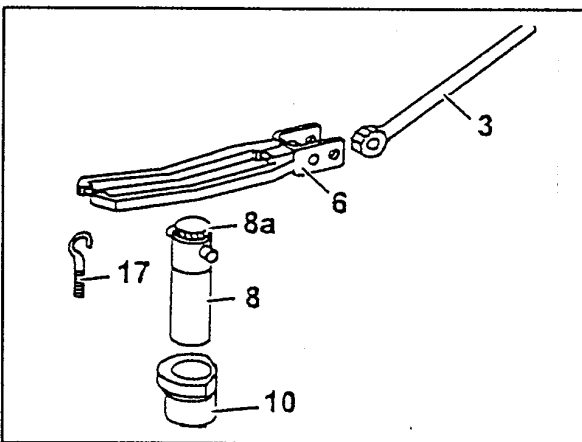
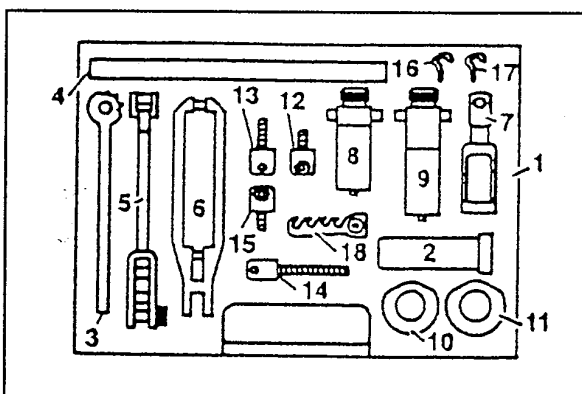
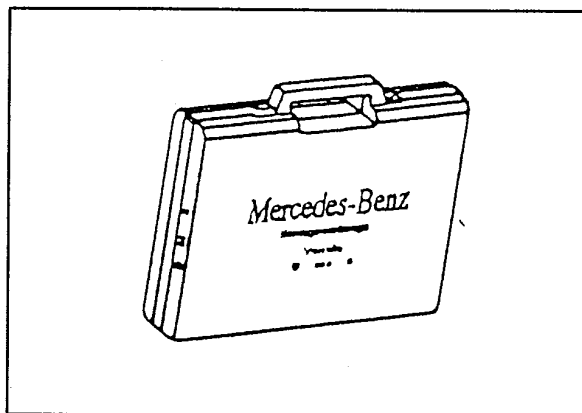
New Installation tool for valve springs

Note:

The valve retainers are installed automatically with the mounting cartridges

Contents:

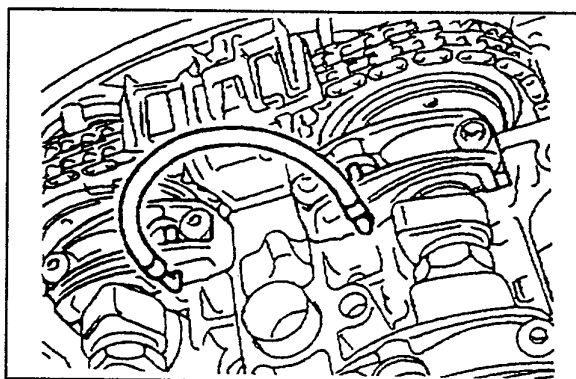
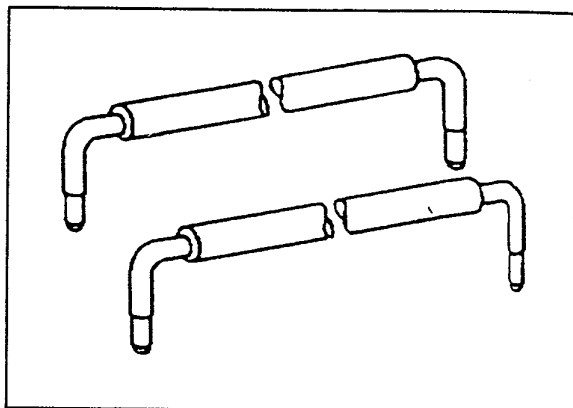
- 1 Case, empty
- 2 Impact bolt
- 3 Lever handle
- 4 Extension
- 5 Notched pressure lever for thrust element
- 6 Thrust fork for installation cartridges
- 7 Thrust element for notched pressure lever
- 8 Installation cartridge, length 83mm (petrol engines)
- 9 Installation cartridge, length 102 (diesel engines)
- 10 Guide bushing length 28.6mm (petrol engines)
- 11 Guide bushing, length 53 mm (diesel engines)
- 12 Retaining fork M6 X 15
- 13 Retaining fork M7 X 25
- 14 Retaining fork M7 X 30 (bolt length 60mm)
- 15 Retaining fork M8 X 20
- 16 Tthreaded hook M7 X 25
- 17 Threaded hook M8 X 20
- 18 Threaded hook M10 X20
- 19 Grid with articulated bearing



05 B

111 589 03 15 00

Retaining pin (2 pairs) for
keeping camshaft in assembly position





Mercedes-Benz

service information



Distribution 1
Group 13
SI13-01
20.10.1999

SI 13/01	Service Information on MB100 Series Engine Poly-V Belt Tensioner Shock Absorber	20.10.1999
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MODEL OM662.911

When the abovementioned engines are operated (with air conditioning compressors and their companion 90A alternators) during periods of engine idling, additional stresses and vibrations may arise at the poly-V belt drive. As a consequence, the shock absorber may fail, leading to loss of damping ability and/or noise.

To rectify this phenomenon, vehicles with chassis serial numbers starting from 069462 are equipped with a new version of the 90A alternator, part number 662 154 38 02. The new alternator has a pulley with a one-way clutch to reduce the vibrations.

i When older engines are detected with this condition, follow the recommended inspection procedure below:

1. Remove the shock absorber by following the repair instructions 20-3865, 20-5630 and 13-3200 in the MB 100 Series Repair Instruction Microfiche Z4 0202 01 1.
2. Test the shock absorber by alternately extending and retracting the piston rod of the shock absorber by hand.
Note: Please hold the absorber in a nearly vertical position with the piston rod down during this operation.
3. A strong resistance against movement due to the damping action should be felt when pushing in the rod. When pulling out, the resistance can be very low and so is of no importance in the absorber's function. If little or no resistance is felt when pushing in, or signs of damping fluid loss is obvious (wet oil marks or dried-up marks), the part is defective. Renew the shock absorber accordingly, using part number 604 200 02 14.
4. Together with the change of the shock absorber, renew the alternator to part number 662 154 38 02 and following repair instruction 15-5030 of the abovementioned Repair Instruction Microfiche.

Care must be taken to ensure that the problem happens due to extremely long idle operation and not due to normal wear and tear. For those vehicles that are not covered under warranty, approval should be sought and granted before goodwill claims are submitted. Note that the usual terms and conditions as laid out in the Manual Warranty Procedure, Export applies.

