FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Homologation N°

T2-2001

Groupe / Group **T2**

FICHE D'HOMOLOGATION CONFORME A L'ANNEXE J DU CODE SPORTIF INTERNATIONAL
HOMOLOGATION FORM IN ACCORDANCE WITH APPENDIX J OF THE INTERNATIONAL SPORTING CODE

Homologation valable à partir du / Homologation valid as from **01 JAN. 2005**

A) Voiture vue de 3/4 avant / Car seen from 3/4 front

B) Voiture vue de 3/4 arrière / Car seen from 3/4 rear

DMSB - Deutscher Motor Sport Bund e.V.

1. GENERALITES / GENERAL

101. Constructeur / Manufacturer: **DAIMLERCHRYSLER AG**

102. Dénomination(s) commerciale(s) - Modèle et type / Commercial name(s) - Model and type: **MERCEDES-BENZ G 270 CDI**

103. Cylindrée / Cylinder capacity: **2703** cm3

Cylindrée corrigée / Corrected cylinder capacity: **2703** x **1.5** = **4054.5** cm3

104. Mode de construction / Type of car construction — a) Mode / Type

☒ séparée / separated	☐ monocoque / unitary construction

b) Matériau du châssis / coque / Material of chassis / bodyshell: **STEEL**

105. Nombre de volumes / Number of volumes: **2**

106. Nombre de places / Number of places: **5**

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Tel.: 41 22 544 44 00
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Marque
Make MERCEDES-BENZ

Modèle
Model G 270 CDI

Homologation N°
T2-2001

2. DIMENSIONS, POIDS / DIMENSIONS, WEIGHT

201. Poids minimum
Minimum weight **2300** kg

202. Longueur hors tout
Overall length **4662** mm +/- 1 %
(SEE PAGE 23 IN COMPLEMENTARY INFORMATION)

203. Largeur hors-tout
Overall width **1760** mm +/- 1 %

Endroit de mesure
Where measured **AT THE FENDER**

204. Largeur de carrosserie
Width of bodywork

a) A la hauteur de l'axe avant
At front axle **1760** mm +/- 1 %

b) A la hauteur de l'axe arrière
At rear axle **1760** mm +/- 1 %

206. Empattement
Wheelbase **2850** mm +/- 1%

207. Voie maximum
Maximum track
a) Avant
Front **1482** mm
b) Arrière
Rear **1475** mm

209. Porte-à-faux
Overhang
a) Avant
Front **783** mm +/- 1 %
b) Arrière
Rear **1029** mm +/- 1 %

210. Distance "G" (volant - paroi de séparation arrière)
Distance "G" (steering wheel - rear bulkhead) **1565 - 1600** mm

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Modèle / Model **G 270 CDI**

3. MOTEUR / ENGINE

(En cas de moteur rotatif, voir Art. 335 sur fiche additionnelle)
(In case of rotative engine, see Art. 335 on additional form)

301. Emplacement et position du moteur
Location and position of the engine — **FRONT LONGITUDINAL**

302. Nombre de supports
Number of supports — **3**

303. Cycle
Cycle — **DIESEL 4 STROKE**

C) Profil droit du moteur déposé
Right hand view of dismounted engine

D) Profil gauche du moteur déposé
Left hand view of dismounted engine

E) Moteur dans son compartiment
Engine in its compartment

304. Suralimentation
Supercharging

☒ oui / yes	☐ non / no

(En cas de suralimentation, voir Art. 334 sur fiche additionnelle)
(In case of supercharging, see Art. 334 on additional form)

Type et nombre de compresseurs
Type and number of compressors — **TURBO CHARGER : 1**

305. Nombre et disposition des cylindres
Number and layout of cylinders — **5 IN LINE**

306. Mode de refroidissement
Type of cooling system — **LIQUID**

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307. **Cylindrée / Cylinder capacity** — a) Unitaire / Unitary: **540,6** cm3 — b) Totale / Total: **2703** cm3

308. **Volume minimum total d'une chambre de combustion / Total minimum volume of a combustion chamber**: **31,42** cm3

309. **Volume minimum d'une chambre de combustion dans la culasse / Minimum volume of a combustion chamber in the cylinder head**: **5,69** cm3

310. **Rapport volumétrique maximum (par rapport à l'unité) / Minimum compression ratio (in relation with the unit)**: **18** : 1

311. **Hauteur minimum du bloc-cylindres / Minimum height of the cylinder block**: **300** mm

312. **Matériau du bloc-cylindre / Cylinder block material**: **CAST IRON (GG 26 Cr)**

313. **Chemises / Sleeves** — a) ☐ oui / yes ☒ non / no — b) Matériau / Material: _____ — c) ☐ humides / wet ☐ sèches / dry

314. **Alésage / Bore**: **88,00** +0/- 0.1 mm

316. **Course / Stroke**: **88,44** +0/- 0.1 mm

317. **Piston / Piston** — a) Matériau / Material: **ALUMINIUM ALLOY** — b) Nombre de segments / Number of rings: **3**

c) Poids minimum / Minimum weight: **900** g

d) Distance de la médiane de l'axe au sommet du piston / Distance from gudgeon pin center line to highest point of piston crown: **42,5** +/- 0.1 mm

e) Distance (+/-) entre le sommet du piston au PMH et le plan de joint du bloc cylindre / Distance (+/-) between the top of the piston at TDC and the gasket plane of the cylinder block: **0,47** +/- 0.15 mm

f) Volume de l'évidemment du piston / Piston groove volume: **17,6** +/- 0.5 cm3

AA) Piston / Piston

318. **Bielle / Connecting rod** — a) Matériau / Material: **STEEL** — b) Type de la tête de bielle / Big end type: **CRACKED**

c) Diamètre intérieur de la tête de bielle (sans coussinets) / Interior diameter of the big end (without shell bearings): **51,6** mm +0.1/- 0 mm

d) Longueur entre axes / Length between the axes: **149** +/- 0.1 mm

e) Poids minimum / Minimum weight: **769** g

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Modèle
Model G 270 CDI

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319. Vilebrequin / Crankshaft

a) Type de construction / Type of manufacture: **FORGED STEEL**

b) Matériau / Material: **STEEL**

c) ☐ coulé / cast ☒ forgé / forged

d) Nombre de paliers / Number of bearings: **6**

e) Type de paliers / Type of bearings: **PLAIN**

f) Diamètre des paliers / Diameter of bearings: **58** mm +0/- 0.1 mm

g) Matériau des chapeaux de paliers / Bearing caps material: **STEEL**

h) Poids minimum du vilebrequin nu / Minimum weight of bare crankshaft: **23495** g

i) Diamètre maximum des manetons / Maximum diameter of crank pins: **48** mm

320. Volant moteur / Flywheel

	Boîte manuelle / Manual gearbox	Boîte automatique / Automatic gearbox
a) Matériau / Material	XXXX	OUTER PART: STEEL (C35S) INNER PART: STEEL (ZE500 03 800-950)
b) Poids minimum avec couronne de démarreur / Minimum weight with starter ring	XXXX g	2414 g
		Utilisable uniquement avec boîte de vitesses automatique / Only usable with an automatic gearbox

321. Culasse / Cylinderhead

a) Nombre / Number: **1**

b) Matériau / Material: **ALUMINIUM ALLOY**

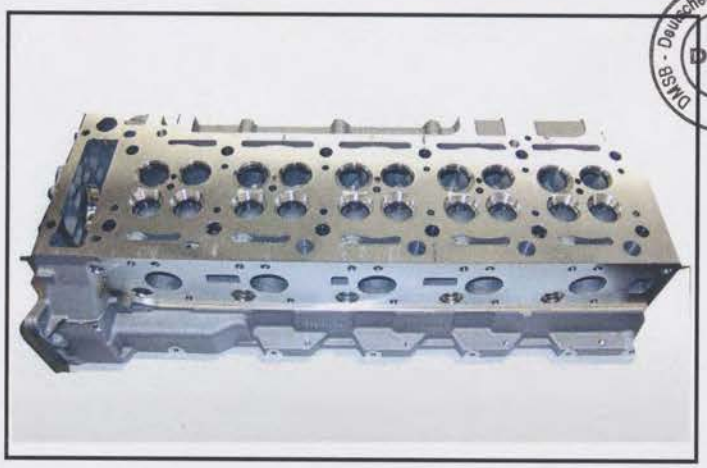
c) Hauteur minimum / Minimum height: **126,8** mm

d) Endroit de la mesure / Where measured: **OVERALL**

e) Angle entre soupape d'admission et la verticale / Angle between intake valve and vertical: **9°13'**

f) Angle entre soupape d'échappement et la verticale / Angle between exhaust valve and vertical: **9°59'**

F) Culasse nue / Bare cylinderhead



G) Chambre de combustion / Combustion chamber

322. Epaisseur du joint de culasse serré / Thickness of tightened cylinderhead gasket: **1,2** +/- 0.2 mm

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Modèle / Model: **G 270 CDI**

323. **Alimentation par carburateur** / **Fuel feed by carburettor**

a) Nombre de carburateurs / Number of carburettors: **XXXX**

b) Type / Type: **XXXX**

c) Marque et modèle / Make and model: **XXXX**

d) Nombre de passages de gaz par carburateur / Number of mixture passages per carburettor: **XXXX**

e) Diamètre maximum de la sortie de gaz du carburateur / Maximum diameter of the carburettor mixture exit port: **XXXX** mm

f) Diamètre du diffuseur au point d'étranglement maximum / Diameter of the venturi at the narrowest point: **XXXX** +/- 0.25 mm

324. **Alimentation par injection** / **Fuel feed by injection**

a) Marque / Make: **BOSCH**

b) Modèle / Model: **CR 1**

c) Mode de dosage du carburant / Kind of fuel measurement

☐ mécanique / mechanical	☒ électronique / electronic	☐ hydraulique / hydraulic

d) Dimensions du conduit d'admission au niveau du papillon ou de la guillotine / Dimensions of intake pipe at the throttle or slide location: **XXXX** +/- 0.25 mm

e) Nombre de sorties effectives de carburant / Number of effective fuel outlets: **5**

f) Position des injecteurs / Position of injectors

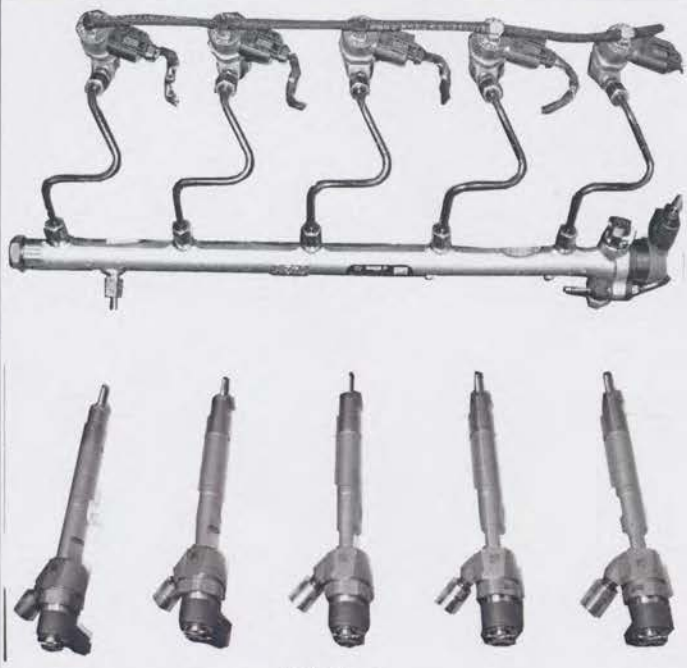
f1)

☐ collecteur / manifold	☒ culasse / cylinderhead

g) Capteurs du système d'injection / Sensors of injection system: **POSITION SENSOR CRANKSHAFT, POSITION SENSOR CAMSHAFT, RAIL PRESSURE SENSOR, BOOST-PRESSURE CONTROLLER, AIR MASS SENSOR, TEMPERATURE SENSOR FOR AIR INTAKE, FUEL AND COOLING WATER, PADEL CONTROL UNIT**

h) Actionneurs du système d'injection / Actuators of injection system: **INJECTOR, PRESSURE CONTROL VALVE, SHUT-OFF VALVE, ELEMENT SHUT-OFF, CONTROL MOTOR FOR SHUT-OFF INLET PORT, PRESSURE CONVERTER EGR (EXHAUST-GAS RECIRCULATION), PRESSURE CONVERTER FOR BOOST PRESSURE**

H) Système d'injection / Injection system



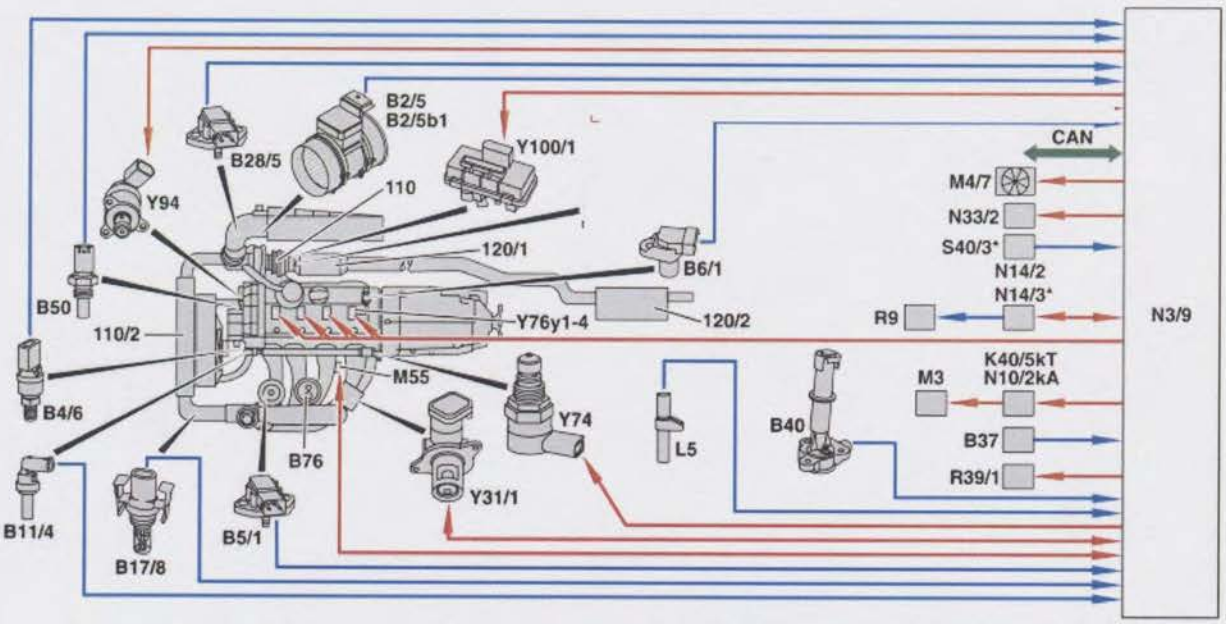
Injectors

CDI High Pressure Pump

Marque
Make MERCEDES-BENZ

Modèle
Model G 270 CDI

XIV) LOCALISATION DES CAPTEURS ET ACTIONNEURS / LOCATION OF SENSORS AND ACTUATORS



110 Turbocharger
110/2 Charge air cooler
120/1 Oxidation catalytic converter (close to engine)
120/2 Oxidation catalytic converter (underfloor)

B2/5 Hot film mass air flow sensor
B2/5b1 Intake air temperature sensor
B4/6 Rail pressure sensor
B5/1 Charge pressure sensor
B6/1 Camshaft Hall sensor
B11/4 Coolant temperature sensor
B17/8 Charge air temperature sensor
B28/5 Pressure sensor downstream of air cleaner
B37 Accelerator pedal sensor
B40 Oil sensor (oil level, temperature and quality)
B50 Fuel temperature sensor
B76 Fuel filter water level sensor (Option)

L5 Crankshaft position sensor

M3 Fuel pump
M4/7 Electric suction fan engine and AC with integrated control
M55 Inlet port shutoff motor

N3/9 CDI control unit
N14/2 Glow output stage
R9 Glow plugs
R39/1 Vent line heater element

Y31/1 EGR vacuum transducer
Y74 Pressure regulator valve
Y76y1 Cylinder 1 fuel injector
Y76y2 Cylinder 2 fuel injector
Y76y3 Cylinder 3 fuel injector
Y76y4 Cylinder 4 fuel injector
Y94 Quantity control valve
Y100/1 Boost pressure regulator right

CAN Databus
*(**C**ontroller **A**rea **N**etwork)*

(SEE ALSO PAGE 24 OF COMPLEMENTARY INFORMATION.)

