AUTOMOBILES

CITROËN

CUSTOMER SERVICE

AFTER-SALES TECHNICAL DEPARTMENT

TECHNICAL BULLETIN

N° 42 G

30th October 1972

GS VEHICLES

(GX series GB)

(GX series GC)

(GX series GD)

NEW VEHICLES

1973 MODELS

1220 cc ENGINE

Characteristics

These new vehicles have been available since the 29th August 1972.

They are fitted with :

- a 1220 cc engine,
- a gearbox of :
  either 3 gears with torque converter,
  or 4 gears.

P.T.O.

Printed in France by Citroën

These vehicles are available in the following versions :

GS 1220

Models - ESTATE - SERVICE VAN " Metal side panels "

They differ from the " 1972 Comfort " version as follows :

- The upper front door trim panels with "Club 72" type arm rests instead of door strap handles.
- The upper rear door trim panels with " Club 72 " type arm rests and ashtrays instead of door strap handles.
- Foam rubber padding on dashboard (new ashtray and loudspeaker grille)
- Instrument panel with a new covering plate (in the place of the tachometer and clock which were fitted on the " Club 72 " version).
- Grey rubber carpet
- New console
- New cover finish for gear change lever.
- " 1220 " symbol - on tailgate
  - on front R.H wing.

Model - SALOON

It differs from the previous models by the presence of :

- a clock,
- a trip mileage recorder,
- a second door pillar switch,
- an interior day-night rear-view mirror,
- a mirror on the passenger's sun visor,
- a windscreen embellisher strip,
- " Club 72 " type seats and bench seats.

GS 1220 CLUB

Models - SALOON - ESTATE - SERVICE VAN " Glass side panels "

They differ from the " Club 72 " version as follows :

- Foam rubber padding on dashboard (new ashtray and loudspeaker grille)
- Factory fitted air fan
- New console
- New cover finish for gear change lever.
- " 1220 Club " symbol - on tailgate
  - on front R.H wing
  - on dashboard

GENERAL CHARACTERISTICS

I. SALOONS

Official symbol	GX series GB			
Commercial symbol	GS 1220 or GS 1220 Club			
Factory symbol	GX			
French fiscal rating	7 CV			
Number of seats	5			
Dimensions :				
Front track	1.378 m	4' 6 1/4"		
Rear track	1.328 m	4' 4 5/16"		
Wheelbase	2.550 m	8' 4 3/8"		
Overall	4.120 m	13' 6 3/16"		
Overall	1.608 m	5' 3 5/16"		
Height of vehicle	1.349 m	4' 5 1/8"		
Ground clearance	0.154 m	6 1/16" (engine running)		
Weight	4-Speed gearbox vehicle		3-Speed gearbox vehicle	
Unladen weight, running order	900 kg	1984 lbs	912 kg	2011 lbs
Weight on front axle	560 kg	1235 lbs	572 kg	1261 lbs
Weight on rear axle	340 kg	750 lbs	340 kg	750 lbs
Pay-load	415 kg	915 lbs	403 kg	889 lbs
Total authorized laden weight	1315 kg	2899 lbs		
Maximum weight on front axle	710 kg	1565 lbs		
Maximum weight on rear axle	670 kg	1477 lbs		
Maximum gross train weight including 800 kg (1764 lbs) trailer	2115 kg	4668 lbs		
Maximum slope for starting with 800 kg (1764 lbs) trailer	14 % incline			
Wheels and tyres				
Wheels, front and rear	4 1/2 J 15 (ALCP BM 3.39)			
Tyres, front and rear	145 - 15 ZX			
Authorized alternatives	145 - 15 XH 145 HR - 15 XAS 145 - 15 XM + S			
Inflation pressures	Front : 1.8 bar 26 p.s.i - Rear : 1.9 bar 28 p.s.i - Spare : 2 bars 29 p.s.i			

II. ESTATES

	Estate and Commercial Estate		Service Van			
Official symbol	GX series GC		GX series GD			
Commercial symbol	GS 1220 or GS 1220 Club		Estate with metal side-panels = GS 1220 Estate with glass side panels = GS 1220 Club			
Factory symbol	GX		GX			
French fiscal rating	7 CV		7 CV			
Number of seats including that of driver's	5		2			
Dimensions : See "Saloon"						
Weights :			METAL PANELS		GLASS PANELS	
	with 4 - speeds gearbox	with 3 - speeds gearbox	with 4 - speeds gearbox	with 3 - speeds gearbox	with 4 - speeds gearbox	with 3 - speeds gearbox
Unladen weight, running order	905 kg (1995 lbs)	917 kg (2019 lbs)	880 kg (1940 lbs)	892 kg (1964 lbs)	900 kg (1984 lbs)	912 kg (2010 lbs)
Load	415 kg (915 lbs)	403 kg (888 lbs)	440 kg (970 lbs)	428 kg (944 lbs)	420 kg (926 lbs)	408 kg (900 lbs)
Total authorized laden weight	1320 kg (2910 lbs)		1320 kg (2910 lbs)			
Maximum gross train weight including 800 kg (1764 lbs) trailer	2120 kg (4674 lbs)		2120 kg (4674 lbs)			
Maximum slope for starting with 800 kg (1764 lbs) trailer	14 % incline		14 % incline			
Wheels and tyres : As "Saloon"						
Inflation pressures	Front : 1.8 bar (26 p.s.i) Rear : 1.9 bar (28 p.s.i)		Front : 1.8 bar (26 p.s.i) Rear : 2.1 bars (30 p.s.i)			

CHARACTERISTICS OF THE CONSTITUENT PARTS

I. ENGINE.

1. Characteristics :

Type of engine	G 103
Number of cylinders	4, flat opposed
Bore	77 mm
Stroke	65.6 mm
Cubic capacity	1222 cc
Compression ratio	8.2 / 1
Fuel	Premium
Effective HP	D.I.N. B.H.P. 60 at 5750 r.p.m
Maximum torque	8.9 m.kg (64 ft.lbs) D.I.N at 3,250 r.p.m
Maximum engine speed	6,250 r.p.m

Engine sump capacity :

- After draining	3.5 l (6.25 Imp. pints)
- After draining with filter change	3.7 l (6.5 Imp. pints)
- After dismantling	4.2 l (7.4 Imp. pints)
- Between dipstick Min. and Max.	0.5 l (0.8 Imp. pints)
- Lubricant recommended	TOTAL GTS 20 W 50 or TOTAL ALTIGRADE speciale autoroute 20 W 40