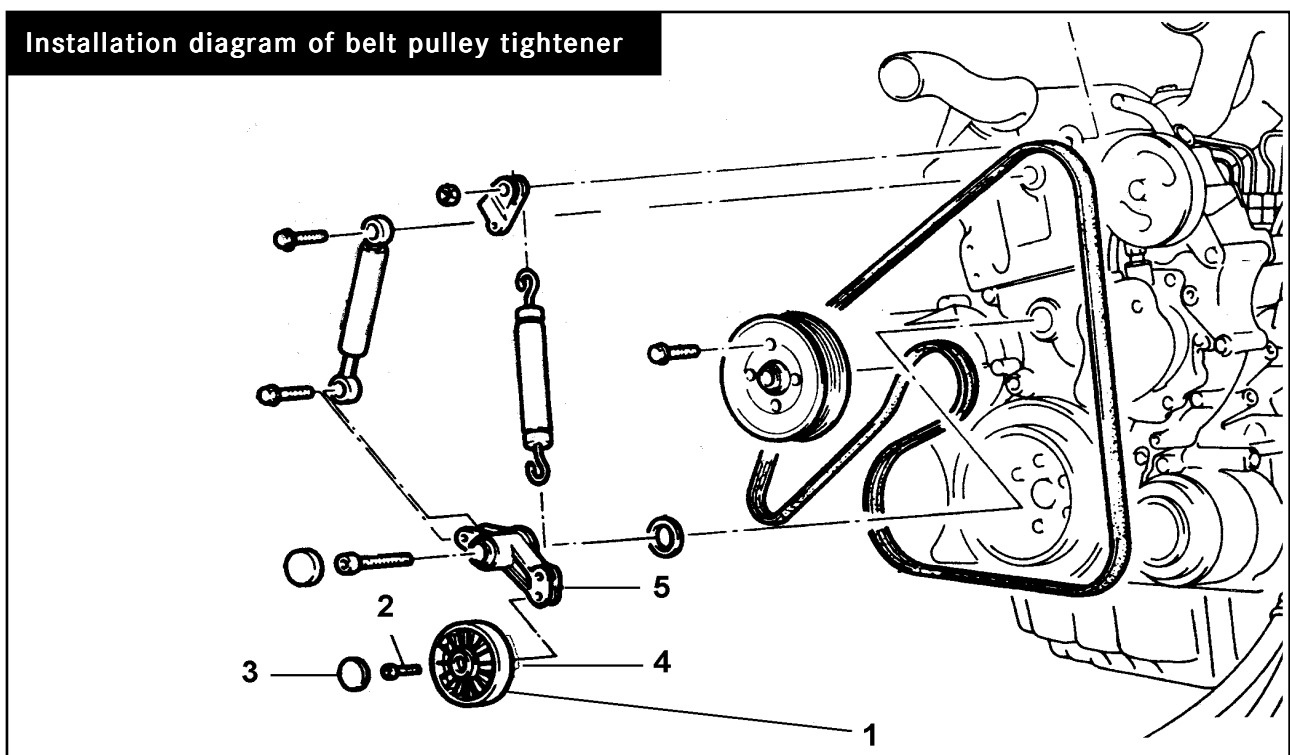


Distribution 1
Group 13
SI 13-02
01.12.2001

SI 13/02	Pulley belt tightener	January 12, 2001
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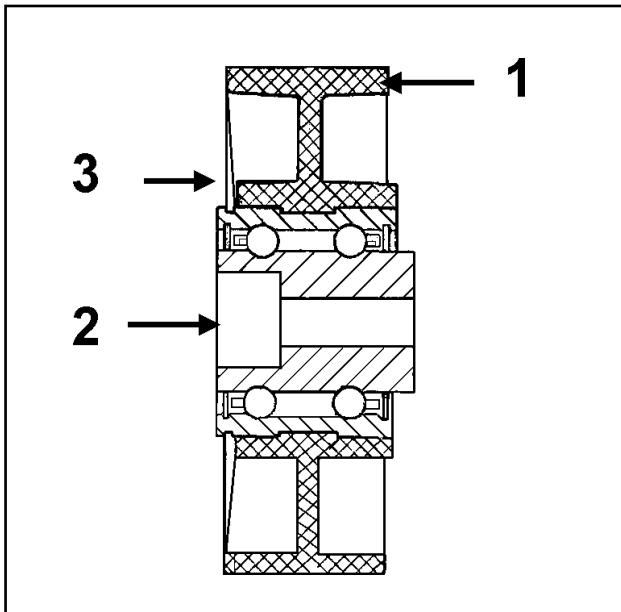
The new belt pulley tightener assembly was introduced to the all MB100 Series with Diesel engine from VIN 73875 onwards, the individual parts of belt pulley tightener assembly are not interchangeable.

Service remedy : In case of installing or replacement, only the **new** belt pulley tightener assembly including idler pulley cover can be adopted. (refer to workshop manual 13-3200)

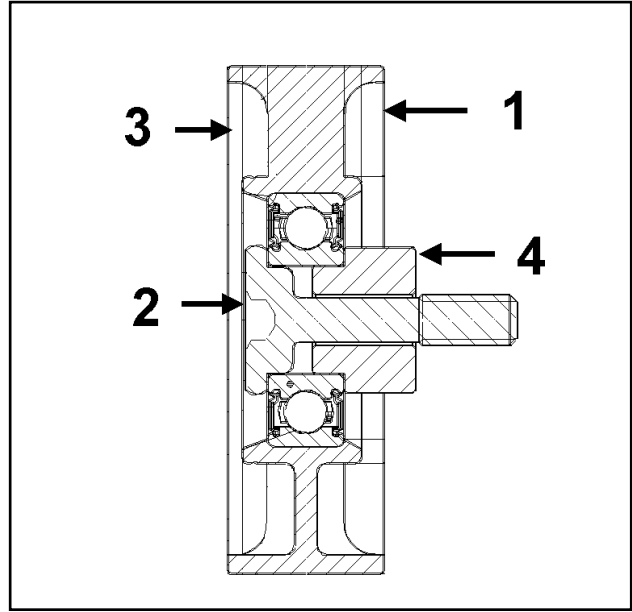


- 1 Belt pulley tightener
- 2 Bolt
- 3 Idler cover
- 4 Idler pulley spacer
- 5 Tensioning lever

< Old belt pulley tightener assembly- 5 >



< New belt pulley tightener assembly-5>



	Part description	Old	New	Interchangeability
1	Belt pulley tightener	601 200 09 70	661 200 30 70 ^[Note1]	No
2	Bolt	000 912 008 025 (Hexagon, M8X40)	661 990 3312 ^[Note2] (Torx bolt)	No
3	Idler cover	601 202 05 22	661 202 30 22	No
4	Idler pulley spacer	-	661 201 31 50 ^[Note3]	No
5	Belt pulley tightener assembly	-	-	Yes

[Note]

1 The new part number of belt pulley tightener, 661 200 30 70 includes torx bolt (661 990 3312) and idler pulley spacer (661 201 31 50).

2 Tightening torque

Hexagon bolt : $29 \pm 2.9\text{Nm}$ / Torx bolt : $22 \pm 3\text{Nm}$

3 The idler pulley spacer, 661 201 31 50 is added to compensate the width difference between old and new belt pulley tightener.



11.03.1997

Distribution S1/1

Group 18/1



MB 100 Series

Retightening / Removing - Installing of the Oil-cooler

All vehicles with engines OM 661 / 662

Due to unnecessary slackening of Oil-cooling element port nuts, (during retightening / removing of the Oil-cooler) ,internal leakages (engine oil entering the cooling system) are occurring. If the cooling element port nuts are not tightened correctly, the Oil-cooling element ports and housing will be distorted.

We would like to inform you about the different mounting bolts/nuts at the engine oil-cooler, in order to prevent further oil cooler subject to incorrect repair.

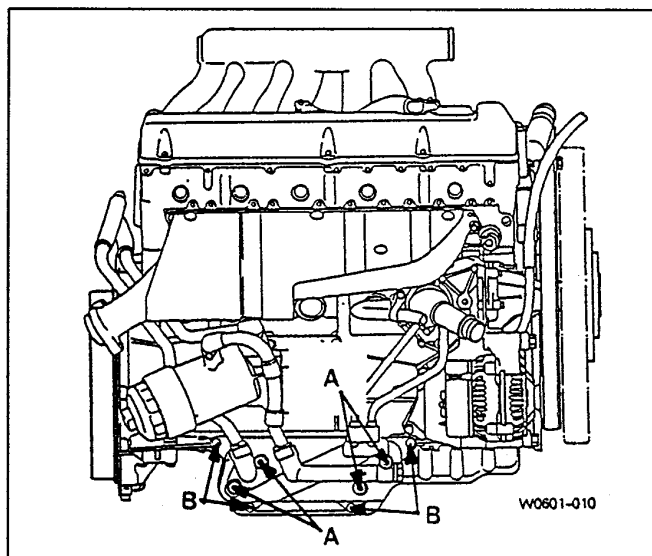
Removing / Installing :

For removing the complete Oil - cooler, only slacken the four mounting bolts " B " crosswise ! (see figure 1).

For installing the complete Oil - cooler, only tighten the four mounting bolts " B " crosswise in steps up to the final torque of 25 Nm. (see figure 1)

Retightening :

Always been carried out crosswise ! Mounting bolts " B " slacken one bolt slightly at the time and tighten it immediately to 25 Nm.



A = Cooling Element Port Nuts, B = Oil Cooler Mounting Bolt

Figure 1

Cooling element port Nuts "A" (figure 1- A)

Under no circumstances must these four cooling element port NUTS " A " be removed or retightened !! This would lead to damages of the cooling element port gaskets and consequently to internal oil - leakages.

New Improved Design Engine Oil Cooler OM661/662

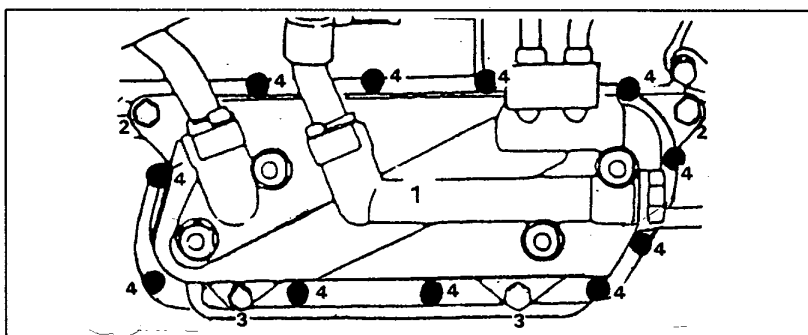
For the MB100 Series Van/Coaches from engine number 048779 onwards, the new improved design oil cooler housing assembly has been introduced.

The oil cooler housing design has been changed from one with a welded rear cover to a design with separate flange type rear cover. The cover to housing seal uses a gasket and 11 bolts. The manufacturing process for the housing has been changed from sand casting to die casting.

The new version oil cooler is interchangeable with the old version cooler but the 4 old mounting bolts are then substituted with the new mounting bolts listed below.

If the new oil cooler flange joint leaks, rectify using following procedures:

- ⇒ Check & adjust if necessary the tightening torque of the 11 flange bolts
- ⇒ Confirm cooler oil leaks stops
- ⇒ If leaking persists, check oil cooler gasket for distortion, replace new gasket if necessary



No	Description	Part Number	Quantity	Tighten Torque
1	New Improved Oil Cooler Assembly	661 180 31 65	1 pce	-- --
2	New Mounting Bolts	914126 008048 (M8 X 35)	2pcs	25 Nm
3	New Mounting Bolts	914126 008050 (M8 X 85)	2pcs	25 Nm
4	Oil Cooler Flange Bolts ●	914005-008005 (M8X 1.25)	11pcs	22 Nm
5	Gasket	661 185 30 00	1 pce	----

● Note: Do not use thread sealant, e.g Loctite on these bolts



11.03.1997

Distribution S1/1

Group 29/1



MB 100 Series

Clutch and Brake pedal free play

Due to the wrong description in the workshop manual, the adjustment of the Clutch and Brake pedal free play is not carried out correctly in the workshops.

