AFTER-SALE
TECHNICAL DEPARTMENT

REPAIR MANUAL N° 810

VOLUME I

APRIL 1974

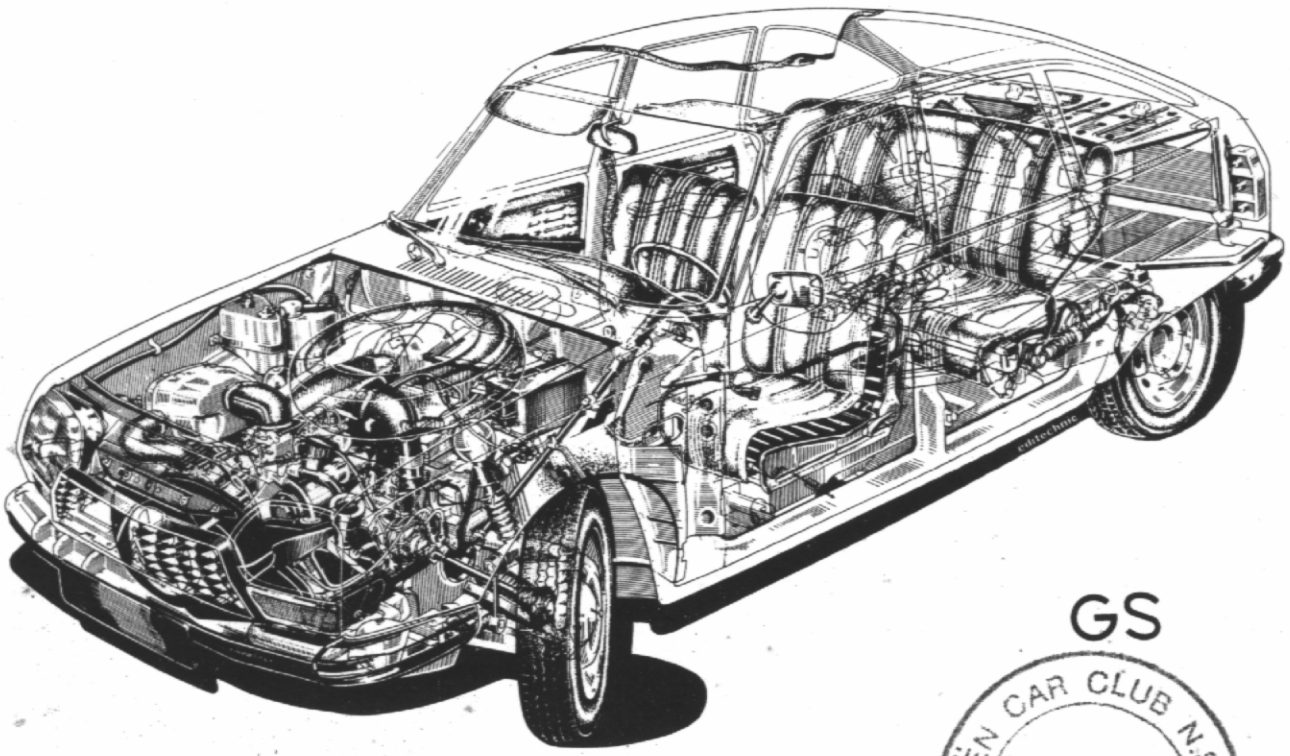
GS VEHICLES

CHARACTERISTICS

ADJUSTMENTS

CHECKS

Manual 810-1



GS

Printed in France

SOCIETE ANONYME AUTOMOBILES CITROEN
CAPITAL 600.000.000 F - SIEGE SOCIAL 117 à 167, QUAI ANDRE CITROEN - 75747 PARIS CEDEX 15 - R.C. SEINE 64 B 5019
DTAV (ASSISTANCE TECHNIQUE) - 163, Avenue Georges Clémenceau - 92 000 NANTERRE - Tél. 204-40-00 - Postes 577 et 578

HOW TO USE THE MANUAL

PRESENTATION

To facilitate the use of the manual, operations have been grouped in two volumes :

- Volume I contains :
  - the CHARACTERISTICS - ADJUSTMENTS - CHECKS

  This volume is required by all workshops for repairs or overhauls.