Timing :

- Valve-timing at theoretical clearance of 1 mm (0.039 in)	BTDC	4° 10'
	ABDC	31° 50'
	BBDC	36° 10'
	ATDC	0° 10'
- Valve rocker arm clearances, engine cold (rocker arm heel to cam back)	inlet	0.20 mm
	exhaust	0.20 mm

Ignition :

- Static setting	10°
- Strobe setting	33° at 2,500 r.p.m (with advance capsule disconnected)
- Dwell angle	57° ± 2°
- Dwell ratio	63 ± 3 %
- Sparking plugs (**LONG BASE**)	SEV-MARCHAL 34 HS
- Electrode	0.6 to 0.8 mm (0.024" - 0.032")

Lubrication :

- Oil pressure 80°C ± 5°	at 2000 r.p.m 4.7 bars min. (34 psi)
	at 6000 r.p.m 6.20 to 7 bars (45 - 51 psi)

The oil is cooled by passing through a cooler with 16 elements. Filtering is carried out by an outer filter cartridge which must be replaced at the 600 mile service, then every 6,000 miles.

NOTE : The 16 elements oil cooler allows a quick identification of the 1220 cc engine

- Filter cartridge PURFLUX	n° GX. 0131401 A
GUIOT	n° GX. 0131402 A

2. Engine characteristics (compared to 1972 1015cc versions) .

The crankcase only differs from that of modified 1015 cc engine, (see Technical Bulletin N° 40 G) by the omission of the oil feed outlet for heating the inlet casing.

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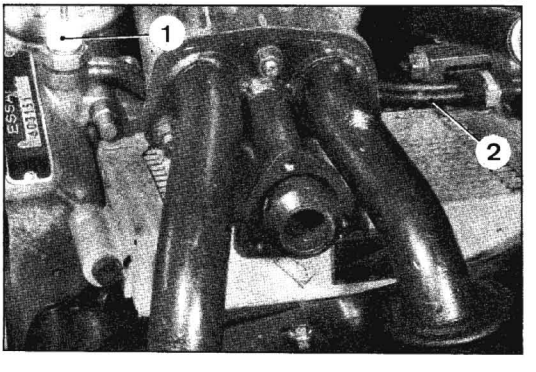

The oil feed outlet for the cylinder head lubricating pipes (2) is located below the pressure switch (1).

Cylinder head studs.

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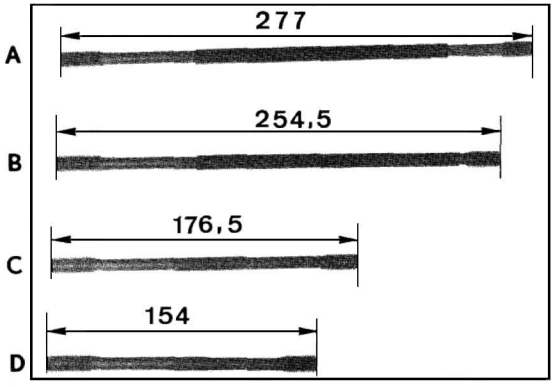

Position of the studs on the housing (the shortest threaded part should be fitted on the crankcase side)

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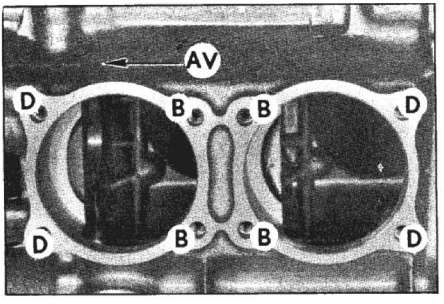

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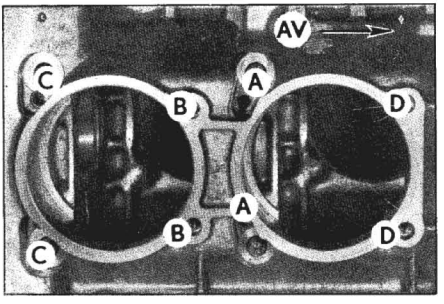

Cylinder head securing nuts ..... 9 × 125 (13 mm A/F)
Tightening torque ..... 1st tightening : 10 - 12 mΛN (1 - 1.2 m.kg or 7-9 ft.lbs)
2nd tightening : 20-22 mΛN (2-2.2 m.kg or 14 - 16 ft.lbs)

Valve gear.

The timing belts longer :
- right hand belt..... 93 teeth instead of the 91 on the 1015cc engine
- left hand belt ..... 105 teeth instead of the 103 on the 1015 cc engine

Cylinders

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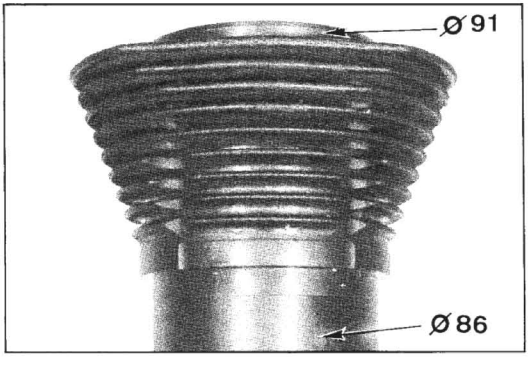

The cylinders differ from those on the 1015cc engines (see Technical Bulletin N° 40 G) as follows :

- the first 5 fins (instead of 3) which have been drilled for the stud passage,
- the height of the cylinder,
- the bore

ϕ = 77 mm instead of 74 mm.

NOTE : *The 86 mm and 91 mm (3.44 " and 3.64") diameters are unchanged.*

Pistons.

11199

- The pistons are marked with the number 8.2 (compression ratio) on the piston crown.

- The gudgeon pins have a diameter of 22 mm instead of the 20 mm on the 1015 cc engines. Therfore the 1220 cc engine crankshaft can be quickly identified.

- The compression ring and the scraper ring are, apart from the diameters, similar to those on the 1015 cc engines.

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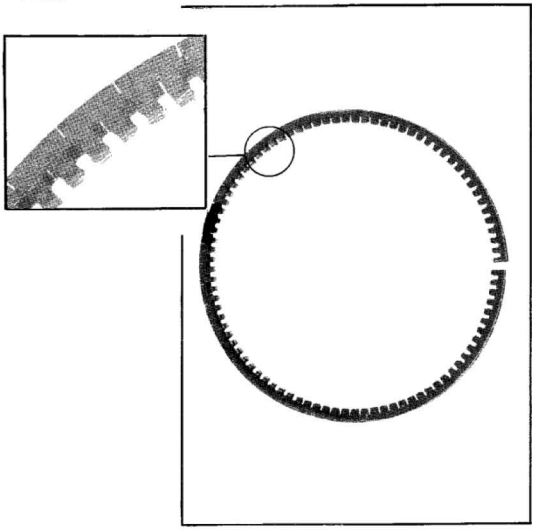

- The oil control ring is a U-flex type.