The related pages are : 29 - 3260/3 for the Clutch pedal , 29 - 3410/3/4 for the Brake pedal. They will be revised with the next up date.

Whenever the Clutch and Brake pedal free play is checked or adjusted, only refer to the following described working instructions, until the workshop manual has been up dated.

Clutch pedal free play :

Note :

The workshop manual page 29 - 3260/3 is no longer valid.

1. Checking

Check clutch pedal free play at the foot pad, see figure 1.

Nominal free play =	7 - 15 mm.
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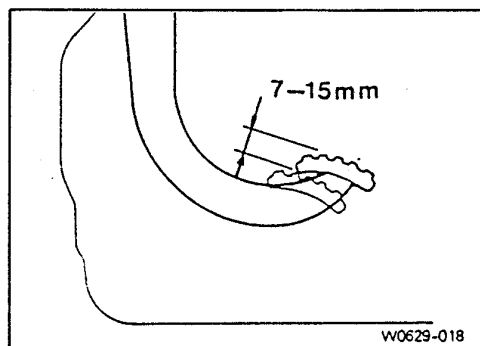


Figure 1

2. Adjusting

Slacken lock nut (2) , adjust the clutch pedal free play to the nominal value by rotating the push rod (1) and then tighten the lock nut (2). See figure 2

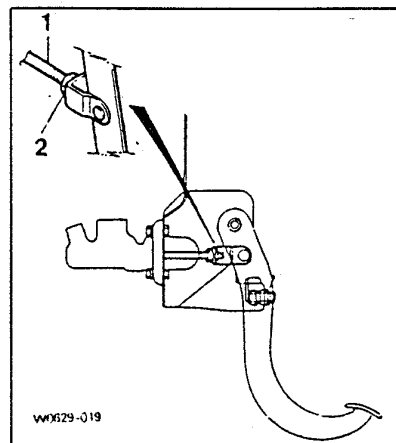


Figure 2

Brake pedal free play :

Note :

The workshop manual pages 29 - 3410/3 and /4 and Maintenance manual page 4255/1 are no longer valid.

1. Checking

Check brake pedal free play at the foot pad, see figure 3.

Nominal free play =	3 - 11 mm.
---------------------	------------

2. Adjusting

The brake pedal free play adjustment is carried out at the adjustment bolt of the brake booster push rod. (figure 4 arrow)

Therefore, refer to the workshop manual page 42 - 1510/3 for the detail description of the free play adjustment.

After the free play adjustment, the brake light switch has to be readjusted. Refer to figure 5.

Remove the connector at brake light switch. Unscrew lock nut (C). Turn the nut (D) until the switch end is just contacting the contact pad (G). Turn the nut (D) one half turn more onwards the switch (E) and then tighten the lock nut (C).

Connect the connector (F) and check if the brake light is working correctly.

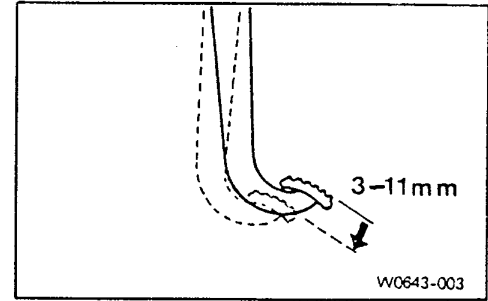


Figure 3

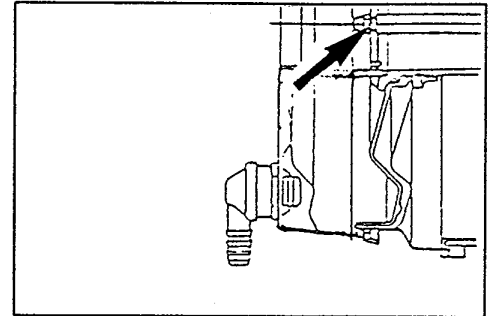


Figure 4

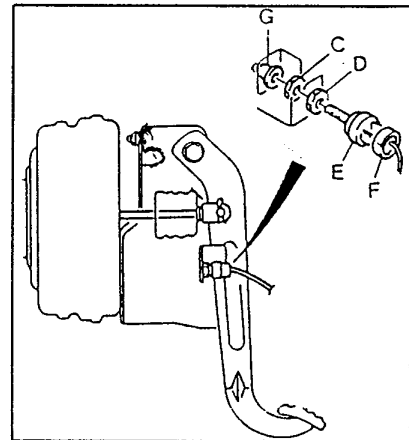


Figure 5

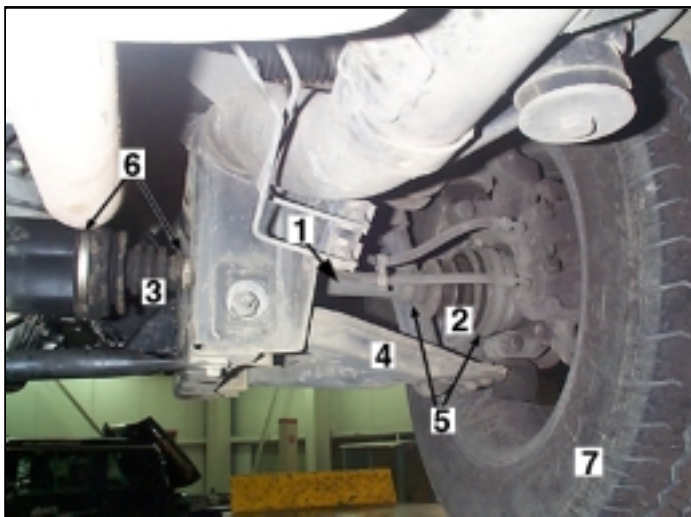
Mercedes-Benz Asia Pte Ltd.
Service MB100

**MB100 Series****New boots for Drive Axle Shaft**

All new vehicles from chassis serial number 102737 onwards, have new boot and clamps installed at drive axle shaft.

Production remedy : New boot and clamps of drive axle shaft were installed from April, 2000, Chassis number 102737~

Service remedy : In case the old version boot is damaged, it have to be replaced by the new type boots and clamps



- 1. Front axle (Drive shaft)
- 2. Boot (Tire side) - Changed
- 3. Boot (Transaxle side)
- 4. Lower arm
- 5. Clamps (Tire side) - Changed
- 6. Clamps (Transaxle side)

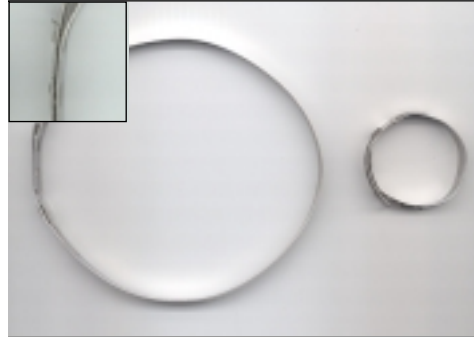
■ Specification

Item		Old version	New Version	Compatibility
Boot	Materials	Chloropropene rubber	Thermoplastic Elastomer	x
	No. of Winkles	3	5	x
	Supplier	Keeper (Japan)	Kunhwa (Korea)	x
	Outer Dia.	103.25mm	96.00mm	x
Clamp	Type	Earless type	Eared type	x
	Inner Dia.	111.6mm	100.9mm	x
	Type	Earless type	Eared type	x
	Inner Dia.	35.00mm	34.30mm	x
Shaft		The shape of shaft seal groove was changed		x

■ Comparison between Old version and New version

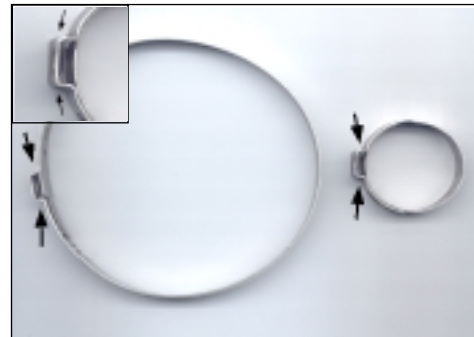
- Old version of boot and clamps (Vehicle chassis Number ~102736)

Part Name : Boot Kit outboard (Including Clamps) / Part Number : 661 330 51 01



- New version of boot and clamps (Vehicle chassis Number 102737 ~)

Part Name : Boot Kit outboard (Including Clamps) / Part Number : 661 330 51 01



■ Part Number

(: not changed)

Item	Part Name	Part No. (Old)	Part No. (New)
In-Line (Factory)	Drive shaft assy without ABS - LH	661 330 39 01	661 330 58 01
	Drive shaft assy without ABS - RH	661 330 40 01	661 330 59 01
	Drive shaft assy with ABS - LH	661 330 41 01	661 330 60 01
	Drive shaft assy with ABS - RH	661 330 42 01	661 330 61 01
A/S kits	Drive shaft repair kit (T/A side)	661 330 48 01	661 330 48 01
	Drive shaft repair kit (Wheel side)- without ABS	661 330 49 01	661 330 62 01
	Drive shaft repair kit (Inside)- with ABS	661 330 50 01	661 330 63 01
	Front axle boot kit (wheel side)	661 330 51 01	661 330 64 01
	Front axle boot kit (T/A side)	661 330 52 01	661 330 52 01

■ Refer to Workshop manual : 33-1265 (Removing and installing front axle)

Tire Inflating Pressure

To prevent tire flat spotting, especially when vehicles are held in storage over long periods of time, CBU vehicles produced from chassis serial number 061890 onwards will be shipped out of the factory with higher pressure of 70 psi.