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325. **Arbre à cames / Camshaft**

a) Nombre / Number: **2**

b) Emplacement / Location: **OHC**

c) Système d'entraînement / Drive system: **ROLLER CHAIN**

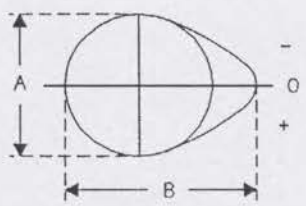
d) Nombre de paliers par arbre / Number of bearings per shaft: **6**

e) Diamètre des paliers / Diameter of bearings: **28**

f) Système de commande de soupapes / Type of valve operation: **BUCKET TAPPET**

g) Dimensions de la came / Cam dimensions

Admission / Intake	A =	**38,0**	+/- 0.1 mm
	B =	**45,9**	+/- 0.1 mm
Echappement / Exhaust	A =	**38,0**	+/- 0.1 mm
	B =	**45,9**	+/- 0.1 mm



Note : Les tolérances s'appliquent avec le même signe pour A et B
The tolerances must be used with the same sign for A and B

326. **Distribution / Timing**

a) Jeu théorique de distribution / Theoretical clearance for valve timing

Admission / Intake: **0** mm

Echappement / Exhaust: **0** mm

d) Levée de came en mm (arbre démonté) / Cam lift in mm (dismounted camshaft) *(dessin / drawing Art. 325)*

ADMISSION / INTAKE				ECHAPPEMENT / EXHAUST			
Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/- 0.1 mm) / Lift in mm (+/- 0.1 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/- 0.1 mm) / Lift in mm (+/- 0.1 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/- 0.1 mm) / Lift in mm (+/- 0.1 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/- 0.1 mm) / Lift in mm (+/- 0.1 mm)
0	**7,900**			0	**7,900**		
- 5	**7,811**	+ 5	**7,811**	- 5	**7,811**	+ 5	**7,811**
- 10	**7,544**	+ 10	**7,544**	-10	**7,544**	+ 10	**7,544**
- 15	**7,103**	+ 15	**7,102**	- 15	**7,102**	+ 15	**7,103**
- 30	**4,788**	+ 30	**4,774**	- 30	**4,774**	+ 30	**4,788**
- 45	**1,245**	+ 45	**1,225**	- 45	**1,225**	+ 45	**1,245**
- 60	**0,000**	+ 60	**0,090**	- 60	**0,090**	+ 60	**0,000**
- 75	**0,000**	+ 75	**0,000**	- 75	**0,000**	+ 75	**0,000**
- 90	**0,000**	+ 90	**0,000**	- 90	**0,000**	+ 90	**0,000**
- 105	**0,000**	+ 105	**0,000**	- 105	**0,000**	+ 105	**0,000**
- 120	**0,000**	+ 120	**0,000**	- 120	**0,000**	+ 120	**0,000**
- 135	**0,000**	+ 135	**0,000**	- 135	**0,000**	+ 135	**0,000**
- 150	**0,000**	+ 150	**0,000**	- 150	**0,000**	+ 150	**0,000**

Un décalage de **l'ensemble** des mesures de +/- 2 degrés est accepté.
A shift of +/- 2 degrees of **the whole measurement** is accepted.

e) Levée maximum des soupapes / Maximum valve lift

	Levée maximum / Maximum valve lift
Admission / Intake	**7,9** +/- 0.2 mm
Echappement / Exhaust	**7,9** +/- 0.2 mm

avec jeu selon Art. 326a
with clearance according to Art. 326a

Marque / Make **MERCEDES-BENZ**

Modèle / Model **G 270 CDI**

327. **Admission / Intake**

a) Matériau du collecteur / Material of manifold: **PLASTICS (PA6GF35)**

b) Nombre d'éléments du collecteur / Number of manifold elements: **1**

c) Nombre de soupapes par cylindre / Number of valves per cylinder: **2**

d) Diamètre maximum de soupape / Maximum diameter of the valve: **30** mm

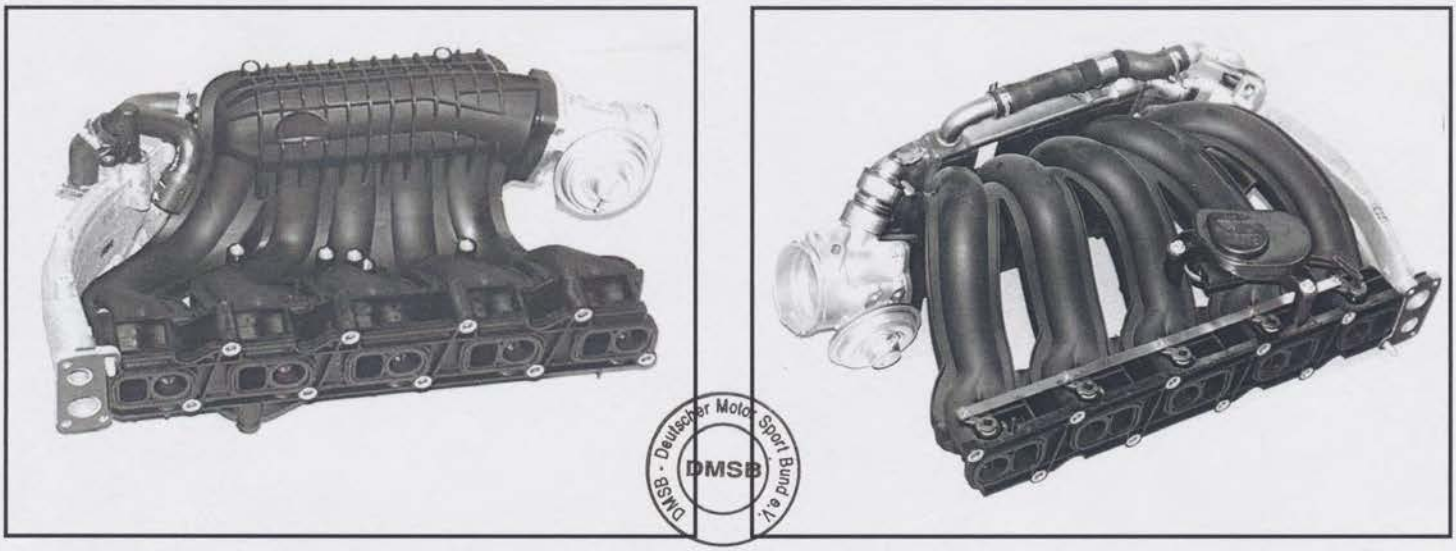
e) Diamètre de tige de soupape dans guide / Diameter of the valve stem in guide: **7** +0/-0.2 mm

f) Longueur de soupape / Valve length: **104** +/- 1.5 mm

g) Type des ressorts de soupape / Type of valve springs: **COIL SPRING**

h) Nombre de ressorts par soupape / Number of springs per valve: **1**

l) Collecteur d'admission / Intake manifold



(SEE PAGE 35 IN COMPLEMENTARY INFORMATION FOR FUNCTIONALITY)

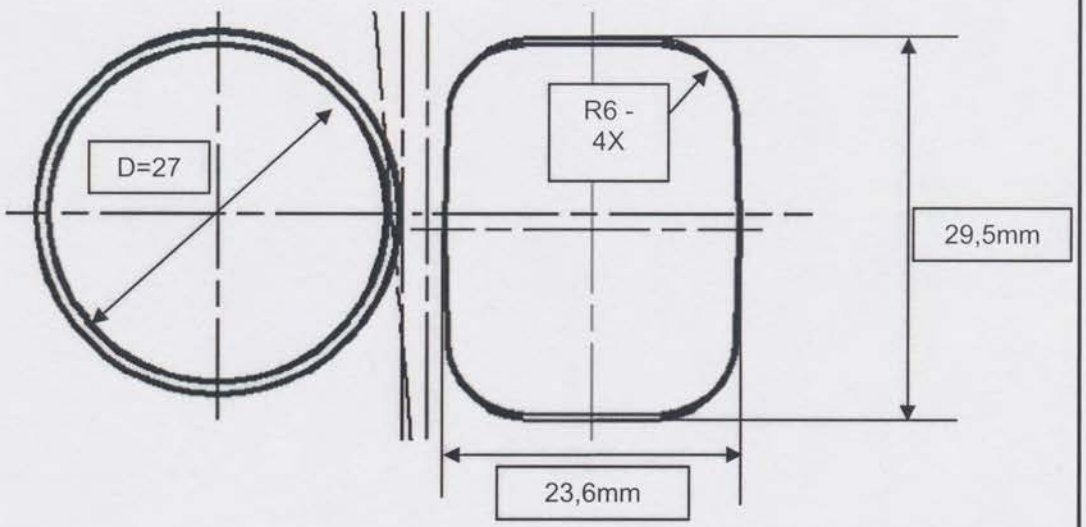
Marque
Make MERCEDES-BENZ

Modèle
Model G 270 CDI

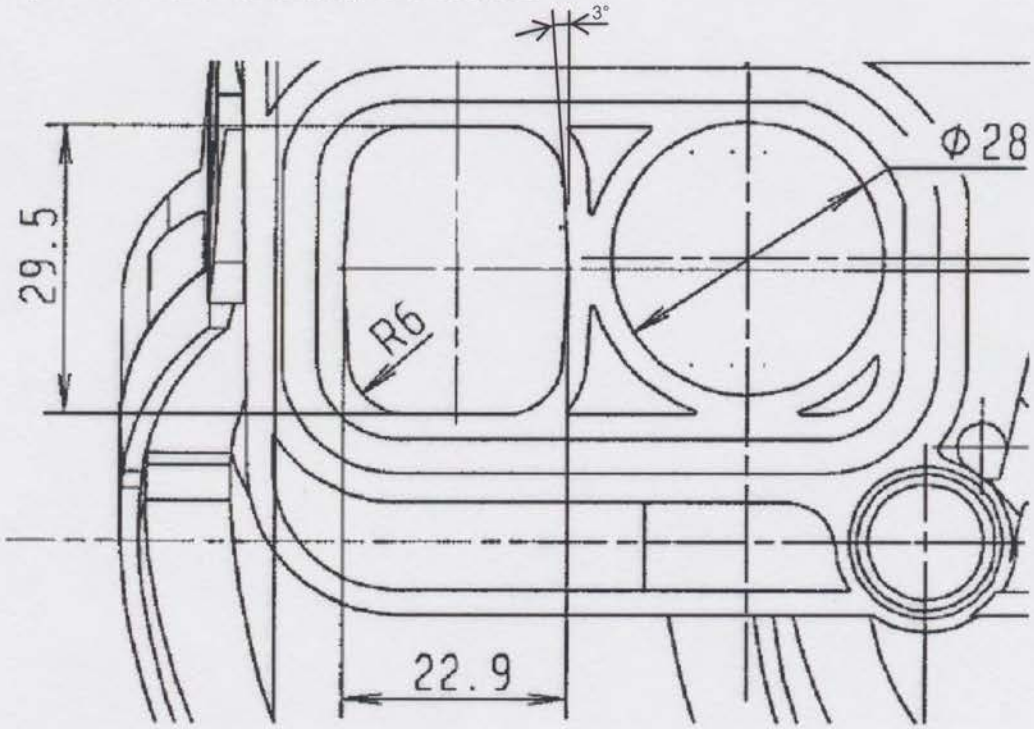
Dessins des orifices du moteur - tolérances sur les dimensions : -2%, +4%
Drawings of engine ports - tolerances on dimensions : -2%, +4%

ADMISSION - INTAKE

I) Culasse, face collecteur / Cylinderhead, manifold side



II) Collecteur, côté culasse / Manifold, cylinderhead side



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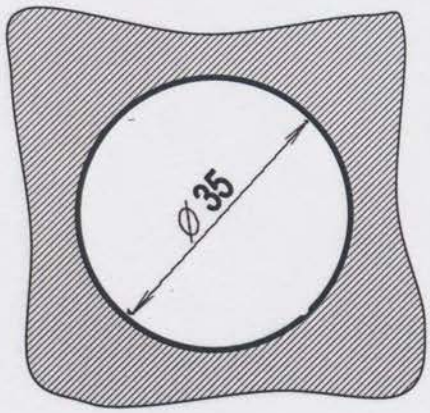
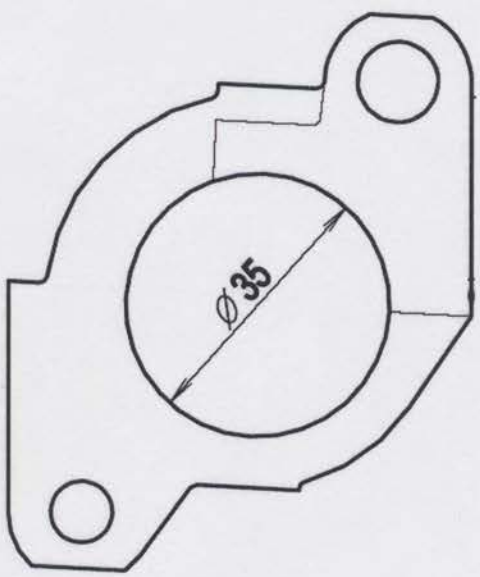
Dessins des orifices du moteur - tolérances sur les dimensions : -2%, +4%
Drawings of engine ports - tolerances on dimensions : -2%, +4%

ECHAPPEMENT - EXHAUST

III) Culasse, face collecteur / Cylinderhead, manifold side



IV) Collecteur, côté culasse / Manifold, cylinderhead side



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328. Echappement / Exhaust

a) Matériau du collecteur / Material of manifold: **CAST IRON**

b) Nombre d'éléments du collecteur / Number of manifold elements: **1**

c) Dimensions intérieures de sortie collecteur / Internal dimensions of manifold exit: **SEE PAGE 25**

d) Nombre de soupapes par cylindre / Number of valves per cylinder: **2**

e) Diamètre maximum de soupape / Maximum diameter of the valve: **28,4** mm

f) Diamètre de tige de soupapes dans guide / Diameter of the valve stem in guide: **7** + 0 / -0.2 mm

g) Longueur de soupape / Valve length: **104** +/- 1.5 mm

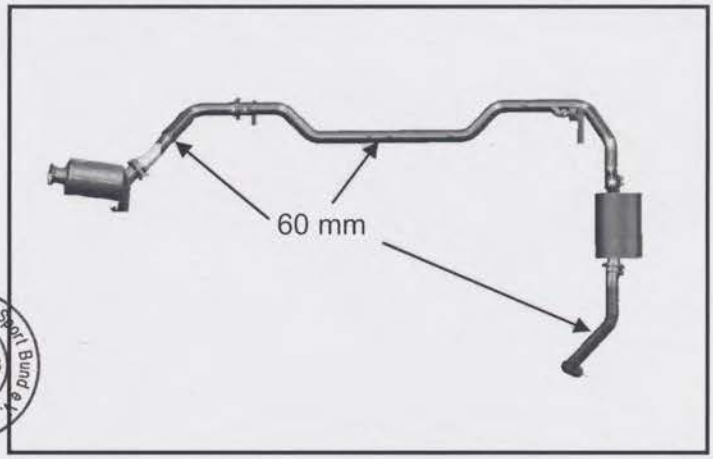
h) Type des ressorts de soupape / Type of valve springs: **COIL SPRINGS**

i) Nombre de ressorts par soupape / Number of springs per valve: **1**

p) Diamètre de tuyauterie entre collecteur et premier silencieux / Diameter of pipe between manifold and first silencer: **60** mm +/- 5%

J) Collecteur d'échappement / Exhaust manifold

BB) Echappement complet / Complete exhaust system



329. Système anti-pollution / Anti-pollution system

a) ☒ oui / yes ☐ non / no

b) Description: **OXIDATION CATALYTIC CONVERTER**

330. Système d'allumage / Ignition system

a) Type: **XXXX**

b) Nombre de bougies par cylindre / Number of plugs per cylinder: **XXXX**

c) Nombre de distributeurs / Number of distributors: **XXXX**

d) Nombre de bobines / Number of coils: **XXXX**

332. Ventilateur de refroidissement / Cooling fan

a) Nombre / Number: **1**

b) Diamètre de l'hélice / Diameter of the screw: **460** mm

c) Matériau de l'hélice / Material of the screw: **PLASTICS (PA6GF30sw, DBL 5403.00)**

d) Nombre de pales / Number of blades: **9**

e) Type d'entraînement / Type of drive: **BELT**

f) Ventilateur débrayable / Automatic cut in: ☒ oui / yes ☐ non / no

333. Système de lubrification / Lubrication system

a) Type: **WET-SUMP**

b) Nombre de pompes à huile / Number of oil pumps: **1**

c) Capacité totale / Total Capacity: **7,0 L**

d) Refroidisseur(s) d'huile / Oil cooler(s): ☒ oui / yes ☐ non / no — Nombre / Number: **1**

e) Emplacement du(des) refroidisseur(s) / Location of the cooler(s): **ENGINE MOUNTED (SEE ALSO PAGE 26)**

f) Type du(des) refroidisseur(s) / Type of the cooler(s): **WATER**

Marque
Make MERCEDES-BENZ

Modèle
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5. EQUIPEMENT ELECTRIQUE / ELECTRICAL EQUIPMENT

501. **Batterie(s)** / **Batterie(s)**
a) Nombre / Number: 1
b) Tension / Tension: 12 volts
c) Emplacement / Location: REAR COMPARTMENT IN THE MIDDLE UNDER BOTTOM (SEE PAGE 23 IN COMPLEMENTARY INFORAMATION FOR FOTO)

502. **Génératrice(s)** / **Generator(s)**
a) Nombre / Number: 1
b) Type / Type: ALTERNATOR
c) Système d'entraînement / Drive system: V-RIBBED BELT
d) Puissance nominale / Nominal power: 2100 watts