Cylinder heads.

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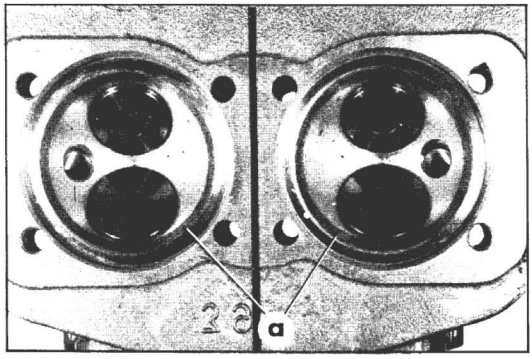

- The cylinder heads differ from those on the 1015 cc engine (see Technical Bulletin n° 40 G) by the machining of a chamfer at «a» round the combustion chambers.

3. Anti-pollution device.

The anti-pollution device with inlet casing heated by the exhaust gases, comprises :

a) A SOLEX 28 C.I.C. 3 mark 131[4] CARBURETTOR with strangler on the secondary choke.

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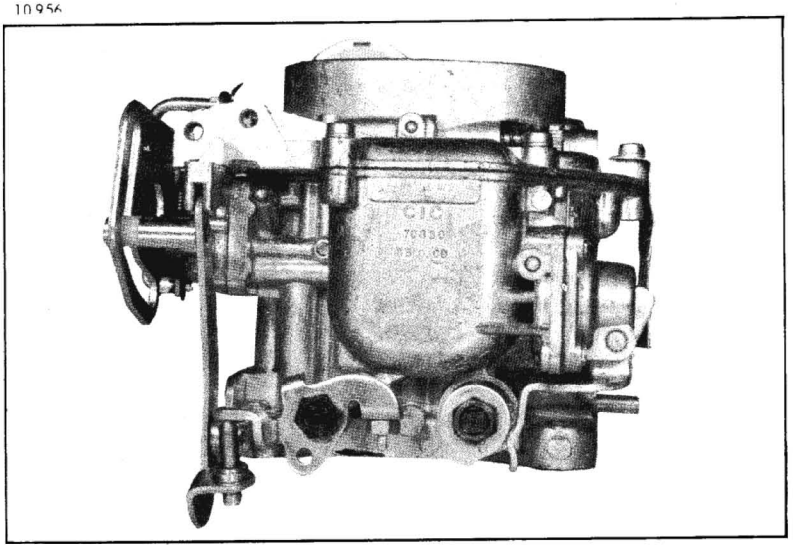
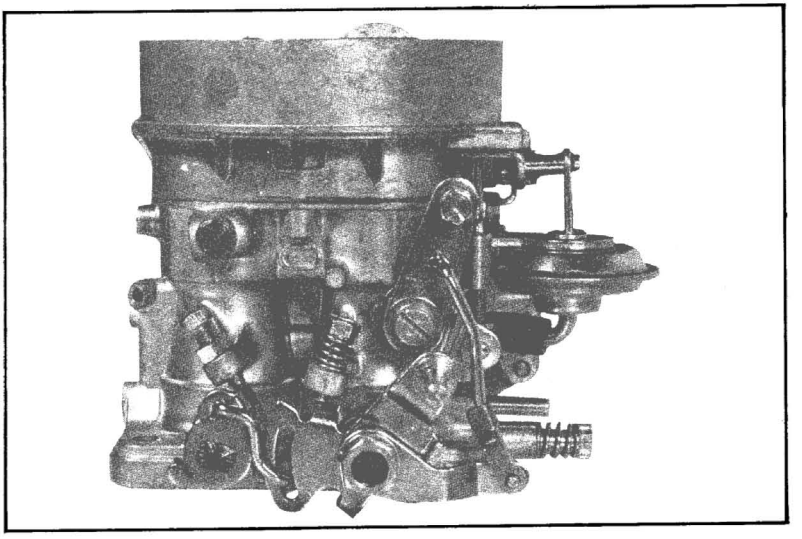


CHARACTERISTICS

ITEMS	PRIMARY CHOKE	SECONDARY CHOKE
Venturi bore	19	19
Main jets	100	80
Emulsion tube air jet	1 P 3	2 P 4
Idling jet	50	
Idling jet at constant mixture	35	
Accelerator pump injector	50	
"By-pass" jet		40
Econostat fuel jet		130
Throttle butterfly hole		200
Clearance between the edge of the 2nd barrel butterfly and the bore at the 2nd position of the choke		ϕ = 65
Float needle	1.7	
Float weight	11.5 g	
Height of the float taken between the cover face (gasket in position) and the float spindle	18 mm ± 1 mm (0.72 " ± 0.04 ")	
Idling adjustment		
On 4-forward-gear gearbox engine	900 $^{+50}_{0}$ r.p.m	
On 3-forward-gear gearbox engine (adjustments with gear engaged)	850 $^{50}_{0}$ r.p.m	

b) or a WEBER 30 DGS 1 mark W 5100 CARBURETTOR with transverse control for the throttle butterflies.

NOTE : The accelerator control cables and choke control cables are identical on SOLEX and WEBER carburettors. These cables are also fitted on the GS vehicles with 1015 cc engines.



CHARACTERISTICS

ITEMS	Primary choke	Secondary choke
Venturi bore	20	20
Main jets	100	107
Air jet	AD 1	AD 2
Emulsion tube	F 20	F 20
Idling jets	45	45
Acceleration pump injector	50	
Float needle	1,5	
Float weight	11 g	
Height of float, taken between the cover face and the float (position of face and free needle bearing)	6.5 ± 0.25 (0.26 ± 0.01 ")	
Idling adjustment		
On 4 - forward gear gearbox/engine	$900 \, ^{+50}_{0}$ r.p.m	
On 3 - forward gear gearbox/engine (adjustment with gear engaged)	$850 \, ^{+50}_{0}$ r.p.m	

c) an inlet casing, heated by the exhaust gases, which is different according to the type of carburettor.

