CITROËN
AUTOMOBILES CITROËN
Société anonyme au capital de 800.000.000 F

CUSTOMER SERVICES
AFTER-SALES TECHNICAL DEPARTMENT

REPAIR MANUAL No. MAN. 008111

VOLUME 1

MAY 1994

. Supplement No. 1 : Included
. . No. 2 : Included (May 84)
. . . No. 3 :

GSA VEHICLES

MECHANICAL COMPONENTS

ELECTRICAL SYSTEM

Printed in France

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HOW TO USE THE MANUAL

The Repair Manual regarding this type of vehicle is made up of two volumes

Volume 1 is divided into four sections separated by index sheets, numbered from I to IV

I : CHARACTERISTICS - ADJUSTMENTS CHECKS
II : REMOVAL AND FITTING of units. sub-assemblies and accessories
III : RECONDITIONING of units, sub-assemblies and accessories
IV : ELECTRICAL SYSTEM - HEATING VENTILATION

Two other index sheets are to be found at the end of this volume, entitled TECHNICAL BULLETINS and INFORMATION BULLETINS. They are intended for classification of these bulletins.

Volume 2 deals with operations regarding BODYWORK.

Each volume is presented in a blue binder with « RING » type mechanism, in order to facilitate classification of supplements or take out an operation sheet needed in the workshop.

COMPOSITION OF VOLUME 1

It contains :
- the list of operations appearing in it,
- the operations, filed in numerical order.
-the summary list of all special tools that are not sold and which are mentioned in the operations; together with the manufacturing drawings of these tools which have to be made by the repairer himself.

UPDATES TO VOLUME 1

A roman numeral placed in brackets at the bottom right of each right-hand page indicates the section into which the sheet is to be inserted.
The number of the update is given by the number of dots located on the left of the roman number.

For example : 1 dot . update No. 1
2 dots .. update No. 2

OPERATIONS

The order of operations has been studied to obtain the best working quality in the shortest time.

The operation numbers are composed of.
a) the vehicle code « GX » or « GX.ea » *
b) a three-figure number designating the unit or the unit component
c) a figure indicating the kind of repair :
- Figures 0 0 0 indicate the characteristics of the vehicle
- Figures 0 0 indicate the characteristics of the unit
- Figure 0 indicates the checks and adjustments
- Figures 1, 4, 7 indicate removals and fittings
- Figures 2, 5, 8 indicate strippings and reassemblings
- Figures 3, 6, 9 indicate reconditionings

TOOLS

Special tools are indicated in the text by a number followed by the letter T.
Complementary tools are indicated in the text by a number preceded by the index MR.

TIGHTENING TORQUES

The torques are expressed in decaNewton metre(m.daN), statutory torque measuring unit :

0.981 **m.N** = **1 m.kg** (former measuring unit)

In practice: **1 m.daN = 1 m.kg**

NOTE : When the indication “torque wrench” is mentioned following the value of a tightening torque, the operation must be IMPERATIVELY carried out with a torque wrench.

IMPORTANT REMARKS

For all technical information regarding these vehicles, please contact :

The Service Department
Citroen Cars Ltd.
Mill St.
Slough, Berks GB - Tel. Slough 23808

DEPARTEMENT TECHNIQUE APRES-VENTE, ASSISTANCE TECHNIQUE - 163. avenue Georges Clémenceau - 92000 NANTERRE (FRANCE) Tel : 725-97-I0

* « GX.ea » : vehicle with automatic clutch

LIST OF OPERATIONS IN SECTION I

	Operation number	DESCRIPTION
		CHARACTERISTICS · ADJUSTMENTS · CHECKS
	GX 000	General specifications ***(Saloons and Estates)***
	GX 00	Vehicle jacking and towing points
	GX 01	Protection of electrical equipment
	GX 02	Work on the hydraulic system : - Precautions - Draining the hydraulic circuit
	GX 100-00	Characteristics and special features of the engine
	GX 112-0	Rocker arm adjustment
	GX 120-0	Checking the valve timing
	GX 142-000	General features of the carburation
	GX 142-00	Characteristics and special features of the carburettors (GSA 1300 → 7/1980)
	GX 142-00 a	Characteristics and special features of the carburettors (GSA 1300 7/80 - 7/81) GSA 1130 7/80 — 7/83)
◊	GX 142-00 b	Characteristics and special features of the carburettors (GSA 1300 7/81 →)
	GX 142-0	Carburettor adjustment (GSA 1300 → 7/1980)
	GX 142-0 a	Carburettor adjustment (GSA 1300 7/80 – 7/81 - GSA 1130 7/80 → 7/83)
◊	GX 142-0 b	Carburettor adjustment (GSA 1300 7/81 →)
	GX 172-0	Testing inlet air heating system thermostat probe
	GX 173-0	Characteristics and checks of the fuel supply system
	GX 210-00	Ignition system specifications
◊	GX 210-00 a	Characteristics of the transistorized ignition system
	GX 210-0	Checking and adjusting the ignition system
◊	GX 210-0 a	Checking the transistorized ignition
	GX 220-0	Checking the oil pressure
	GX 312-00	Characteristics and special features of the pedal-operated clutch mechanism Checking and adjusting pedal-operated clutch control system
	GX ea 320-00	Characteristics and special features of the torque converter
	GX ea. 320-0	Checking and adjusting the torque converter and its controls I. Checking and adjusting the contact gap of the solenoid valve control II. Checking the pressure of the converter oil feeding circuit
	GX 330-00	Characteristics and special features of gearbox with pedal-operated clutch
	GXea 330-00	Characteristics and special features of gearbox with torque converter
	GXea. 330-0	Draining and filling up the gearbox and the converter
	GX 372-00	Characteristics and special features of the drive shafts
	GX 390-00	Characteristics and special features of the source and reserve of pressure - Hydraulic system - Depressurization of the hydraulic system
	GX 390-0	Checking the source and reserve of pressure
	GX 410-00	Characteristics and special features of the front axle unit
	GX 410-0	Conditions for checking and adjusting the front and rear axle units using projection equipment
	GX 420-00	Characteristics and special features of the rear axle unit
	GX 420-0	Conditions for checking and adjusting the front and rear axle units using projection equipment (see Operation GX 410-0)

LIST OF OPERATIONS IN SECTION I

Operation number	DESCRIPTION
GX. 430-00	Characteristics and special features of the suspension
GX. 430-0	Checking and adjusting the suspension and its controls - Height preadjustment - Height adjustment - Checking and adjusting the manual height control - Anti-roll bar adjustment
GX. 440-00	Characteristics and special features of the steering
GX. 450-00	Characteristics and special features of the braking system
GX. 453-0	Checking and adjusting the hydraulic brake control - Bleeding the front brakes - Bleeding the rear brakes -Adjustment of brake pedal clearance -Adjustment of stoplamp switch - Check and adjustment of the handbrake

I. GENERAL SPECIFICATIONS.

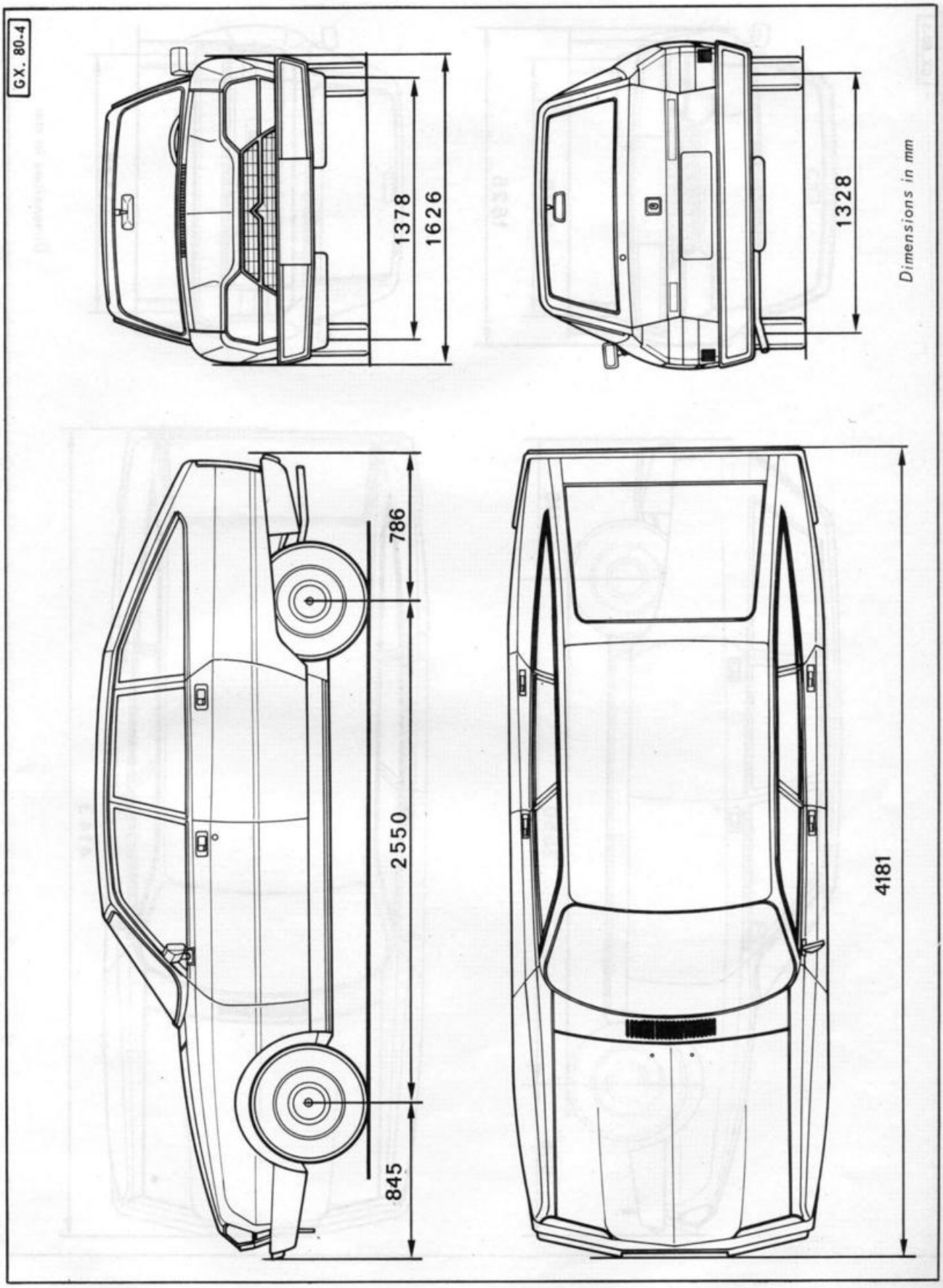
		SALOON	ESTATE	ESTATE Entreprise
Official symbol	Manual gearbox — 1130 cc engine	GX series YA	GX series YE	GX series YF
	Manual gearbox — 1300 cc engine	GX series YL	GX series YS	
	Manual gearbox — 1300 cc ECO engine	GX series YL	GX series YS	GX series YM
	Gearbox with converter — 1300 cc engine	GX series YR	GX series W	
	Gearbox with converter — 1300 cc ECO engine			
Commercial symbol :		GSA	GSA	GSA
Factory symbol (guarantee type)	Manual gearbox — 1130 cc engine	YA	YE	YF
	Manual gearbox — 1300 cc engine	YL	YS	
	Manual gearbox — 1300 cc ECO engine	YL	YS	YM
	Gearbox with converter — 1300 cc engine	YR	YV	
	Gearbox with converter — 1300 cc ECO engine			
Introduction date:	1130 cc engine	July 80	July 80	July 80
	1300 cc engine	September 79	September 79	
	1300 cc ECO engine	July 81	July 81	
French fiscal rating :				
GSA Spécial (1130 cc engine)	Manual gearbox. 4-speed	6 cv	6 CV	6 CV
	Manual gearbox 5-speed	5 cv	5 cv	
GSA Club, Pallas, X3 : (1300 cc engine)	Manual gearbox	7 cv	7 cv	
	Gearbox with converter	8 cv	8 CV	
Number of seats :		5	5	2

Standard fitting	Front	Rear	Spare
Pressed steel rim : 4 l/2 J 15 MICHELIN tyres Inflation pressure	145 SR 15 XZX 1.8 bars	145 SR 15 XZX 1.9 bars	
Optional fitting			145 SR 15 XZX 2.1 bars
Light-alloy rim: 4 l/2 J 15 MICHELIN tyres Inflation pressure	145 HR 15 XVS 1.7 bars	145 HR 15 XVS 1.8 bars	
GSA Entreprise	1.8 bars	2.1 bars	2.3 bars

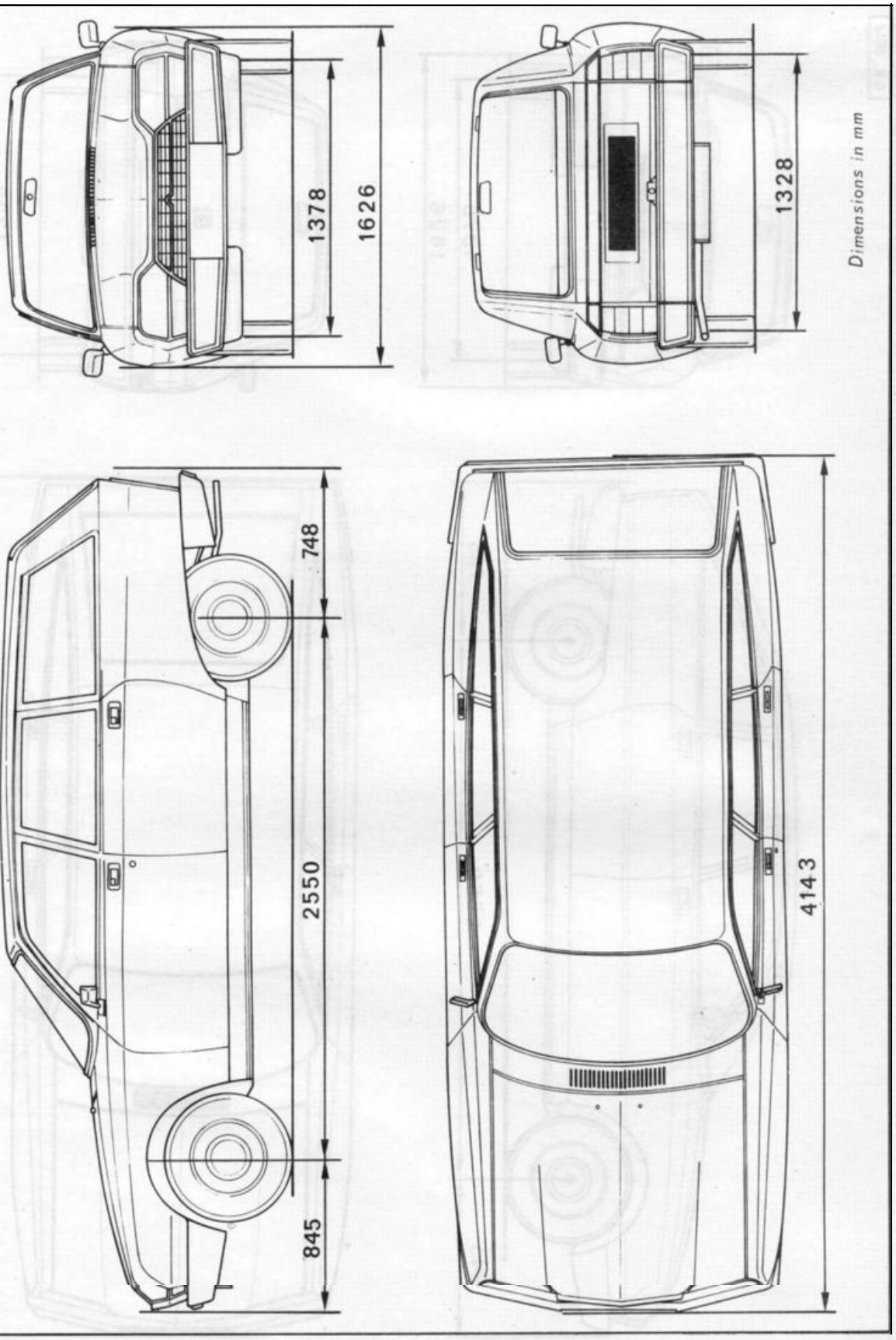
II. DIMENSIONS AND WEIGHTS:

Dimensions :	SALOON	ESTATE
Wheelbase :	2.550 m	2.550 m
Track, front:	1.378 m	1.378 m
Track, rear :	1.328 m	1.328 m
Length overall:	4.181 m	4.143 m
Width. overall :	1.626 m	1.626 m
Height, normal driving position :	1.349 m	1.349 m
Ground clearance. nil pressure :	0.070 m	0.070 m
Ground clearance, normal driving position	0.154 m	0.154 m
Ground clearance, max. raised position :	0.240 m	0.240 m
Turning circle - between walls :	10.40 m approx	10.40 m appro,
Turning circle - between kerbs :	9.66 m approx.	9.66 m appro:
Overhang, front :	0.845 m	0.845 m
Overhang rear :	0.786 m	0.748 m

GX. 80-4



GX. 80-5



Dimensions in mm

Weight (in kg)		SALOON	ESTATE	ESTATE Entreprise
Kerb weight :	MANUAL GEARBOX	955	965	925
	GEARBOX WITH CONVERTER	965	975	
Weight on front axle :	MANUAL GEARBOX	605	610	605
	GEARBOX WITH CONVERTER	615	620	
Weight on rear axle :	MANUAL GEARBOX	350	355	320
	GEARBOX WITH CONVERTER	350	355	
Gross vehicle weight :	MANUAL GEARBOX	1355	1365	1375
	GEARBOX WITH CONVERTER	1365	1375	
Max. authorized-weight on front axle :		745	745	745
Max. authorized weight on rear axle :		690	690	690
Max. roof-track load :		60	80	80
Towing details ((in kg)):				
Max. weight on tow-bar:		50	50	50
Gross train weight :				
- with a 475 kg trailer without brake :				
- 1130 cc engine:		1830	1840	1850
- 1300 cc engine :	MANUAL GEARBOX	1830	1840	
	GEARBOX WITH CONVERTER	1840	1850	
- with a 800 kg trailer with brake, 1130 cc engine :		2155	2165	2175
- with a 1000 kg trailer with brake :				
- 1300 cc engine	MANUAL GEARBOX	2355	2365	
	GEARBOX WITH CONVERTER	2365	2375	
Hill-start max. gradient at Gross Train Weight :		14%	14%	14%

III. MISCELLANEOUS INFORMATION.

Capacities :

Fuel tank : 43 litres

Engine oil :

- all seasons : TOTAL GOLD or TOTAL 20/50 (G.B) / TOTAL GTi Route et Villa 10 W 30 (FRANCE) / TOTAL GTS 20 W 50 (SPAIN) / TOTAL GTS 15 W 40 (EUROPE except G.B. and SPAIN)
- temperatures below −10 ° C : TOTAL HD 3-C 20 W 20 (G.B) / TOTAL GTi Route et Ville 10 W 30 (FRANCE) / TOTAL GTS 10 W 30 (other EUROPEAN countries)

Sump capacity after draining : 3 litres
Sump capacity after draining and removal of filter cartridge : 4 litres
Difference between min. and max. dipstick readings: 0.5 litres

Gearbox *(draining)*, approx. :
- 4-speed gearbox : ..... 1.4 litres
- 5-speed gearbox : ..... 1.5 litres
- 3-speed gearbox with a torque converter : ..... 1.4 litres

Hydraulic circuit *(including reservoir)* : ..... 4.2 litres

Boot capacity :

	SALOON	ESTATE	ESTATE Entreprise
- Rear seat up (below the rear shelf) :	435 sq.dm	645 sq.dm	
- Rear seat down (below the rear shelf) :	766 sq.dm	976 sq.dm	
- Rear total volume :	1400 sq.dm	1504 sq.dm	1660 sq.dm

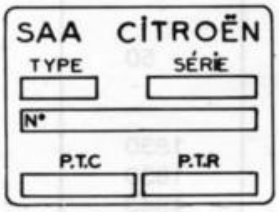
IV. VEHICLE IDENTIFICATION

1. Stamping of vehicles *(⟶ 7/80) :*

00070

Front subframe No.

①



Chassis No. plate

②

38011797

Body shell No.

③

Body code number

≈00FB0001≈

Repeat chassis No.

⑤

⑥ Engine plate : ④

a) Engine type
c) Engine production order No.
d) Engine/gearbox unit sequence No.
81 : Engine with a pedal-operated clutch
93 : Engine with a torque converter
e) Colour (background of data plate) according to type of gearbox :
Engine with a pedal-operated clutch : red background with green strip « b ».
Engine with a torque converter : blue background with yellow strip « b ».

⑦

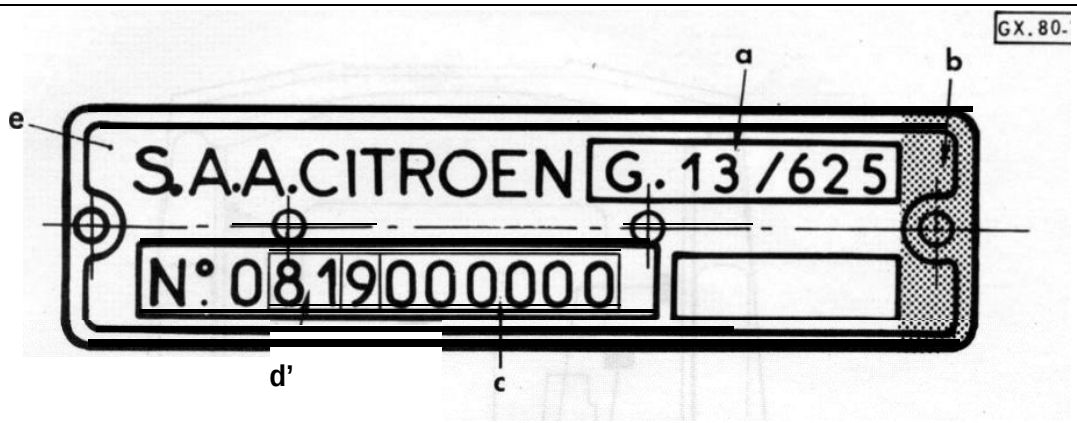
Gearbox No.

⑧

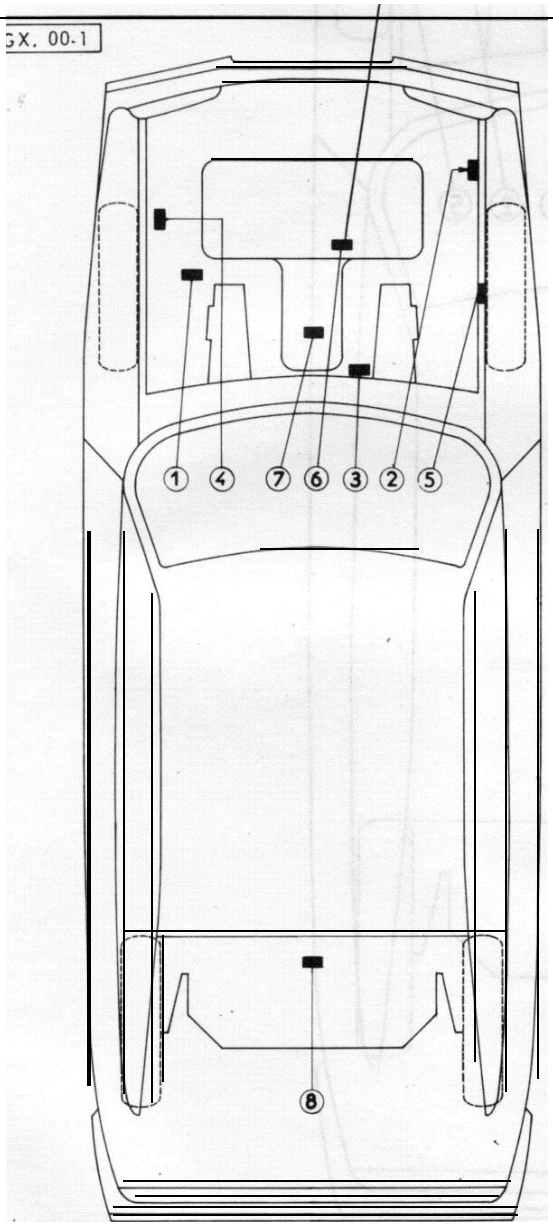
00050

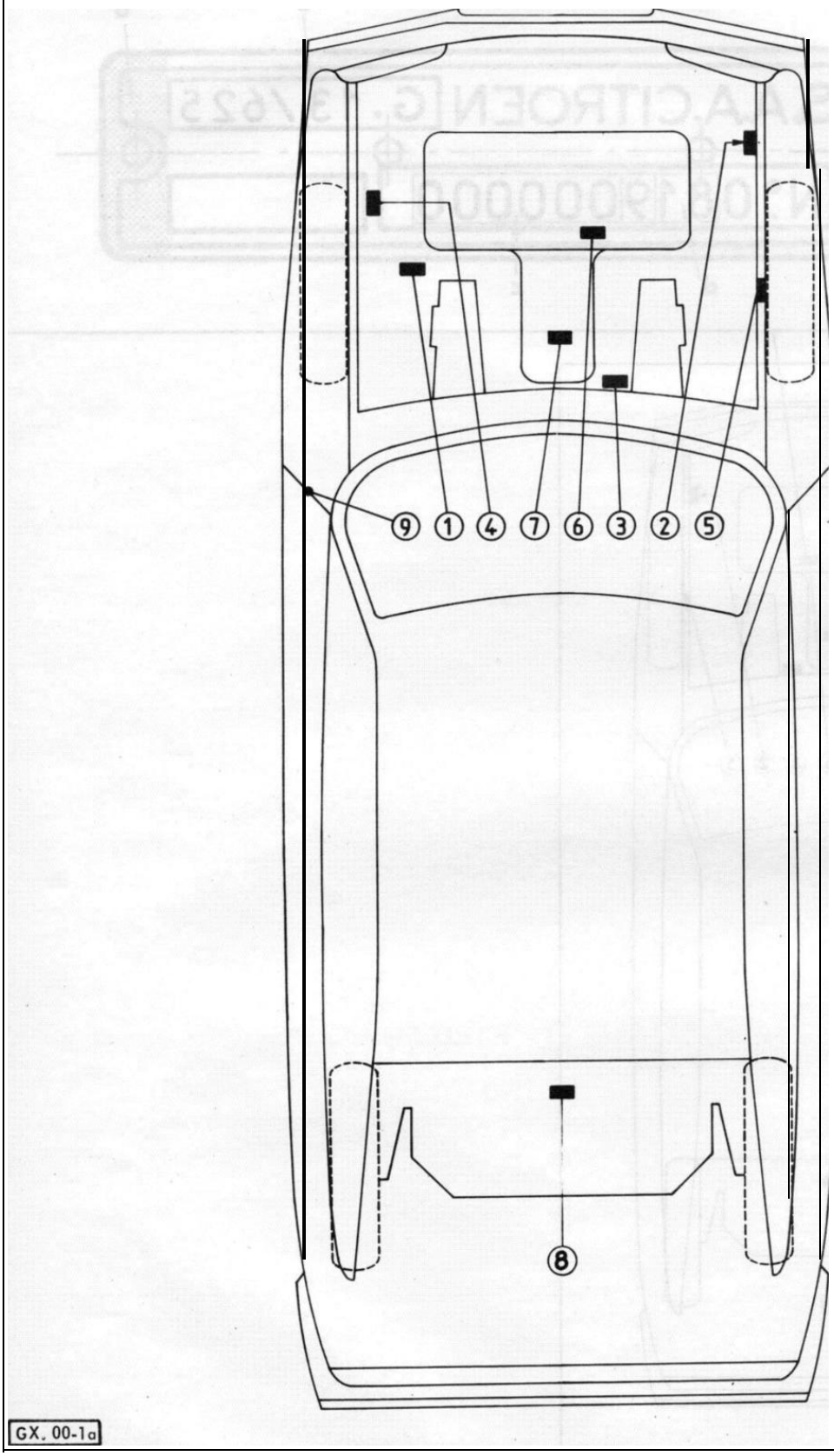
Rear subframe No.

GX. 80-



GX. 00-1





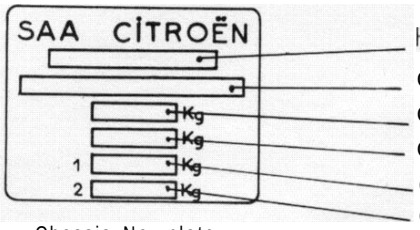
GX. 00-1a

2. Stamping of vehicles *(7/80 ⟶)*.

00070

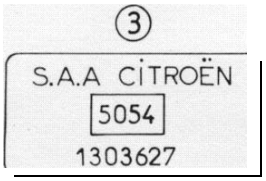
Front subframe No.

①



Chassis No. plate

②



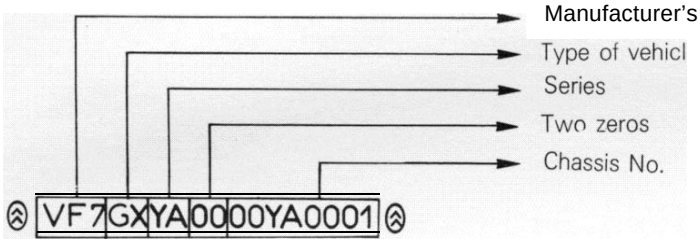
③

Body code No. and R.P. organisation No. *

38011797

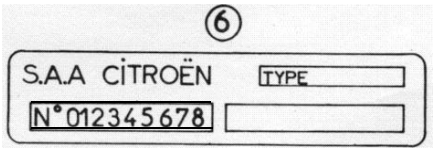
Body shell No.

④



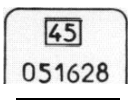
Repeat chassis No.

⑤



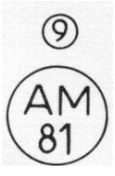
⑥ Engine plate

(see page 6)



⑦ Gearbox No

⑧ 00050 Rear subframe No



⑨ Ink-stamped model year

* R.P.organisation No. : 4 digits, ink stamped near body code No. plate ③ since *1/1981*

JACKING POINTS

A and C : Jacking points for trolley jack or wheel-free car lift

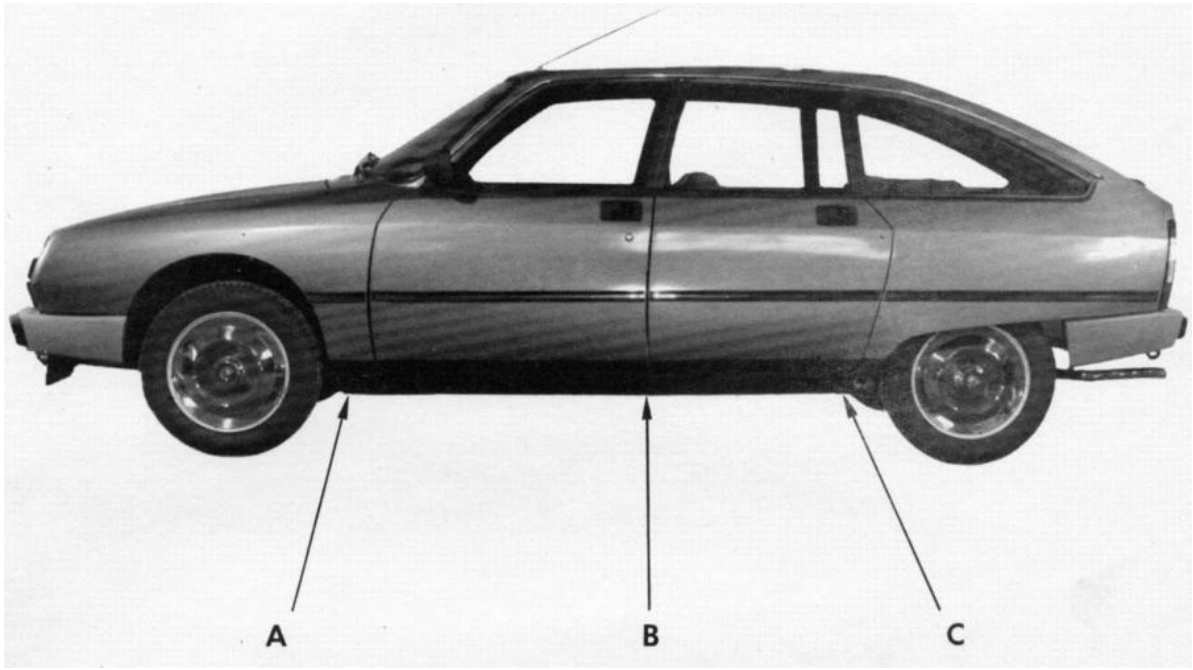
B : Jacking point for wheel-changing.

TOWING POINTS

♦ **D** : Front towing points. wheels on the ground **(jacking forbidden)**

E : Rear towing points

79-710



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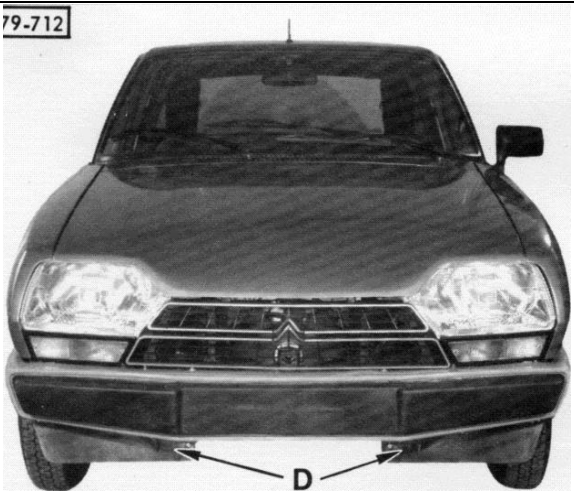

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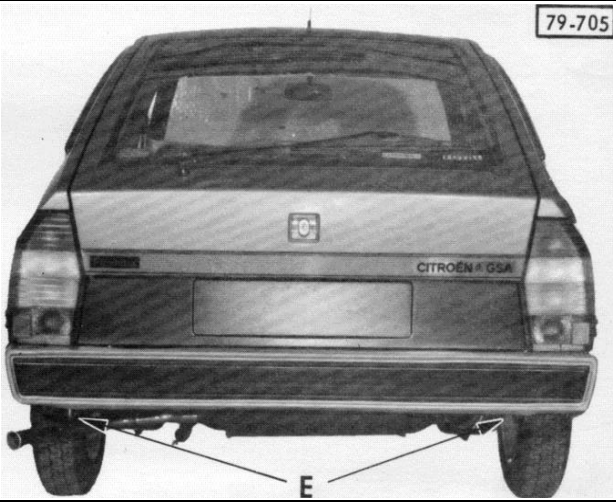


811-1 (I)

PROTECTION OF ELECTRICAL EQUIPMENT
PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ON THE VEHICLE

It is essential to avoid certain errors involving the risk of damage to electrical equipment, or to creation of a short circuit (fire or accident risk).

1. Battery :

a) Disconnect from the negative terminal of the battery first, followed by the positive terminal.

b) Reconnect to both terminals of the batten/ with care. connecting to the negative terminal in the last place.

c) Before connecting to the negative terminal, check the absence of current. For this purpose, make a series of intermittent contacts between the connector clamp and the negative terminal of the battery. No sparking should occur. otherwise a short-circuit is present in the electrical circuit, and must be eliminated.

d) The battery must be connected correctly. with the negative terminal earthed.

e) Before operating the starter. check that both connector clamps are properly tightened on their respective terminals.

2. Alternator - Regulator :

a) Do not run the alternator unless connected to the battery. Never disconnect the battery when the alternator is running.

b) Before connecting the alternator, check that the battery is itself correctly connected (negative terminal earthed), to avoid the instantaneous destruction of the electronic regulator.

c) Never invert the two leads connected to the regulator.

d) Never earth the power supply terminal of the regulator, incorporated in the alternator.

e) Do not attempt to re-energize an alternator. This is never necessary. and would result in damage to both alternator and regulator.

f) Never connect a radio suppressor capacitor to the power supply terminal of the regulator, on the alternator.

g) Never connect the battery terminals to a charger, and never use arc-welding equipment (or gun-welder) on the vehicle chassis, without first disconnecting and isolating the two battery connector clamps. Also disconnect the alternator wires, before undertaking any welding operations.

3. Ignition coil :

a) Connect the ignition coil power supply wire to the external resistor tab. and not to the «BAT» terminal on the ignition coil.

b) Never connect a suppressor capacitor to the « RUP » terminal on the coil.

c) Fit a factory-recommended suppressor capacitor (50 micro F) on the power supply tab on the external resistor on the ignition coil.

NOTE : This capacitor is fitted as standard on vehicles equipped with the « HAUPAR » (loudspeaker) option. and in all cases where the instrument panel includes a digital display clock.

4. Q.I. bulb :

a) Never replace a Q.I. bulb with the headlamp switched on. If the headlamps have been in use. allow to cool for five minutes before working on same.

b) Never touch a Q.I. bulb with the fingers. Any accidental fingermarks should be cleaned off with a little soapy water. Dry the lamp with a lintless cloth.

I. PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ON THE HYDRAULIC CIRCUITS AND COMPONENTS OF THE VEHICLE

Correct operation of the complete hydraulic system requires the hydraulic components and fluid to be perfect/y clean. Meticulous care must therefore be taken during the work. and for the storage of hydraulic fluid and spares.

1. HYDRAULIC FLUID

Type LHM mineral hydraulic fluid is the only fluid suitable for the system, and **must** be used for the hydraulic circuit in this vehicle.

LHM fluid is green in colour, and is of the same nature as the engine oil.

The use of any other fluid would cause ***the complete deterioration*** of rubber components and seals.

2. COMPONENTS AND RUBBER PARTS

The appropriate components are painted or marked in green. and must only be replaced by original spares also painted or marked in green.

All rubber parts (seals, pipes, diaphragms etc.) are of ***special qua/ity for LHM fluid*** and are marked in green or white.

3. STORAGE

Components must be stored ***filled with liquid and plugged.*** In common with the pipes: they must be stored away from dust and protected from impact damage.

Rubber pipes and seals must be stored away from dust. air. light and heat.

LHM hydraulic fluid must be stored in original cans. carefully sealed. We recommend the use of one-litre cans (for topping up), or five-litre cans (fluid change) to avoid keeping half-empty cans.

4. INSPECTION BEFORE WORK

if trouble has been encountered with the hydraulic system. check as follows before any intervention

a) That there is no resistance in the controls. and mechanical articulations of the hydraulic components or group of components concerned,

b) *That the high pressure (HP) circuit is loaded.* Proceed as follows :

With the engine idling :

Undo the pressure regulator relief screw by one to one-and-a-half turn. A leaking noise should be heard in the pressure regulator.

Tighten up the pressure relief screw. Cut-out should then occur. corresponding to a fall-off in the operating noise of the HP pump.

In the contrary case, check, in the following order :

- that there is sufficient fluid in the tank.
- that the tank filter is perfectly clean and in good condition,
- that the HP pump is primed, and that no air has entered the pump suction circuit,
- that the pressure regulator relief screw is properly tightened.

5. PRECAUTIONS TO BE TAKEN BEFORE ANY WORK ON THE HYDRAULIC CIRCUIT

a) **Carefully** clean the working zone. unions and components to be removed.

- Disconnect the negative battery lead.
- Use petrol or lead-free petrol for cleaning. to the exclusion of any other product.

b) ***Reduce pressure in the circuits (see Op. GX. 390-00. page 9).***

6. PRECAUTIONS DURING REMOVAL

a) Blank off metal pipes using plugs and rubber pipes using cylindrical pins of appropriate diameter.

b) Blank off the orifices of components with appropriate plugs.

NOTE : All plugs and pins must be carefully cleaned before use.

7. TESTING HYDRAULIC EQUIPMENT

Use the 3654-T test bench designed for use with LHM fluid.

- The bench is painted green. and all bench accessories carry a green mark.

Never use the bench with an alternative fluid, or to check equipment operating with another fluid (such as equipment in a type « D » vehicle, using LHS 2 fluid).

NOTE : The « Le Bozec » pump used on test bench for Diesel engine injectors, can be employed. after appropriate cleaning, for testing equipment using LHM fluid.

8. PRECAUTIONS DURING REFITTING

a) Cleaning

- steel pipes must be blown through with compressed air.
- rubber pipes and seals must be washed in petrol or lead-free petrol and blown through with compressed air.
- hydraulic components must be cleaned with petrol or lead-free petrol and blown through with compressed air.

NOTE : Seals must be replaced following any intervention on the hydraulic circuit.

b) **Lubrication** :

- Follow the instructions given in the Repair Manual.

Seals and internal parts must be moistened before assembly (use LHM fluid only).

- If parts in contact with the hydraulic components require greasing, use a mineral grease only (Universal joint or bearing grease).

c) Fitting :

- Use seals designed for LHM fluid only.
- Proceed as follows for connecting a union :
  - Place sleeve-seal « a » on the pipe, moistening with LHM fluid. This sleeve-seal must be set back from pipe end.
  - Centre the pipe in the bore, presenting on the centreline of the orifice and avoiding forcing (check that pipe end « b » penetrates reduced bore « c ».
  - Start screwing the union-nut by hand.

Tighten the nut moderately. Overtightening will cause a leak. by distorting the pipe.

Tightening torques :

3.5 mm pipe
4.5 mm pipe } 0.8 to 0.9 m.daN

6 mm pipe 0.9 to 1.1 m.daN

By design, the thightness of the seals increases with pressure. Seal tightness cannot therefore be improved by tightening the unions.

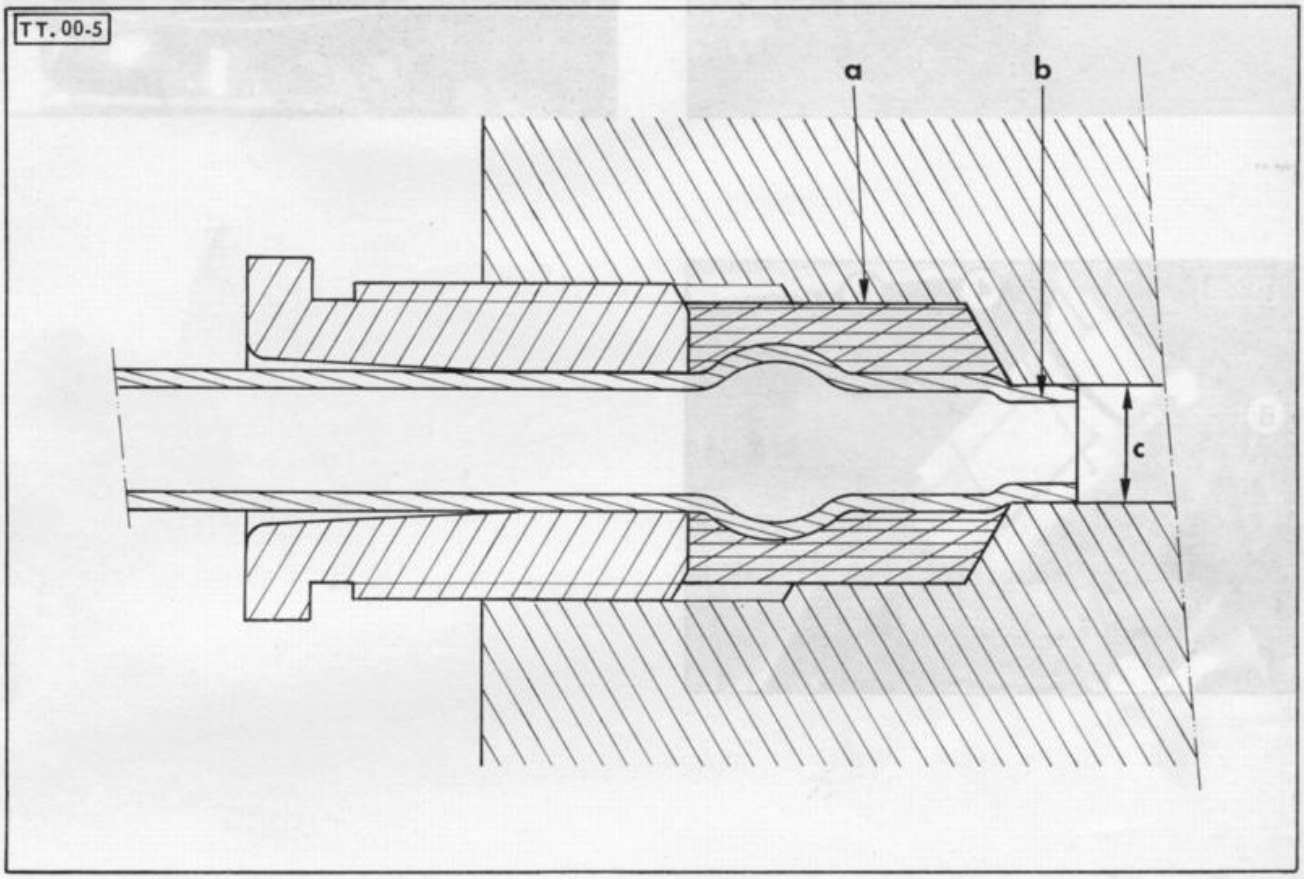
To connect a rubber pipe, insert a rubber bush of appropriate diameter, between pipe and clamping collar.

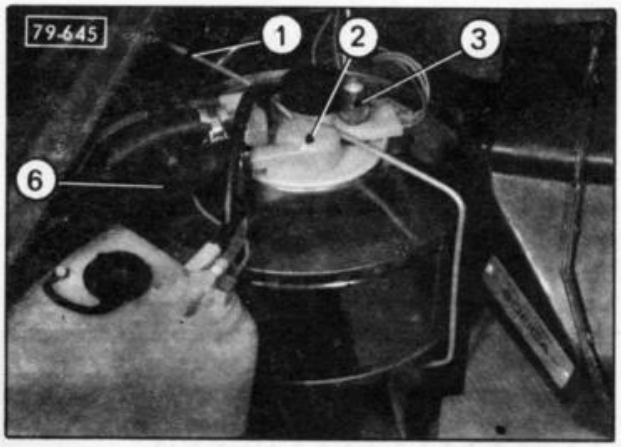
9. CHECKING ON COMPLETION OF THE WORK

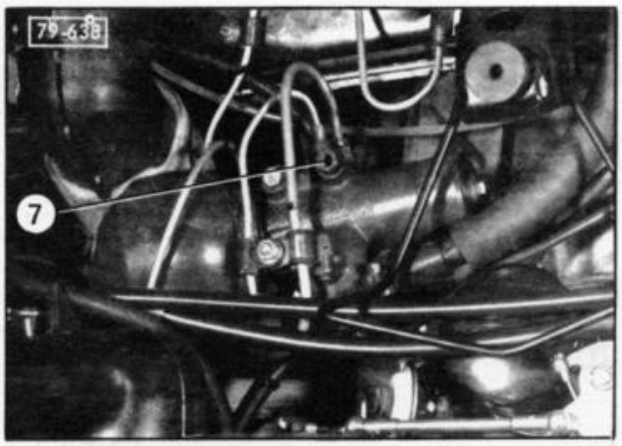
Following any work on the hydraulic components or circuit, check :

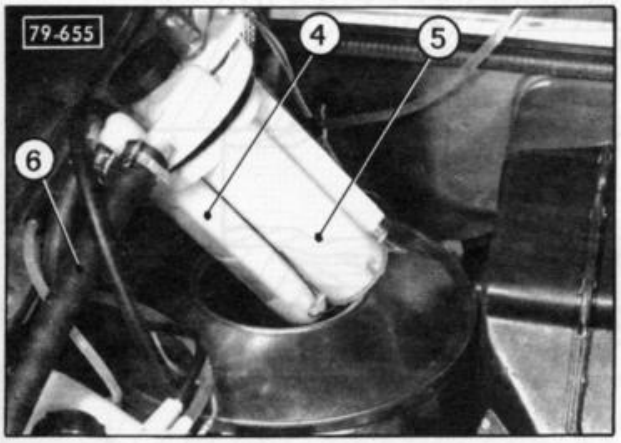
a) *seal-tightness of the unions,*

b) clearance *between pipes* : pipes must not touch each other, or any other fixed or mobile element, and connections to fixed or mobile elements must not be under strain.









II. DRAINING THE HYDRAULIC CIRCUIT

DRAINING

a) Depressurize the circuits.
(See Op. GX. 390-00, page 9)

b) Remove reservoir spring retainer

c) Disengage central unit (2).

d) Remove :
- return line filter (4),
- suction filter (5).

e) Remove the reservoir and drain, and disengage the deflector (reservoir bottom separator partition).

f) Clean filters (4) and (5), and the reservoir and deflector, using petrol and blow through with compressed air.

g) Reassemble the unit.

FILLING

a) Fill the reservoir with approx. 2.5 litres of LHM hydraulic fluid.

b) **Prime the HP pump :**

- Fill the pump with hydraulic fluid via suction hose (6).

- Start the engine, and move the manual height control to the « high » position.

- Tighten pressure relief screw (7) on pressure regulator.

- When the vehicle has stabilized, top up the reservoir with fluid until the mobile pointer on level indicator (3) is opposite the upper red mark.

OPERATION
GX. 100-00

CHARACTERISTICS AND SPECIAL FEATURES OF THE ENGINE

I. GENERAL CHARACTERISTICS.

Engine :			
- Type *(marked on engine plate)* : . . .	G 11/631	G 13/625	G 16/646
- French fiscal rating :			
Manual gearbox { 4-speed : . . .	6 CV	7 CV	7 CV
Manual gearbox { 5-speed : . . .	5 CV	7 CV	7 CV
Gearbox with converter :		8 CV	8 CV
- Number of cylinders :		4 (flat opposed)	
- Cubic capacity :	1129 cc	1299 cc	1299 cc
- Bore :	74 mm	79.4 mm	79.4 mm
- Stroke :		65.6 mm	
- Compression ratio :	9/1	8.7/1	8.7/1
- Power output :	41 kW (ISO) 56.5 CV (DIN) at 5750 rpm	47.8 kW (ISO) 65 CV (DIN) at 5500 rpm	47 kW (ISO) 63.8 CV (DIN) at 5500 rpm
- Max. torque :	7.9 m.daN (ISO) 8.1 m.kg (DIN) at 3500 rpm	9.8 m.daN (ISO) 10 m.kg (DIN) at 3500 rpm	9.4 m.daN (ISO) 9.5 m.kg (DIN) at 3500 rpm
	(Fig. 1 and 2)		(Fig. 3)

Cooling : Blown air.

Lubrication : Under pressure, fed by an « EATON » type oil pump driven by one of the timing gear belts.
Oil filter cartridge with a built-in by-pass.

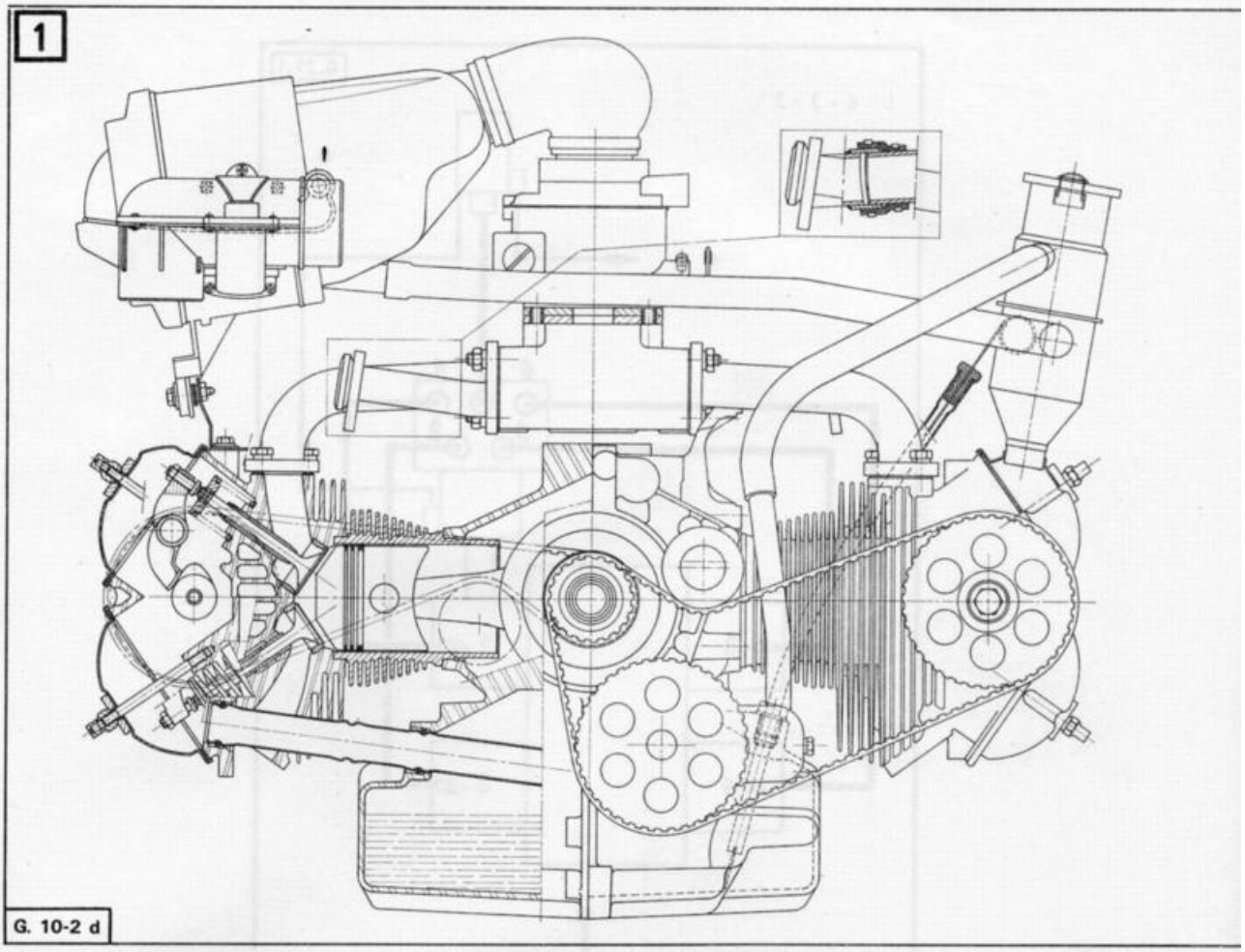
Fuel supply :
- Mechanical petrol pump, driven by an eccentric on end of right camshaft.
- Dual-choke « COMPOUND » type carburettor.

Carburettors :

GSA 1130	SOLEX 28 CIC 4 CIT **229** *(7/80 ⟶)*	WEBER 30 DGS 17/250-**W 97-50** *(7/80 ⟶)*
GSA 1300 *(except C-Matic)*	SOLEX 28 CIC 4 CIT **185** *(7/78 ⟶ 3/80)* SOLEX 28 CIC 4 CIT **230** *(3/80 ⟶ 7/81)* SOLEX 28 CIC 5 CIT **247** *(7/81 ⟶)*	WEBER 30 DGS 12/250-**W 92-50** *(7/80 ⟶)* WEBER 30 DGS 16/250-**W 96-50** *(7/80 ⟶ 7/81)* WEBER 30 DGS 25/250-**W 115-50** *(7/81 ⟶)*
GSA 1300 *(C-Matic)*		WEBER 30 DGS 19/250-**W 99-50** *(7/79 ⟶ 7/80)* WEBER 30 DGS 18/250-**W 98-50** *(7/80 ⟶ 7/81)* WEBER 30 DGS 26/250-**W 116-50** *(7/81 ⟶)*

Inlet manifolds are rigid *(7/81 ⟶)*.

1



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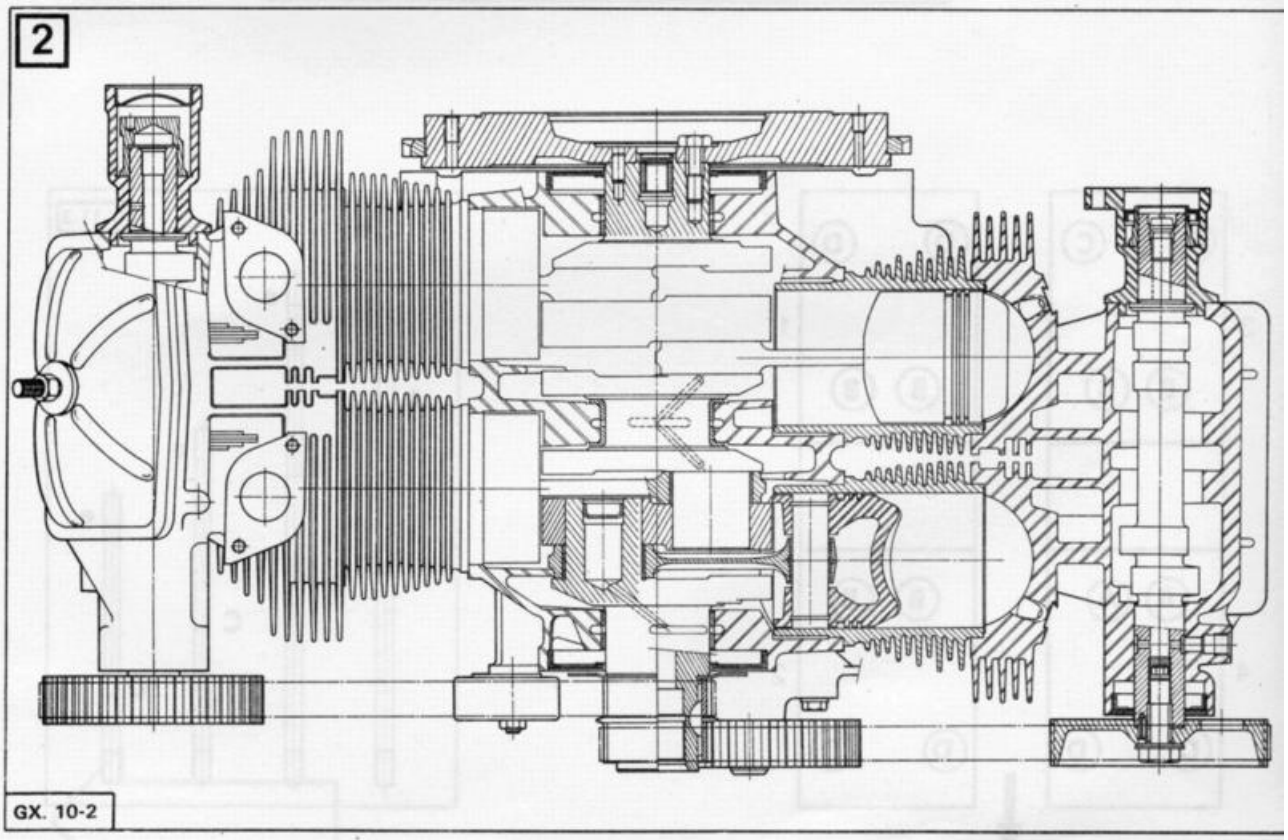

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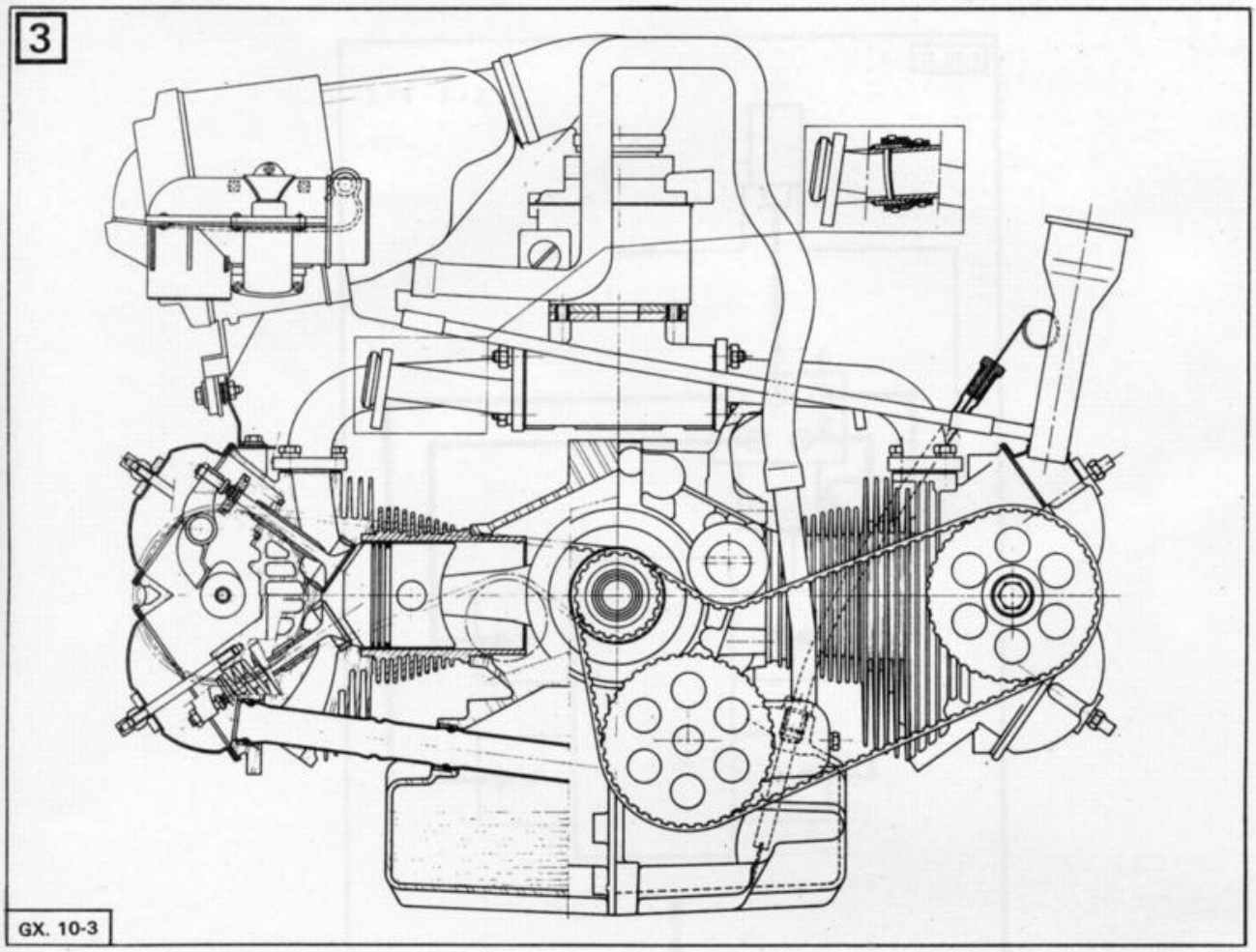
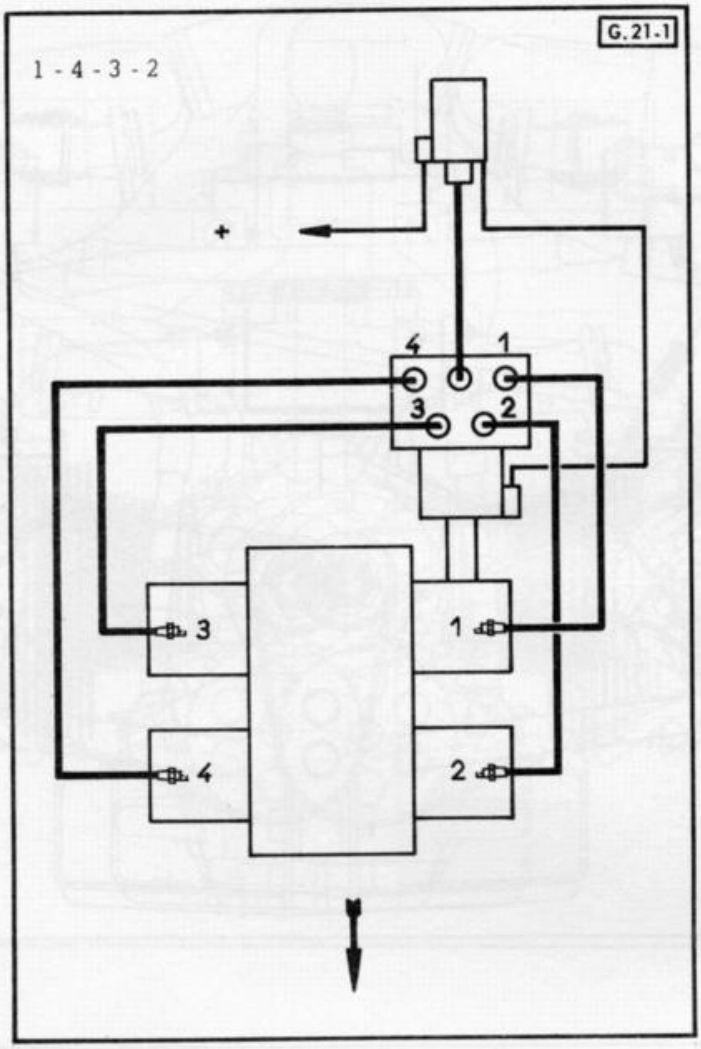
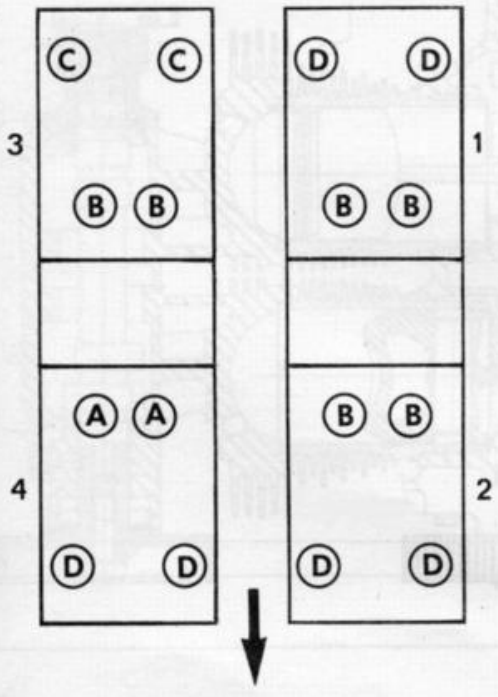
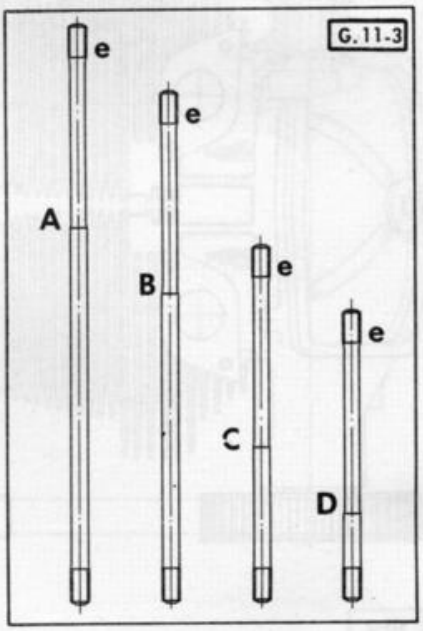








- Dry air filter with cartridge element.
- Intake air temperature regulated by a thermostatic shutter.
- Recommended fuel grade : R 99 octane rating *(Premium, 4-star).*

Timing :

- Overhead camshaft for each group of two cylinders.
- Camshafts driven by two toothed belts (with adjustable tension).

Ignition :

- Distributor driven by left camshaft.
- Make : SEV-MARCHAL or DUCELLIER.
- Spark-plugs.

	1130 cc	1300 cc
AC	42 XLS	41.4 XLS
BOSCH	W 6 D	W 6 D
CHAMPION	N 7 Y	N 7 Y
EYQUEM	755 LS	800 LS
SEV-MARCHAL	GT 34-2 H	GT 34-2 H
MARELLI	CW 78 LP	CW 8 LP

- Firing order : 1 - 4 - 3 - 2

- Transistorized ignition system on 1300 cc *(7/81 ⟶).*

II. SPECIAL FEATURES.

Engine crankcase :

- Tightness of half-crankcases : LOCTITE FORMETANCH.

Cylinder head studs : the head studs are of four different lengths.
End « e » (shorter threaded portion) should be on crankcase side *(see figure opposite).*

Crankshaft :

- *Centre collared half-bearing :*
  - Inner diameter :
    1st possibility : ..... 57.5 mm (no mark)
    2nd possibility : ..... 57.4 mm (red paint mark)
  - Total width : ..... 25.9 mm
  - Bearing width : ..... 15.3 mm

Front and rear half-bearings :
- Inner diameter :
  1st possibility : ..... 57.5 mm (no mark)
  2nd possibility : ..... 57.4 mm (red paint mark)
- Total width : ..... 20.8 mm
- Bearing width : ..... 16.05 mm

- Crankshaft end-float at central bearing *(not adjustable)* : ..... 0.09 to 0.20 mm

Do not regrind the front and rear bearing surfaces of camshaft (microturbines).