Prior to delivery to the customer, the factory-fitted tire pressures are to be checked and adjusted according to the tire inflation chart found beside the driver's seat.

Below, we reproduce a comprehensive tire pressure chart for your easy reference.

MB100 Series Tire Inflation Pressure Chart

Tire Size	Ply Rating	Tire Pressures (in psi) for C.V.W. conditions	
		Front Wheel	Rear Wheel
195/75R16C	6PR	45	45
195/75R16C	8PR	44	44
195/75R16C	10 PR	55	55

For inflation pressures under G.V.W. conditions, please refer to the owner's manual.



11.03.1997

Distribution S1/1

Group 42/1



MB 100 Series

Brake - juddering/shuddering

Due to excessive use of the Service and parking brakes (going fast down-hill with heavy loads, extremely hard use of the parking brake) ,brake juddering/shuddering can occur. This Service-bulletin should be your guideline to find the cause of the brake-juddering/shuddering as well as to assist you in solving the problem.

Production remedy : Several improvements/modifications on the entire brake system, such as narrowing machining tolerances of friction surfaces/pairings etc.have been introduced over the last ten months.

Service remedy : At all times,the cause of the brake juddering/shuddering has to be found first.Therefore carry out the following steps always in this order :

1. Carry out a road test to check the intensity of the brake - juddering/shuddering.
2. Disconnect connecting rod of the load conscious limiting valve (L.C.L.V.) at both ball joints (figure 1 pos. 1) and remove.Move both linkages (figure 1 pos. 2 and 3) to the arrows direction and fix levers.The L.C.L.V.valve is now in "0" position.
3. Again,carry out a road test to check the intensity of the brake - juddering/shuddering.

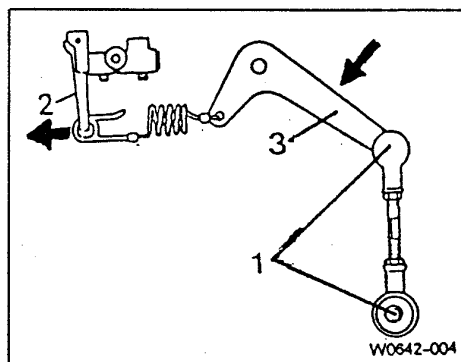


Figure 1



With the disconnected L.C.L.V. valve,the vehicle has much LESS brake force.Drive carefully.

Test results :

Same juddering/shuddering intensity as before	= Front brake juddering/shuddering
Little intensity or No juddering/shuddering at all	= Rear brake juddering/shuddering

4. Remedy

Front brake :

Replace both front brake discs and brake pads (always brake discs/pads together).

For removing and installing refer to the workshop manual page 42 - 5182/1 to /3.

Rear brake :

Before any repairs are carried out at the rear brakes,the rear wheel hub bearing clearance has to be checked first.Nominal clearance 0.01 - 0.05mm. For checking and adjusting refer to the workshop manual page 35 - 0100/5 to /7 ,as well as to the Service-bulletin 35 / 1 appendix.

Replace both rear brake drums (always both brake drums). For removing and installing refer to the workshop manual page 42 - 3161/2.

Before installing the new brake drums,check brake-linings for judder marks,if necessary remove judder marks with emery paper.Clean brake shoes/linings and back plates before installing the brake drums.

5. Reinstall the connecting rod of the L.C.L.V.valve (figure 1 pos 1).Check the adjustment of the valve ,refer to workshop manual page 42 - 1145/1 to /5, if necessary re-adjust, refer to page 42 - 1155/6 to /7.

6. Carry out road test.

According to Standard Text/Flat Rate = Road Test

	ZM
Check & adjust rear wheel bearing clearance	0.4M/hour
Remove & install front brake discs	1.6M/hour
Remove & install rear brake drums	0.8M/hour

Mercedes-Benz Asia Pte Ltd.
Service MB100



Mercedes-Benz

service information

04.08.1997

Distribution S1/1

Group 42/2



MB 100 Series

ABS 5.0-Diagnosis MB100 Series (Bm.661)

The MB100 Series Anti-lock braking system (ABS) can be diagnosis with the Mercedes Benz hand-held tester (HHT) and the 4 Mega byte commercial vehicle diagnosis module.

Due to a temporary failure in the software for the MB100 Series, only the diagnosis modules with software update (including) 10 /1996 can be used.

It is ensured that with the next update 9 /1997 the program is corrected.



Mercedes-Benz

service information



Distribution 1
Group 54
SI54-02
20.10.1999

SI 54/02	Service Information on 4 Mega Byte Commercial Vehicle Diagnosis Module	20.10.1999
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MODEL M161 .971

The MB100 Series HFM ECU can be diagnosis with the Mercedes Benz hand-held tester and the 4 Mega byte commercial vehicle diagnosis module or HHT/WIN under Star Diagnosis.

i Our service department in Stuttgart, Germany has informed us that due to insufficient space in the updated module after 6/98 onwards the MB100 diagnosis software will be not included. Therefore should you need to diagnosis a vehicle's HFM, please revert to that older edition software (6/98) and load it in your HHT test module.

In addition, the MB100 Diagnosis software is included in the HHT/WIN under Star Diagnosis from 10/99 versions onwards for commercial vehicles.

Should you do not have the HHT software 6/98 and in urgent need, please contact us at the below listed address and we will send it to you.

DaimlerChrysler South East Asia Pte Ltd.

ABX Logistics Centre
10 Changi South Street 2,
Singapore 486596

Attn. Mr. Udo Kusch / Mr. Anthony Swee
Department MB100 ServiceTeam
Fax No. + 65- 543 3143
Tel No. + 65- 542 2561



Distribution 1
Group 82
SI 54-03
12.19.2000

SI 54/03	Extention wiring of Alternator (M161 Gasoline engine)	12.19.2000
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As the new alternator was introduced to the MB100 Series with M161 gasoline engine from VIN 86265 onwards. The extension wiring of alternator was changed accordingly.

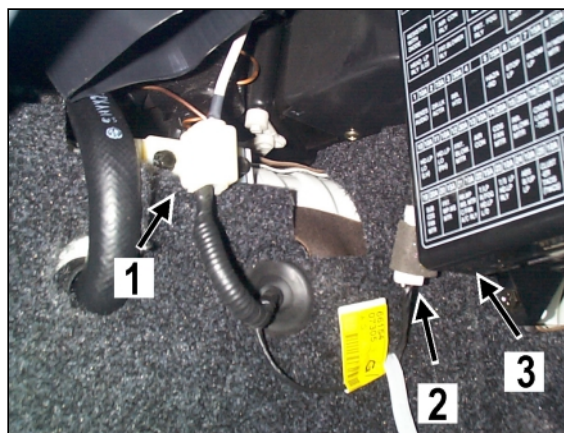
Service remedy : In case of installing the old alternator(Bosch, P/N : 009 154 02 02) on vehicle from VIN 86265 onwards, the extension wiring of alternator also should be changed into old wiring. refer to the below.

	Part description	Old	New	Interchangeability
1	Alternator ASSY '	009 154 02 02 (Bosch)	161 154 32 02 (Daewoo)	Yes, but(with EXT. wiring of alternator.)
2	Extension wiring -Alternator	661 540 46 05	661 540 73 05	

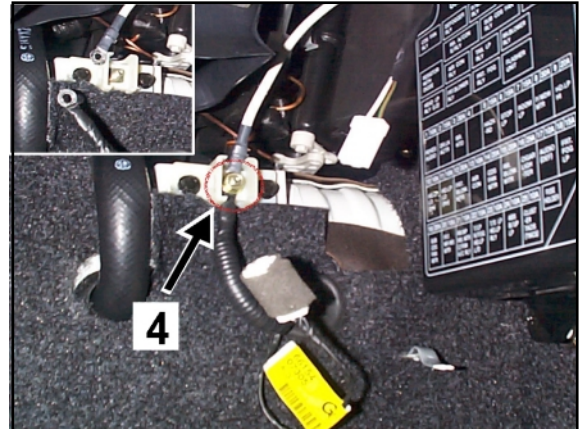
Replacement

- 1 Disconnect (-) terminal of battery.
- 2 Remove the cover (1) of alternator joint box.
- 3 Disconnect the connector (2) of alternator extension wiring from main wiring.

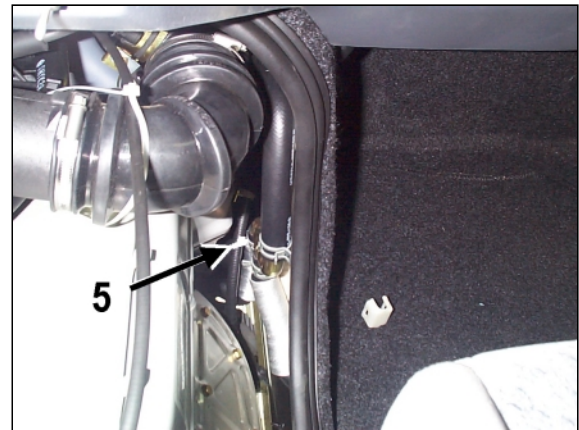
- 1 Joint box
- 2 Alternator EXT. wiring connector
- 3 Fuse box



- 4 Unscrew screw (4) of joint box and detach ring terminals from joint box.