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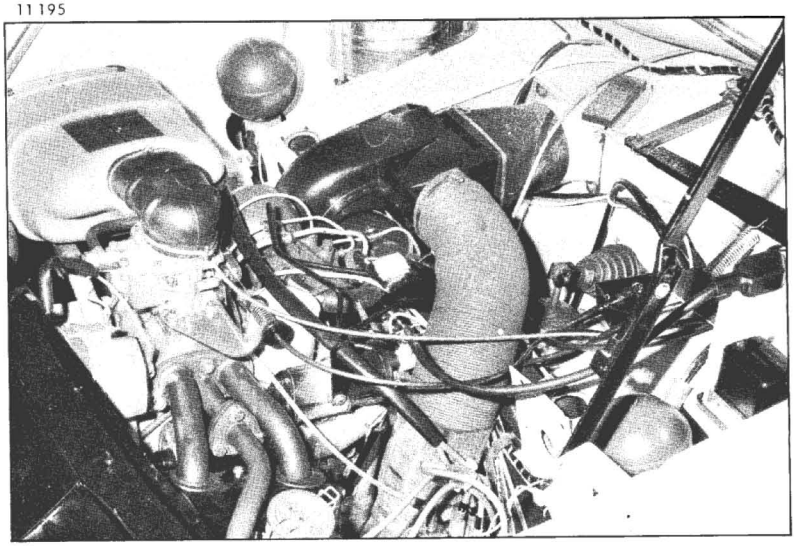
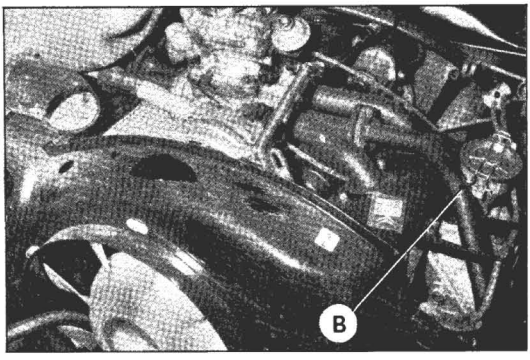
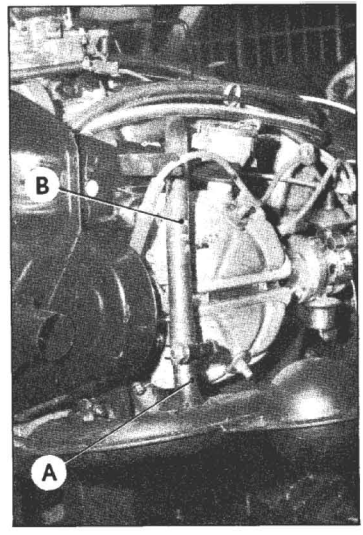


d) a pipe assembly comprising :

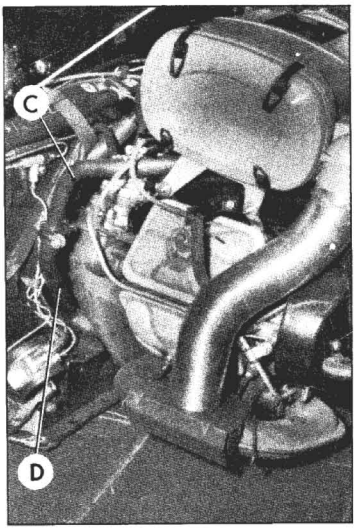
- a L.H. exhaust pipe with gas inlet heating pipe A (not visible on the diagram on page 11),
- a connecting pipe B between the exhaust and the L.H. inlet casing.





- a connecting pipe between the inlet casing and the exhaust pipe C, R.H side,

10 375



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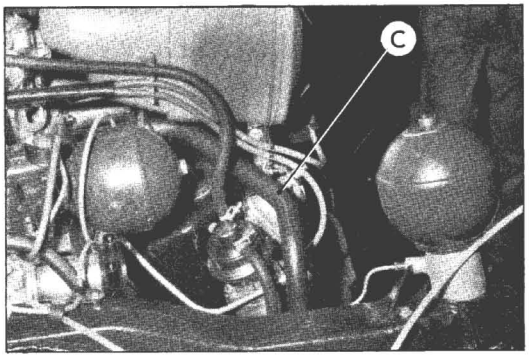


- a heating tube D, from the R.H. connecting tube between the heat exchanger and the connecting pipe in the shape of a Y.

The L.H connecting tube between the heat exchanger and the Y shaped connecting pipe, is new (following the modification of the Y shaped connecting pipe diameter).

The Y shaped connecting pipe is new (modifications of the coupling diameters).