Con-rods :
- Con-rod ring bore : ..... $22.005 \begin{smallmatrix}+0.011\\-0.006\end{smallmatrix}$ mm
- Con-rod end-float : ..... 0.13 to 0.18 mm

Flywheel :

When fitting, place three spots of LOCTITE FORMETANCH between the flywheel and the crankshaft. New mounting screws must be fitted each time the engine is removed.

- Max. starter ring run-out : ..... 0.3 mm
- Fitting direction of the ring : machined face directed towards the flywheel shoulder.

Cylinders :
- Two types of cylinders, according to their height :
  Red mark : ..... 86.88 to 86.90 mm
  Green mark : ..... 86.90 to 86.92 mm

The two cylinders which are on the same side of the engine must be of identical type.

Pistons :
- The gudgeon pins are of the floating type.
- *Fitting direction :* (fitting marks : arrows and marks « D » for **right** or « G » for **left**).
  After fitting the pistons in their right or left sleeves, the arrow of each piston must be pointing towards the timing gear. The scraper ring splined stop-pin should always be pointing upwards.
  1300 cc ECO engine (R.P. No. 1974 ⟶) offset pistons are no longer fitted.
  The stop-pin for piston ring No. 2 should point upwards; the marking 8.7 should be visible on the upper part of the piston.

NOTE : For repairs : Fitting of non-offset pistons on all 1300 cc.

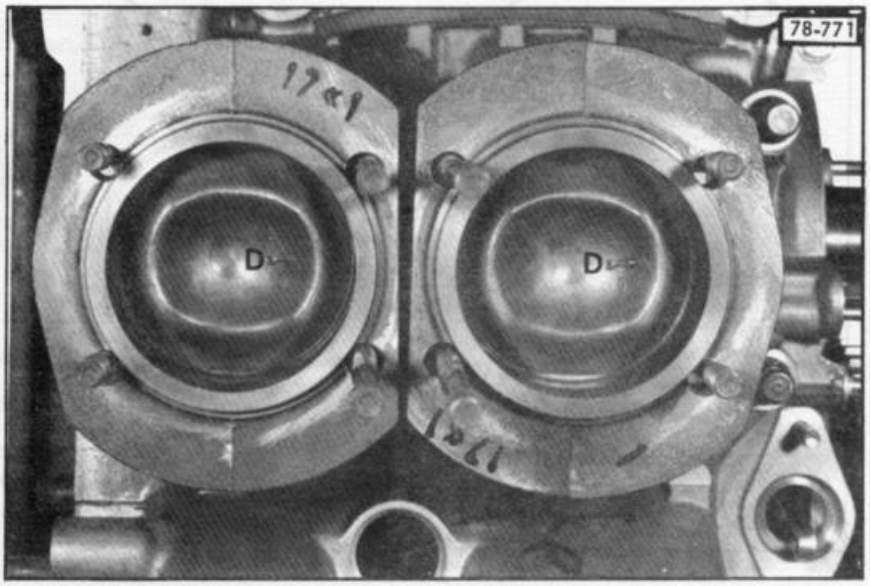
Piston-rings :
- The identification and the manufacturer's mark, must be pointing towards the piston crown.
- Fitting order *(starting from the piston crown) :*

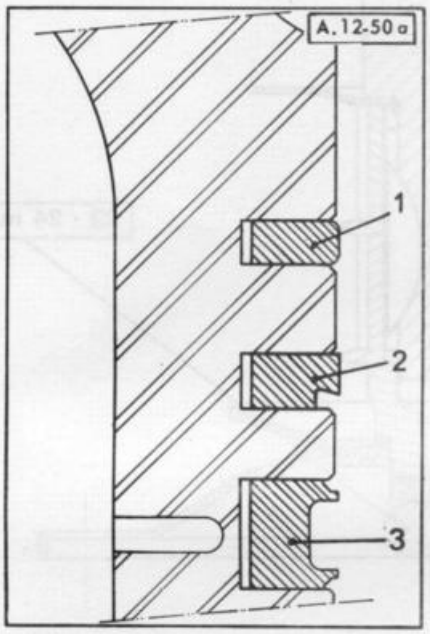
1-Compression ring	Gap clearance (as an indication)	0.10 to 0.25 mm
2-Scraper-ring		0.10 to 0.25 mm
3-Scraper-collector ring		0.10 to 0.25 mm *except for U-FLEX (4) which, when free, has a bigger dia. than that of the piston.*

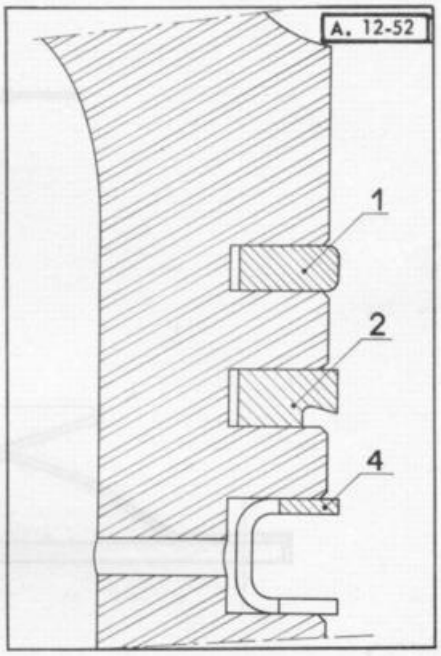
NOTE : All gudgeon pins are already adjusted when supplied. Do not readjust them.

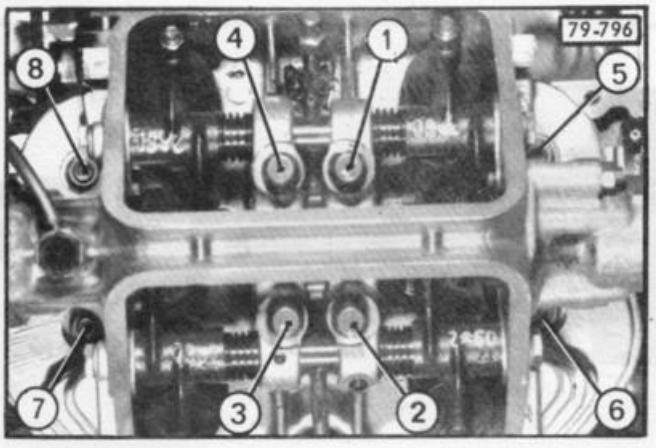
Cylinder heads :
- Tightening sequence : see photograph opposite.
- *Tightening torques :*
  Stage 1 : ..... **0.8 to 1 m.daN**
  Stage 2 : ..... **2 to 2.5 m.daN**

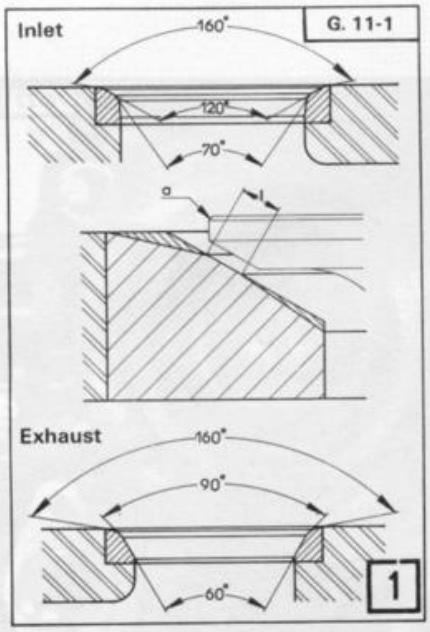
1300 cc ECO engine :
(R.P. No. 1794 ⟶) modified cylinder allowing for the fitting of rockers with trapezoid-shaped contact pads.

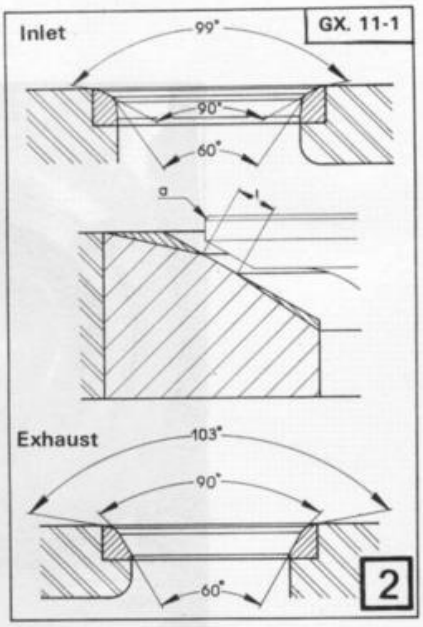


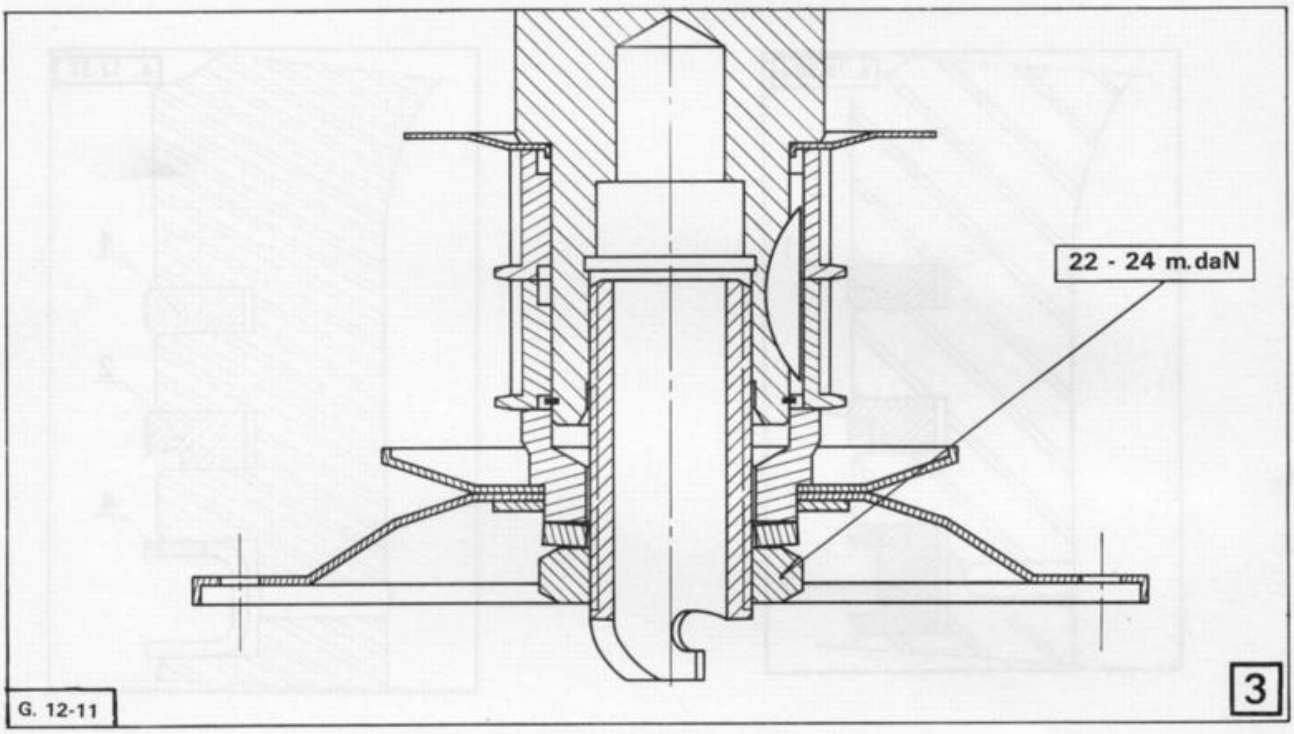


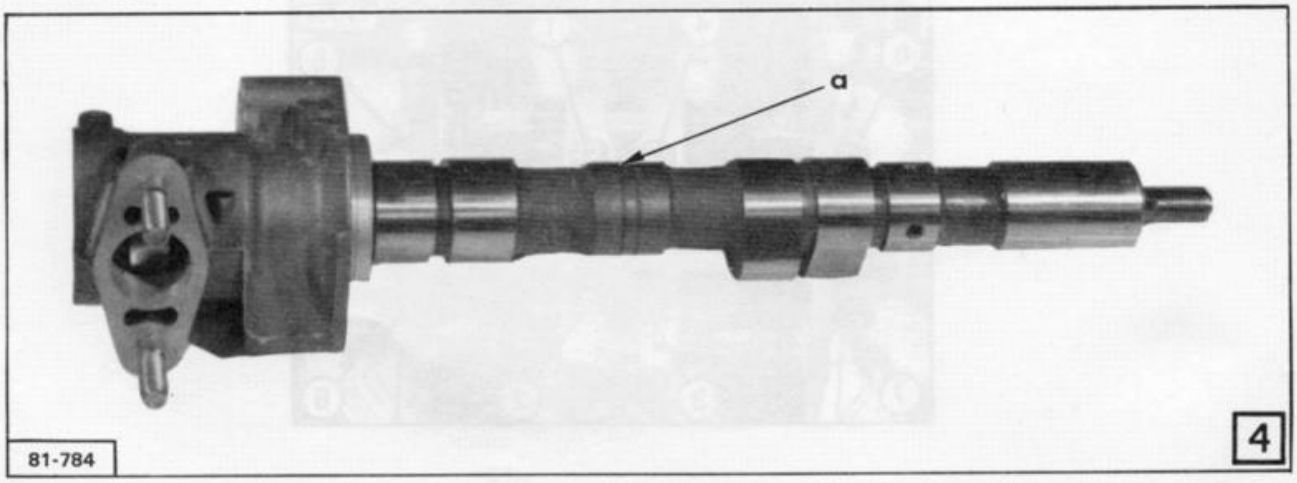












- *Valves :*

« TEVES » rotary valves

		Angle (°)	Head diameter (mm)	Stem diameter (mm)	Length (mm)
Inlet	1130 cc	120	39	$8\ ^{-0.005}_{-0.02}$	97.4
	1300 cc	90	38		94.6
Exhaust	1130 cc	90	34	$8.5\ ^{-0.021}_{-0.036}$	96.3
	1300 cc		35.7		93.8

Fig. 1 : 1130 cc engine - **Fig. 2 :** 1300 cc engine

- *Valve springs :*

Single spring : identical for inlet and exhaust

Length under load (mm)	Load (kg)	Length under load (mm)	Load (kg)	Direction of winding
32	25.4 ± 2.5	24	59.6 ± 2	Left-hand

- *Valve seats :*

Width of contact surface :

- Inlet : ..... 1 to 1.4 mm
- Exhaust : ..... 1.4 to 1.8 mm

- *Valve guides :*

Valve guide bore :

- Inlet : ..... $8\ ^{+0.03}_{+0.005}$ mm
- Exhaust : ..... $8.5\ ^{+0.015}_{+0.01}$ mm

Valve timing :

a) Camshaft identification :

- G 11/631 (1130) engine : no mark
- G 13/625 (1300) engine : - right : ..... A 58 E 60
  - left : ..... A 57 E 59
- G 13/646 (1300) ECO : 2 circular grooves at « a » (Fig. 4)

- Camshaft end-float *(non-adjustable)* : ..... 0.05 to 0.15 mm

b) Theoretical timing gear setting *(with a 1 mm clearance between the rocker arm and the valve stem for inlet and exhaust).*

	1130 cc	1300 cc	1300 cc ECO
Inlet valve opens BTDC :	2°	5° 30'	0°
Inlet valve closes ABDC :	34°	34° 30'	33°
Exhaust valves opens BBDC :	34°	32°	38°
Exhaust valve closes BTDC :			5°
Exhaust valve closes ATDC :	2°	4° 30'	

c) Belt identification :

-Right belt :

- Total length : ..... 885.8 mm
- F pitch number (number of teeth) : 93
- Two white marks : A = 43 teeth and D = 50 teeth

- Left belt :

- Total length : ..... 1000.1 mm
- Number of teeth : 105
- Two white marks B = 33 teeth
- One yellow mark C = 25 teeth } ..... E = 47 teeth

d) Rocker arms :

- Effective clearance *(engine cold) :*

Inlet and exhaust : ..... **0.20 to 0.25 mm**

e) Rocker shaft identification :

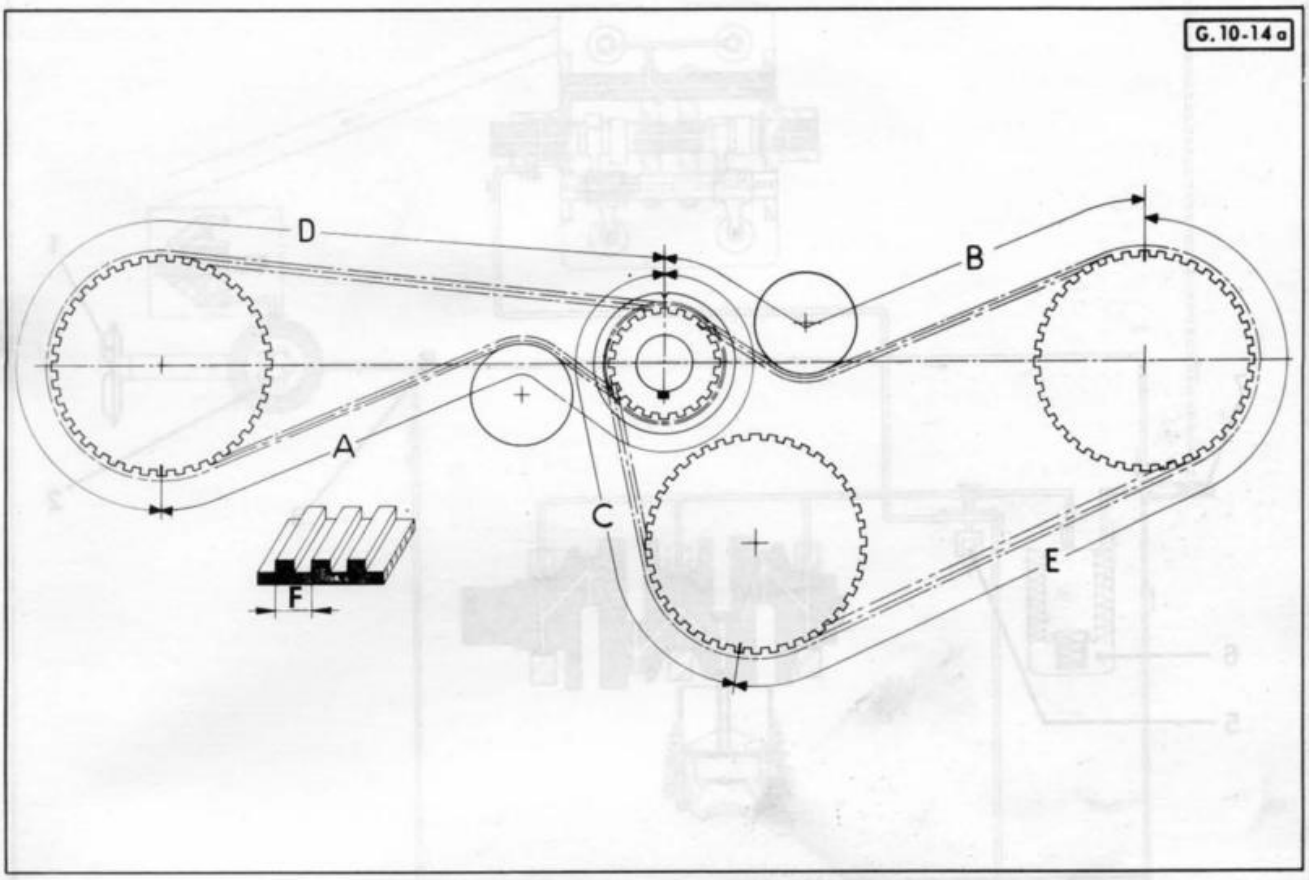
- Left inlet shaft identical to right exhaust shaft : ..... no mark
- Right inlet shaft identical to left exhaust shaft : ..... blind hole in centre of shaft

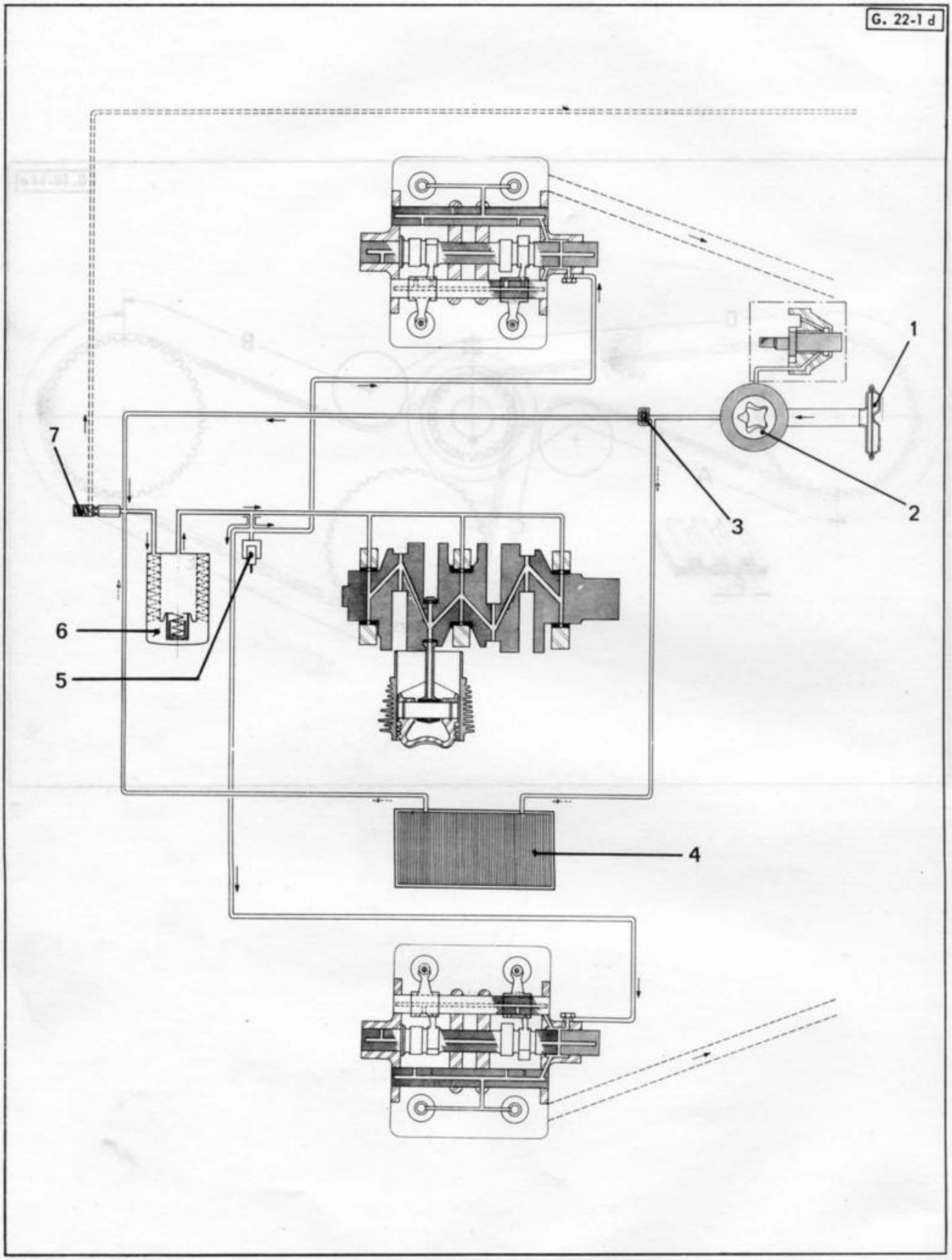
Inlet manifolds :

The inlet manifolds (right side) are in two parts (⟶ R.P. No. 1710).
The inlet manifolds are rigid (R.P. No. 1710 ⟶).

Fan :

- Outside diameter : ..... 290 mm
- Number of blades : 9
- Dog adjustment :
  - position the starter dog horizontally, at top dead centre
  - dog extension beyond lock-nut : ..... 5 mm of threading
- Lock-nut assembly direction : ..... shoulder on pulley side





Lubrication circuit :

- Oil grade : - All seasons : ..... France { TOTAL GTS 15 W 40 / TOTAL GTi Route et Ville 10 W 30
  G.B. : TOTAL 20/50 or TOTAL GOLD
  - Temperatures below − 10° C : ..... France : TOTAL GTi Route et Ville 10 W 30
  G.B. : TOTAL HD 3-C 20 W 20
- Sump capacity :
  - after dismantling : ..... 4 litres
  - after draining : ..... 3.3 litres
  - after draining + filter cartridge replacement : ..... 3.7 litres
  - between min. and max. on dipstick : ..... 0.5 litres
- Oil pressure at 80° C ± 5° C :
  - at 2000 rpm : ..... 4.7 bars min.
  - at 6000 rpm : ..... 6.2 to 7 bars
- Oil pressure switch setting : ..... 0.5 to 0.8 bars
- Oil temperature switch setting *(G 13/625 engine)* : ..... 130° ± 1.5° C
- Relief valve setting :
  - free length : ..... 51.6 mm (13 coils)
  - length under a 9 kg ± 0.5 kg load : ..... 33 mm
- Setting of cooler by-pass valve : ..... 1.8 to 2.5 bars

The filter cartridge is fitted with a built-in by-pass valve.

NOTE : When replacing the filter cartridge, make sure the seal and the contact surface on the crankcase (oil seal) are clean. Fit the suction pipe in the crankcase using LOCTITE FORMETANCH.

Key :

1 : Suction strain

2 : Oil pump

3 : Cooler by-pass valve

4 : Cooler

5 : Pressure switch

6 : Filter cartridge with built-in by-pass valve

7 : Relief valve

TIGHTENING TORQUE VALUES

Crankcase :

- Half-crankcase nuts : ..... **1.2 to 1.5 m.daN**
- Bearing nuts : ..... **4 to 4.5 m.daN**
- Engine supports on crankcase *(must bear the same manufacturer's mark)* : ..... **5 to 6 m.daN**
- Dipstick guide tube nut : ..... **1.8 to 2.5 m.daN**
- Drain plug : ..... **3.5 to 4.5 m.daN**
- Temperature switch : ..... **2.5 to 3 m.daN**
- Oil pump bearing screw : ..... **1.5 to 1.8 m.daN**
- Inlet housing attachment screws or nuts : ..... **1.8 m.daN**
- Cylinder head studs (LOCTITE FORMETANCH) : ..... **0.8 to 1 m.daN**
- Oil strainer screw : ..... **1.4 m.daN**

Flywheel :

- Attachment screws *(grease contact surfaces and threads)*, **must be replaced on each refitting** : ..... **6.4 to 6.9 m.daN**

Cylinder heads :

- Cylinder head nuts (see photo opposite) :
  - *Stage 1* : ..... **0.8 to 1 m.daN**
  - *Stage 2* : ..... **2 to 2.5 m.daN**
- Cylinder head cover nut : ..... **0.8 to 1 m.daN**
- Rocker shaft plug : ..... **1.4 to 1.6 m.daN**
- Exhaust flange nut : ..... **1.5 m.daN**
- Cylinder head cover studs : ..... **0.3 to 0.5 m.daN**
- Oil coupling screw : ..... **1.8 to 2 m.daN**
- Inlet flange screw : ..... **1.8 m.daN**
- Camshaft bearing nuts : ..... **1.5 to 1.8 m.daN**

Timing gear :

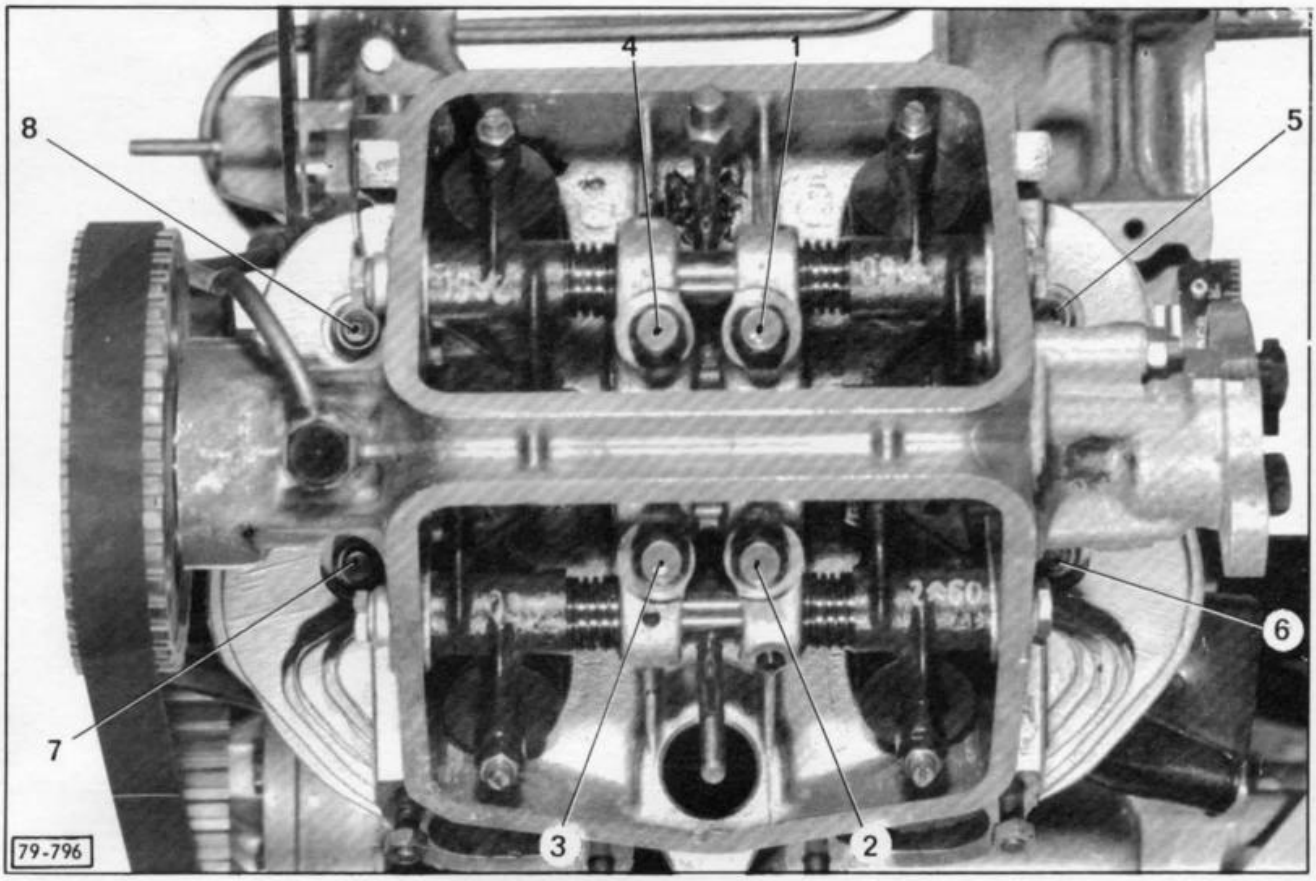
- Tensioner roller nut : ..... **1.8 m.daN**
- Camshaft pinion nut : ..... **8.2 m.daN**
- Tensioner roller stud (LOCTITE FRENETANCH) : ..... **0.3 to 0.5 m.daN**

Lubrication system :

- Filter cartridge insert (LOCTITE FORMETANCH) : ..... **1.3 to 2.2 m.daN**
- Oil cooler attachment screw : ..... **1.8 m.daN**
- Cooler by-pass valve plug (LOCTITE FORMETANCH) : ..... **5 to 5.5 m.daN**
- Oil pipe coupling screw : ..... **1.8 to 2 m.daN**
- Oil gallery blanking plug (LOCTITE FORMETANCH) : ..... **3.5 to 5 m.daN**
- Oil pressure switch : ..... **2 to 2.5 m.daN**
- Oil temperature switch (1300 cc engine) : ..... **2.5 to 3 m.daN**

Cooling system :

- Lock-nut *(lubricated face)* : ..... **22 to 24 m.daN**



ROCKER ARM ADJUSTMENT

This operation must be carried out with the engine cold.

1. Place a cloth on the exhaust manifold.

2. Disconnect spark-plug leads (1) for cylinders two and four.
Remove the cylinder head covers.

3. Adjust rocker arm clearance :
Proceed as follows to adjust each rocker arm :
a) Turn the engine so that the heel of the rocker arm to be adjusted comes onto the corresponding cam *(valve fully closed).*

b) Adjust rocker arm clearance between heel and corresponding cam at « a ».
Inlet - Exhaust : 0.20 to 0.25 mm

NOTE : If the engine is mounted in the vehicle, use angle screwdriver **A** to facilitate adjustment.

4. Replace the rocker covers :
Check that there are no roughnesses on the joint surfaces, which must be clean and dry. Glue the seal to the rocker cover (BOSTIK 1400 or MINNESOTA F 19).
Centre the rocker covers correctly.

NOTE : The lower and upper rocker covers are different. Check correctly assembly.
Oil filler (2) is mounted on the left side.

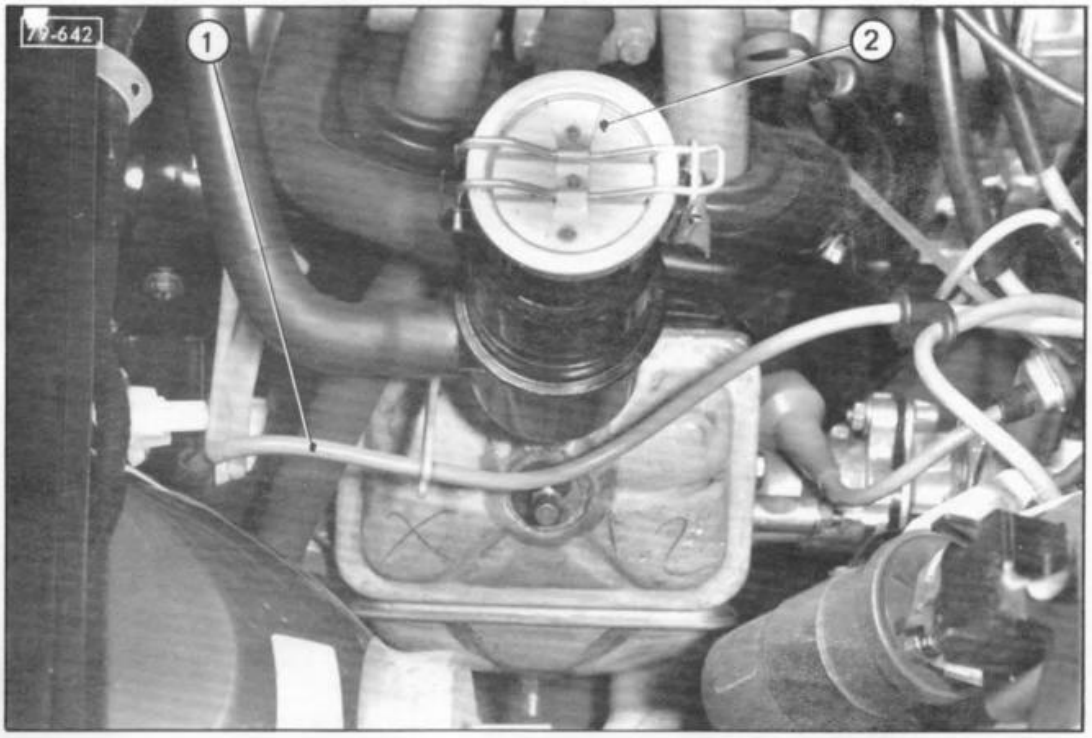
Nut tightening torque : 0.8 to 1 m.daN

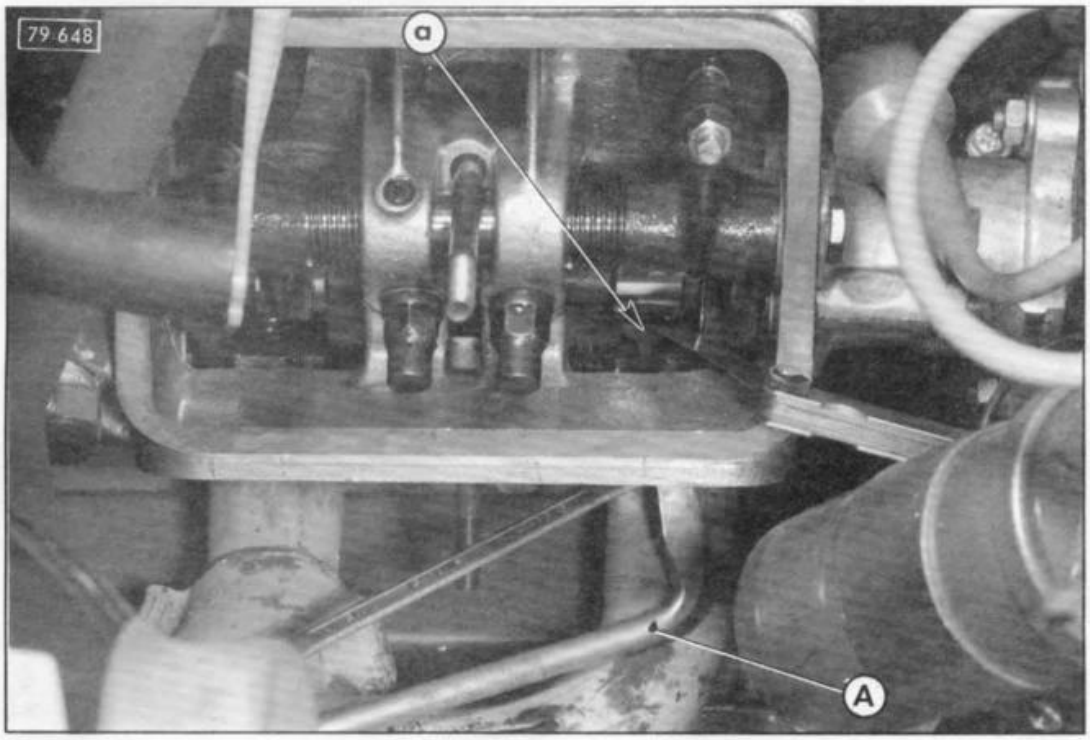
Incorrect assembly of the gaskets, faulty alignment or indequate tightening of the nut, can result in total oil loss.

5. With the engine hot, adjust idling if necessary.

ENGINE	CLUTCH	rpm
1130 cc 1300 cc	All Types	850 to 900
1300 ECO		650 to 700

Check tightness of joints.
Check oil level, and top up if necessary.





CHECKING THE VALVE TIMING

The valve timing check must be carried out with the engine cold, starting either with the left or the right camshaft.

1. Remove the upper cylinder head cover on each side.

2. **Checking the left camshaft setting :**

a) Turn the engine in its normal running direction, until :
- the exhaust valves of cylinder No. 1 is fully open,
- then continue turning the engine until the flywheel pointer is opposite mark « c » on the graduated quadrant :

10° for G 11/631 engine
15° for G 13/625 engine
5° for G 13/646 engine

On the converter, mark « b »(10 teeth ahead of top dead center groove **A)** must be opposite the 15° mark on the graduated quadrant.

b) *On cylinder No. 1 inlet rocker arm :*
Unscrew lock-nut (1) and turn the adjustment screw so as to obtain **nil clearance and nil load** between this screw and the valve stem. Tighten lock nut (1) without forcing.

c) Turn the engine by one revolution in its normal running direction, until the engine flywheel pointer *(mark « b » on the converter)* is again opposite mark « c » on the graduated quadrant :

10° for G 11/631 engine
15° for G 13/625 engine
5° for G 13/646 engine

d) On the inlet rocker arm, measure the clearance between the adjustment screw and the valve stem.

It should be between 0.5 and 1 mm.

DRAWING KEY

The arrow ◄—— indicates the front end of the vehicle.

3. **Check the right camshaft setting :**
Proceed as above, working on cylinder No. 3.

4. Adjust the inlet rocker arms of cylinders Nos. 1 and 3.

Inlet clearance : 0.20 to 0.25 mm

5. **Replace the cylinder head covers :**

a) Check that there are no roughnesses on the joint surfaces, which must be clean and dry.

b) If necessary, glue the gaskets to the cylinder head covers (BOSTIK 1400 or MINNESOTA F 19).

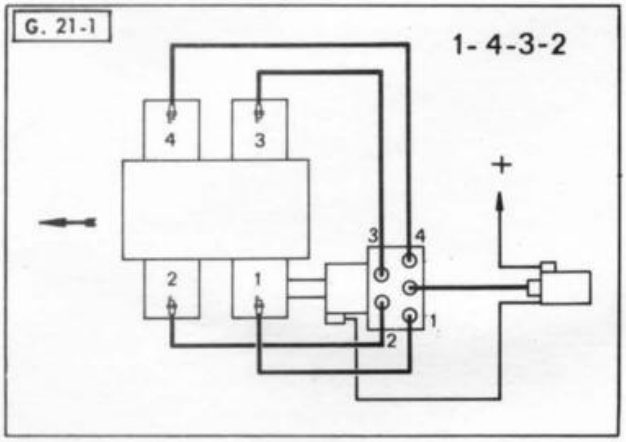
c) Position the cylinder head covers, centering them correctly (the cover fitted with the filler pipe is mounted on the left side).

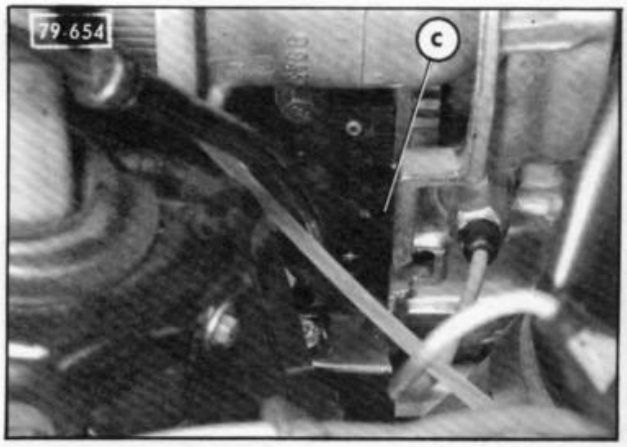
Attachment nut tightening torque :
0.8 to 1 m.daN

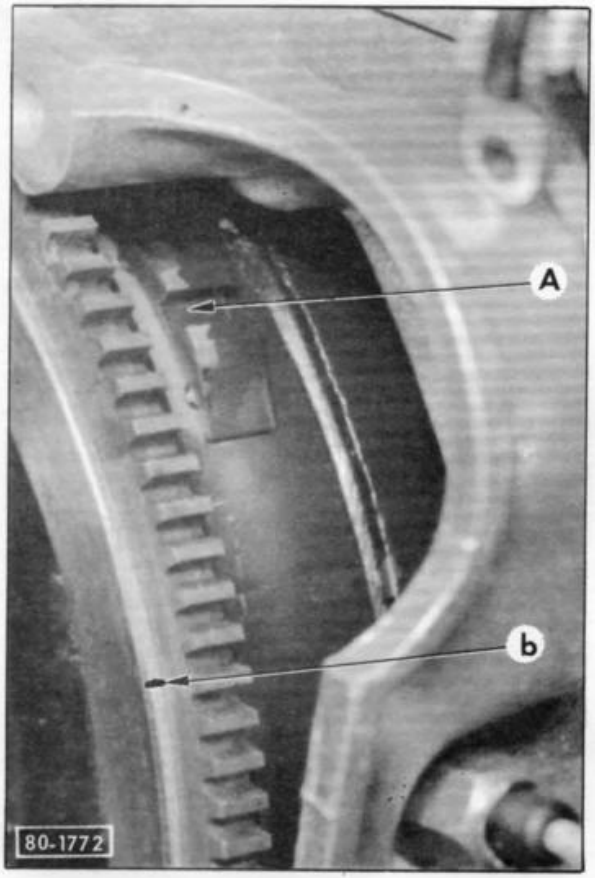
CAUTION : Incorrect assembly of the gaskets, faulty alignment, or inadequate tightening of the attachment nut can result in a total loss of the engine oil.

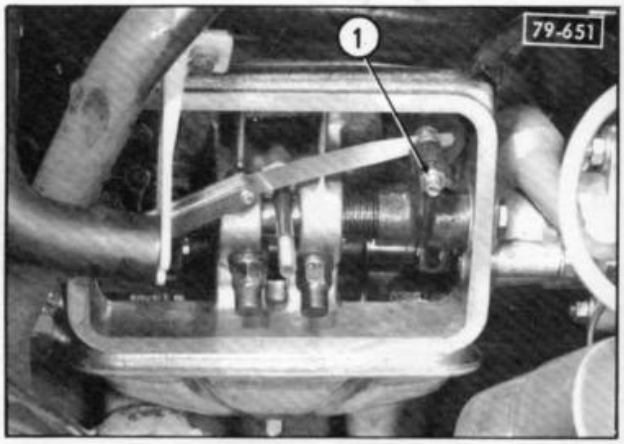
6. Check the engine oil level.

7. Run the engine, and check the tightness of the gaskets. Adjust the idling if necessary.









• 811-1 (I)

NOTE : This operation is valid for all types of vehicle, from 1977 models on.

All PETROL ENGINE vehicles put on the road from 1 October 1976, must be fitted with a tamper-proof carburettor *(valid for ALL EUROPEAN COUNTRIES except SWEDEN).*

This device consists in protection of the mixture adjustment screws (SOLEX and WEBER), and the aperture adjustment screws of the throttle valve or valves (SOLEX).

If the pollution setting is not correct, remove the original plug *(white for WEBER carburettor, black for SOLEX carburettor)* and replace, after adjustment, by a « REPAIR » protecting plug *(black for WEBER carburettor, white for SOLEX carburettor).*

The Replacement Parts Department supplies a new kit, ref. **4035-T**, for removal and fitting of tamper-proof plugs on SOLEX and WEBER carburettors.

NOTE : The first kits sold by the Replacement Parts Department (ref. 4029-T) can be made up to present standard by the addition of tools **(D)** ref. 4031-T and **(F)** ref. 4032-T.

COMPOSITION OF KIT REF. 4035-T :

A : Gun

B : Gun arming tool

C : Extractor tool for tamper-proof plugs **(a)** on flush mixture adjustment screw *(SOLEX)*

D : Extractor tool for tamper-proof plug **(a)** on flush mixture adjustment screw *(WEBER)*

E : Tool for fitting plug **(a)** and cap **(b)** *(SOLEX and WEBER).*

F : Tool for cracking the head of cap **(b)** on adjustment screws with cup *(SOLEX)*

G : Extractor tool for cap **(b)** *(SOLEX)*

H : Tool for fitting tamper-proof cap **(c)** on throttle valve shaft stop screw *(SOLEX).*

This kit also contains a set of plugs for SOLEX carburettors :

a- Tamper-proof plug for flush mixture adjustment screw

b- Tamper-proof cap for mixture adjustment screw with cup

c- Tamper-proof cap for throttle valve shaft stop screw

The Replacement Parts Department supplies caps in packets of 10, under the following references :

- **Tamper-proof plug for flush mixture adjustment screw**
  SOLEX carburettor : ..... No. 5 489 718 Y (white)
  WEBER carburettor : ..... No. 5 489 716 B (black)
- **Tamper-proof cap for mixture adjustment screw with cup**
  SOLEX carburettor : ..... No. 5 501 075 U (white)
- **Tamper-proof cap for throttle valve shaft stop screw**
  SOLEX carburettor : ..... No. 5 507 643 (white)

UTILIZATION

I. REMOVAL AND FITTING OF TAMPER-PROOF PLUG ON FLUSH MIXTURE ADJUSTMENT SCREWS FOR SOLEX or WEBER CARBURETTOR (plug (a))

NOTES :

1 - On GS vehicles equipped with a WEBER carburettor the air filter must be removed for execution of this operation.

2 - On GS vehicles equipped with a twin SOLEX carburettor it is advisable to take down the throttle closing dashpot.

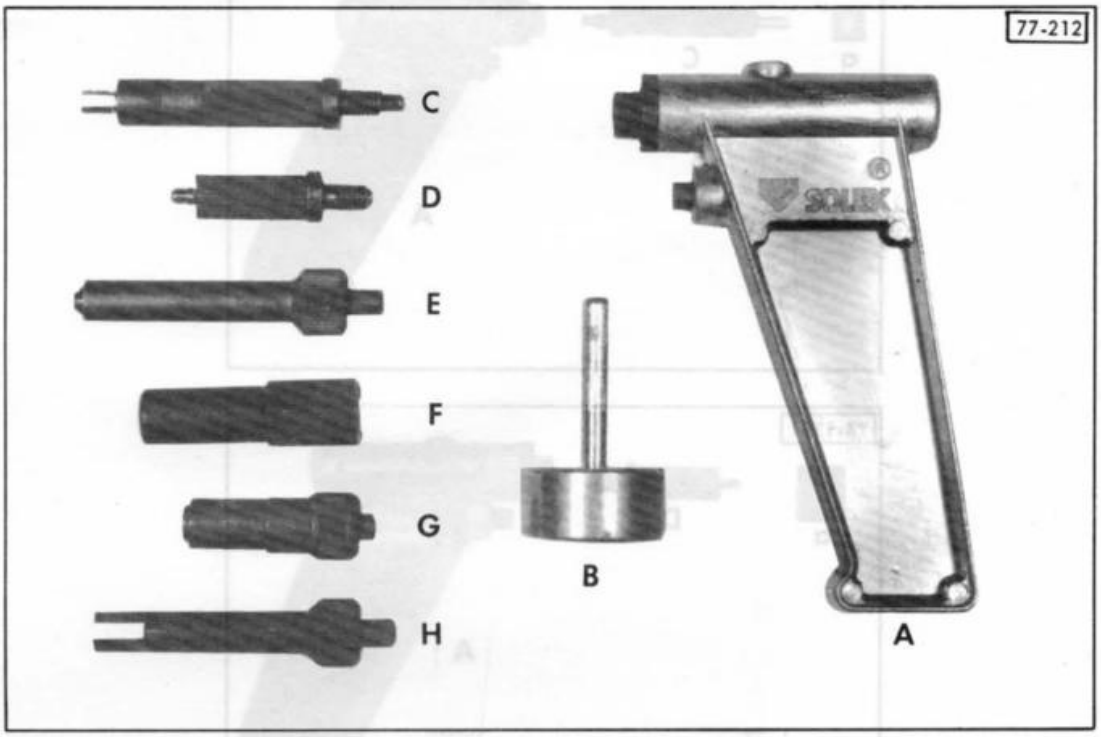
3 - On all types of 2 CV vehicle (Méhari and 250/400 « Fourgonnettes » vans), the filter must be removed to facilitate utilization of the tool.

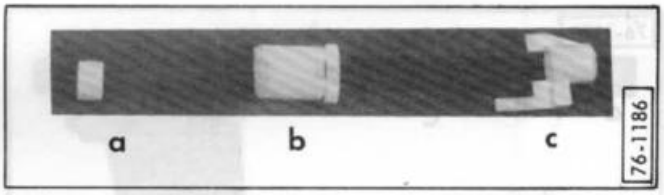
4 - On CX vehicles equipped with WEBER carburettor, slightly lower the support bracket for the water hose, to allow correct alignment of the tool.

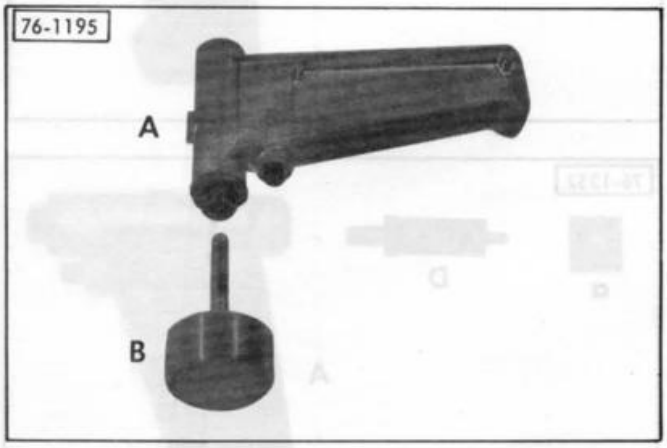
5 - On VD1 vehicles, take down the idle cut-off, and the alternator suppressor capacitor mounted on the alternator flange.

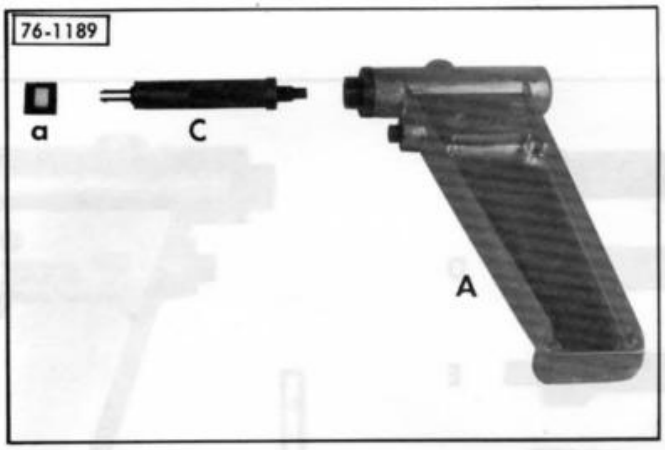
REMOVAL

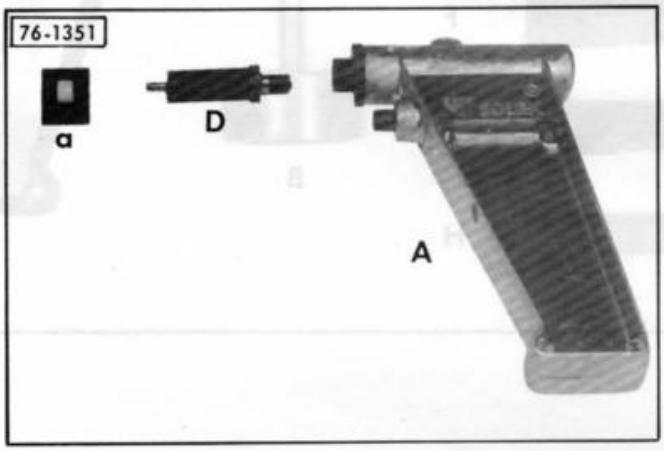
1. Arm gun **A** on tool **B.**

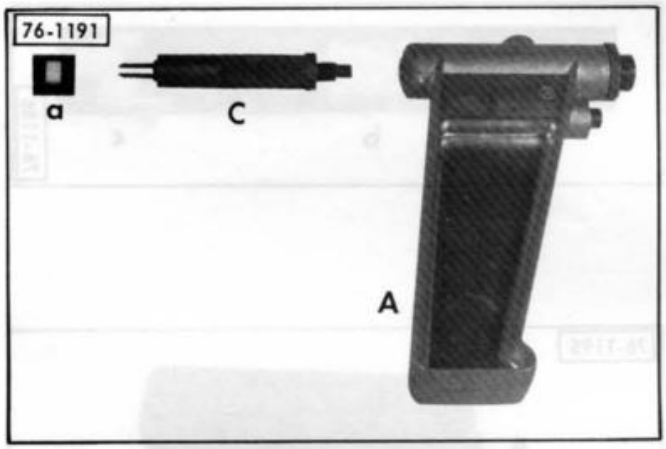


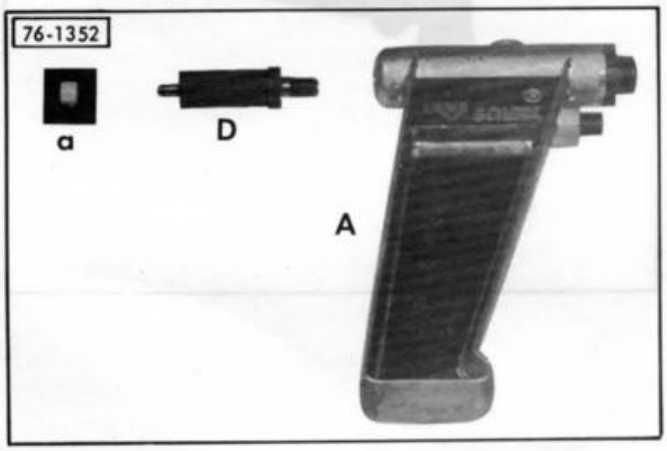












2. Pierce plug (a) :

SOLEX carburettor :

- Position and hold tool **C** against gun **A.**
- Present the tool/gun assembly against plug **(a)**, checking that the tool end is correctly centred in the plug, and that the assembly is aligned as closely as possible on the plug axis.
- Fire and extract the gun, leaving tool **C** on the carburettor.

WEBER carburettor

- Position and hold tool **D** against tool **A.**
- Present the tool/gun assembly against plug **(a)**, checking that the tool end is correctly centred in the plug, and that the assembly id aligned as closely as possible on the plug axis.
- Fire the gun, and screw the tool into the plug (LH thread).
- Extract the gun, leaving tool **D** on the carburettor.

3. Extraction of plug (a) :

- Arm tool **A.**

SOLEX carburettor :

- Screw tool **C** onto the back of gun **A.**
- Fire the gun to extract the plug.

WEBER carburettor :

- Screw tool **D** onto the back of gun **A.**
- Fire the gun to extract the gun.

4.Adjust the level of pollution :

NOTE : If the air filter has been removed *(GS and 2 CV vehicles)*, replace, but *without anchoring,* for adjustment.

FITTING

5. Fitting tamper-proof plug (a) :

- Arm gun **A.**
- Screw tool **E** into gun **A.**

Place plug **(a)** in its recess in the carburettor. *Check correct position of insertion on WEBER carburettors (see figure opposite).*

- Drive the plug until it reaches its final position.

NOTE : If the air filter has been removed, replace and *fix firmly.*

II. REMOVAL AND FITTING OF TAMPER-PROOF CAP ON MIXTURE ADJUSTMENT SCREW WITH CUP ON SOLEX CARBURETTORS (cap **(b)**)

REMOVAL

1. Crack the head of cap **(b)** using tool **F.**

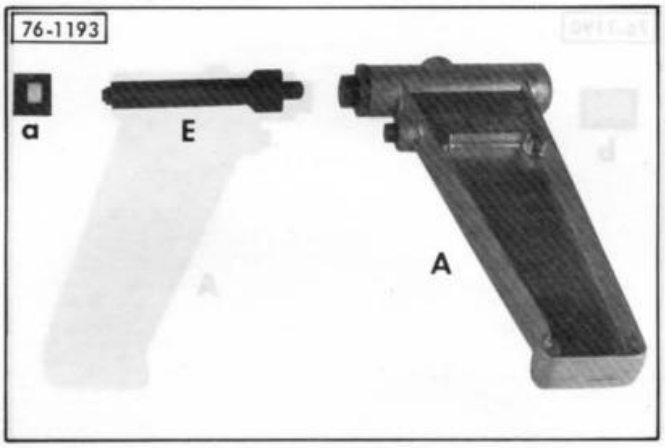
The cap must extend beyond the cup by at least 6 mm. The flare on the back of tool **F** can be used as a gauge. If this is not the case, unscrew the mixture adjustment screw.

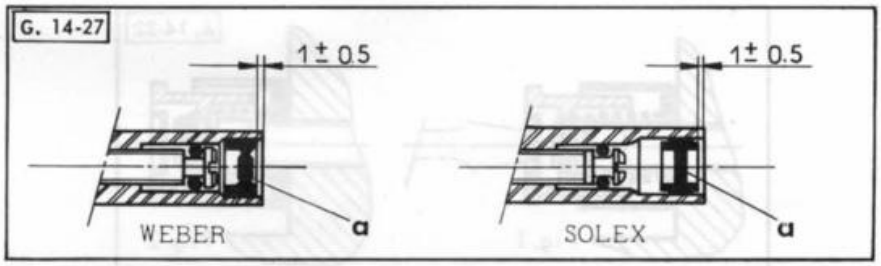
2. Extraction of cap (b) :

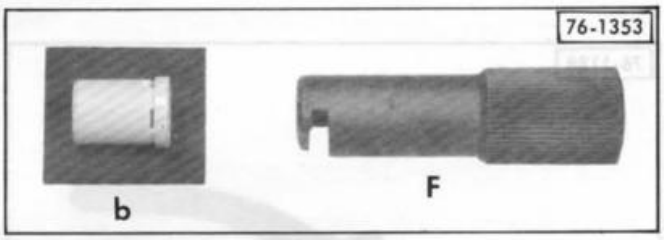
- Arm gun **A.**
- Screw tool **G** into the gun.
- Apply the tool/gun assembly against the cap.

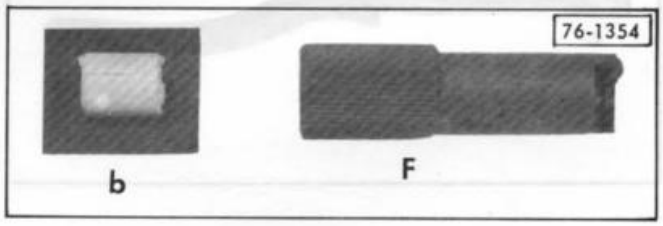
Ensure correct alignment.

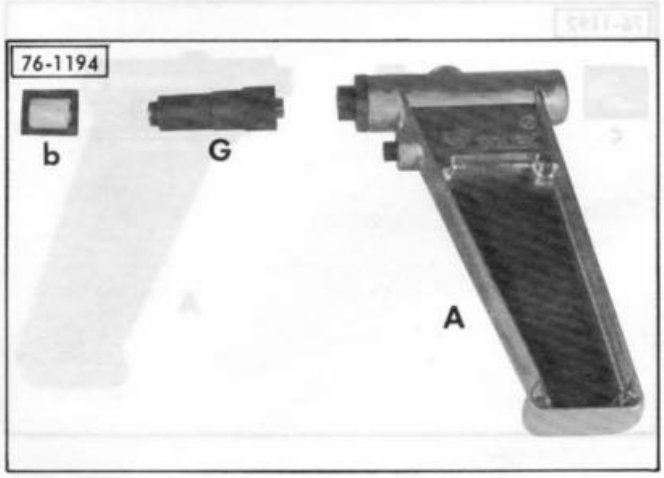
- Fire the gun and extract the cap.

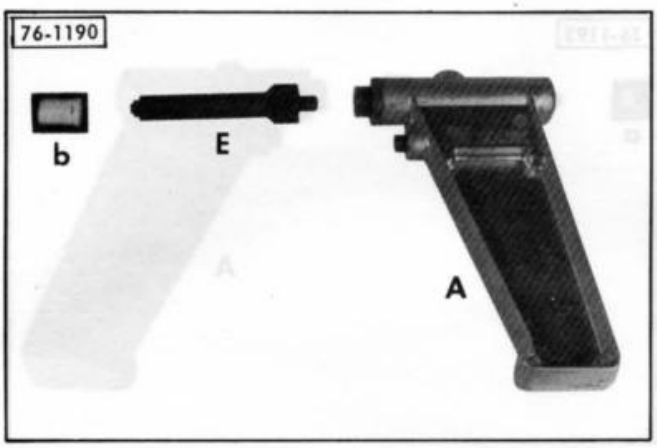


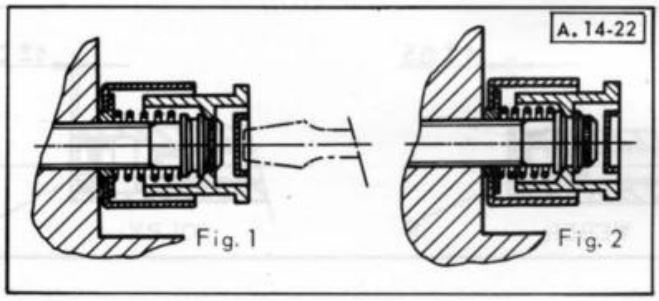


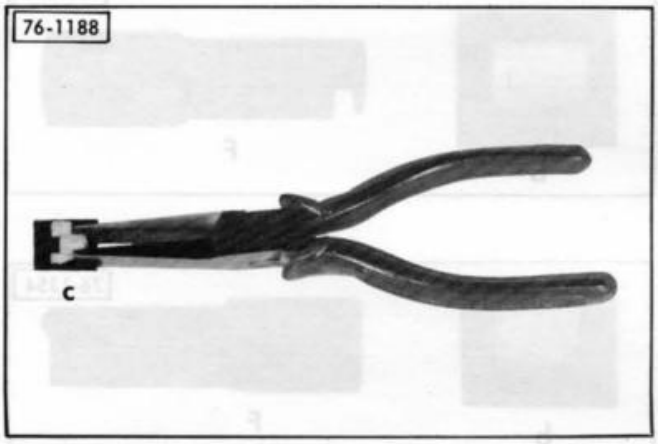


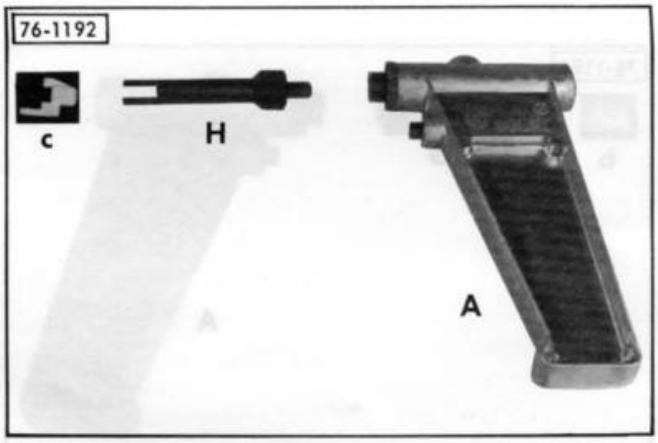












FITTING

3. Pre-engagement of cap (b) :
(see fig. 1 opposite)
- Place the cap in the mixture screw cup.
- Arm gun **A**
- Screw tool **E** into the gun
- Apply the tool/gun assembly against the cap
- **Fire once**

4. Adjust the exhaust emission.

5. Engagement of cap (b) :
- Arm the gun, and **strike the cap a second time,** displacing the cap to the position shown in fig. 2 opposite.

III. REMOVAL AND FITTING OF TAMPER-PROOF CAP ON THROTTLE VALVE SHAFT STOP SCREW ON SOLEX CARBURETTOR (cap (c))

This operation is only executed in the case of overhaul and adjustment on a type L'POLLU 2000 carburettor test rig.

REMOVAL

1. Remove cap **(c)** with a pair of flat-nosed pliers.

2. Aperture adjustment :
- Adjust the throttle valve aperture, using the test rig and in accordance with the standards indicated in Equipment Studies No. 14-1/16 ter and No. 14-1/16 quarter *(these documents will be supplied on request, to owners of carburettor overhaul and adjustment rigs).*

FITTING

3. Fitting cap (c) :
- Arm gun **A**
- Screw tool **H** into the gun
- Engage cap **(c)** on the throttle valve shaft stop screw
- Apply the tool/gun assembly against cap **(c)** and fire the gun.