- Volume II contains the operations usually carried out and concerning :
  - REMOVAL and FITTING
  - RECONDITIONING
  - ELECTRICAL, HEATING and AIR-CONDITIONING SYSTEMS
  - BODYWORK

The above volumes are sold separately. They are presented bound in blue Fibrex with a «MULTO» type mechanism to facilitate the insertion of amendments or the extraction of a particular operation required by the workshop.

COMPOSITION

Every volume comprises :

- the list of operations contained in the volume
- these operations filed in numerical sequence
- the list of all the tools mentioned in the operations and the manufacturing drawings for special tools which are not sold but are intended to be manufactured by the repair department itself.

OPERATIONS

The sequence of operations has been devised in order to obtain the best quality of work in the shortest possible time.

The numbering of the operations is made up as follows :

a) The code letter for the car : « G »

b) A number made up of three figures denoting the unit or its element

c) A figure code designating the type of repair :
- the figures 0 0 0 indicate the characteristics of the car
- the figures 0 0 indicate the characteristics of the unit
- the figure 0 indicates checks and adjustments
- the figures 1, 4, 7 indicate removal or fitting
- the figures 2, 5, 8 indicate dismantling or reassembly and
- the figures 3, 6, 9 indicate reconditioning.

The thumb-indexing which corresponds to the list of operations enables the particular operation to be found without difficulty.

TOOLING

Special tooling is denoted in the text by a number followed by the letter T.

These tools are sold by :
- Etablissements FENWICK, Department AMA, 24 Bd Biron - 93404 St-Ouen - FRANCE.

Additional tools of local manufacture are indicated in the text by a number preceded by the index MR : drawings for these tools appear at the end of the particular volume filed in numerical order.

TIGHTENING TORQUES

Torques are expressed in the following units :
- in metres Newton (mΛN) : the legal unit for measuring torque
- metre-kilogrammes (mkg), since torque wrenches at present in use are sometimes graduated in mkg :
  - 1 mkg = 9.81 mΛN (which may also be written mΛN or m.N.)
- in foot-pounds. (ft. lbs) converted at 7.22 ft. lbs = 1 m.kg.

The numbers corresponding to the torques are « rounded-off »
Examples : 2 mΛN = 0.2 m.kg = 1.4 ft. lbs
60 mΛN = 6 m.kg = 43 ft. lbs.

IMPORTANT : When a tightening torque figure is followed by the words « torsion spanner », the operation must OF NECESSITY be carried out with a torsion spanner.

ADVISORY SERVICE

For all technical information concerning these vehicles, please contact :

The Service Department,
Citroen Cars Limited,
Slough, Bucks, GB.

or : DEPARTEMENT TECHNIQUE APRES-VENTE,
ASSISTANCE TECHNIQUE
163 Avenue G. Clémenceau,
92000 NANTERRE - FRANCE

LIST OF OPERATIONS IN VOLUME 1 OF MANUAL 810

« GS » Vehicles

GENERAL

Operations where the number is preceded by the letter « G » are common to all types of vehicles of the « GS » family.

Operations where the number is preceded by the letters « GE » or « GF » are specific to the five - or three - door versions of the « GS » Estate respectively.

Operations where the number is preceded by the letters « Gea » are specific to the vehicles fitted with a Torque Converter.