G 18-1 c

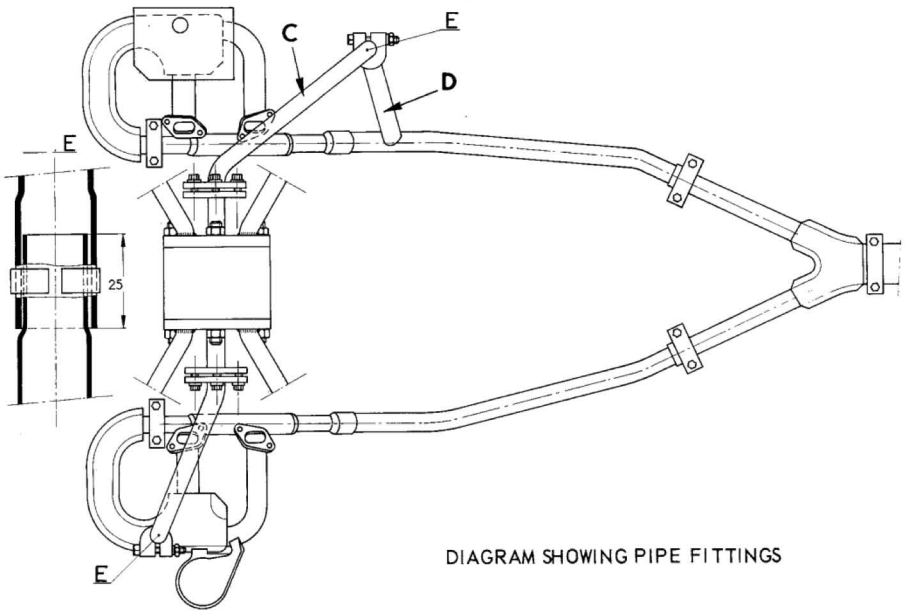


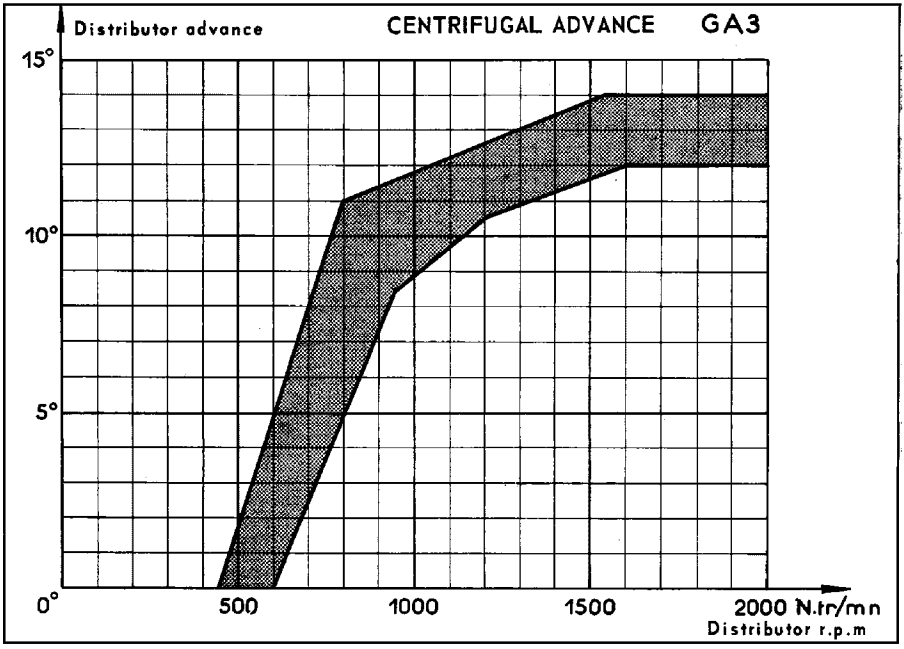
DIAGRAM SHOWING PIPE FITTINGS

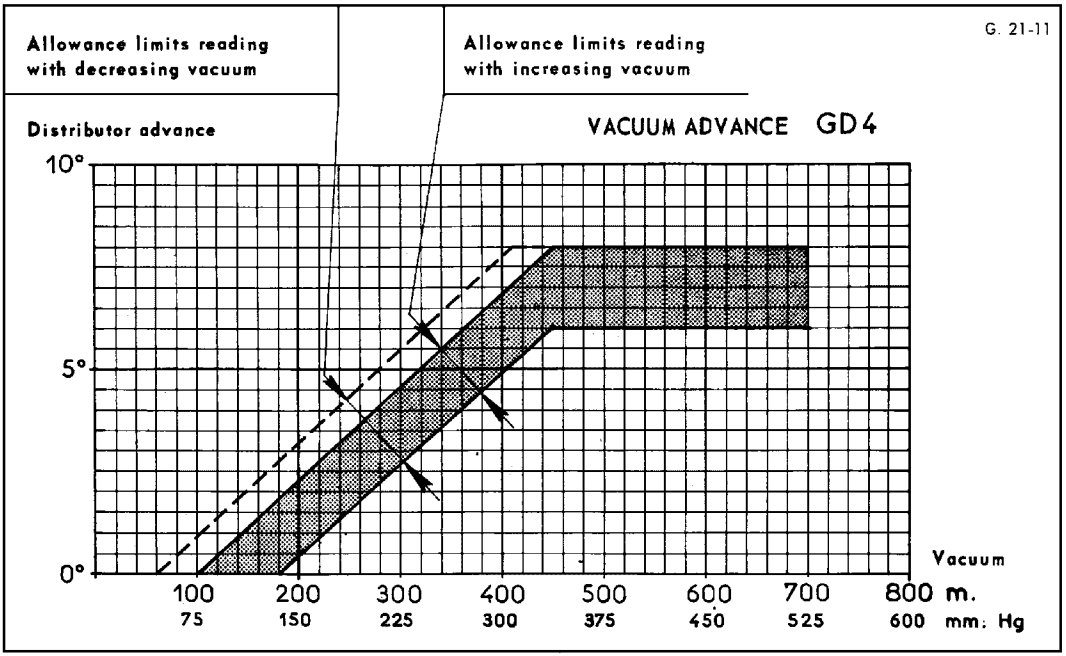
Detailed description of E : Before tightening the clamp, coat the pipes with heat-resisting mastic 1500 glue supplied by : Etablissements BARTHELEMY, 64, rue Defrance - 94300 VINCENNES - France Tel. 328-42-87.

e) a SEV-MARCHAL or DUCELLIER distributor with identical characteristics

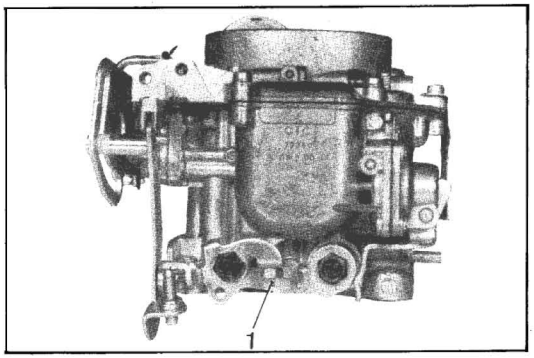
- with centrifugal advance : Curve GA 3
- with vacuum advance : Curve GD 4

NOTE : The first engines have been fitted with distributors with vacuum advance curve GD 2 (This curve appears in the Bulletins, N° XT 1 G and XT 2 G)





4. Setting the Solex 28 C.I.C.3 mark 1314 carburettor

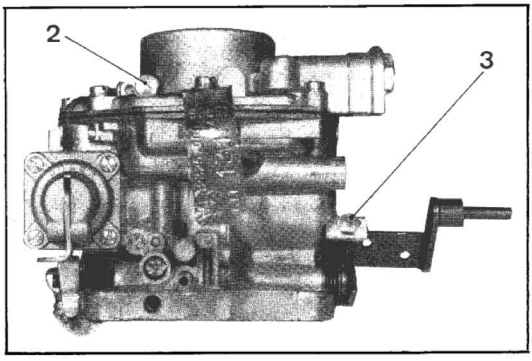


WARNING

The carburettor is set by the manufacturer. The position of the stop screws (1) and (3), for the butterflies of the primary and secondary chokes, is obtained by using a micrometer and *these must, under no circumtances, be altered* only the idling air screws (2) may be adjusted to obtain the correct idling speed.