To meet regulations currently in force, exhaust emission testing and adjustment on PETROL ENGINE vehicles must be carried out following the operations listed below :

I. ENGINE REPLACEMENT

II. CARBURETTOR REPLACEMENT

III. WORK ON THE CARBURATION SYSTEM

Replacement of carburettor components
Carburettor adjustment
Work on carburettor controls

IV. WORK ON THE INLET SYSTEM

Replacement or removal of the following :
- inlet manifold
- air filter
- crankcase gases recycling system

V. WORK ON THE ENGINE

Adjustment of rocker arm clearance
Replacement or removal of the following :
- cylinder head
- camshaft
- rocker arms
- valves
- piston sleeves

VI. WORK ON THE IGNITION SYSTEM

Replacement or reconditioning of the distributor (partial or total)
Adjustment or replacement of spark-plugs
Adjustment of ignition timing

VII. WORK ON THE EXHAUST SYSTEM

Replacement or removal of the following :
- exhaust manifold
- silencer or other par of the exhaust system

VIII. WORK ON THE ANTI-POLLUTION SYSTEM

Where the vehicle has special equipment *(for example vehicles for SWEDEN, AUSTRALIA, and JAPAN).*

OPERATION
GX. 142-00

GSA 1300

→ 7/1980

CHARACTERISTICS AND SPECIAL FEATURES OF THE CARBURETTOR

SOLEX CARBURETTOR

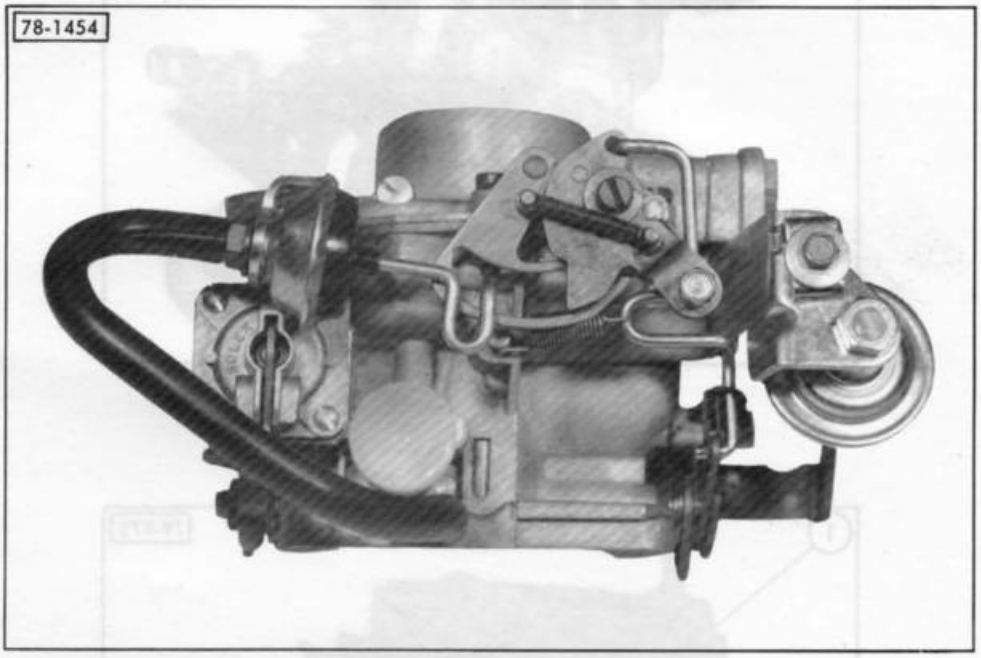
CHARACTERISTICS

Type : 28 CIC 4
Identification mark : CIT 185
Dual-choke carburettor, "compound" type, with mechanical control of second choke
Stangler flap on choke with an anti-flooding capsule
Idle cut-off
Throttle closing dashpot
Petrol return to reservoir on cover (indicated by an arrow)
Tamper-proof plug on volume control screw and on butterfly stop-screw :
Original part : black R.P. colour : white

DESCRIPTION	1st CHOKE		2nd CHOKE	
Venturi bore :	20		22	
Main jet :	107.5		95	
Air correction jet and emulsion tube :	1 S 3 (220)	(7)	2 T 1 (155)	(4)
Pilot jet :	50	(6)		
Constant enrichment pilot jet :	30	(1)		
By-pass jet :			40	(3)
Econostat :			95	(2)
Accelerator-pump injector :	55	(5)		
♦ Needle valve (ball-operated) dia. in mm :		1.8		
♦ Weight of polyamide float No. 59 807 :		11.4 g		
Positive opening of 1st choke butterfly (with stangler flap closed) :	1.3 ± 0.05 mm			
Opening of strangler flap under a 250 mbar vacuum (190 $mmHg$)	4 ± 0.2 mm			

Operating time of the throttle closing dashpot between 4500 and 1200 rpm : 3 to 4.5 seconds.
Float setting : With the cover removed and turned upside-down, the distance between the float centreline and the cover joint face (gasket in position) should be : 18 mm

78-1454



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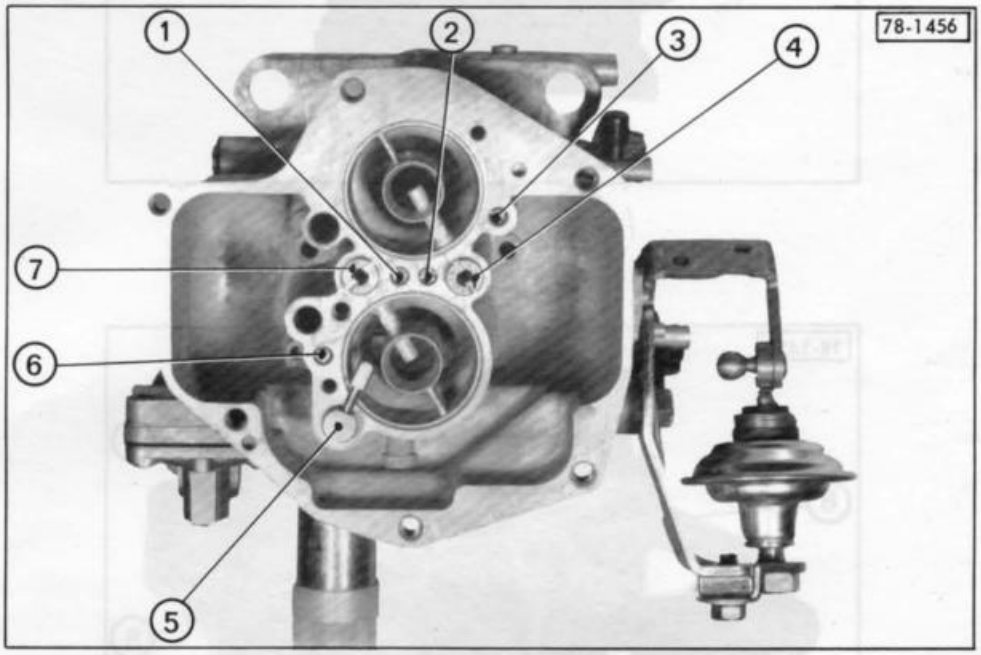
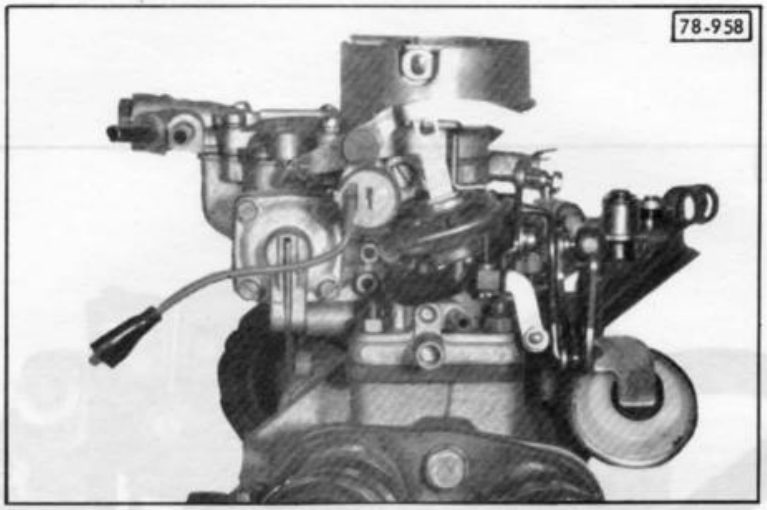
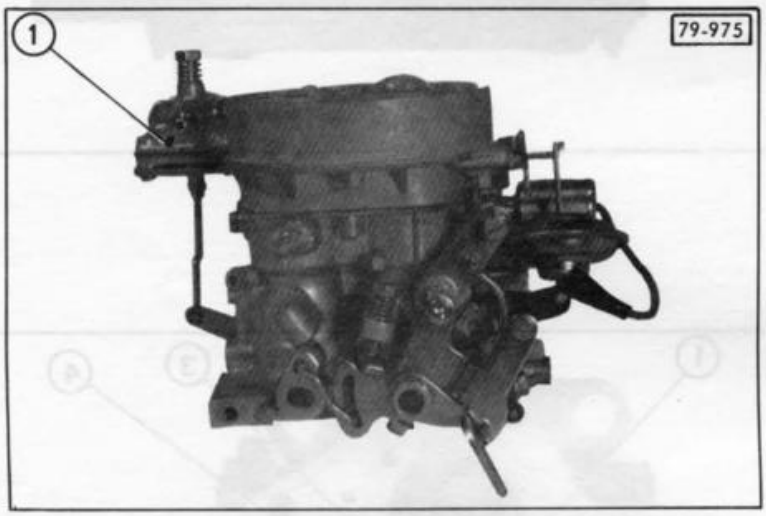
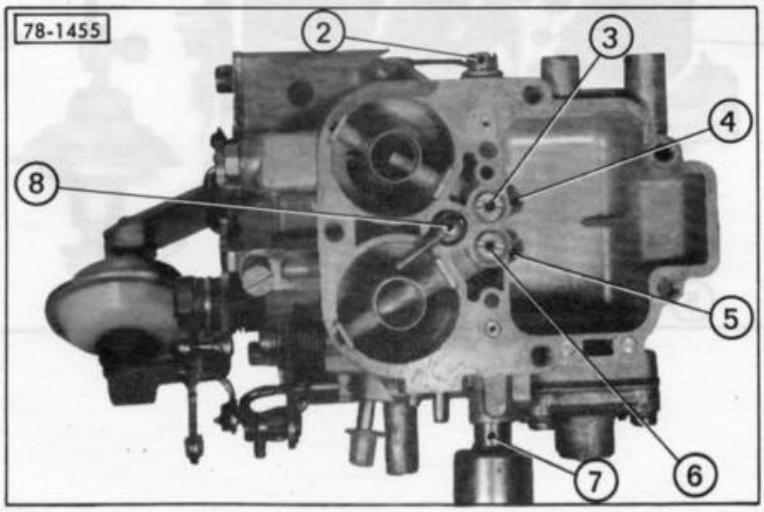








WEBER CARBURETTOR

CHARACTERISTICS

Type : 30 DGS 13/250 — *Conventional clutch*
Mark : W 92-50

Type : 30 DGS 19/250 — *Torque converter*
Mark : W 99-50

Dual-choke carburettor, "compound" type, with mechanical control for second choke
Strangler flap on first chamber with anti-flooding capsule
Idle cut-off

Throttle closing dashpot

Petrol return to reservoir on cover (identified by arrow)
Capsule acceleration of idling opening (1)

Tamper-proof plugs on volume control screw and second choke butterfly stop screw :
Colours : Original part : white — Replacement part : black

DESCRIPTION	1st CHOKE		2nd CHOKE	
Venturi bore :	21		21	
Main jet :	105	(5)	107	(4)
Air correction jet :	200	(6)	155	(3)
Emulsion tube :	F 85	under 6	F 20	under 3
Pilot jet :	45	(7)		(2)
Accelerator pump injector :	45	(8)		
Econostat (in cover) :		65 (fixed)		
Needle valve (ball-operated) :		1.5		
Weight of brass float :		11 ± 2 g		
Opening of 1st choke butterfly (strangler flap fully closed) :	1.35±0.05mm			
Opening of strangler flap under 530 mbar (400 mmHg) — 1st position	3 to 3.5 mm			
Opening of strangler flap under 530 mbar (400 mmHg) — 2nd position	5 to 5.5 mm			

Operation time of the throttle closing dashpot (W. 92-50) between 4500 and 1200 rpm : 3 to 4.5 seconds
Float setting (cover vertical with gasket and ball not pushed in) :
Distance between joint face and float : 6.5 mm

OPERATION
GX. 142-00 a

GSA 1300

7/1980 → 7/1981

GSA 1130

7/1980 → 7/1983

CHARACTERISTICS AND SPECIAL FEATURES OF THE CARBURETTOR

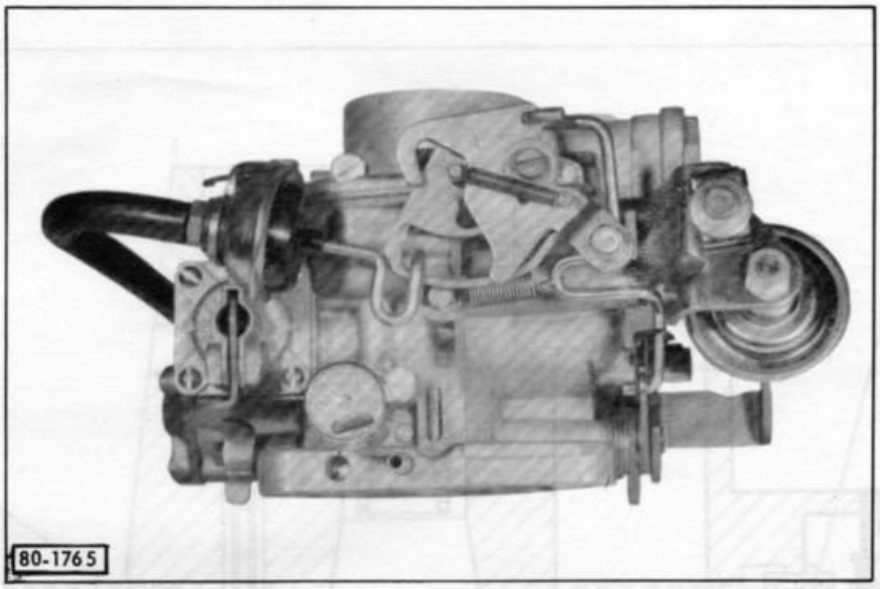
SOLEX CARBURETTOR

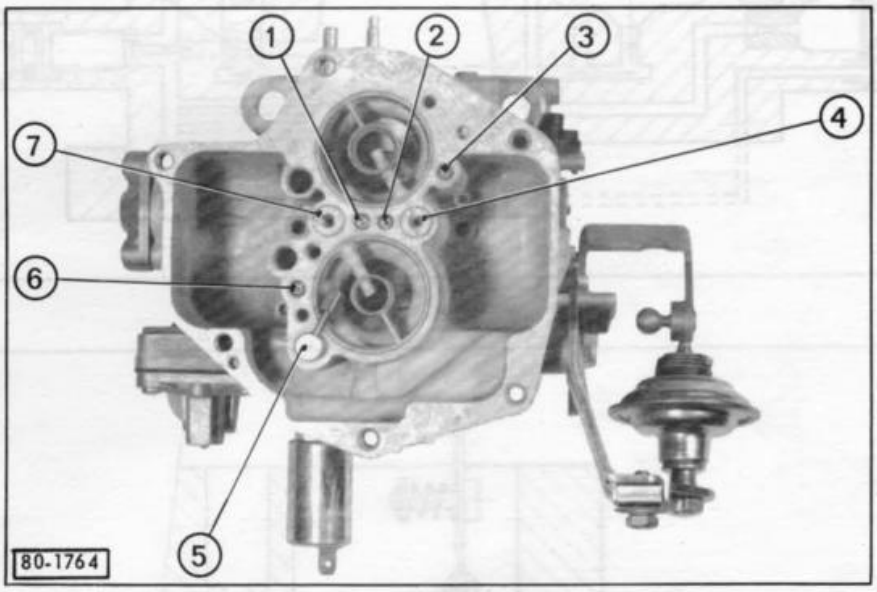
CHARACTERISTICS.

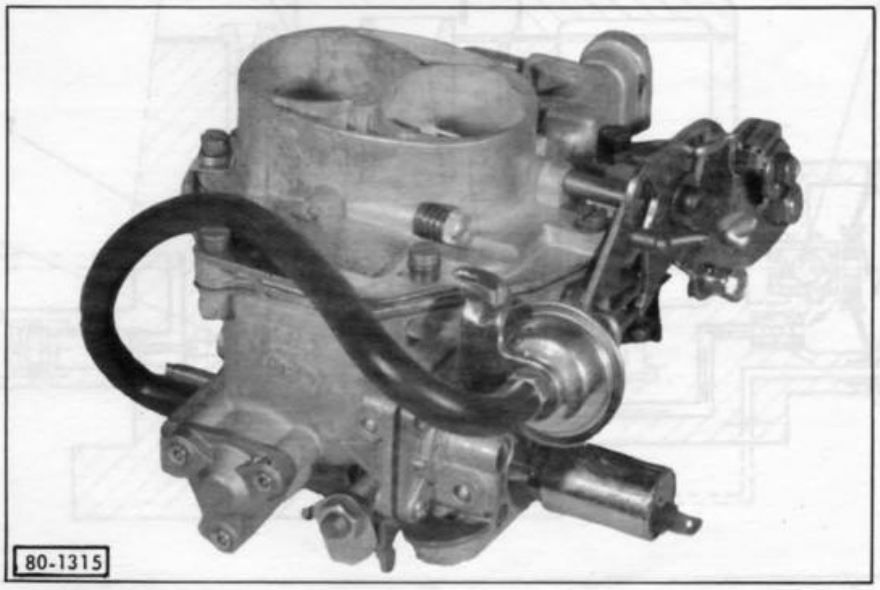
Type : 28 CIC 4
Identification mark : CIT 229 *(1130 cc engine)*
CIT 230 *(1300 cc engine)*
Dual-choke carburettor, « compound » type, with a mechanical control of second choke.
Pneumatic petrol enrichment device on first choke.
Strangler flap on first choke with an anti-flooding capsule.
Vacuum port for econoscope.
Idle cut-off.
Throttle closing dashpot.
Petrol return to fuel tank (indicated by an arrow on the cover).
Tamper-proof plug on the volume control screw and the butterfly stop-screw :
Original colour : black R.P. colour : white

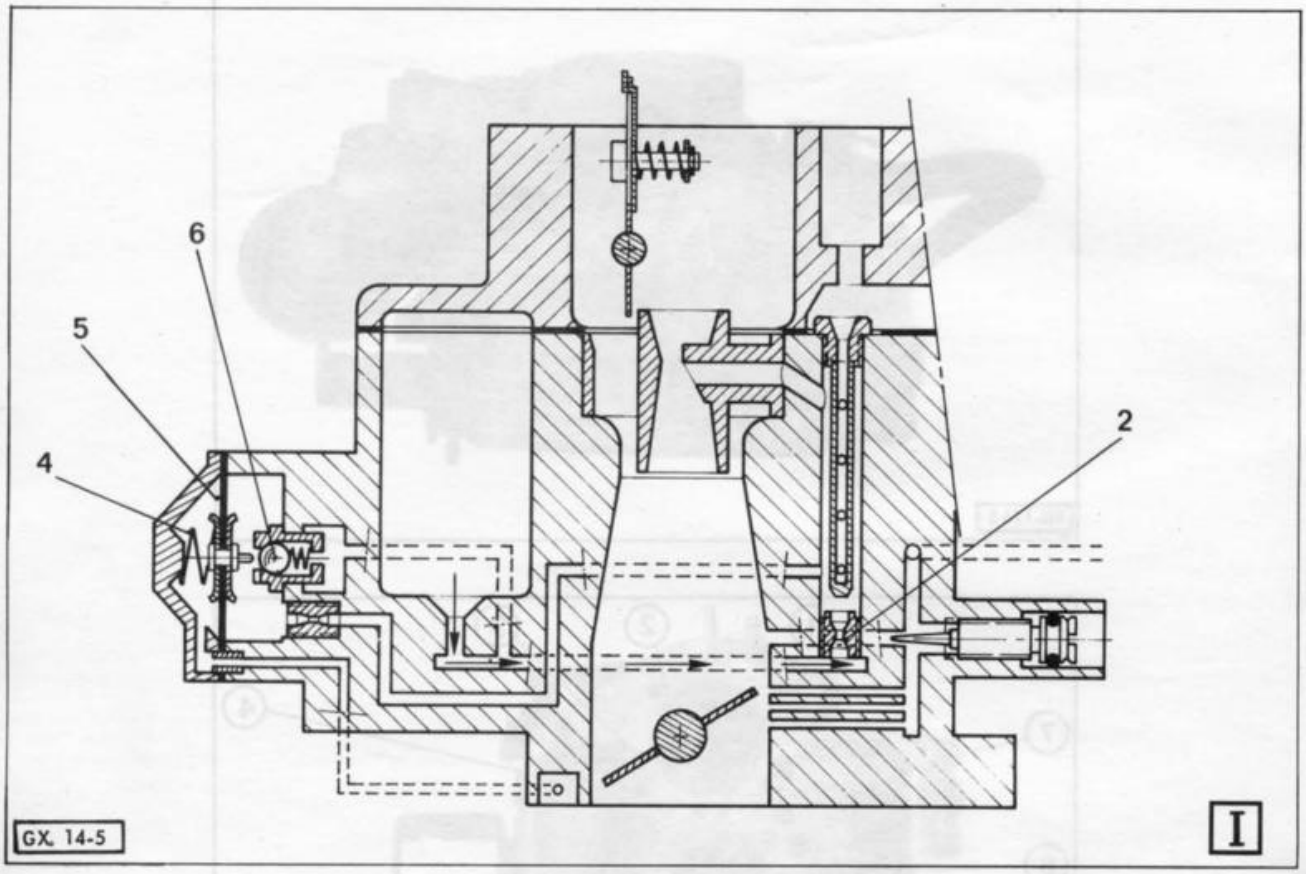
DESCRIPTION : Type : ..... Mark :	28 CIC 4 229		28 CIC 4 230	
	1st choke	2nd choke	1st choke	2nd choke
Venturi bore :	20	21	20	22
Main jet :	92.5	85	107.5	95
Air correction jet and emulsion tube :	200 P5 (7)	180 P5 (4)	210 Y3 (7)	160 T1 (4)
Pilot jet :	50 (6)		50 (6)	
Constant enrichment pilot jet :	30 (1)		30 (1)	
By-pass jet :		35 (3)		40 (3)
Econostat :		170 (2)		90 (2)
Accelerator-pump injector :	55 (5)		55 (5)	
Jet of pneumatic enrichment device :	40		50	
Needle valve :		1.8		1.8
Weight of the float :		11.7 g		11.7 g
Positive opening of the 1st choke butterfly (with strangler flap closed) :	1.25 ± 0.05 mm		1.30 ± 0.05 mm	
Strangler flap opening under a vacuum of 350 mbar :	3.6 ± 0.3 mm		4 ± 0.3 mm	

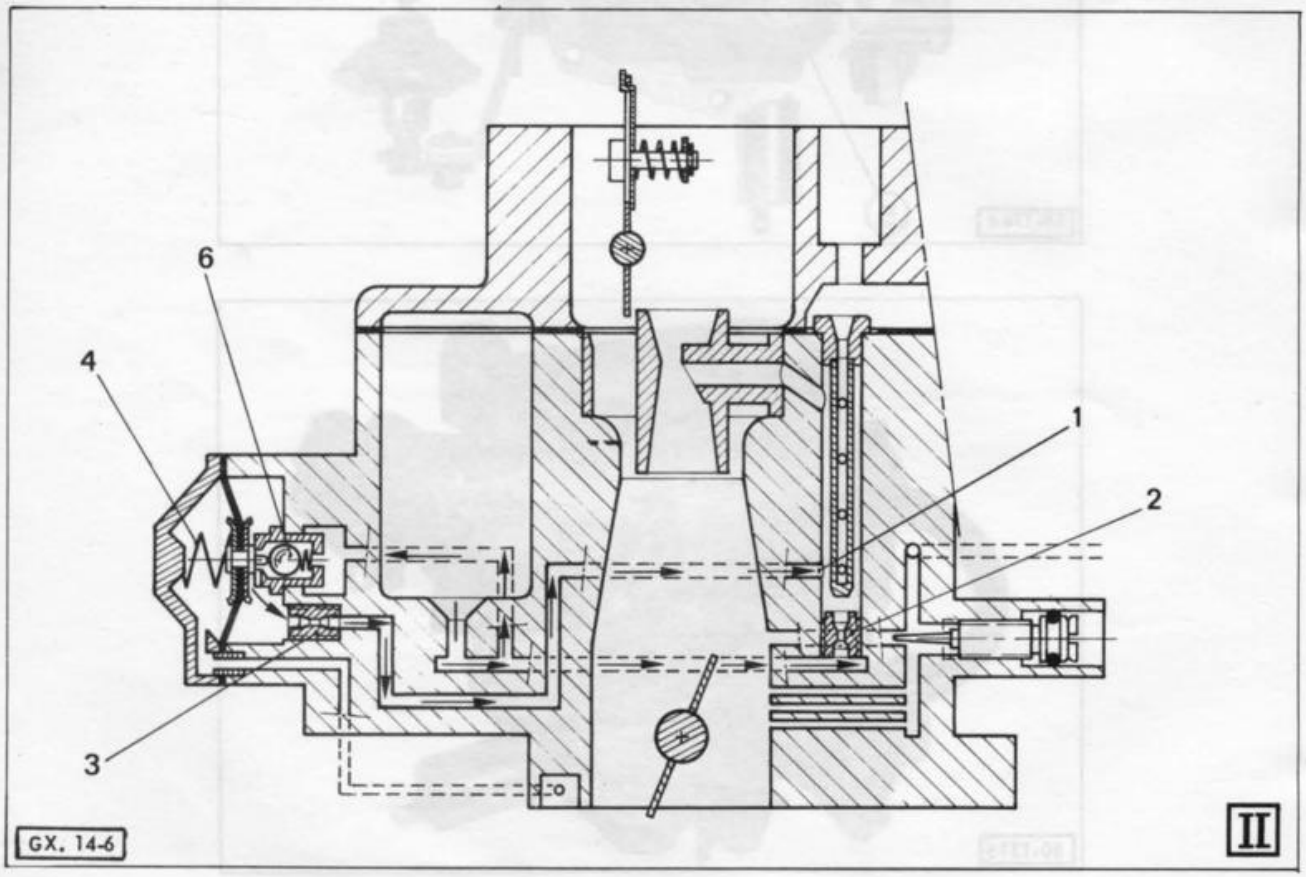
Operating time of the throttle closing dashpot between 4500 and 1200 rpm : 2 to 4.5 seconds.
Float setting : with the cover removed and turned upside down, the distance between the float centre line and the cover joint face (with gasket fitted) should be : 18 mm.











PNEUMATIC ENRICHMENT DEVICE ON SOLEX CARBURETTOR

The enrichment device is placed on the petrol feeding circuit of the 1st choke.

The 1st choke main jet is small, but its outflow is big enough to keep the engine running at low load with a minimum consumption.

At high load, the main jet outflow is too low and, therefore, the mixture is too poor. The enrichment device petrol inlet (located under the main jet) then opens, allowing to have a mixture richness corresponding to engine requirements.

The enrichment device is controlled by the « manifold » vacuum which varies with the engine load.

Operation :

At low load (fig. 1), the throttle valve is partly open and the vacuum in the manifold is strong. This vacuum is exerted on diaphragm (5) which compresses spring (4). Ball (6) comes to rest on its seat. The engine petrol supply is ensured by main jet (2).

At high load (fig. 2), the throttle valve is fully open. The vacuum in the manifold is weak and incapable of withstanding the force of spring (4). Ball (6) is loose from its seat, allowing petrol to flow through enrichment jet (3) towards the 1st choke draining well (near hole (1)) where it will meet petrol coming from main jet (1).

WEBER CARBURETTOR

CHARACTERISTICS.

Type : 30 DGS 17/250 Mark : W 97-50 — *1130 cc engine*
Type : 30 DGS 16/250 Mark : W 96-50 — *1300 cc engine*
} *Conventional clutch*

Type : 30 DGS 18/250 Mark : W 98-50 — *with converter*

Dual-choke carburettor, « compound » type, with mechanical control of second choke.

Pneumatic air enrichment device on 1st choke

Strangler flap on first choke with anti-floading capsule.

Idle cut-off

Vacuum port for econoscope.
Throttle closing dashpot.

Petrol return to reservoir (arrow on cover).

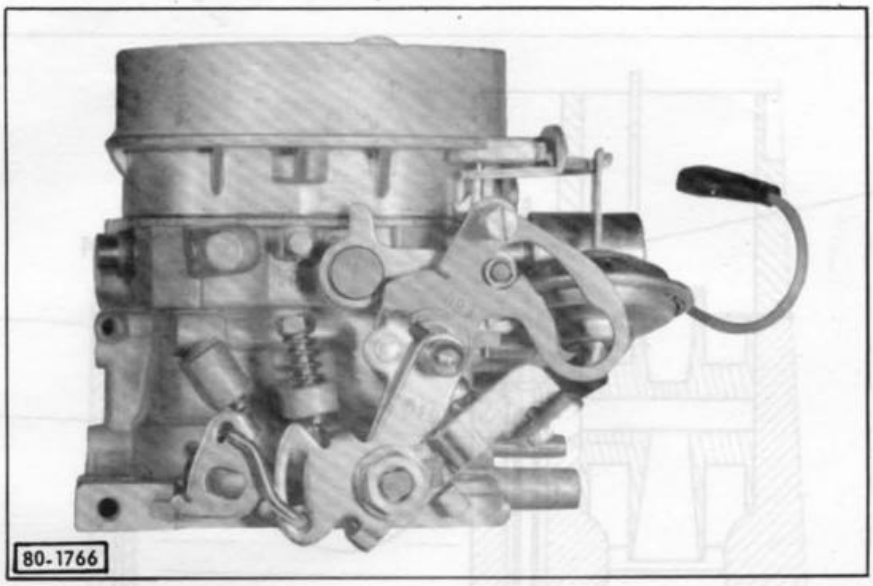
Fast idle opening by capsule (8).

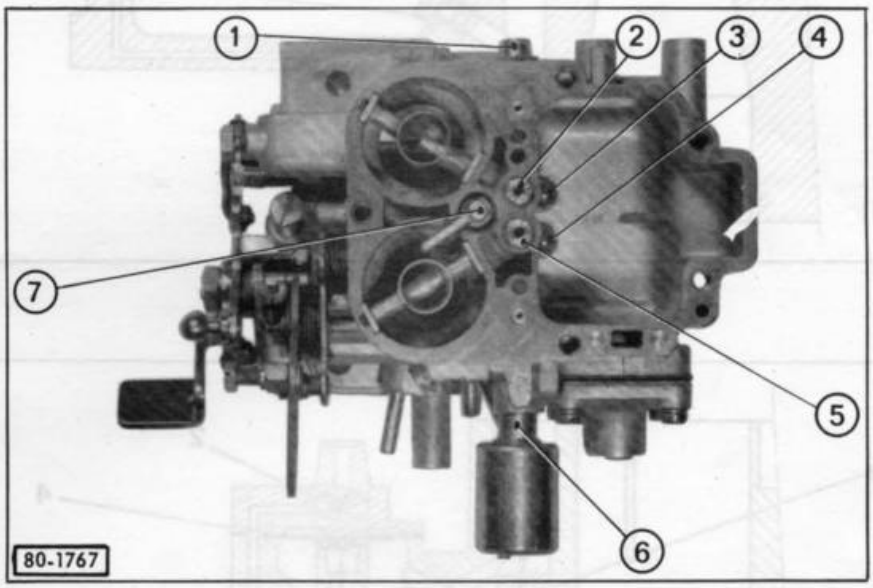
Tamper proof plugs on the volume control screw and the butterfly stop-screw of second choke.

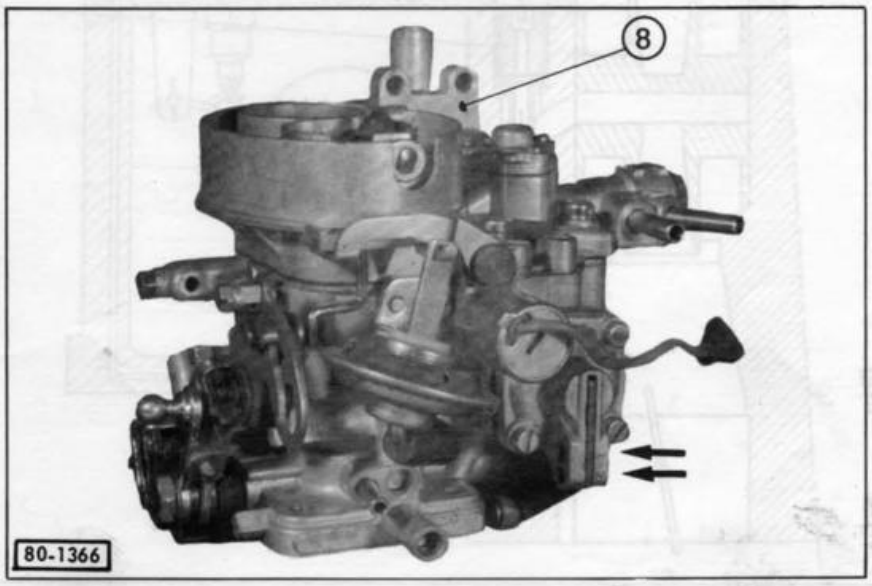
Original colour : white — R.P. colour : black

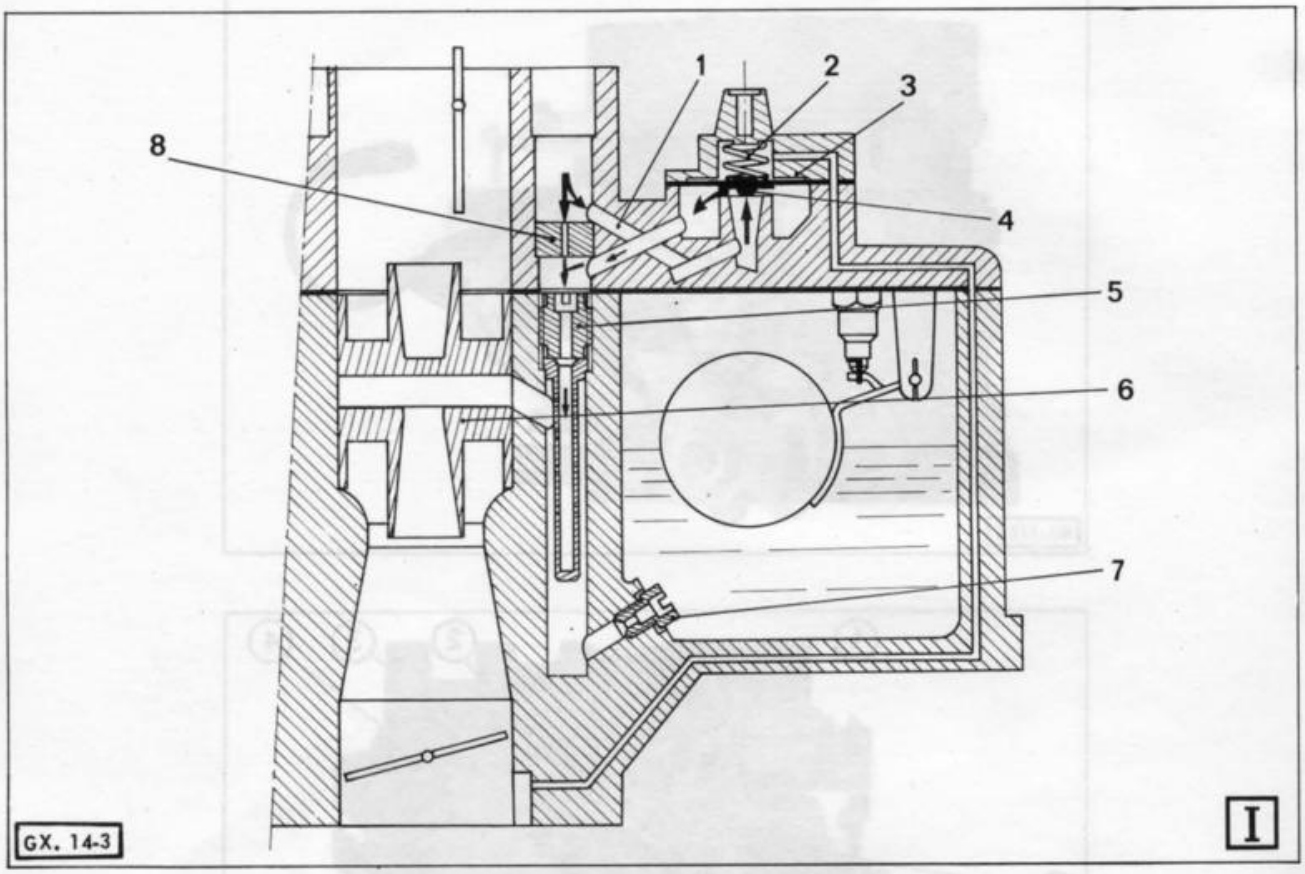
DESCRIPTION :	30 DGS 17/250 W 97-50		30 DGS 16/250 W 96-50		30 DGS 18/250 W 98-50	
Type :	1st choke	2nd choke	1st choke	2nd choke	1st choke	2nd choke
Venturi bore :	20	20	21	21	21	21
Main jet :	100 (4)	90 (3)	103 (4)	103 (3)	103 (4)	103 (3)
Air correction jet :	230 (5)	215 (2)	230 (5)	175 (2)	230 (5)	175 (2)
Emulsion tube :	F 74	F 20	F 74	F 74	F 74	F 74
Pilot jet :	45 (6)	45 (1)	45 (6)	45 (1)	45 (6)	45 (1)
Accelerator-pump injector :	45 (7)		45 (7)		45 (7)	
Location of accelerator-pump lever :	No.1(→)		No.2(→)		No.2(→)	
Econostat :		100		65		65
Rich air inlet for 1st choke } *in the cover*	195		200		200	
Needle valve :	dia. 150		dia. 150		dia. 150	
Weight of the float :	11 g		11 g		11 g	
Positive opening of the 1st choke butterfly (with strangler flap closed) :	1.15 ± 0.05 mm		1.35 ± 0.05 mm		1.35 ± 0.05 mm	
Strangler flap opening under a vacuum of 530 mbar :	3.5 ± 0.25 mm		3.25 ± 0.25 mm		3.25 ± 0.25 mm	

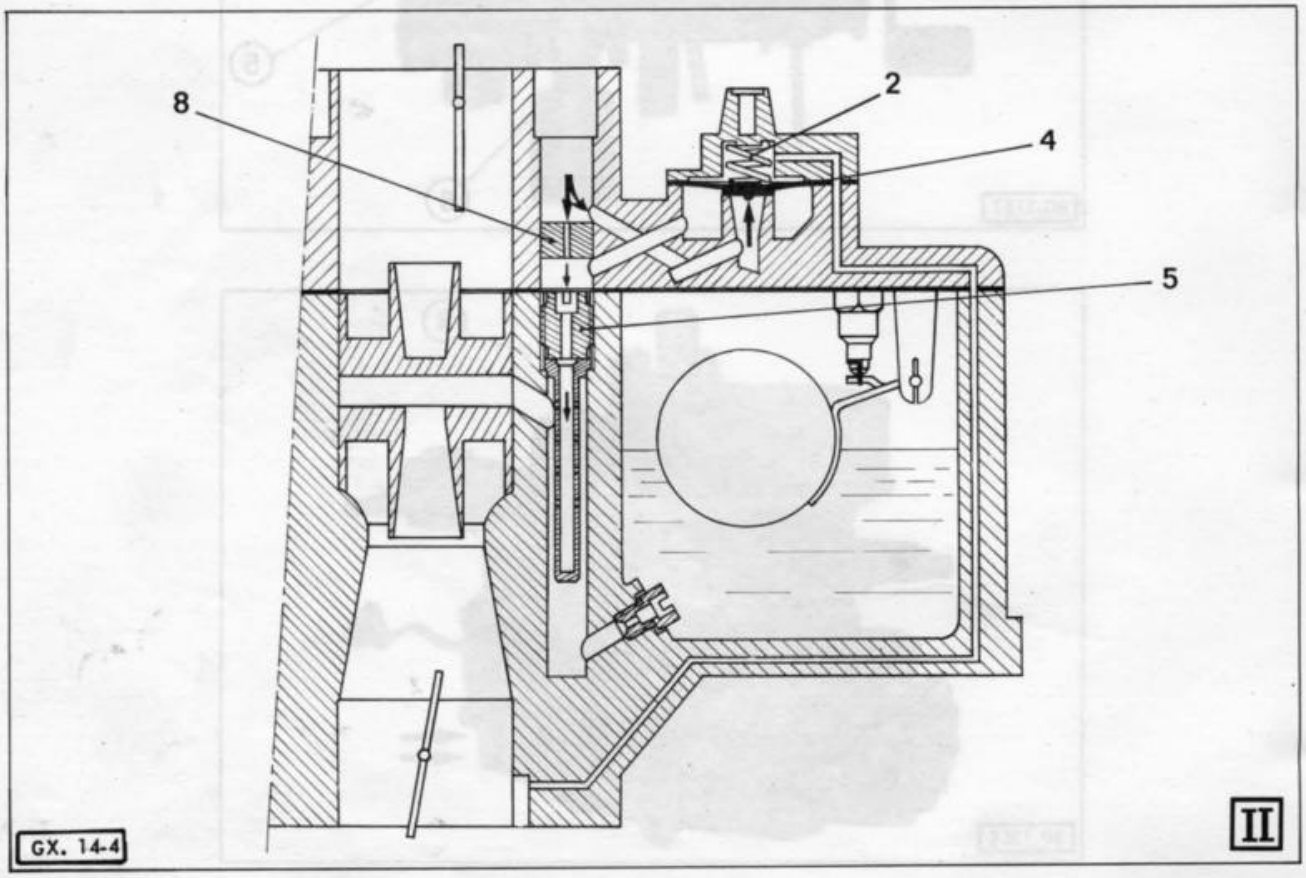
Float setting : (cover in upright position with gasket and ball not pushed in) : distance between joint face and float : 6.5 mm.











PNEUMATIC ENRICHMENT DEVICE ON WEBER CARBURETTOR

The enrichment device is placed on the venting circuit of the 1st choke draining well. Petrol and air arrive in the 1st choke, respectively through main jet (7) and inlet (5) and form an emulsion that will reach venturi (6).

The enrichment device increases or diminishes the volume of air entering the draining well. As the quantity of petrol coming through main jet (7) is constant, the changes in the air volume entail a modification of the composition of the emulsion arriving in the venturi and thus a different richness.

The enrichment device is controlled by the « manifold » vacuum which varies with the engine load.

Operation :

At low load (fig I), the throttle valve is partly open and the vacuum in the manifold is strong. This vacuum is exerted on diaphragm (3) which compresses spring (2) : valve (4) is lifted away from its seat.
The air passes through rich air inlet (8) (small dia.) and duct (1) and then flows through poor air inlet (5) (large dia.).
The emulsion discharged is poor in petrol and rich in air : the discharged mixture is poor.

At high load (fig. II), the throttle valve is open. The vacuum in the manifold is weak and incapable of withstanding the force of spring (2) : valve (4) falls back on its seat. The air flows through rich air inlet (8) (small dia.), then passes freely through air inlet (5) (large dia.) and ends up in the draining well.
The emulsion discharged is rich in petrol and poor in air : the discharged mixture is rich.

OPERATION
GX. 142-00 b

GSA 1300

7/1981 →

CHARACTERISTICS AND SPECIAL FEATURES OF THE CARBURETTORS →

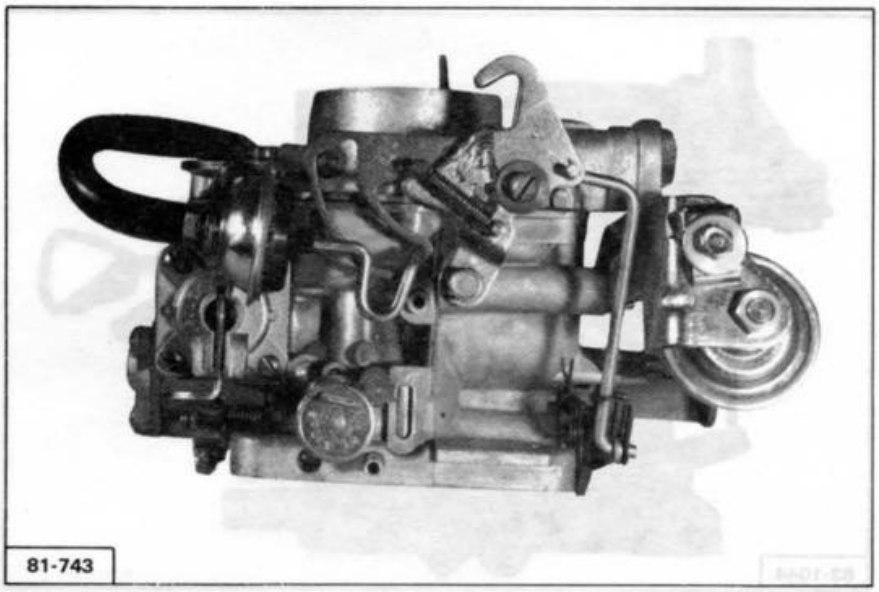
SOLEX CARBURETTOR

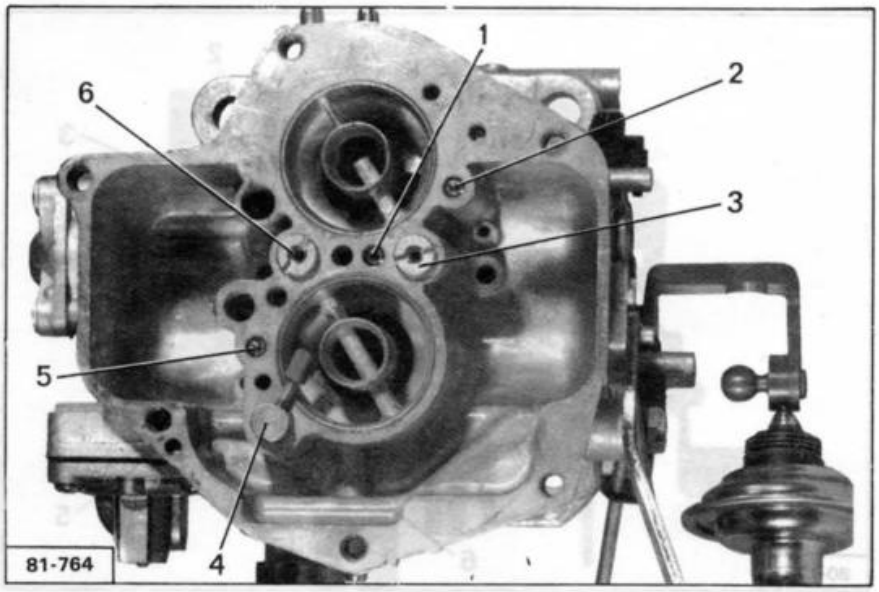
CHARACTERISTICS.

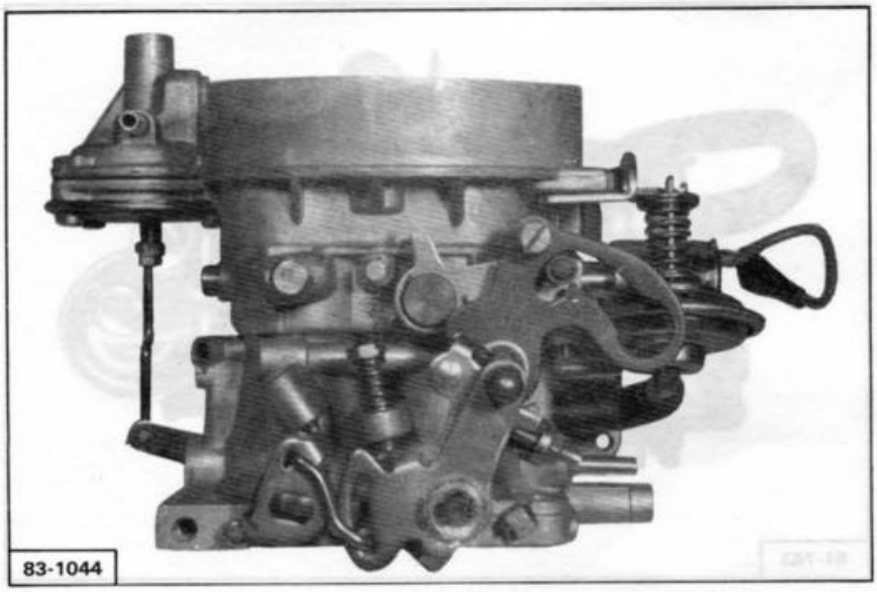
Type : 28 CIC 5
Identification mark : CIT 247
Dual-choke carburettor, « compound » type, with a mechanical control of second choke.
Pneumatic petrol enrichment device on first choke.
Strangler flap on first choke with an anti-flooding capsule.
Vacuum port for econoscope.
Idle cut-off.
Throttle closing dashpot.
Petrol return to reservoir (indicated by an arrow on the cover).
Tamper-proof plug on the volume control screw and the butterfly stop-screw :
Original colour : black R.P. colour : white

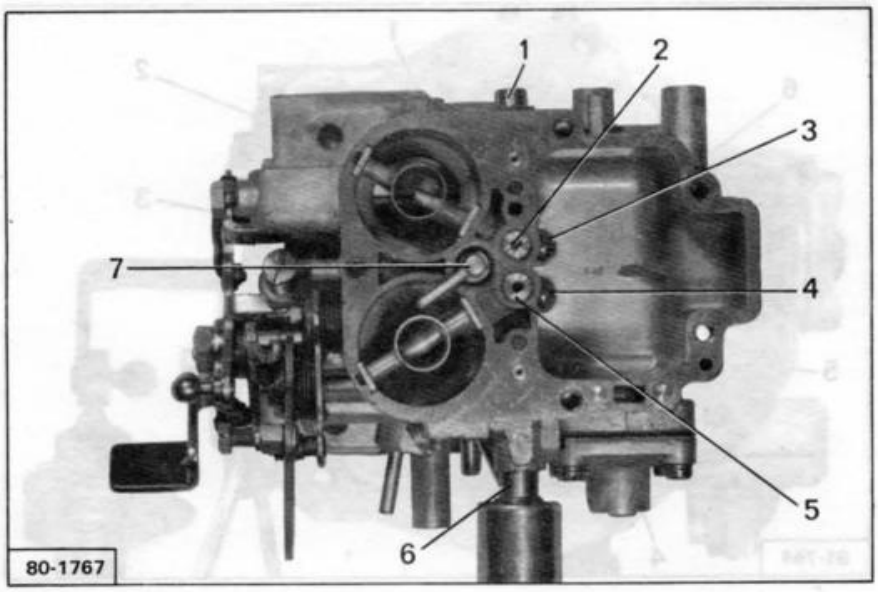
DESCRIPTION	28 CIC 5 247	
	1st choke	2nd choke
Venturi bore	20	22
Main jet	95 under (6)	95 under (3)
Air correction jet and emulsion tube	210 S 3 (6)	160 T 1 (3)
Pilot jet	55 (5)	
By-pass jet		40 (2)
Econostat		90 (1)
Accelerator-pump injector	55 (4)	
Jet of pneumatic enrichment device	50	
Needle valve	1.8	
Weight of the float	11.7 g	
Positive opening of 1 st choke butterfly(with strangler flap closed)	1.30 ± 0.05 mm	
Strangler flap opening under a vacuum of 350 mbar	2.5 ± 0.3 mm	

Operating time of the throttle closing dashpot between 4,500 and 1,200 rpm : 2 to 4.5 seconds.









WEBER CARBURETTOR

CHARACTERISTICS.

Type : 30 DGS 25/250 — *Conventional clutch*
Mark : W 115-50

Type : 30 DGS 26/250 — *with converter*
Mark : W 116-50

Dual-choke carburettor « compound » type, with mechanical control of second choke.
Pneumatic air enrichment device on 1st choke.
Strangler flap on 1st choke with anti-flooding capsule.
Idle cut-off
Vacuum port for econoscope.
Throttle closing dashpot.
Petrol return to fuel tank (arrow on cover).
Fast idle opening by capsule.
Tamper proof plugs on the volume control screw and the butterfly stop-screw of 2nd choke.
Original colour : white
R.P. colour : black

DESCRIPTION Type : Mark :	30 DGS 25/250 W 115-50 1st choke	30 DGS 26/250 W 116-50 2nd choke
Venturi bore	22	22
Main jet	97 (4)	100 (3)
Air correction jet	205 (5)	140 (2)
Emulsion tube	F 74 under (5)	F 20 under (2)
Pilot jet	40 (6)	40 (1)
Accelerator pump injector	55 (7)	
Location of accelerator pump level	No. 1	
Econostat		65
Rich air inlet for 1st choke — *in the cover*	180	
Needle valve	dia. 150	
Weight of the float	11 g	
Positive opening of 1st choke butterfly (with strangler flap close)	1.35 ± 0.05 mm	
Strangler flap opening under a vacuum of 530 millibars	3.70 ± 0.3 mm	

Float setting : (cover in upright position with gasket and ball not pushed in)
Distance between joint face and float : 6.5 mm.

ADJUSTMENT OF SOLEX CIT 185 CARBURETTOR

1. IDLING SPEED ADJUSTMENT

IMPORTANT NOTE : The stop screws of the first and second choke butterflies must not be adjusted unless the operation is carried out on an *L'POLLU 2000* test rig.

NOTE : A tamper-proof plug (original colour black) is fitted on the orifice of the volume control screw. Replace it by a white « R.P. » plug after having adjusted the idle and the exhaust emission *(see Op. GX. 142-000)*.

a) Adjustment conditions :
With engine cleared from unburnt gases and in good running order; with rocker arms and ignition correctly adjusted.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during the adjustment).

b) Idling speed : 850 to 900 rpm
CO content : 1 to 2.5%
CO_2 content : 10% min

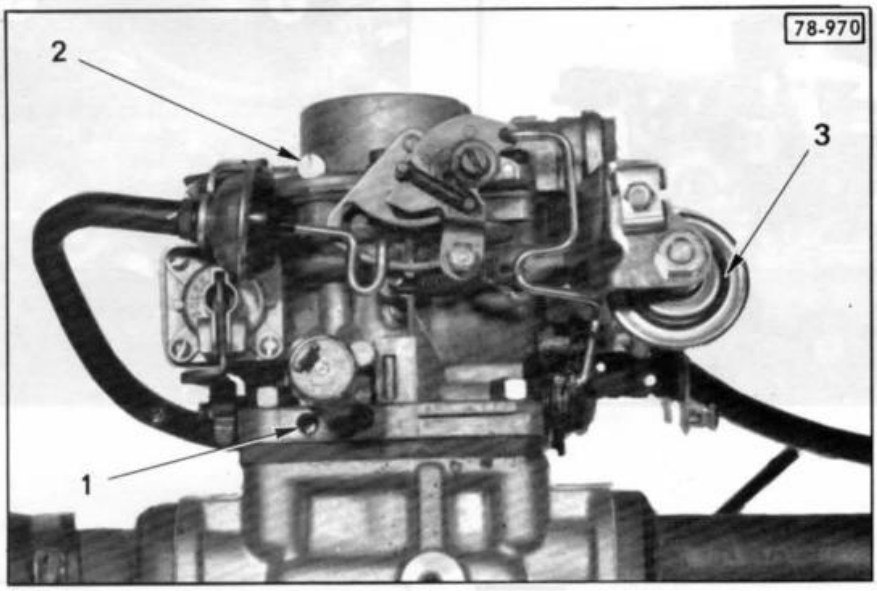
c) Adjustment of idling speed and CO and CO_2 content values :
Adjust screw (2) and volume control screw (1), repeating adjustment as often as necessary to obtain the conditions given in (b) above.

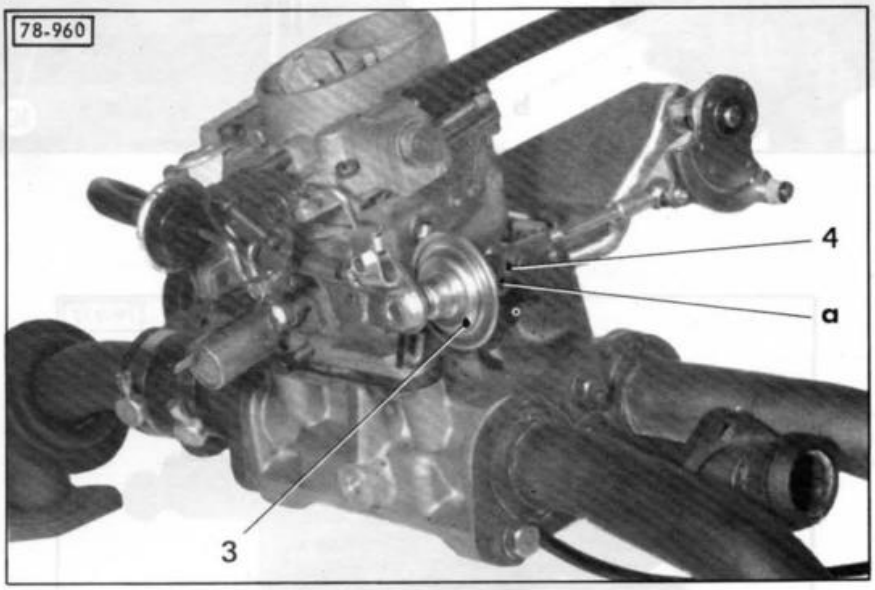
NOTE : Following each adjustment modification, rev up the engine to 3000 rpm for about ten seconds, then allow it to return to idling speed.

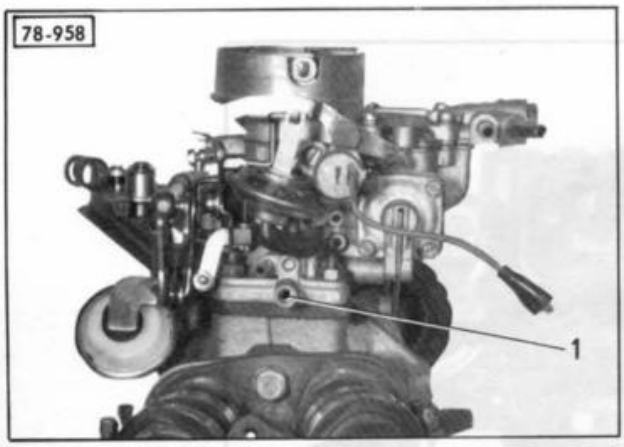
2. ADJUSTMENT OF THE DASHPOT

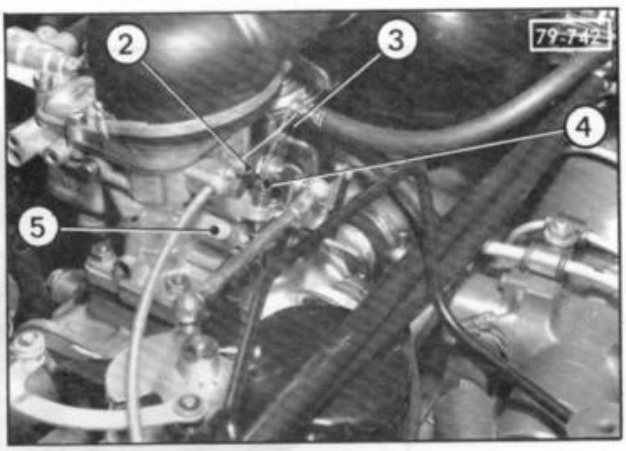
- With the engine running at 4250 rpm ± 250 rpm, adjust the position of dashpot (3), so that end (a) is in contact with lug (4) *(dashpot free)*.
- Adjust the tension of the accelerator control drawback spring :
  - Position the drawback spring on the first notch.
  - Stabilize the engine at 5000 rpm.
  - Release the accelerator control, and measure the time for drop-off from 4500 to 1200 rpm. Dashpot response time should be 3 to 4.5 seconds (adjust spring anchor position to obtain this condition).

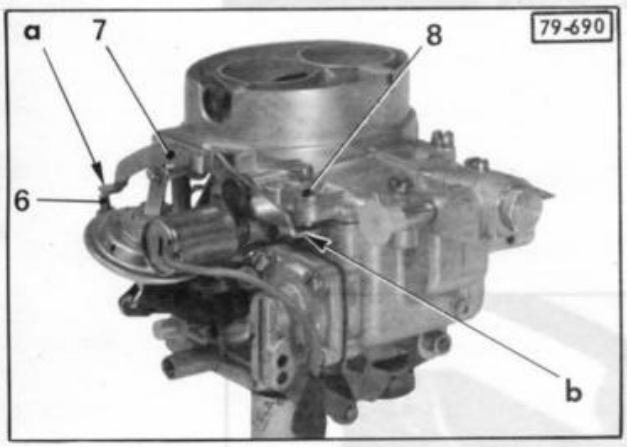
NOTE : If dashpot response time is less than 3 seconds, irrespective of spring anchor position, replace dashpot (3).

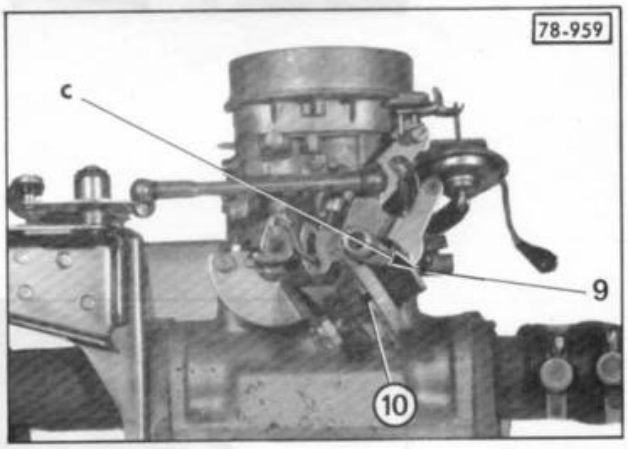


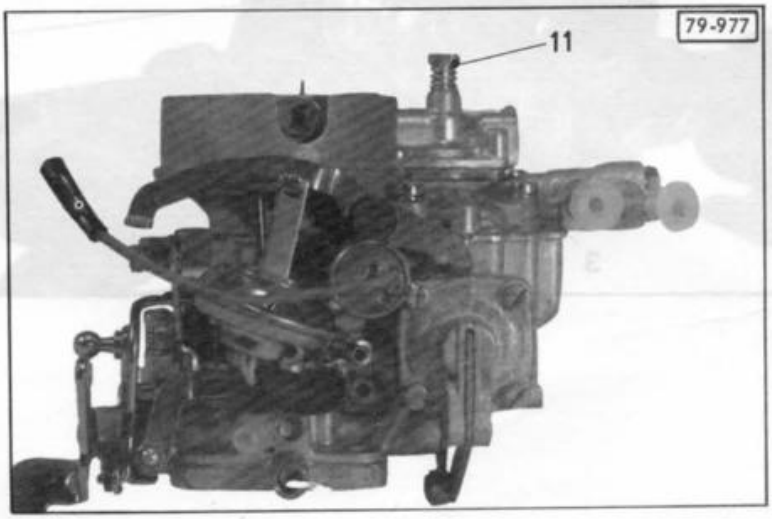












ADJUSTMENT OF WEBER W 92-50 or W 99-50 CARBURETTOR

1. IDLING ADJUSTMENT

IMPORTANT NOTE : Stop screw 5 for the second choke throttle butterfly should not be adjusted, *unless the work is carried out on an L'POLLU 2000 carburettor test rig.*

a) Adjusting conditions :

With engine cleared from unburnt gases and in good running order, rocker arms and ignition correctly adjusted.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during adjustment).

b) Idling speed : 850 to 900 rpm
CO content : 1 to 2.5%
Co_2 content : > 10%

c) Adjustment of idling speed and CO and CO_2 content values :

- Remove the tamper-proof plug on volume control screw (1) *(see Op. GX. 142-000)*
- Adjust stop screw (4) for the first choke throttle butterfly, and volume control screw (1), repeating adjustment as often as necessary to obtain the conditions indicated in (b) above.
- Fit a tamper-proof plug on the volume control screw (replacement plug, *colour :* black).

d) Adjustment of fast idle speed *(W 99-50 carburettor on engine with torque converter) :*

With the handbrake on and the vehicle chocked, select 1 st gear and adjust fast idle to 850 to 900 rpm, on screw (11).

Testing the fast idle circuit :

With the gearbox in neutral, and the engine running at normal speed, disconnect the plug from the contact box on the gearbox. The engine should then accelerate as a result of the vacuum passed by the fast idle control solenoid valve. If this is not the case, check that the vacuum tubes are not blocked, and that the vacuum is passed by the solenoid valve when the latter is not energized.
Vacuum should not be passed when the solenoid valve is energized (gearbox in neutral).

2. ADJUSTMENT OF STRANGLER FLAP OPENING

a) *First position :*

Pull the choke out fully, and hold lever (3) up against boss (2) by hand. The anti-flooding capsule is subjected to a vacuum of 530 m.bar max. and should bring point « a » on lever (7) into contact with screw (6). Strangler flap opening should be 3.25 mm ± 0.25 mm. If this is not the case, adjust stop screw (6).

b) *Second position :*

Pull the choke out fully, but without manual action on lever (3).
The anti-flooding capsule is subjected to a vacuum of 530 m.bar max. and should bring point « b » on lever (7) into contact with screw (8). Strangler flap aperture should be 5.25 mm ± 0.25 mm. If this is not the case, adjust stop screw (8).

3. DASHPOT ADJUSTMENT (W 92-50 only)

- With the engine running at 4250 rpm ± 250 rpm, adjust the position of dashpot (11) so that end « c » is in contact with lug (9) *(dashpot free).*
- Adjust accelerator control drawback spring tension :
  - Position the drawback spring on the first notch.
  - Stabilize the engine at 5000 rpm
  - Release the accelerator control, and measure the time for drop-off from 4500 to 1200 rpm. Dashpot response time should be 3 to 4.5 seconds (adjust spring anchor position to obtain this condition)

NOTE : If dashpot response time is less than 3 seconds, irrespective of spring anchor position, replace dashpot (10).

OPERATION
GX. 142-0 a

GSA 1300

7/1980 → 7/1981

GSA 1130

7/1980 → 7/1983

CARBURETTOR ADJUSTMENT

ADJUSTMENT OF SOLEX 28 CIC 4 Mark 229-230 CARBURETTORS

IDLING SPEED ADJUSTMENT.

IMPORTANT NOTE : The stop screws of the first and second choke butterflies must not be adjusted *unless the operation is carried out on an L'POLLU 2000 test rig.*

NOTE : A tamper-proof plug (original colour : black) is fitted on the orifice of the volume control screw. Replace it by a white R.P. plug after having adjusted the idle and the exhaust emission *(see Op. GX. 142-000).*

a) **Adjustment conditions :**
With engine cleared from unburnt gases and in good running order; with rocker arms and ignition correctly adjusted and choke on rest position. With air-filter clean.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during the adjustment).

b) **Idling speed :** 850 to 900 rpm.
CO content : 1 to 2.5% - *CO_2 :* > 10% min.

c) **Adjustment of idling speed and CO and CO_2 content values :**
Adjust screw (1) and volume control screw (3), repeating the operation as often as necessary to obtain the values given in b) above.

NOTE : Following each adjustment modification, rev up the engine to 3000 rpm for about 10 seconds, then let it come back to idling speed.

DASHPOT ADJUSTMENT.

With the engine running at 4250 rpm ± 250 rpm, adjust the position of dashpot (2), so that end (5) is in contact with lug (4) *(dashpot free).*
Adjust the tension of the accelerator control drawback spring :
- Position the drawback spring of the accelerator control on the first notch.
- Stabilize the engine at 5000 rpm.
- Release the accelerator control and measure the time for the engine to drop-off from 4500 to 1200 rpm : it should be comprised between 2 and 4.5 seconds (adjust spring anchor position to obtain this condition).

NOTE : If it takes less than 2 seconds for the engine to drop-off, whatever the spring anchor position, replace the dashpot.

ADJUSTING THE 1st CHOKE BUTTERFLY OPENING.

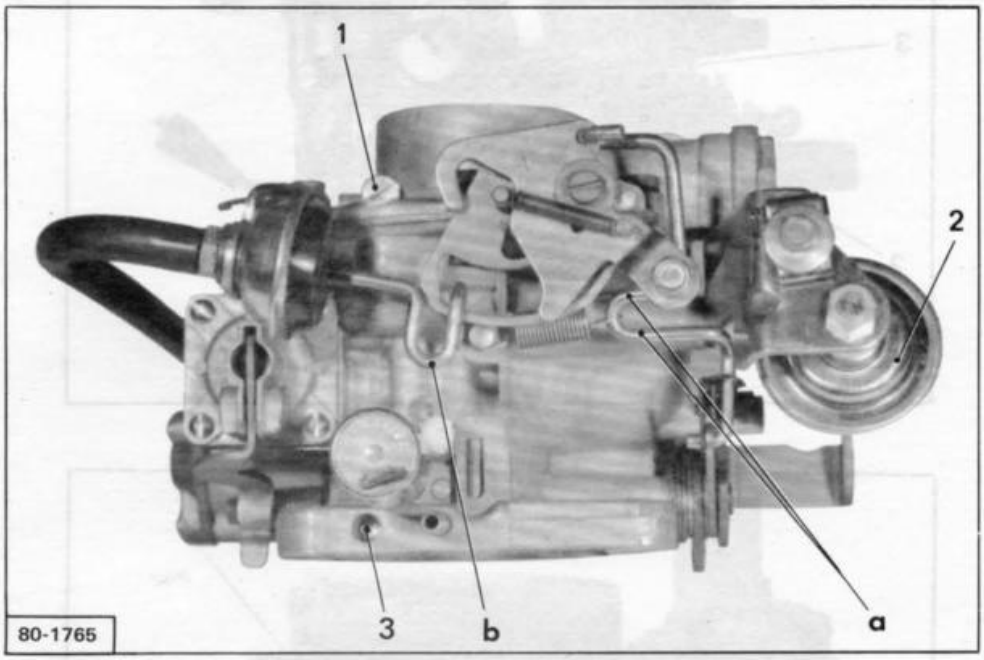
When the strangler flap is closed, the distance between the lower wing of the 1st choke butterfly and the carburettor choke must be : 1.25 ± 0.05 mm (Mark 229) or 1.30 ± 0.05 mm (Mark 230).
If it is not so, act upon legs « a » of the connecting rod buckle.