Operation number	DESCRIPTION
	CHARACTERISTICS ➧ 1
G. 000	General characteristics of the « 1015 Saloon »
G. 000 a	General characteristics of the « 1220 Saloon »
GE. 000	General characteristics of the « 1015 Estate »
GE. 000 a	General characteristics of the « 1220 Estate »
G. 00 661	Fitting a roof rack
G. 00-800	External and internal dimensions (Saloon)
GE. 00 800	External and internal dimensions (Estate)
Gft. 00 800	External and internal dimensions (Service Van, Metal Sided)
Gfv. 00-800	External and internal dimensions (Service Van, Glass Sided)
G. 00-854	Fitting the monograms
G. 01	Protection of the electrical units
G. 02	Precautions during the fitting of hydraulic components
G. 03	Recommended materials
	ENGINE - CARBURATION - IGNITION ➧ 2
G. 100-00	Technical data and special features of the engine
G. 112-0	Checking and setting the rockers
G. 120-0	Checking and adjusting the valve timing
G. 142-00	Characteristics and special features of the carburettors (G. 10 engine - 1015 cc)
G. 142-00 a	Characteristics and special features of the carburettor (G. 103 engine - 1220 cc)
G. 142-0	Checking and setting the carburettor (G. 10 engine - 1015 cc)
G. 142 0 a	Checking and setting the carburettor (G. 10 engine - 1220 cc)
G. 172 0	Checking of the preheating of the air intake Checking of the thermostatic sensor
G. 173 0	Characteristics and checks of the fuel system (fuel pump and filter)
G. 210 00	Characteristics and special features of the ignition system (G. 10 engine 1015 cc) (Distributor, coil, sparking plugs, wiring)
G. 210-00 a	Characteristics and special features of the ignition system (G. 103 engine 1220 cc)
G. 210-0	Checking and adjusting the ignition
G. 220-0	Checking and adjusting the oil pressure
	CLUTCH ➧ 3
G. 312 00	Characteristics and special features of the clutch
G. 314 0	Checking and adjusting the clutch control
Gea. 320 00	Characteristics and special features of the torque converter
Gea. 320 0	Checking and adjusting the torque converter and its controls - Checking and adjusting the control contacts of the declutching system - Checking the pressure of the fluid circuit of the torque converter
	GEARBOX ➧ 4
G. 330 0	Characteristics and special features of the 4 speed gearbox *(mechanical clutch)* Characteristics and special features of the 3 speed gearbox *(torque converter)* - Oil draining and filling of the gearbox and converter
	DRIVE SHAFTS ➧ 5
G. 372-00	Characteristics and special features of the drive shafts
	HYDRAULIC SOURCE AND RESERVE OF PRESSURE ➧ 6
G. 390-00	Characteristics and special features of the source of pressure - General hydraulic circuit
G. 390 0	Checking the hydraulic units on the car

LIST OF OPERATIONS IN VOLUME 1 OF MANUAL 810

« GS » Vehicles

«GS» SALOON
Vehicles fitted with G. 10 - 1015 cc type engine

I - GENERAL CHARACTERISTICS

- Official symbol		GX Series GA
- Commercial description		GS
- Date first introduced		September 1970
- Number of seats		5
- Tyres : Type		145 × 15.ZX
pressure - front	1.8 bar	(26 psi)
pressure - rear	1.9 bar	(28 psi)
- Wheels		4 ½ - J 15

II - MISCELLANEOUS DIMENSIONS

- Wheelbase	2.550 m	8 ft. 4 ⅜ in.
- Front track	1.378 m	4 ft. 6 ⅜ in.
- Rear track	1.328 m	4 ft. 4 ⅜ in.
- Overall length	4.120 m	13 ft. 6 ¼ in.
- Overall width	1.608 m	5 ft. 3 ⅜ in.
- Overall height, normal suspension setting	1.349 m	4 ft. 5 ⅛ in.
- Ground clearance, low position suspension setting	0.070 m	2 ¾ in.
- Ground clearance, normal suspension setting	0.154 m	6 in.
- Ground clearance, high suspension setting	0.240 m	9 ½ in.
- Turning circle between walls (approx.)	10.20 m	33 ft. 6 in.
between kerbs (approx.)	9.40 m	30 ft. 1 ½ in.
- Weight empty without special equipment :		
- with mechanical clutch	880 kg	1.940 lb.
- with torque converter *(until 29.8.72)*	892 kg	1.964 lb.
- Max. permissible laden weight	1.295 kg	2.854 lb.