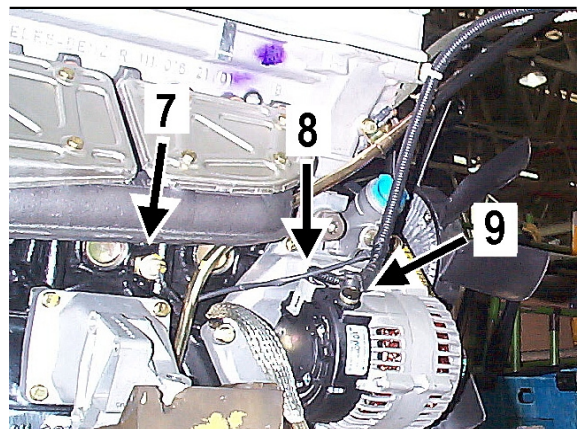
- 5 Remove engine cover.
6 Remove band clip (5) of alternator extension wiring harness.



- 7 Pull alternator extension wiring and detach rubber plug (6) from engine tunnel.
8 Insert rubber plug with wiring into the engine tunnel tilted to one side.



- 9 Unscrew screw of oil pressure switch (7) and ALT "B+" ring terminal (9) .
10 Disconnect ALT "D" connector (8) and replace wiring.
11 Replace alternator assembly.
(refer to Gasoline engine workshop manual 01-0007)
12 Install in the reverse order.



Installation Note

Check and ensure that the wiring is not interfered with exhaust manifold and cooling fan.



11.03.1997

Distribution S1/1

Group 65/1



MB 100 Series

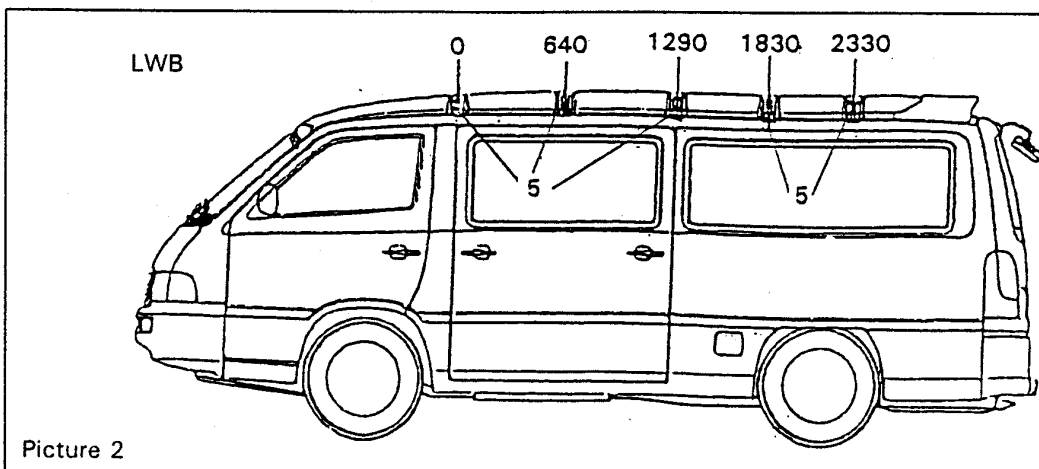
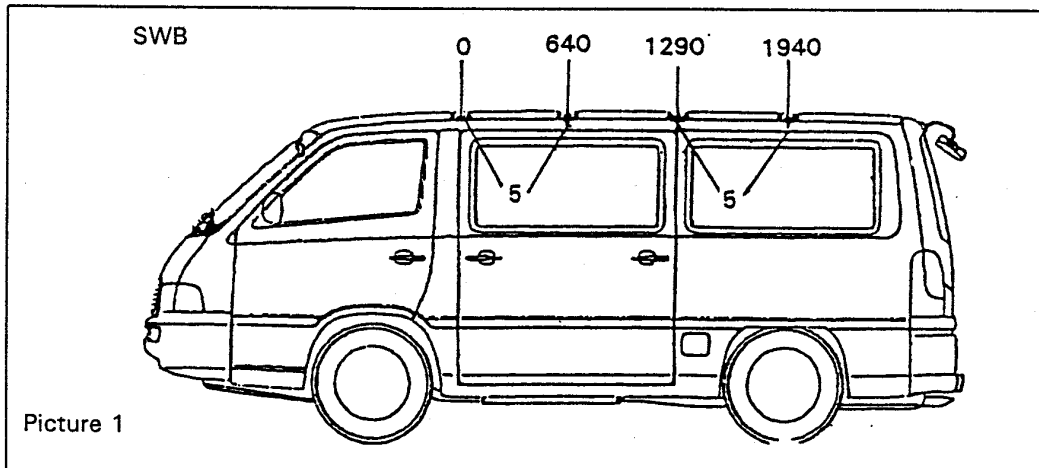
Roof Luggage Carrier

For the MB100 Series Van/ Coaches a maximum weight of 110 kg roof load of is allowed with a uniform load distribution over the entire roof surface.

It is recommended that vehicles are equipped with stabilizers.

The roof luggage rack must have a minimum of 3 supporter on each side.
(With two supporter only 65 kg is allowed.)

Arrange roof carrier supporters at mounting position of roof brace centres.
(Refer below Sketches Pos.5)





04.09.1997

Distribution S1/1

Group 82/1



MB 100 Series

Interior Fluorescent Lamp (Coaches only)

Due to improper routing and fixing of electrical wires inside the interior fluorescent lamp (**Manufacturer Sampoong Only**), some cases of short circuits may occur at this lamps.

Production remedy : As from chassis serial numbers 046460 onwards, the affected wires have been proper routed and fixed.

Manufacturers identification, please refer to figure 1

A = Samgong (Light symbol outside the dimmer button)

B = Sampoong (Light symbol on the dimmer button)

In case of fluorescent lamp failure, proceed as follows refer to figure 2:

1. Remove fluorescent lamp assembly and check the glass fuse 250v/2A, position B
2. Check the routing and insulation of wires near the heat sink (D), arrow position (c)
3. If necessary, insulate burned wire with insulating tape or replace wire.
4. Reroute all wires and fix them properly into the fixing slots, position (A)
5. Install a new **glass fuse, part no.661 825 43 03** if damaged and reinstall florescent lamp assembly.

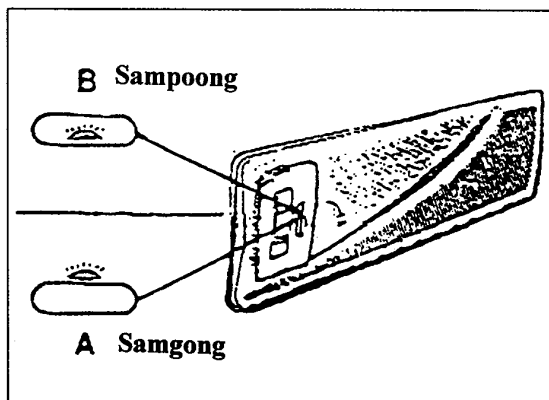


Figure 1

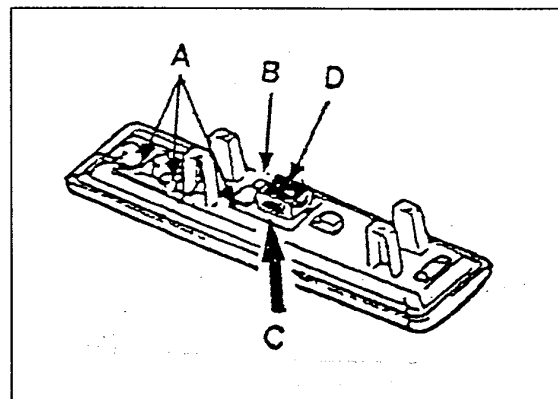


Figure 2

Warranty cost settlement : Damage Code: 82306 73

Operation code:82 0000 99, Flat Rate:0.2 M/hour



21.01.1998

Distribution S1/1

Group 82/2



MB 100 Series

Clutch Interlock System

For the MB100 Series Van/Coaches, a clutch interlock system have been introduced from chassis serial number 058080 onwards.

This system is introduced to prevent sudden harsh jerking of the vehicle if the engine is started when the gearshift is not in neutral position and the clutch pedal not depressed.

With this safety device, the clutch pedal have to be depressed completely in order to start the engine, regardless of whether the gear shift is in neutral or engaged position.

Note: It is necessary to inform your customer on the function of this system during the delivery of vehicle. This will prevent complaints from customers who are not familiar with the clutch interlock system and encounter problems in starting the vehicle.