503. **Phares escamotables** / **Retractable headlights**
a) ☐ oui / yes ☒ non / no
b) Système de commande / Control system: XXXX

6. TRANSMISSION / POWER TRAIN

601. **Roues motrices** / **Driven wheels**
avant / front: ☒ oui / yes ☐ non / no
arrière / rear: ☒ oui / yes ☐ non / no

602. **Embrayage** / **Clutch**
a) Type: TORQUE CONVERTER WITH LOCKUP CLUTCH
b) Système de commande / Control system: XXXX
c) Nombre de disques / Number of plates: XXXX
d) Diamètre du(des) disque(s) / Diameter of the plate(s): XXXX +/- 2 mm

603. **Boîte de vitesses** / **Gearbox**
a) Emplacement / Location: ATTACHED TO REAR END OF ENGINE
b) Marque "manuelle" / "Manual" make: XXXX
c) Marque "automatique" / "Automatic" make: MERCEDES-BENZ
d) Type et emplacement de commande / Type and location of control: MECHANICAL/ELECTRONICAL ON GEAR BOX TUNNEL

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Marque
Make **MERCEDES-BENZ**

Modèle
Model **G 270 CDI**

e) Rapports
Ratios

Manuelle / Manual

	Nombre de dents Number of teeth	Rapport Ratio	Cons tante	Syn-chro
1				
2				
3				
4				
5				
6				
AR / R				
Cons tante				

Automatique / Automatic

	Nombre de dents Number of teeth	Rapport Ratio	Syn-chro
1	$\left(1+\frac{30}{74}\right)*\left(1+\frac{58}{90}\right)*\left(1+\frac{60}{108}\right)$	3,595	-
2	$\left(1+\frac{30}{74}\right)*\left(1+\frac{60}{108}\right)$	2,186	-
3	$1+\frac{30}{74}$	1,405	-
4		1,000	-
5	$\left(1+\frac{30}{74}\right)/\left(1+\frac{30}{74}*\left(1+\frac{108}{60}*\left(1-\left(1/\left(1+\frac{58}{90}\right)\right)\right)\right)\right)$	0,833	-
AR / R	$\frac{60}{108}*\left(1+\frac{58}{90}\right)*\left(1+\frac{74}{30}\right)$	3,167	-

f) Grille de vitesses
Gear change gate

P
R
N
- ← D → +

g) Type de lubrification
Type of lubrication

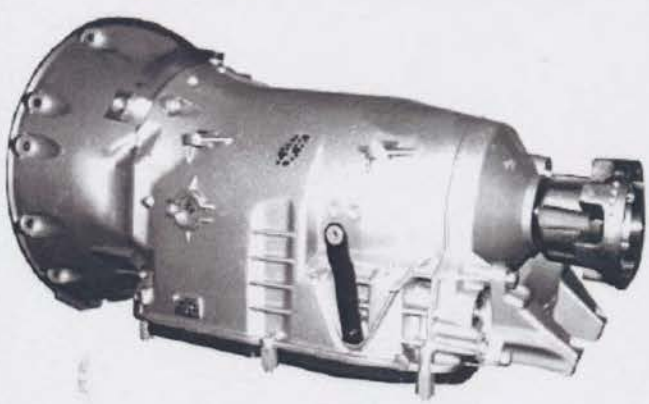
OIL PRESSURE SUPPLY BY TORQUE CONVERTER

h) Refroidisseur d'huile
Oil cooler

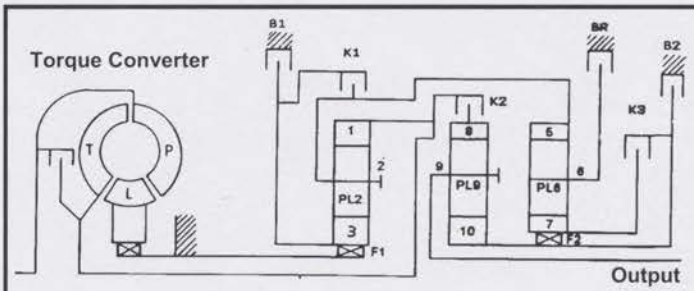
☒ oui yes	☐ non no

Type
Type **EXCHANGE OIL/WATER**

CC) Gearbox casing and clutch bell housing



S) Scheme of automatic transmission



B1 Multi disk brake
B2 Multi disk brake
K1, K2, K3 Clutches
F1 One Way Clutch
F2 One Way Clutch

(SEE PAGE 23 IN COMPLEMENTARY INFORMATION FOR TRANSFER CASE.)

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Modèle / Model: G 270 CDI

604. Boîte de transfert / Différentiel central :
Transfer box / Central differential :

a) Rapports / Ratios: HIGH: 1:0,87 ; LOW: 1:2,16

b) Nombre de dents / Number of teeth: (35/26) x (35/41) ; (19/35/41)

c) Système de commande de boîte de transfert / Control system of transfer box: ELECTRICAL SWITCH

e) Répartition du couple : / Torque distribution :

e1) Avant / Front: 50 %

Arrière / Rear: 50 %

e2) Nombre de dents : / Number of teeth : 14 x 9

f) Type de limitation de différentiel central / Type of central differential limitation: 4ETS AND 100% MECHANICAL LOCKABLE

605. Couple final :
Final drive :

	Avant / Front	Arrière / Rear
a) Type de couple final / Type of final drive	HYPOID BEVEL GEAR	HYPOID BEVEL GEAR
b) Rapport / Ratio	4,38	4,38
c) Nombre de dents / Number of teeth	35 / 8	35 / 8
d) Type de limitation de différentiel / Type of differential limitation	4ETS AND 100% MECHANICAL LOCKS	4ETS AND 100% MECHANICAL LOCKS
e) Type de lubrification / Type of lubrication	BY SPLASHING	BY SPLASHING
f) Refroidisseur d'huile / Oil cooler	☐ oui / yes ☒ non / no	☐ oui / yes ☒ non / no
Type / Type	XXXX	XXXX

606. Arbres
Shafts

a) Type des arbres longitudinaux / Type of longitudinal shafts: PROPELLER SHAFT (CARDAN JOINT)

b) Matériau des arbres longitudinaux / Material of longitudinal shafts: STEEL

c) Type des demi-arbres transversaux / Type of transversal half-shafts: FRONT: HALF-SHAFT (HOMOKINETIC JOINT); REAR: HALF-SHAFT (WITHOUT JOINT)

d) Matériau des demi-arbres transversaux / Material of transversal half-shafts: STEEL

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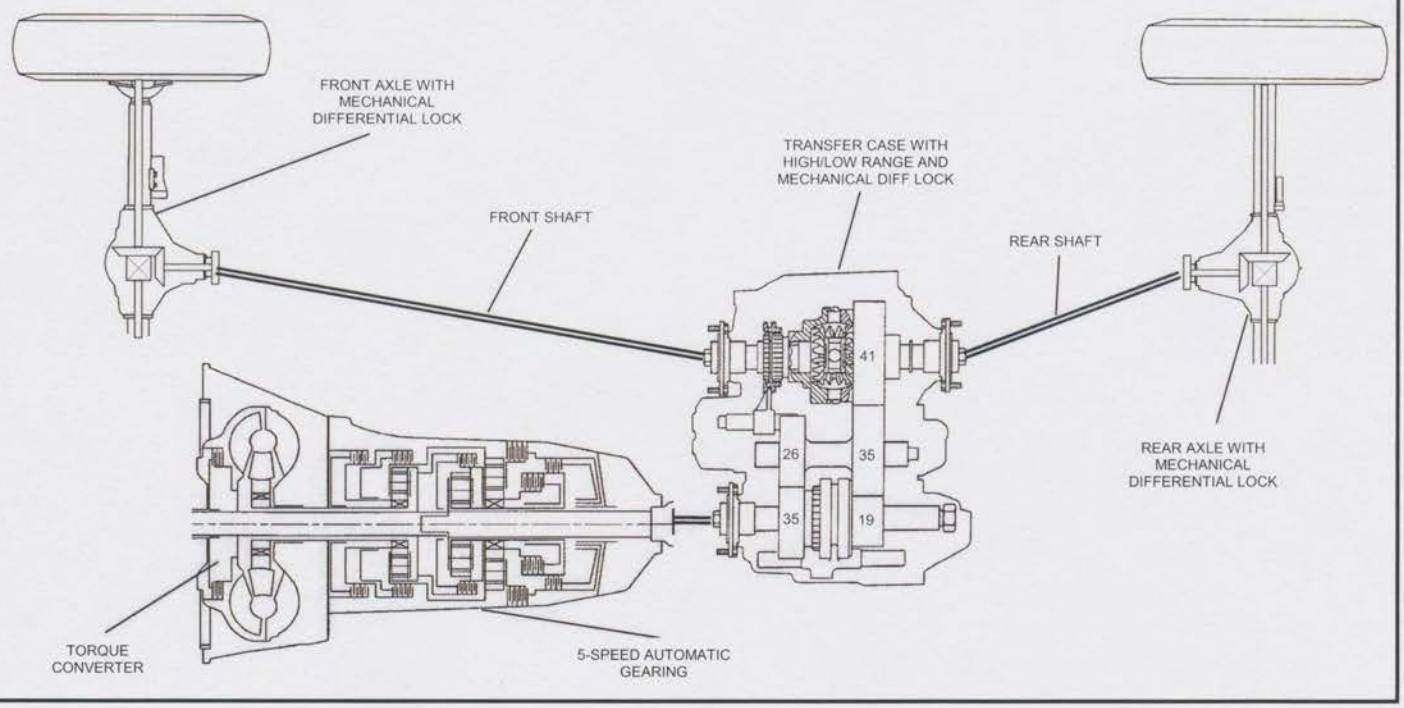
XII) CHAINE CINEMATIQUE (4 roues motrices) / KINEMATIC TRAIN (4 wheel drive)



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7. SUSPENSION / SUSPENSION

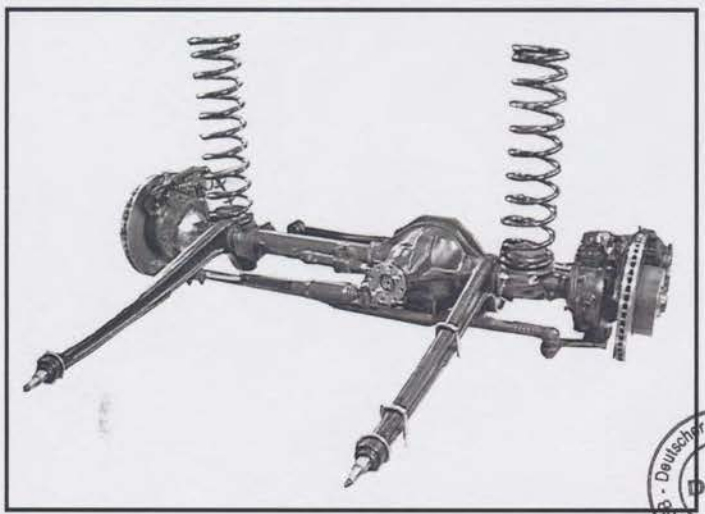
	Avant / Front	Arrière / Rear
701. Généralités General		
a) Type de suspension Type of suspension	RIGID AXLES W. COILSPRING	RIGID AXLES W. COILSPRING
702. Ressorts hélicoïdaux Helicoïdal springs	☒ oui yes ☐ Non no	☒ oui yes ☐ non no
a) Matériau Material	STEEL	STEEL
703. Ressorts à lames Leaf springs	☐ oui yes ☒ non no	☐ oui yes ☒ non no
a) Matériau de lame maitresse Material of main leaf		
Matériau de 2e lame Material of 2nd leaf		
Matériau de 3e lame Material of 3rd leaf		
Matériau de 4e lame Material of 4th leaf		
Matériau de 5e lame Material of 5th leaf		
Matériau de lame auxiliaire Material of auxiliary leaf		
704. Barres de torsion Torsion bars	☐ oui yes ☒ non no	☐ oui yes ☒ non no
c) Matériau Material		

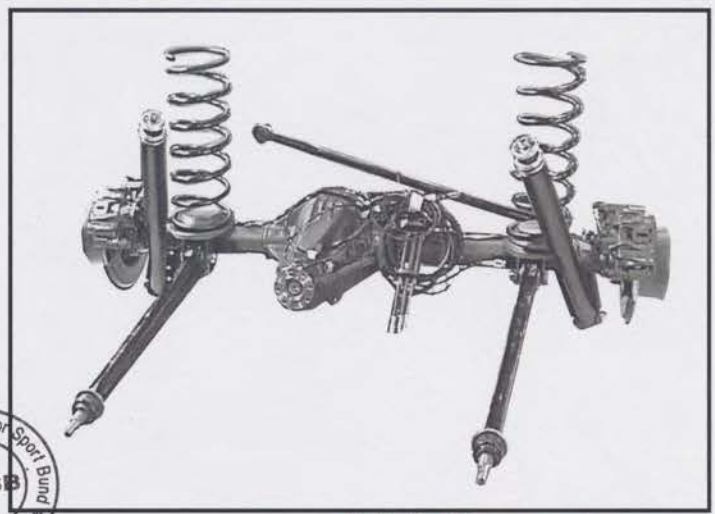
705. Autre type de suspension : *Voir description sur fiche additionnelle*
Other type of suspension : *See description on additional form*

T) Train avant complet déposé
Complete dismounted front axle

U) Train arrière complet déposé
Complete dismounted rear axle

(SEE PAGE 27 AND PAGE 28 IN COMPLEMENTARY INFORMATION FOR DETAILS.)





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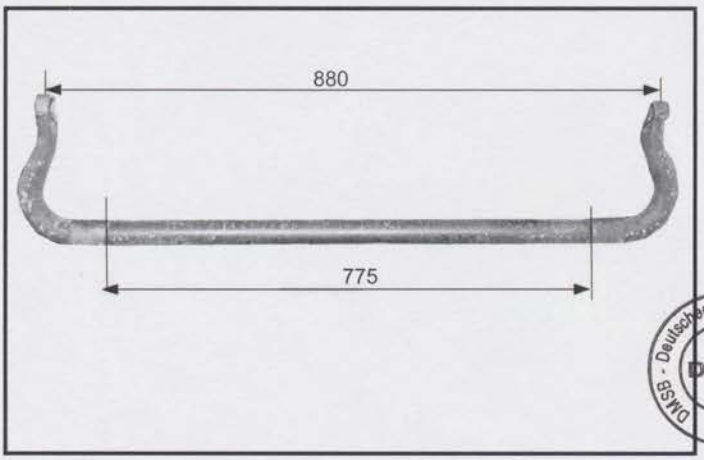
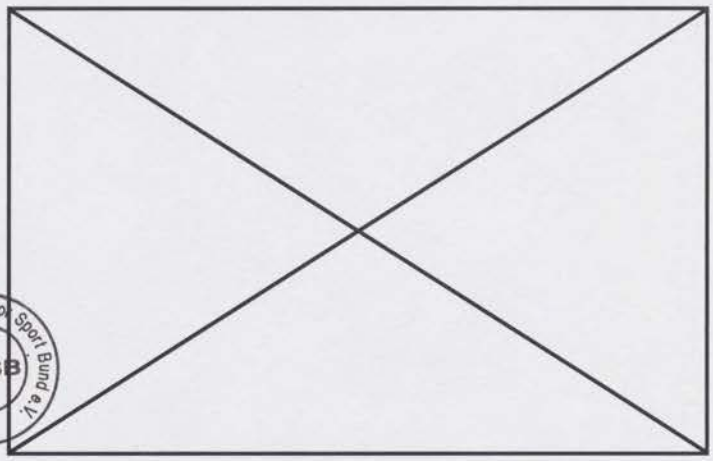
706. Stabilisateur
Stabiliser

	Avant / Front	Arrière / Rear
a) Longueur efficace Effective length	**880** mm +/- 1%	mm +/- 1%
b) Diamètre efficace Effective diameter	**37** mm	mm
c) Matériau Material	**STEEL**	

XI) Dessin ou photo du stabilisateur avant
Drawing or photo of front stabiliser



XI) Dessin ou photo du stabilisateur arrière
Drawing or photo of rear stabiliser



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707. Amortisseurs
Shock absorbers

	Avant / Front	Arrière / Rear
a) Nombre par roue Number per wheel	**1**	**1**
b) Type Type	**TELESCOPIC (GAS PRESSURE)**	**TELESCOPIC (GAS PRESSURE)**

Marque
Make MERCEDES-BENZ

Modèle
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8. TRAIN ROULANT / RUNNING GEAR

801. Roues
Wheels

	Avant / front	Arrière / rear	Secours / Spare
a) Diamètre Diameter	16 " 406,4 mm	16 " 406,4 mm	16 " 406,4 mm
b) Largeur Width	7,5 " 190,5 mm	7,5 " 190,5 mm	7,5 " 190,5 mm