III - VARIOUS CAPACITIES

- Fuel tank	43 litres	9 ¾ gal.
- Hydraulic circuit (including reservoir)	3.5 litres	6.25 pints Imp.
- Engine (oil change) approx.	3.5 litres	6.25 pints Imp.
- Gearbox with or without torque converter (oil change) approx.	1.4 litres	2.5 pints Imp.
- Trailer :		
- Max. weight on towing ball	30 kg	66 lb.
- Max. permissible weight without braking device (in France)	440 kg	970 lb.
- Max. total permissible weight with braking device	800 kg	1.763 lb.
- Max. permissible gradient with 1.763 lb. (800 kg) trailer	11 %	1 in 9

«GS» SALOON

Vehicles fitted with G. 103-1220 cc type engine

I - GENERAL CHARACTERISTICS

- Official symbol	GX series GB	
- Commercial designation	GS 1220 or GS 1220 CLUB	
- Date first introduced	September 1972	
- Number of seats	5	
- Tyres : Type	145 × 15.ZX	
pressure - front	1.8 bar	(26 psi)
pressure - rear	1.9 bar	(28 psi)
- Wheels	4 $\frac{1}{2}$ - J 15	

II - MISCELLANEOUS DIMENSIONS

- Wheelbase	2.550 m	8 ft. 4 $\frac{3}{8}$ in.
- Front track	1.378 m	4 ft. 6 $\frac{3}{8}$ in.
- Rear track	1.328 m	4 ft. 4 $\frac{3}{8}$ in.
- Overall length	4.120 m	13 ft. 6 $\frac{1}{4}$ in.
- Overall width	1.608 m	5 ft. 3 $\frac{3}{8}$ in.
- Overall height, normal suspension setting	1.349 m	4 ft. 5 $\frac{1}{8}$ in.
- Ground clearance, low position suspension setting	0.070 m	2 $\frac{3}{4}$ in.
- Ground clearance, normal suspension setting	0.154 m	6 in.
- Ground clearance, high suspension setting	0.240 m	9 $\frac{1}{2}$ in.
- Turning circle between walls (approx.)	10.20 m	33 ft. 6 in.
between kerbs (approx.)	9.40 m	30 ft. 1 $\frac{1}{2}$ in.
- Weight empty (without special equipment) :		
- with mechanical clutch	900 kg	1.984 lb.
- with torque converter	912 kg	2.010 lb.
- Max. permissible laden weight	1.315 kg	2.899 lb

III - VARIOUS CAPACITIES

- Fuel tank	43 litres	9 $\frac{3}{4}$ gal.
- Hydraulic circuit (including reservoir)	3.5 litres	6.25 pints Imp.
- Engine (oil change) (approx.)	3.5 litres	6.25 pints Imp.
- Gearbox with or without torque converter (oil change) (approx.)	1.4 litres	2.5 pints Imp.
- Trailer :		
- Max. weight on towing ball	30 kg	
- Max. permissible weight without braking device (in France)	440 kg	970 lb.
- Max. total permissible weight with braking device	800 kg	1.763 lb.
- Max. permissible gradient with 1.763 lb. (800 kg) trailer	14	1 in 7

«GS» ESTATE
Vehicles fitted with G. 10-1015 cc type engines

I - GENERAL CHARACTERISTICS

	GX series GE GS Estate five-door «Club» or «Confort» until 29.8.72 GS «Estate» from 30.8.72	GX series GF Estate «Service» three-door «Club» glass-sided until 29.8.72 «Confort» metal-sided until 29.8.72 metal-sided from 30.8.72
- Official symbol		
- Commercial description		
- Date first introduced	December 71	December 71
- Number of seats	5	2
- Tyres : type	145 × 15.ZX	145 × 15.ZX
pressure front : 1.8 bar	26 psi	26 psi
pressure rear : 1.9 bar	28 psi	30 psi
- Wheels	4 ½ - J 15	4 ½ - J 15