Technical Description

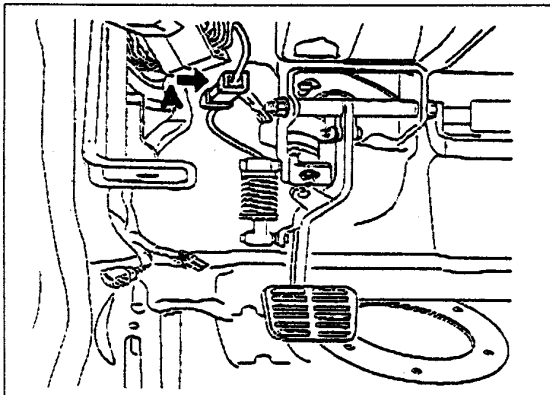


Figure 1

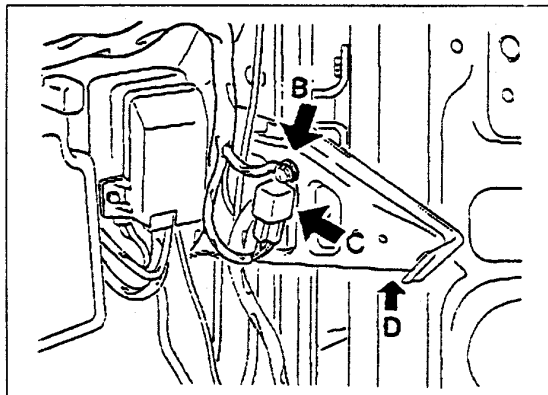
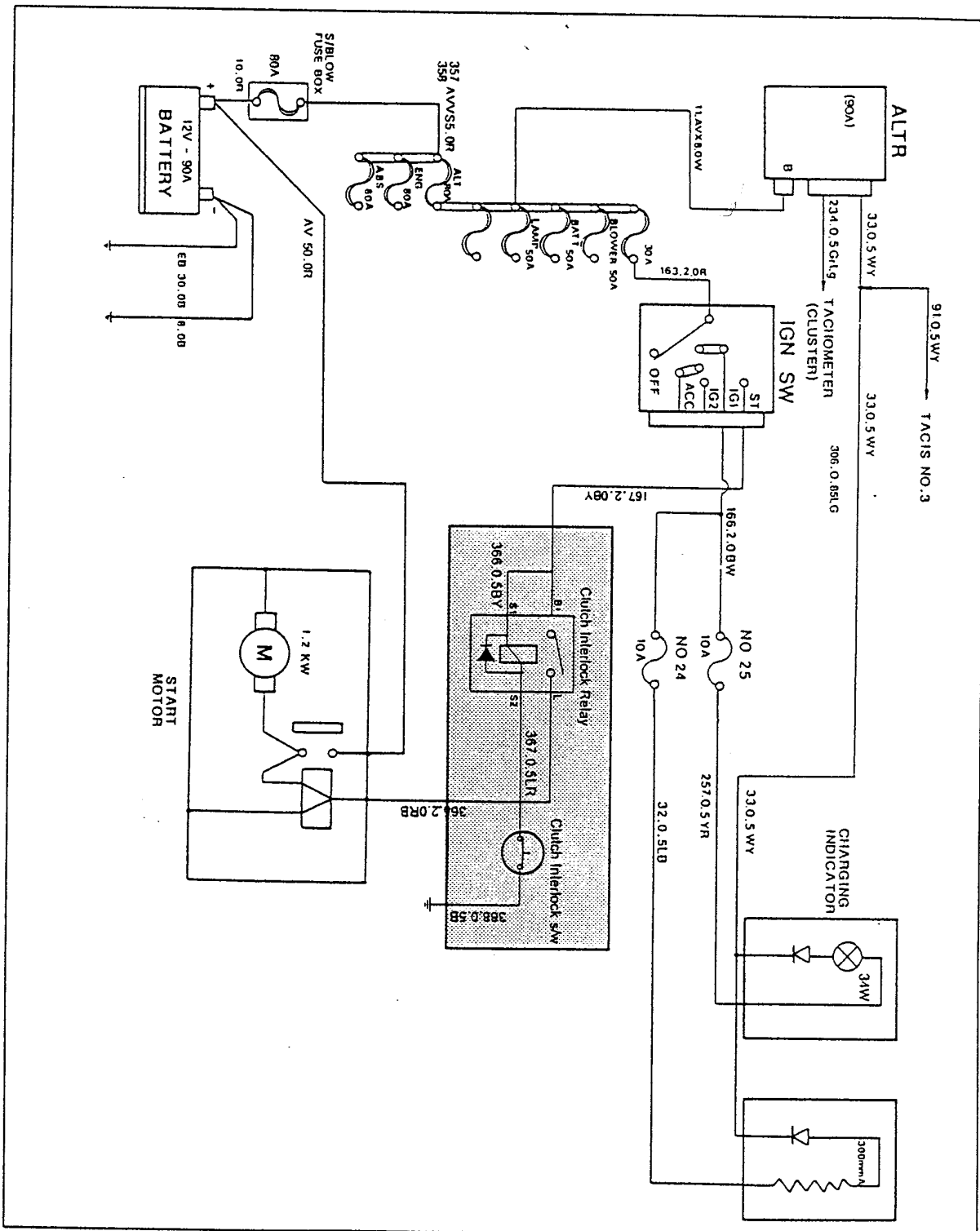


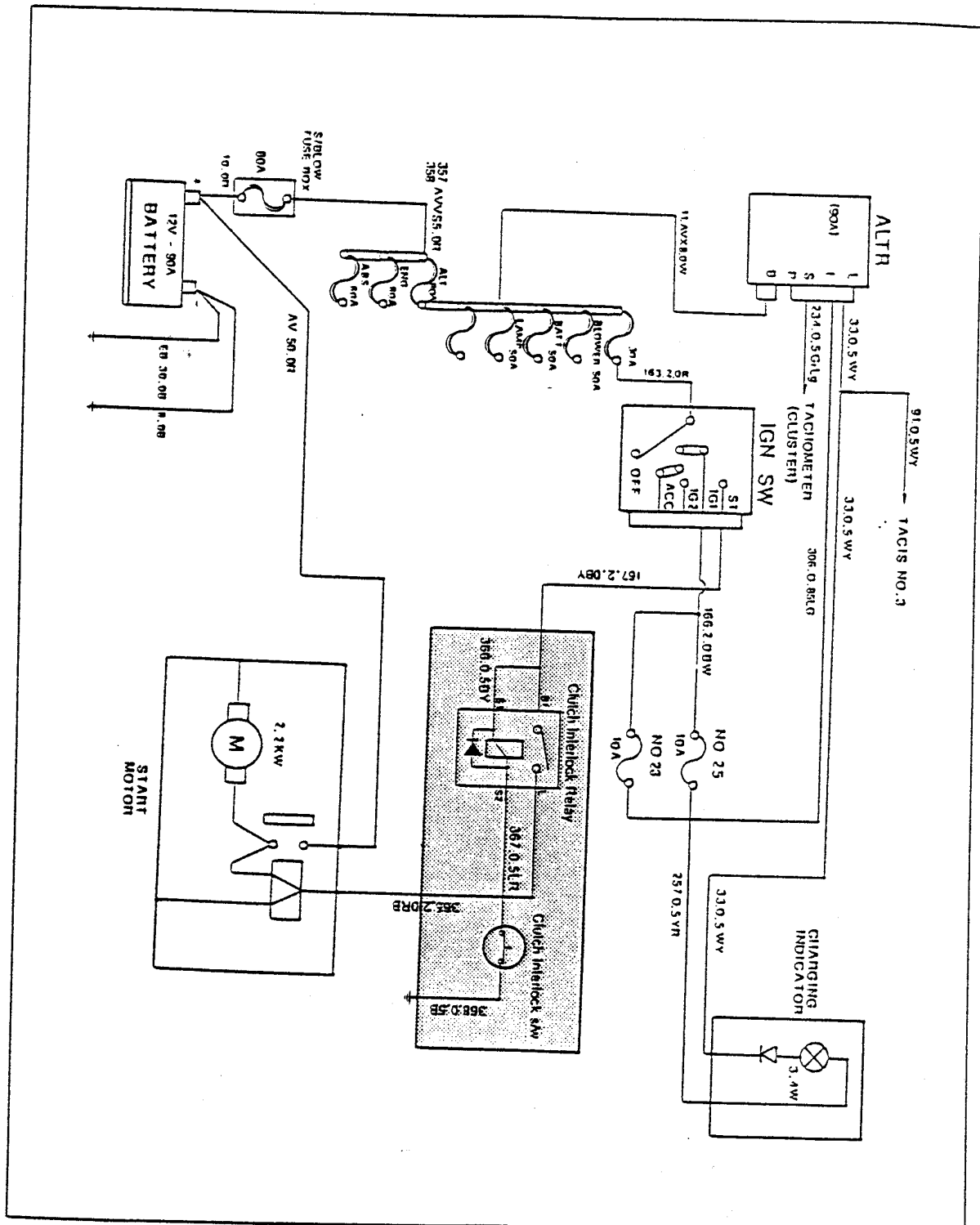
Figure 2

- A:** Clutch interlock switch wiring
- B:** Earth terminal
- C:** Clutch interlock relay
- D:** "A" pillar inner lower bracket

Ignition and Charging- with clutch interlock switch for M161 vehicles



Ignition and Charging- with clutch interlock switch for OM662 vehicles





04.09.1997

Distribution S1/1

Group 83/1



MB 100 Series

New Rear Air Con Expansion Valve

All new vehicles from chassis serial no.037501 onwards, which are equipped with dual air con system have a new expansion valve installed at the rear evaporator.

For this new expansion valve, the pressure balance between the outlet pipe and the rear evaporator coil is integrated in the valve.

Identification: The external pressure tube from the expansion valve and the connector of the rear evaporator coil is deleted.

Replacement of the components on vehicle before chassis serial no.037500, the following modification should be carry out:

New Parts No.