802. Emplacement de la roue de secours
Location of the spare wheel TAILGATE

EE) Roue de secours dans son emplacement
Spare wheel in its location

803. Freins :
Brakes :

a) Système de freinage
Braking system DOUBLE HYDRAULIC

b) Nombre de maître-cylindres
Number of master cylinders 1

b1) Alésages
Bores 26,99 mm / 25,4 mm

c) Servo-frein
Servo brakes ☒ oui yes ☐ non no

c1) Marque et type
Make and type CONTI-TEVES/ATE (Vacuum Pump)

d) Régulateur de freinage
Braking regulator ☐ oui yes ☒ non no

d1) Emplacement
Location XXXX

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	Avant / Front	Arrière / Rear
e) Nombre de cylindres par roue Number of cylinders per wheel	4	1
e1) Alésage Bore	44 mm	48 mm
f) Freins à tambours : **Drum brakes :**		
f1) Diamètre intérieur Internal diameter	+/- 1.5 mm	+/- 1.5 mm
f2) Nombre de garnitures par roue Number of linings per wheel		
f3) Longueur développée des garnitures Developed length of linings	+/- 1.5 mm	+/- 1.5 mm
f4) Largeur des garnitures Width of the linings	+/- 1 mm	+/- 1 mm
g) Freins à disques **Disc brakes :**		
g1) Nombre de plaquettes par roue Number of pads per wheel	2	2
g2) Nombre d'étriers par roue Number of calipers per weel	1	1
g3) Matériau des étriers Caliper material	STEEL	STEEL
g4) Epaisseur du disque neuf Thickness of new disc	30 +/- 1 mm	16 +/- 1 mm
g5) Diamètre extérieur du disque External diameter of the disc	315 +/- 1.5 mm	272 +/- 1.5 mm
g6) Diamètre extérieur de frottement des plaquettes External diameter of pads' rubbing surface	315 +/- 1.5 mm	272 +/- 1.5 mm
g7) Diamètre intérieur de frottement des plaquettes Internal diameter of pads' rubbing surface	203 +/- 1.5 mm	178 +/- 1.5 mm
g8) Longueur hors-tout des plaquettes Overall length of the pads	145 +/- 1.5 mm	114 +/- 1.5 mm
g9) Disques ventilés Ventilated discs	☒ oui yes ☐ non no	☐ oui yes ☒ non no

h) Frein de stationnement :
Parking brake :

h1) Système de commande
Control system **CABLE**

h2) Emplacement de commande
Location of lever **HAND LEVER ON CENTER CONSOLE**

h3) Effet sur roues
On which wheels ☐ Avant Front ☒ Arrière Rear

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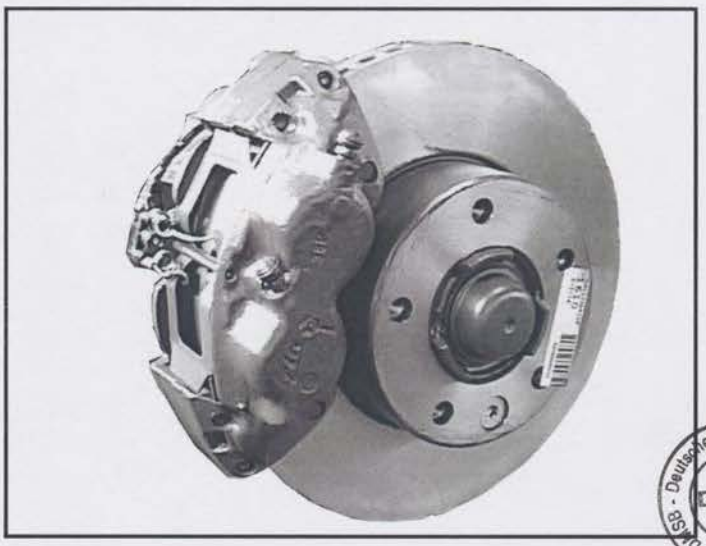
V) Frein avant
Front brake



W) Frein arrière
Rear brake

804. Direction :
Steering :

	Avant / Front	Arrière / Rear
a) Type Type	**BALL CIRCUIT**	**XXXX**
b) Servo-assistance Power assisted	☒ oui yes ☐ non no	☐ oui yes ☐ non no
Type Type	**HYDRAULIC**	**XXXX**

9. CARROSSERIE / BODYWORK

901. Intérieur
Interior

a) Ventilation
Ventilation — ☒ oui yes ☐ non no

b) Chauffage
Heating — ☒ oui yes ☐ non no

c) Climatisation
Air conditioning — ☒ oui yes ☐ non no

d) Sièges
Seats

d1) Type de sièges arrière
Type of rear seats **SEAT BENCH**

	Avant / Front	Arrière / rear
d2) Appuie-tête Headrest	☒ oui yes ☐ non no	☒ oui yes ☐ non no

d4) Siège arrière rabattable
Rear seat can be folded — ☒ oui yes ☐ non no

e) Plage arrière
Rear ledge — ☐ oui yes ☒ non no

e1) Matériau
Material **XXXX**

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f) Toit ouvrant optionnel
Optional sun roof

☒ oui yes	☐ non no

f1) Type
Type **RISE AND SLIDE**

f2) Système de commande
Control system **ELECTRIC**

	Avant / Front	Arrière / Rear
g) Système d'ouverture des vitres latérales Opening system for side windows	**ELECTRIC**	**ELECTRIC**

X) Tableau de bord
Dashboard

Y) Toit ouvrant
Sunroof

902. Extérieur
Exterior

a) Nombre de portes
Number of doors **4**

b) Hayon
Tailgate

☒ oui yes	☐ non no

	Avant / Front	Arrière / Rear
c) Matériau des portières Doors material	**STEEL**	**STEEL**

d) Matériau du capot avant
Front bonnet material **STEEL**

e) Matériau du capot arrière / hayon
Rear bonnet / tailgate material **STEEL**

f) Matériau de la carrosserie
Bodywork material **STEEL**

	Avant / Front	Arrière / Rear
k) Matériau des vitres latérales Side windows material	**SAFETY GLASS**	**SAFETY GLASS**
i) Matériau du pare-choc Material of bumper	**STEEL**	**SMC/PU (SHEET MOULDING COMPOUND/POLYURETHAN)**

n) Essuie-glace arrière
Rear wiper

☒ oui yes	☐ non no

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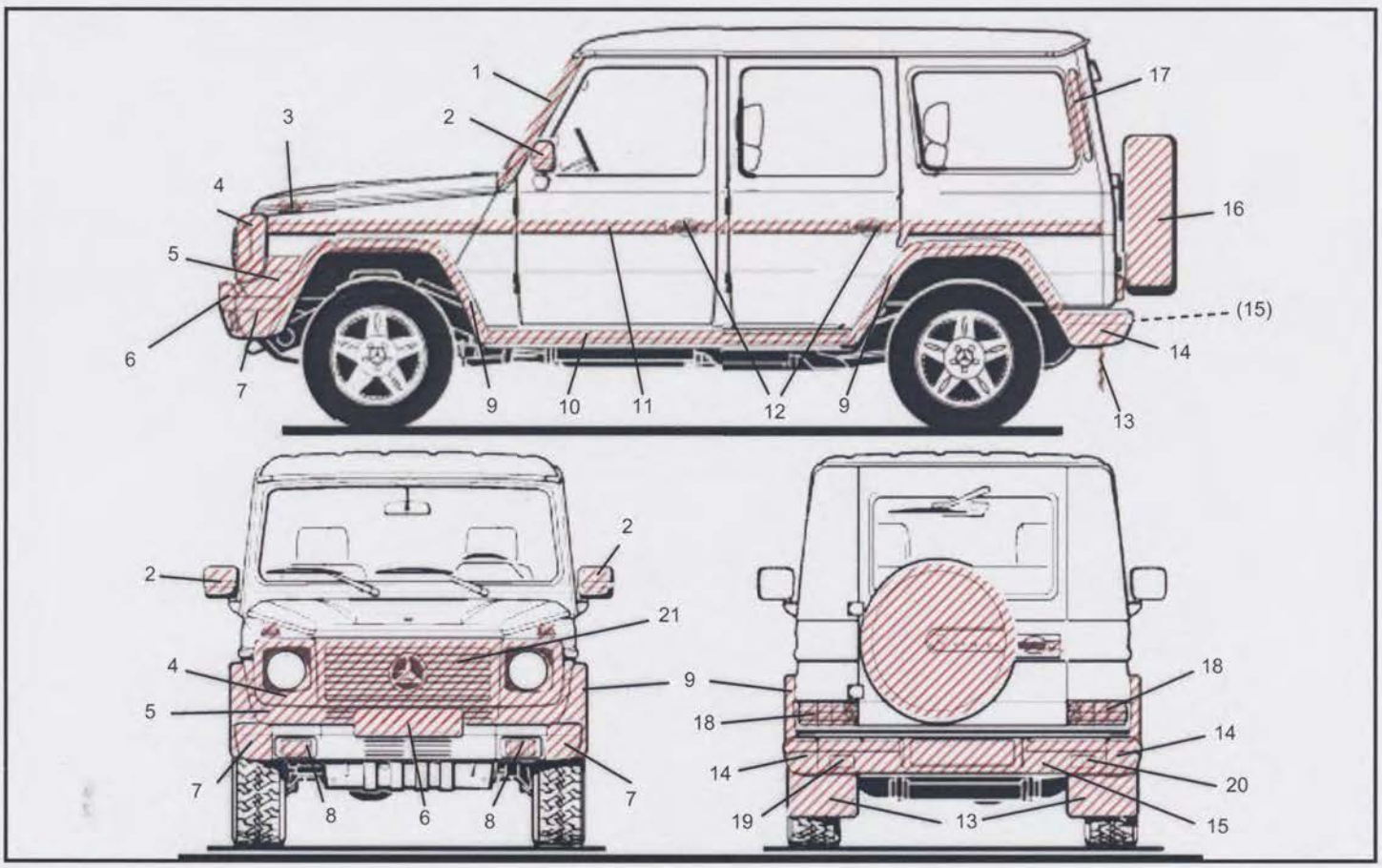
XIII) PARTIES DE CARROSSERIE NON METALLIQUES / NON METALLIC PARTS OF THE BODY

Numéro / Number	Pièce / Part	Matériau / Material
1	WIND DEFLECTOR AT WINDSHIELD	PUR-PRIM GF15
2	EXTERIOR MIRROR	ABS
3	FRONT INDICATOR	PC
4	HEADLIGHT COVERS	NORYL GTX 940
5	FRONT BODY PART	NORYL GTX 940
6	FRONT LICENCE PLATE HOLDER	PP (Daplen)
7	END PIECES OF FRONT BUMPER	PUR-PRIM GF15
8	FOG LIGHTS	Pressed glass + PBTP GF20 (trim ring)
9	FENDERS (FRONT AND REAR AXLE)	PUR-PRIM GF15
10	SIDE PROTECTION STRIP ALONG BOTTOM FOLDING OF BODY	PVC
11	SIDE PROTECTION STRIP ALONG DOOR HANDLES	PVC
12	DOOR HANDLES	Durethan KU2-2131/30
13	MUD FLAPS	TPE
14	END PIECES OF REAR BUMPER	PUR-PRIM GF15
15	REAR BUMPER	UP GF30C
16	SPARE WHEEL COVER	PS (Polystyrene) / Fabric-PVC-coated
17	AIR VENT COVER OF INTERIOR	PP TV20/PC-ABS
18	REAR LIGHTS	Glass : Lexan L52 (-111 clear, -143 red, -or6a028t orange) ; trim ring : Lexan 3412R- 739 (black)
19	REAR FOG LAMP	PMMA
20	REVERSING LIGHT	Glass : Lexan ; trim ring : Lexan 3412R- 739 (black)
21	GRILLE	NORYL GTX 940



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INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

202 Overall Length :

The overall length without spare wheel is **4453** mm +/- 1%

209b) Rear Overhang :

The rear overhang without spare wheel is **820** mm +/- 1%

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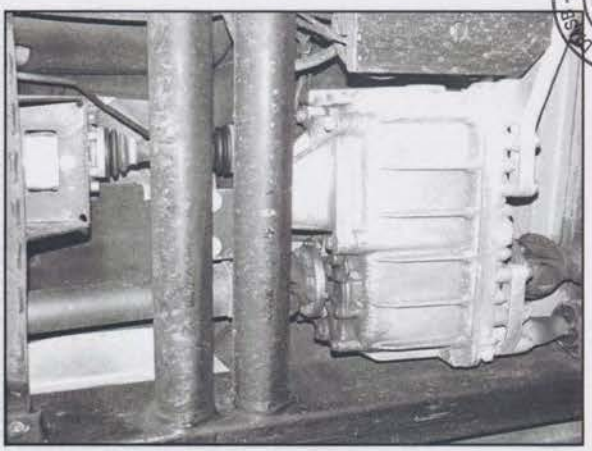
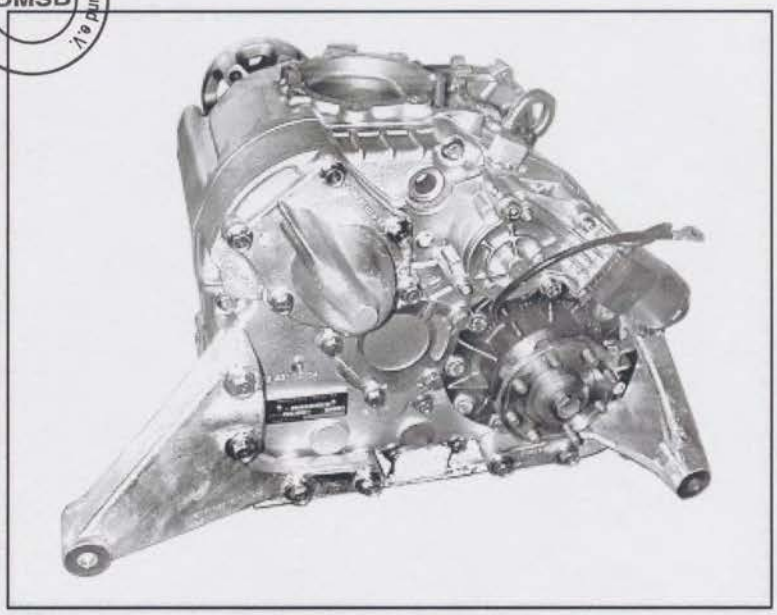
603 S) TRANSFER CASE :





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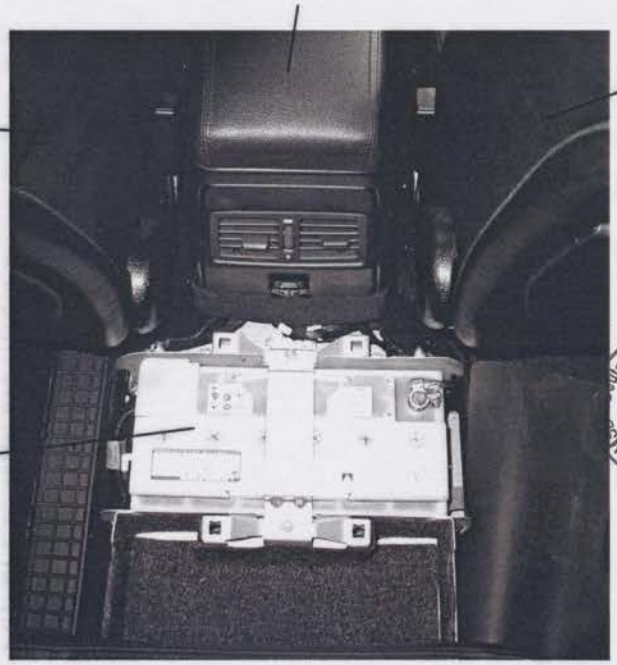
501 c) LOCATION OF BATTERY :