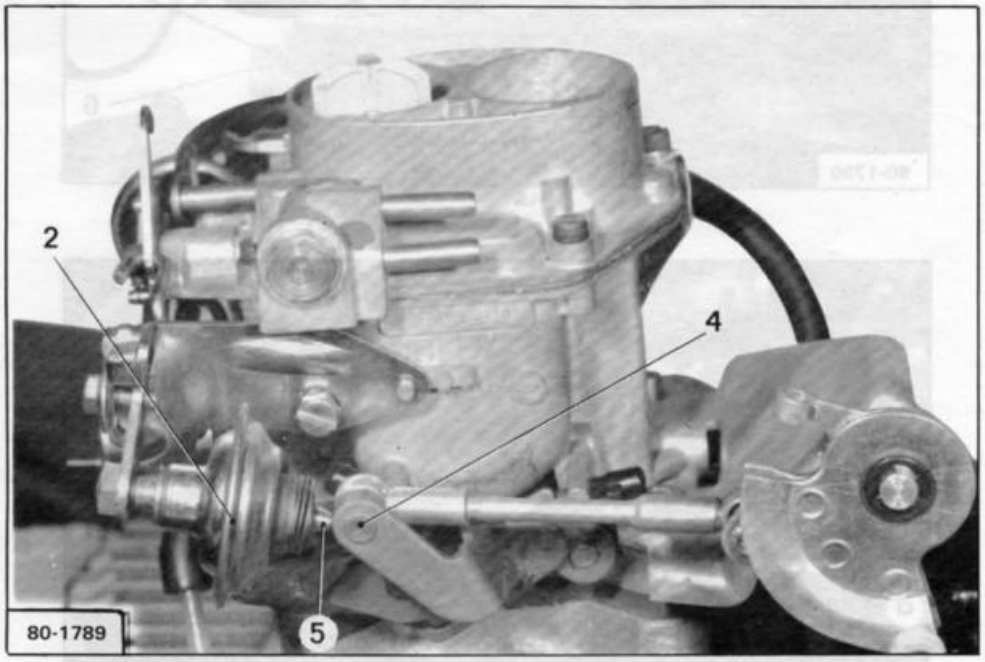
ADJUSTING THE STRANGLER FLAP OPENING.

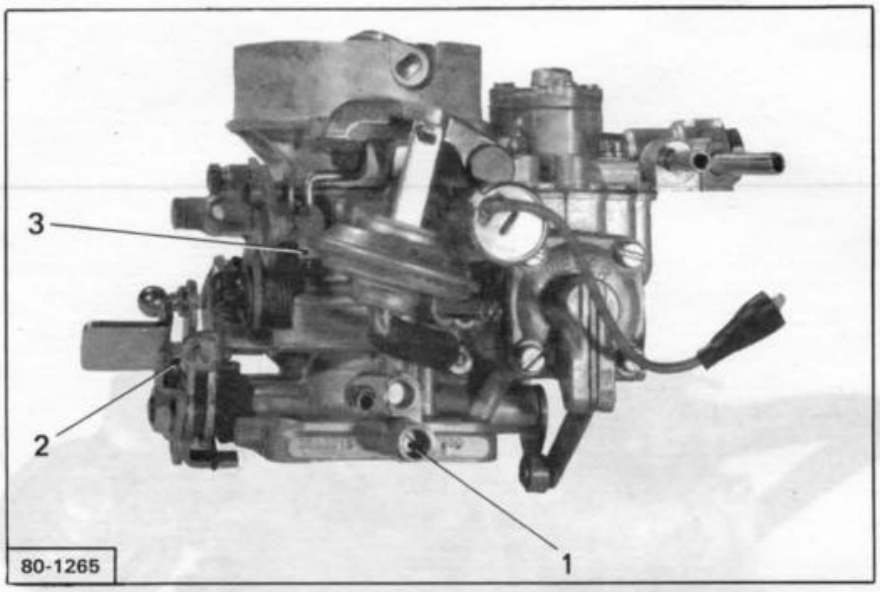
With the strangler flap closed and the anti-flooding capsule under a vacuum of 350 mbar, the strangler flap opening must be : 3.6 ± 0.3 mm (Mark 229) or 4 ± 0.2 mm (Mark 230).
If it is not so, act upon the legs of buckle « b ».

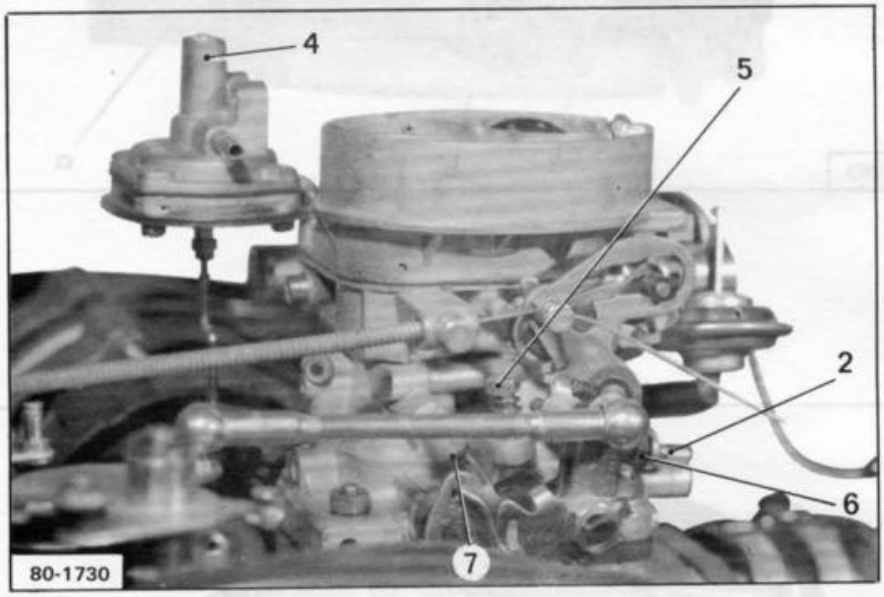
ADJUSTMENTS CARRIED OUT ON AN L'POLLU 2000 TEST RIG.

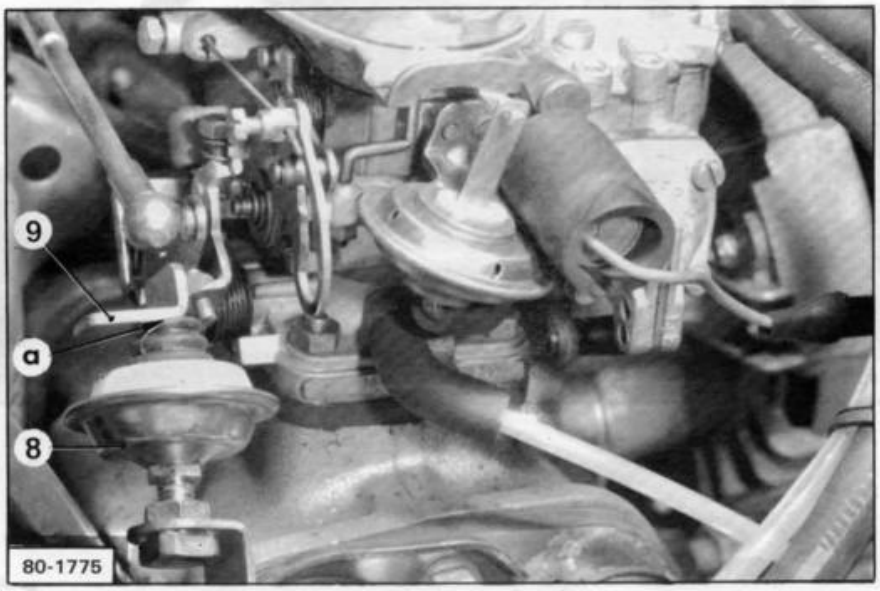
Carburettor type	Butterfly opening			Idle pre-setting			Remark
	1st choke	2nd choke	Both	W and Va closed	W open Va closed	W and Va closed	
28 CIC 4 Mark 229	K 195	K 200	K 320	N 105	N 140	N 280	Remove the idle cut-off
28 CIC 4 Mark 230	K 210	K 210	K 335	N 105	N 150	N 260	











ADJUSTMENT OF WEBER W 97-50, W 96-50 or W 98-50 CARBURETTORS

1. IDLING SPEED ADJUSTMENT.

IMPORTANT NOTE : Stop screw (7) of the 2nd choke butterfly must not be adjusted *unless the operation is carried out on an L'POLLU 2000 test rig.*

a) **Adjustment conditions :**
With engine cleared from unburnt gases and rocker arms and ignition correctly adjusted. With air filter clean and choke on rest position.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during the adjustment).

b) **Idling speed : 850 to 900 rpm.**
CO content : 1 to 2.5% - *CO_2 content :* > 10% min.

c) **Adjusting the idling speed and CO and CO_2 content values :**
Remove the tamper-proof plug on volume control screw (1) *(see Op. GX. 142-000).*
Act upon stop-screw (5) of the 1st choke butterfly and upon volume control screw (1) as many times as necessary to obtain the values given in b) above.
Place a tamper-proof plug on the volume control screw (the R.P. plug is black).

d) **Adjusting the fast idle speed** *(W 98-50 on engine with a converter) :*
With the hanbrake on, the vehicle on stands and the 1st gear engaged, set the fast idle between 850 and 900 rpm by acting upon screw (4).
Checking the fast idle circuit :
With the gearbox in neutral and the engine running at normal idling speed, disconnect the plug from the contact box on the gearbox.
The engine should then accelerate as a result of the vacuum passing through the fast idle electrovalve. If it is not so, check that the vacuum pipes are not blocked and that the vacuum passes through the electrovalve when the latter is not energized.
The vacuum should not pass through when the electrovalve is energized (with gearbox in neutral).

2. ADJUSTING THE STRANGLER FLAP OPENING.

With the engine running : Pull the choke fully out. The anti-flooding capsule is then subjected to the « manifold » vacuum and should open the strangler flap of : 3.5 ± 0.25 mm (W 97-50) or 3.25 ± 0.25 mm (W 96-50 and W 98-50).
With carburettor removed : Pull the choke fully out and keep it there. Plug a vacuum gauge under the orifice of the anti-flooding capsule. Under a vacuum of 530 mbar max., the capsule must open the throttle valve by 3.5 ± 0.25 (W 97-50) or 3.25 ± 0.25 mm (W 96-50 and W 98-50). If it is not so, turn plastic screw (3) in the appropriate direction so that the throttle valve opens.

3. ADJUSTING THE 1st CHOKE BUTTERFLY OPENING, WITH THE CHOKE ON.

Pull the choke fully out and keep it there. The opening of the 1st choke butterfly, if measured at the lower wing level, should be 1.15 ± 0.05 mm (W 97-50) or 1.35 ± 0.05 mm (W 96-50 and W 98-50). If it is not so act upon bolt (2) after having untightened nut (6) until the right opening is obtained.

4. DASHPOT ADJUSTMENT (W 97-50 and W 96-50 only) *(with no choke on).*

With the engine running at 4250 ± 250 rpm, adjust the position of dashpot (8) so that end « a » is in contact with lug (9) *(dashpot free).*
Adjust the tension of the accelerator control drawback spring :
- Position the drawback spring on the first notch.
- Stabilize the engine at 5000 rpm.
- Release the accelerator control and measure the time for the engine to drop-off from 4500 to 1200 rpm : it should be comprised between 2 and 4.5 seconds (adjust spring anchor position to obtain this condition).

NOTE : If it takes less than 2 seconds for the engine to drop off, whatever the spring anchor position, replace dashpot (8).

5. ADJUSTMENTS CARRIED OUT ON AN L'POLLU 2000 TEST RIG.

Carburettor Type	Butterfly opening		Idle pre-setting			Remark
	1st choke : W closed	2nd choke	1st choke : W open	2nd choke	Both	
W 97-50	N 310	K 280	N 320	K 280	N 345	Standard fitted idle cut-off
W 96-50	N 280	K 300	N 295	K 300	N 345	
W 98-50	N 330	K 320	N 340	K 320	N 385	

OPERATION
GX. 142-0 b

GSA 1300

7/1981 →

CARBURETTOR ADJUSTMENT

ADJUSTMENT OF SOLEX 28 CIC 5 Mark 247 CARBURETTOR

IDLING SPEED ADJUSTMENT.

IMPORTANT NOTE : Stop screw (2) of the second choke butterfly must not be adjusted unless the operation is carried out on an L'POLLU test rig.

NOTE : A tamper-proof plug (original colour : black) is fitted on the orifice of the volume control screw (6). Replace it by a white R.P. plug after having adjusted the idle and the exhaust emission *(see Op. GX. 142-000)*.

a) **Adjustment conditions :**
With engine cleared from unburnt gases and in good running order; with rocker arms and ignition correctly adjusted and choke on rest position. With air-filter clean.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during the adjustment).

b) **Idling speed :** 650 to 700 tr/mn
CO content : 0.5 to 1.5% $CO_2 \geq 10\%$ min.

c) **Adjustment of idling speed and CO and CO_2 content values :**
Adjust screw (1) and volume control screw (3), repeating the operation as often as necessary to obtain the values given in b) above.

NOTE : Following each adjustment modification, rev up the engine to 3000 rpm for about 10 seconds, then let it come back to idling speed.

DASHPOT ADJUSTMENT (on the vehicle).

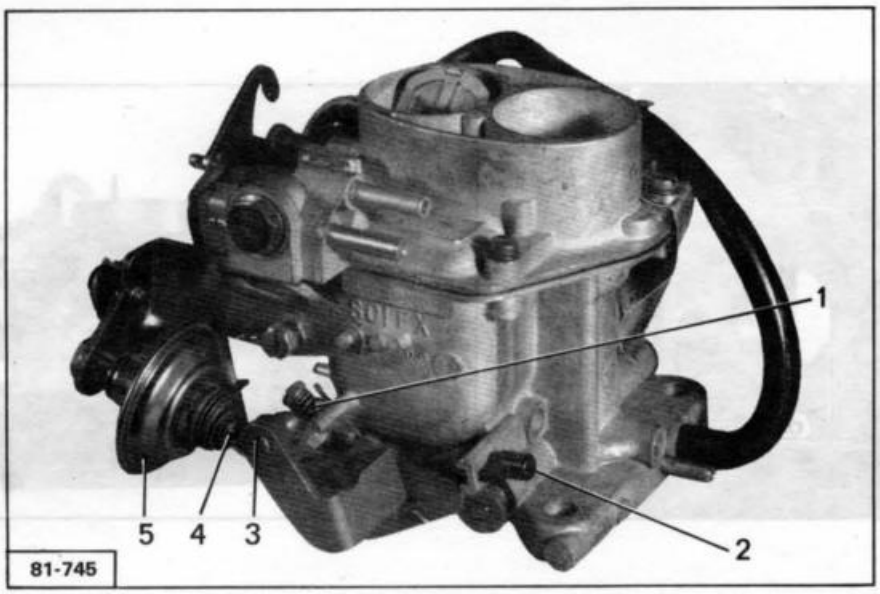
Adjustment conditions:
With idling adjusted - Drawback spring on the first notch.

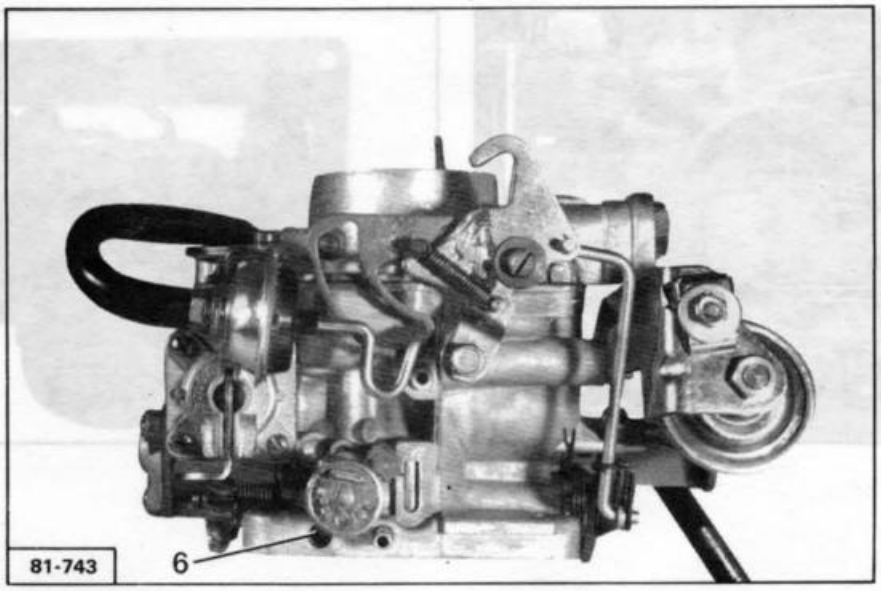
Adjustment :
Bring the engine speed up to 4250 ± 250 rpm.
Adjust the location of dashpot (5) (in free state), so as to make end (4) come into contact with bracket (3).

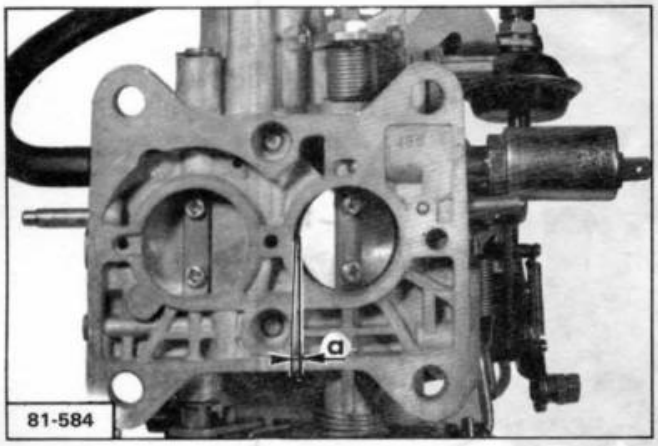
Check :
Stabilize the engine at 5000 rpm.
Release the accelerator control and measure the time for the engine to drop-off from 4500 rpm to 1200 rpm : it should be comprised between 2 and 4.5 seconds (adjust spring anchor position to obtain this condition). If it takes less than 2 seconds to drop-off, whatever the spring anchor position, replace dashpot (5).

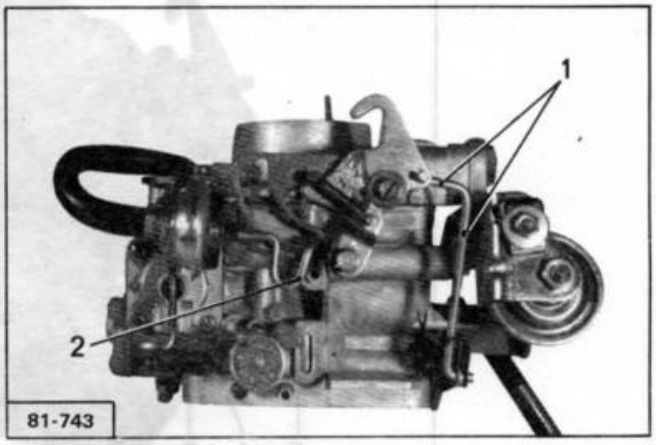
ADJUSTMENT CARRIED OUT ON AN L'POLLU 2000 TEST RIG.

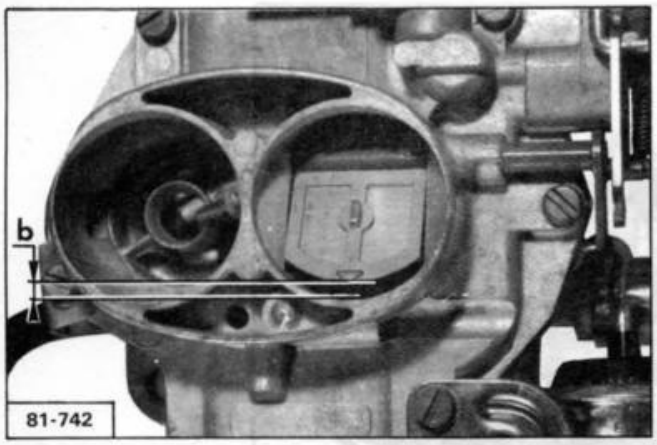
Butterfly opening		Idling pre-setting			Remark
1st choke W closed	2nd choke	1st choke W open	2nd choke	Total	
N 355	K 210	N 370	K 210	N 380	Standard fitted idle cut-off

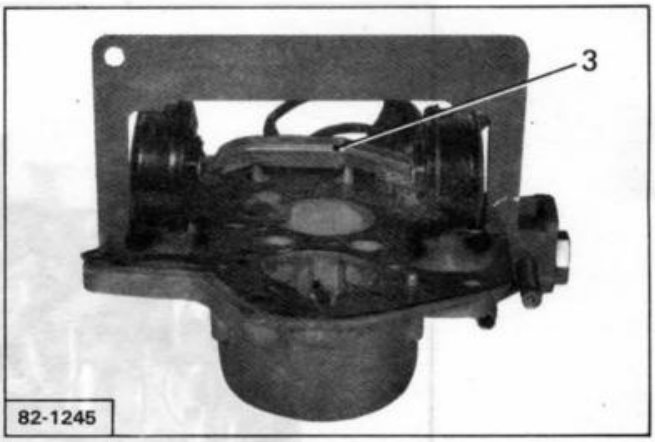












ADJUSTING THE 1st CHOKE BUTTERFLY POSITIVE OPENING.

Strangler flap closed.
Distance **« a »** between butterfly edge and choke must be :

1.25 to 1.35 mm

If it is not so, act upon legs (1) of the connecting rod to obtain this condition.

ADJUSTING THE STRANGLER FLAP OPENING.

Strangler flap closed.
The anti-flooding capsule is subjected to a vacuum of 350 millibars : strangler flap opening **« b »** must be :

2.2 to 2.8 mm

If not, act upon buckle (2).

ADJUSTING THE LEVEL OF FUEL IN THE FLOAT CHAMBER.

Remove the float chamber cover and turn it upside down.
Position gauge 71 642 000 onto the upper joint face of the float chamber *(gasket in position)*.
The floats should be in contact with the gauge.
If need be, adjust the height of the floats by acting on connecting bar (3).
Difference max. of position from one float to the other : ± 1 mm.

ADJUSTMENT OF WEBER W 115-50 or W 116-50 CARBURETTOR

IDLING SPEED ADJUSTMENT.

IMPORTANT NOTE : Stop screw(3) of the 2 nd choke butterfly must not be adjusted *unless the operation is carried out on an L'POLLU 2000 test rig.*

a) **Adjustment conditions :**
With engine cleared from unburnt gases and rocker arms and ignition correctly adjusted. With air filter clean and choke on rest position.
Engine oil temperature : 80 to 90° C (this temperature must be maintained during the adjustment).

b) **Idling speed : 650 to 700 rpm.**
CO content : 0.5 to 1.5% - *CO_2 content :* $\geq$ 10% min.

c) **Adjusting the idling speed and CO and CO_2 content values :**
Remove the tamper-proof plug on volume control screw (4) *(see Op. GX. 142-000).*
Act upon stop-screw (2) of the 1 st choke butterfly and upon volume control screw (4) as many times as necessary to obtain the values given in b) above.
Place a tamper-proof plug on the volume control screw (the R.P. plug is black).

d) **Adjusting the fast idle** *(W 116-50. engine with enrichment device) :*
Disconnect the pipe between the carburettor and the electrovalve from the latter end and directly connect it to the opening device capsule.
Set the fast idle speed between 850 and 900 rpm by turning screw (1).
Reconnect the pipe to the electrovalve.
Checking the fast idle circuit :
Disconnect, from the fast idle electrovalve, the lead to the thermal switch located under the alternator.
Connect, to the electrovalve connector, a lead connected to the earthing.
With the gearbox in neutral and the engine running at normal idling speed, disconnect the plug from the contact box on the gearbox. The engine should then accelerate as a result of the vacuum passing through the fast idle electrovalve. If it is not so, make sure that the pressure vacuum pipes are not blocked and that the vacuum passes through the electrovalve when the latter is not energized.
The vacuum should not pass through when the electrode is energized (with gearbox in neutral).
Reconnect the thermal switch lead to the electrovalve.

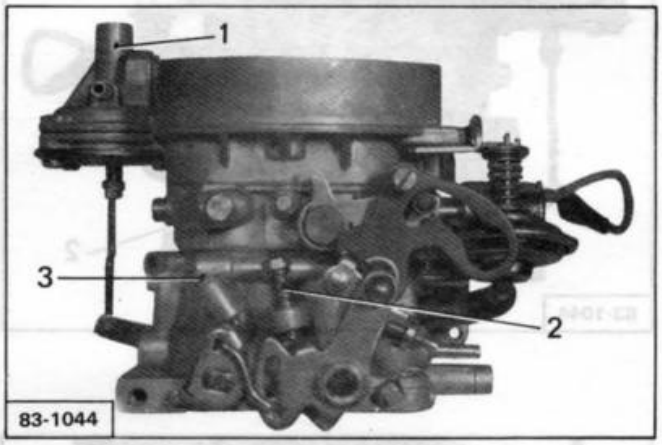
DASHPOT ADJUSTMENT (W 115-50 only) *(with no choke on) :*

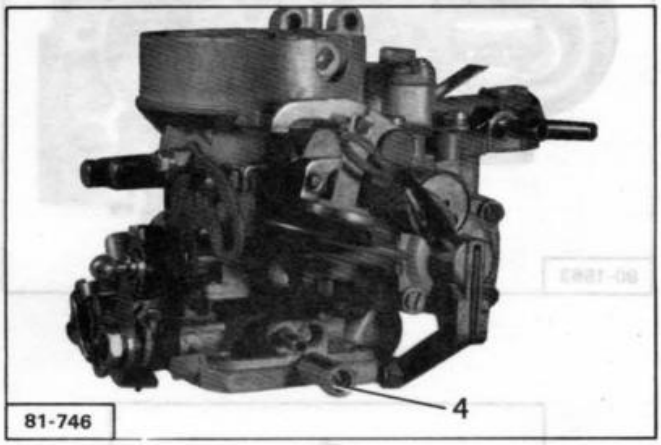
With the engine running at 4250 ± 250 rpm, adjust the position of dashpot (7) so that end (6) is in contact with lug (5) *(dashpot free).*
Adjust the tension of the accelerator control drawback spring :
- Position the drawback spring on the first notch.
- Stabilize the engine at 5000 rpm.
- Release the accelerator control and measure the time for the engine to drop-off from 4500 to 1200 rpm : it should be comprised between 2 and 4.5 seconds (adjust spring anchor position to obtain this condition).

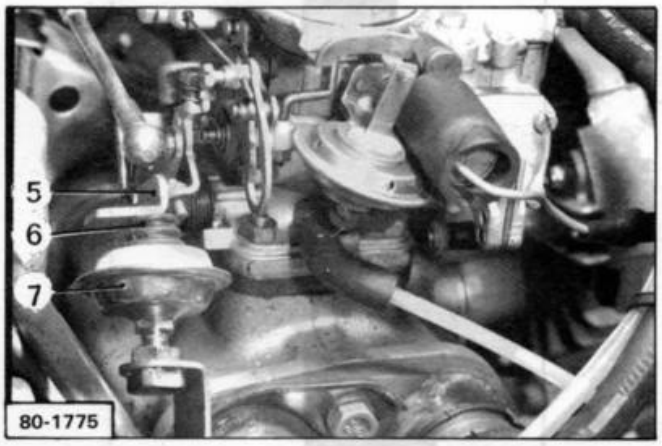
NOTE : If it takes less than 2 seconds for the engine to drop off, whatever the spring anchor position, replace dashpot (7).

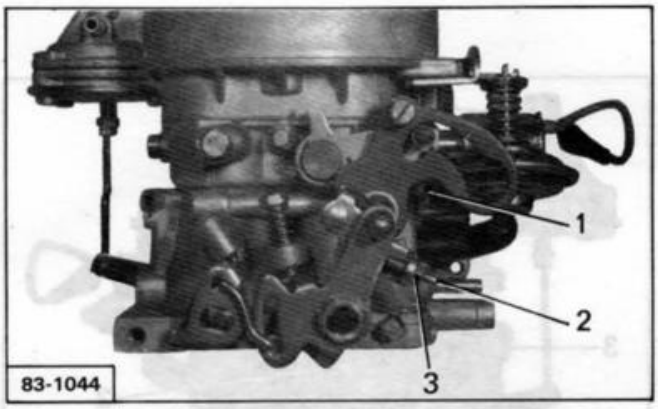
ADJUSTMENTS CARRIED OUT ON AN L'POLLU 2000 TEST RIG.

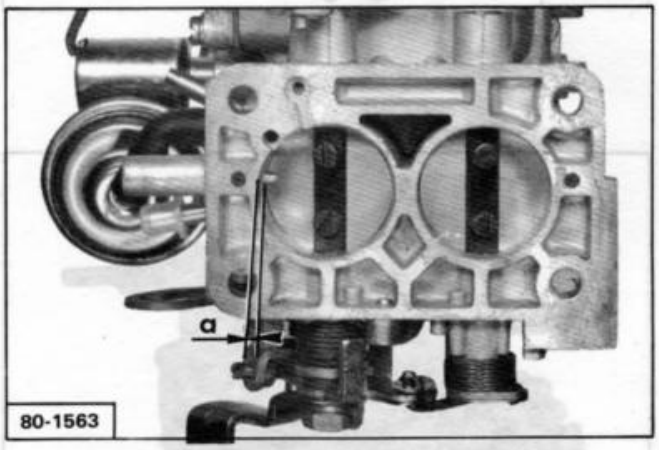
Carburettor Type	Butterfly opening		Idling pre-setting			Remark
	1st choke W closed	2nd choke	1st choke W open	2nd choke	Both	
W 115-50	N 170	K 330	N 230	K 330	N 325	Standard fitted idle cut-off. Vacuum port of electro-valve : blocked (W 116-50)
W 116-50	N 240	K 315	N 275	K 315	N 340	

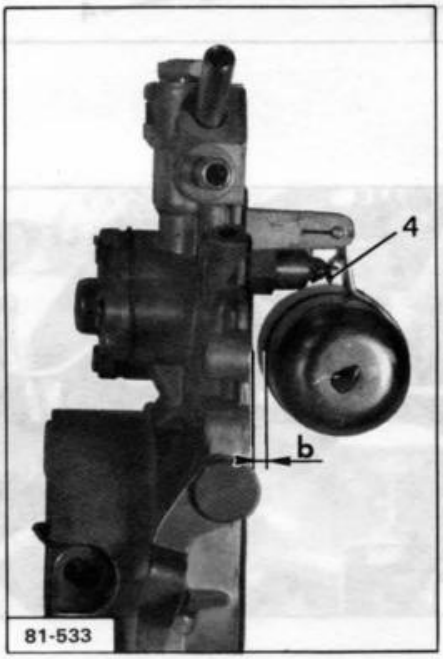












ADJUSTING THE STRANGLER FLAP OPENING.

With engine running : Pull the choke fully out. The anti-flooding capsule is then subjected to the « manifold » vacuum and should open the strangler flap by : **2.4 to 4 mm.**

With carburettor removed : Pull the choke fully out and keep it there. Plug a vacuum gauge under the orifice of the anti-flooding capsule. Under a vacuum of 530 mbar max., the capsule must open the strangler flap by **3.4 ro 4 mm.** If it is not so, turn plastic nut (1) in the appropriate direction so that the strangler flap opens.

ADJUSTING THE 1st CHOKE BUTTERFLY OPENING UNDER USE OF CHOKE.

Pull the choke fully out and keep it there. The opening of the 1 st choke butterfly, if measured at the lower wing level, should be : **« a » = 1.30 to 1.40 mm.** if it is not so, turn screw (2) after loosening nut (3) until the right opening is obtained.

ADJUSTING THE LEVEL OF FUEL IN THE FLOAT CHAMBER.

Maintain the cover in an upright position (with needle valve ball not pushed in).
Measure distance **« b »** between cover joint face *(with gasket in position)* and the float.
This distance should be : **6 ± 0.25 mm.**
If not, work on tab (4).

TESTING THE AIR INLET HEATING SYSTEM THERMOSTAT PROBE

NOTE : Calibration of thermal probe (2) for 1300 cc"ECO" : 25° to 35° C.

1. At ambient temperature (below 27° C), shutter (3) should blank off pipe « a ».

2. Dip probe (2) in cold water.

3. Heat the water slowly, so as to raise the water temperature progressively.

4. When the water temperature reaches and exceeds 27° C, shutter (3) should blank off pipe « b » progressively

5. Allow the water to cool. When the water temperature reaches and goes below 27° C, shutter (3) should again blank off pipe « a ».

TESTING IN THE VEHICLE

1. Remove cover (1) and the filter cartridge.

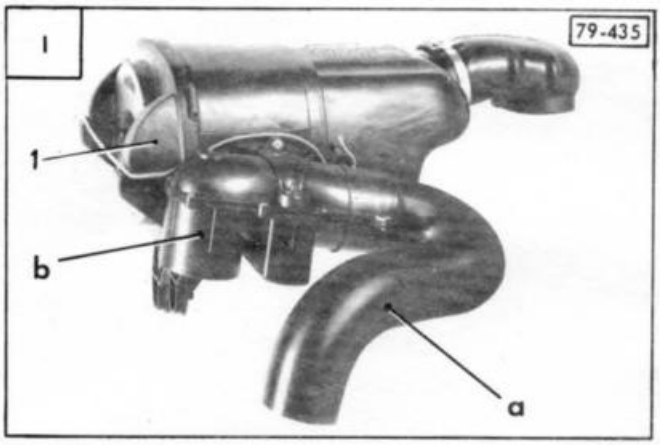
2. Check operation of shutter (3), via the interior of the air filter :

- Engine cold : shutter (3) blanks off pipe « a ».
- Engine hot : shutter (3) blanks off pipe « b ».

PHOTOS

I. Air filter, all types, except for 1300 cc ECO.
II. Temperature below 27° C.
III : Temperature 27° C.
IV : Temperature over 27° C.
V : Air filter for 1300 cc ECO with built-in oil separator *(7/81 ⟶)*

I



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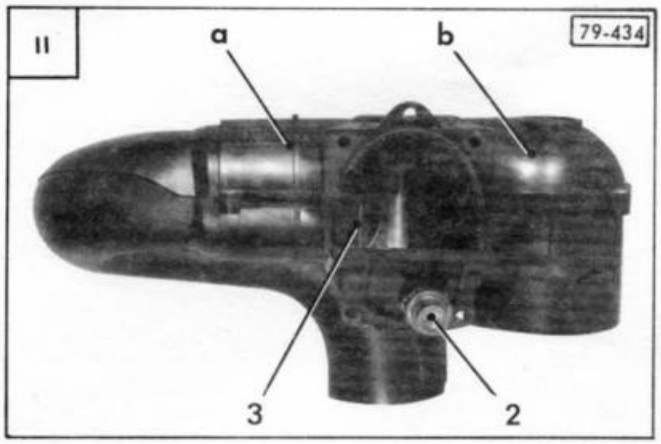

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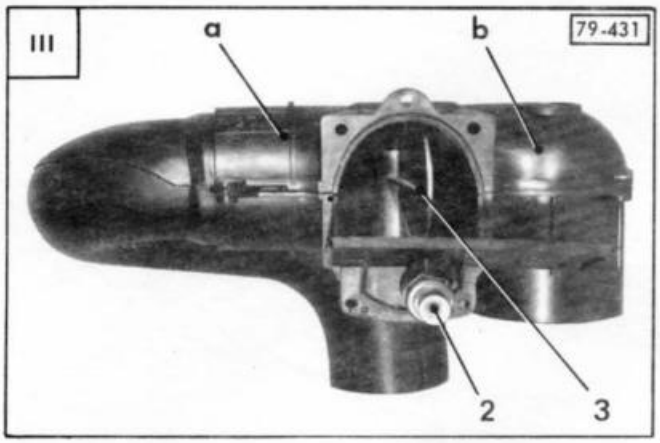

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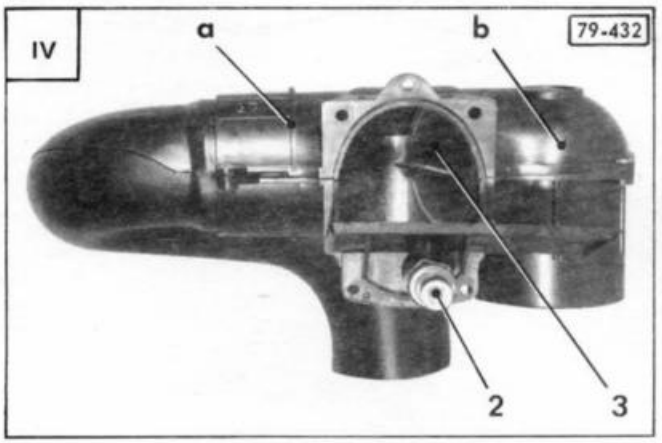

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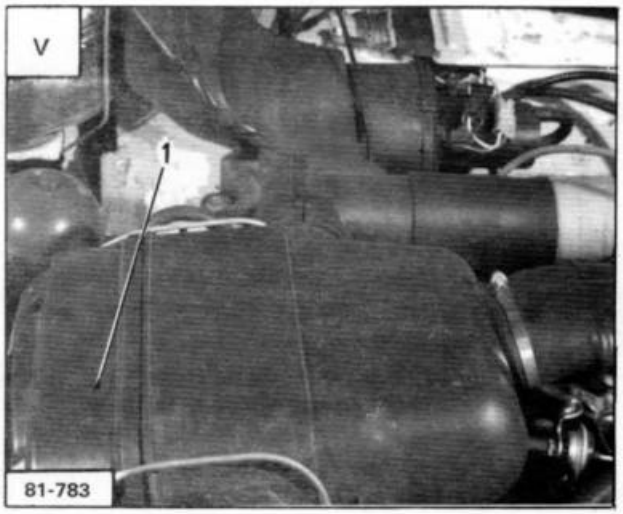
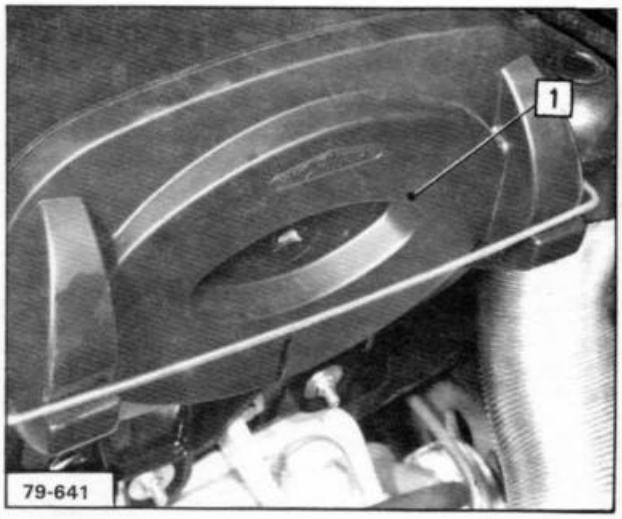
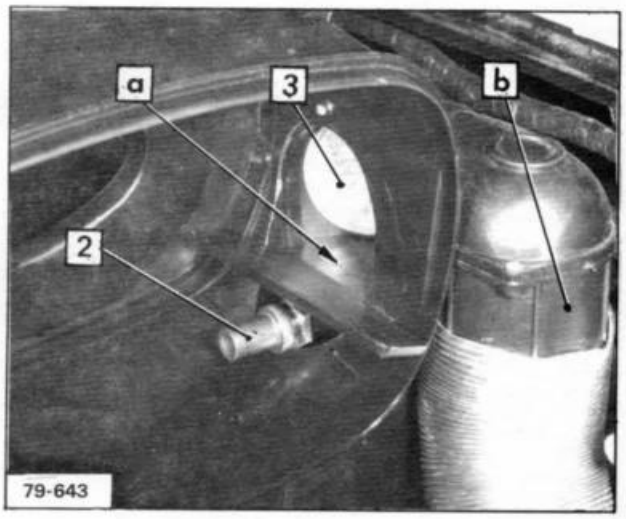






CHARACTERISTICS AND CHECKS OF THE FUEL SUPPLY SYSTEM

PETROL PUMP

1. Characteristics :

Suction/deliver diaphragm type pump, driven by cam mounted on camshaft end.
Manufacturer : GUIOT ref. 567-C.

2. Testing with the 4006-T test unit :

Disconnect the fuel feed pipe from the carburettor, and connact the pipe to orifice **A** on the 4005-T test unit.
Connect a pipe between orifice **B** and the carburettor fuel inlet.
Undo knurled knob (1), by about one and a half turns.
Turn the engine.

a) Check pressure at zero flow-rate :

Do up knurled knob (1) fully.
Read the stabilized pressure on the pressure gauge.
This should be : max. 280 mbar.

b) Check seal-tightness of pump valves :

Stop the engine.
No sharp pressure drop should be observed.

c) Check seal-tightness of carburettor needle :

Blank off the fuel-return line.
Undo knurled knob (1).
Start the engine, and run for a few moments.
Stop the engine.
No sharp pressure drop should be observed.
Remove the 4005-T test unit.
Reconnect the fuel inlet pipe to the carburettor.

3. Checking pump drive cam stroke :

a) Remove the petrol pump :

- Uncouple the heater unit inlet shutter control cable (index its position in cable clamp (4)).
- Disengage lever (3) from its shaft.
- Disconnect pulser wiring harness (5).
- Undo three attachment screws (6) for the heater unit.
- Disengage the heater unit, and uncouple the hot air pipes and sleeve (2).
- Remove the petrol pump.

b) Using depth gauge C, measure the distance between the upper face of spacer (7) and the pump plunger drive cam.
This dimension must be between :

- *21 and 22 mm with the cam in the upper position.*
- *26 and 27 mm with the cam in the lower position.*

(Turn the engine over with the handle).
Measure length « m » between the spring stop cup, and the end of the pump drive plunger.
Length « m » should be 4.5 mm min.

c) Fit the petrol pump.

d) Replace the heater unit.

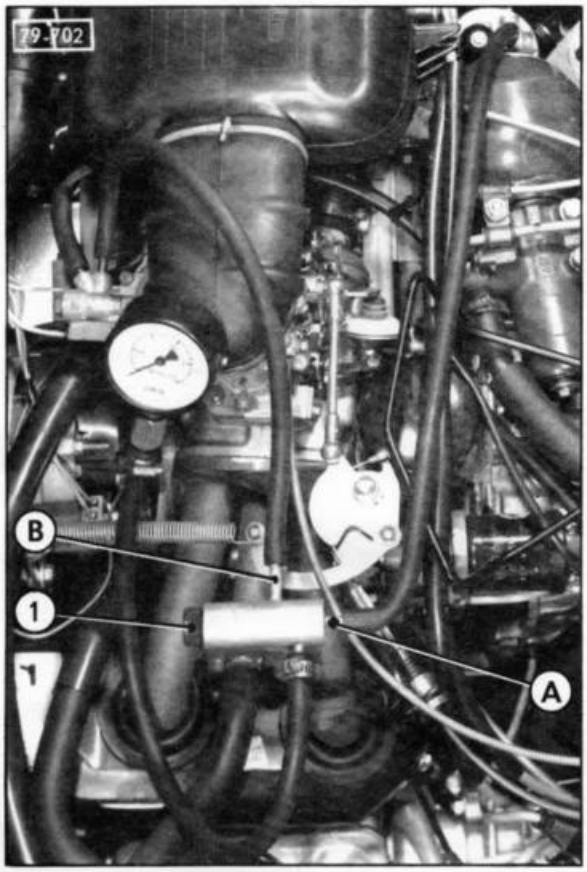
4. Checking pump seal-tightness :

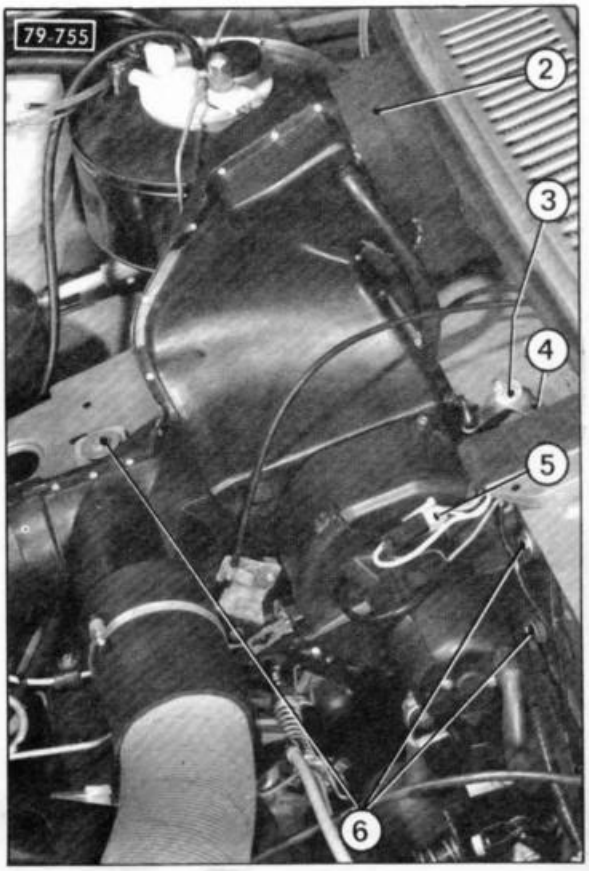
Blank off the delivery tube.
Submerge the pump in a recipient containing clean petroleum spirit.
Blow compressed air at 800 mbar into the pump suction pipe. No leak should be observed.

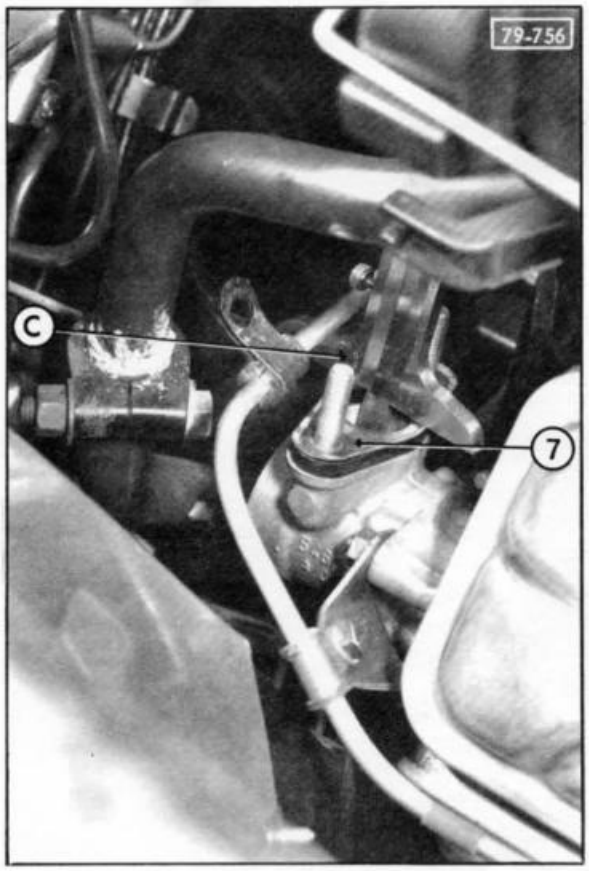
PETROL FILTER

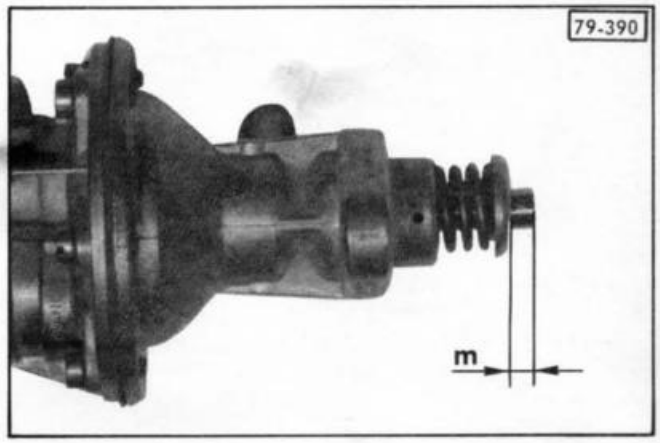
Manufacturer : GUIOT - ref. G 20
or AC DELCO ref. E/OF 16103

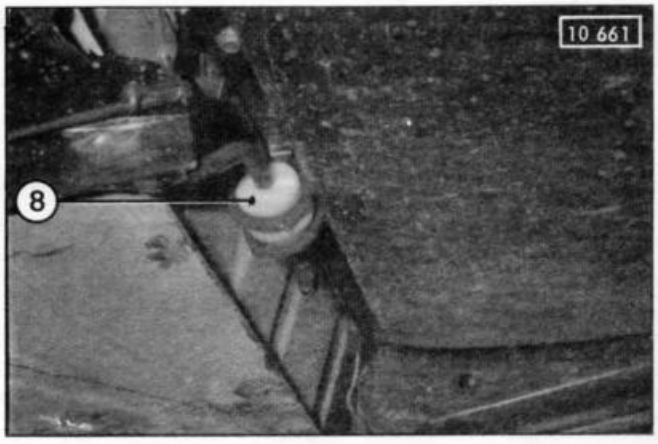
Filter (8) must be replaced after 30, 000 km.
Check correct assembly position. An arrow indicates the direction of fuel flow.











CHARACTERISTICS

1. DISTRIBUTOR

Makes and references *(engraved on the body)*

1130 cc engine	1300 cc engine
DUCELLIER 525 136 SEV-MARCHAL 41 301 802 FEMSA DJ 4 X 9	DUCELLIER 525 073 SEV-MARCHAL 41 301 502

Centrifugal and vacuum advance devices.
The tab for earth connection of « Diagnosis » wiring harness is rived to the distributor body.
Direction of rotation (viewed from drive end) : clockwise
Firing order : 1 - 4 - 3 - 2
Contact closure (cam angle) : **57° ± 2°**
Contact breaker gap : 0.35 to 0.45 mm
Dwell ratio : **63% ± 13%**
Initial advance point : **10° ahead of top dead centre**
Static setting : index stamped on flywheel opposite **10°** mark on graduated quadrant
Dynamic check *(vacuum capsule disconnected)*

1130 cc engine	1300 cc engine
27° at 3000 rpm	**24° at 2500 rpm**

Marks on advance curves *(engraved on the body).*

1130 cc engine	1300 cc engine
GA 9 : Centrifugal advance **GD 7** : Vacuum advance } Page 3	**GA 8** : Centrifugal advance **GD 4** : Vacuum advance } Page 4

Key to graphs : **A** : Advance in degrees **D** : Vacuum : **D1** : In m.bars
N : Distributor rpm **D2** : In mm.Hg

2. IGNITION CAPACITOR

Capacity : 0.25 to 0.30 μF

3. SPARK-PLUGS

Gap : 0.6 to 0.7 mm
Tightening torque (cylinder head cold) : **2 to 2.5 m.daN**
Makes and types : Refer to the Technical Bulletins published regularly.

4. COIL (external resistance type) :

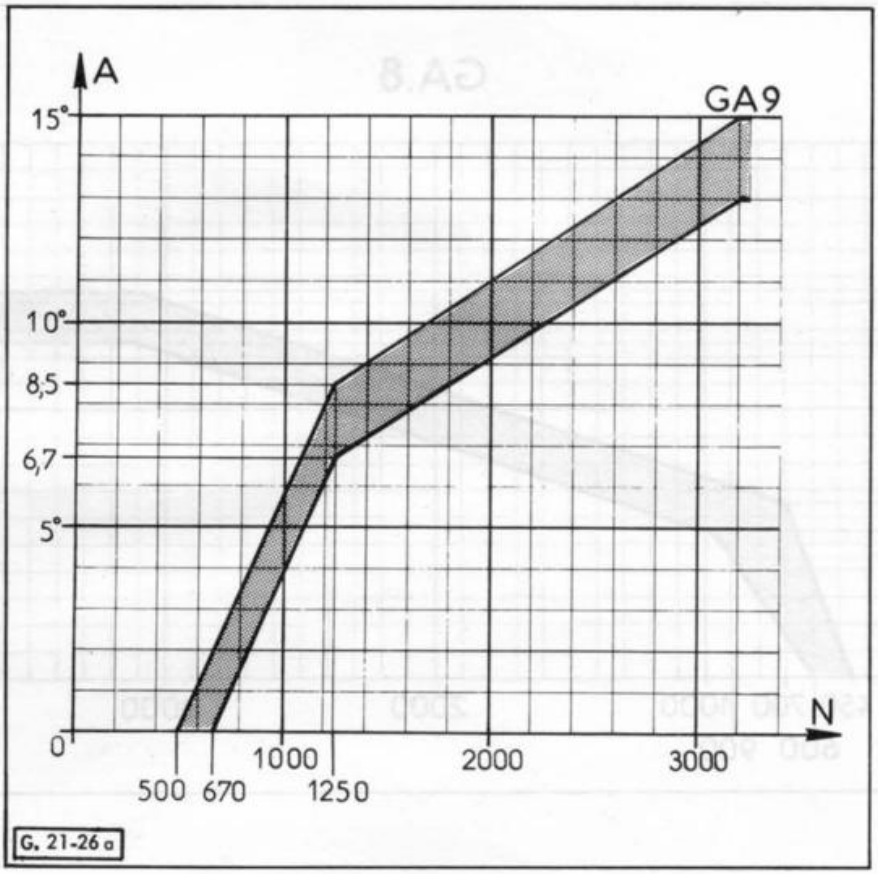
Make and reference :	DUCELLIER 2777	SEV-MARCHAL E 44 910 312	MARELLI BZR 206 A	FEMSA BI 12 R 70
Primary resistance at 20° C	0.6 to 0.8 Ω	1,5 Ω	1.35 Ω ± 4%	1.2 to 1.35 Ω
External resistance at 20° C	0.68 ± 0.02 Ω	1.1 to 1.2 Ω	0.8 Ω ± 10%	0.6 Ω
Secondary resistance at 20° C	6 ± 1 KΩ	6.5 KΩ ± 5%	7.5 KΩ ± 10%	7.4 to 8.9 KΩ

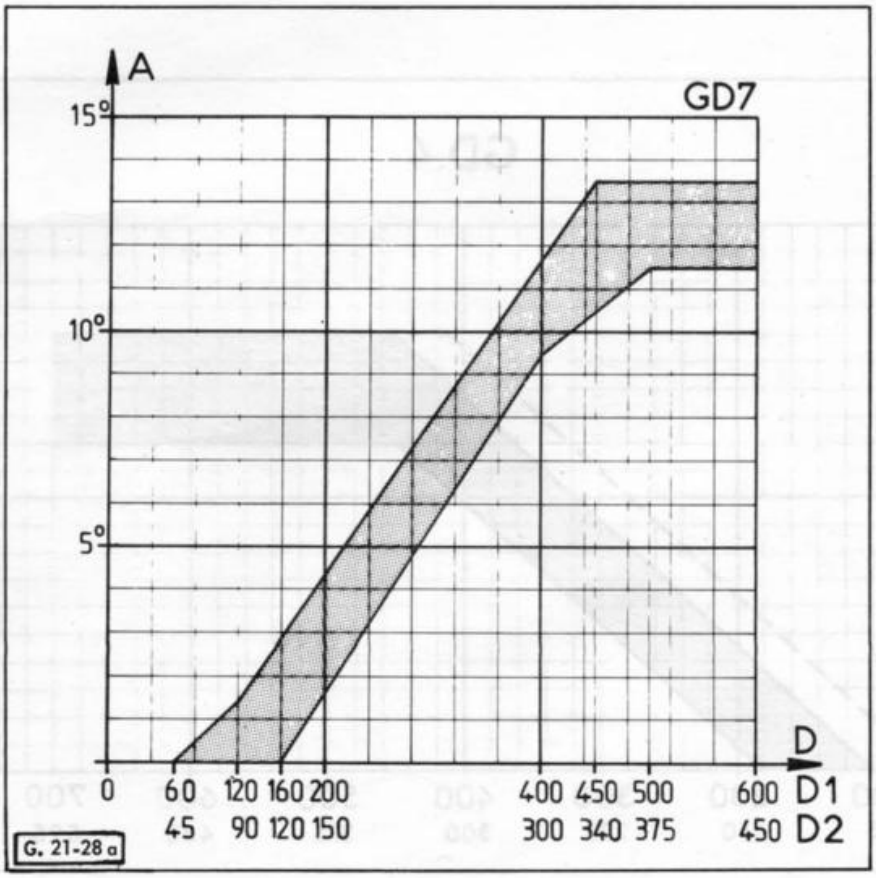
5. HV WIRES (ELECTRICFIL) :

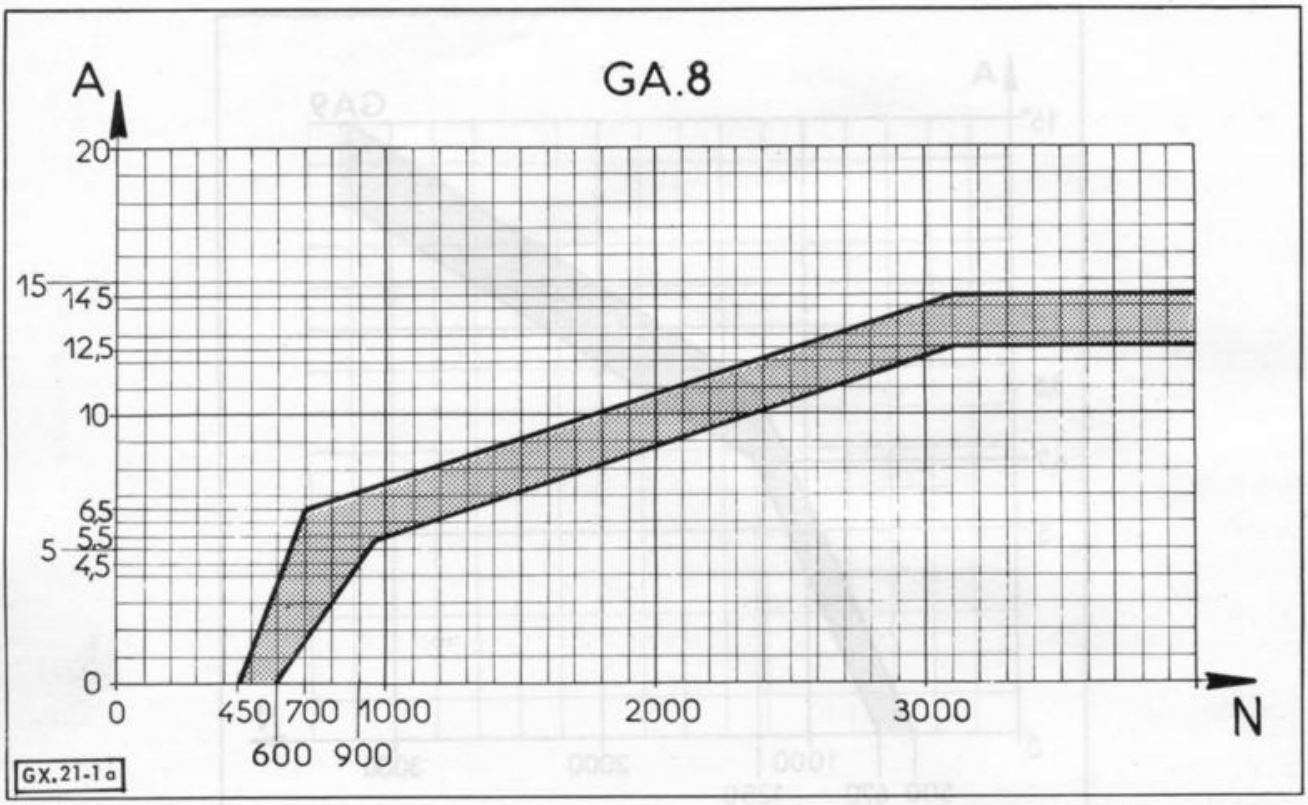
Description of wires	Length ($^{+10}_{0}$ mm)	Resistance (at 20° C)
From coil to distributor	370 mm	420 to 720 Ω
From distributor to cylinder No. 1	340 mm	370 to 570 Ω
From distributor to cylinder No. 2	610 mm	700 to 1200 Ω
From distributor to cylinder No. 3	1030 mm	1200 to 1820 Ω
From distributor to cylinder No. 4	1220 mm	1400 to 2200Ω

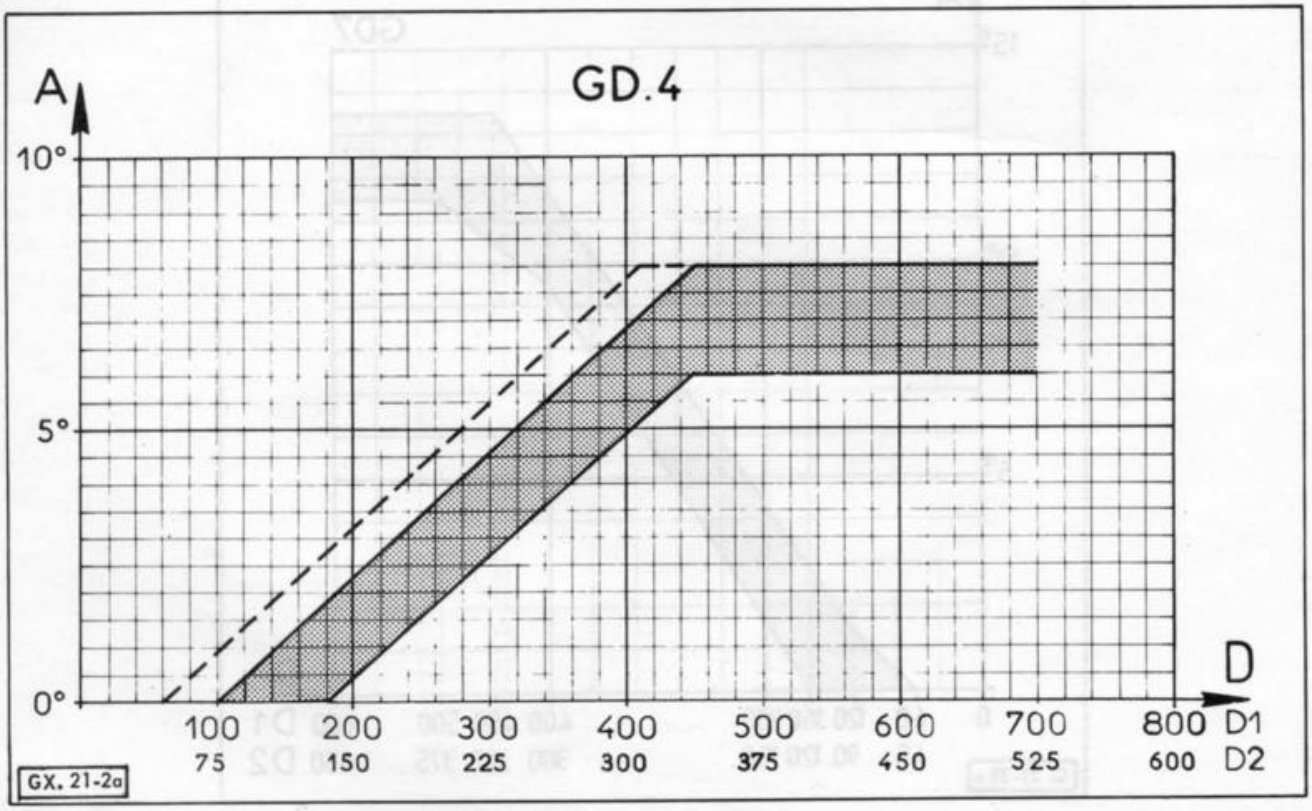
6. POSITION OF CYLINDERS IN ENGINE

Cylinder No. 1 : Rear left Cylinder No. 3 : Rear right	Cylinder No. 2 : Front left Cylinder No. 4 : Front right









CHARACTERISTICS OF THE TRANSISTORIZED IGNITION SYSTEM

COMPOSITION OF THE IGNITION SYSTEM.

1. Anti-theft contactor
2. Interference capacitor *(radio option)*
3. Ignition coil
4. Pulse generator distributor
5. Transistorized module
6. Rev counter
7. Diagnostic socket

OPERATING PRINCIPLE.

The primary circuit current from the coil crosses a tripping transistor located in the module. When the pulse generator, composed of a polar wheel with four arms and a sensor, transmits a pulse, this blocks the transistor and interrupts the passage of current into the coil primary circuit thus creating a « HT » current in the secondary.
The rotor and its advance systems are identical to those of the conventional ignition system.
This controlled coil current ignition system has an insignifiant and non-adjustable DWELL angle for it is variable in relation to the speed.

SPECIFICATIONS.

Ignition order : 1 - 3 - 4 - 2
Distributor : DUCELLIER reference : 525 332
SEV-MARCHAL reference : 417 10002 A 497
Curve reference : centrifugal advance : **GA 10**
vacuum advance : **GD 8**
N : Distributor speed in rpm
A : Advance in degrees
D : Vacuum D1 : in millibars D2 : in mmHg
Advance on ignition : **6° before TDC** (TDC mark) on flywheel and engraved plate fastened to clutch casing).

Transistorized module : DUCELLIER 521 007
BOSCH 0227 100 111

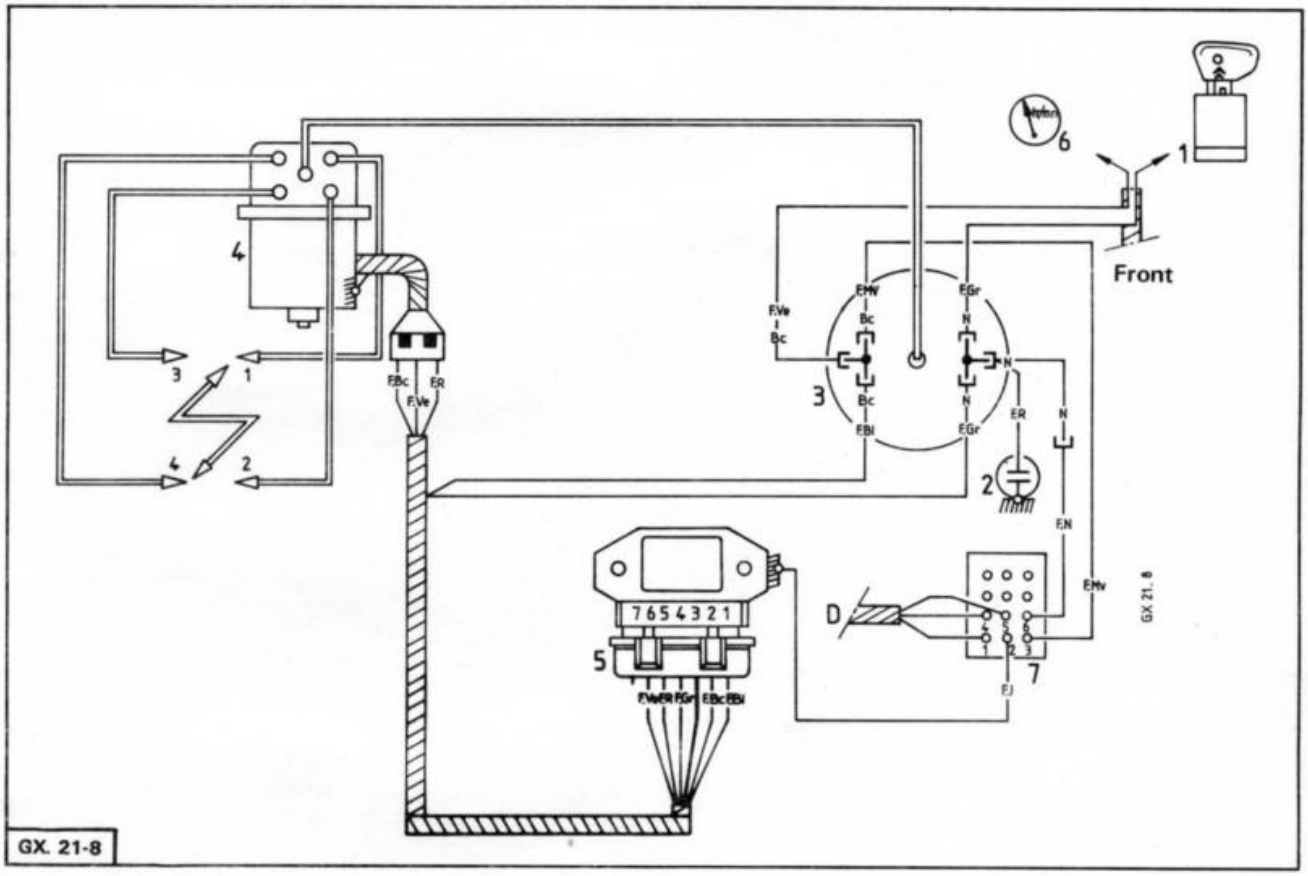
Ignition coil : DUCELLIER 520 015
BOSCH 0221 122 317

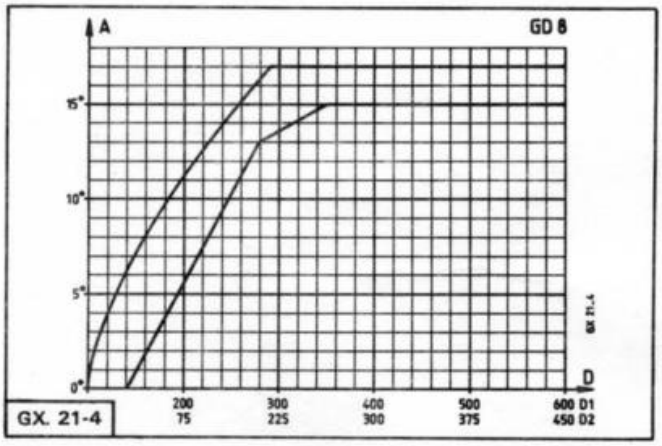
Sparking plugs :
Electrode gap : 0.6 to 0.7 mm.