If the engine is running badly, the following points must be checked before touching the carburettor :

- valve clearance,
- ignition, and in pacticular, the sparking plugs.
- distributor advance curves and strobe setting check,
- carburettor cleaning (blow the feed lines with compressed air).

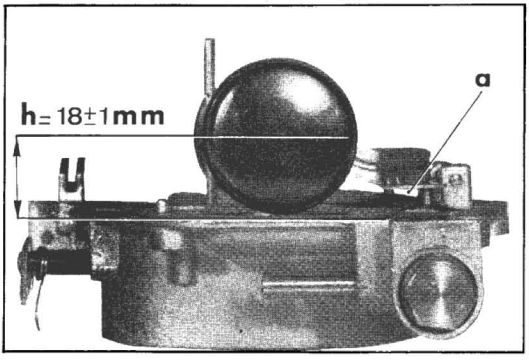


A. CHECKING AND ADJUSTING THE FLOAT-CHAMBER LEVEL.

1) Disconnect the fuel intake pipe.

2) Remove the carburettor cover.

3) **Check the float adjustment :**
The distance, measured between the float spindle and the cover face (gasket in position), must = 18 ± 1 mm (0.72 " ± 0.04 ") and be almost equal for each float.
If this is not the case, alter the position of the float by moving lug «a».



4) Fit the float chamber cover while ensuring that the float does not touch the walls.

5) Connect the fuel feed pipe.

NOTE : When the float level is adjusted to give a height «h» of 18 ± 1 mm (0.72 " ± 0.04 ") the fuel level (with the cover off) is such that the distance measured between the surface of the fuel and the joint face of the float chamber is 26 ± 1 mm (1.04" ± 0.04").

B. IDLING ADJUSTMENT AND CO AND CO^2 MIXTURE

1) Ensure that the throttle butterflies, for the primary and secondary chokes, close properly.
2) Slacken the bleed screw of the pressure regulator.
3) Warm up the engine to between *70° and 80°C (158° and 176° F)*

   Keep this temperature during all the adjustment operations (§§ 4 and 5).
4) Adjust screw (1) to obtain the correct idling speed.
   a) Vehicle with classic clutch
      900 to 950 r.p.m
   b) Vehicle with torque converter
      (gear engaged)
      850 to 900 r.p.m
5) Using screw (2), adjust the mixture to obtain :
   CO mixture 2 - 3.5 %
   CO^2 mixture 10 - 13 %

NOTE : These mixtures must be obtained with the engine speeds laid down in § 4 and at temperatures indicated in § 3.
These two operations must therefore be carried out out simultaneously.
The adjustment conditions for CO et CO^2 mixture are only obligatory in countries where the law demands that the adjustment be checked after any work on the car. This checking requires the use of gas analysers, which are being officially approved.

NOTE : The authorized CO and CO^2 mixtures are given for an outside air temperature of between 15° and 30° C (61° and 86° F).

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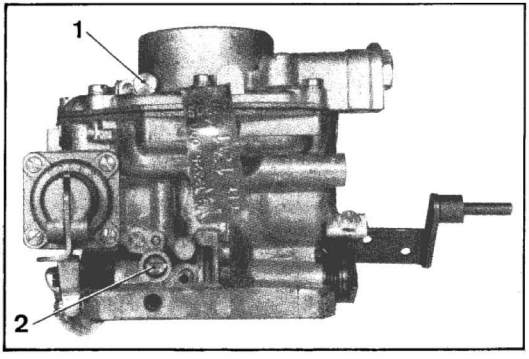

5. Adjustments on Weber 30 DGS 1 mark W 5100 carburettor.

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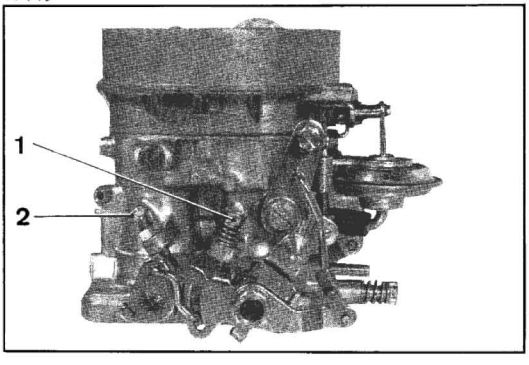

WARNING
The carburettor is set by the manufacturer, the position of the secondary choke butterfly stop screw (2) is obtained by using a micrometer *(and must not be altered under any circumstances.*

Only the primary choke butterfly stop screw (1) can be adjusted.

When the engine is running badly, the following checks must be made before any work is carried out on the carburettor.

- valve clearance,
- ignition and in particular, sparking plugs,
- distributor advance curves and strobe setting,
- cleaning the carburettor
  (blow the feed lines with compressed air).

A. CHECKING AND ADJUSTING THE FLOAT LEVEL.

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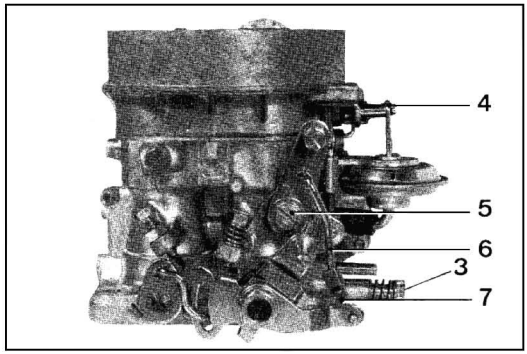

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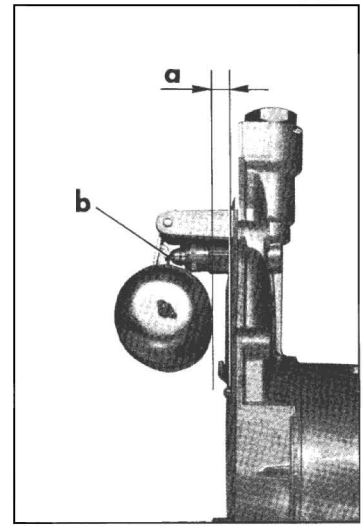


1°) Remove the carburettor cover. To do this :
- Remove the clip (7) and the anti-noise washer and disconnect the linkage rod (6) from the throttle butterfly control lever.
- Disconnect the choke control from the carburettor chokes by removing screw (5) and its spring.
- Disconnect the capsule control by removing circlip (4).
- Remove the five cover securing screws and remove the cover.

WARNING : One of the screws is found on the inside of the cover face air chamber.