II - MISCELLANEOUS DIMENSIONS

- Wheelbase	2.550 m 8 ft. 4 3/8 in.	2.550 m 8 ft. 4 3/8 in.
- Front track	1.378 m 4 ft. 6 3/8 in.	1.378 m 4 ft. 6 3/8 in.
- Rear track	1.328 m 4 ft. 4 3/8 in.	1.328 m 4 ft. 4 3/8 in.
- Overall length	4.120 m 13 ft. 6 1/4 in.	4.120 m 13 ft. 6 1/4 in.
- Overall width	1.608 m 5 ft. 3 3/8 in.	1.608 m 5 ft. 3 3/8 in.
- Overall height, normal suspension setting	1.349 m 4 ft. 5 1/8 in.	1.349 m 4 ft. 5 1/8 in.
- Ground clearance, low position suspension setting	0.070 m 2 3/4 in.	0.070 m 2 3/4 in.
- Ground clearance, normal suspension setting	0.154 m 6 in.	0.154 m 6 in.
- Ground clearance, high suspension setting	0.240 m 9 ½ in.	0.240 m 9 ½ in.
- Turning circle between walls (approx.)	10.20 m 33 ft. 6 in.	10.20 m 33 ft. 6 in.
between kerbs (approx.)	9.40 m 30 ft. 1 ½ in.	9.40 m 30 ft. 1 ½ in.
- Weight empty (without special equipment) :		
- with mechanical clutch	900 kg 1.984 lb.	Vehicle «Metal-sided» 875 kg 1.928 lb. «Glass-sided» 895 kg 1.972 lb. until 29.8.72
- with torque converter	912 kg 2.010 lb.	«Metal-sided» 887 kg 1.954 lb. «Glass-sided» 907 kg 1.999 lb. until 29.8.72
- Max. permissible laden weight	1.320 kg 4.674 lb.	1.320 kg 4.674 lb.

III - VARIOUS CAPACITIES

- Fuel tank	43 litres 9 3/4 gal.	43 litres 9 3/4 gal.
- Hydraulic circuit (including reservoir)	3.5 litres 6.25 pints Imp.	3.5 litres 6.25 pints Imp.
- Engine (oil change) (approx.)	3.5 litres 6.25 pints Imp.	3.5 litres 6.25 pints Imp.
- Gearbox with or without converter (with converter until 29.8.72) oil change (approx.)	1.4 litres 2.5 pints Imp.	1.4 litres 2.5 pints Imp.
- Trailer : Max. weight on towing ball	30 kg 66 lb.	30 kg 66 lb.
Max. permissible weight without braking device (in France)	440 kg 970 lb.	440 kg 970 lb.
- Max. total permissible weight with braking device	800 kg 1.763 lb.	800 kg 1.763 lb.
- Max. permissible gradient with 1.763 lb. (800 kg) trailer	11 1 in 9	11 % 1 in 9

«GS» ESTATE
Vehicles fitted with G. 103 - 1220 cc type engine

I - CENERAL CHARACTERISTICS

	GX series GC Estate, five-door GS 1220 or GS 1220 «*Club*»	GX series GD Estate «Service» three-door GS 1220 «Metal-sided» GS 1220 «*Club*» «Glass-sided»
- Official symbol		
- Date first introduced	September 72	September 72
- Number of seats	5	2
- Tyres : Type :	145 × 15.ZX	145 × 15.ZX
pressure - front	1.8 bar 26 psi	1.8 bar 26 psi
pressure - rear	1.9 bar 28 psi	2.1 bar 30 psi
- Wheels	4 ½ J.15	4 ½ J.15