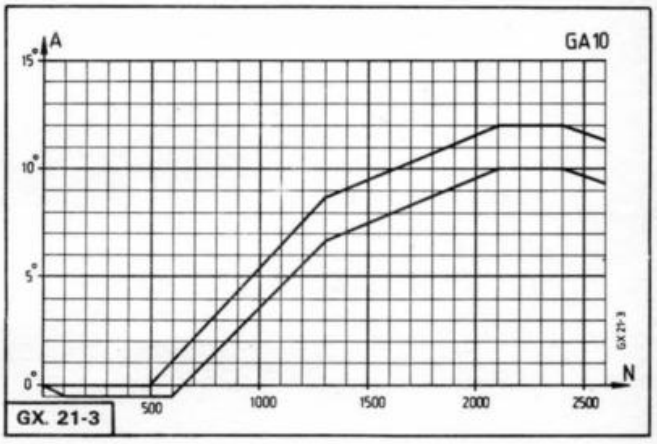
MAKE	AC	: 41.4 XLS
	CHAMPION	: N 7 Y
	MARCHAL	: GT 34-2 H
	BOSCH	: W 6 D
	EYQUEM	: 800 LS

Ignition wiring harness :

Description of wires	**Length in mm** $^{+10}_{0}$	Resistance Ω ± 20% at 20° C
Coil to distributor	460	
Distributor to cylinder No. 1	340	
Distributor to cylinder No. 2	650	
Distributor to cylinder No. 3	1150	
Distributor to cylinder No. 4	1370	







CHECKING THE TRANSISTORIZED IGNITION

PRELIMINARY CHECKS :

Check :
- the connection of the different leads (in particular the coil : a bad connection can cause a high voltage drop preventing the current from passing into the coil primary winding (15 A approx).
- condition of the leads (cuts, short-circuits across screening, etc).
- condition of the sparking plugs (deposits, cracks due to overtightening).
- condition of the distributor cap (wear, cracks) and the rotor arm (loose).

Disconnect the interference suppression capacitor and the diagnosis harness, from the circuit.
Carry out a « spark test » with the starter motor and one plug earthed.

IMPORTANT : The module may be destroyed if one of the secondary wires is too far from the earth.

CHECKING THE COIL *(module and coil supply disconnected)*

MEASUREMENT	Ohmmeter between contact numbers	Value in Ohms	
Primary winding resistance	1 and 4	DUCELLIER BOSCH	0.78 to 0.86 0.70 to 0.94
Secondary coil resistance	1 or 4 and HT coil contact	DUCELLIER BOSCH	5700 to 6300 6750 to 9540
Insulation	1 or 4 and earth	∞	

Check the coil power supply (with lamp or voltmeter) :
Turn on the ignition, there should be a 12 V current between the « BAT » terminal of the coil and the earth. Turn off the ignition.

CHECK OF MODULE.

This is designed to function with the distributor and the coil.
- Do not operate the module without its heat sink (aluminium plate) or without ventilation.
- Do not check the module with an ohmmeter : results non-significant.

Check the module power supply (with lamp or voltmeter) :
- Disconnect the module connector.
- Turn on the ignition, there should be 12 V between contact 4 of the connector and earth.
- Turn off the ignition.

The low voltage ignition circuit connected (in working order), disconnect the coil HT - distributor lead at the distributor end and connect to an earthed plug : by sending short pulses (+ 12 V) to contact 5 (red wire) on the module, there should be sparks on the plug (simulation of distributor spark current).

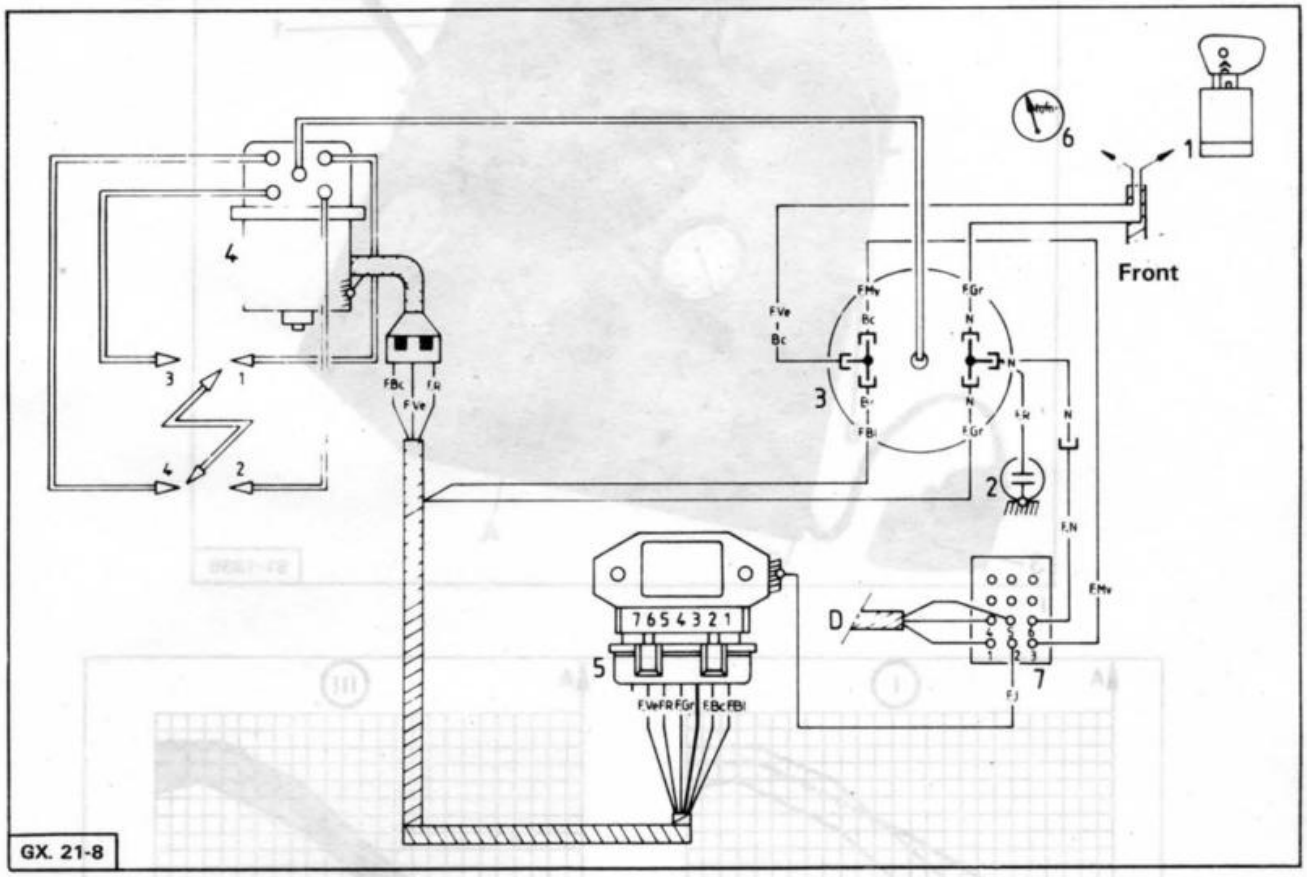
TO CHECK THE DISTRIBUTOR.

Checking of the pulse generator *(harness connector disconnected).*

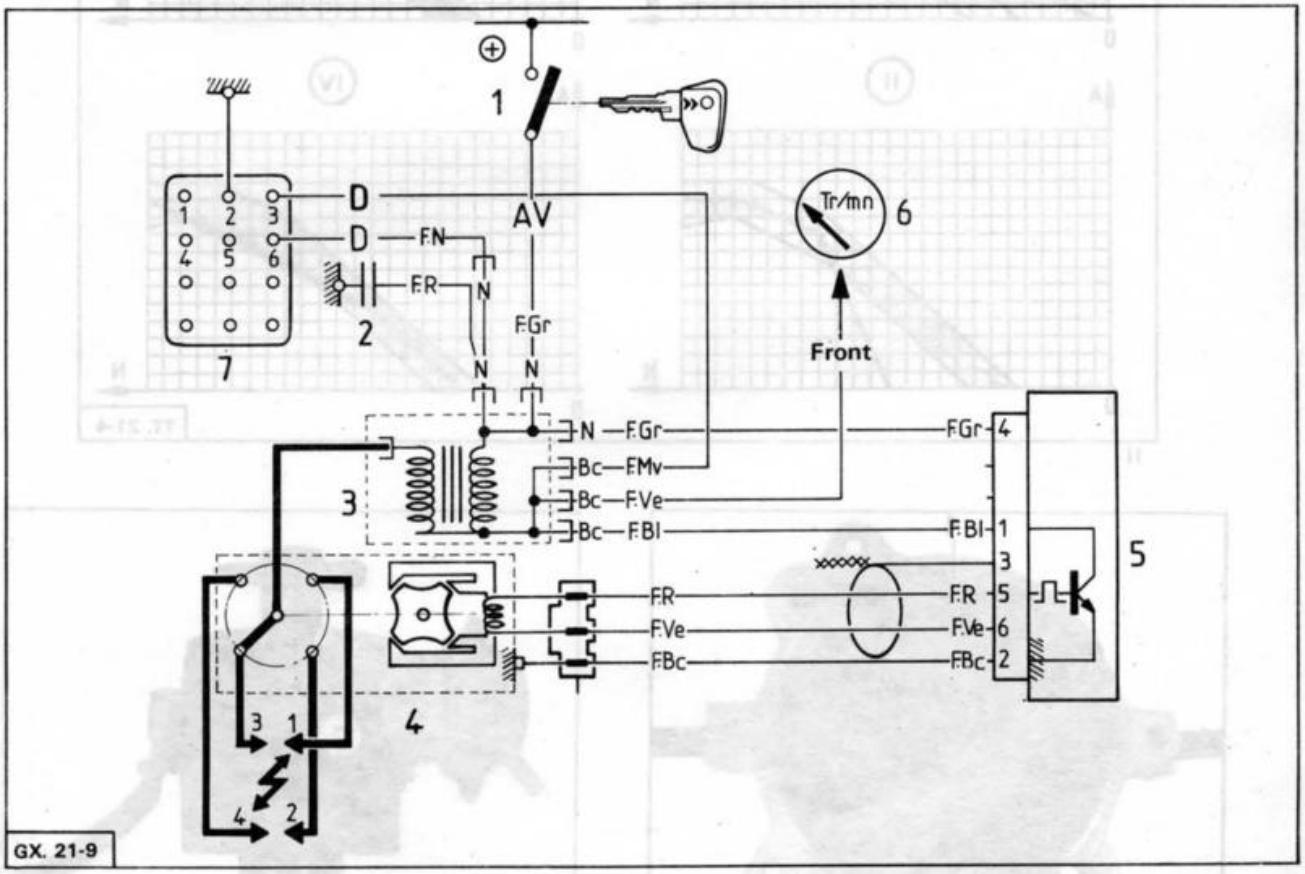
MEASUREMENT	Ohmmeter between contact numbers	Value in Ohms
Resistance	5 and 6	950 to 1250 approx.
Earth	2 and engine earth	0
Insulation	5 and 2 then 5 and 3	∞

COMPOSITION OF THE IGNITION SYSTEM (see diagrams page 3)
Leads : **AV :** Front **D :** Diagnosis **A :** transistorized ignition (without mark)

Parts list :
1. Anti-theft switch
2. Interference suppression capacitor
3. Ignition coil
4. Distributor
5. Electronic module
6. Rev counter
7. Diagnostic socket



GX. 21-8



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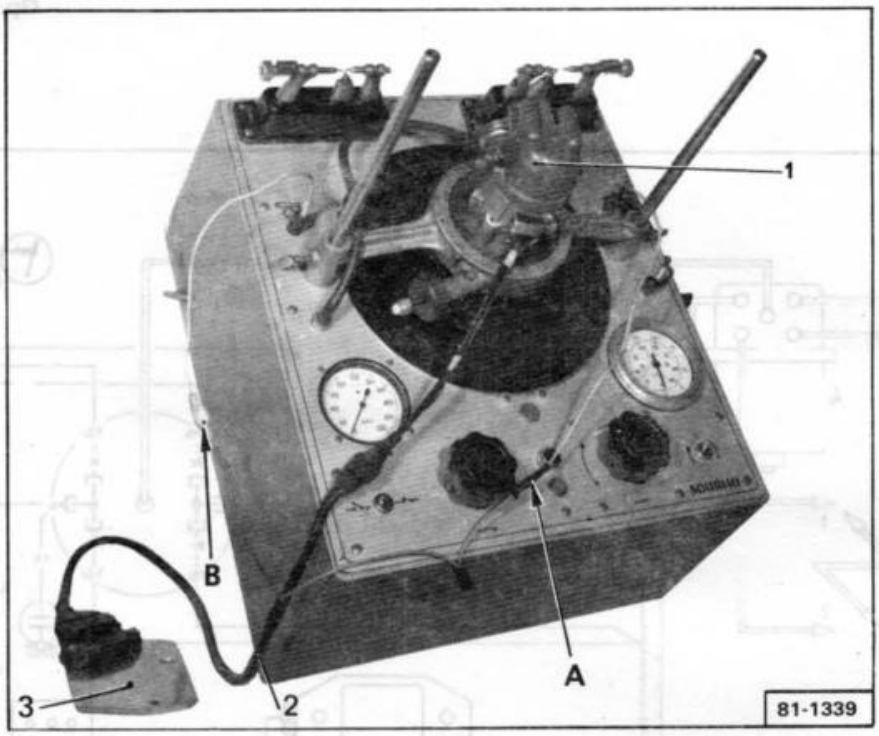

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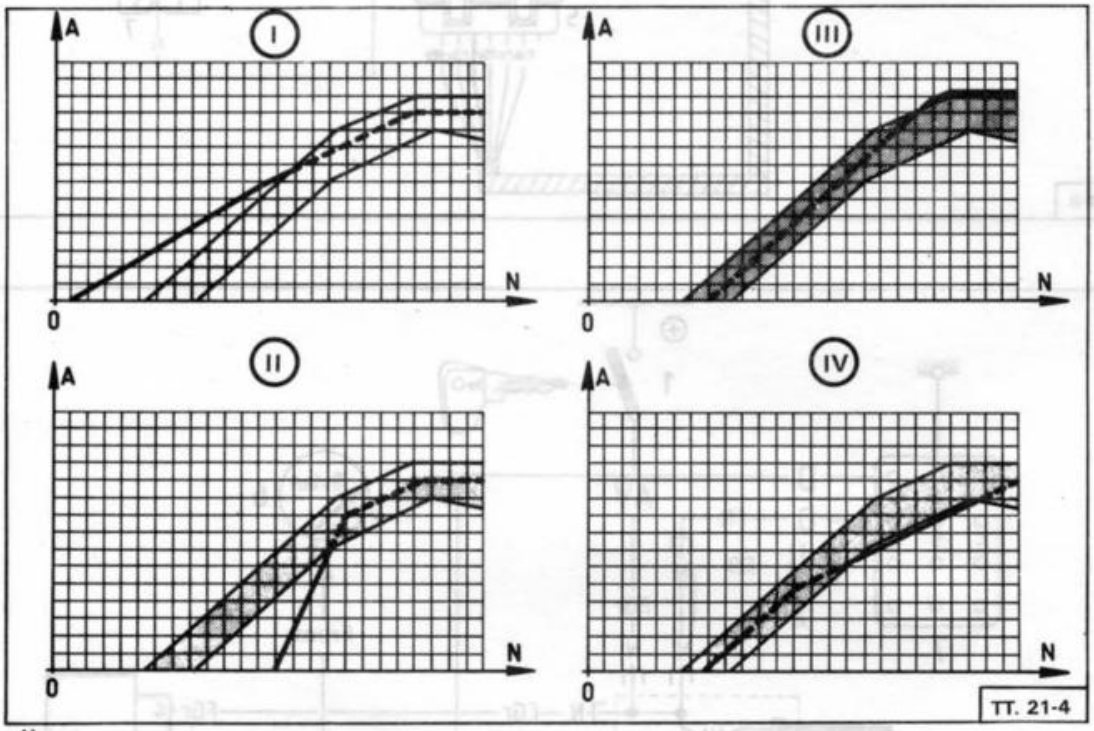

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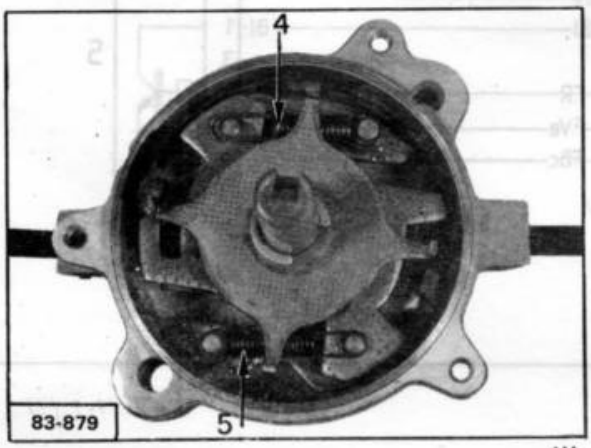
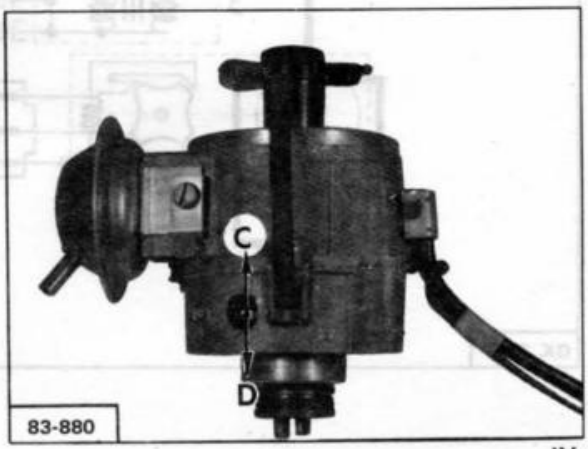


III



IV

CHECKING ON A DISTRIBUTOR TEST BENCH, Fig. I

To check the magnetic distributor on the bench, a transistorized module in good condition is essential. Use the vehicle module and leads if the bench is not equipped. The ignition coil is not required.

CHECKING THE CENTRIFUGAL SPARK ADVANCE.

Fit the distributor onto the bench.
Connect module (3) and distributor (1) to the harness (2).
Supply the system with a + **12 V from the battery** through black plug (A) (snap fastener).
Connect the bench « RUP » terminal to the harness transparent lead (B).
To check the distributor : **Figs. II and III.**

- Compare the distributor centrifugal spark advance curve with the theoretical curve *(see Op. GX. 210-00 a)*
- If the curve plotted does not correspond to the theoretical curve, modify the spring tension by bending the spring hooking point support plate.

In order to do this, remove the cap and alter the spring tension by bending the hooking point tab : **Figs. III and IV**

Curve measured	Spring concerned	Bending direction
I	5	D
II	5	C
III	4	D
IV	4	C

CHECKING THE VACUUM SPARK ADVANCE
Compare the distributor vacuum spark advance curve with the theoretical curve *(see Op. GX. 210-00 a)*

NOTE : *The vacuum spark advance device is not adjustable : If the curve measured is out of tolerance, change the capsule.*

ADJUSTMENT ON THE VEHICLE.

Distributor position.
Fit the distributor, positioning it approximately midway between the slotted holes.
Start the engine.
Use a strobe lamp to set the distributor position *(vacuum capsule disconnected)* to :

27° before TDC at 3000 rpm

Reconnect the vacuum capsule.

I. CHECKING AND ADJUSTING THE IGNITION SYSTEM ON THE VEHICLE

Each vehicle is fitted with equipment for connection to an electronic test and adjustment unit (as on CX vehicle).
This method is recommended for its rapidity, accuracy and ease of execution.

1. CHECKING CONTACT BREAKER GAP

a) *Using test equipment :*

The contact-breaker closing angle should be 57 ± 2°.
DWELL ratio should be 63% ± 3%.
If the values obtained are not correct, remove the distributor and adjust the contact gaps on a distributor test rig.

b) *Not using test equipment :*

Remove the distributor. Turn the drive shaft until one of the cam bosses raises the pawl to its maximum height. Using a set of slip gauges, measure the contact gap which should be between 0.35 and 0.45 mm.
Adjust to this value if necessary.

2. DISTRIBUTOR TIMING

A. USING AN INDICATOR LAMP

a) Turn the engine to bring cylinder No. 1 to end of compression until index « a » is opposite the 10° mark on graduated quadrant **A** (use a mirror for this purpose).
b) Switch on the ignition, and connect the indicator lamp between the terminal marked «RUP » on the coil, and earth.
c) Undo distributor attachment nuts (1). Turn the distributor first clockwise (viewed from drive end), then anti-clockwise to find the precise moment when the lamp comes on. The engine is then at the ignition point.
d) Do up the distributor attachment nuts.
e) Switch off, and disconnect the indicator lamp.

B. DYNAMIC TIMING TESTING WITH STROBOSCOPIC LAMP

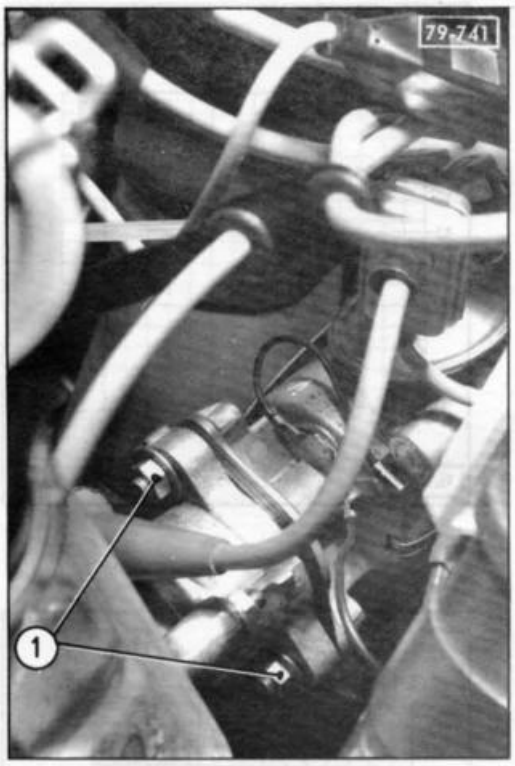
This operation must be carried out following operation A above.

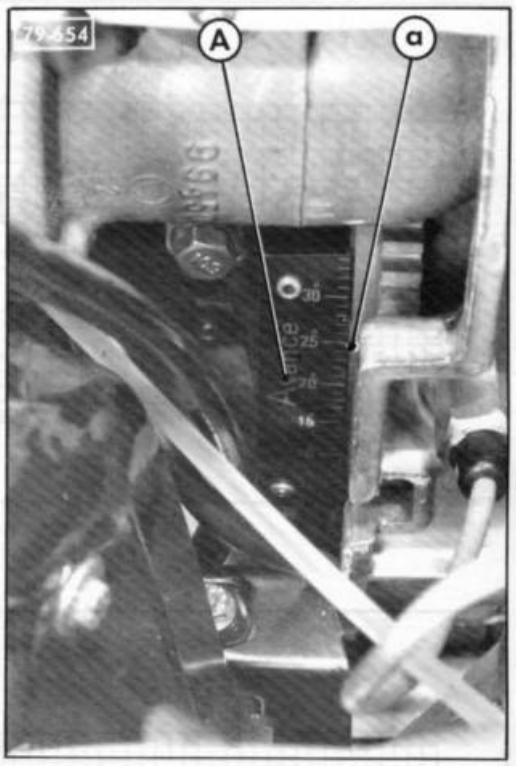
a) *Disconnect the flexible pipe from the distributor vacuum capsule.*
b) Connect a revolution counter and a stroboscopic lamp (HV wire to spark-plug No. 1 lead), or use an electric test unit, connecting the 12-pin socket.
c) Run the engine, and illuminate the graduated quadrant and engine flywheel with the lamp :
- ♦ - At **2500 rpm,** mark « a » should be opposite the **24°** mark on the quadrant **(1300 cc engines).**
- ♦ - At **3000 rpm,** mark « a » should be opposite the **27°** mark on the quadrant **(1130 cc engines).**

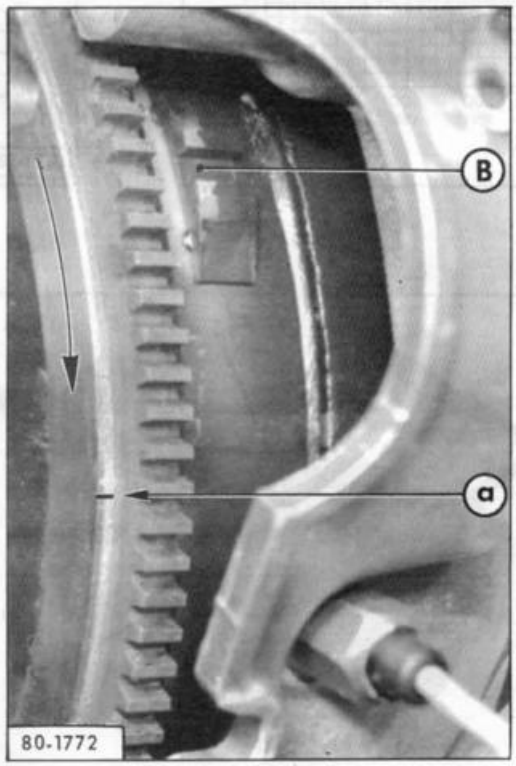
If this test gives an incorrect result, do not change distributor timing. Remove the distributor, and check advance curve development on a distributor test rig.
d) Stop the engine, and disconnect the test equipment.
e) *Reconnect the flexible pipe to the vacuum capsule.*

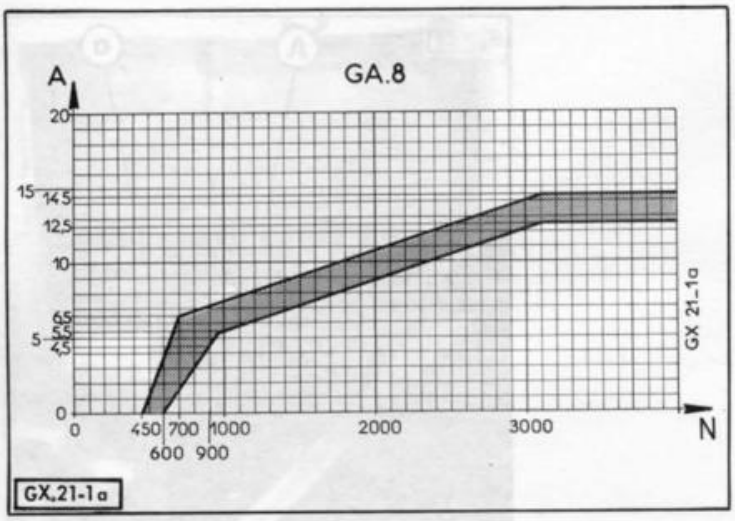
IMPORTANT NOTE for engines with torque converter

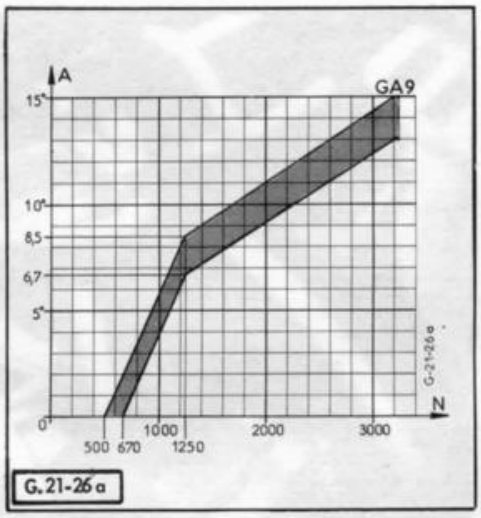
Identification of ignition mark « a » on engine flywheel :
The flywheel has two slots and a marker line « a ». When the flywheel rotates, marker line « a » is located ten teeth ahead of larger slot B (see photo opposite). The marker line is not painted when the vehicle leaves the factory. Paint in the line to facilitate timing and dynamic testing.

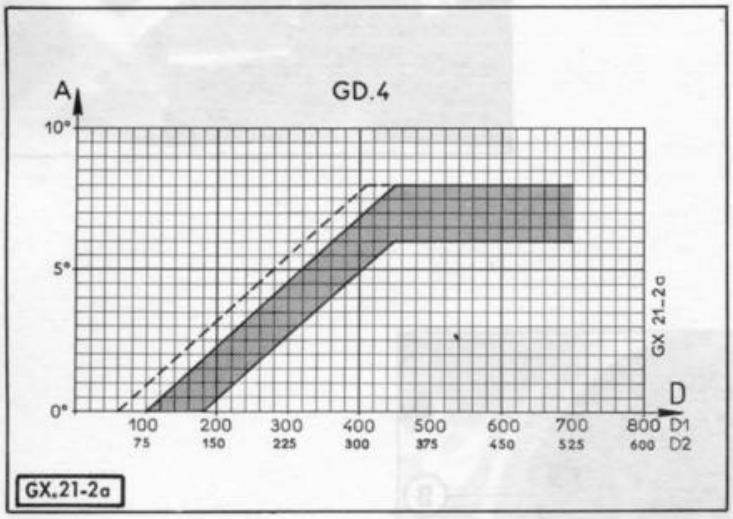


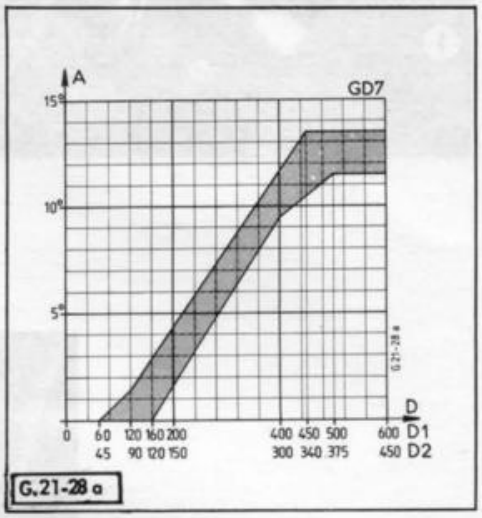


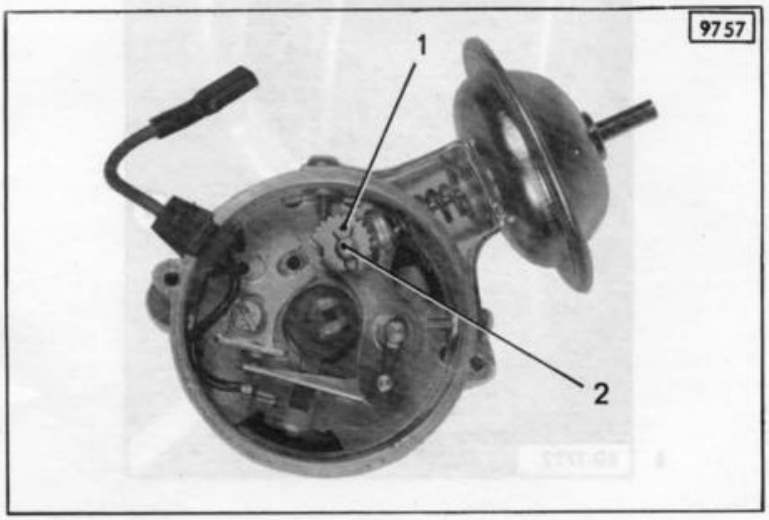












II. CHECKING AND ADJUSTING ON A DISTRIBUTOR TEST BENCH

1. Check condition of contact points.

2. Check and adjust cam angle : 57° ± 2°.

3. Check cam geometry : 90° ± 1°.

4. Check absence of pawl bounce up to 3500 rpm.

♦ **5. Check centrifugal advance curve development (GA. 8 or GA. 9) :**

A : Distributor degrees **N :** Distributor rpm

This curve is checked *with nil vacuum* (capsule not connected).
Take measurements at various points on the curve, increasing speed from 1000 to 3500 rpm, then decelerating down to 0 rpm, and finally increasing again from 0 to 1000 rpm.
The points are measured without reversal of direction, and must be inscribed within the curve form shown on the chart. If this is not the case, correct the curve by adjusting the tension of the advance regulator springs, by bending the anchor tabs. If necessary, replace the springs.

♦ **6. Checking negative pressure advance curve development (GD. 4 or GD. 7) :**

A : Distributor degrees **D :** Vacuum **(D1 :** in m.bars, **D2 :** in mm.Hg **)**

The test is made with *zero centrifugal advance,* and at constant speed (200 rpm).

IMPORTANT NOTE : If the capsule has a venting hole, blank off this hole during testing.
Take measurements at various points on the curve, increasing vacuum from 0 to 600 mbar (or 0 to 450 mm.Hg), then decreasing down to 0.
The points are measured without reversal of direction, and must be inscribed within the curve form shown in the chart. If it is not the case, adjust the capsule control stem (SEV-MARCHAL distributor), or capsule spring tension by toothed segment (1) (DUCELLIER distributor).

7. For a DUCELLIER distributor, **check DWELL balance :**
Check that the DWELL ratio remains within tolerances of 63% ± 3% (or 57° ± 2°), with the distributor rotating at 200 rpm, by applying and then cancelling a vacuum of 500 m.bar (375 mm.Hg).
Use flat (2) to adjust for *correct cam angle, with and without vacuum.*

CHECKING THE OIL PRESSURE ON THE VEHICLE

NOTE : For a vehicle equipped with a WEBER carburettor, the dashpot with dashpot support (1) must be removed.

1. Remove :
- spare wheel,
- left heating duct,
- spare wheel support (2).

If necessary, take an oil level reading.
Warm up the engine *(oil temperature 80° C)*.

2. Remove oil pressure-switch (3).
Connect coupling 3099-T, equipped with coupling 4009-T *(copper seals)*. Use pressure gauge 2279-T (graduated from 0 to 10 bar), fitted with flexible pipe (A).
Connect a revolution counter.

NOTE : *The corresponding equipment from the MULLER 455 kit can also be used.*

3. Run the engine. For an oil temperature of 80° C, pressure values should be as follows :
- **4.7 bar minimum at 2000 rpm**
- **6.2 to 7 bar at 6000 rpm**

4. If oil pressure is not correct, replace the discharge valve spring.
In this case, remove the filter cartridge.

If this action has no result, check the oil pump and lubrication circuit.

5. Disconnect pressure gauge 2279-T, and couplings 3099-T and 4009-T.
Disconnect the revolution counter.

6. Fit the pressure switch *(copper seals)*.

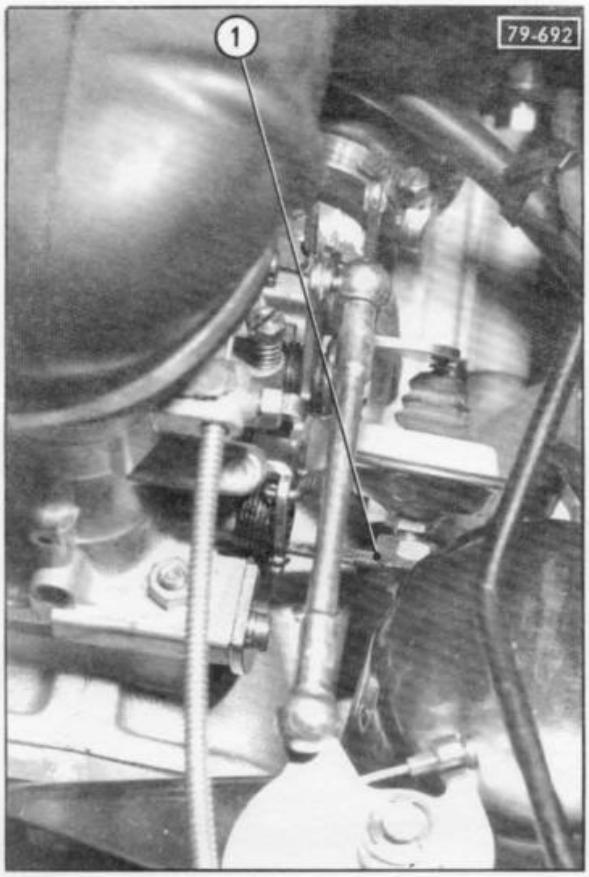
Tighten from 2 to 2.5 m.daN.

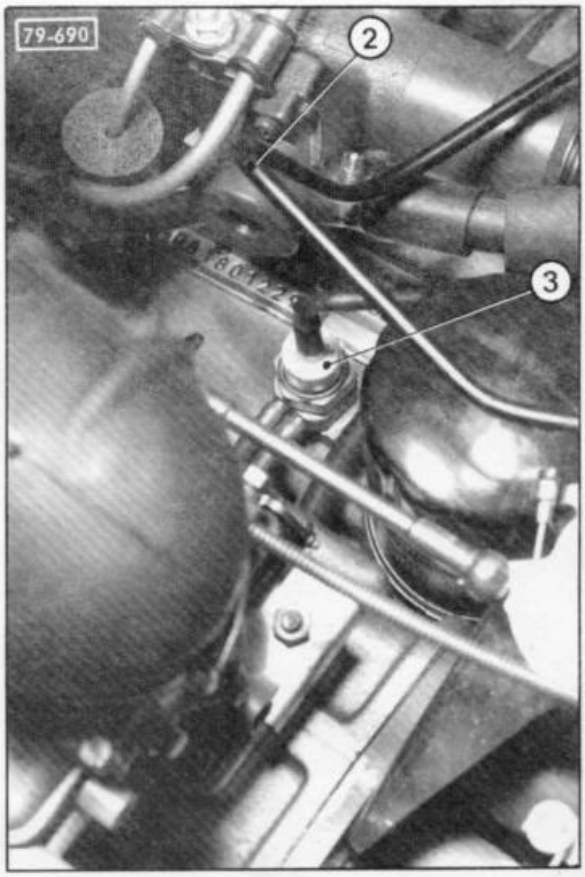
Connect the switch power supply wire.

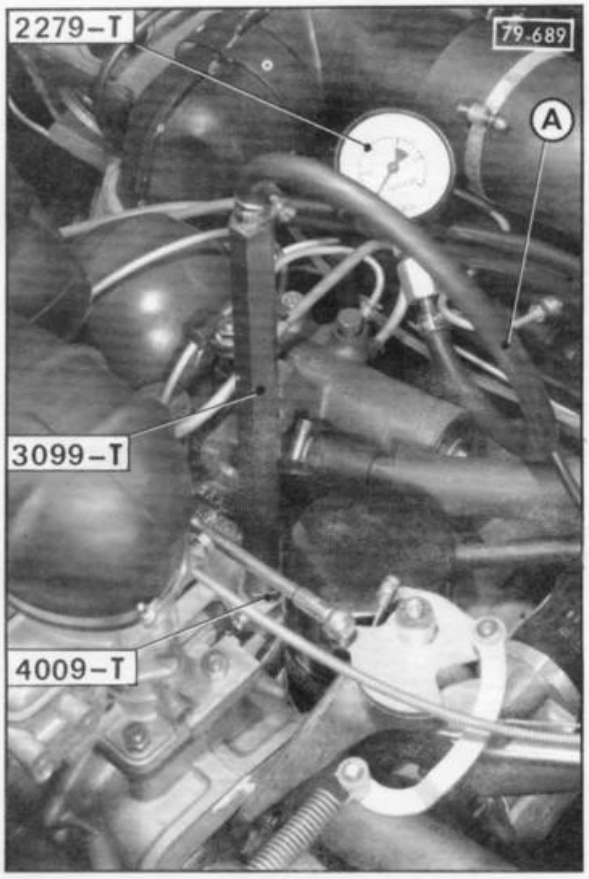
7. Check oil level.

8. On a vehicle equipped with a WEBER carburettor, replace the dashpot.

9. Reassemble :
- spare wheel support,
- left heating duct,
- spare wheel.







CHARACTERISTICS

Diaphragm type mechanism	VERTO
Damper hub type plate	3 black springs 3-red springs
Plate hub	21 splines
Clutch liner	FERODO A 755 *(→ 3/82)* FERODO F 201 *(3/82 →)*
Thrust bearing	Ball type

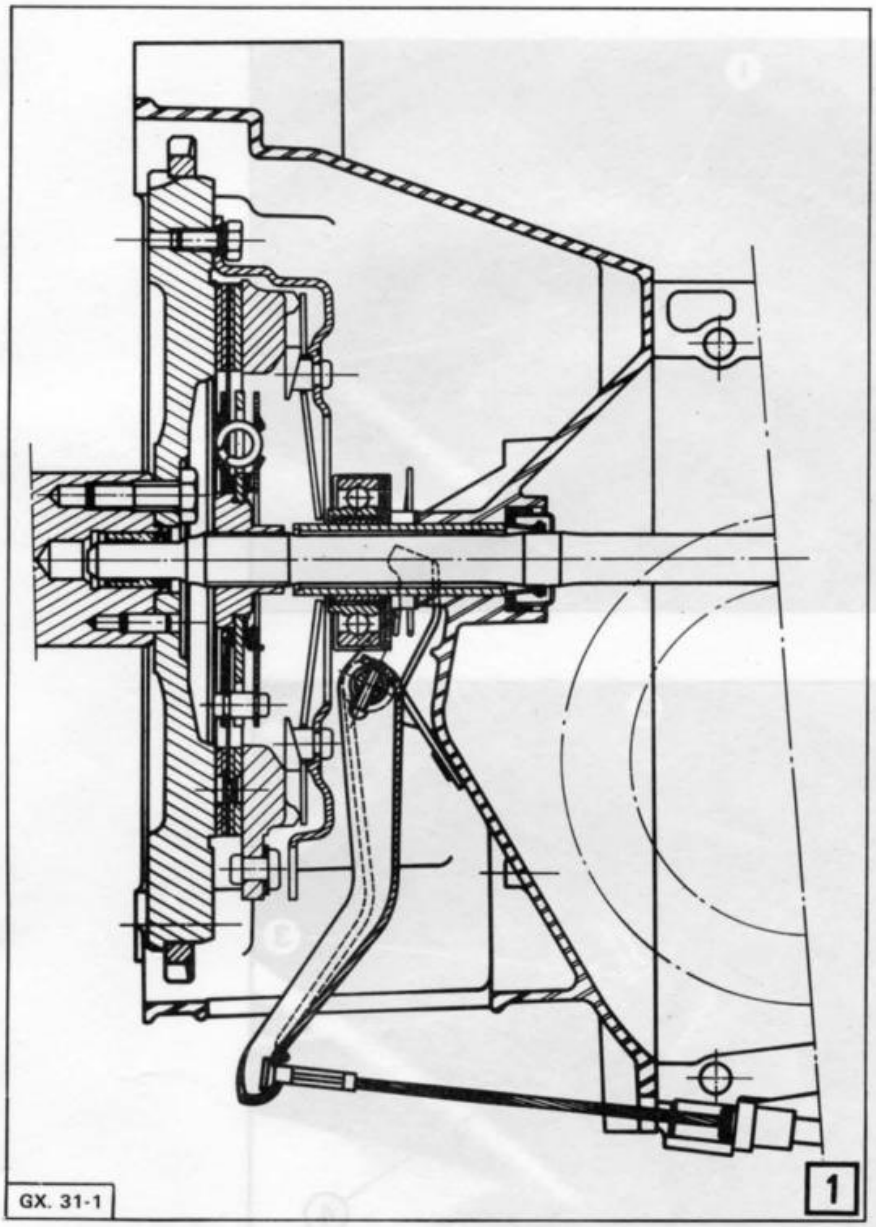
NOTE :

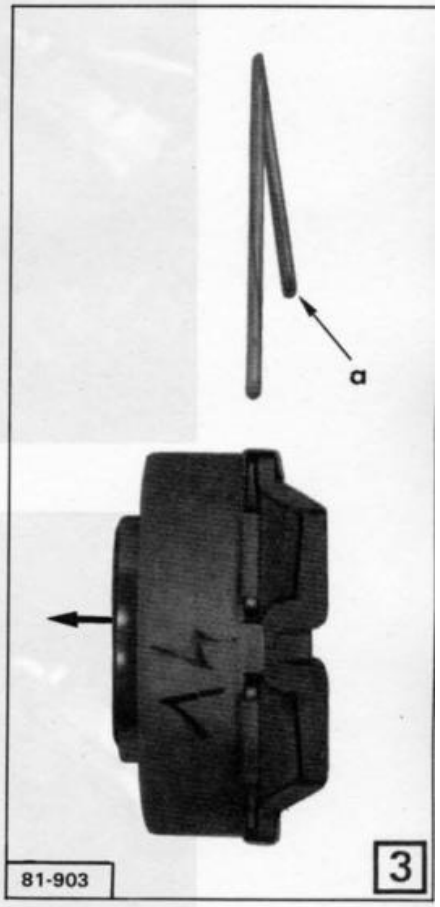
Since **August 1981 (R.P. organization No. 1745),** a new self-centring thrust bearing, with a splined inner race in plastic, has been fitted on all GSA vehicles with pedal-operated clutch. Consequently, a new clip nhas been created and MUST, WITHOUT FAIL, BE FITTED IN THE PROPER DIRECTION (see Fig. 2 and 3) : « a » at gearbox end. **The new thrust bearing can be fitted on GSA vehicles produced prior to the modification.** The value and adjustment method for the clutch clearance are unchanged.

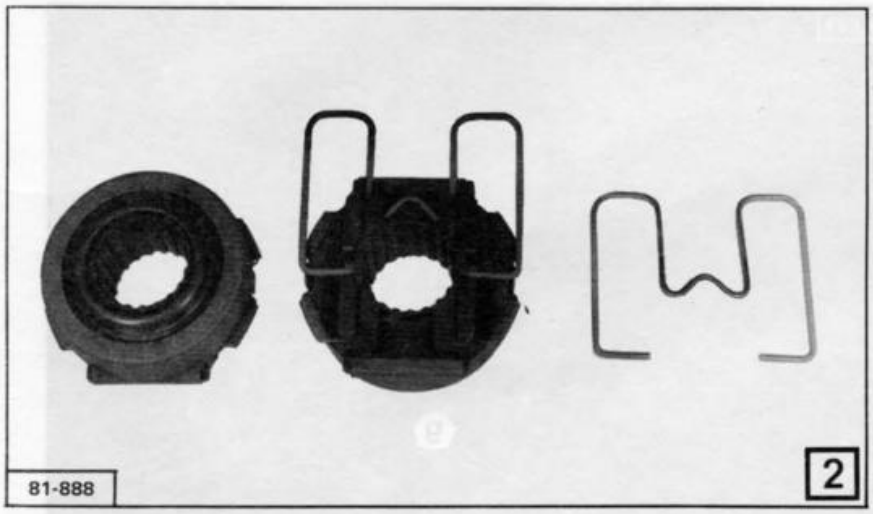
SPECIAL FEATURES

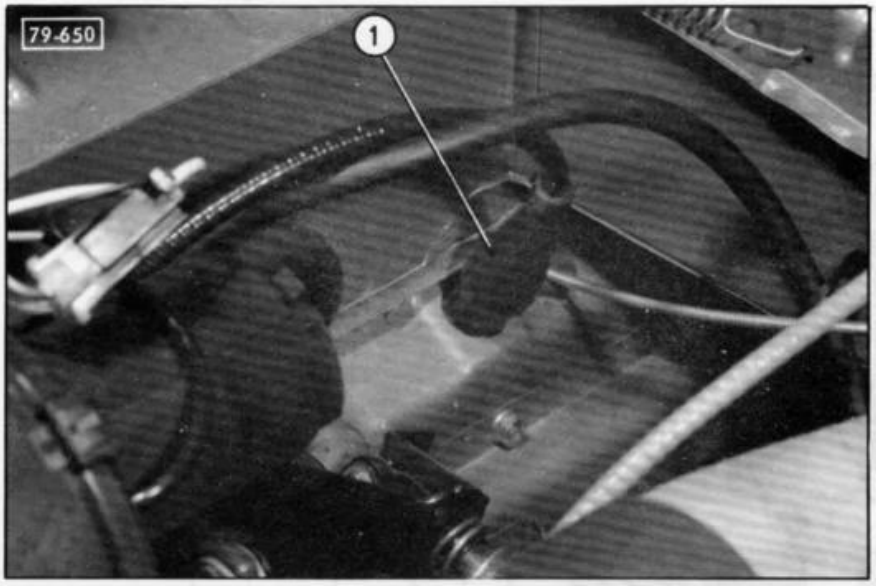
Clutch plate :

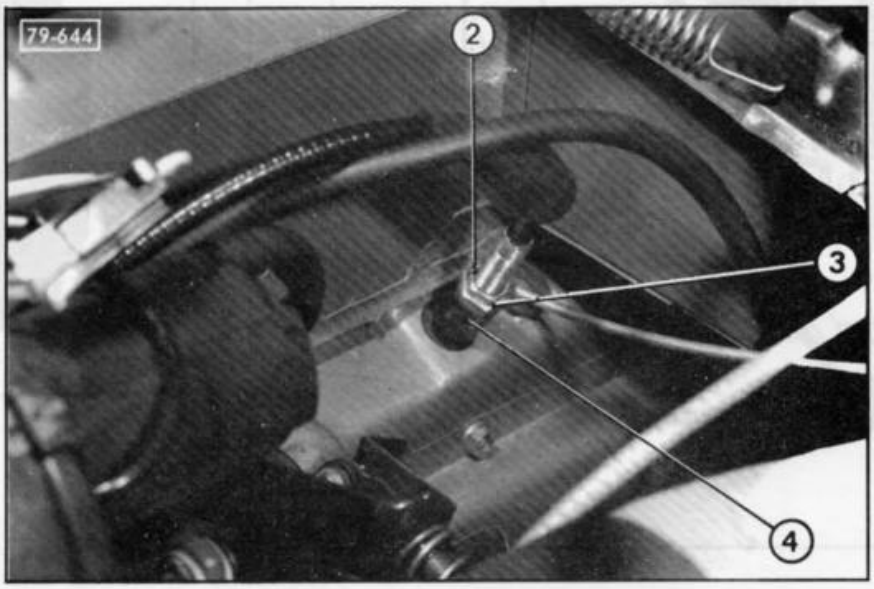
- Lining thickness : $7.7\ ^{+0.15}_{-0.30}$ mm
- Clearance between stop and diaphragm : 1 to 1.5 mm
- Pedal clearance : 15 to 20 mm
- Fork shaft screw assembled with LOCTITE FORMETANCH
- Tightening torque for clutch mechanism attachment screws : **1.8 m.daN**

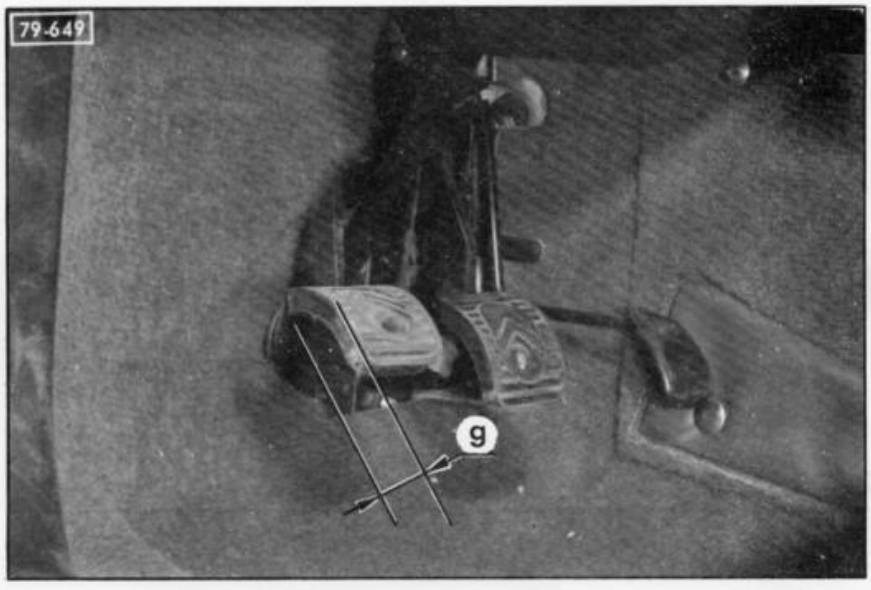












CHECKING AND ADJUSTING PEDAL-OPERATED CLUTCH CONTROL SYSTEM

ADJUSTMENT OF CLUTCH CLEARANCE

1. Remove spare wheel :

2. Adjust clutch clearance :

- Disengage seal (1).
- Undo lock-nut (2).
- Adjust nut (3) to obtain :

3.2 to 4.8 mm clearance between fixed tube (4) and nut (3)

Under these conditions, clutch pedal clearance is :

g = 15 to 20 mm

- Tighten lock-nut (2).
- Fit seal (1).
- Replace spare wheel.

I. CHARACTERISTICS.

- Torque converter with a built-in disc clutch.
- Engagement and disengagement of the clutch are controlled by a hydraulic system with an electrovalve distributor. This electrovalve is controlled by an electric switch operated by the selector fork shafts.

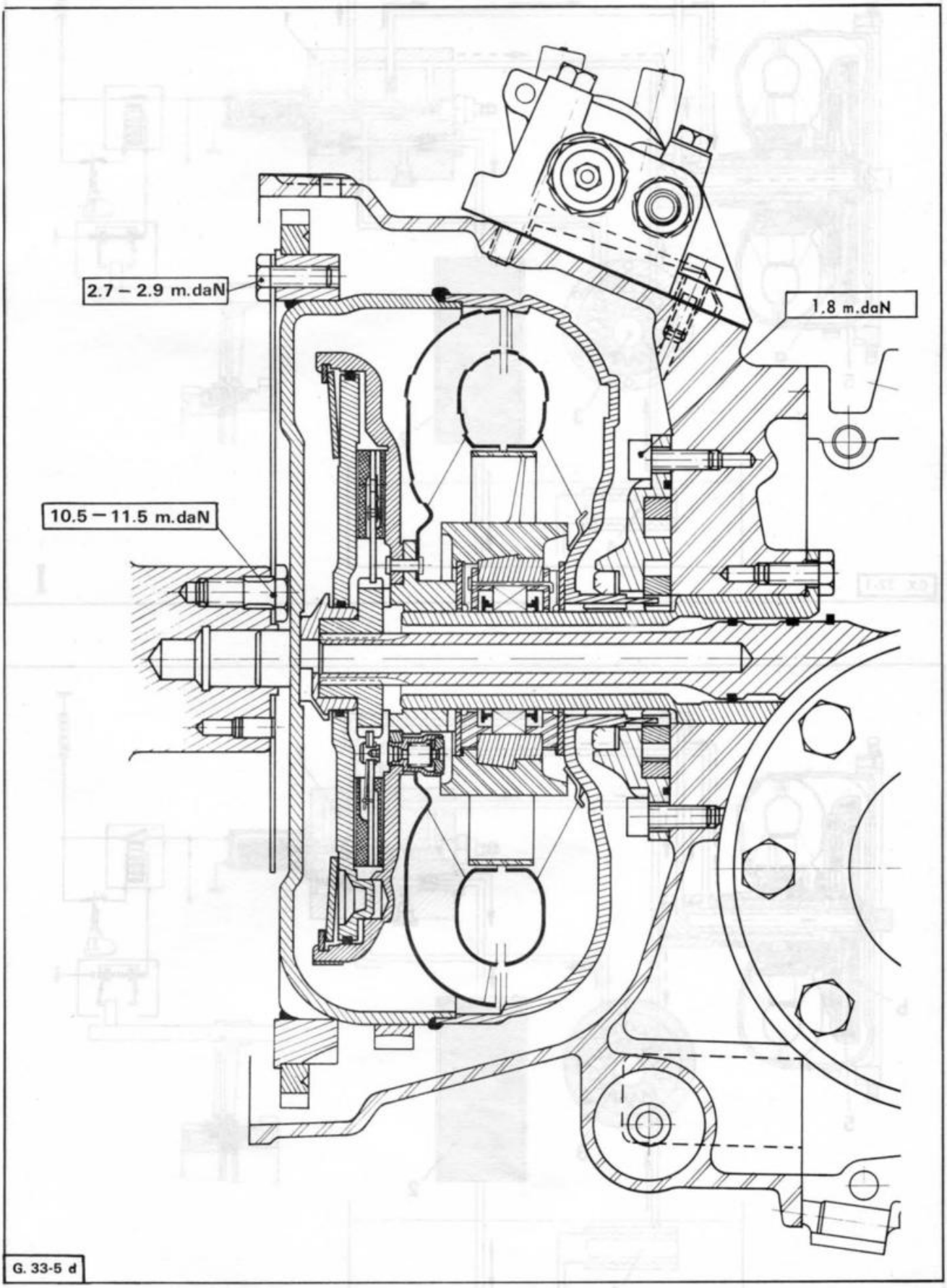
II. SPECIAL FEATURES.

- Gap between the electrovalve control contacts : ..... 1.45 ± 0.2 mm
- Calibration of temperature switch : ..... 135 ± 3° C
- Operating pressure : ..... 5.5 to 6.5 bars at 5000 ± 100 rpm
- Type of oil : ..... TOTAL FLUIDE T
- Total capacity *(including gearbox)* : ..... 4 litres approx.
- Filling the converter : after filling, actuate the electrovalve a dozen times.

III. TIGHTENING TORQUES (in m.daN).

- Electrovalve fixing screws : ..... 1.2 to 1.7 m.daN
- Pipe union-bolt : ..... 3.5 to 4.5 m.daN
- Suction strainer : ..... 1 to 1.5 m.daN
- Switch baseplate fixing screws : ..... 0.30 to 0.40 m.daN
- Contacts fixing screws : ..... 0.35 to 0.40 m.daN

The screws fixing the diaphragm to the crankshaft must be replaced after each removal and must be smeared with LOCTITE FRENETANCH before they are fitted.



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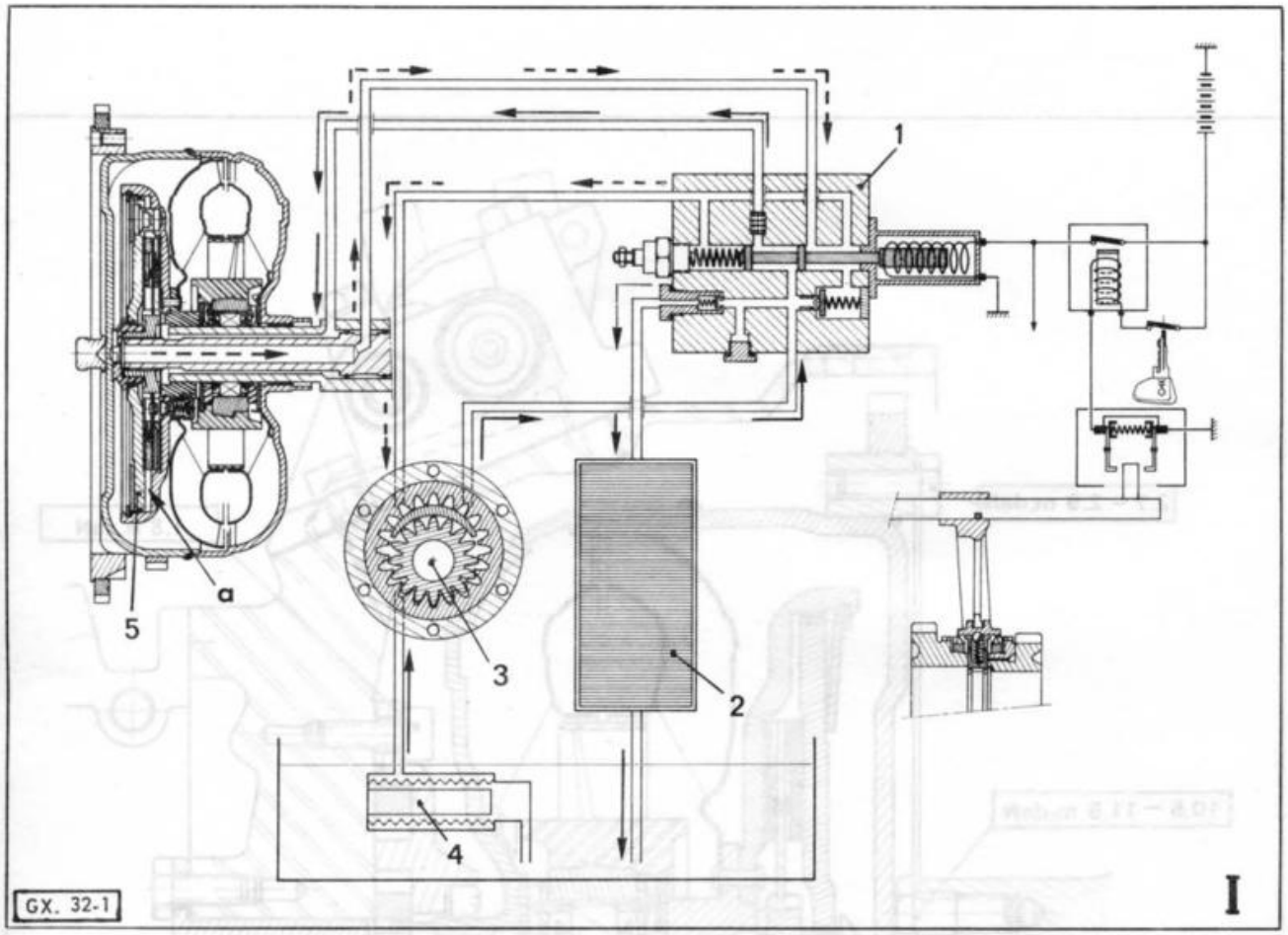
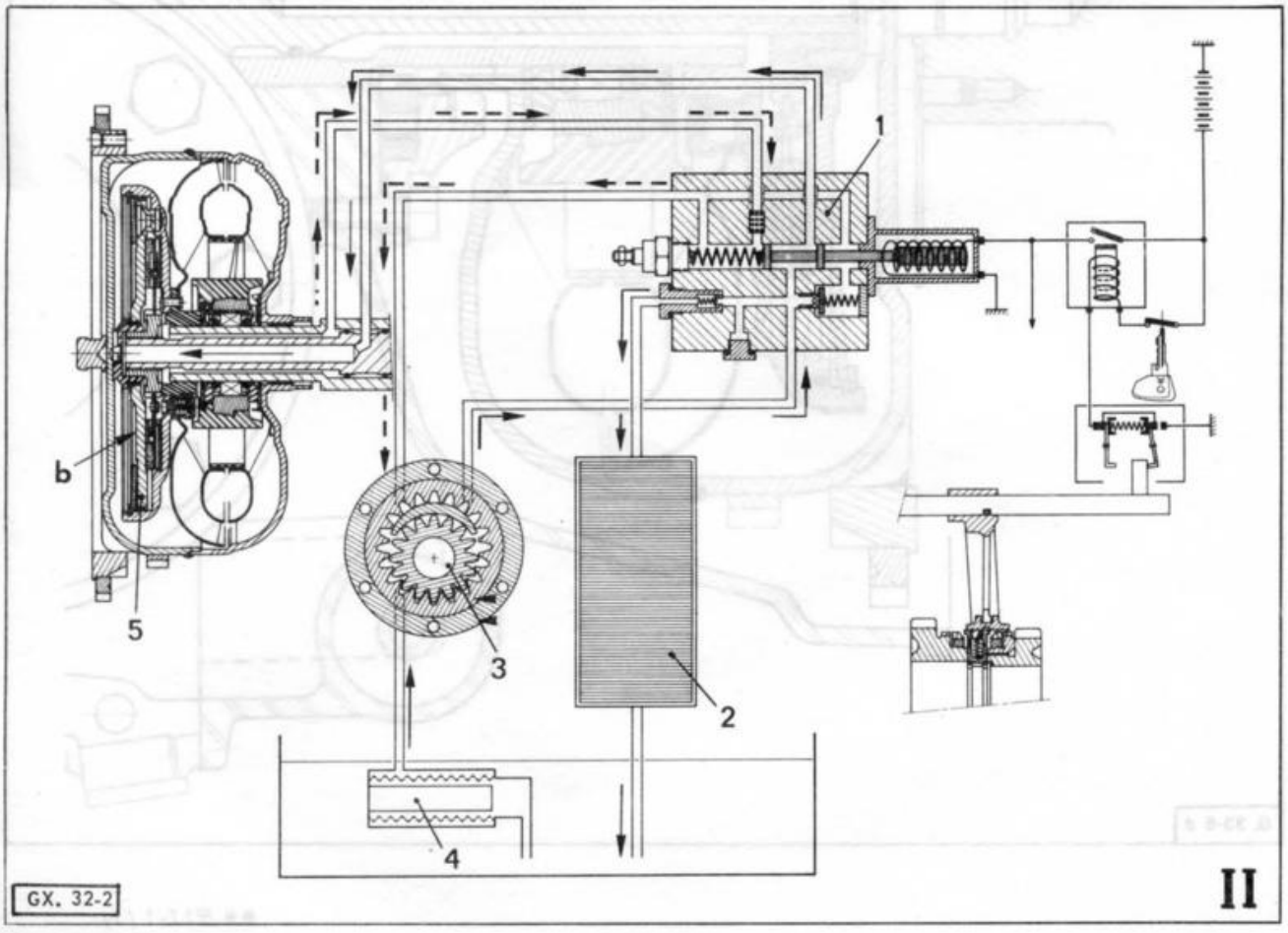




IV. TORQUE CONVERTER OPERATING PRINCIPLE.

1 : Electrovalve
2 : Cooler
3 : Pump
4 : Suction strainer
5 : Converter under pressure

——————► : Circuits under pressure

– – – – – – – – ► : Return circuits

Figure I : With gearbox in neutral and engine running

The piston of the slide of electrovalve (1) enables the oil to flow through. This oil will exert a pressure on face « a » of converter plate (5) thus ensuring the disengagement of the clutch.

Figure II : With a gear engaged and engine running

Changing gear entails changing the position of the slide of electrovalve (1). Thereby the oil exerts a pressure on face « b » of converter plate (5) thus ensuring the engagement of the clutch.

I - CHECKING AND ADJUSTING THE GAP BETWEEN THE ELECTROVALVE CONTROL CONTACTS

1. **Remove :**
   - the spare wheel,
   - the left heater duct.

2. **Uncouple** gear control drawing rod (3).

3. **Disconnect :**
   - the cable from the battery negative terminal,
   - control wire (4) for the fast idle.

4. **Remove :**
   - rubber clip (2),
   - cover (1) from the electrovalve control unit.

5. **Check the adjustment of the contact gaps :**
   Proceed in the same way for each contact.

   a) Engage a gear.

   > In order to obtain a correct opening of a contact, the corresponding gear must be fully engaged.

   b) Check the contact gap corresponding to the gear engaged by using either gauge **A** (dia. = 1.5 mm) inluded in kit **3112-T** or a set of shims.