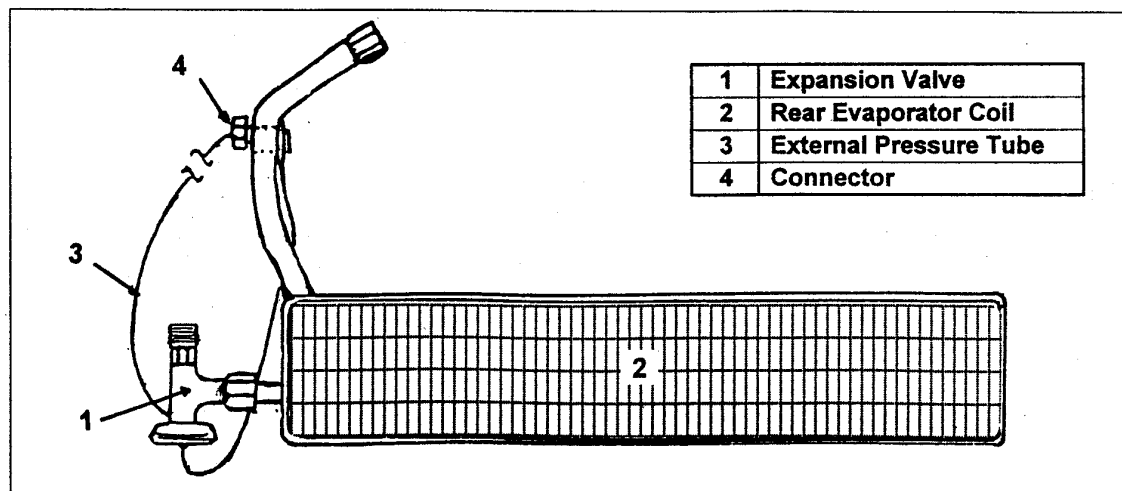
Rear Evaporator Coil 661 830 49 58

Rear Expansion Valve 661 830 35 84

A. In case the old version rear expansion valve is damaged, it have to be replaced by the new type expansion valve.

1. Cut off the external pressure tube(3) from the old expansion valve, approx 30mm from the connector and seal the tube by soldering
2. Install new expansion valve and check for refrigerant leakage

B In case the old version evaporator coil (with connector) have to be replaced use new evaporator coil (without connector) together with new rear expansion valve.



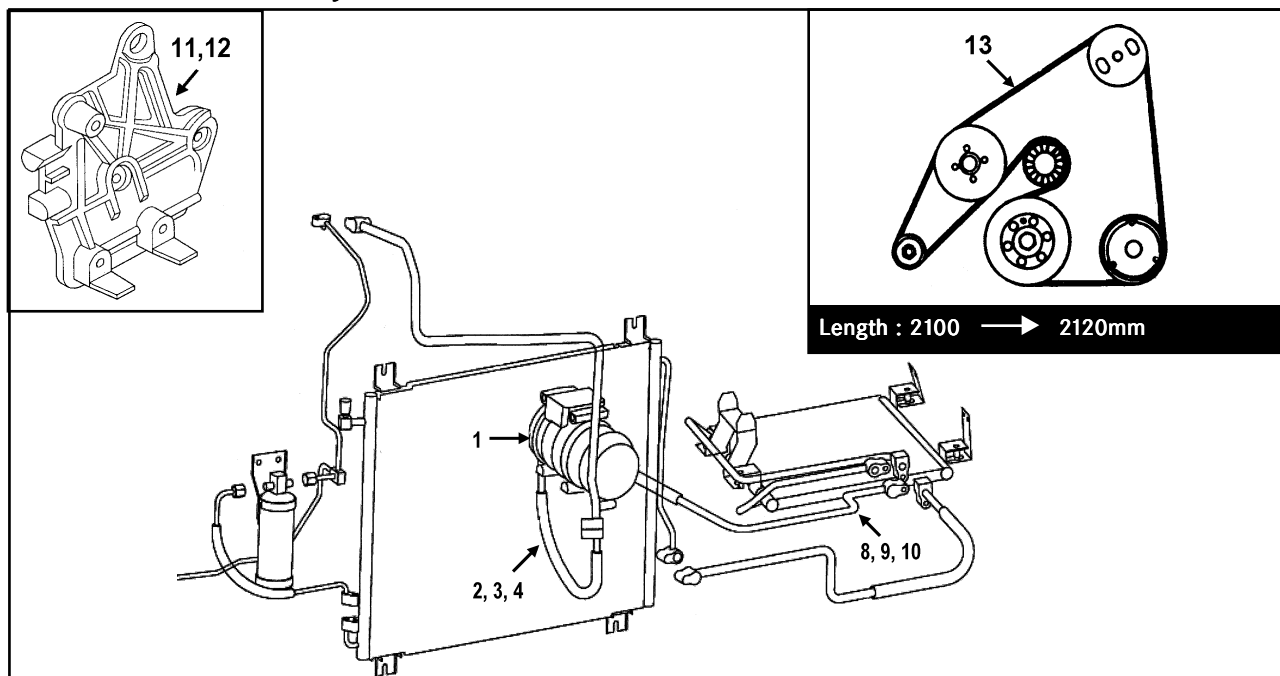


Distribution 1
Group 83
SI 83-02
11.20.2000

SI 83/02	Service Information on MB100 Series Changed air conditioner parts	11.12.2000
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For the MB100 Series Van/Coaches from Vehicle Identification Number (VIN) 103230 onwards, the suction and discharge hoses and the a/c compressor have been changed. To modify the system from old type air conditioning system to new type, see following information.

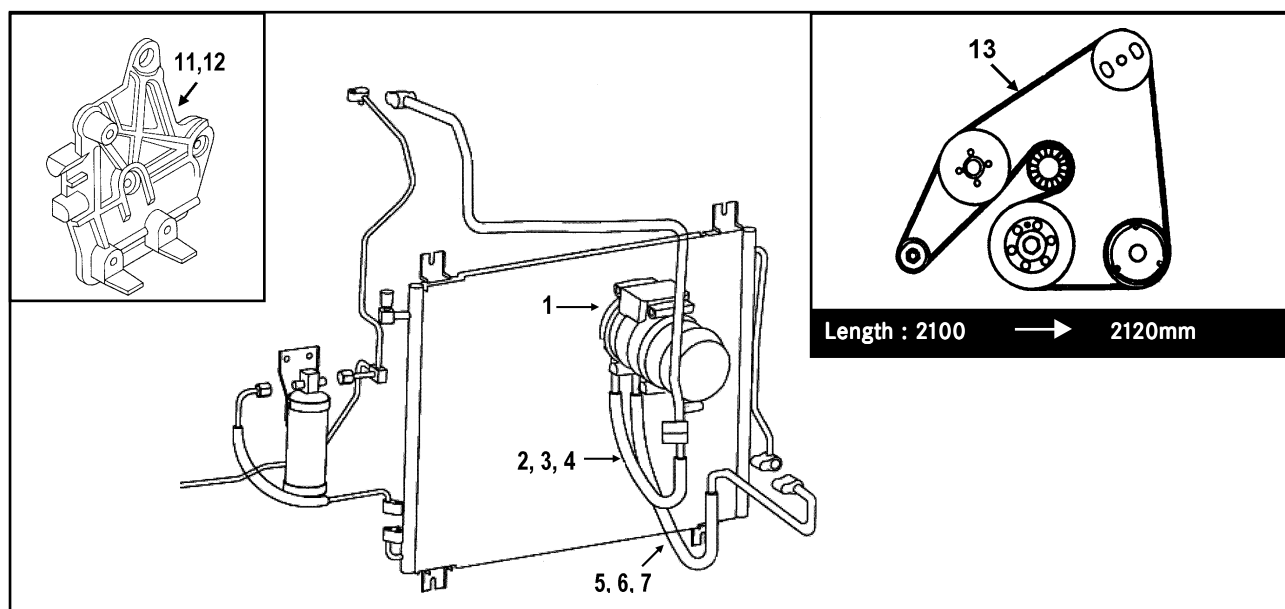
1 Front air conditioner system with sub condenser



	Part description	Part No. (Old)	Part No. (New)	Interchangeability	Engine
1	Compressor ASSY - A/CON	661 130 34 15 (DSL) 161 130 30 15 (GSL)	661 130 38 15	No	OM661,2 & M161
2	Hose- SUCT, COMP	661 830 30 97	661 830 52 97	No	OM661
3	Hose -SUCT, COMP	661 830 31 97	661 830 46 97	No	OM662
4	Hose -SUCT, COMP	661 830 32 97	661 830 49 97	No	M161

	Part description	Part No. (Old)	Part No. (New)	Interchangeability	Engine
8	Hose- DISCH, COMP to SUB/C	661 830 36 97	661 830 54 97	No	OM661
9	Hose- DISCH, COMP to SUB/C	661 830 37 97	661 830 48 97	No	OM662
10	Hose- DISCH, COMP to SUB/C	661 830 38 97	661 830 51 97	No	M161
11	BRKT ASSY-A/C COMP	661 230 44 39	661 230 46 39	No	DSL
12	BRKT ASSY-A/C COMP	161 230 31 42	161 230 35 42	No	GSL
13	Poly V-belt Grooved	008 997 36 92	008 997 34 92	No	Only DSL E/G

2 Front air conditioner system without sub condenser



	Part description		Part No. (New)	Interchangeability	Engine
1	Compressor ASSY - A/CON	661 130 34 15 (DSL) 161 130 30 15 (GSL)	661 130 38 15	No	OM661,2 & M161
2	Hose- SUCT, COMP	661 830 30 97	661 830 52 97	No	OM661
3	Hose -SUCT, COMP	661 830 31 97	661 830 46 97	No	OM662
4	Hose -SUCT, COMP	661 830 32 97	661 830 49 97	No	M161
5	Hose- DISCH, COMP	661 830 33 97	661 830 53 97	No	OM661
6	Hose- DISCH, COMP	661 830 34 97	661 830 47 97	No	OM662
7	Hose- DISCH, COMP	661 830 35 97	661 830 50 97	No	M161
11	BRKT ASSY-A/C COMP	661 230 44 39	661 230 46 39	No	DSL
12	BRKT ASSY-A/C COMP	161 230 31 42	161 230 35 42	No	GSL
13	Poly V-belt Grooved	008 997 36 92	008 997 34 92	No	Only DSL E/G

Note

1. There is no interchangeability between old parts and new parts.
2. According to the size of A/C compressor housing and position of mounting, the length of poly V-belt was changed.
3. The old a/c compressor will be out of the regular production.