2°) Position the cover as shown on the figure (the ball of the float needle not depressed)
- Measure distance « a » between the cover (gasket in position) and the float, this must be 6.5 ± 0.25 mm (0.26" ± 0.01") (use a chock or a rod of this thickness). If not, adjust lug « b » to obtain this distance.

3°) Fit the cover in the reverse order from the removal.

B. ADJUSTING THE IDLING SPEED AND THE CO AND CO2 MIXTURE.

1) Ensure that the primary and secondary choke throttle butterflies close properly.
2) Slacken the bleed screw of the pressure regulator.
3) Warm up the engine to between 70° and 80° C (158° and 176° F) oil temperature
Keep this temperature during all the adjustments (§§ 4 and 5).
4) Adjust screw (1) to obtain the appropriate idling speed.
1. Classic clutch vehicles ..... 900 - 950 R.p.m.
2. Torque converter vehicles ..... 850 - 900 R.p.m (gears engaged)
5) Using adjusting screw (3) adjust the mixture to obtain :
1. *CO mixture* ..... *2 - 3.5 %*
2. *CO2 mixture* ..... *10 - 13 %*

NOTE : These mixtures must be obtained at the correct idling speed and engine temperature as shown in §§ c and d. These operations must be carried out together.

The adjustment conditions for CO and CO2 mixture, are only obligatory in countries where the law demands. That the adjustment be checked after any work on the car. This checking requires the use of gas analysers which are being officially approved.

NOTE : The authorized CO and CO2 mixtures are given for an outside air temperature of between 15° and 30°C (67° and 86° F).

II. CLUTCH

a) **4 - speed gearbox**

New clutch mechanism. Increase of the calibration of the springs.
Reference 180 DBR 285

b) **3 - speed gearbox**

In relation to the 1972, 1015 cc engine, the torque converter has been modified (violet identification mark)
New diaphragm.

III. GEARBOX

Transmission ratios

4 - SPEED GEARBOX

Gear	Gearbox ratios	Crownwheel and pinion	Overall ratios	Speed per 1000 engine r.p.m	
1	$\frac{11}{42}$ = 0.2619 (3.818 : 1)		0.0634 (15.77 : 1)	7.1134	4.43
2	$\frac{16}{37}$ = 0.4324 (2.313 : 1)		0.1048 (9.54 : 1)	11.7580	7.33
3	$\frac{21}{32}$ = 0.6562 (1.524 : 1)	$\frac{8}{33}$ = 0.2424 (4.121 : 1)	0.1590 (6.29 : 1)	17.8398	11.11
4	$\frac{25}{28}$ = 0.8928 (1.120 : 1)		0.2164 (4.62 : 1)	24.2800	15.12
Reverse	$\frac{16}{46}$ = 0.2391 (4.181 : 1)		0.0579 (14.16 : 1)	6.4627	4.00

Theoretical speeds per 1000 r.p.m are given for a vehicle fitted with 145 - 15 ZX tyres for which the rolling circumference is 1.870 m (73.62").
Speedometer ratio 6 × 13

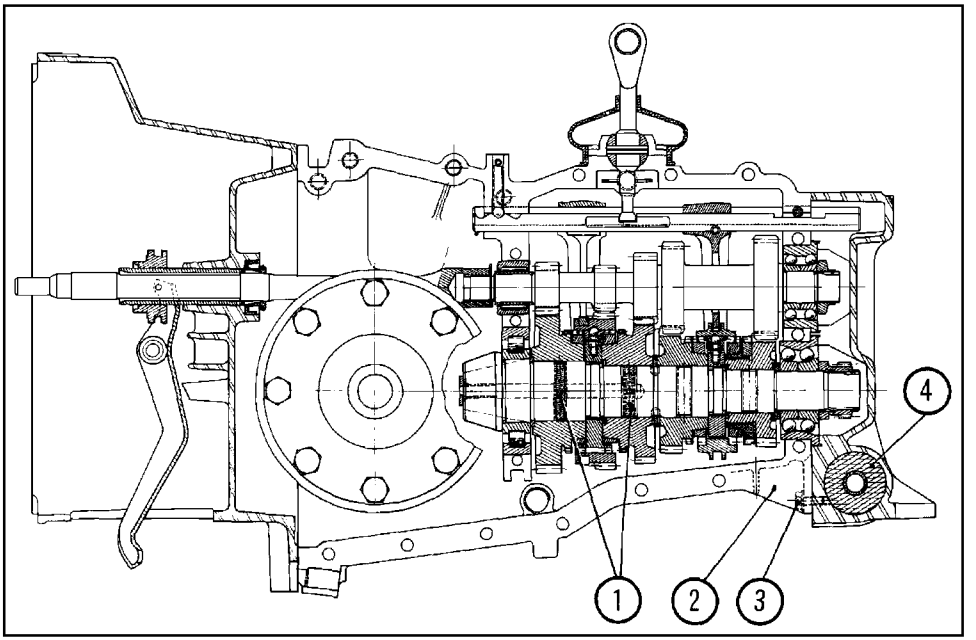
3 - SPEED GEARBOX

Gear	Gear ratios	Crownwheel and pinion	Overall ratios	Speed per 1000 engine r.p.m	
				km/h	M.p.h
1	$\frac{14}{39}$ = 0.3589 (2.781 : 1)		0.0870 (11.49 : 1)	9.7614	6.06
2	$\frac{20}{34}$ = 0.5882 (1.704 : 1)		0.1426 (7.01 : 1)	15.9997	9.94
3	$\frac{25}{28}$ = 0.8928 (1.12 : 1)	$\frac{8}{33}$ = 0.2424 (4.121 : 1)	0.2164 (4.62 : 1)	24.2800	15.10
Reverse	$\frac{14}{35}$ = 0.4000 (2.50 : 1)		0.0969 (10.32 : 1)	10.8721	6.75

Theoretical speeds per 1000 r.p.m are given for a vehicle fitted with 145 - 15 ZX tyres for which the rolling circumference is 1.870 m (73.62").

Speedometer ratio 6 × 13.

DESCRIPTION



The gearbox differs from that on " 1015 cc 1972 " vehicles, as follows :

1°) Housing :

a) The clutch housing has been strengthened by additional ribs.

b) The gearbox housing has also been strengthened by additional ribs.

- Extension towards the bottom of the flange securing the rear cover on the housing and addition of two holes.
  New location for fitting the brake calipers
- Different machining of the gearbox outlets

c) The oil tightness of the rear cover has been improved by adding two additional tappered holes intended for two supplementary securing screws (3)

- New silentbloc (4) on the rear cover.