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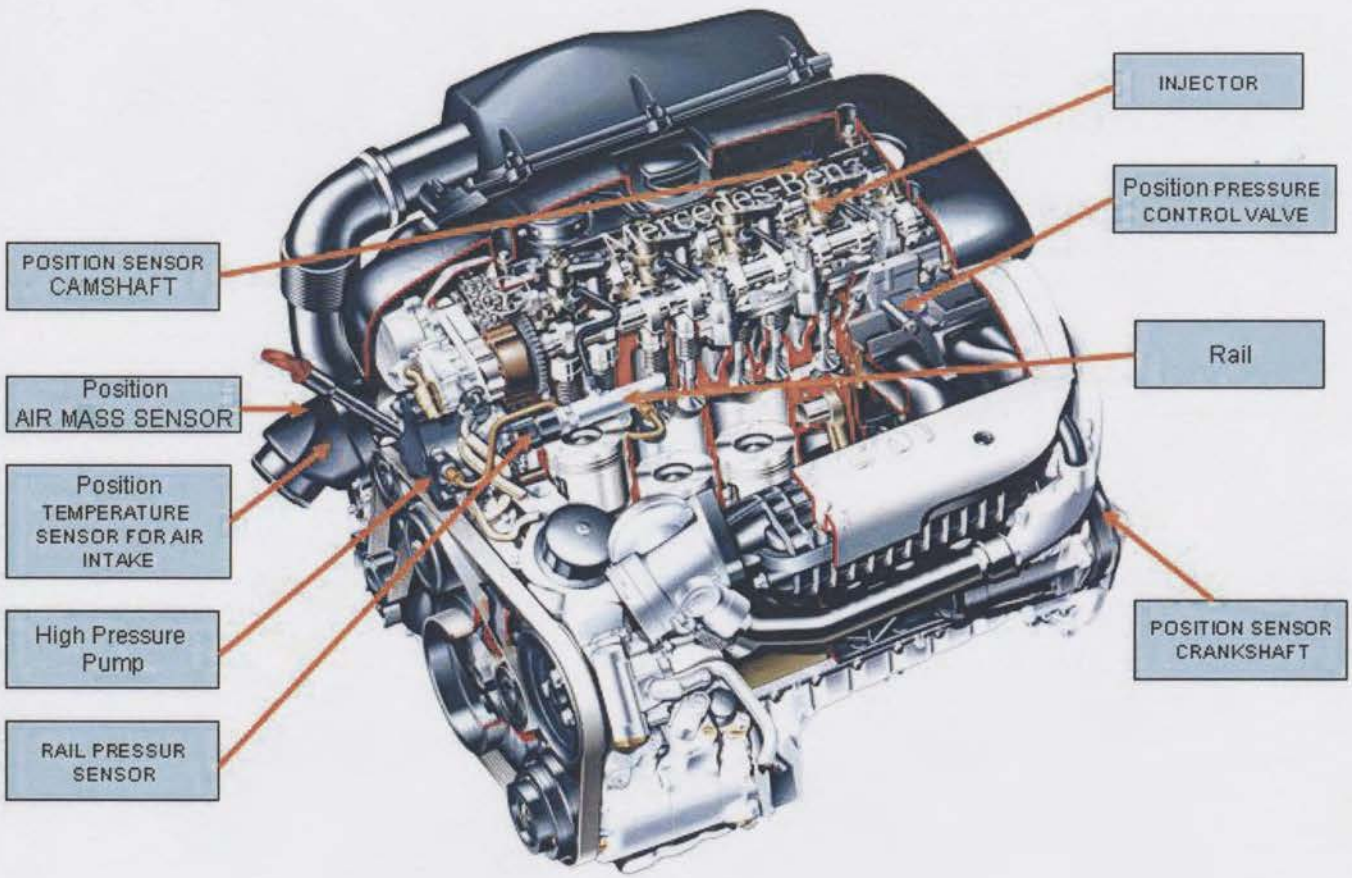
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

324 LOCATION OF SENSORS AND ACTUATORS :



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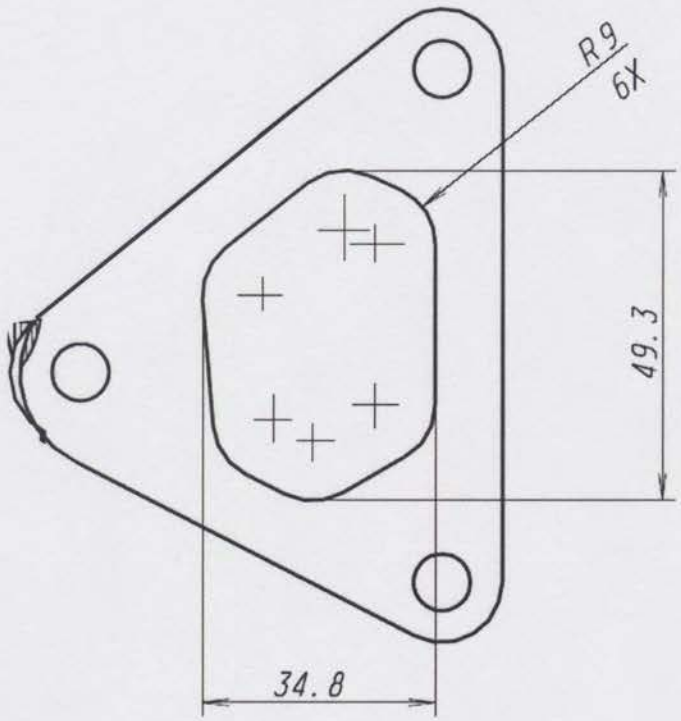
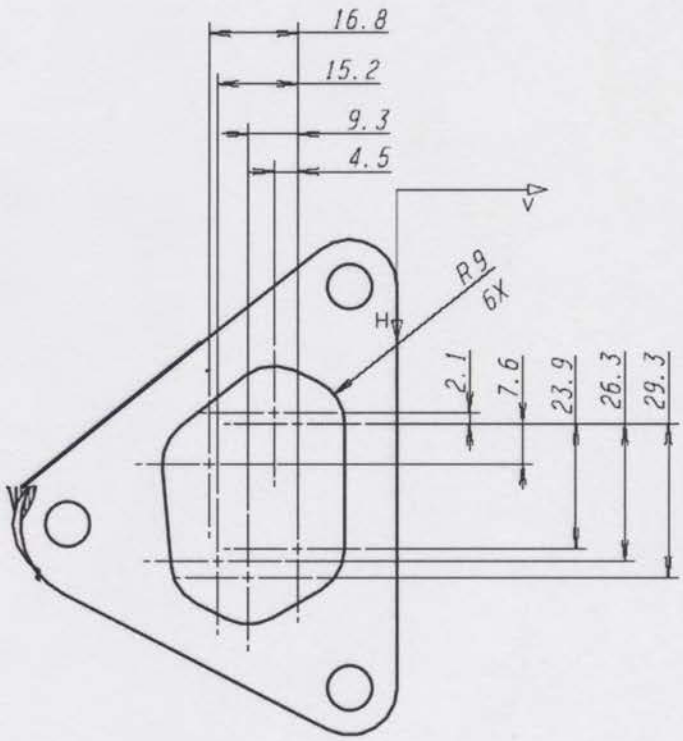
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

328 c) INTERNAL DIMENSIONS OF MANIFOLD EXIT :





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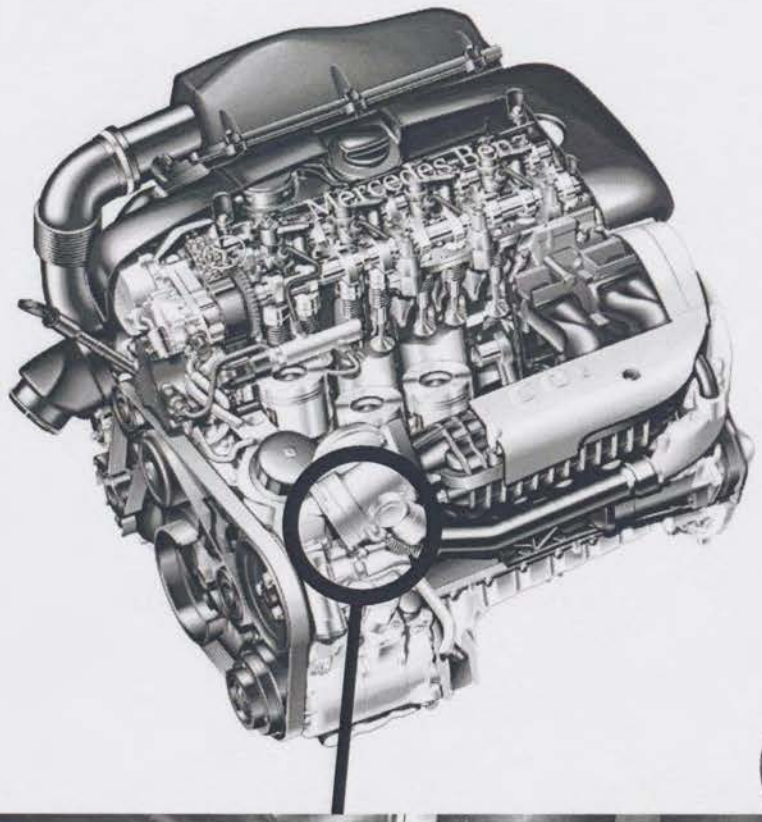
333 e) LOCATION OF OIL COOLER :



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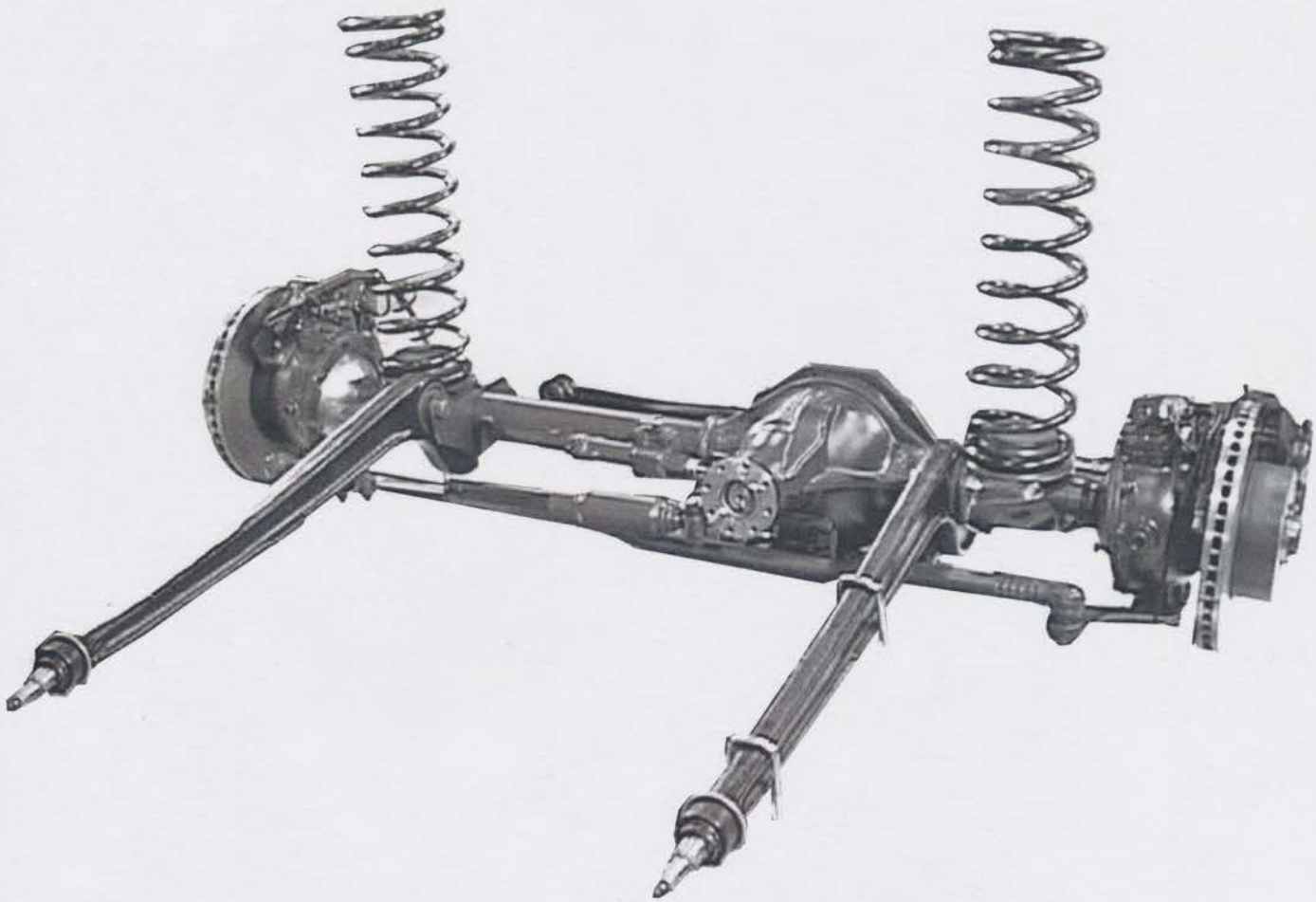
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

705 T) COMPLETE DISMOUNTED FRONT AXLE



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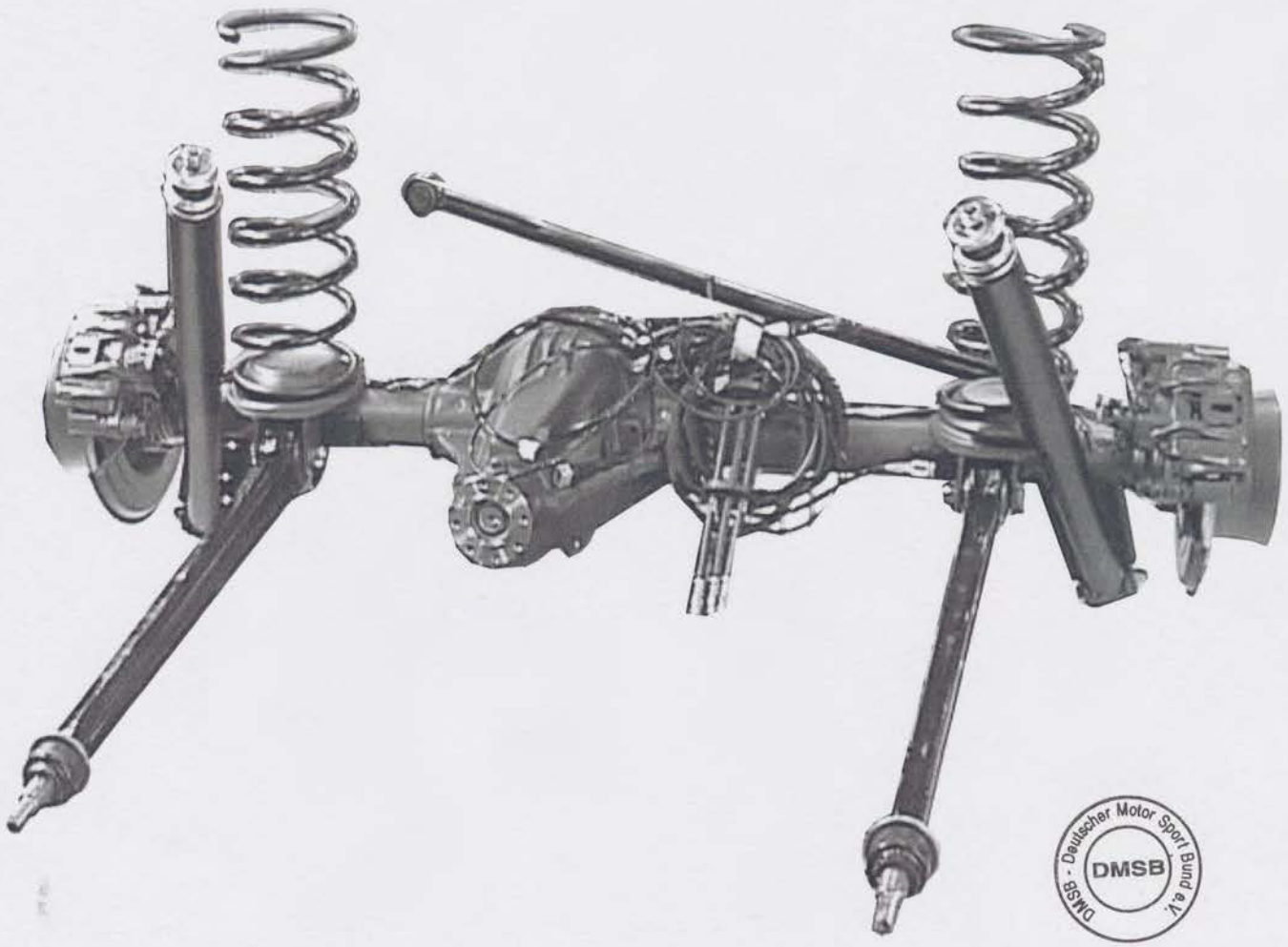
705 U) COMPLETE DISMOUNTED REAR AXLE



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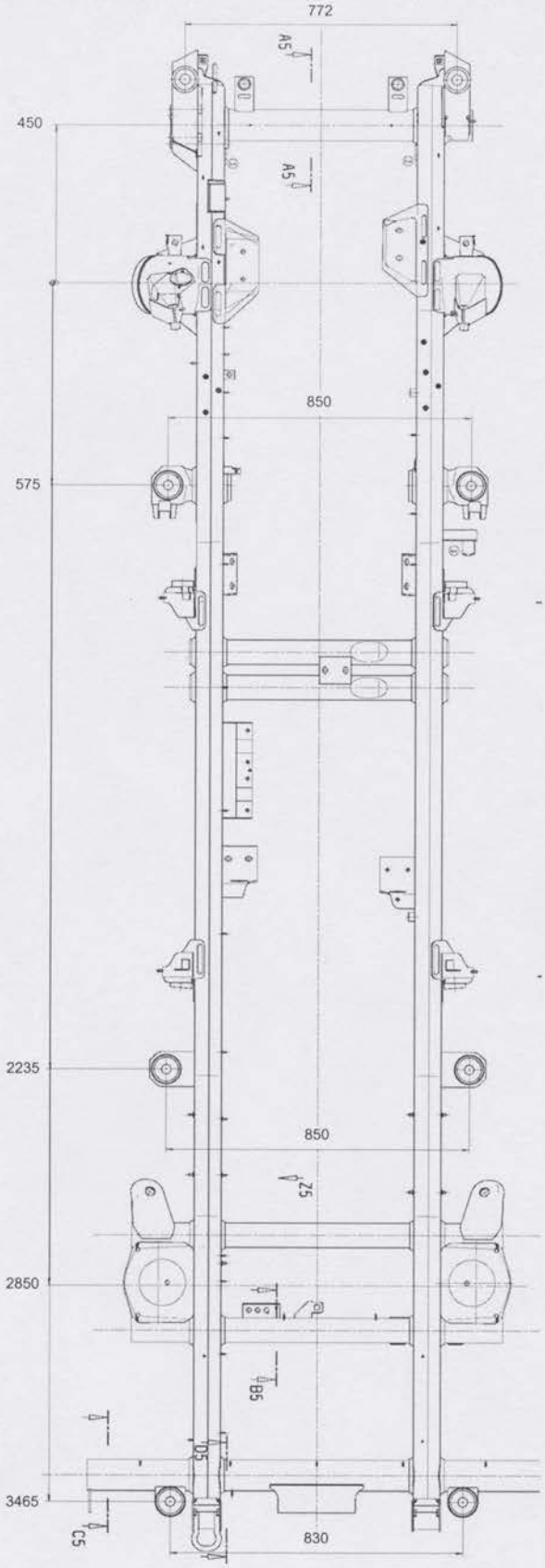
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