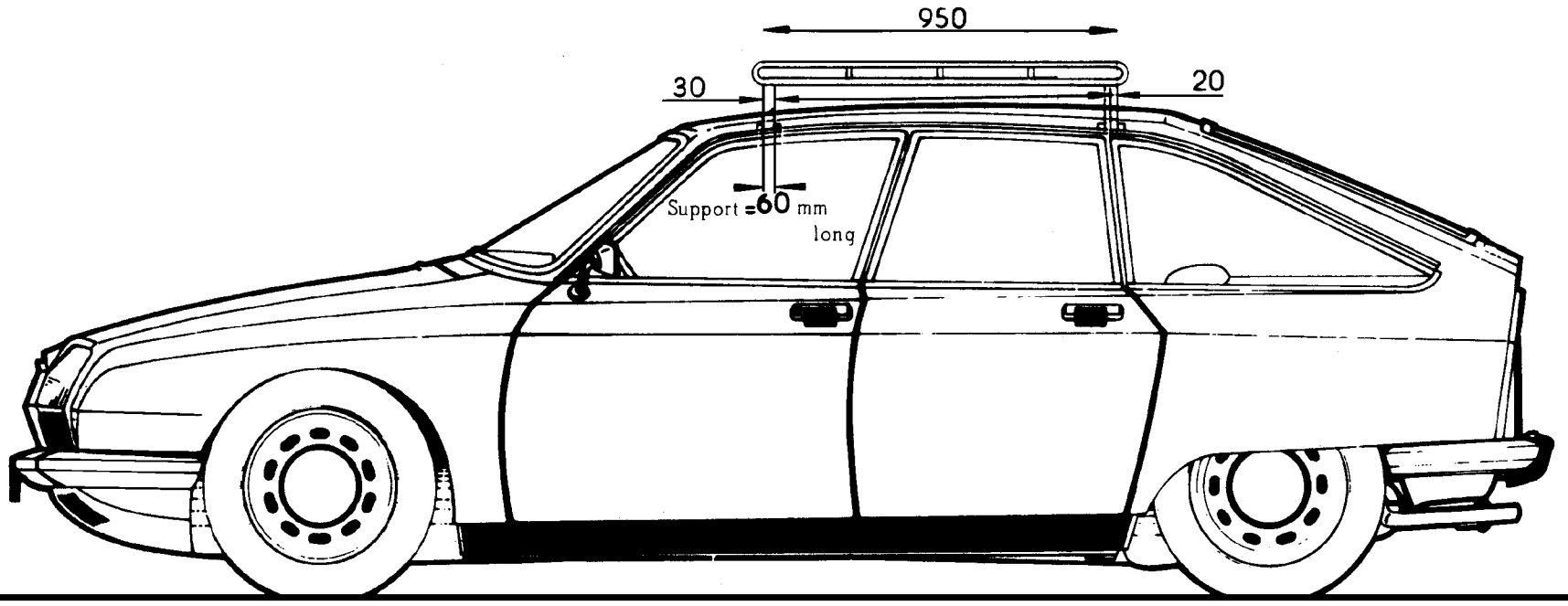
II - MISCELLANEOUS DIMENSIONS

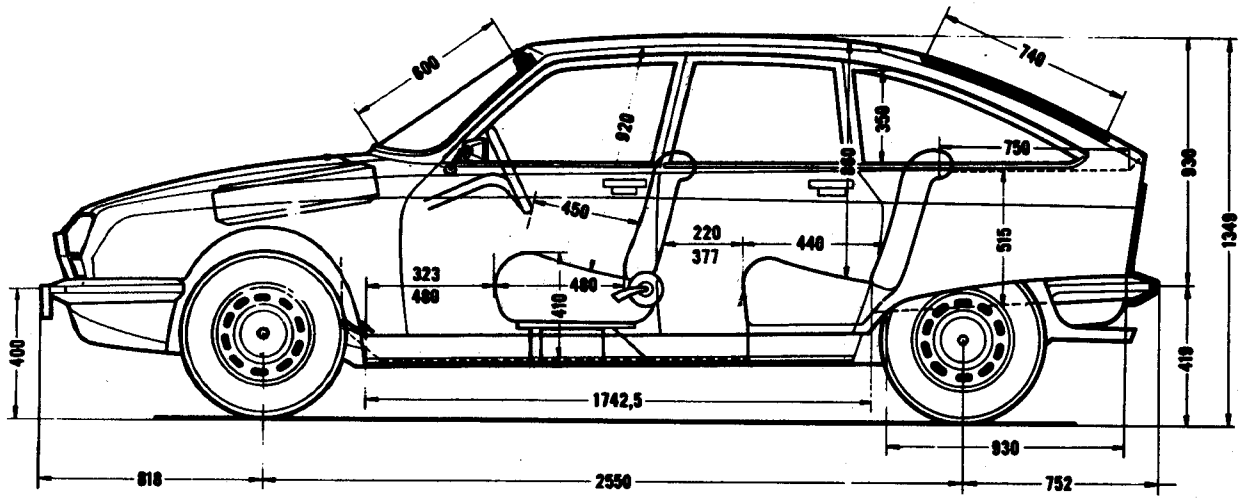
- Wheelbase	2.550 m 8 ft. 4 ⅜ in.	2.550 m 8 ft. 4 ⅜ in.
- Front track	1.378 m 4 ft. 6 ⅜ in.	1.378 m 4 ft. 6 ⅜ in.
- Rear track	1.328 m 4 ft. 4 ⅜ in.	1.328 m 4 ft. 4 ⅜ in.
- Overall length	4.120 m 13 ft. 6 ¼ in.	4.120 m 13 ft. 6 ¼ in.
- Overall width	1.608 m 5 ft. 3 ¾ in.	1.608 m 5 ft. 3 ¾ in.
- Overall height, normal suspension setting	1.349 m 4 ft. 5 ⅛ in.	1.349 m 4 ft. 5 ⅛ in.
- Ground clearance, low position suspension setting	0.070 m 2 ¾ in.	0.070 m 2 ¾ in.
- Ground clearance, normal suspension setting	0.154 m 6 in.	0.154 m 6 in.
- Ground clearance, high suspension setting	0.240 m 9 ½ in.	0.240 m 9 ½ in.
- Turning circle : between walls (approx.)	10.20 m 33 ft. 6 in.	10.20 m 33 ft. 6 in.
between kerbs (approx.)	9.40 m 30 ft. 1 ½ in.	9.40 m 30 ft. 1 ½ in.
- Weight empty		Vehicle :
- Without special equipment		«Metal-sided»
- With mechanical clutch	905 kg 1.995 lb.	880 kg 1.940 lb.
		«Glass-sided» 900 kg 1.984 lb.
- With torque converter	917 kg 2.019 lb.	«Metal-sided» 892 kg 1.964 lb.
		«Glass-sided» 912 kg 2.010 lb.
- Max. permissible laden weight	1.320 kg 2,910 lb	1.320 kg 2.910 lb.