2°) Gears :

4 - Speed gearbox :

- The primary shaft is monobloc.
- The 2nd speed driven pinion has been modified (37 teeth instead of 38) and the inner diameter smaller as a result of the omission of the needle bearing.

NOTE : The Replacement Parts Department sells an assembly comprising the monobloc primary shaft, the 4th speed - 3rd speed pinions and the modified 2nd speed pinion.

- The synchro rings have been modified.
- The bevel pinion shaft has been modified. It comprises, at the level of the 1st speed and 2nd speed driven pinions, a spring (1) and two retarding dowels.

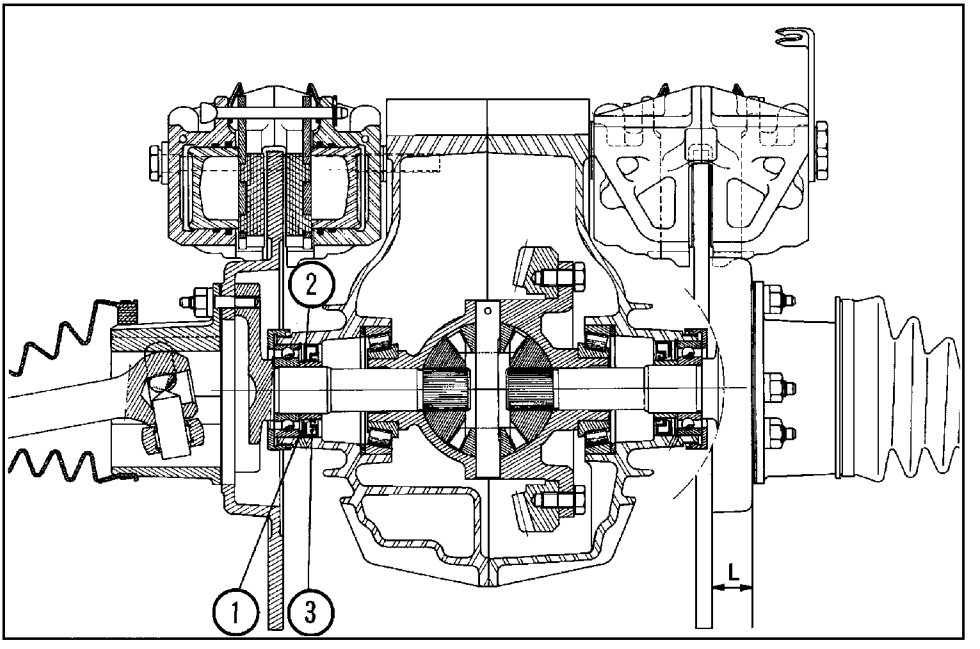
3 - Speed gearbox

- The primary shaft is monobloc
- The synchro rings have been modified.

3°) Ratio :

The ratio has been modified on the two types of gearbox (8/33 instead of 8/35).

The bevel pinion shaft on the 4 - speed gearbox only, bears holes to receive the spring (1) and the retarding dowels for the 1 st and 2nd driven pionons.



4°) Gearbox outlets

As a result of the different machining of the housing in the gearbox outlets zone :
- The gearbox outlet bearing shoulder has been replaced by a stop ring (1).
- The outer diameter of the oil seal (2) has been altered.

On the gearbox outlet shaft :
- Replacement of the self-locking nut by a bearing holder ring (2), fitted tightly, and acting as a seat for the oil seal lip (3).

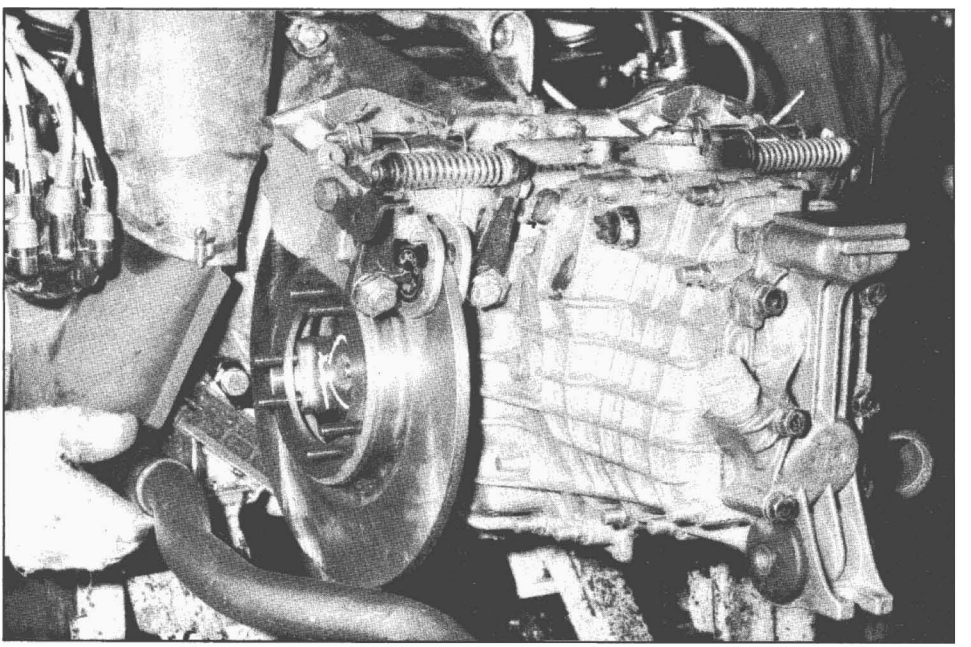
IV. BRAKES

The front braking surface has been increased, compared to the 1015 cc vehicles, which entails the following modifications :

- New front brake calipers
- New brake discs :
  - outer diameter ..... 270 mm (10.80")
  - thickness ..... 9 mm (0.36")
  - L distance reduced (see figure above)
- Diameter of receiving pistons ..... 45 mm (1.80")
- Main brake pads ..... FERODO 672
  or TEXTAR V 1431
- Parking brake pads ..... FERODO 738 T (black)
- Brake pad lining support ..... FERODO (grey)
- Brake pad lining support ..... TEXTAR (black)
- New front brake lines
- Additional openings in front axle unit to allow the fitting of new calipers,

NOTE : The upper part of the caliper is used for the positioning and removing of the brake pads.

11196



GEARBOX WITH BRAKE CLIPS NEW MODELS

REPAIR WORK

The different stages of removing, positioning, adjusting and overhauling will be made known to you by the publication of amendments to the Repair Manual N° 582.