FRAME
2850mm WHEELBASE :



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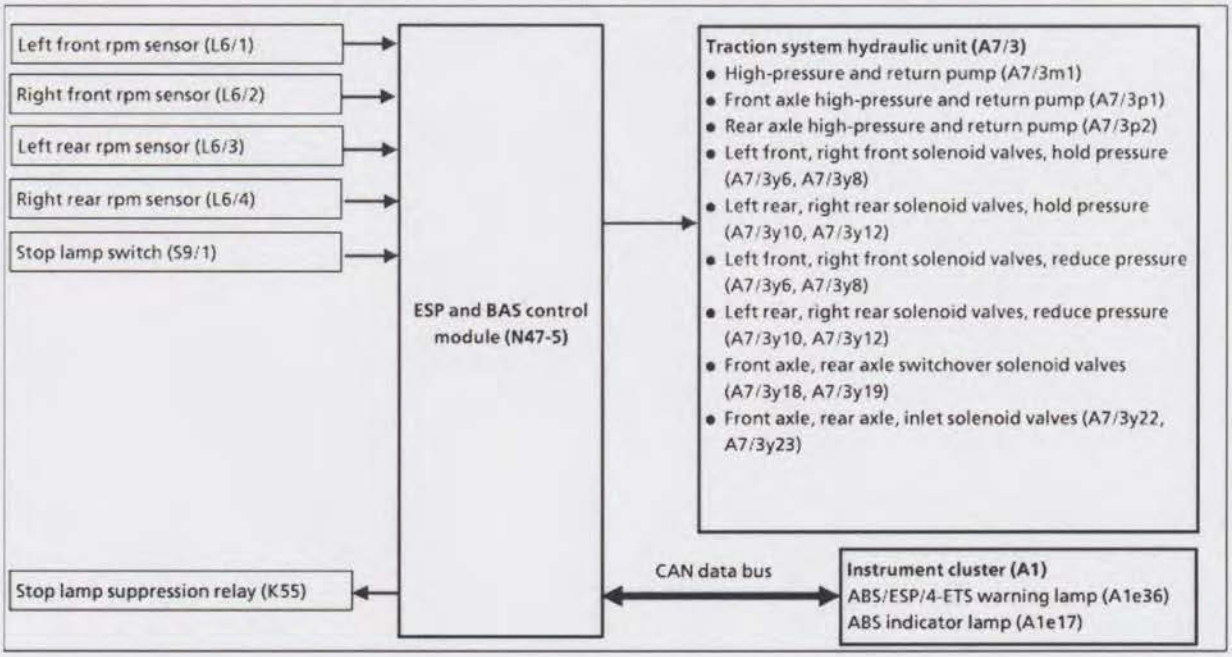
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

Electronic traction system (ETS), function :



1 General

- The "electronic traction system (ETS)" functionality is integrated as a software module in the ESP and BAS control module (N47-5).
- The electronic traction system (ETS),

- is an electronic system which improves the
starting-off and accelerating performance as well as the cornering stability of the vehicle particularly on road surfaces with different levels of grip.
- and it replaces, in part, the function of both the locking differential at the front axle / rear axle and the transfer case.

- It is not involved with engine management control.

2 Function in normal mode

- In the normal operating mode, when none of the wheels are slipping to the extent that slip control is required, the ETS is in the "ready for operation" mode and does not intervene in the driving dynamics of the vehicle.
- The system must be free of faults for the ETS to be in the "ready for operation" mode.

3 Function in control mode

- If the prerequisites for activation of the
ETS control mode occur e.g. slip at one or more of the 4 wheels, the ETS is activated automatically.
The slip of the wheels is controlled by braking the affected wheel as part of controlling the braking torque.
- The ETS is no longer active at speeds in excess of approx. 60 km/h.
- The ETS is still active even if the ESP is switched off.

• Braking torque control at the front axle

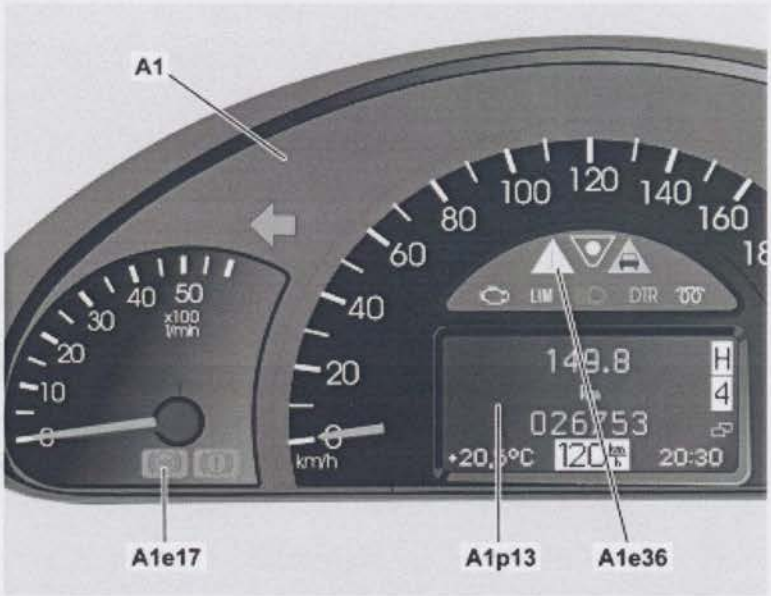
If one of the front wheels begins to spin, the wheel is braked until the calculated drive slip is reached.
If the second front wheel also spins, this wheel is braked in the same way as the first front wheel provided that neither or only one of the rear wheels is controlled.

• Braking torque control at the rear axle

If one of the rear wheels begins to spin, the spinning wheel is braked by the appropriate wheel brake until the calculated drive slip is obtained. The other rear wheel can therefore transfer a drive torque that is higher by the amount of the braking torque. The drive torque also increases at the front wheels according to the torque distribution in the transfer case (locking differential effect).
The brake pressure is increased at the second rear wheel from a vehicle speed of 10 km/h. The brake pressure level of the spinning rear wheel is reached at a speed of 40 km/h. This prevents the second rear wheel from spinning and to some extent also prevents the vehicle from breaking away.
- If the second rear wheel also spins, this wheel is also controlled in the same way as the first rear wheel up to a speed of 10 km/h. From a speed of 10 km/h onwards the lower of the two brake pressures is matched to the higher pressure (synchronized pressure build-up) in order to prevent yaw motion due to different drive torques at the rear axle wheels.

INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

Electronic traction system (ETS), driver information :



A1 Instrument cluster
A1e17 ABS indicator lamp
A1e36 ABS/ESP/4-ETS warning lamp
A1p13 Multifunction display

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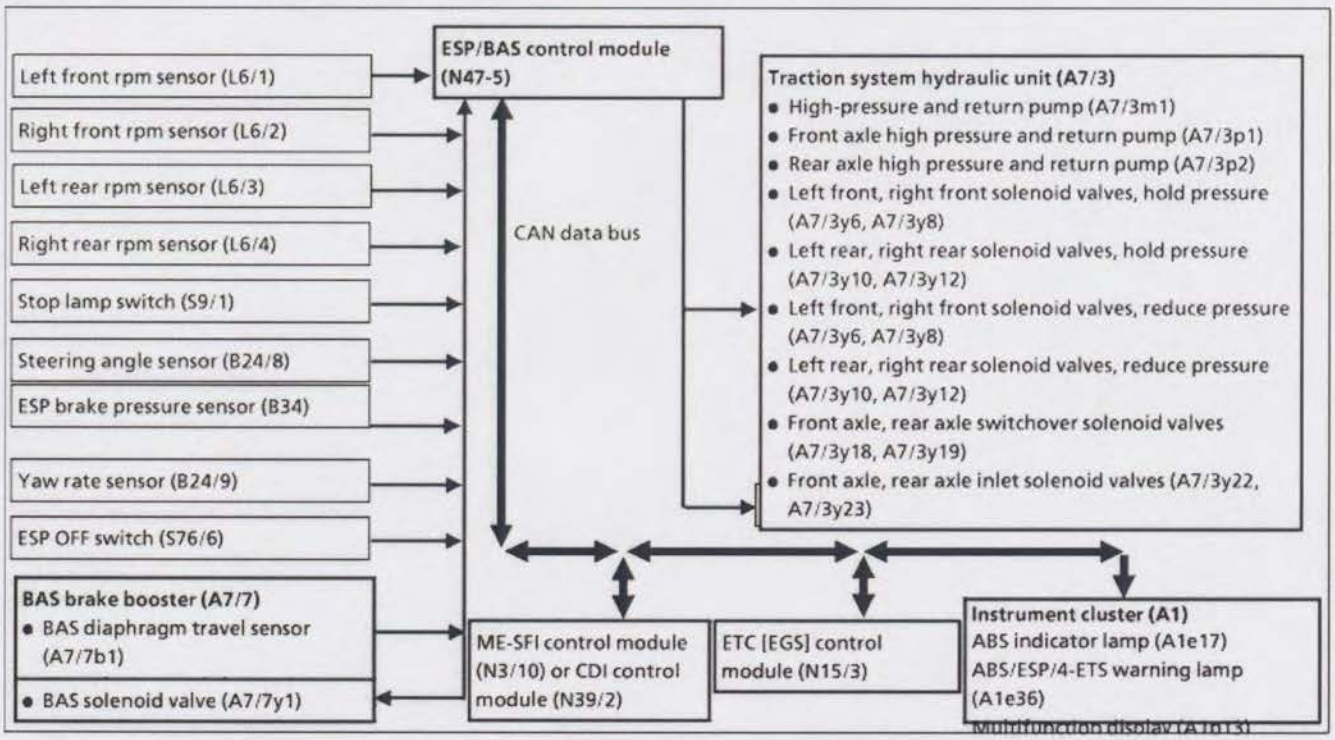
Marque
Make MERCEDES-BENZ

Modèle
Model G 270 CDI

INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

Electronic stability program (ESP), function :



1 General

- The "Electronic Stability Program (ESP)" functionality is integrated as a software module in the ESP and BAS control module (N47-5).
- The electronic stability program (ESP)

- is an active safety system to improve the stability of the vehicle in all driving situations,
- overrides the
- antilock brake system (ABS),
- electronic traction system (ETS) and
- Brake Assist (BAS)

control functions and complements these functions with the additional

- ESP stability control

function, which is available in all driving situations during which the actual behavior of the vehicle deviates from the desired behavior.

2 Advantages

- Improves moving-off and acceleration capabilities by increasing traction; especially on road surfaces with different levels of grip and when cornering.
- Improves active dynamic safety, since only a wheel which is not spinning can provide optimum traction with no loss of lateral stability.
- Automatically adapts the engine torque according to the traction status of the wheels.
- Reduces the risk of skidding under all road conditions by automatically stabilizing the vehicle when braking, accelerating or coasting.
- Significantly improves the directional stability of the vehicle when cornering, also up to the critical limits.
- Shortens the stopping distance when cornering or on slippery roads.

3 Function in normal mode

- In the normal operating mode when ESP intervention is not required, the ESP is in the "ready for operation" mode and does not intervene in the driving dynamics of the vehicle.
- The system must be free of faults for the ESP to be in the "ready for operation" mode.

INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

Electronic stability program (ESP), function (continuation) :

4 Function in control mode

● The ESP is activated automatically if the prerequisites for activation of the ESP occur.
The ESP and BAS control module (N47-5) determines the control mode according to the traction status of the vehicle. A distinction is made between the following control modes:

4.1 ABS control mode

→ ABS braking torque control
Prevents individual wheels locking up by controlling the brake pressure at the brakes of the affected wheels.

4.2 ETS control mode

→ ETS braking torque control
Reduces slipping of individual wheels by controlling the brake pressure at the brakes of the affected wheels.

4.3 BAS control mode

→ BAS brake application
Automatic generation of brake force in emergency braking situations. The brake force is boosted to the maximum possible level.

4.4 ESP control mode

● During ESP stability control, combined control of the braking torque and drive torque influence the longitudinal, transverse and yaw velocity of the vehicle in line with the driver's requirements and the surface of the road.

→ ESP braking torque control
Improves the directional stability and road adhesion by controlling the braking torque at the brakes of the individual wheels.

→ ASR drive torque control
The ASR is activated automatically if the drive torque is too large and one or more wheels begin to spin. The drive torque is then reduced by engine management intervention.

● The ESP stability control therefore ensures, within the bounds of physical limits, that the vehicle does not deviate from the course specified by the driver.
● Deviations from the desired course are caused by forces acting on a vehicle from outside, such as one-sided braking and acceleration forces or lateral forces, which attempt to rotate the vehicle about its center of gravity and therefore affect the self-steering behavior of the vehicle.
● Deviations from the desired course can occur both when cornering and when driving straight ahead:
- Example when cornering:
The frictional connection between the front or rear wheels and the road surface can be changed so that the vehicle no longer follows the direction of travel specified by the steering angle and this causes the vehicle to yaw from the intended course.
In this case the vehicle pushes outwards either over the front wheels (under steered) or over the rear wheels (over steered).
- Example when driving straight ahead:
Uneven road conditions apply different forces of friction to the wheels and the slip of the individual wheels is different. Without slip control and without any kind of steering correction the vehicle would fail to hold its course.

4.5 Control mode with ESP switched off

● When the ESP is switched off
- the ASR drive torque control
- and the ESP braking torque control when the vehicle is accelerating and rolling are switched off.
● When the driver brakes the ESP braking torque control remains available up to a vehicle speed of approx. 60 km/h.

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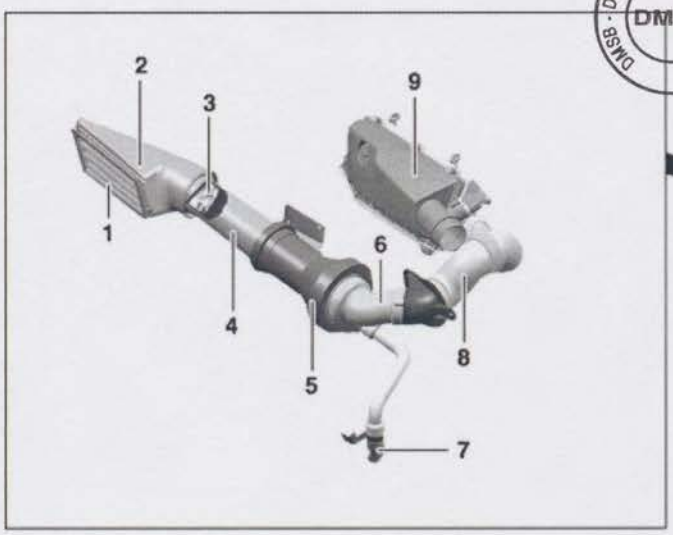
INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

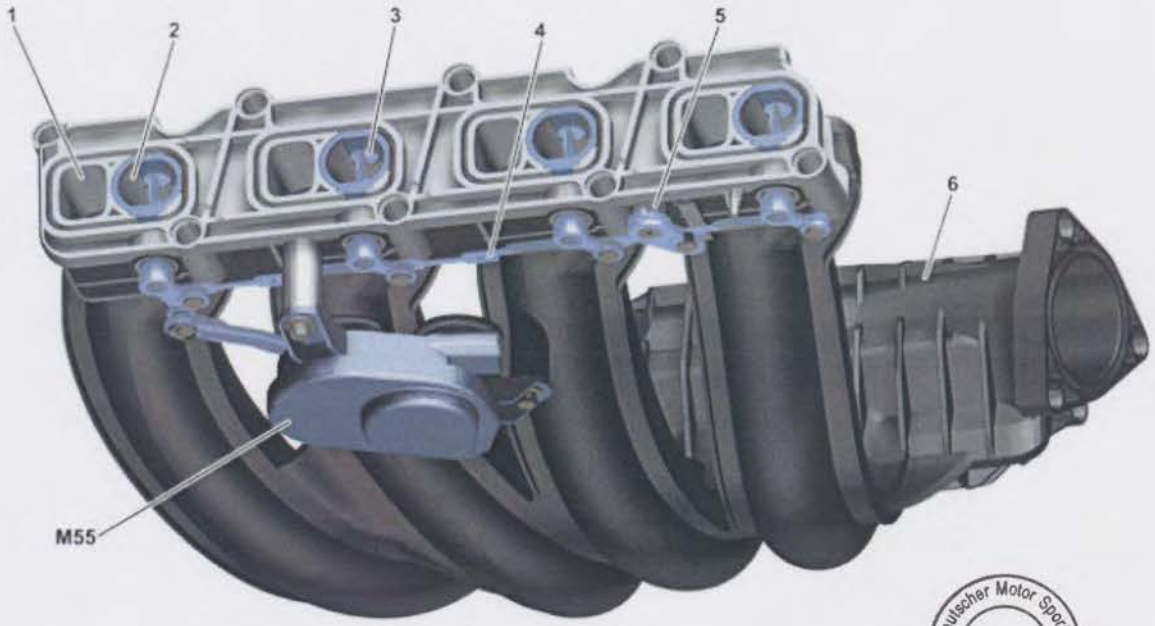
AIR INTAKE :



1 Intake	6 Connecting pipe
2 Intake cover	7 Dust drain valve
3 Guide wheel	8 Charge-air tube
4 Intake pipe	9 Air filter
5 Cyclone filter	

INFORMATIONS COMPLEMENTAIRES / COMPLEMENTARY INFORMATION

327i) Intake – Functionality of intake shut off



(Note: Schematic drawing shown)

1 Swirl Inlet Port
2 Charge Inlet Port
3 Flap
4 Flap linkage
5 Flap Return Spring
6 Charge Air Tube
M55 Motor Intake Port Shut-Off

A swirl and a charge inlet port each (110/19) are provided in the charge air distribution pipe for each cylinder. The charge inlet ports can be closed by means of flaps (110/20). The flaps are connected to each other by means of a linkage, which is operated by the intake port shutoff motor (M55). They are held in the opened position by the force of a spring (deenergized state).