   Contact gap : 1.45 ± 0.2 mm (1st and REVERSE)
   1.60 ± 0.2 mm (2nd and 3rd)

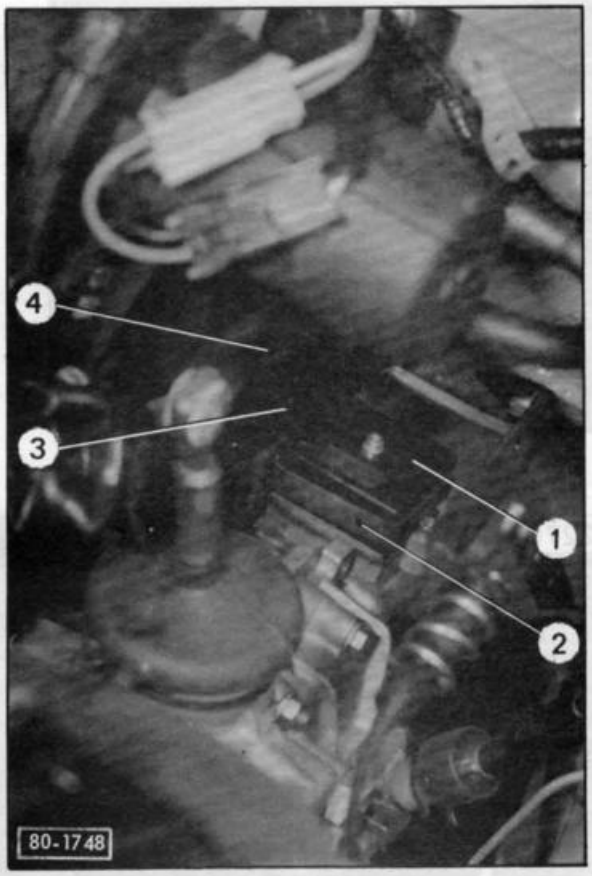
   c) Adjust the contact by slackening screw (5) on the fixed contact (3 mm Allen key). **Tighten the screw from 0.35 to 0.4 m.daN.**

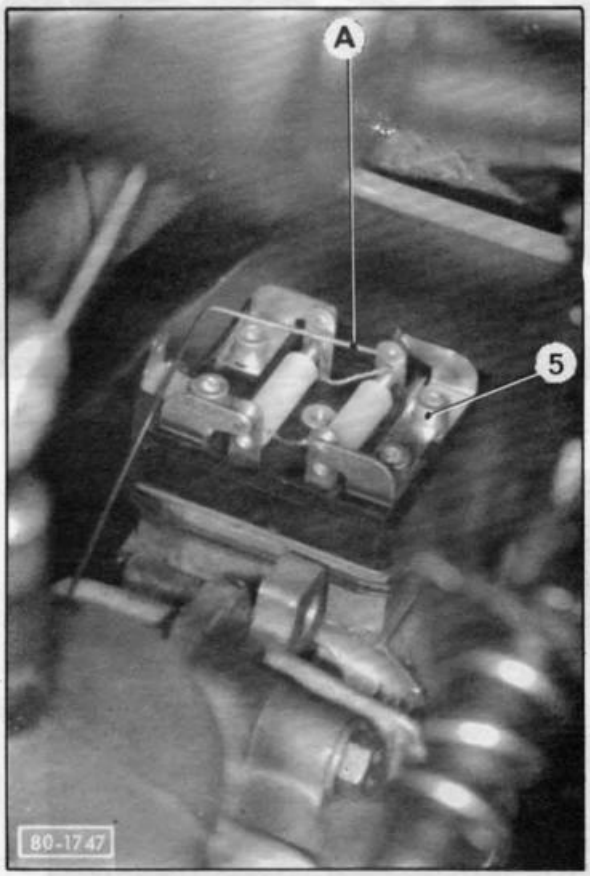
6. **Fit :**
   - cover (1) on the electrovalve control unit,
   - rubber clip (2).

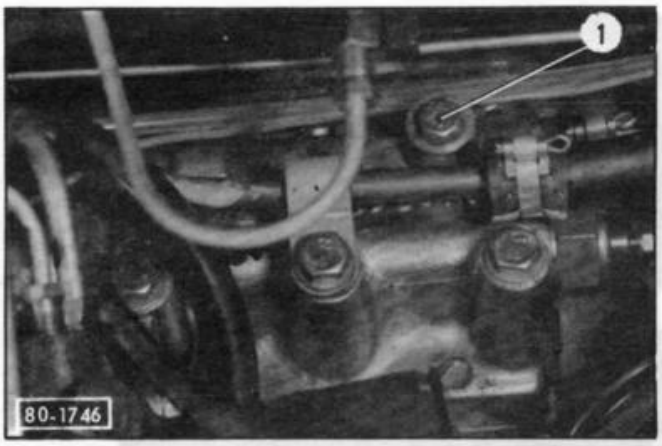
7. **Connect :**
   - control wire (4) on the fast idle,
   - the cable of the battery negative terminal.

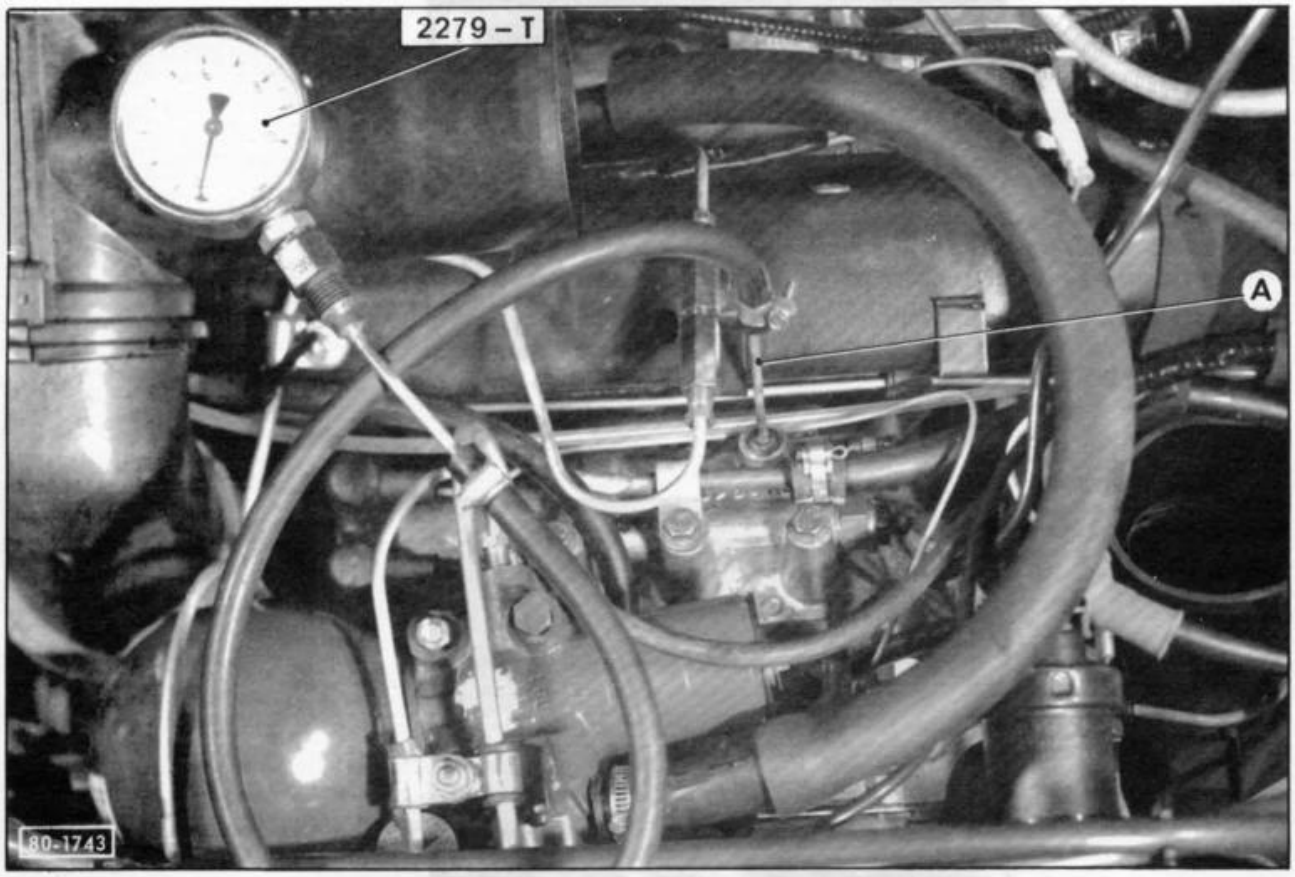
8. **Couple** gear control drawing rod (3).

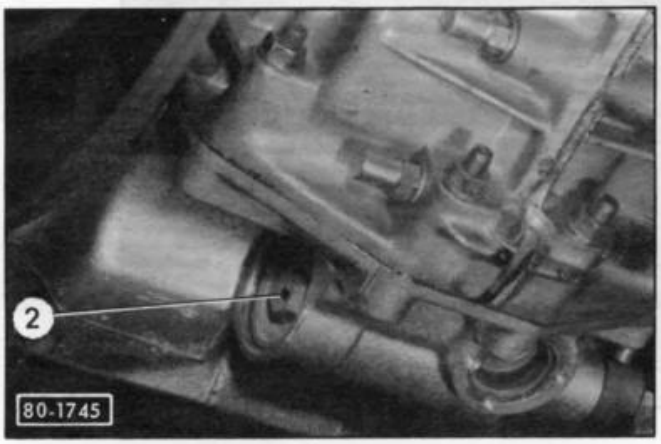
9. **Fit :**
   - the left heater duct,
   - the spare wheel.











II - CHECKING THE PRESSURE IN THE CONVERTER OIL SUPPLY SYSTEM

1. Remove :
- the spare wheel,
- the left heater duct,
- the spare wheel supporting bracket.

2. Remove the distributor plug (1) :
Fit in its place one of the unions **A** of kit 3112-T , choosing the one with the appropriate diameter.

Connect this union to oil-pressure gauge 2279-T *(graduated from 0 to 10 bars).*

The corresponding tools of kit MULLER 455 can also be used.

3. Check the oil-pressure :

a) This operation must be carried out when the **gearbox oil is at a temperature of 70 ± 5° C.**

b) Run the engine **at 5000 ± 100 rpm : the pressure must be between 5.5 and 6.5 bars.**

c) Run the engine **at idle** (850 $^{+50}_{0}$ rpm) : **the pressure must be 4 bars min.**

If the pressure is incorrect, before carrying out any operation, check the gearbox oil level *(Op. GX.ea. 330-0)* and the cleanliness of suction filter (2) for the converter supply pump.

4. Remove union **A** and oil-pressure gauge 2279-T

5. Fit :
- distributor plug (1),
- the spare wheel supporting bracket,
- the left heater duct,
- the spare wheel.

I - CHARACTERISTICS

1. Gear ratios :

Gear ratios are given for vehicles fitted with 145 SR 15 XZX tyres, for which laden development is 1.89 m.

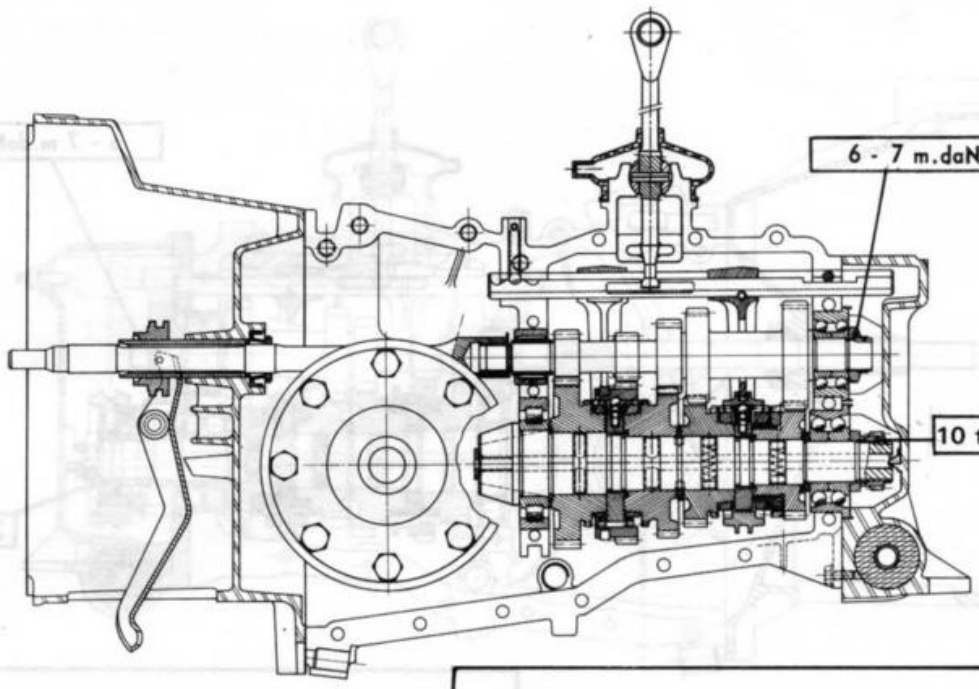
a) 4-speed gearbox : **IDENTIFICATION No. : 465**

Gear	Gearbox ratios	C/W and P	Overall ratios	Road speed at 1000 rpm engine speed kph	mph
1st	(11/42) 3.818 : 1	(8/33) 4.125 : 1	15.75 : 1	7.2	4.47
2nd	(17/39) 2.294 : 1		9.463 : 1	11.983	7.45
3rd	(26/39) 1.5 : 1		6.187 : 1	18.328	11.39
4th	(32/33) 1.031 : 1		4.253 : 1	26.663	16.57
Rev.	(11/23 x 23/46) 4.181 : 1		17.25 : 1	6.573	4.08
Speedometer drive ratio : 6/13 (2.16 : 1)					

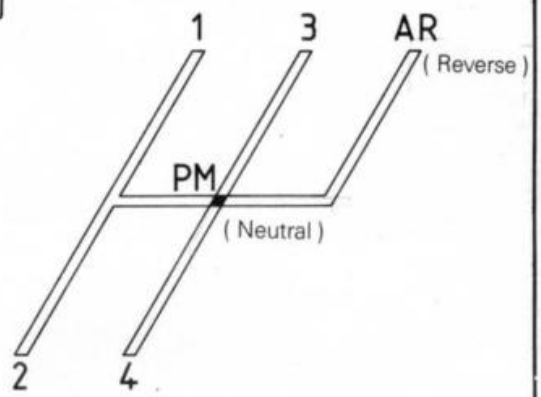
b) 5-speed gearbox (C/W and P : 8/35 (4.375 : 1)) : **IDENTIFICATION No. : 456.**

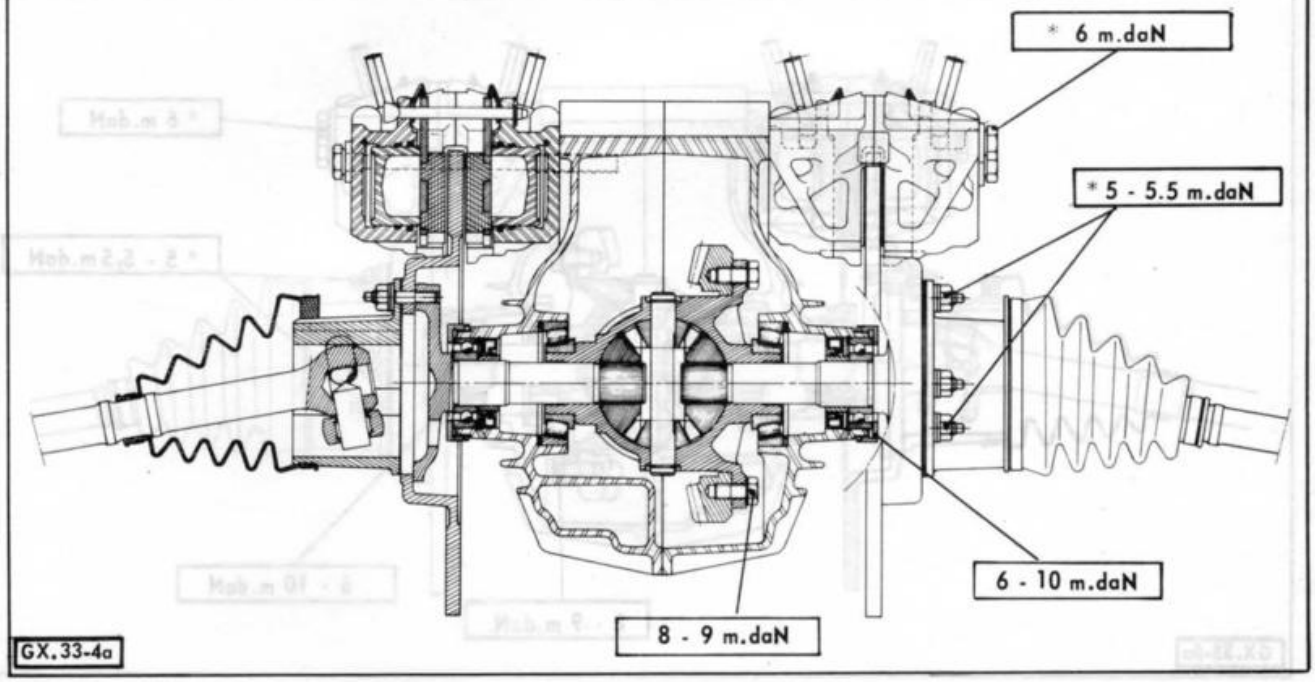
Gear	Gearbox ratios	C/W and P	Overall ratios	Road speed at 1000 rpm engine speed kph	mph
1st	(11/42) 3.818 : 1	(8/35) 4.375 : 1	16.704 : 1	6.788	4.22
2nd	(17/39) 2.294 : 1		10.036 : 1	11.299	7.02
3rd	(26/39) 1.5 : 1		6.562 : 1	17.281	10.74
4th	(30/34) 1.133 : 1		4.958 : 1	22.872	14.21
5th	(34/31) 0.911 : 1		3.988 : 1	28.435	17.67
Rev.	(11/23 x 23/46) 4.181 : 1		18.295 : 1	6.198	3.85
Speedometer drive ratio : 12/23 (1.916 : 1)					

GX.33-10



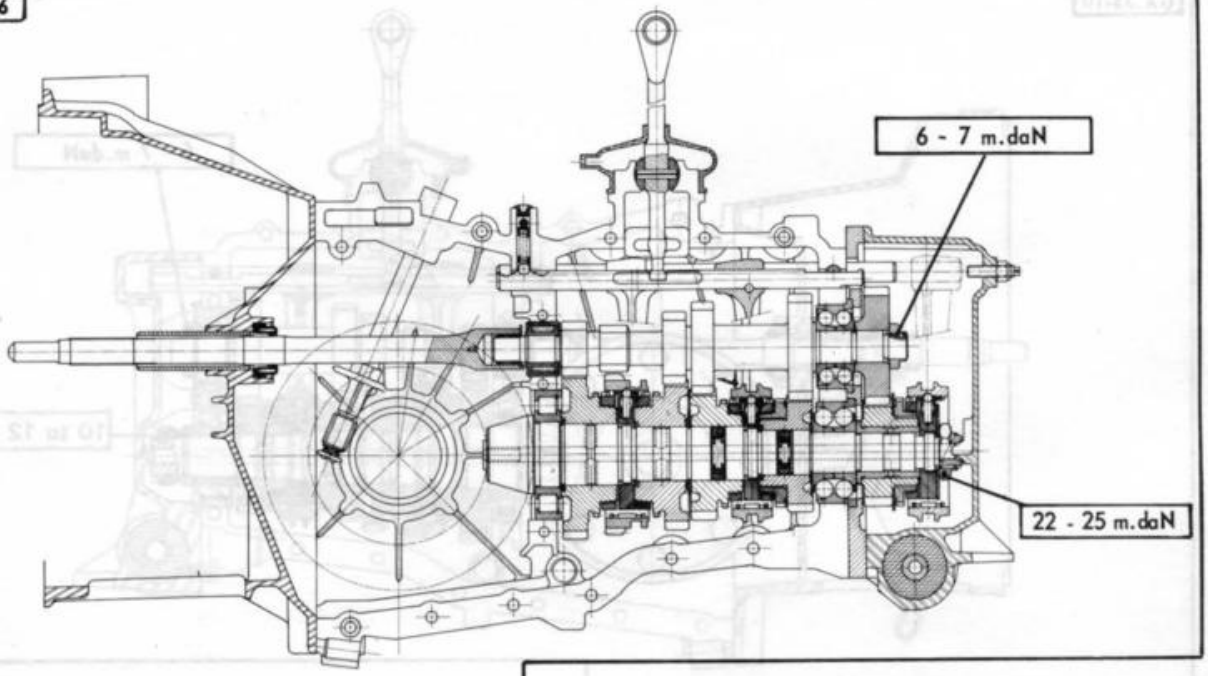
GX. 33-1



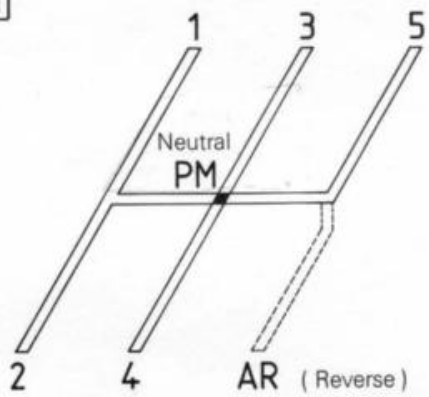


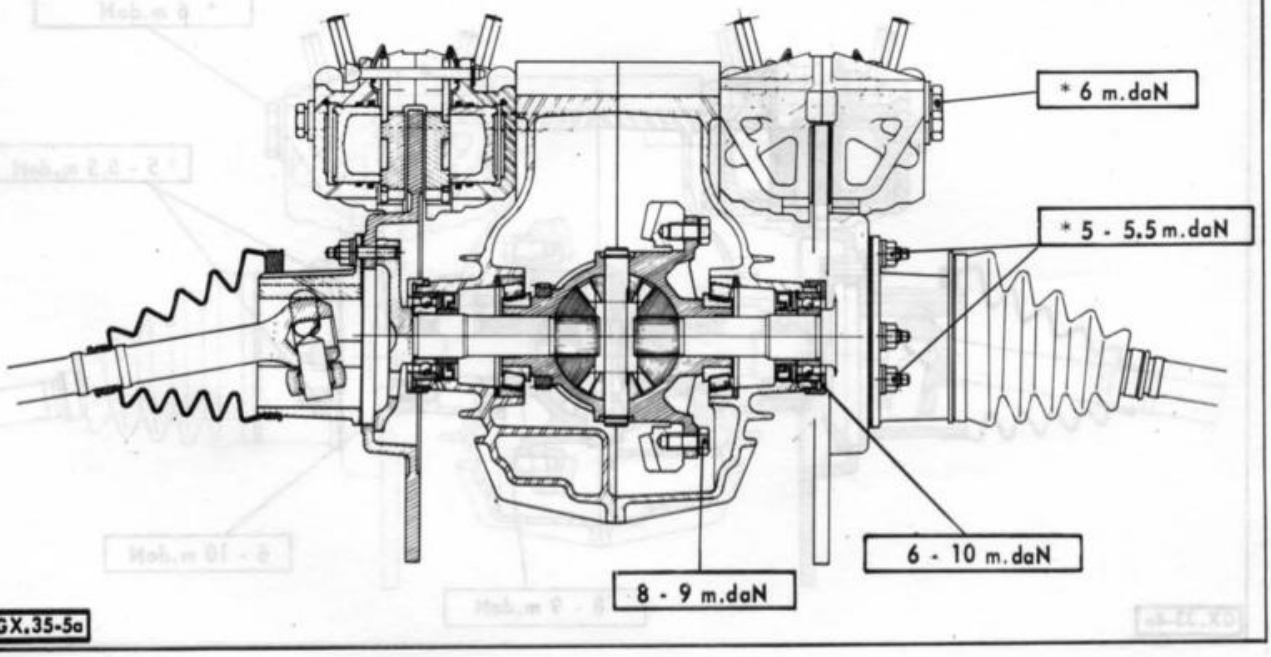
GX.33-4a

GX. 33-6



GX. 33-3





GX.35-5a

c) 5-speed gearbox (C/W and P : 8/33 (4.125 : 1) : **IDENTIFICATION No. : 453.**

Gear	Gearbox ratios		C/W and P	Overall ratios	Road speed at 1000 rpm engine speed kph	mph
1st	(11/42)	3.818 : 1	(8/33) 4.125 : 1	15.75 : 1	7.2	4.47
2nd	(17/39)	2.294 : 1		9.463 : 1	11.983	7.45
3rd	(26/39)	1.5 : 1		6.187 : 1	18.328	11.39
4th	(30/34)	1.133 : 1		4.675 : 1	24.256	15.07
5th	(34/31)	0.911 : 1		3.761 : 1	30.151	18.74
Rev.	(11/23 x 23/46)	4.181 : 1		17.25 : 1	6.573	4.08
Speedometer drive ratio : 12/23 (1.916 : 1)						

2. Lubrication :

- Oil : TOTAL EP 80 W/90 W (G.B. only) - TOTAL EP 80 W/85 W (Europe except G.B.) - TOTAL EP 80 W (Europe except G.B. and France)
- Capacity : *4-speed box :* approx. 1.4 litres
  5-speed box : approx. 1.5 litres

3. Gearchange control :

- Floor-mounted gear lever
- 5-speed gearbox : *(7/81 ⟶).*
- Elimination of security device for shifting to reverse on console at « a ».
- Gear control lever is now same as on 4-speed gearbox.

II - SPECIAL FEATURES

1. Adjustments :

- End-float of 1st/2nd synchromesh hub : ..... max. 0.05 mm
- End float of 3rd/4th synchromesh hub : ..... max. 0.05 mm
- End-float of half-washers between 2nd and 3rd gear pinions : ..... max. 0.05 mm
- Backlash on crownwheel and pinion : ..... 0.13 to 0.27 mm
- Total pre-load on differential ball bearings : ..... 0.05 mm

III - GEAR SEQUENCE

1. 4-speed gearbox :

Fig. 1 : 1st gear
Fig. 2 : 2nd gear
Fig. 3 : 3rd gear
Fig. 4 : 4th gear
Fig. 5 : Reverse

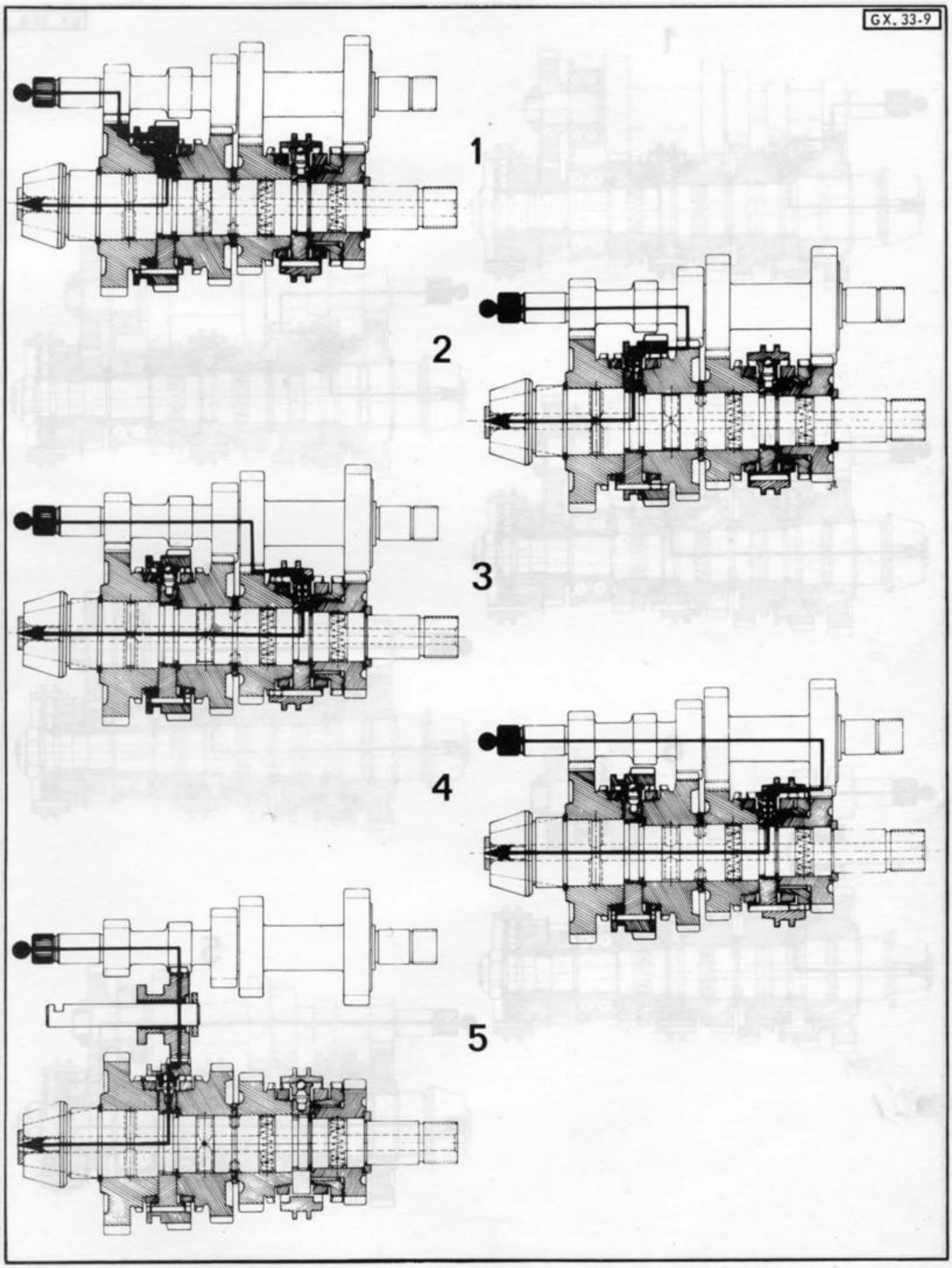
The primary shaft pinions are constantly engaged with the driven pinions.

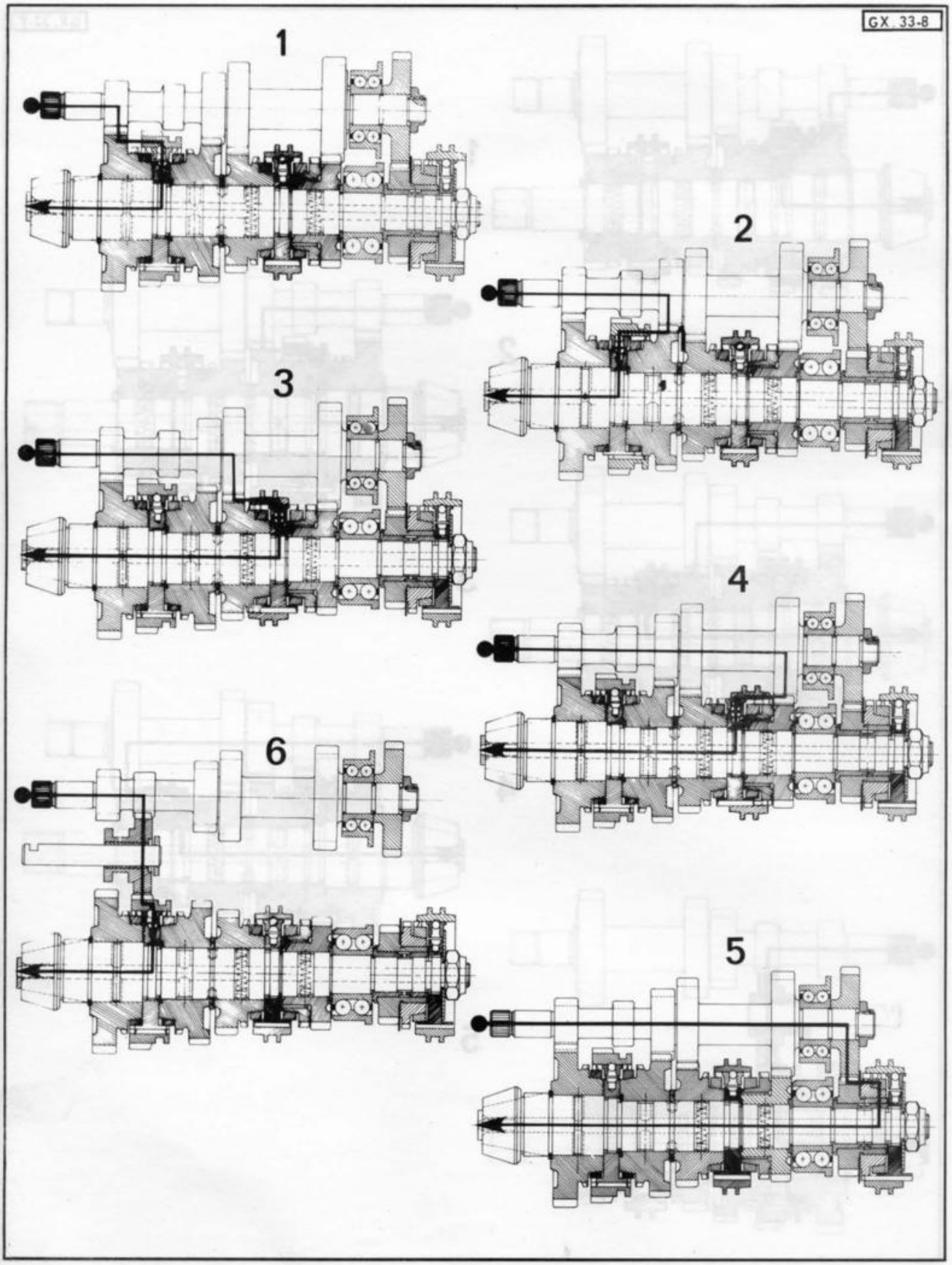
2. Tightening torques :

- Reverse gear reversing lever shaft :	**2.7 to 3 m.daN**
- Drain and filler plugs :	**3.5 to 4.5 m.daN**
- Reversing lamp switch :	**1.2 to 1.5 m.daN**
- Rear cover screws :	**2.5 to 3 m.daN**
- Gearbox half-casing assembly nuts and screws :	**1.3 to 1.5 m.daN**
- Clutch housing assembly screws :	**1.3 to 1.5 m.daN**
- Gearbox outlet attachment stud insertion :	**0.4 m.daN**
- Screws for lower rear cover (2) :	**0.4 to 0.5 m.daN**

3. Seal-tightness :

Coat the sealing surfaces of the half-casings, clutch housing and rear cover, as well as the screw heads and the nuts with *LOCTITE FORMETANCH.*





1. 5-speed gearbox :

Fig. 1 : 1st gear
Fig. 2 : 2nd gear
Fig. 3 : 3rd gear
Fig. 4 : 4th gear
Fig. 5 : 5th gear
Fig. 6 : Reverse

The primary shaft pinions are constantly engaged with the driven pinions.

2. Tightening torques :

- Reverse gear reversing lever shaft : ..... **2.7 to 3 m.daN**
- Drain and filler plugs : ..... **3.5 to 4.5 m.daN**
- Reversing lamp switch : ..... **1.2 to 1.5 m.daN**
- Rear cover screws : ..... **1.9 to 2.3 m.daN**
- Gearbox half-casing assembly nuts and screws : ..... **1.3 to 1.5 m.daN**
- Clutch housing assembly screws : ..... **1.3 to 1.5 m.daN**
- Gearbox outlet attachment stud insertion : ..... **0.4 m.daN**
- Bearing thrust plate attachment screws : ..... **2.5 to 3 m.daN**
- Lower rear cover screws (2) : ..... **0.4 to 0.5 m.daN**

3. Seal-tightness :

Coat the sealing surfaces of the half-casings, clutch housing and rear cover, as well as the screw heads and the nuts with *LOCTITE FORMETANCH.*

GEARBOX WITH TORQUE CONVERTER

I - CHARACTERISTICS

1. Gear ratios:

Gear ratios are given for vehicles fitted with 145 SR 15 XZX tyres, for which laden development is 1.89 m.

3-speed gearbox { **IDENTIFICATION No. : 457**
IDENTIFICATION No. : 462

Gear	Gearbox ratios	C/W and P	Overall ratios	Road speed at 1000 rpm engine speed kph	mph
1st	(15/41) 2.733 : 1		11.274: 1	10.058	6.251
2nd	(24/41) 1.708 : 1	(8/33)	7.046 : 1	16.094	10.002
3rd	(32/33) 1.031 : 1	4.125 : 1	4.253 : 1	26.663	16.571
Rev	(14/19 x 19/35) 2.499:1		10.312: 1	10.996	6.834
Speedometer drive ratio: 6/13 (2.16 : 1)					

2. Lubrication:

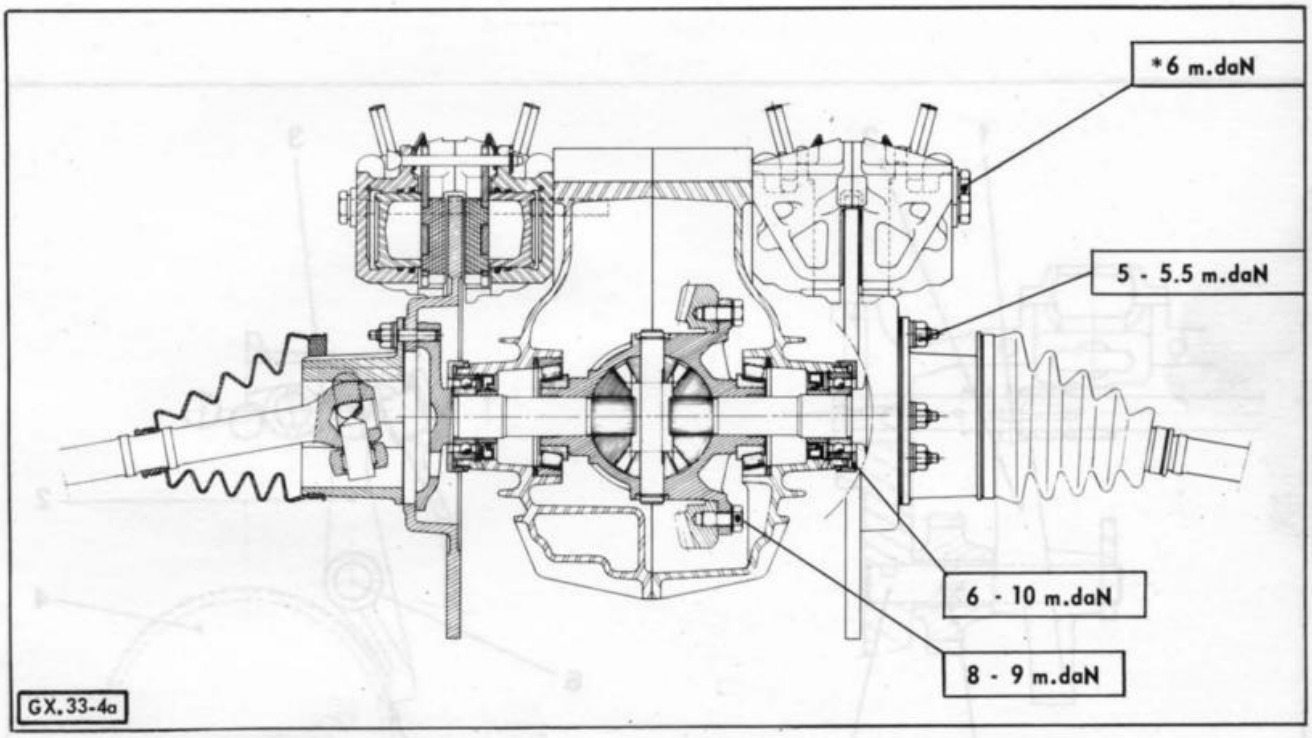
- Oil: ..... TOTAL "Fluid T" **EXCLUSIVELY**
- Total capacity (including converter) : ..... approx. 4 litres
- Capacity after draining: ..... approx. 1.4 litres

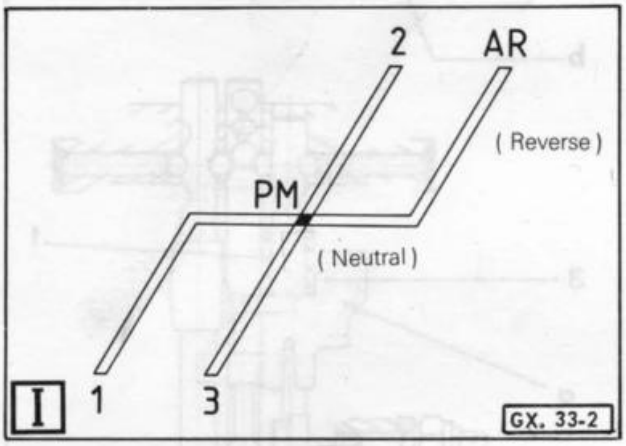
3. Gear change control:

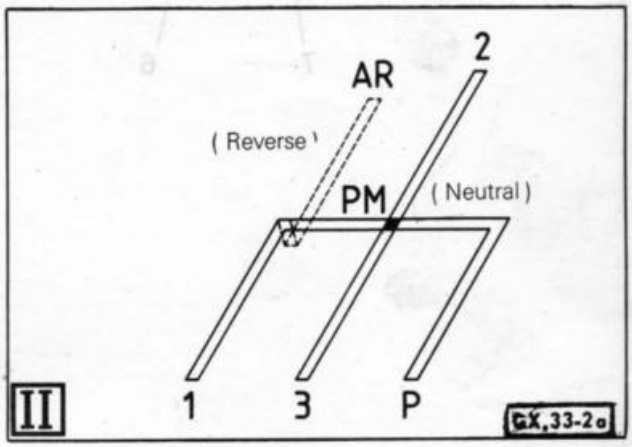
- Floor-mounted gear lever

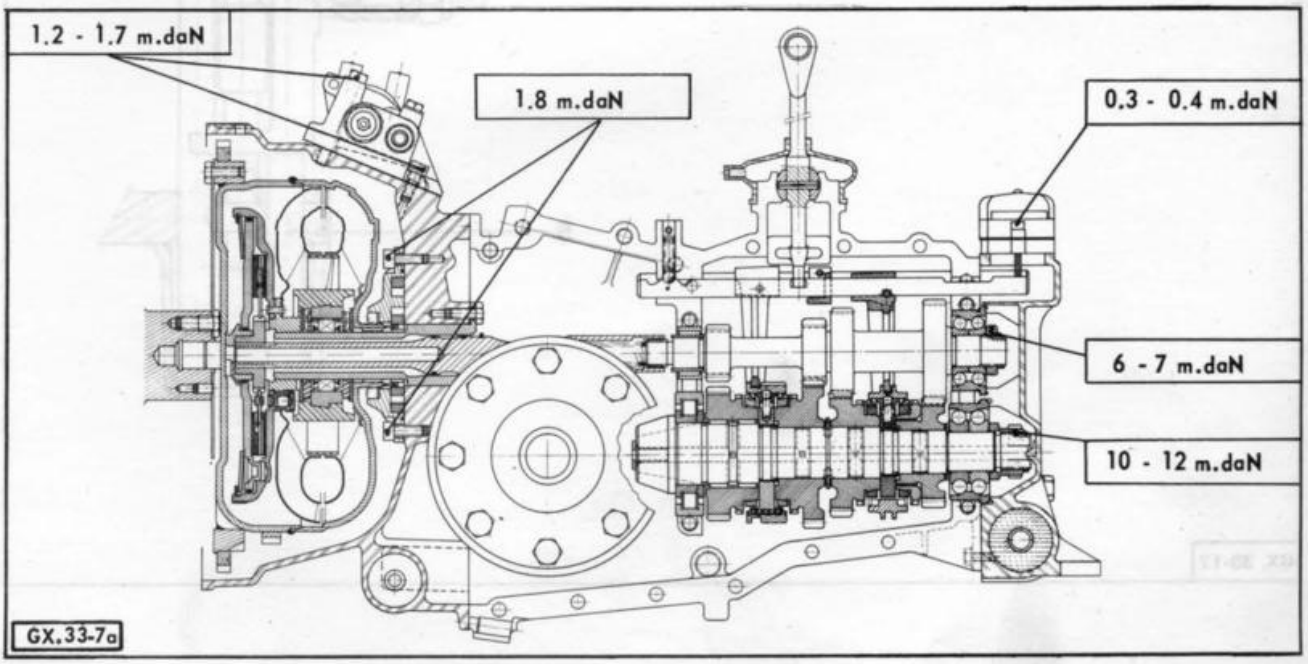
I: Gear diagram **until March 1980** (with no parking lock)

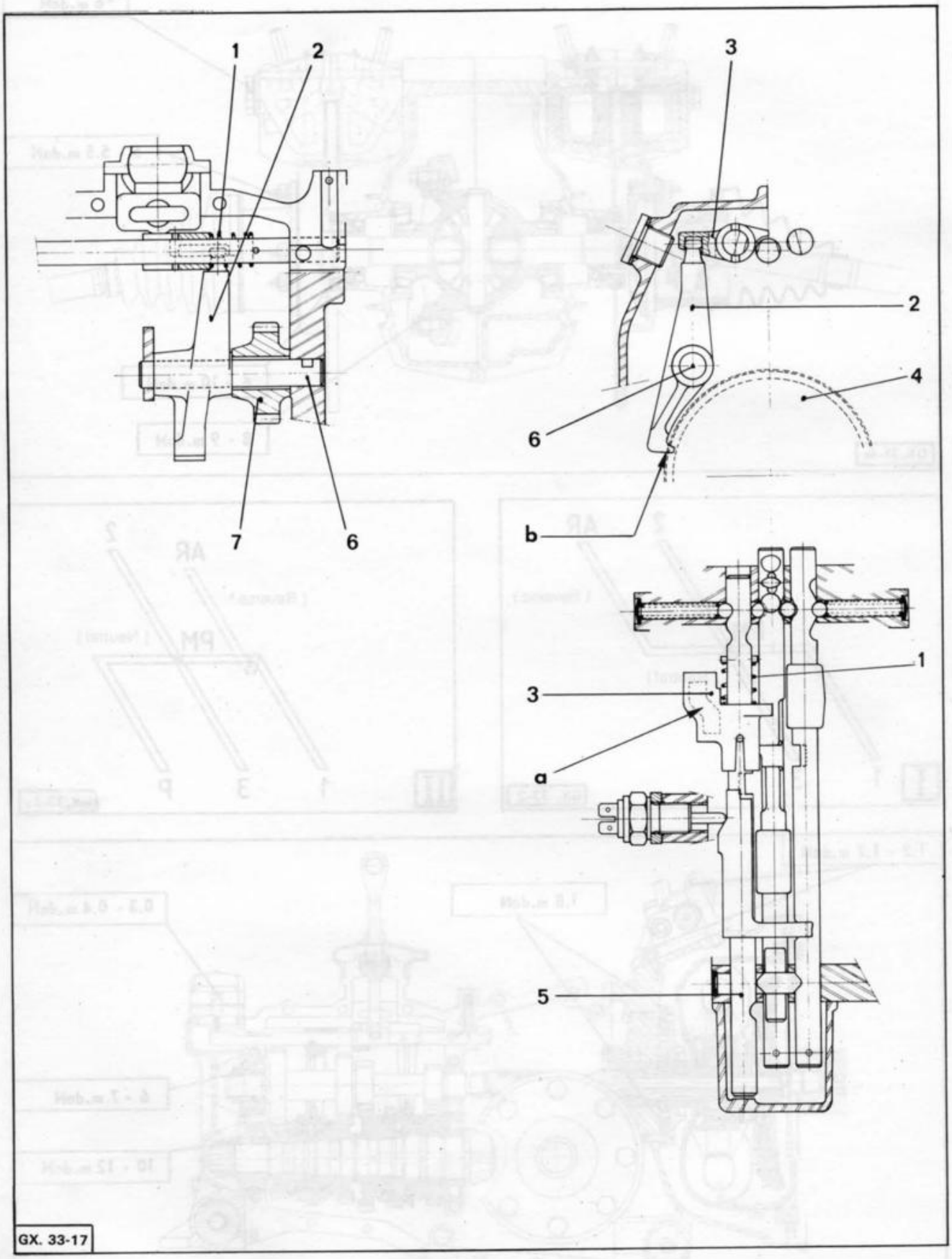
II: Gear diagram **from March 1980** (with a parking lock)











II - SPECIAL FEATURES

1. Adjustments :

- End float of 1st/Rev synchromesh hub : ..... max. 0.05 mm
- End float of 2nd/3rd synchromesh hub : ..... max. 0.05 mm
- End float of half-washers between 1st and 2nd gear pinions : ..... max. 0.05 mm
- Backlash for crownwheel and pinion : ..... 0.13 to 0.27 mm
- Total pre-load on differential bearings : ..... 0.05 mm
- Gap between the electrovalve control contacts
  - 1st and Reverse : ..... 1.45 ± 0.2 mm
  - 2nd and 3rd : ..... 1.60 ± 0.2 mm
- Clutch contactor drive pin extension beyond shaft :
  - 1st/REV shaft : ..... $14.4\ ^{+1}_{0}$ mm
  - 2nd/3rd shaft : ..... $18.4\ ^{+1}_{0}$ mm

2. Operation of parking lock device :

As from March 1980, this device is fitted on all gearboxes with a torque converter.

The figures on page 4 represent the device in « Park » position.

Acting upon gear change lever as shown in gear diagram II on page 3, entails parking lock shaft (5) to move backwards. This, in turns, drives along parking lock cam (3).

Profile « a » of cam (3) causes parking lock (2) to rotate around shaft (6) of reverse gear final drive (7).

End « b » of parking lock (2) engages with the exterior teeth of 1st-Rev sliding gear (4).

If parking lock (2) bumps against a tooth of sliding gear (4), the pushing pressure exerted by spring (1) which is then kept compressed, will be strong enough to engage the lock correctly as soon as sliding gear (4) will rotate.

3. Tightening torque values :

- Reverse gear reversing lever shaft : ..... **2.7 to 3 m.daN**
- Drain plug : ..... **3.5 to 4.5 m.daN**
- Filling plug : ..... **3.5 to 4.5 m.daN**
- Reversing lamp switch : ..... **1.2 to 1.5 m.daN**
- Gearbox half-casing assembly nuts and screws : ..... **1.3 to 1.5 m.daN**
- Clutch housing assembly nuts : ..... **1.3 to 1.5 m.daN**
- Rear cover screws : ..... **2.5 to 3 m.daN**
- Pipe coupling screws : ..... **3.5 to 4.5 m.daN**
- Strainer plug : ..... **1 to 1.5 m.daN**
- Contactor attachment screws : ..... **0.3 to 0.4 m.daN**
- Drive shafts anchor stud insertion : ..... **0.4 m.daN**

4. Seal-tightness :

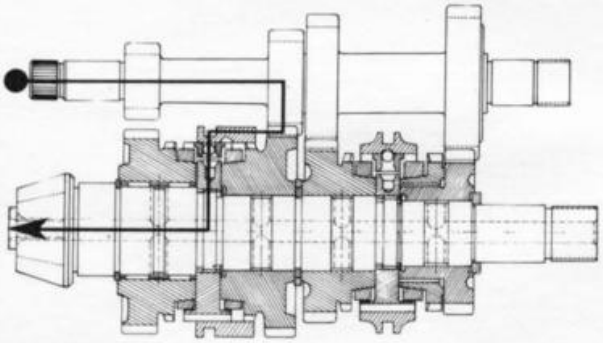
Coat the sealing surfaces of the half-casings, clutch casing,rear cover, screw heads and nuts with *LOCTITE FORMETANCH.*

III - GEAR SEQUENCE

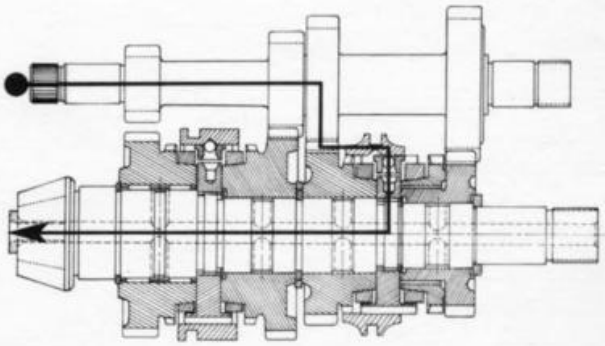
Fig. 1 : 1st gear
Fig. 2 : 2nd gear
Fig. 3 : 3rd gear
Fig. 4 : Reverse

The primary shaft pinions are constantly engaged with the driven pinions.

GX. 33-2 a



1



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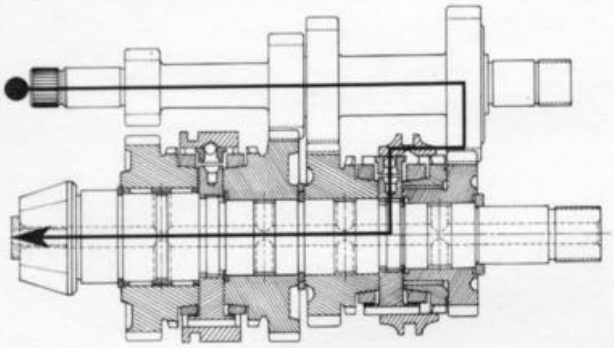

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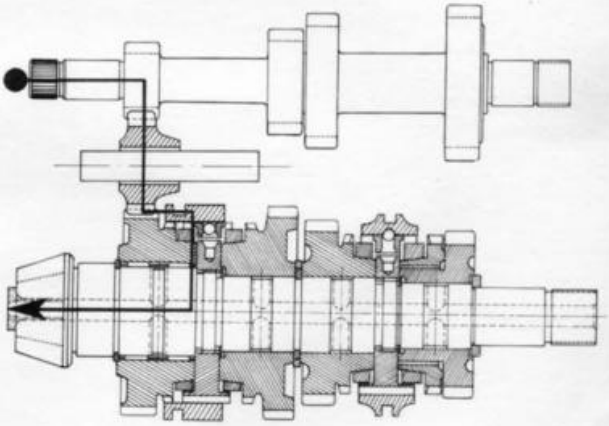


4

DRAINING AND FILLING UP A GEARBOX AND A TORQUE CONVERTER

1. Set the vehicle on a pit or a car lift.

2. Remove :
- the spare wheel,
- draining plug (1),
- level plug (2),
- reversing lamp switch (3).

3. Filling :

USE « TOTAL FLUIDE T » OIL EXCLUSIVELY.
USING ANY OTHER OIL WILL RUIN THE CLUTCH AND THUS, THE CONVERTER.

- Fit drain plug (1).
  Tightening torque : 3.5 to 4.5 m.daN.

- Fill up the gearbox through the hole of reversing lamp switch (3) *(capacity : 1.4 litres approx.)*.

- Fit level plug (2) and reversing lamp switch (3) without tightening them.

4. Top up the gearbox oil :

In order to obtain a correct level proceed in the following way :

a) **Wedge the front wheels and apply the hand-brake (very important).**

b) Run the engine at idle and engage a gear.

Slightly move the gear change lever in order to energize the electrovalve controlling the clutch *(a snapping noise indicates that the electrovalve is energized)*.

c) Repeat the operation a dozen times.

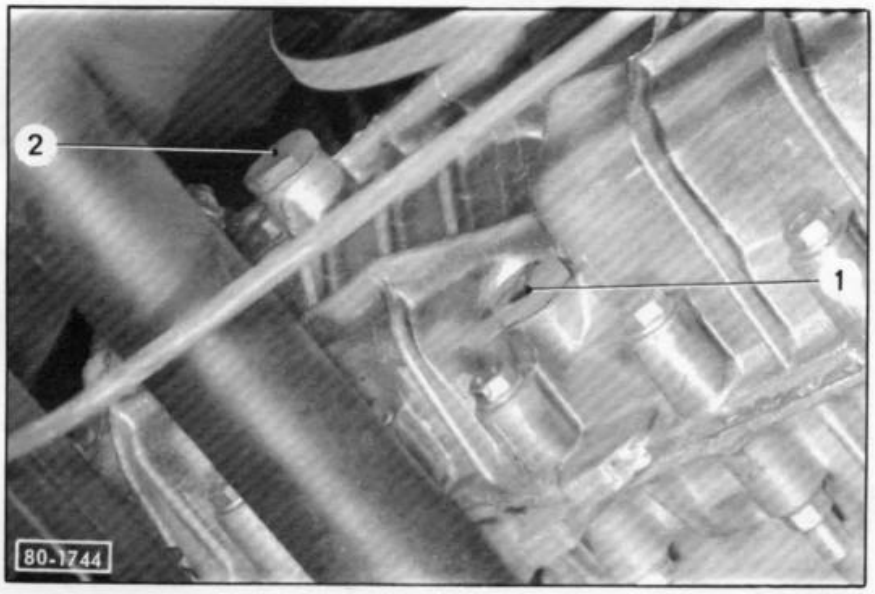
d) With the engine running at idle and a gear engaged, remove level plug (2) and reversing lamp switch (3) so as to top up the gearbox.

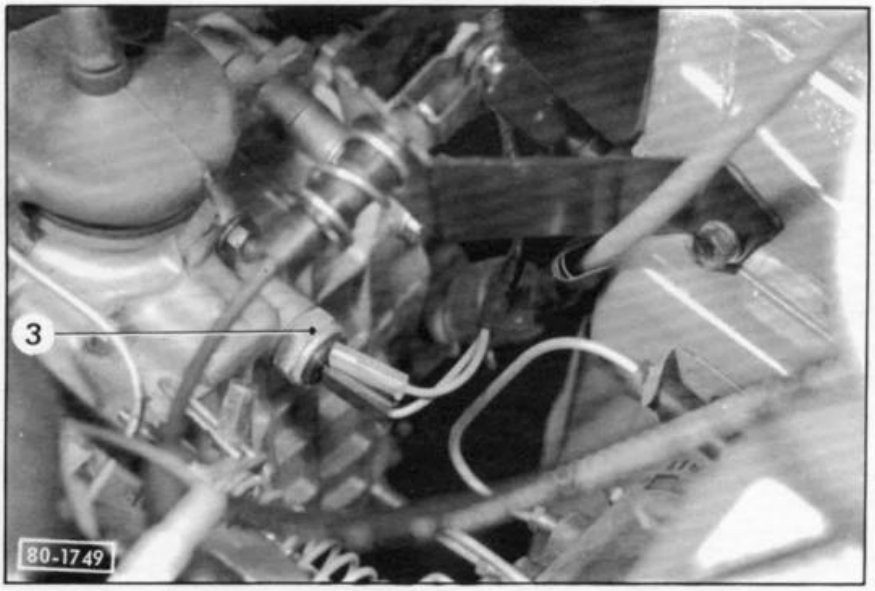
e) Fit level plug (2).
Tightening torque : 3.5 to 4.5 m.daN.
Fit reversing lamp switch (3).
Tightening torque : 1.2 to 1.5 m.daN.

NOTE : The difference in oil level when the gearbox is « cold » and when it is « warm » is 0.2 litres approx.

Thus, when checking the level on a « warm » gearbox, with engine running, some oil may flow out : *do not top up afterwards.*

5. Fit the spare wheel.





CHARACTERISTICS

- Tri-axe joint at gearbox end.
- Constant velocity ball joint at wheel end.

SPECIAL FEATURES

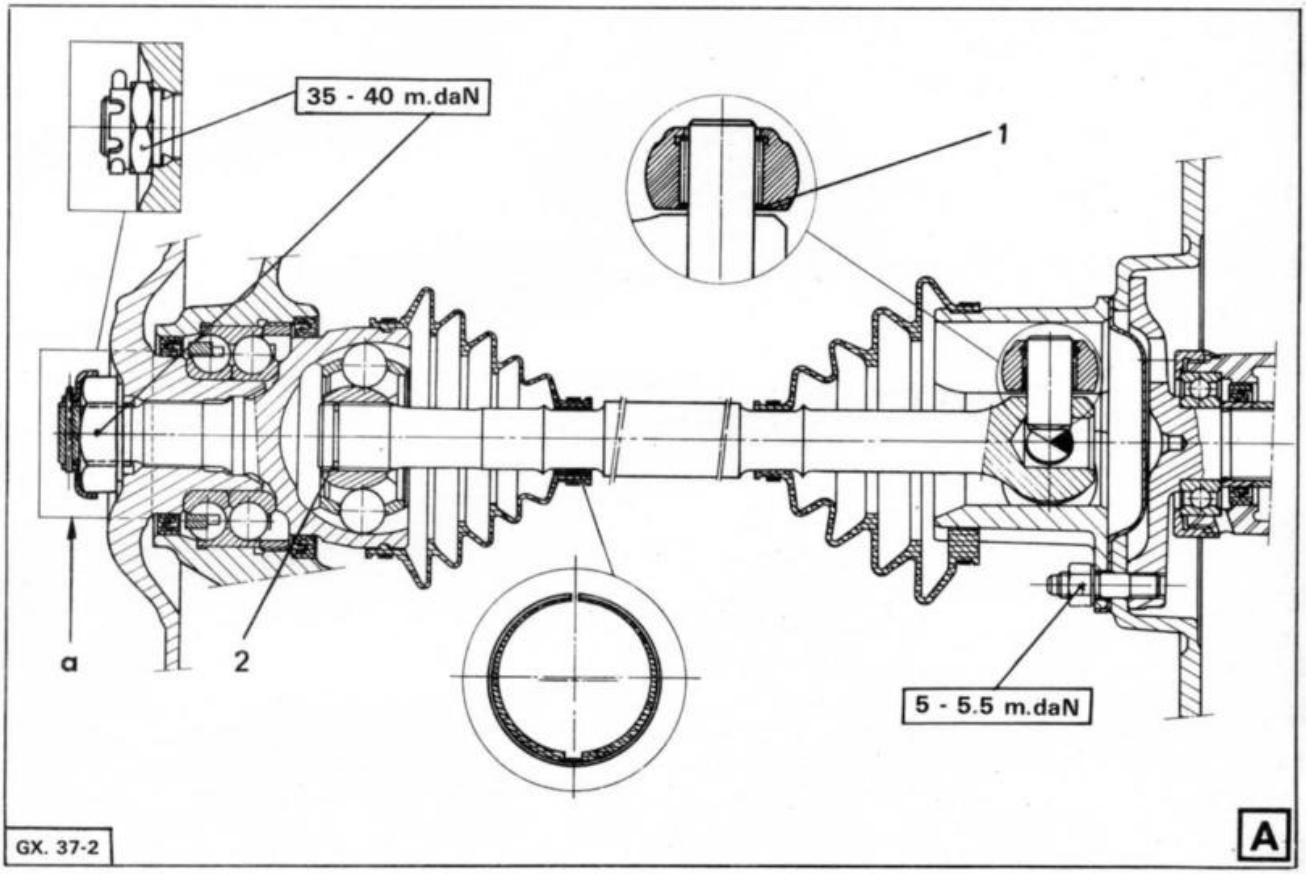
Lubrication :
- Grease : GS 245 MO *(molybdenum disulfide),* sold with drive shaft repair kit.
  R.P. reference : 75 530 215.

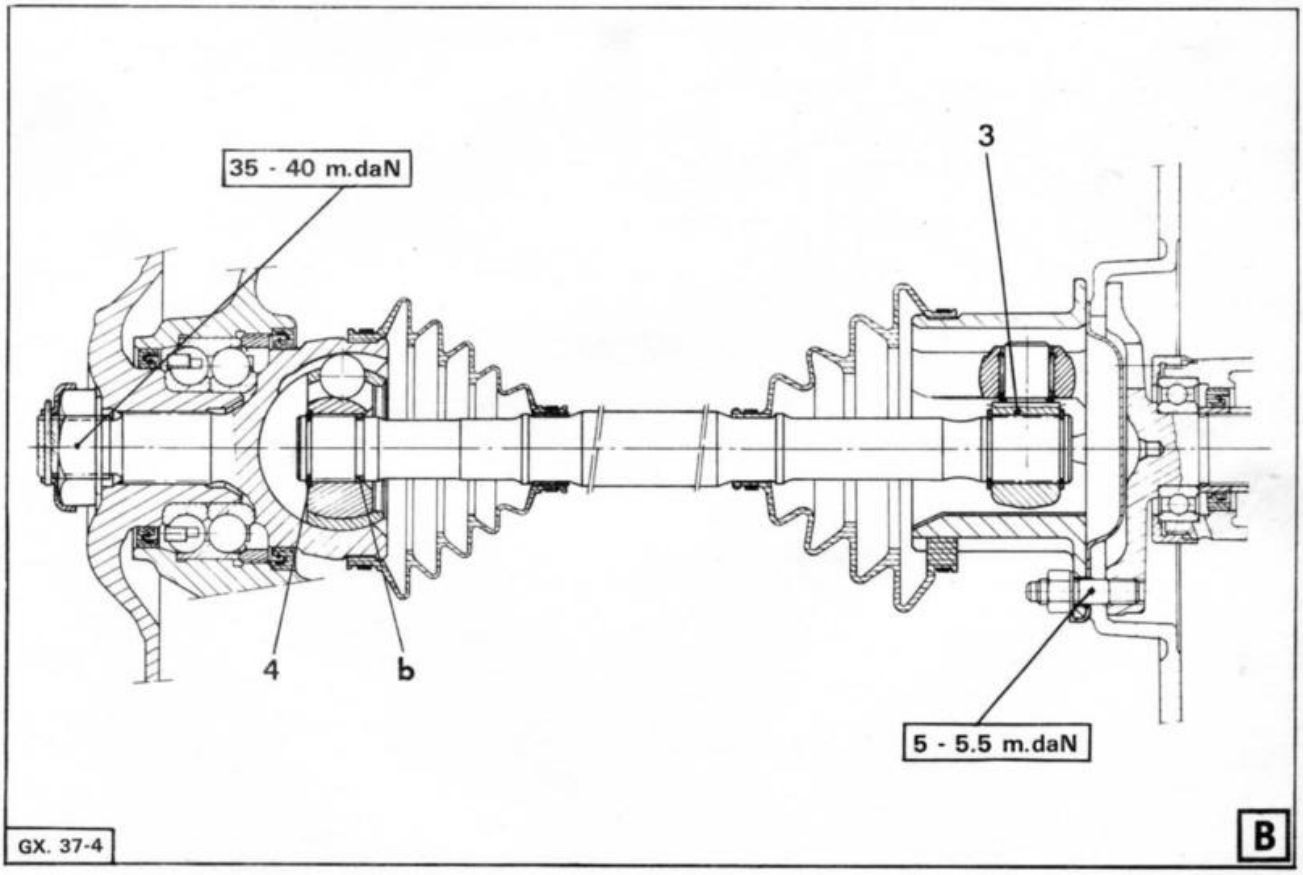
Mandatory tightening torque values (torque spanner) :	**Torque in m.daN**
- Drive shaft/hub anchor nut : Two types of fitting (see diagram **A**) :	**35 to 40**
(2/83 ⟶) : Fitting (a) : R.P. No. 2291.	
- Drive shaft/gearbox outlet attachment nuts and screws :	**5 to 5.5**

- Needle retainer washer (1) must be fitted at shaft end

1st Possibility : Diagram **A.**
- At gearbox end :
  The three axles are welded on the driveshaft.
- At wheel end :
  A stop-ring (2) prevents the stub from sliding.

2nd Possibility : Diagram **B.**
- At gearbox end :
  Tri-axle (3) is removable.
- At wheel end :
  Shoulder « b » and stop-ring (4) prevents the stub from sliding.





I. CHARACTERISTICS

1. High-pressure pump :

Single-cylinder pump, driven by connecting-rod and eccentric machined on oil pump shaft.