Working instructions

Group 46/1



Replacement of Power Steering Reservoir

While driving in heavy rain falls, the water running down the windscreen is entering into the service-compartment, directly onto the power steering oil reservoir. Some of the water may remains on top of the reservoir and is been sucked into the reservoir through the filler cap during steering operation. (Oil contaminaton, oil gets a milky colour). This can cause steering noise, stiff operation, etc.

Production remedy : As from July 96, chassis serial numbers 022893, all vehicles have a modified oil reservoir installed. Identification: Filler neck height 13.5mm

Service remedy : For all vehicles up to chassis serial numbers 022892 the modified oil reservoir have to be installed. The spare part number has not been changed.

Modification/Idenification

The upper shape of the oil reservoir is different curved.

The filler neck height has been increased by 5.0mm from 8.5 to 13.5mm

(see figure 1 arrows)

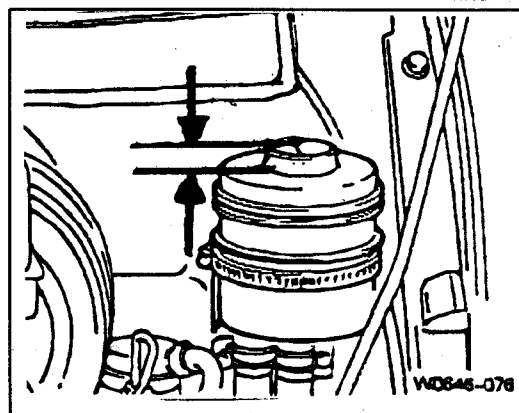


Figure 1.

Required spare part for replacement per vehicle:

Spare Part No.	Description	Quantity
661 460 34 83	Power Steering Reservoir	1

Warranty cost settlement : According to Standard Text, Operation code 46-5400 01
Flat Rate = 0.5 M/hour.

Damage Code: 4652104



Working instructions

Group 46/2



Power Steering Line Modification

Chassis serial numbers. : All vehicles in the tropical countries up to 034064

Due to high ambient temperatures in tropical countries the power steering oil temperature could increase excessively. This high oil temperature can cause, steering noise, oil leakages, stiff operation, etc.

Production remedy : As from November 96, chassis serial numbers. 034065, all vehicles are modified with the extended oil return pipe, and a more heat-resistance oil pressure hose.

Service remedy : For all vehicles operating in tropical countries with chassis serial numbers up to 034064, modification are to be done by installing the extended oil return pipe and the new oil pressure hose.

Required spare parts for modification per vehicle:

Spare Part No.	Description	Quantity
661 460 34 24	Return pipe extention(D)	1
661 997 89 82	Oil pressure hose (X)	1
661 461 35 24	Return pipe (H)	1
661 997 87 82	Hose pipe (C)	1
661 997 86 82	Hose pipe (G)	1
94600 - 20001	Clamps (1)	2
95804 0830D	Bolts M8x30 (3)	2
661 990 45 37	Spacer	2
93424 0800D	Washer	2
99218-08500	Riveting nut	2

Warranty cost settlement : According to Standard Text, Operation code 46 0099
Flat Rate = 1.8 M/hour.

Damage Code : 4690080



Group 46/2



Modification

1. Drain steering oil out of the system, into a suitable clean vessel, refer to workshop manual 46- 3415/1.
Remove the three hose clamps (1) of the return pipes/hoses (A and B). Remove hose pipe (A) and return (B). Check pipe clip (2) for damages, if necessary replace.
(Refer to figure 1)

Replace the old oil pressure hose (X) by the new one, spare part no. 661 997 82 82

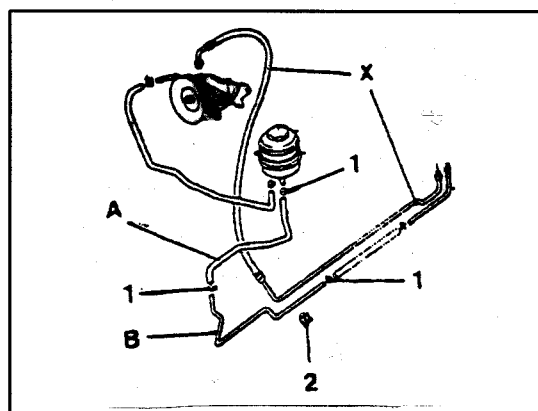


Figure 1

2. Mark both bores to be drilled according to the drawing and measurements given in figure 2.
From the lower cross member edge-to the centre of both bores = 15.0 mm
From the right inner cross member mounting bore centre- to the right side bore centre = 140.0mm
From the right side bore centre -to the left side bore centre = 320.0mm

Drill both bores to $\varnothing 11.0\text{mm}$
After drilling, chamfer both bore edges.

Install both riveting nuts no. 99218-08500 with a riveting tool into the new bores.

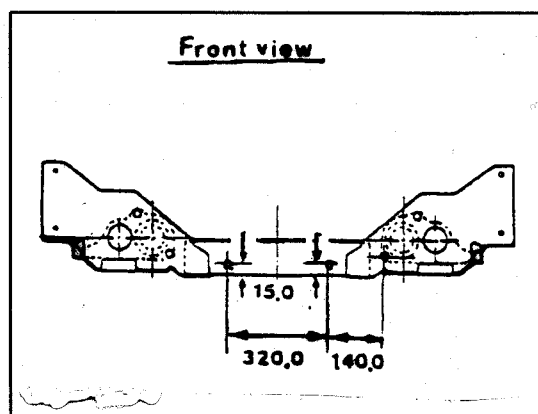


Figure 2



Group 46/2



3. Refer to figure 3

Install the new return pipe (D), spare part no. 661 460 34 24, with the two bolts (3) no. 95804 0830D, the two washers no. 93424 08001 and fixing both spacers no. 661 990 45 37 (4) between the return pipe brackets and the cross member. Tighten the two bolts (3) to 11.0 Nm.

Install the new hose pipe (C) spare part no. 661 997 87 82 Between the return pipe (D) and the oil reservoir (F).

Install the new return pipe (H) spare part no. 661 461 35 24 by connecting it to the new hose pipe (G) spare part no. 661 997 86 82 and the old hose pipe (E) and fix it with the clip (2).

Tighten all five hose clamps (1).

4. Refill and air bleed steering system, refer to workshop manual 46-3310/1.

5. Check steering system for oil-leaks.

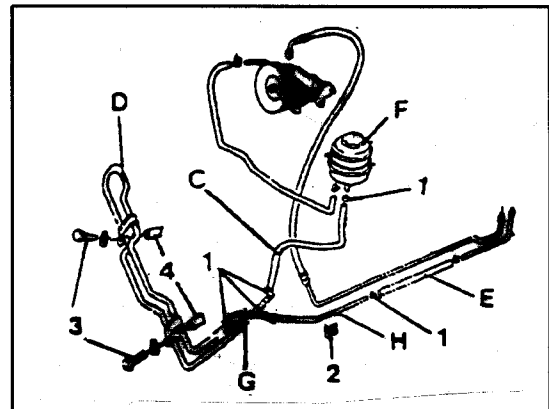


Figure 3



Working instructions

Group 47/1



Rerouting of Fuel return line.

Chassis serial numbers: From VIN : 000300 up to VIN : 014007

To prevent contact and wearing of the Fuel return line at the starter motor a rerouting has to be carried out.

Production remedy : As from March 96, chassis serial numbers 014007 all vehicles are modified.

Service remedy: For all vehicles up to chassis serial numbers 014006, the fuel line have to be rerouted.

Carry out the following modification.

1. Remove fixing clamps of fuel return line.

(Figure 1 arrows.)

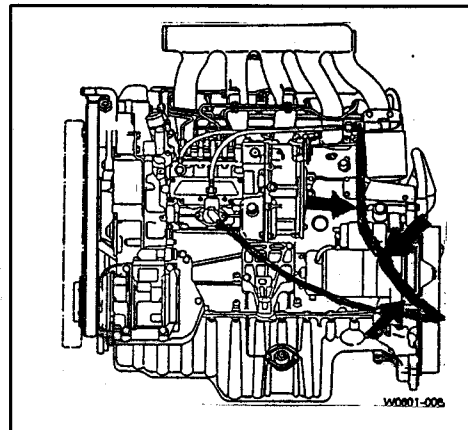


Figure 1

2. Reroute the fuel return line as shown in figure 2 arrows
If necessary extend return line.

Fix rerouted fuel return line with new fixing clamps/ wire straps at the rear mounting bracket of the injection pump and the fuel feed line, if necessary extend return line.

(Figure 2 arrows)

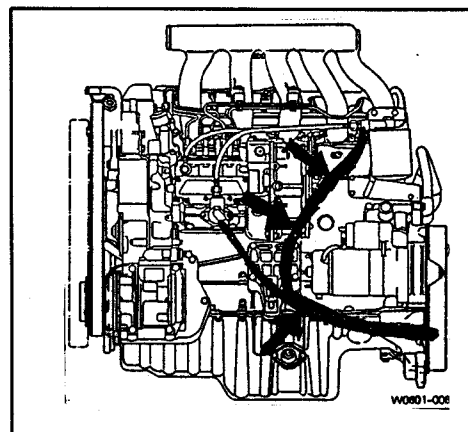


Figure 2

Warranty cost settlement : According to Standard Text/Flat Rate = 0.3 M/hour

Damage Code: 4790060