In the lower rpm and load range all the filling inlet ports are sealed by valves. The complete air mass flows in solely via the swirl inlet ports. The high air swirling which is produced as a result, results in a more effective mixing of the fuel with air and thus in improved combustion and the reduction in the soot particulates in the exhaust.

With increasing rotational speed and load, the charge inlet ports are continuously open, so that the best possible eddy and required air mass is available for each engine operating point. This improves the exhaust characteristics and the engine output.

The position of the flaps in the charge inlet ports is determined in line with the performance map stored in the CDI control unit. The intake port shutoff motor is actuated by means of a PWM signal (pulse width modulated) for this purpose.
If a fault or an open circuit in the supply voltage occurs, the flaps are opened.

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Homologation N°

T2-2001

Groupe / Group **T2**

FICHE D'HOMOLOGATION ADDITIONNELLE POUR MOTEURS SURALIMENTES PAR TURBOCOMPRESSEUR(S)
ADDITIONAL HOMOLOGATION FORM FOR TURBOCHARGED ENGINES

Véhicule : Constructeur / **Vehicle :** Manufacturer **MERCEDEDES-BENZ**

Modèle et type / Model and type **G 270 CDI**

Homologation valable à partir du / Homologation valid as from **01 JAN. 2005**

334. Suralimentation / Turbocharging

a) Marque et type du turbocompresseur / Make and type of the turbocharger **HONEYWELL TURBO TECHNOLOGY (GARRET) GT 22V**

b) Carter de turbine : / Turbine housing :

b1) Nombre d'entrées des gaz d'échappement / Number of exhaust gas entries **1**

b2) Matériau / Material **CAST IRON D5S**

c) Roue de turbine : / Turbine wheel :

c1) Matériau / Material **STEEL (INCO 713)**

c2) Nombre d'aubes / Number of blades **9**

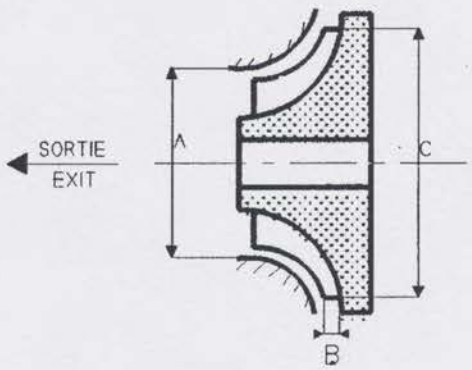
c3) Hauteur(s) des aubes / Height(s) of blades **26,6** +/- 0.5 mm

c4) Cotes A, B, C, selon le schéma suivant / Dimensions A, B, C, according to the following sketch

A = **43,44** +/- 0.4 mm

B = **9,67** +/- 0.5 mm

C = **49,28** +/- 0.3 mm



c5) Aubes variables / Variable blades

☒ oui / yes	☐ non / no

d) Carter de compression : / Impeller housing :

d1) Nombre d'entrées d'air (mélange) / Number of air entries (gas) **1**

d2) Matériau / Material **ALUMINIUM ALLOY (CMD 4285)**

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e) Roue de compression :
Impeller wheel :

e1) Matériau
Material **ALUMINIUM ALLOY (CMD 4211)**

e2) Nombre d'aubes
Number of blades **6 BIG ONES+6 SMALL ONES**

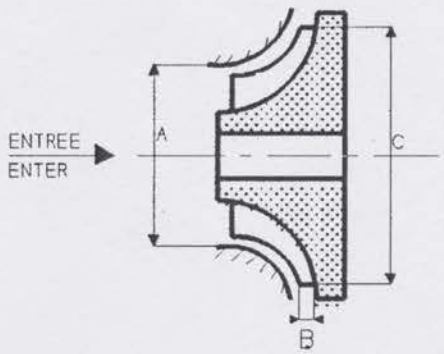
e3) Hauteur(s) des aubes
Height(s) of blades **19,74** +/- 0.5 mm

e4) Cotes A, B, C, selon le schéma suivant
Dimensions A, B, C, according to the following sketch

A = **42,23** +/- 0.4 mm

B = **3,42** +/- 0.5 mm

C = **56,00** +/- 0.4 mm



e5) Aubes variables
Variable blades

☐ oui yes	☒ non no

f) Régulation de la pression
Pressure regulation

f1) Type de régulation de la pression
Type of pressure adjustment

☐ by-pass / by pass ☐ soupape de décharge / relief valve ☒ autre cas / other case

f2) Type de la soupape
Type of the valve **NO VALVE, VARIABLE VANES USED AT TURBINE HOUSING**

g) Système d'échappement
Exhaust system

g1) Dimensions intérieures de(s) éventuel(s) tuyau(x) d'échappement entre collecteur d'échappement et turbocompresseur / Internal dimensions of the possible exhaust pipe(s) between exhaust manifold and turbocharger
SEE PAGE 24 IN COMPLEMENTARY INFORMATION

h) Refroidissement de l'air d'admission
Cooling of intake air

h1)

☒ oui yes	☐ non no

h2) Système
System

☐ air/air / air/air ☒ air/eau / air/water ☒ simple-passe / single-flow ☐ double-passe / double-flow

h3) Diamètre de l'entrée d'air
Air inlet diameter **50** +/-1mm

h4) Diamètre de la sortie d'air
Air outlet diameter **50** +/-1mm

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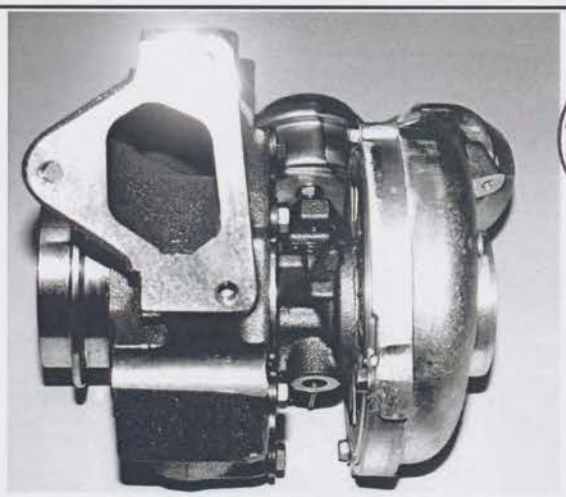
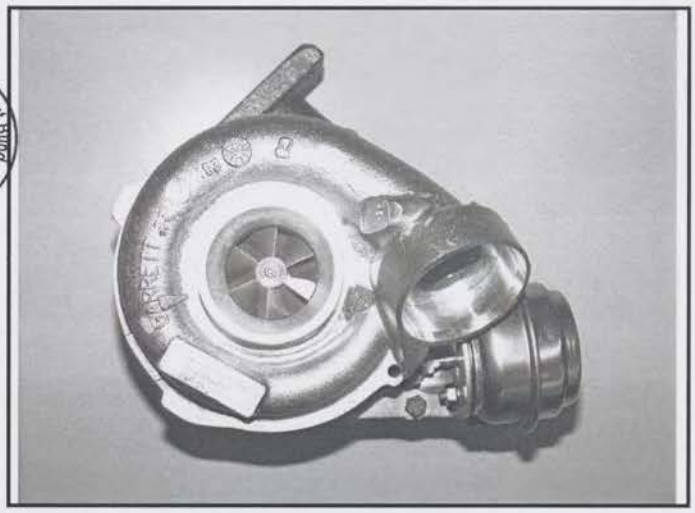
PHOTOS

K) Vue de dessus du turbocompresseur
Plan view of turbocharger

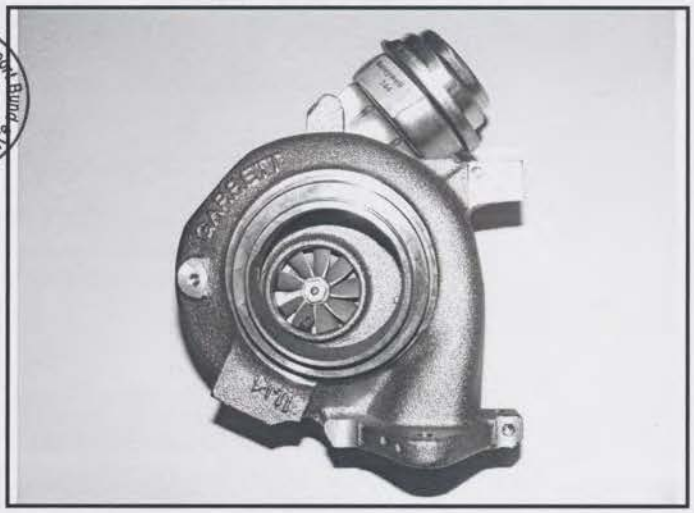


L) Vue de face du turbocompresseur
Front view of turbocharger



M) Vue de côté du turbocompresseur
Side view of turbocharger

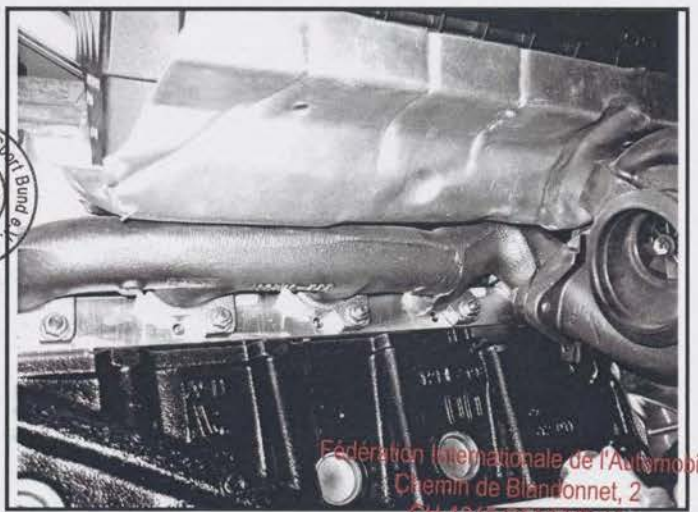
N) Carter de turbine du turbocompresseur
Turbine housing of turbocharger



O) Soupape et montage du by-pass du turbocompresseur
Valve and by-pass installation of turbocharger

VARIABLE VANES USED.

P) Système d'échappement entre collecteur et turbocompresseur
Exhaust system between manifold and turbocompressor



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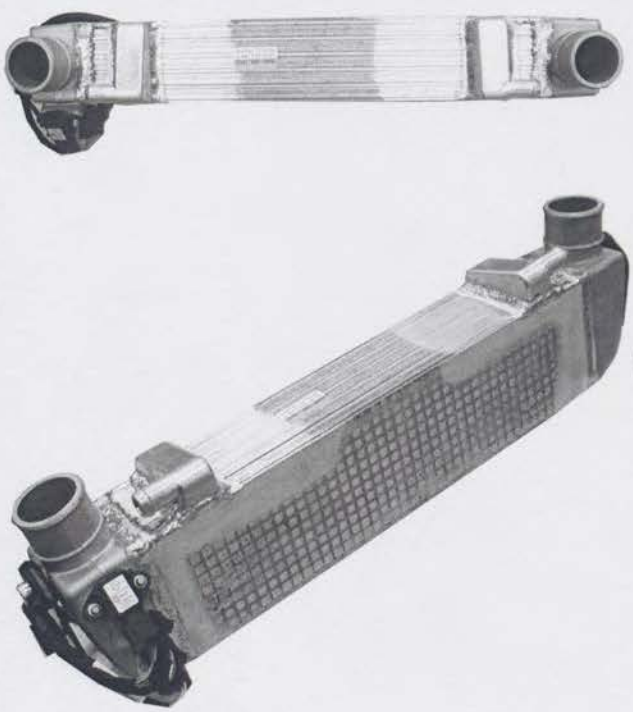
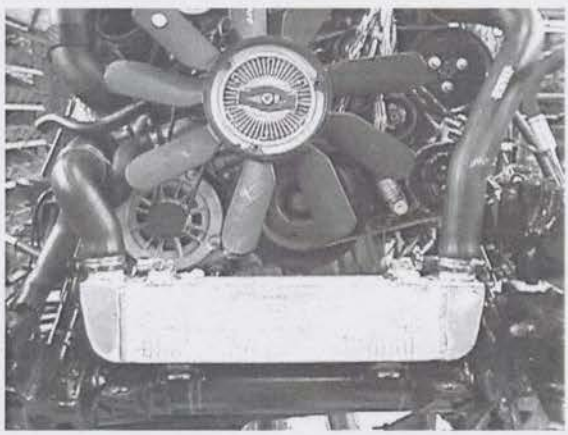
Q) Carter de compression du turbocompresseur
Compressor housing of turbocharger

R) Echangeur intermédiaire déposé
Intercooler dismounted



SEPARATE COOLER FOR WATER:

Z) Echangeur intermédiaire monté
Intercooler mounted



Marque
Make **MERCEDES-BENZ**

Modèle
Model **G 270 CDI**

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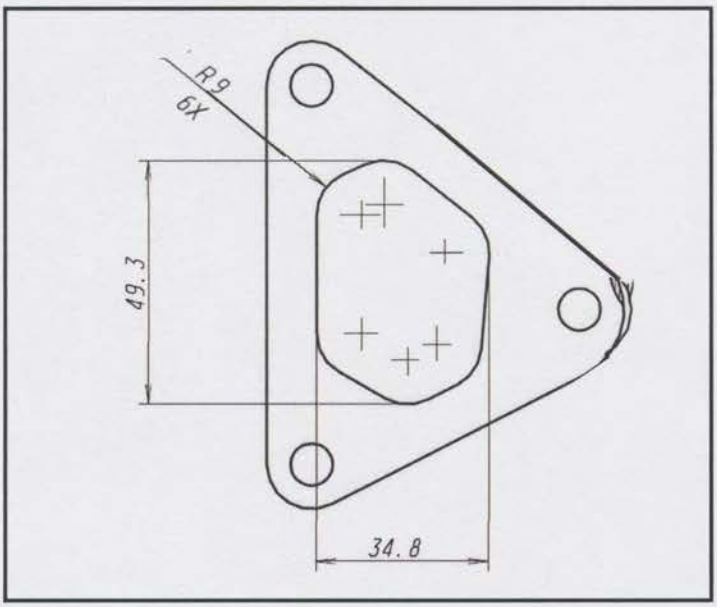
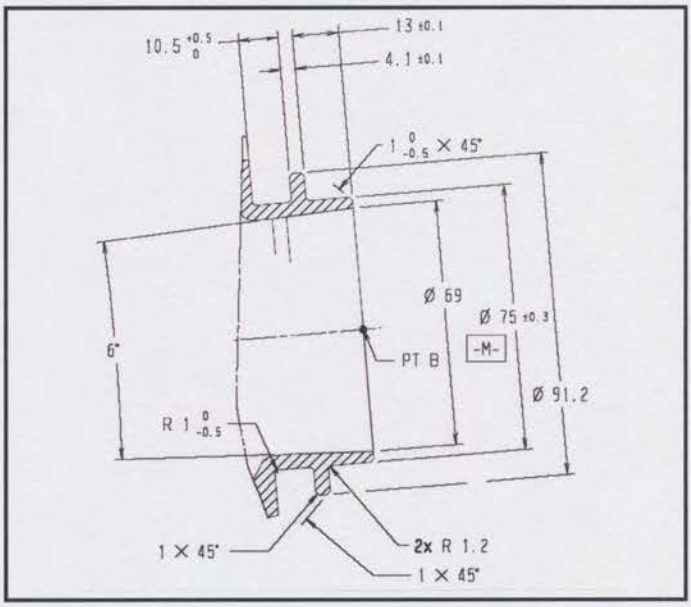
DESSINS / DRAWINGS