- Pump speed/engine speed ratio : 1/2
- Piston diameter : ..... 15 mm
- Piston stroke : ..... 10 ± 0.05 mm
- Output per cycle at engine speed 500 rpm (175 bar load, type LHM fluid at 60° C) 0.9 cc min.
- Max. reservoir capacity : ..... 3.3 litres
- Suction pipe orientation *(see sketch)*

2. Pressure regulator with pilot slide-valve :

- Cut-in pressure : ..... 145 ± 5 bar
- Cut-out pressure : ..... 170 ± 5 bar

3. Main accumulator :

- Capacity : ..... 0.4 litre
- Pressure setting : ..... $62 \begin{smallmatrix} +2 \\ -32 \end{smallmatrix}$ bar

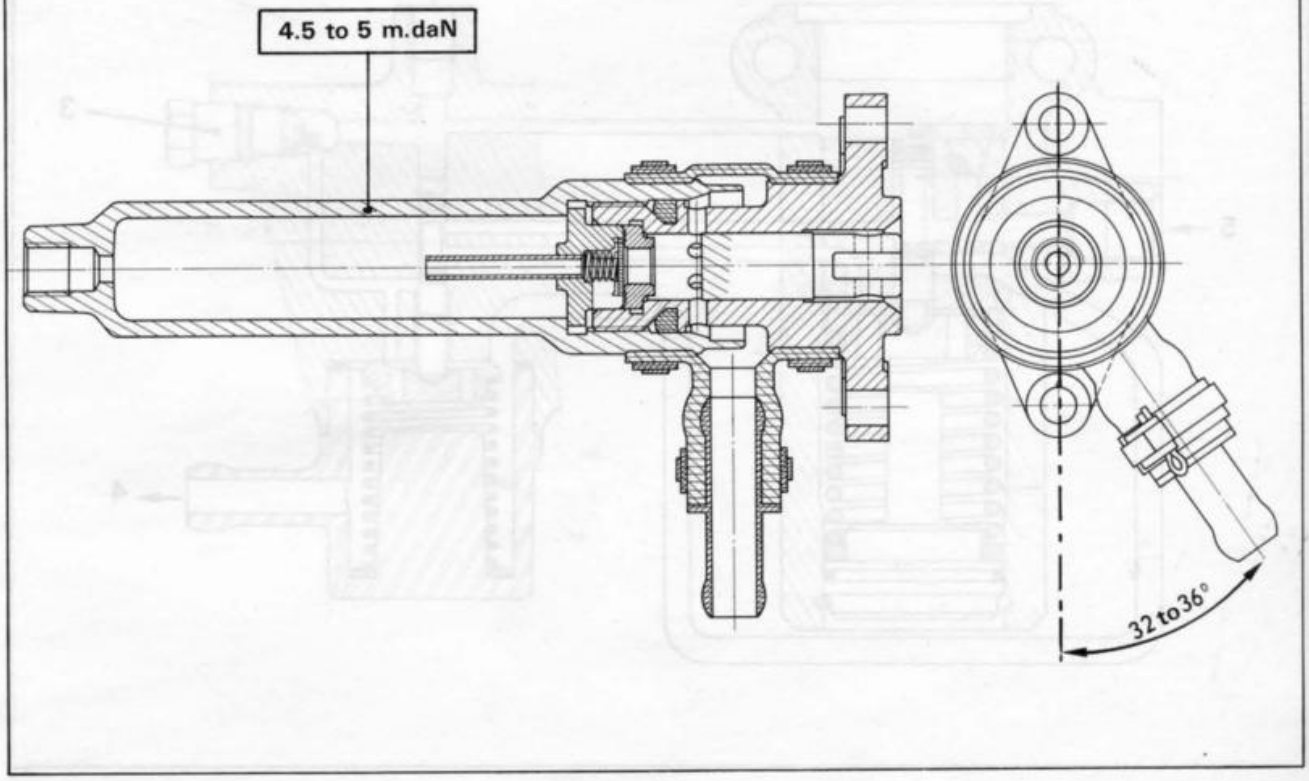
4. Pressure switch :

- Pressure setting : ..... 75 to 95 bar

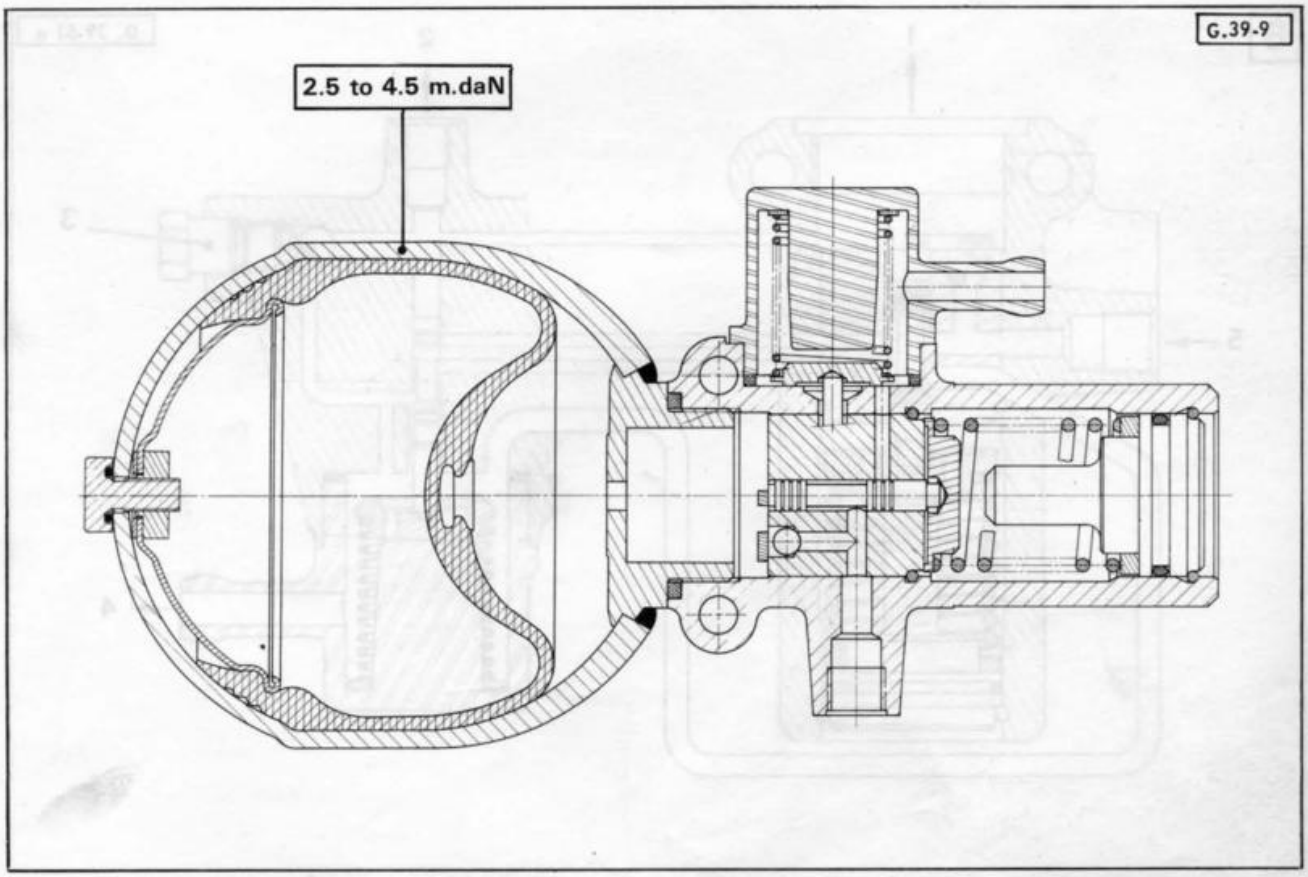
5. Safety valve :

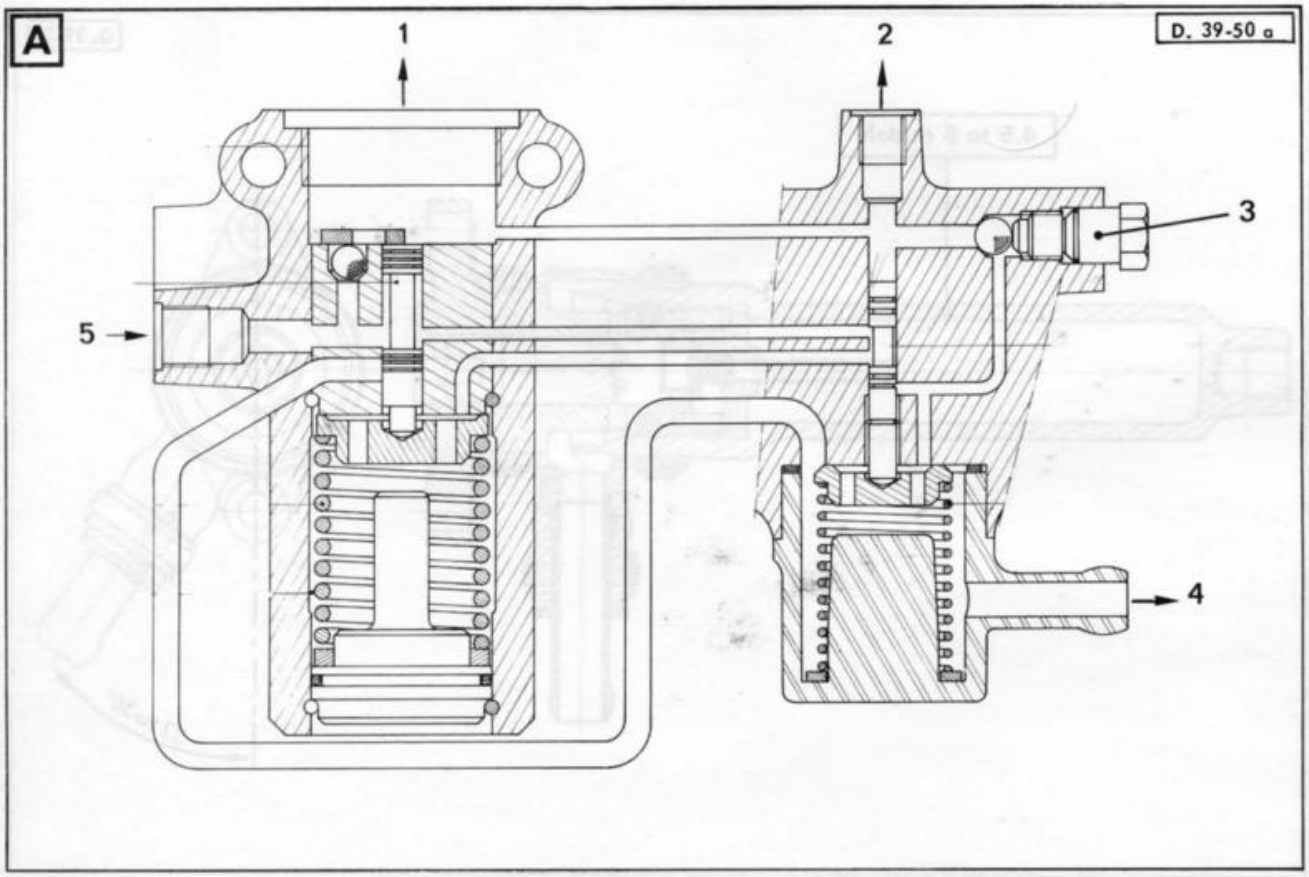
- Pressure setting : ..... 70 to 90 bar

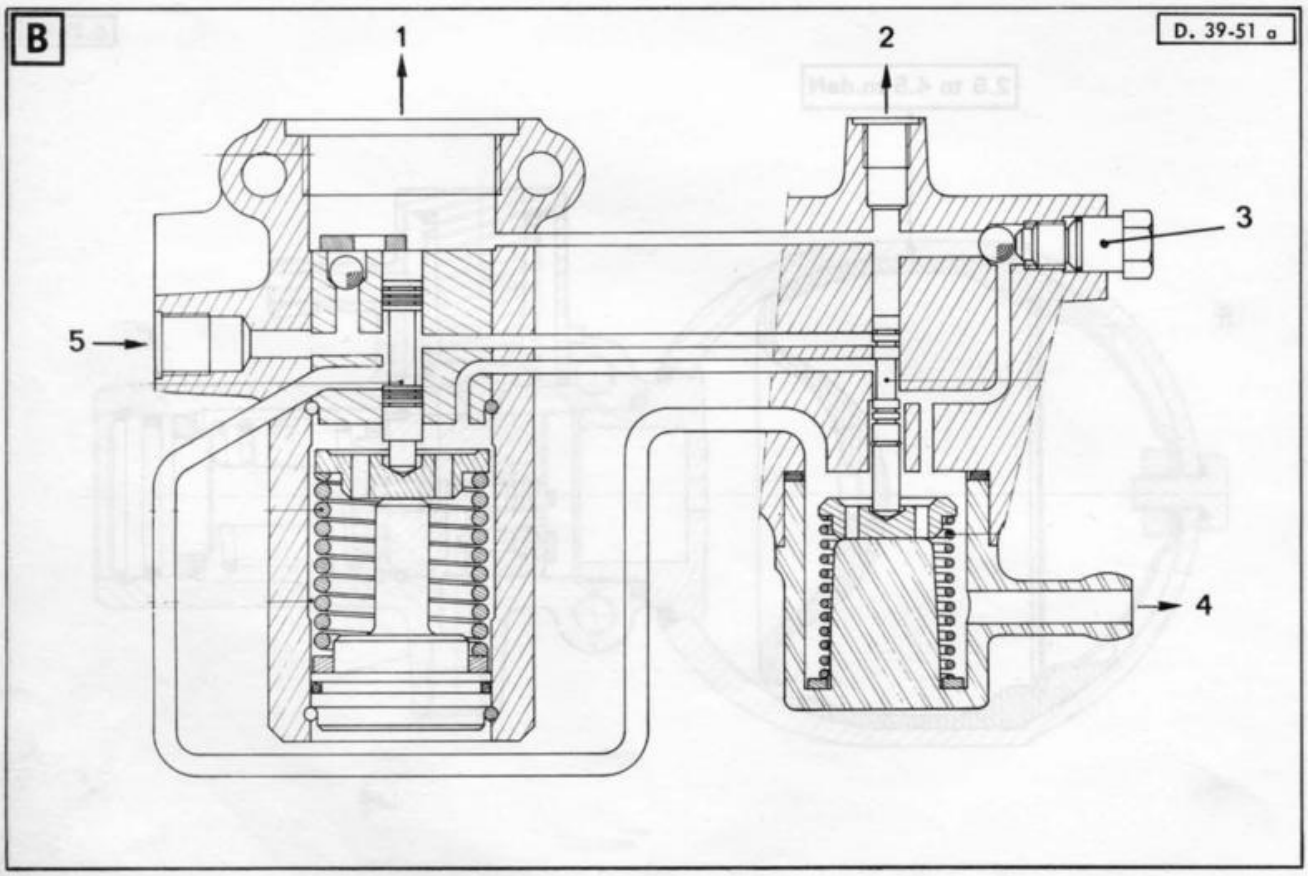
G. 39-3



G.39-9







II. SPECIAL FEATURES

1. High pressure pump :

Replace the O-ring seal when any work is done on the pump.

2. Pressure regulator :

-Thickness of cut-out adjustment shims :	0.3 mm
cut-in adjustment shims :	0.3 and 0.7 mm
- Pressure variation for 0.3 mm shim :	approx. 3 bar
- Pressure variation for 0.7 mm shim :	approx. 7 bar

III - TIGHTENING TORQUE VALUES

- HP pump attachment nuts :	**1.2 to 1.4 m.daN**
- Pressure regulator attachment screws :	**1.8 m.daN**
- Safety valve attachment screws :	**1.1 to 1.3 m.daN**
- Pressure switch :	**1.1 to 1.2 m.daN**

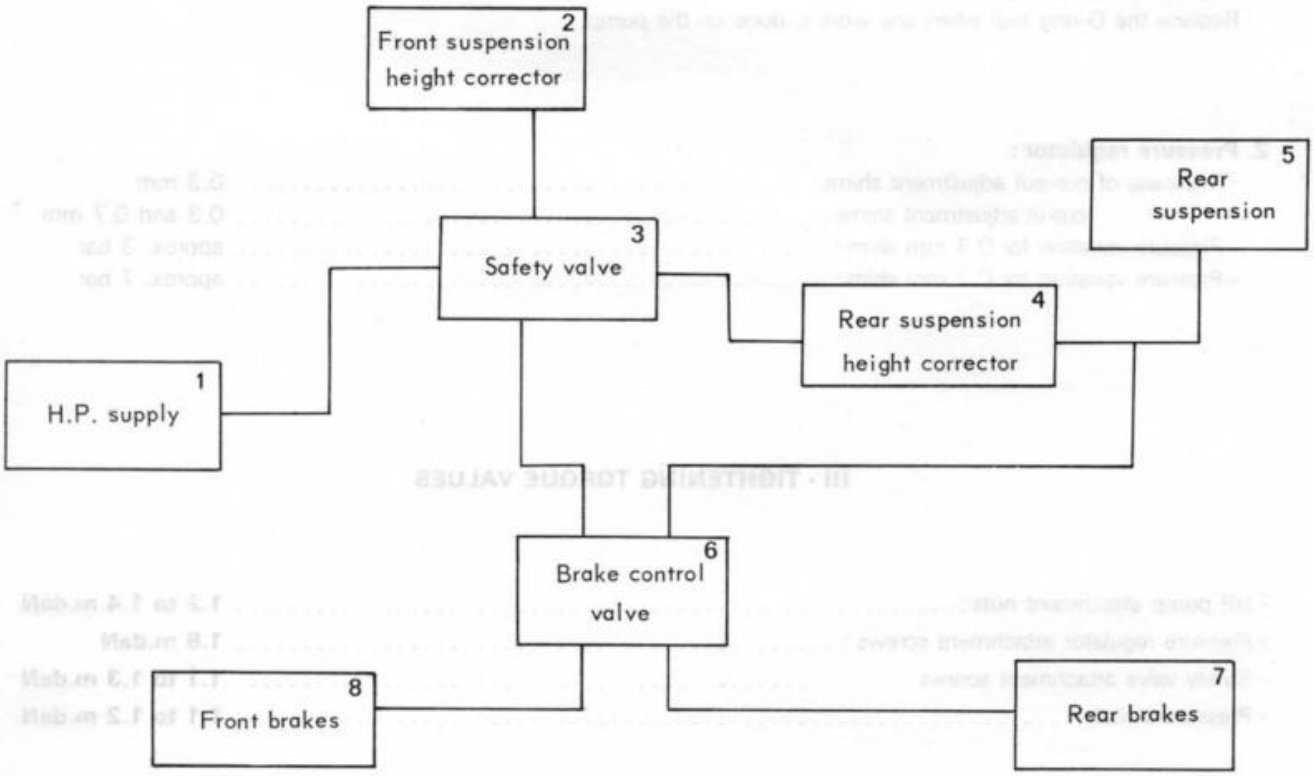
Key to operating diagram of the pressure regulator :

A : Cut-in **B** : Cut-out

1 : Accumulator
2 : To user line
3 : Pressure relief screw
4 : To reservoir
5 : High-pressure inlet

IV - HYDRAULIC CIRCUIT

1. Operating diagram :



2. Key to assembly diagram: Figure 1 *(⟶ 2/82).* **Figure 2** *(2/82 ⟶).*

A : Four-way union with bleed screw

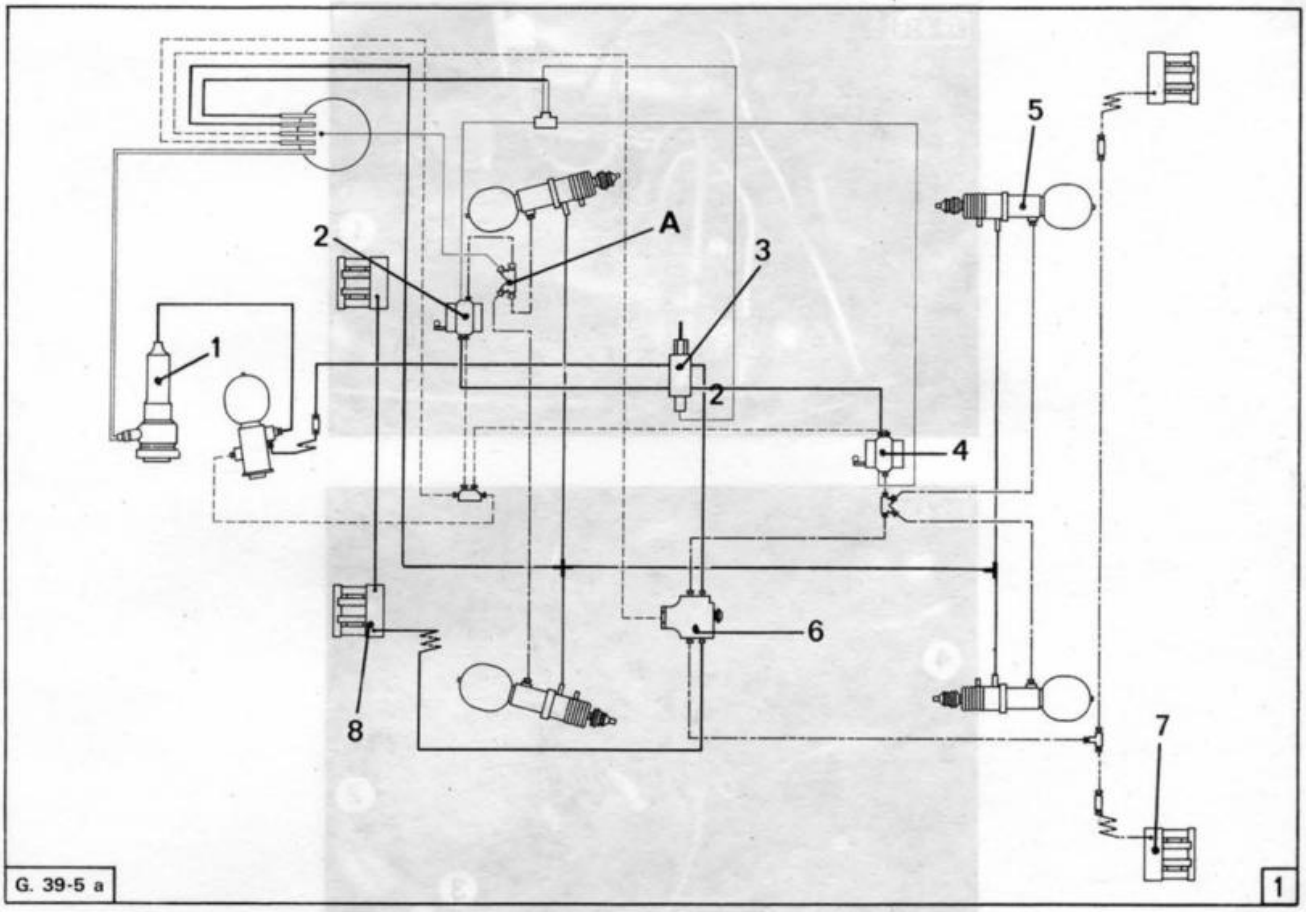
———————— High pressure

— ——— - ——— — Suspension pressure

--——— - - ——— - - Rear brake pressure

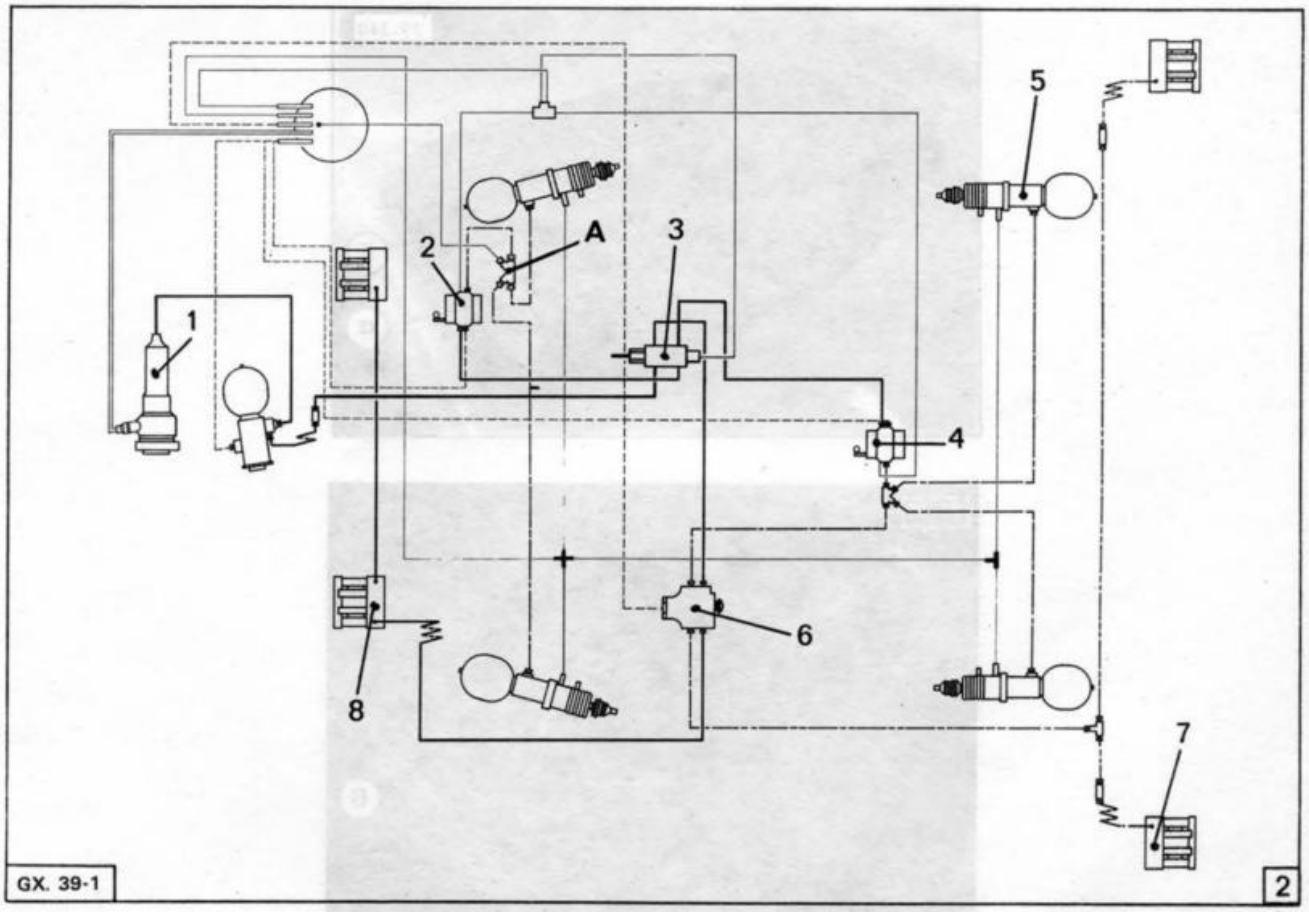
- - - - - - - - - - Discharge

———————— Overflow return



G. 39-5 a

1



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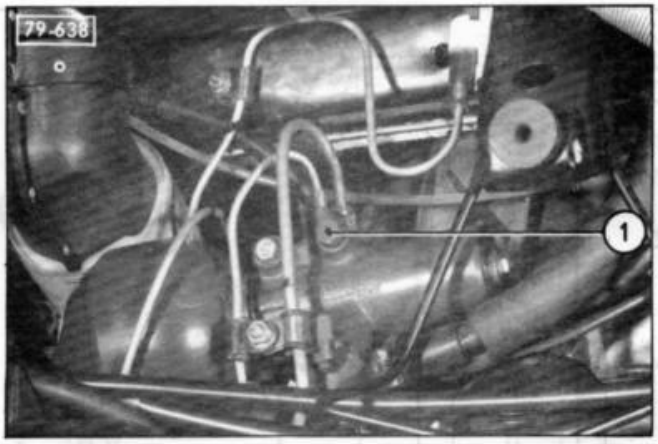
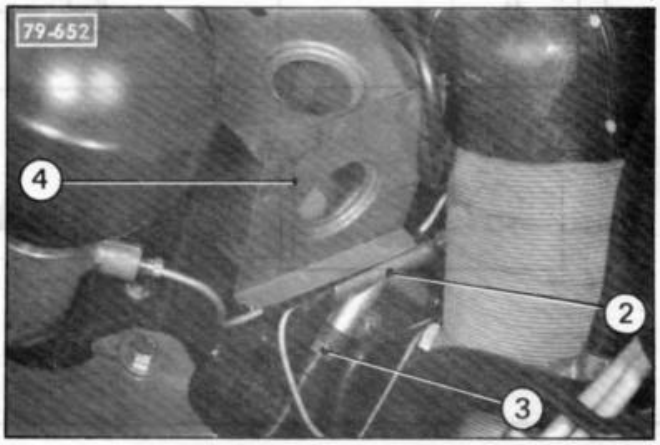
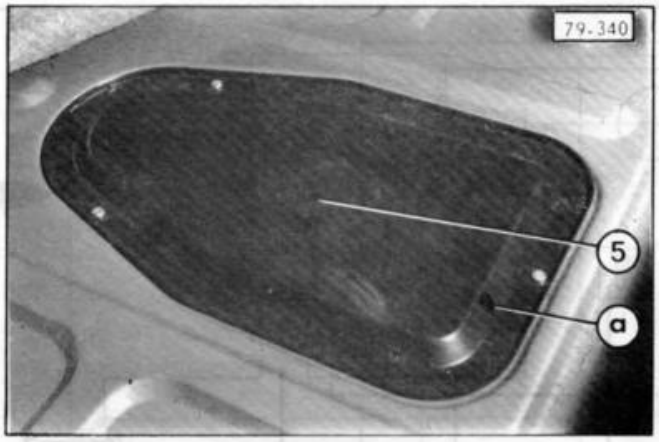
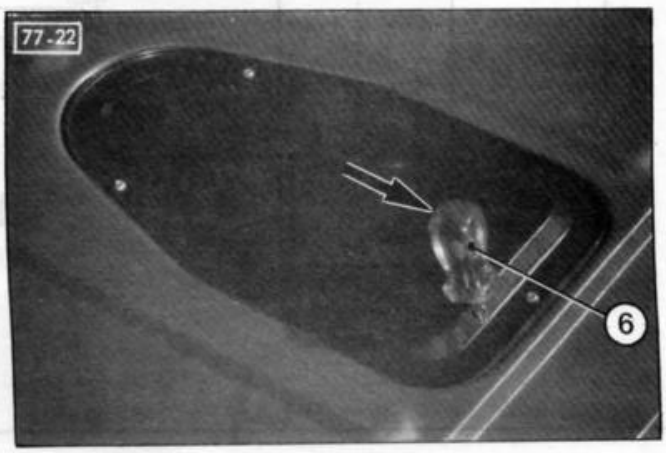
2









V - DEPRESSURIZATION OF THE HYDRAULIC SYSTEM

- Move the manual height control to the normal driving position.

- Undo pressure regulator relief screw (1).

Front suspension :

- Undo bleeder screw (3) on four-way union (2) (right side of axle unit under extension (4).

Rear suspension :

- Disengage orifice « a » of flap (5).

- Set the corrector in the discharge position, operating the control with a short screwdriver (6).

  Push screwdriver (6) towards the front of the vehicle, in the direction shown by the arrow (→).

PREPARATION

1. Check that the hydraulic fluid reservoir filters are clean.

2. **Depressurize the system :**
Undo pressure regulator relief screw (1).

3. Undo union nut (2) on service pipe (3) and disengage the pipe end from the pressure regulator.

4. Connect pipe (4) fitted with pressure gauge **A** *(graduated from 0 to 250 bar)* to the pressure regulator, in place of the service pipe.

TESTING

5. **Checking the main accumulator :**

- Do up pressure regulator relief screw (1).
- Disconnect the switch power supply wire.
- Operate the starter, checking the reading on pressure gauge **A**. The value increases regularly, and then appears to stabilize. This value corresponds to pressurization of the main accumulator.
- The pressure reading should be :

$$62 \begin{matrix} +2 \\ -32 \end{matrix} \text{ bar}$$

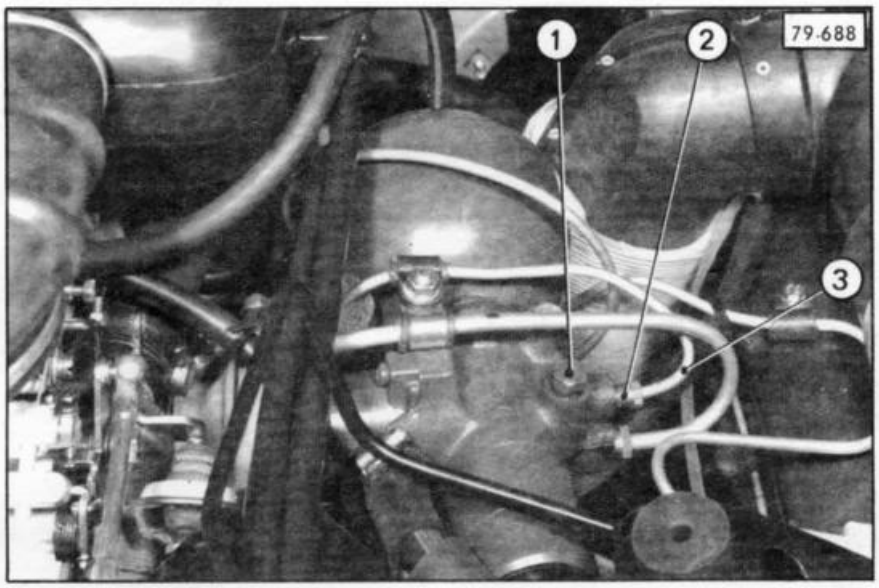
- Reconnect the switch power supply wire.

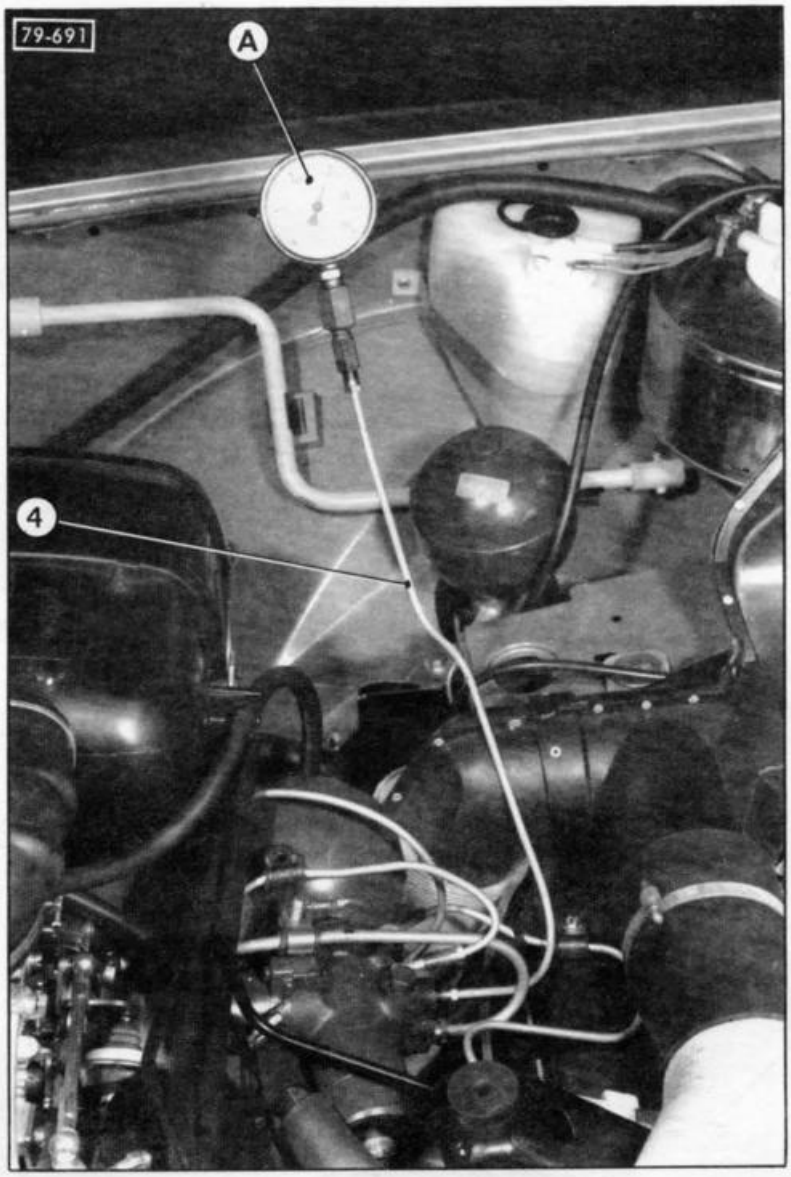
6. **Checking the pressure regulator :**

a) Checking cut-out pressure :
- Start engine, and maintain slight acceleration.
- Undo pressure regulator relief screw (1) and check the pressure gauge.
When the needle stabilizes, the reading corresponds to cut-out pressure :
170 ± 5 bar
- When cut-out pressure is reached, leave the engine running for a few moments longer, to stabilize pressure.
- Stop the engine. Check the pressure gauge, and note the drop for *a period of 3 minutes.*

If pressure drop is greater than 10 bar, the pressure regulator is defective.

b) Checking cut-in pressure :
- Start the engine, and maintain slight acceleration.
- When cut-in occurs, undo pressure regulator relief screw (1) slightly.
- The needle of pressure gauge **A** drops gently, rising again when the HP pump cuts in.
- The minimum reading on pressure gauge **A** corresponds to cut-in pressure :
145 ± 5 bar





I. CHARACTERISTICS

Conditions for check and adjusment :

With the vehicle in normal driving position, and the engine idling, check :
- height at front : 189 ± 10 mm (measured between the underface of the anti-roll bar and the tyre ground contact plane),
- height at rear : 272 ± 10 mm (measured between the underface of the mid-point of the axle unit flanged edge, and the tyre ground contact plane).

- Castor *(non-adjustable)* : ..... $1° 15' \begin{smallmatrix} +1° 25' \\ -1° 15' \end{smallmatrix}$
- Camber *(non-adjustable)* : ..... 0° ± 1°
- Steering lock angle *(non-adjustable)* : .....
  - *Inner wheel* : ..... 40° to 45° 30'
  - *Outer wheel* : ..... 34° to 37°
- Alignment *(toe-in)* : ..... 0 to 2 mm

Since **November 1981 (R.P. Organization No. : 1838)** fitting of a new anti-vibration bush *(the inner bush material is modified)* and a new articulation shaft (mark on head is 10-9 instead of 8-8). See **Fig. A**. The new anti-vibration bush is identified by means of 4 bosses on its polyurethane part.

II. SPECIAL FEATURES

Conditions for mounting the front axle unit *(each side of vehicle) :*

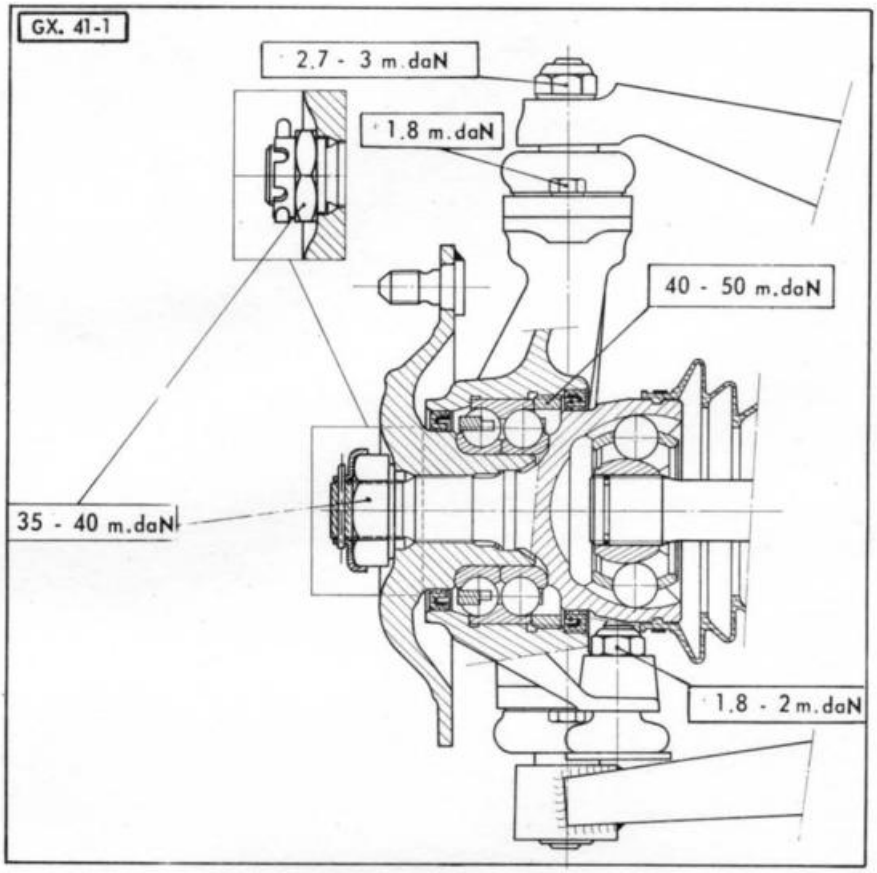
1. Tighten at « c » *(stage 1)* to : ..... **2 m.daN**
2. Tighten at « a » to : ..... **4.5 to 5 m.daN**
3. Tighten at « c » and « d » to : ..... **4.5 to 5 m.daN**
4. Shim as necessary at « b » (to within 0.5 mm), and tighten to : ..... **9 to 10 m.daN**

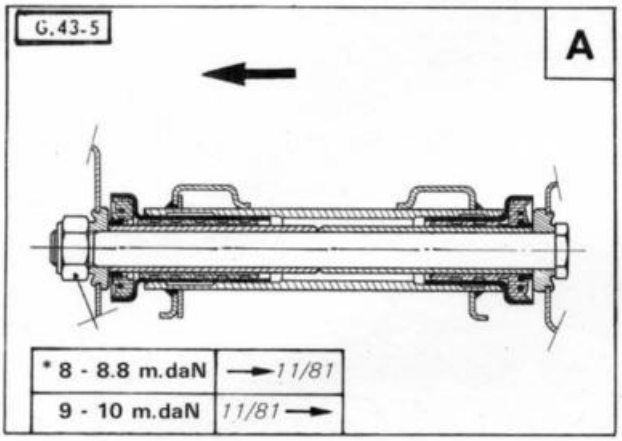
Tightening torque values :
- Swivel nut on anti-roll bar : ..... **2.5 to 3 m.daN**
- Swivel nut on anti-roll bar link rod to upper arm : ..... **2.5 to 3 m.daN**

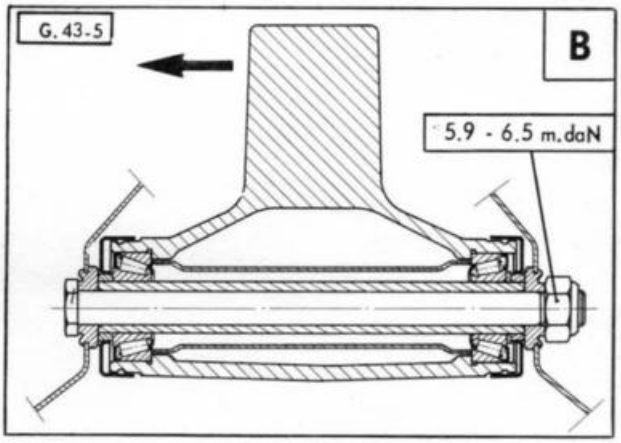
Wheel nuts : Pressed-steel rim : ..... **5.5 to 7.5 m.daN**
Light-alloy rim (do not grease the threads) : ..... **7.5 to 8.5 m.daN**

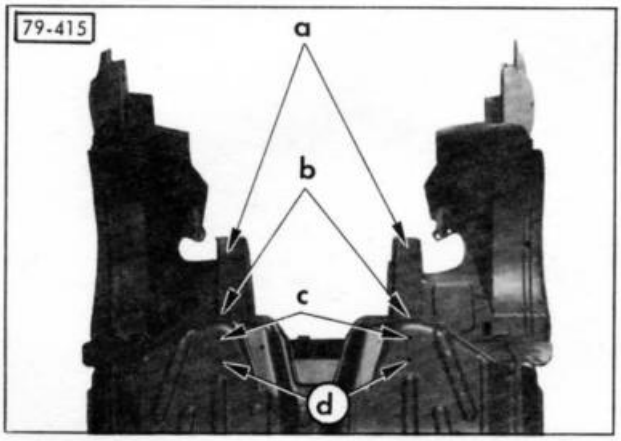
Key to sketches :

A : Lower arm **B :** Upper arm
The arrow (➡) indicates the front of the vehicle.









CONDITIONS FOR CHECKING AND ADJUSTING THE FRONT AND REAR AXLE UNITS, USING PROJECTION EQUIPMENT

The checks and adjustments remain the same whatever equipment is used. Nevertheless follow the manufacturer's instructions.

In order to carry out correct controls, it is imperative to check and to mark the height position of the vehicle.

1. Check the tyre pressure :

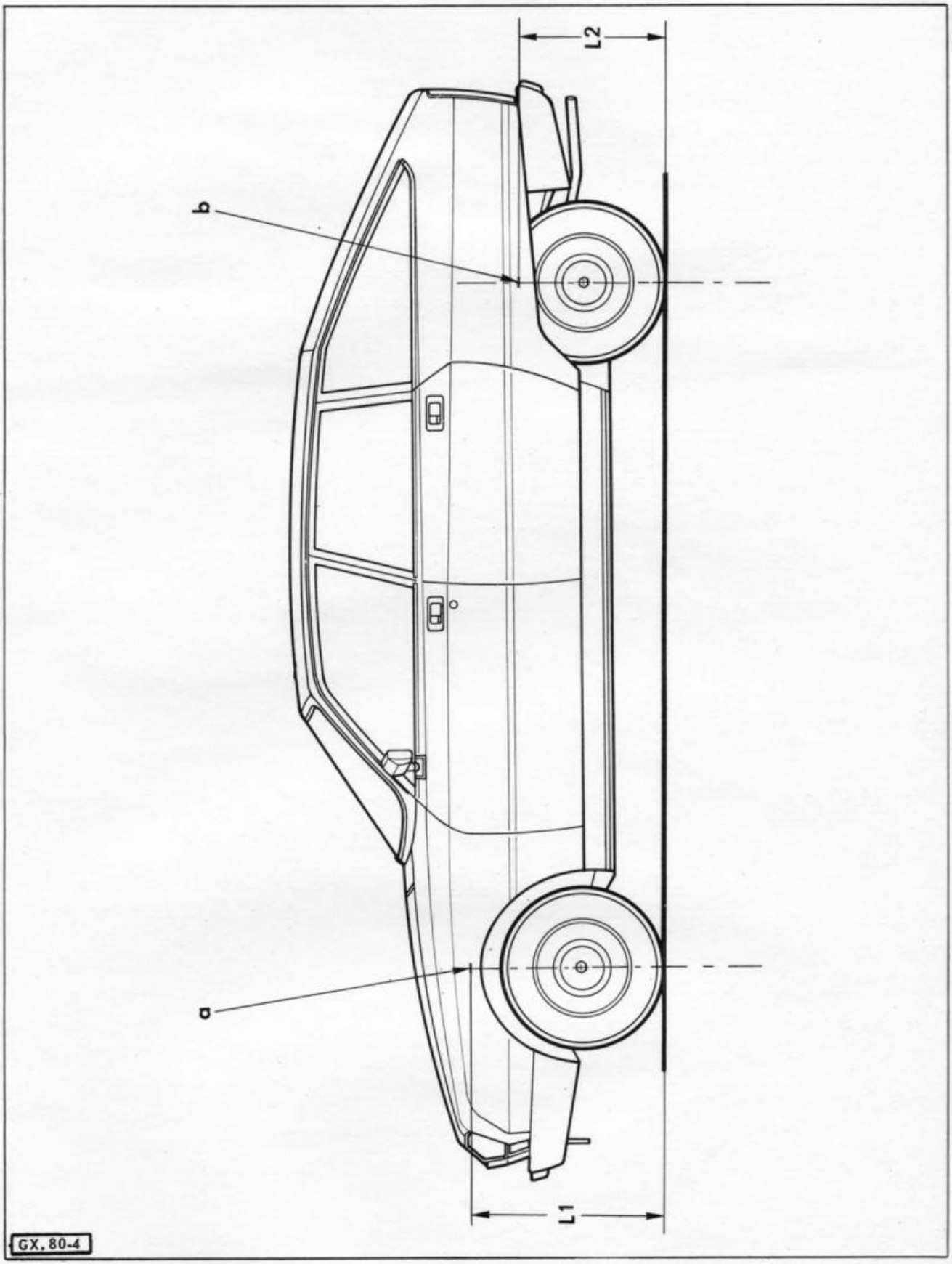
	MICHELIN 145 SR 15 XZX Pressed-steel rim	MICHELIN 14 HR XVS Light-alloy rim	GSA Entreprise
Front	1.8 bars	1.7 bars	1.8 bars
Rear	1.9 bars	1.8 bars	2.1 bars

2. Mark down the vehicle heights, on normal driving position :

a) **Check the heights :**
Adjust them if necessary : - Front height : **189 mm**
- Rear height : **272 mm**

b) **Mark the vehicle position :**
Stick a strip of adhesive tape at « a » and another at « b ». Draw a mark on each one of them.
Measure distance **L1**, at the front, with the vehicle at the **absolute height of 189 mm** and distance **L2**, at the rear, with the vehicle at the **absolute height of 272 mm.**
Mark down values **L1** and **L2** in order to make the checks easier.

3. Make sure the lengths of the visible threads on the left and right steering levers are equal to within 2 mm.



• 811-1 (I)

I. CHARACTERISTICS

Check conditions :

With the vehicle in normal driving position, and the engine idling, check :
- height at front : 189 ± 10 mm (measured between the underface of the anti-roll bar and the tyre ground contact plane),
- height at rear : 272 ± 10 mm (measured between the underface of the mid-point of the axle unit flanged edge, and the tyre ground contact plane.

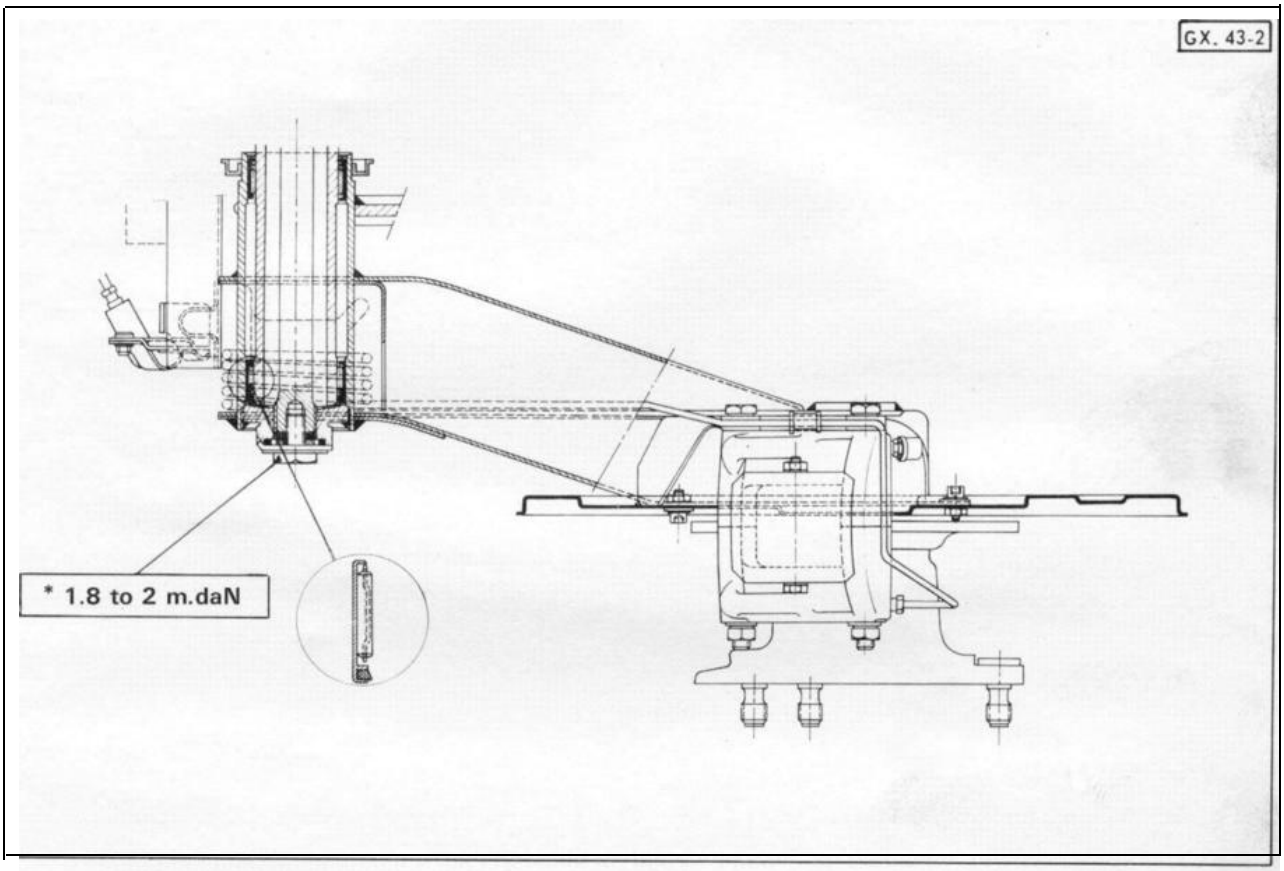
- Alignment *(toe-in)* : ..... 0 to 5 mm
- Camber : ..... 0° ± 40 minutes

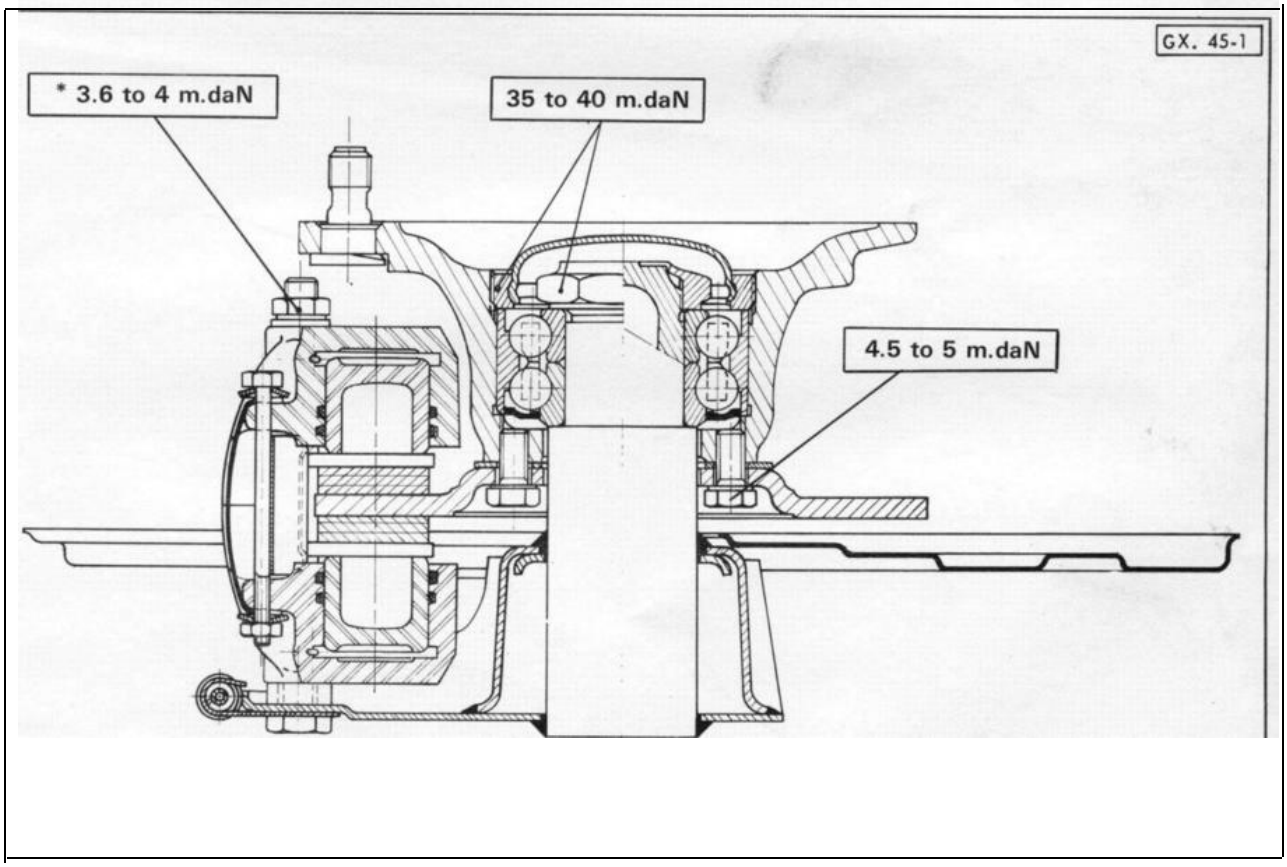
II. SPECIAL FEATURES

- After tightening the flexible mountings for the rear axle unit on the body, no transverse play on the axle should be observed, or any stress in the flexible mountings.

- Position the anti-roll bar, *making the marks on the splines coincide :*
  - Right side : 30 splines
  - Left side : 32 splines *(paint mark)*

Tightening torques :		**Torque in m.daN**
- Attachment nut for flexible mount on axle :		**3 to 4**
- Attachment nut for flexible mount on body :		**3 to 4**
- Wheel nuts	**- Pressed-steel rims :**	**5.5 to 7.5**
	- Light-alloy rims (do not grease the threads) :	**7.5 to 8.5**





811-1 (I)

I - CHARACTERISTICS

Pneumatic units :

Pressure setting :

Front : ..... 55^{+5}_{-10} bar

Rear : ..... 35^{+5}_{-10} bar

Markings : pressure settings are engraved on the pneumatic units, close to the plugs.

Suspension cylinders *(identical at front and rear) :*

Piston diameter : ..... 35 mm

Piston length : ..... 117.5 mm

Dampers : Clinched onto the pneumatic units.

Anti-roll bars :

Front bar diameter : ..... 21.5 mm

Rear bar diameter : ..... 17 mm

Coupling to right arm : ..... 30 splines

Coupling to left arm (paint marking) : ..... 32 splines

Manual height control : Three positions

1. Normal running - 2. Intermediate - 3. High

Ground clearance height :

- Height at front if measured between the underface of the mid-point of the anti-roll bar, and the tyre ground contact plane
- Height at rear is measured between the mid-point of the axle unit trailing edge, and the tyre ground contact plane.

Height at front *(normal running position) :* **189 ± 10 mm**

Height at rear *(normal running position)* **272 ± 10 mm**

Key to hydraulic system :

——— High pressure

– ——— - ——— - Suspension pressure

——— -- ——— -- Rear brake pressure

– – – – – – – – Discharge

——— Overflow return

1. HP supply

2. Front suspension height corrector

3. Safety valve

4. Rear suspension height corrector

5. Rear suspension

6. Brake control valve

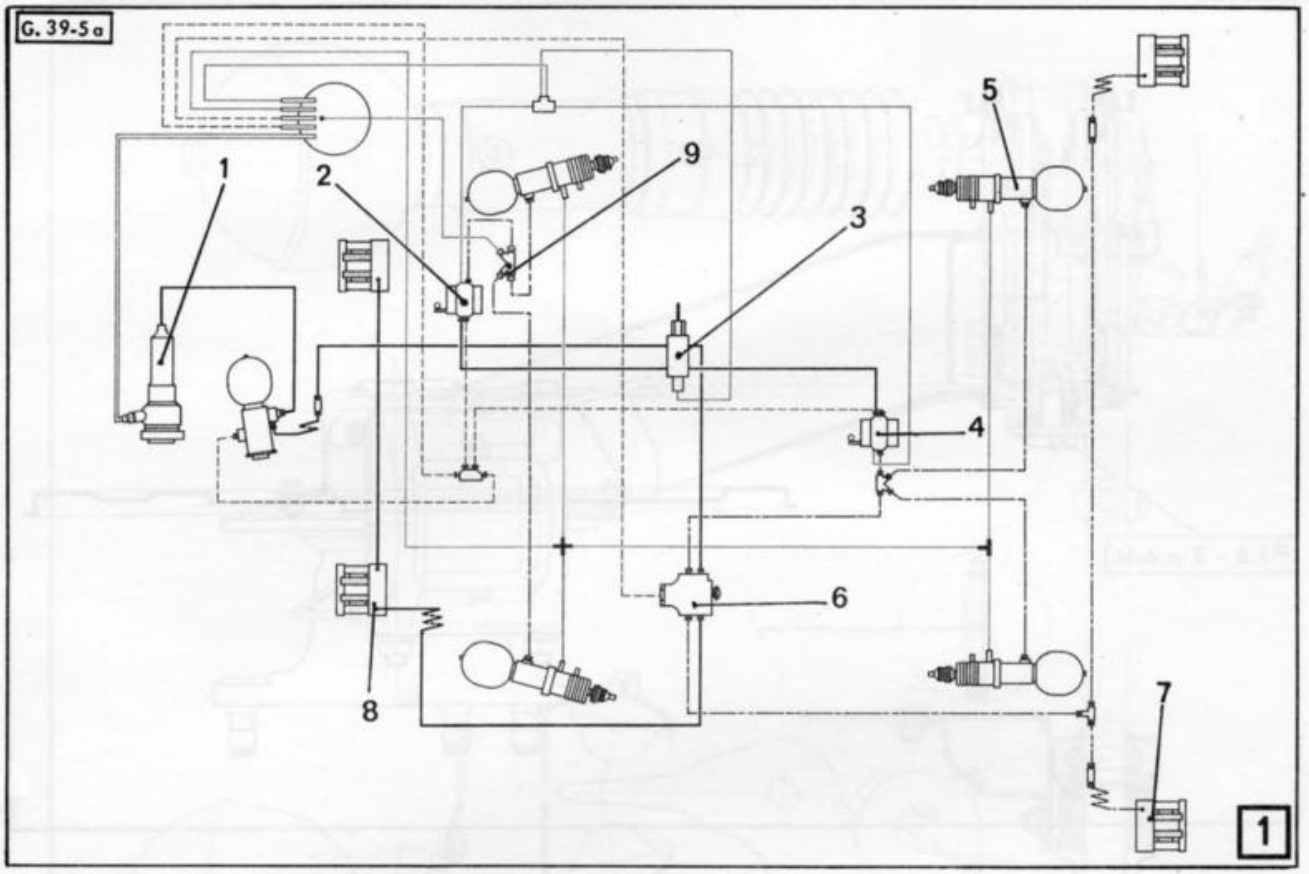
7. Rear brakes

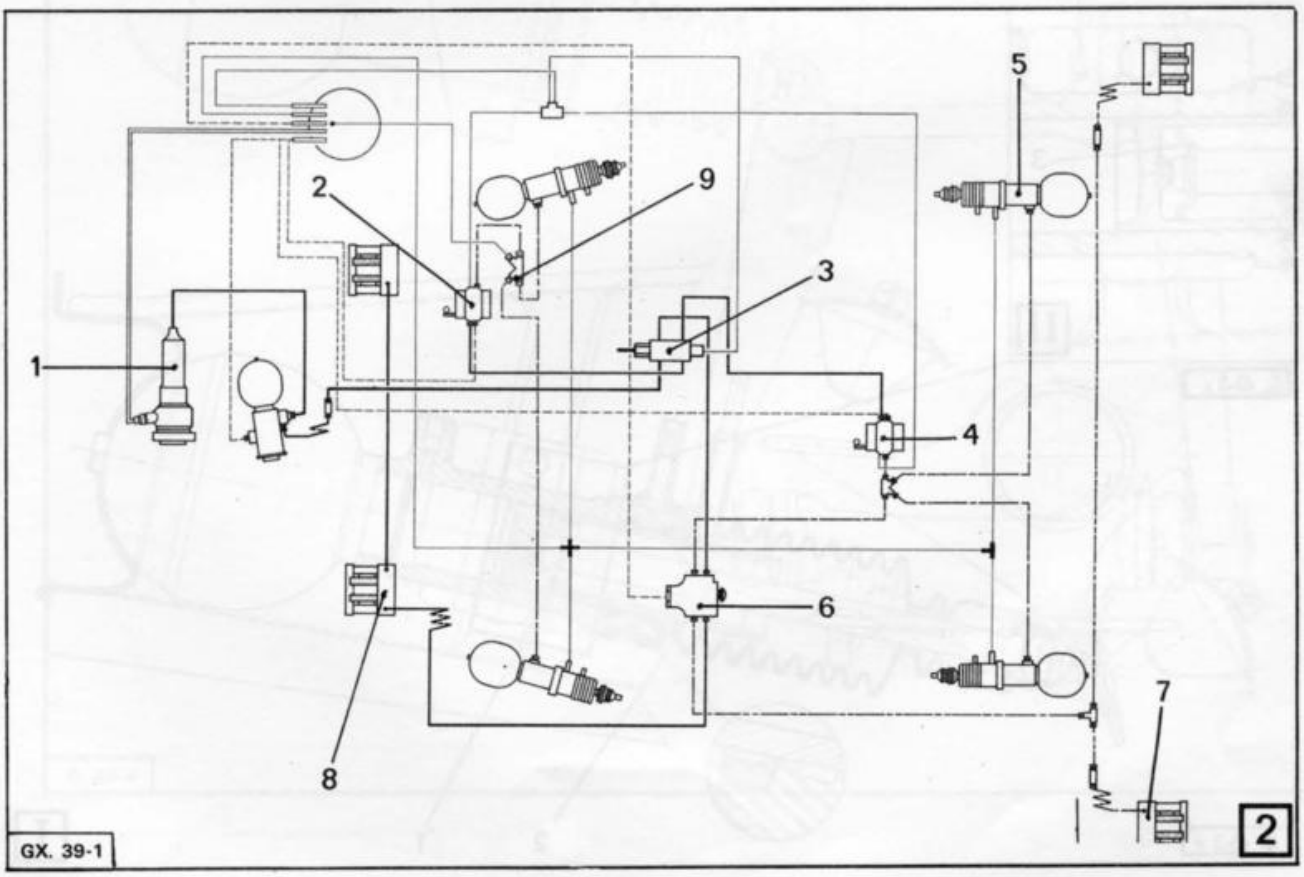
8. Front brakes

9. Union with bleed screw

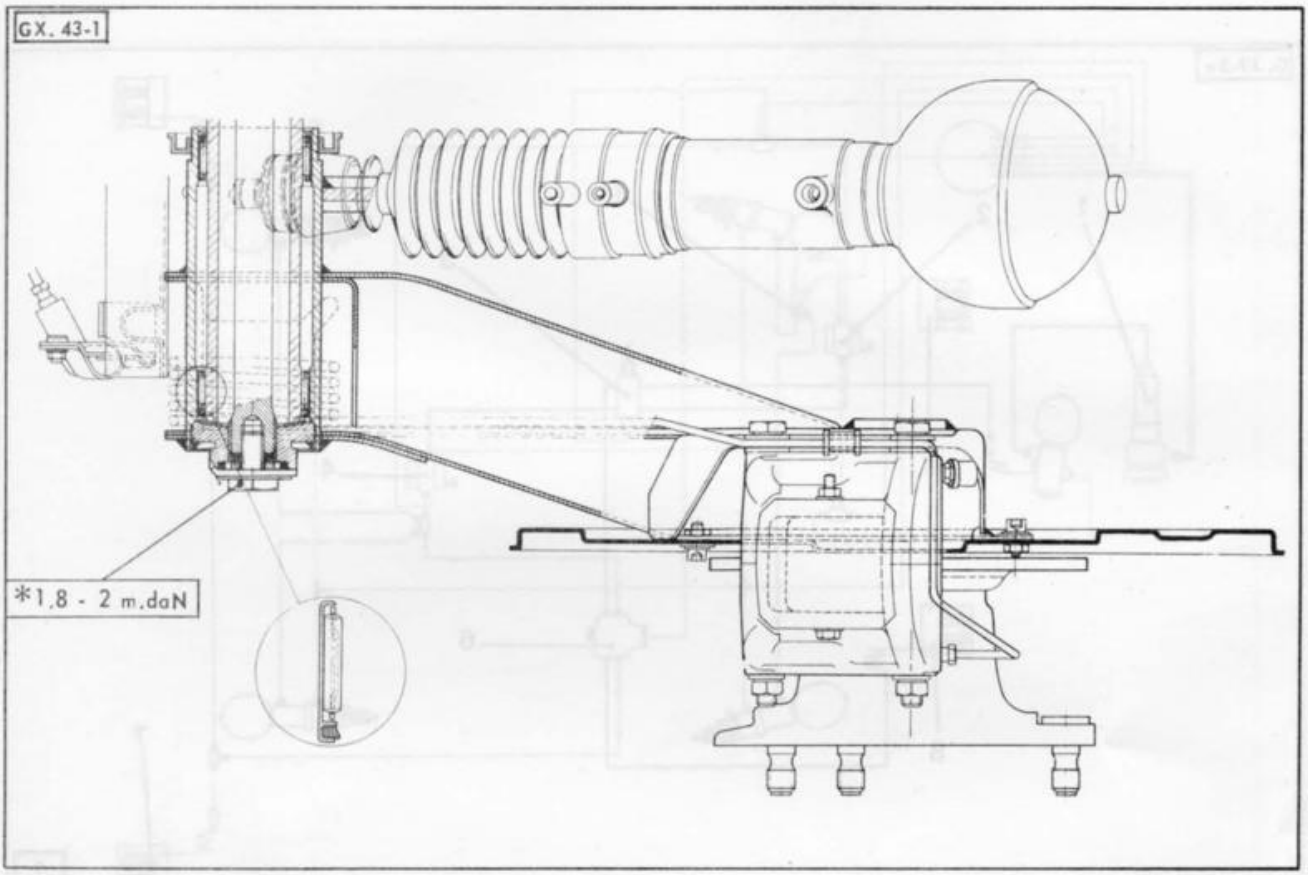
Figure 1 *(——→ 2/82)*

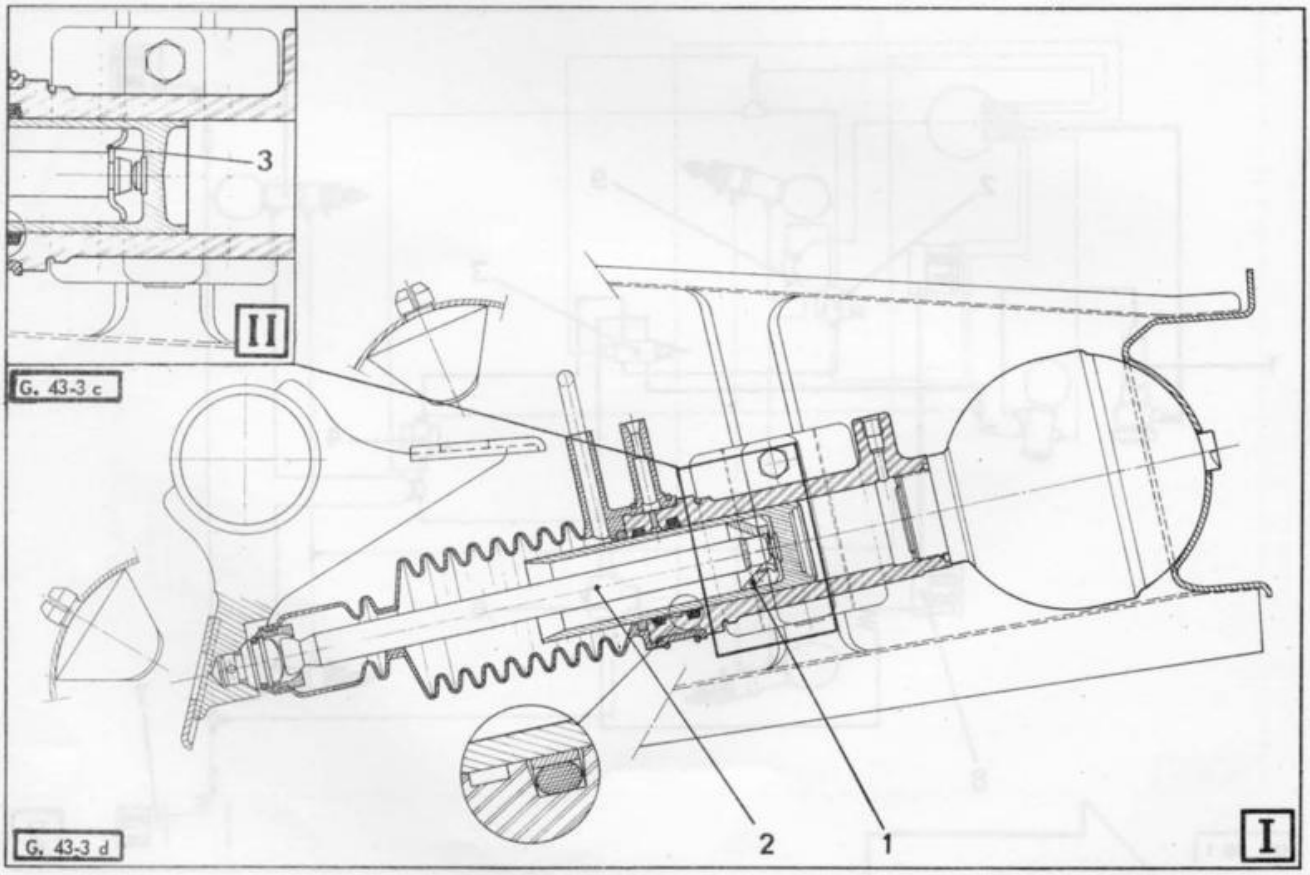
Figure 2 *(2/82 ——→)*

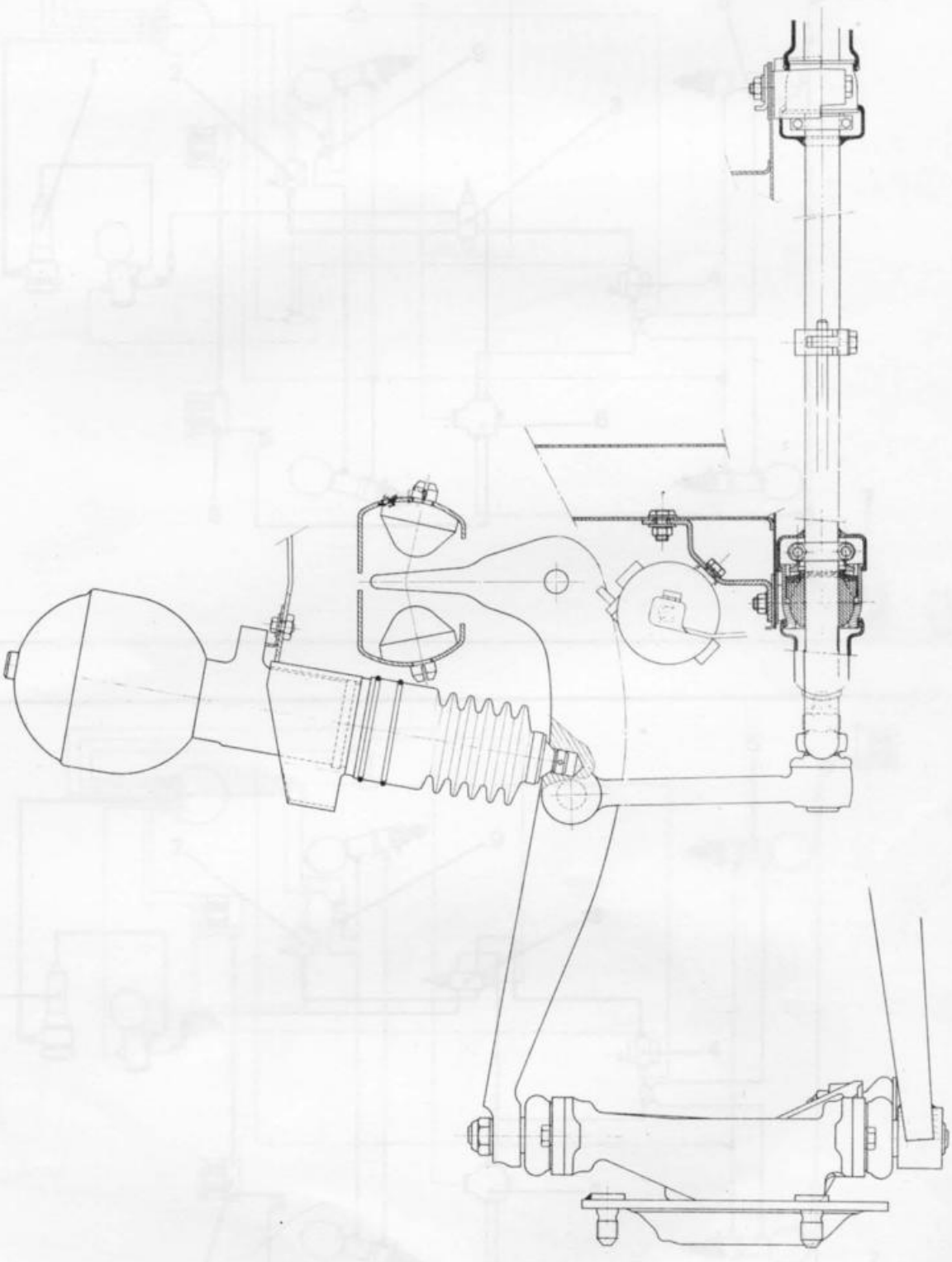




•• 811-1 (I)







G. 43-4

II ▪ SPECIAL FEATURES

Tyre pressure (145 x 15 « MICHELIN XZX »)

- Front : ..... 1.8 bar
- Rear: ..... 1.9 bar

Height preadjustment :

- With the height correctors in the neutral position, undo the automatic control stem collars on the front and rear anti-roll bars.
- Equalize clearance between the limit stops to within : 2 mm

Adjustment of anti-roll bars :

Front :

- Side position : equal protrusion on both sides to within : 2 mm
- Angular position : assembly with no load on swivels
- Nil lateral play : bearing assembly with load : 35 to 40 kg

Rear :

- Angular position : engage the splines so that the marks on bar and arm coincide
- Bar/arm play under 200 kg load : 0.04 to 0.14 mm

Tightening torque values :

Ball-pin nut on anti-roll bar: 2.5 **to** 3 **m.daN**

- Bali-pin sleeve-nut on link rod with upper arm : 2.5 **to** 3 **m.daN**

♦ Diagram I :

As from October 1980. push rods (2) are centered in the pistons by means of plastic cones (1) instead of washers (3) crimped on the rods and shown in **Diagram II**

The new rods can be replaced by the former ones by fitting plastic cones (1) in the pistons.