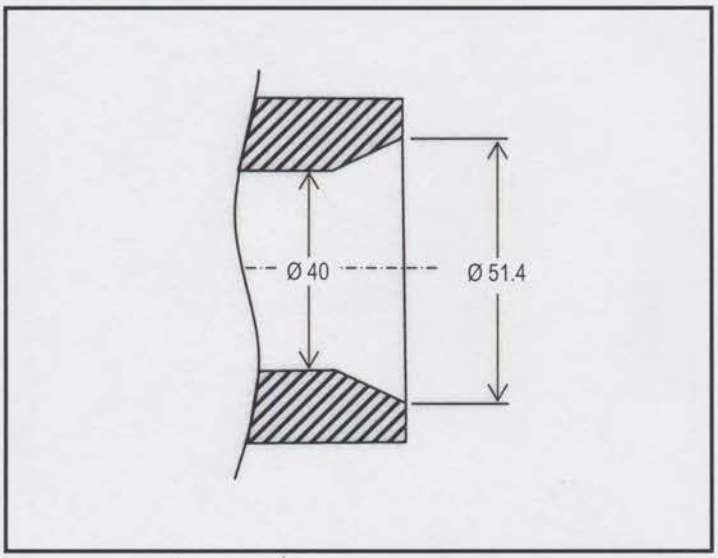
V) Entrée des gaz d'échappement dans turbine de compresseur
Exhaust gas inlet to the compressor turbine



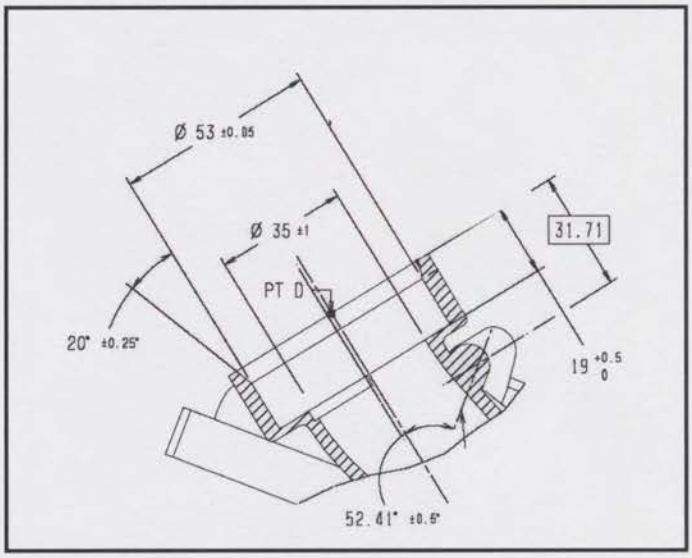
VI) Sortie des gaz d'échappement de turbine de compresseur
Exhaust gas outlet from the compressor turbine



VII) Entrée d'air (mélange) dans carter de compresseur
Air (gas) inlet to the compressor housing



VIII) Sortie d'air (mélange) du carter de compresseur
Air (gas) outlet from the compressor housing



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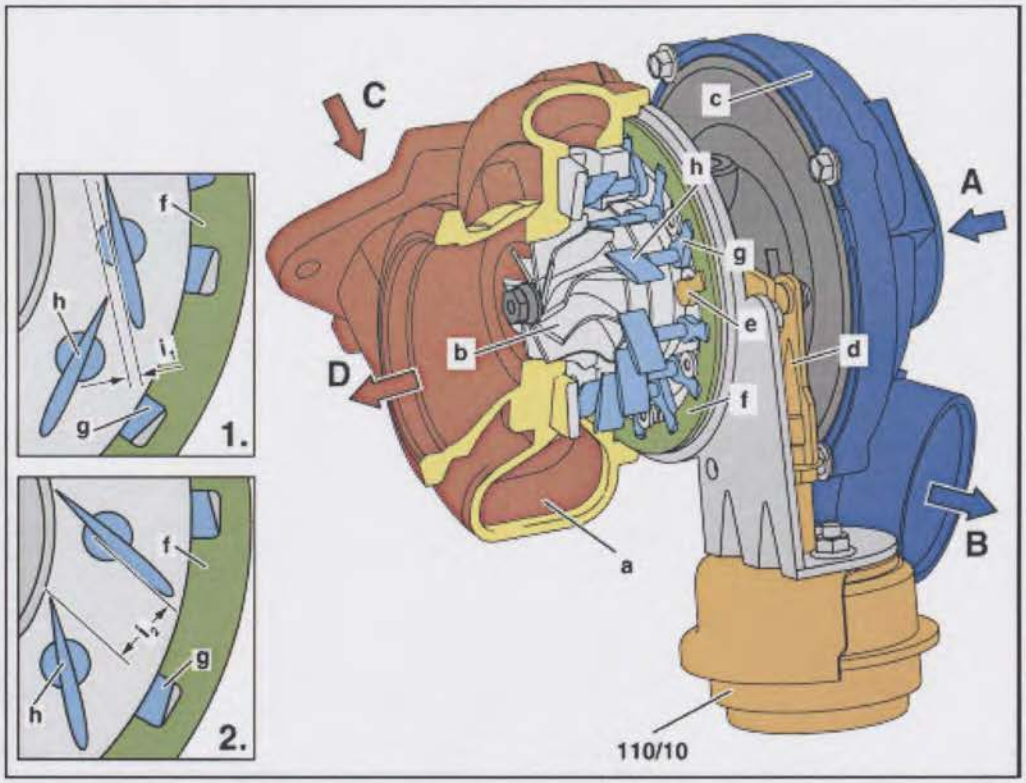
IX) Dispositif réglant la pression de suralimentation
Device regulating the turbocharger pressure



A Compressor inlet (fresh air)
B Compressor outlet (precompressed air)
C Exhaust gases to turbine wheel
D Exhaust outlet
a Turbine housing
b Turbine wheel
c Compressor housing
d Control linkage
e Guide stud of control linkage
f Adjusting ring
g Guide stud of vane
h Guide vane
i1 Flow cross section when guide vanes "closed"
i2 Flow cross section when guide vanes "opened"
1 Guide vanes "closed"
2 Guide vanes "opened"

110/10 Charge air control vacuum unit

Function
The turbochargers fitted up until now with a fixed turbine geometry and boost pressure control valve, in which part of the exhaust gas quantity was diverted past the turbine at certain operating points, have now been replaced by turbochargers with a variable turbine geometry. This makes it possible to utilize the entire exhaust energy, to increase the efficiency of the turbocharger and also that of the engine.

The advantages of the turbocharger with variable turbine geometry are:

- higher boost pressure already in the low and in the upper rpm range
- increased torque as a result of better cylinder charge
- reduction in exhaust emissions as a result of an improvement in the air supply of the engine
- increased power output as a result of the higher boost pressure combined with a reduced exhaust backpressure and improved charge cycle

The exhaust gases of the engine are directed through the exhaust manifold into the turbine housing (a) onto the turbine wheel. The flow energy of the exhaust gases (C) cause the turbine wheel (b) to rotate.
Consequently, the compressor wheel, which is connected through the turbine shaft with the turbine wheel, is driven at the same speed. The fresh air (A) inducted by the compressor wheel is compressed (B) and flows to the engine.

The boost pressure is controlled by altering the position of the guide vanes (h). The guide stud (e) of the control linkage (d) of boost pressure control vacuum unit (110/10) turns the adusting ring (f) in the turbine housing (a).
As a result, all the guide vanes (h) whose guide studs (g) likewise mesh into the adjusting ring, are also turned.

1. At low engine speeds, the flow cross section is reduced (i1). As a result, the air flow velocity of the exhaust gas impacting turbine wheel is increased, as a result of which the speed of the turbocharger and thus the charge pressure rise.
2. At high engine speeds the guide vanes (h) are increasingly opened and the flow cross-section is thus enlarged (i2), as a result of which the speed of the turbocharger and thus the charge pressure are reduced.

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Modèle
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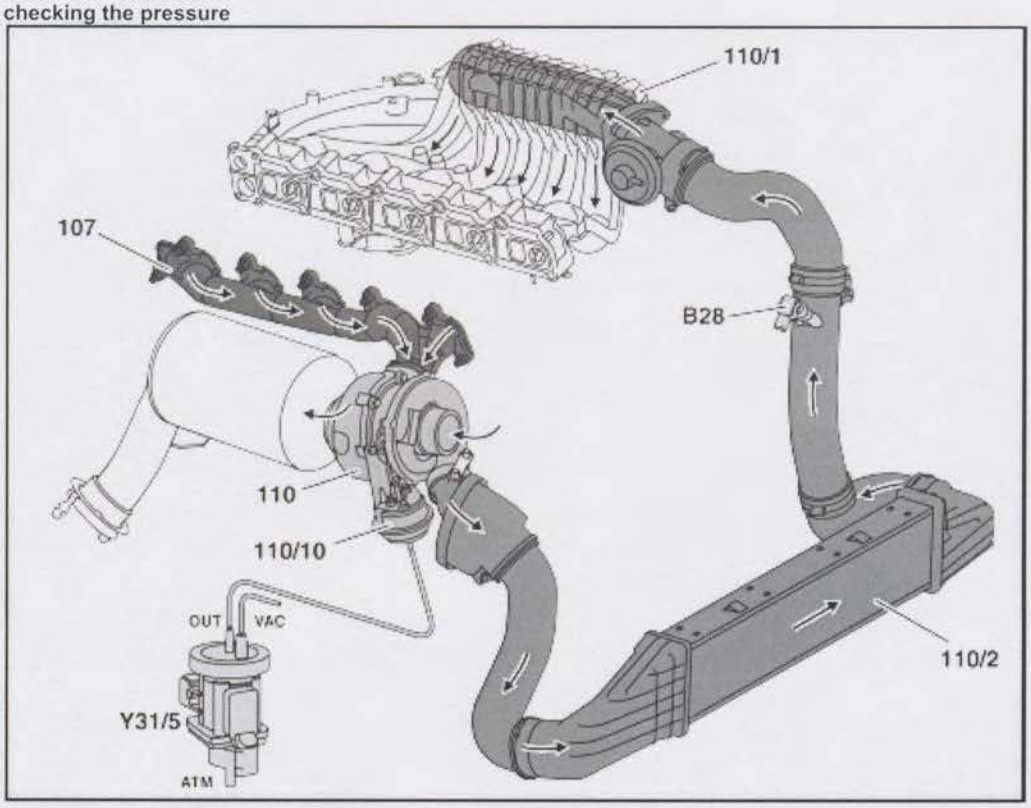
T2-2001

Pression standard
Standard pressure 1.5 bar

Procédure de contrôle de la pression
Procedure for checking the pressure



107 Exhaust manifold *110 Turbocharger* *110/1 Charge air distribution pipe* *110/2 Charge air cooler* *110/10 Charge pressure control vacuum unit*	*B28 Pressure sensor* *Y31/5 Charge pressure control vacuum transducer* *ATM Aeration to the major assemblies compartment* *OUT Outlet from pressure transducer* *VAC Vacuum from vacuum pump*

Function

The boost pressure is controlled by the CDI control unit (N3/9) in line with the boost pressure map and the pressure sensor (B28).
The boost pressure control pressure transducer (Y31/5) is actuated by the CDI control unit (N3/9) with a variable current and supplies a controlled vacuum to the boost pressure control vacuum unit (110/10).

The position of the guide vanes in the turbocharger (110) is determined by the control linkage of the boost pressure control vacuum unit (110/10).
As a result of the variable turbine geometry of the turbocharger, the boost pressure required for each engine operating point is thus produced.

(PLEASE NOTE: SCHEMATIC DRAWING SHOWING INTERCOOLING FUNCTION; G 270 CDI HAS DIFFERENT IN- AND OUTLETS OF INTERCOOLER.)

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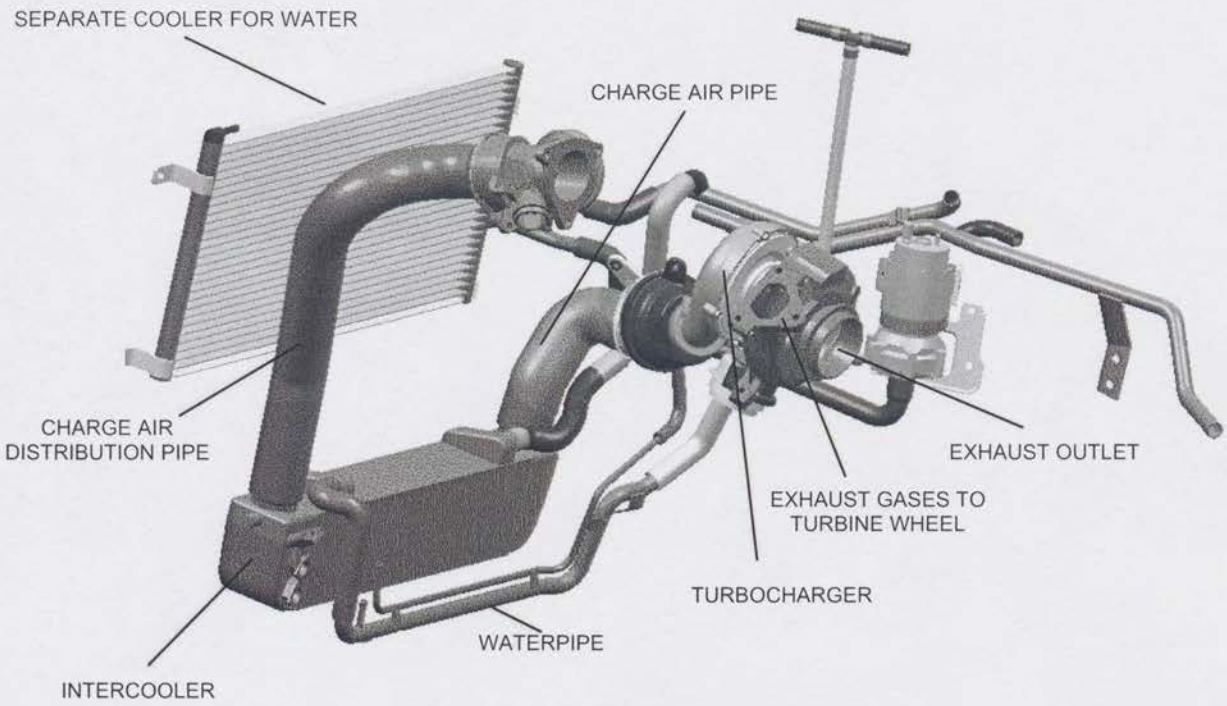
XV) Système de refroidissement de l'intercooler
Intercooler cooling system



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Homologation N°

T2-2001

Groupe / Group **T2**

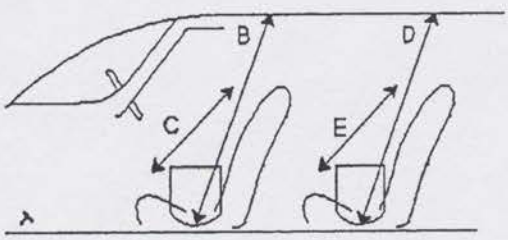
Extension N°

CERTIFICAT DE DIMENSIONS INTERIEURES
CERTIFICATE FOR INTERIOR DIMENSIONS

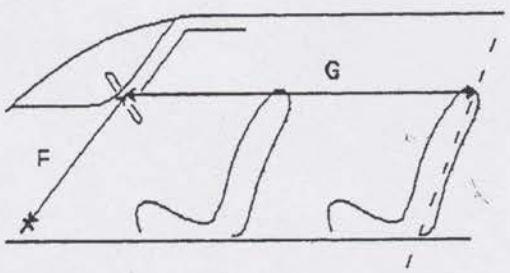
Véhicule : Constructeur
Vehicle : Manufacturer **DAIMLERCHRYSLER AG**

Modèle et type
Model and type **MERCEDES-BENZ G 270 CDI**

Dimensions intérieures comme définies par le Règlement d'Homologation
Interior dimensions as defined by the Homologation Regulations



B	(Hauteur sur sièges avant) (Height above front seats)	**1072**	mm
C	(Largeur aux sièges avant) (Width at front seats)	**1432**	mm
D	(Hauteur sur sièges arrière) (Height above rear seats	**1015**	mm
E	(Largeur aux sièges arrière) (Width at rear seats)	**1432**	mm



F	(Volant - Pédale de frein) (Steering wheel - Brake pedal)	**670-730**	mm
G	(Volant - Paroi de séparation arrière) (Steering wheel - Rear bulkhead)	**1565-1600**	mm
H	**= F + G =**	**2270-2295**	**mm**

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