I. HEIGHT PREADJUSTMENT

This operation is required following replacement of certain elements of the suspension system.

1. Position the front end rear suspension arms :
   - Remove from correctorthree screws (1) and protector (2).
   - Remove the rear corrector access trap, after lifting the carpet.

   a) Undo front automatic control collar (5).

   b) Undo rear corrector attachment screws (3). Position in the middle of the slot, and retighten.

   c) Move the manual height control lever to ***normal*** *running position* « *a* ».

   NOTE : The height control lever has three positions:
   a - normal running
   b intermediate
   c - high

   d) If necessary. release any stress on the corrector slide-valve, displacing sector (6), and undoing control bush nut (4).

   e) Position the suspension arms so that :
   - front arm stops (7) and rear arm stops (8) and (9) are in the mid-way position :

   J I = *J2 ± 2 mm*
   J3 = J4 ± 2 mm

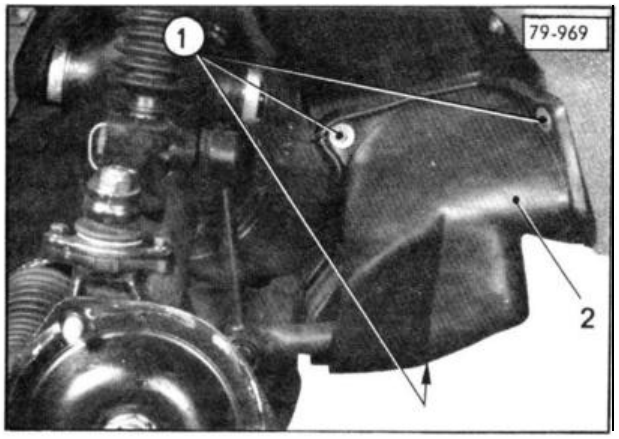
   f) Check that the front and rear corrector slide-valves are in the neutral position.

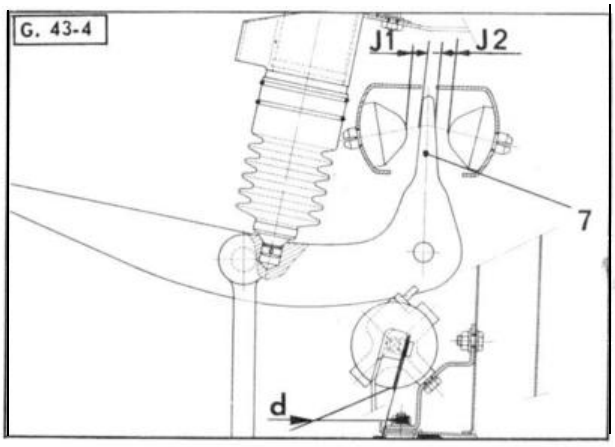
2. Tighten the front automatic control collar :

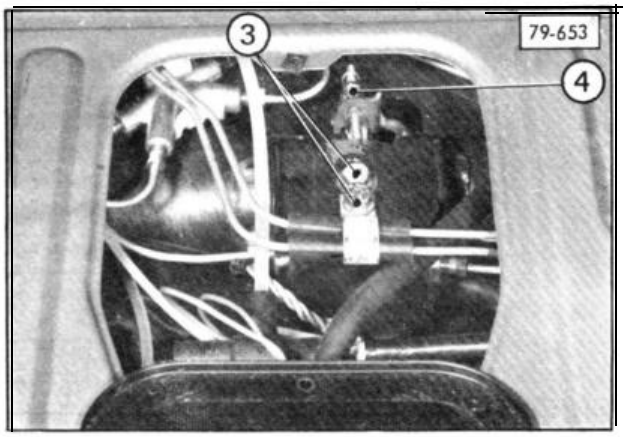
   At front: leave the corrector slide-valve ball-pin free (d = 1 to 2 mm).

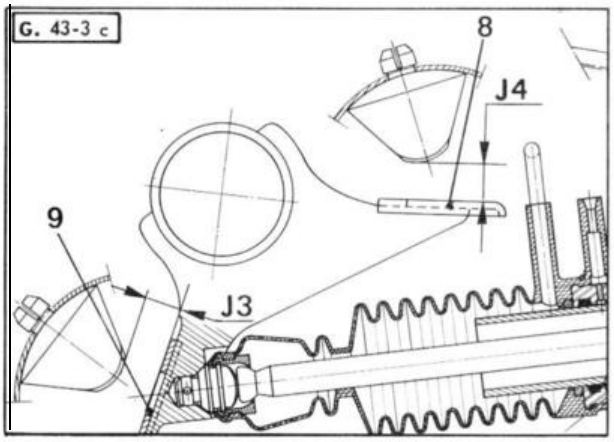
   Collar tightening torque : 1.4 to 1.5 **m.daN**

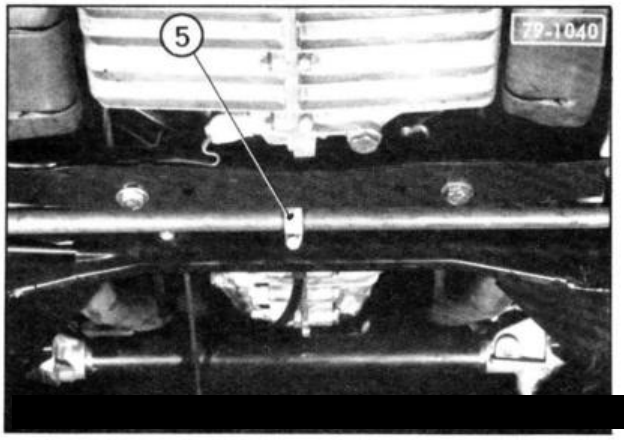
3. Fit :
   - front corrector protector (2),
   - trap for access to rear ***corrector.***

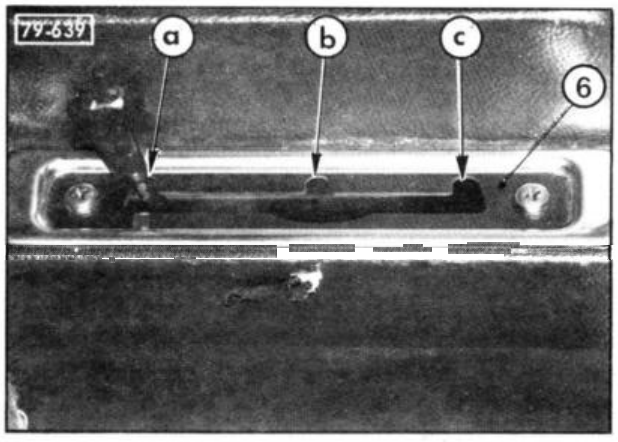


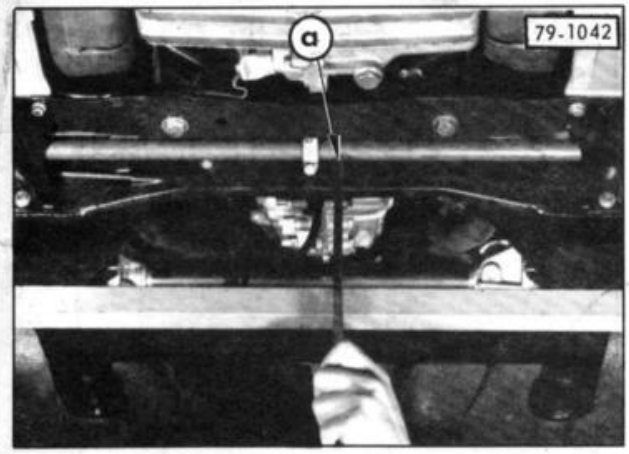


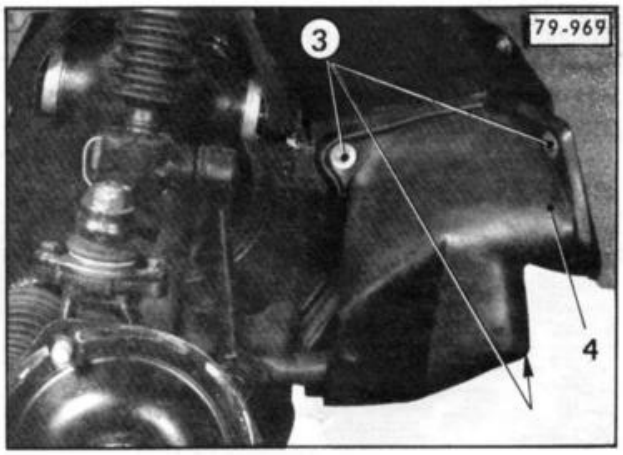


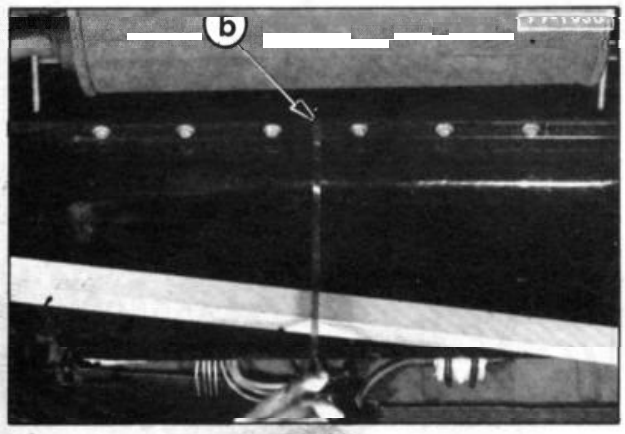


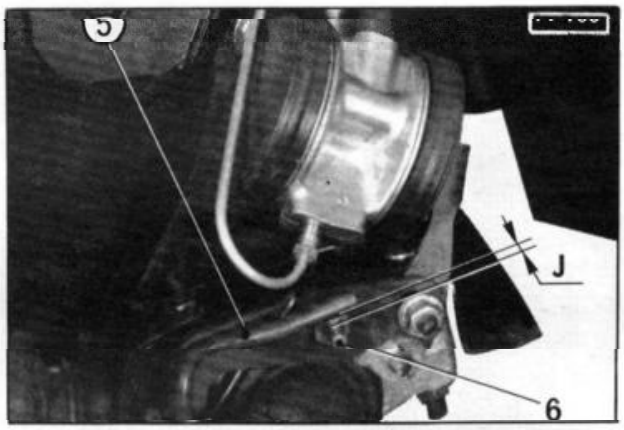


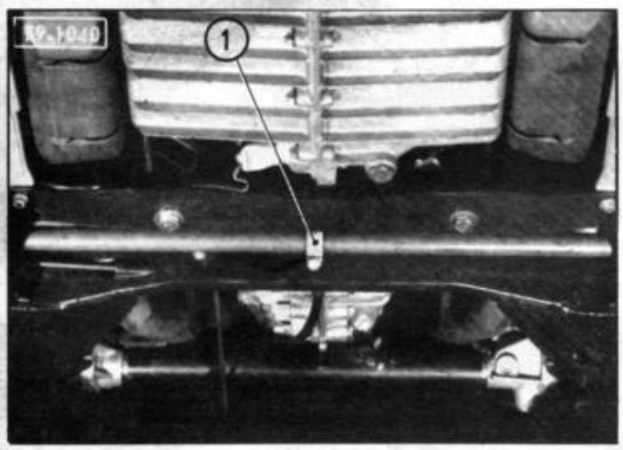


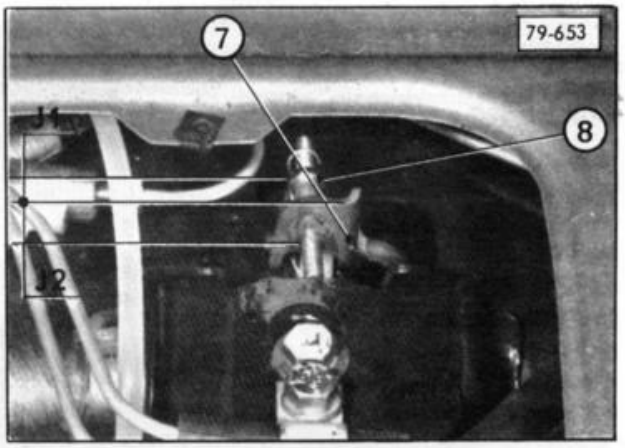


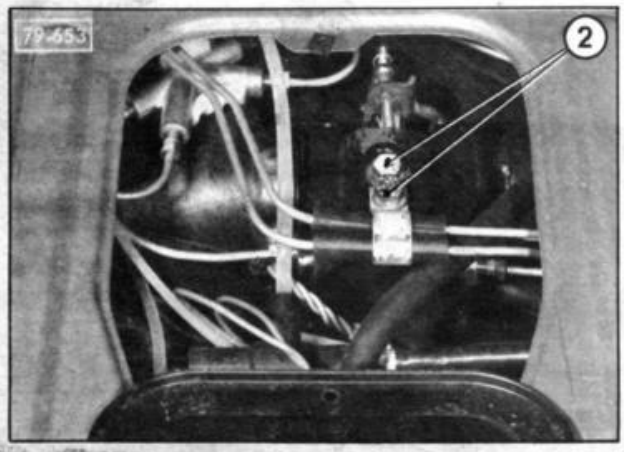












II. HEIGHT ADJUSTMENT

NOTE : This operation can be carried out without pre-adjustment, in the case of a vehicle where the height values require only slight correction.

This operation must be carried out with the engine idling.

IMPORTANT :
Height readings are taken as follows :
- *front* : underface of mid-point « a » of the anti-roll bar, and the tyre ground contact plane,

rear : underface of mid-point « b » of the axle unit flanged edge. and the tyre ground contact plane.

1. Check the tyre pressure :
   -*Front: 1.8* bar
   - Rear : 1.9 bar

2. Adjust the height values :

   a) *From:* partially undo collar (1), and adjust to obtain :
   Height at front: 189 ± 10 mm
   Collar (1) tightening torque: **1.4 to** 1.5 **m.daN**

   b) Rear: remove rear corrector access trap (under carpet in boot).
   Undo corrector attachment screws (2), and adjust the corrector to obtain :
   Height at rear : 272 ± 10 mm
   Tighten screws (2).

3. Adjust manual control :

   a) Remove front corrector three screws (3) and protector (4).

   b) Set the manual height control in the *normal running position.*

   c) *Front corrector control.*
   Clearance J between lever (5) and adjustable stop (6) should be 5 mm.

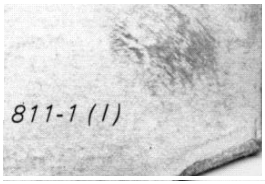
   d) Rear *corrector* control :
   Clearance J1 and J2 on either side of bracket (7) should be approximately equal.

4. Check height values :
   Manual height control lever in *normal running position.*
   Check that the front corrector swivel is free in its recess (1 to 2 mm play) (see *chapter I*).

   Front :
   Raise the vehicle by hand, holding the bumper. Release when the weight becomes too great. The vehicle drops, rises and then stabilizes. Measure height.
   -Lower the vehicle by pressing on the bumper. Release when excessive resistance is encountered. Measure height.
   -Take the mean of the two measurements. which should give a value between :
   179 and 199 mm

   Rear
   Repeat the same procedure. The mean of the height values should be between :
   262 and 282 mm
   Move the manual height control to the intermediate position.
   The variation in height should be between 30 and 40 mm.
   Adjust at (6) and (8) to obtain this condition.

5. Fit :
   front corrector protector,
   - rear corrector access trap.



ANTI-ROLL BAR ADJUSTMENT

1. Place the vehicle on a ramp, or over a pit.

2. Remove protective covers (1) and (2).

3. Disengage the lower part of dust-guards (5) *(these should be pinched between the bearing blocks and the axle unit).*

4. Adjust bearing preload :

Use tool 2067-T

a) Undo one screw (3) and one collar (4).

b) Compress the spring of the tool, by means of nut (6).

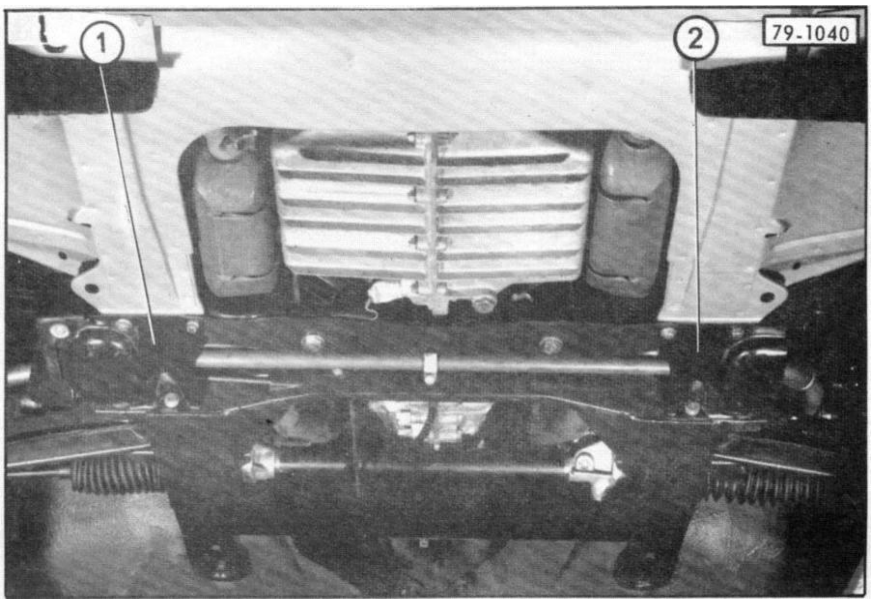
c) Present the tool, with the ends in contact with two stop collars (4).
Undo nut (4) fully, so that the tool applies the specified load **(35 to 40 kg)** on the bearing blocks.

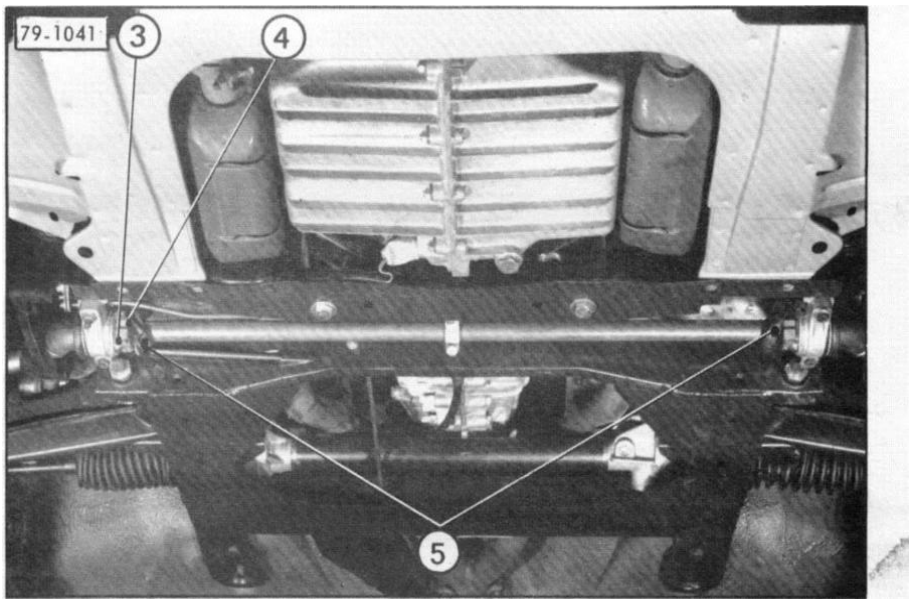
d) **Tighten screw (3) from 1 to 1.1 m.daN**

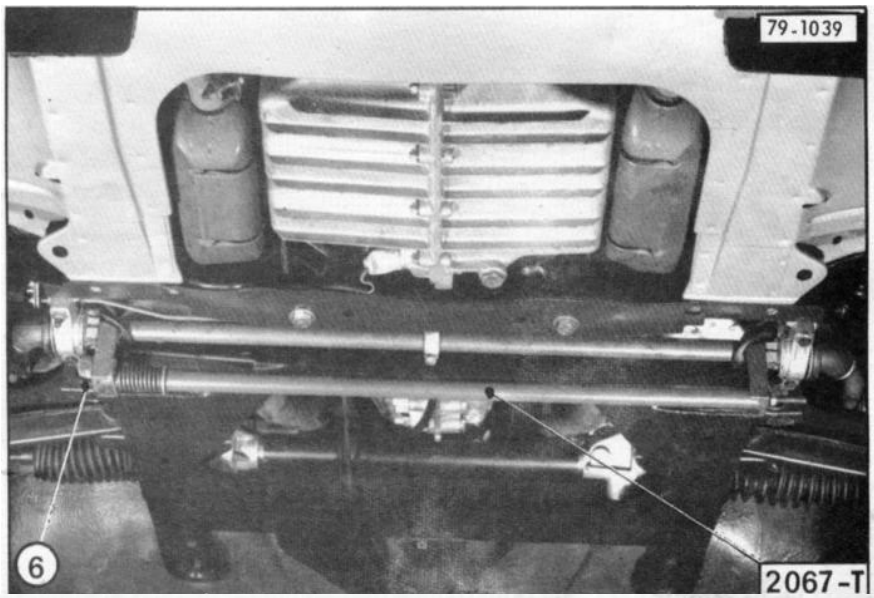
e) Remove tool 2067-T .

5. Replace the dust-guards on the bearing blocks.

6. Replace protective covers (1) and (2).
Check that the covers are not touching the anti-roll bar.







811-1 (1)

CHARACTERISTICS

- Rack and pinion steering
- Front wheel alignment *(wheel toe-in, normal running position) :* ..... *0 to 2* mm

Lock angle *(non-adjustable)* { outer wheel : ..... 34° to 37 °
inner wheel : ..... 40° to 45" 30

Turning circle : { between walls: ..... IO.40 m
between kerbs : ..... 9.66 m

-Steering ratio: 1/19

SPECIAL FEATURES

After adjusting wheel alignment, the steering level threaded portion extending beyond the lock nut. should be equal on both sides (to *within 2 mm).*

Rack mid-way position : Extension should be equal on either side of the housing

- Rack plunger play *(min. play point)* : ..... 0.1 to 0.25 mm
- Pinion rotary torque after plunger adjustment : 0.06 m.daN max.

Turning torque at kingpin, after adjustment (*wheels hanging free) :* , *1.5* m.daN max.

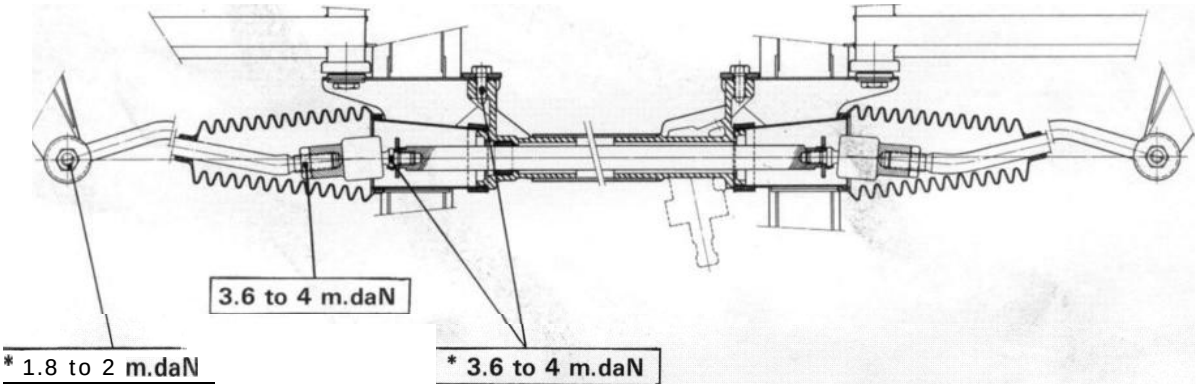
Steering wheel spoke position with vehicle wheels in the « straight-ahead » position : vertical *(spoke pointing downwards)*

TIGHTENING TORQUES

Clamp for steering column cardan (UJ) : ..... 1.3 to 1.4 m.daN

Attachment of fixed steering tube : 1.3 to 1.4 m.daN

. 44-1



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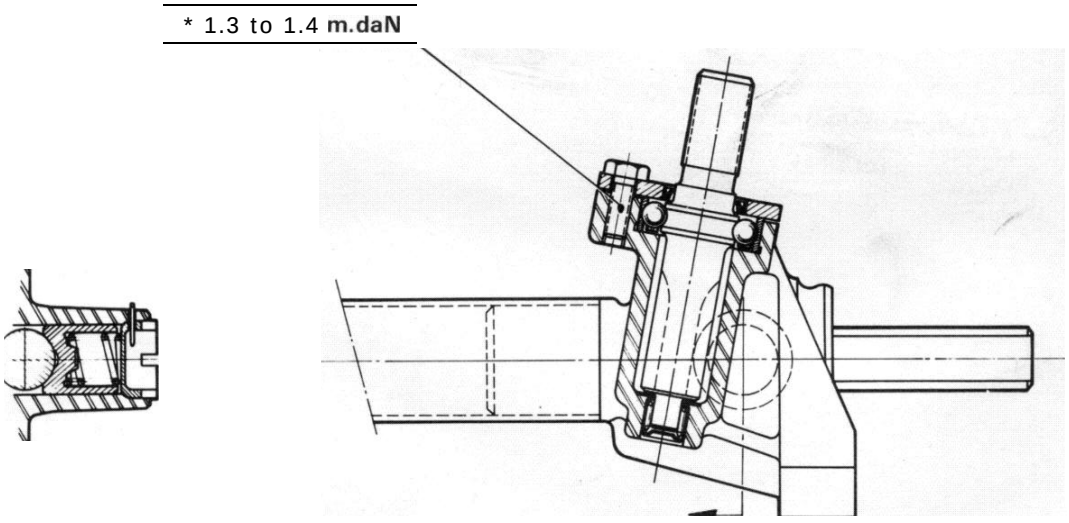


I. CHARACTERISTICS

Main brakes:
- Disc brakes on all four wheels (two pistons per brake unit).
- Power-assisted hydraulic control (brake valve incorporated in system)
  - front braking system supplied by main accumulator
  - rear braking system supplied by rear suspension
  - front brakes have priority supply via the safety valve

Handbrake:
- Independent from main braking system
- Two independent pads acting on each front disc

Total friction area:
- Main brakes: ..... 217 cm^2
- Handbrake: ..... 44 cm^2

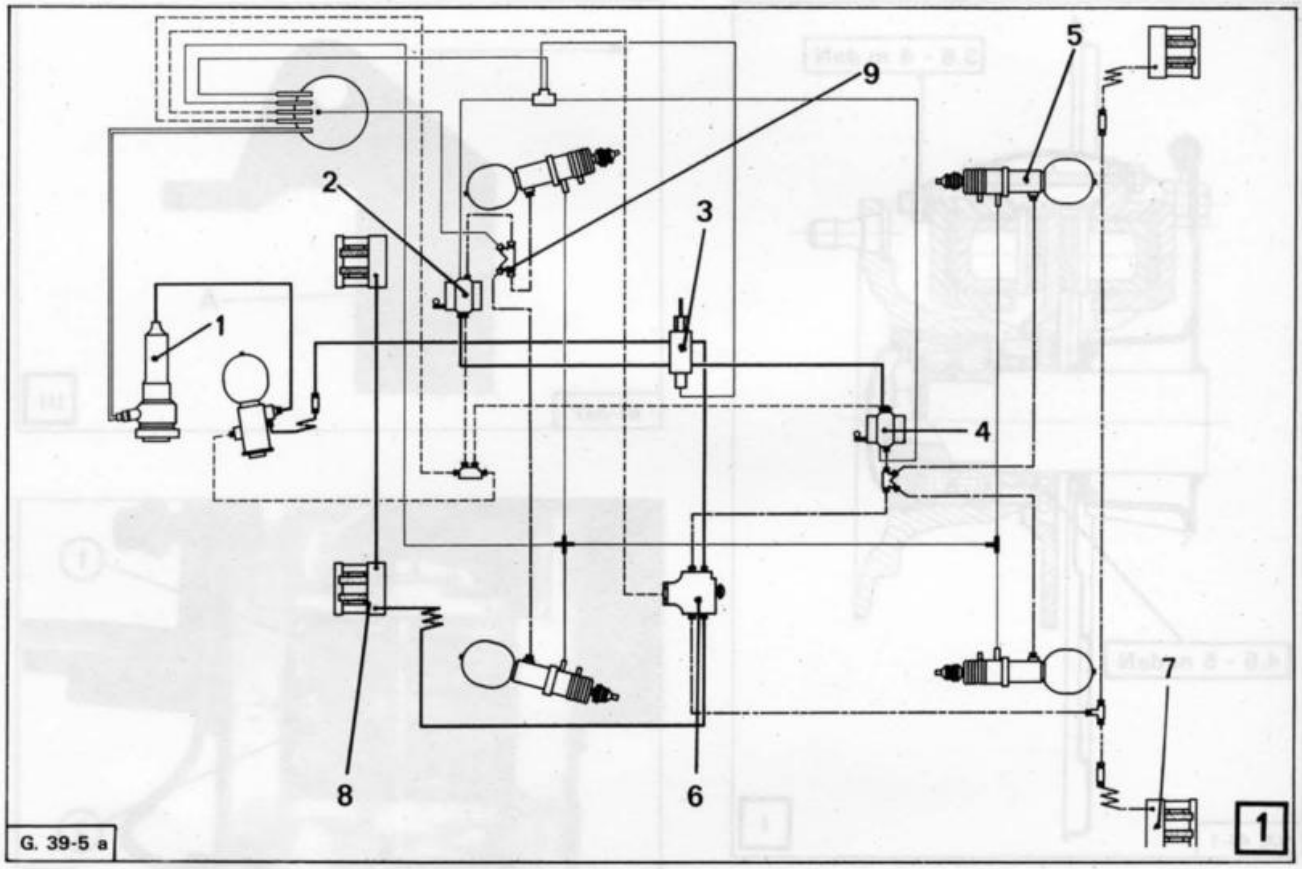
SUPPLY DIAGRAM OF HYDRAULIC SYSTEM
(with safety valve and bleed screw on front suspension system)

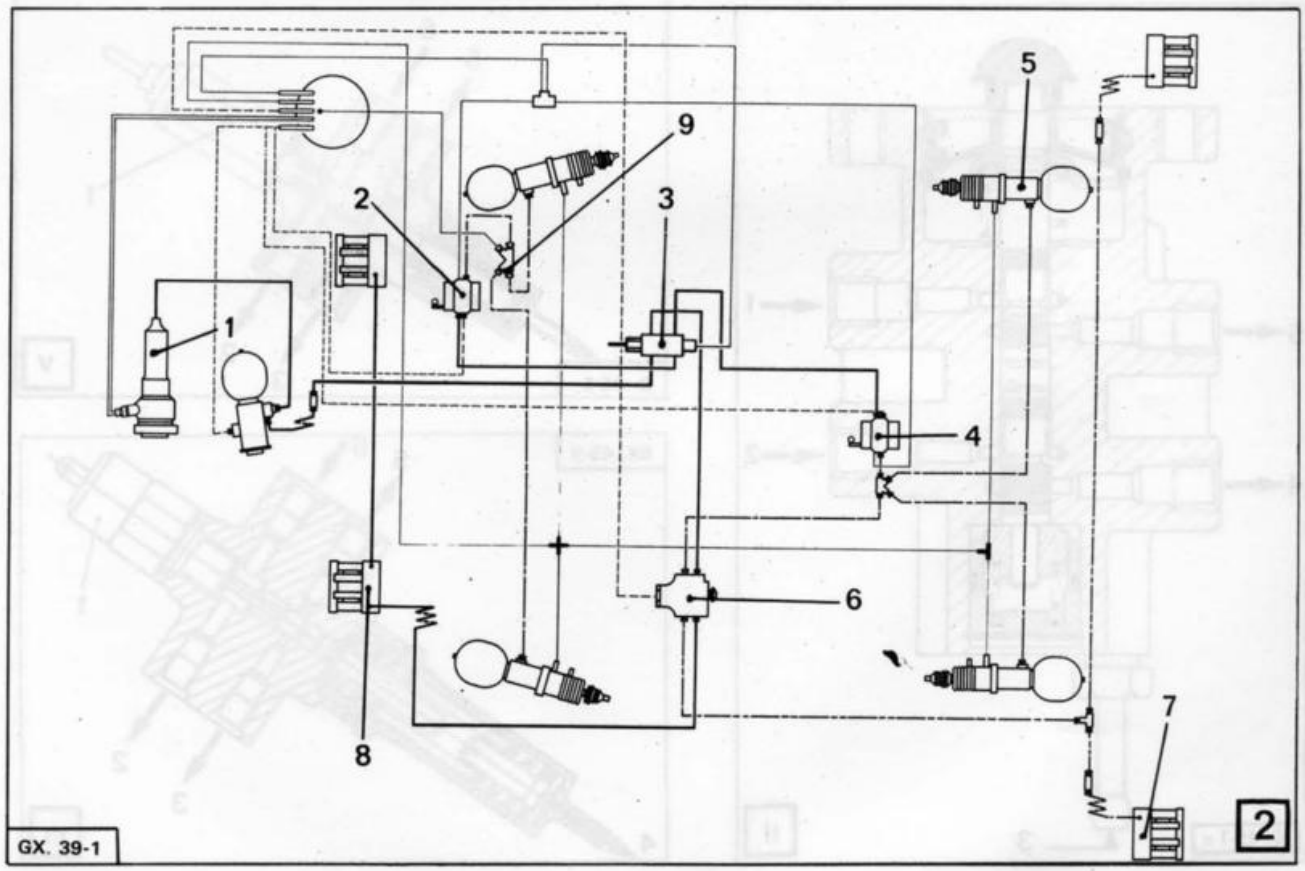
KEY

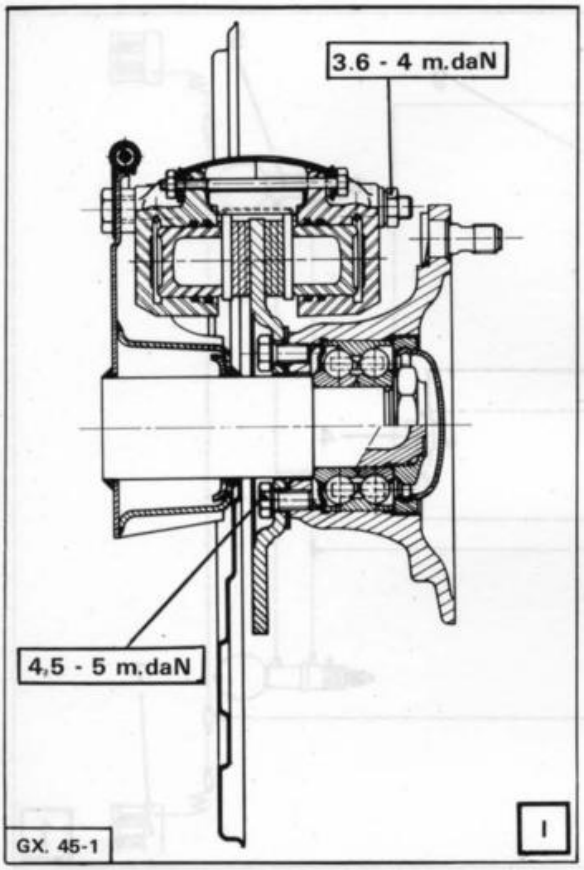
- ——— High pressure
- - —— - —— · —— - Suspension pressure
- -- —— -- —— - - Rear brake pressure
- — — — — — — — — Discharge
- ——— Overflow return

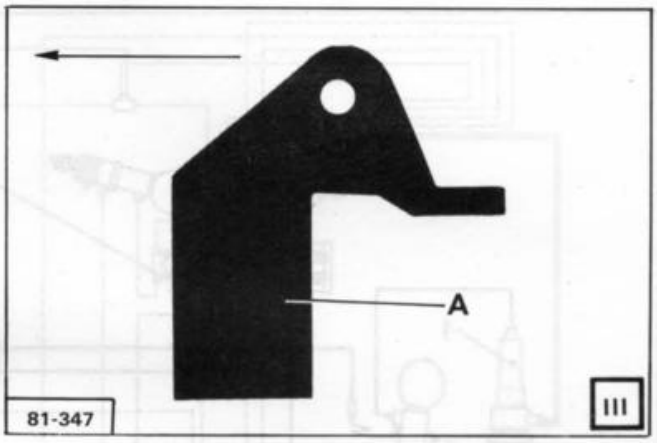
1. HP supply
2. Front suspension height corrector
3. Safety valve
4. Rear suspension height corrector
5. Rear suspension
6. Brake control valve
7. Rear brakes
8. Front brakes
9. Union with bleed screw

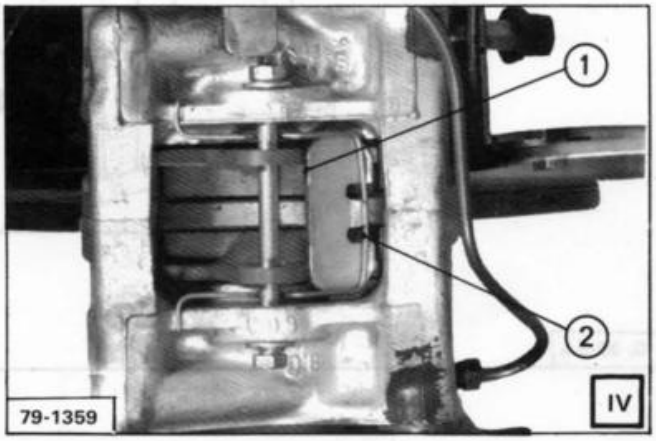
Fig. 1 *(——► 2/82)*
Fig. 2 *(2/82 ·——►)*

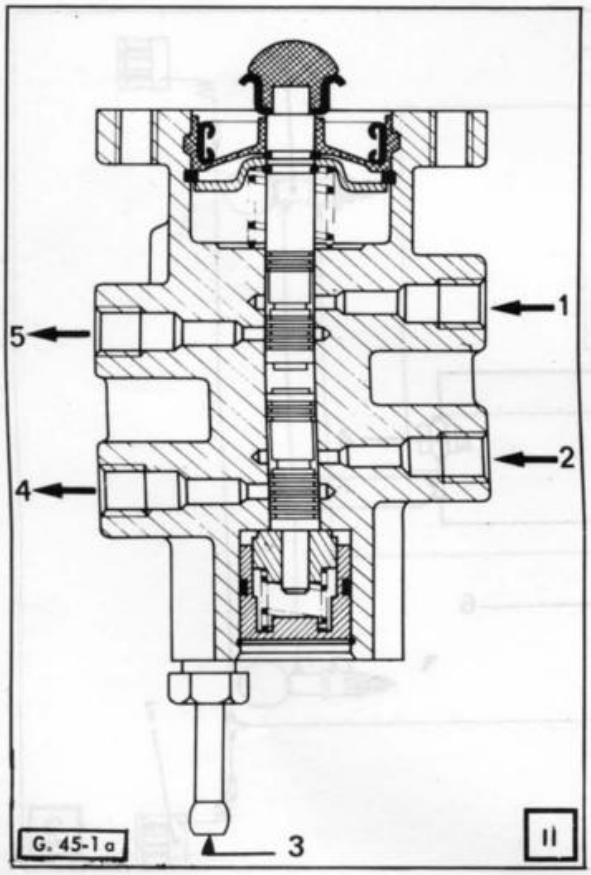


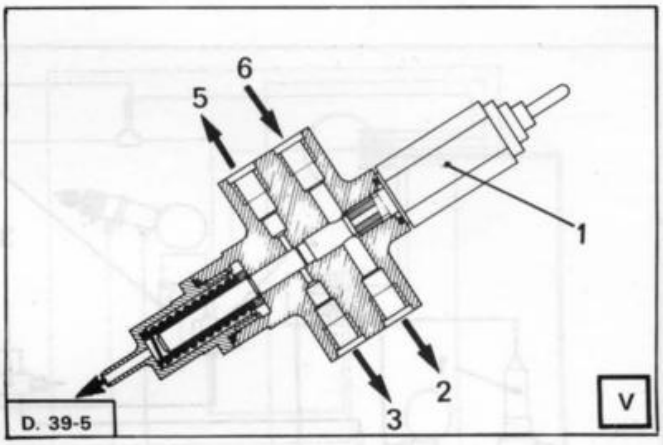


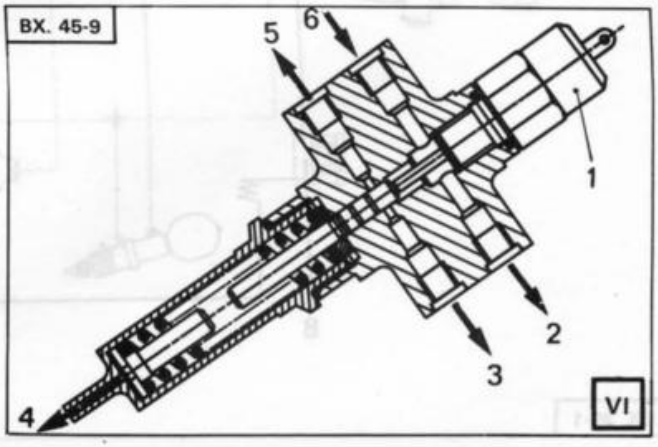












II. SPECIAL FEATURES

- Clearance between pedal and brake valve : ..... 0.1 to 0.5 mm
- Stoplamp switch : *Stoplamps should come on as soon as the pedal hits the brake valve.*

(7/81 ⟶) :
New brake valve with a smaller slide valve dia. : 7.5 mm instead of 8.5 mm.
The fitting of that new brake valve entails the use of pads with a new lining :
Reference : TEXTAR T 292, FERODO F 578.

Main braking system :	FRONT	REAR
- Disc diameter :	270 mm	178 mm
- Disc thickness :	9 mm	6 mm
- Min. thickness after wear :	7 mm	5 mm
- Max. disc run-out :	0.2 mm	0.2 mm
- Diameter of operating pistons :	45 mm	30 mm
- Area of one pad :	36.5 sq. cm	17.75 sq. cm
- Pad lining thickness :	12 mm	7.55 mm

Check of plane-parallel condition of discs : Measure at eight different points. Variation in readings must not exceed 0.02 mm.

(3/82 ⟶) R.P. No. 1941 :
An anti-rattle pad **A** has been added to the rear brakes. It is located between the piston and the brake pad, and should be fitted, **without fail**, in the appropriate direction (⟶ Front) **(Fig. III).** It is essential that the abutment of spring (2) against the brake pads be rearwards **(Fig. IV).**
The fitting of the anti-rattle pad results in the elimination of anti-rattle shim (1).

Handbrake :
- Pad lining thickness : ..... 3.65 mm
- Surface area of one pad : ..... 11 sq. cm
- *Pad adjustment :* At max. run-out point the pad and the disc should touch lightly.

BRAKE VALVE DIAGRAM - FIGURE II

KEY
1 - High pressure source
2 - Rear suspension
3 - Discharge and return
4 - Rear brakes
5 - Front brakes

SAFETY VALVE DIAGRAM

FIGURE V *(⟶ 4/83)*
FIGURE VI *(4/83 ⟶)*

KEY :
1 { Pressure switch *(⟶ 4/83)*
Malfunction detector *(4/83 ⟶)*
2 - Front brakes (brake valve)
3 - Rear suspension (corrector)
4 - Overflow return
5 - Front suspension (corrector)
6 - High pressure

Figure I :
Front brake unit, fitted on all models up to July 1980

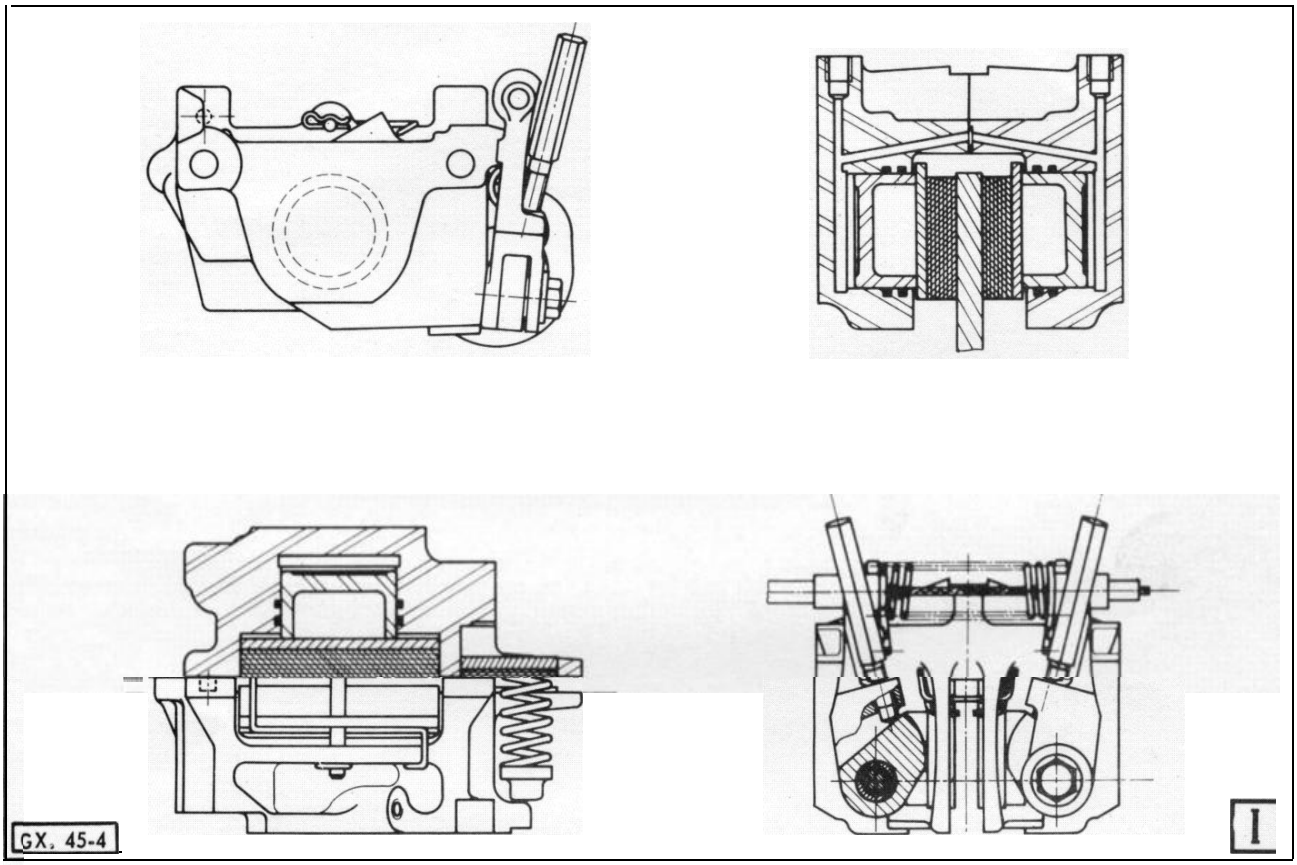
Figure II :

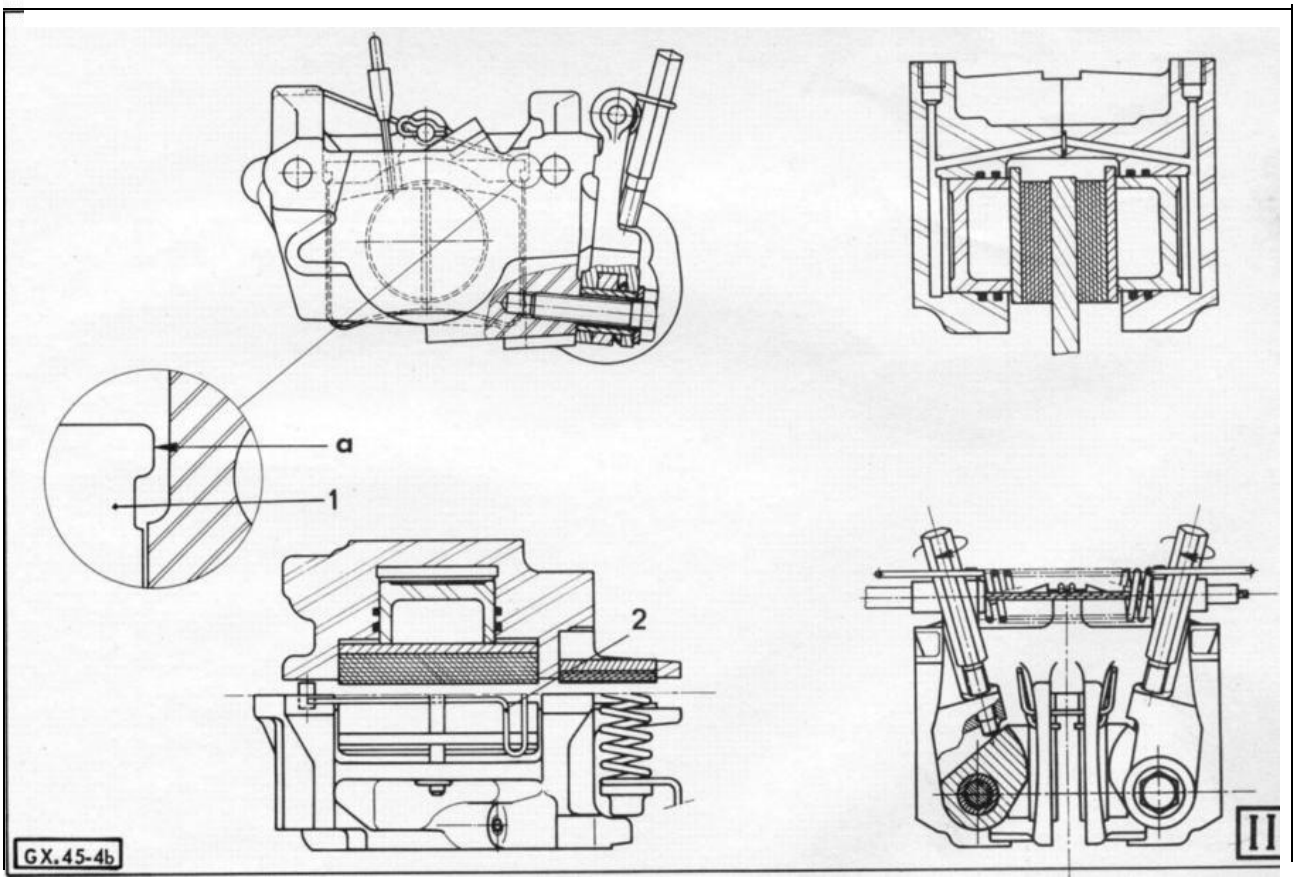
Front brake unit, fitted on all models since July 1980.

These brake units have a new shape allowing the new brake pads (1) and their new thrust springs (2) to be mounted. These new pads have « heels » at (a) that will keep them from falling when they are being replaced.

III. TIGHTENING TORQUES (m.daN)

Front brake unit attachment screws :	**6**
Brake valve attachment screws :	**1.7 to 1.8**
Pedal unit attachment screws :	**1.85**
Handbrake cable lock-nut :	**1.5**





I. BLEEDING THE FRONT BRAKES

NOTE : This operation must be carried out *at nil pressure* so as to avoid emulsification of the fluid, and consequent possible formation of air pockets in the circuit.

1. Depressurize the circuit :

a) With the engine stopped, undo the pressure regulator relief screw.

b) Connect right brake unit bleed screw (1) to the reservoir, using a length of transparent tube.

c) *Hold the brake pedal down,* and undo the bleeder screw.

2. **Bleed the brakes :**

a) Start the engine.

b) Undo the pressure regulator relief screw. and allow the fluid to flow until no air bubbles are observed. At this moment do up bleed screw (1).

c) Release the brake pedal. and disconnect the bleed tube.

II. BLEEDING THE REAR BRAKES

The rear brakes must be bled under pressure.

- Jack up the rear of the vehicle, with the wheels hanging free.
- Remove the wheel;.

Connect a length of transparent bleed tube to each bleed screw, with the free ends of the tubes placed in a clear recipient.

Start the engine.

Using a jack, raise one of the rear suspension arms (*the rear corrector is then in the « inlet » position).*

- Press the brake pedal.

Partially undo the bleed screw, and allow the fluid to flow until no more bubbles are observed

Do up the bleed screw.

- Replace the wheels.
- Lower the vehicle to the ground.

III. ADJUSTMENT OF BRAKE PEDAL CLEARANCE

1. Adjust pedal clearance :

Bend the metal at « a », to obtain clearance **J** between pedal and regulator:

J = 0.1 to 0.5 mm

IV. ADJUSTMENT OF STOP LIGHT CONTACTOR

1. Check brake pedal clearance adjustment (see preceding paragraph).

2. Adjust stoplamp switch (2) :

The stop lights should come on as soon as the pedal comes into contact with the brake valve.

Bend stoplamp switch support bracket to achieve this condition.

V. TESTING AND ADJUSTMENT OF THE HAND-BRAKE

1. Raise and chock the front of the vehicle.

Release the handbrake control fully.

Remove the spare wheel.

2. Adjust the cams :

Check that levers (7) are in contact with the brake unit. if necessary undoing handbrake cable adjustment lock-*nut (3)* and nut (4).

Turn adjustment screw (5), so as to obtain a setting at the limit of brushing contact.

Carry out this adjustment at the point of maximum run-out on the disc.

(Turn by rotating the corresponding wheel).

3. Adjust the handbrake control cables :

On each brake unit.

Check that sleeve end fitting (6), and the sleeve are in place.

Advance cable adjustment nut (4) until it is in contact with lever (7) (pull on the cable to facilitate this operation).

Check that the free lengths of the threaded end fittings are identical on each side (to within 5 mm).

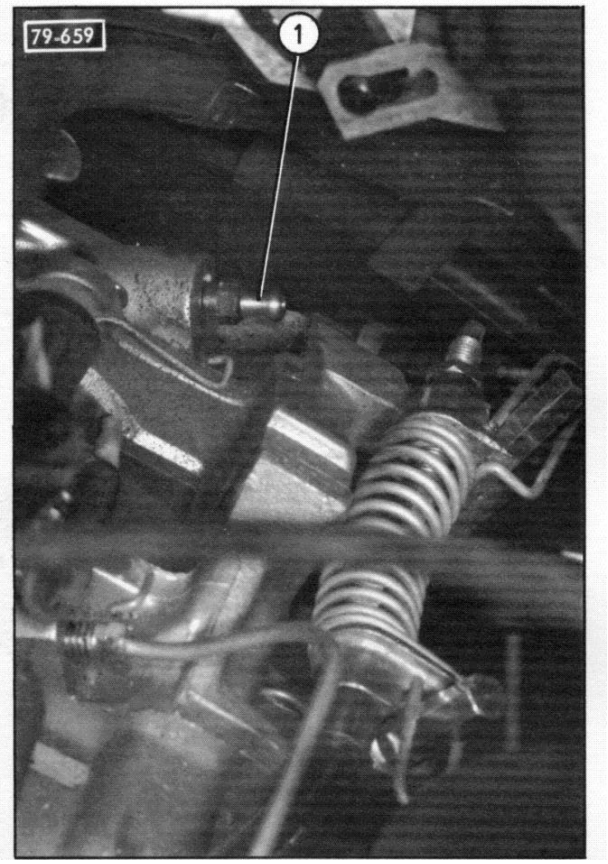
Tighten lock-nuts (3) to 1.5 m.daN

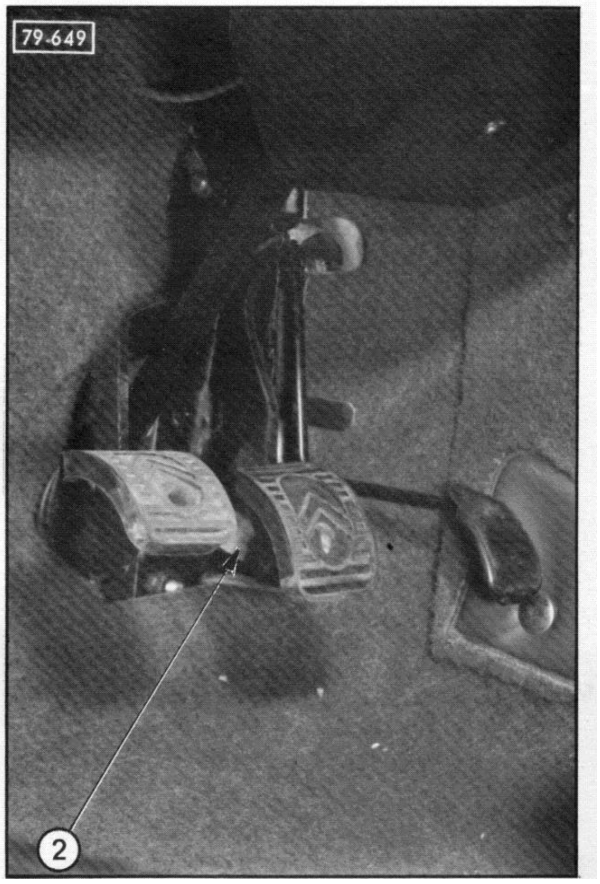
4. Test the handbrake :

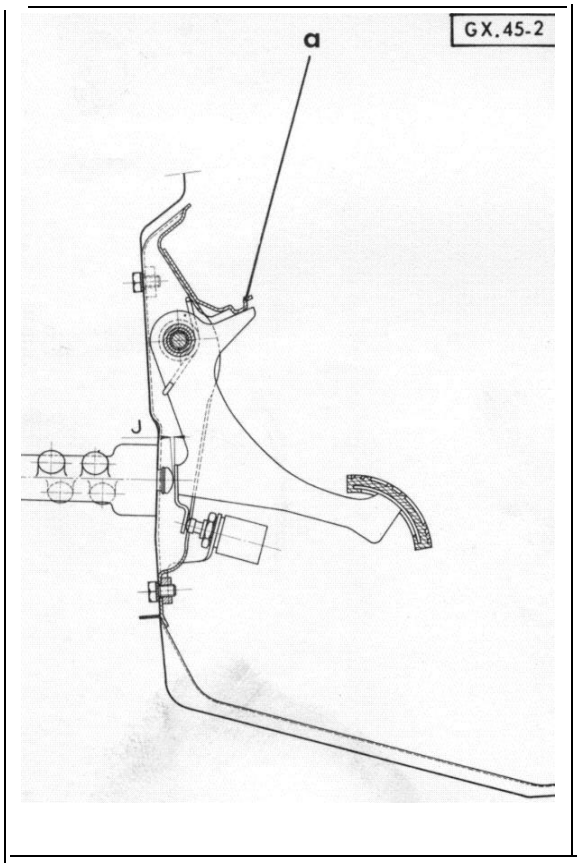
Operate the handbrake control a number of times. checking that the setting does not vary. and that the locking system functions correctly.

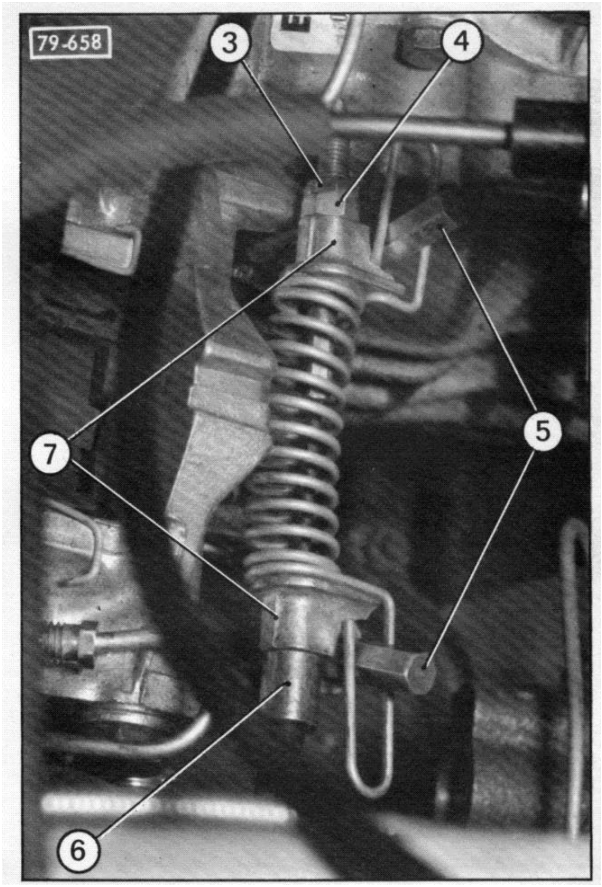
Replace the spare wheel.

Lower the vehicle to the ground.









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