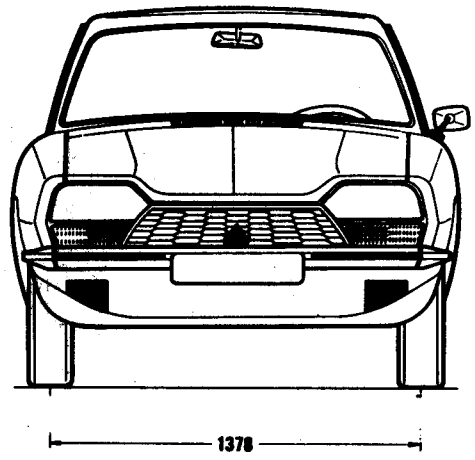
III - VARIOUS CAPACITIES

- Fuel tank	43 litres 9 ¾ gal.	43 litres 9 ¾ gal.
- Hydraulic circuit (including reservoir)	3.5 litres 6.25 pint Imp.	3.5 litres 6.25 pint Imp.
- Engine (oil change) (approx.)	3.5 litres 6.25 pint Imp.	3.5 litres 6.25 pint Imp.
- Gearbox, with or without converter (oil change) (approx.)	1.4 litres 2.5 pint Imp.	1.4 litres 2.5 pint Imp.
- Trailer :		
- Max. weight on towing ball	30 kg 66 lb.	30 kg 66 lb.
- Max. permissible weight without braking device (in France)	440 kg 970 lb.	440 kg 970 lb.
- Max. total permissible weight with braking device	800 kg 1.763 lb.	800 kg 1.763 lb.
- Max. permissible gradient with 1.763 lb (800 kg) trailer	14 % 1 in 7	14 % 1 in 7

Load evenly **distributed over roof rack** 60 kg (132 lb.)

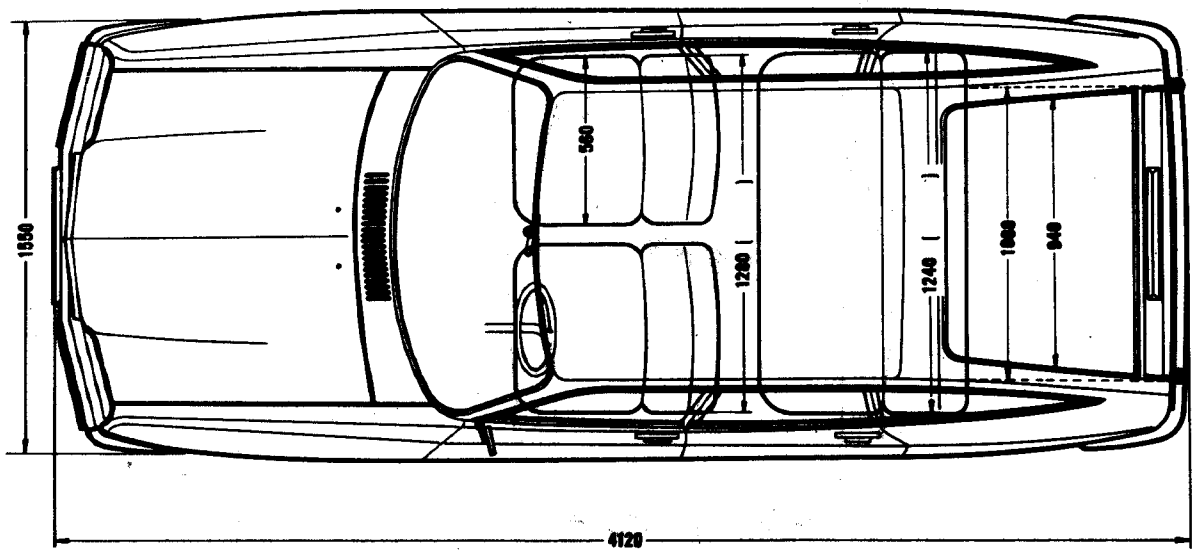


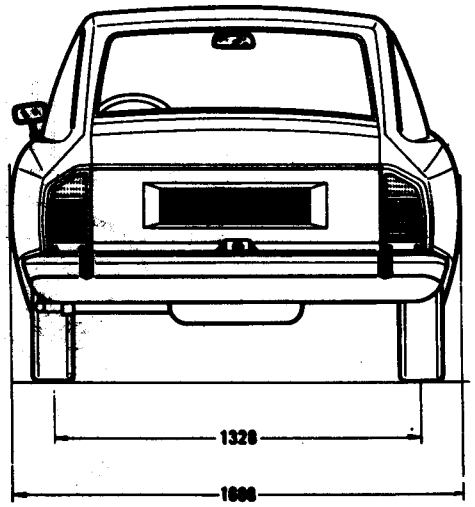




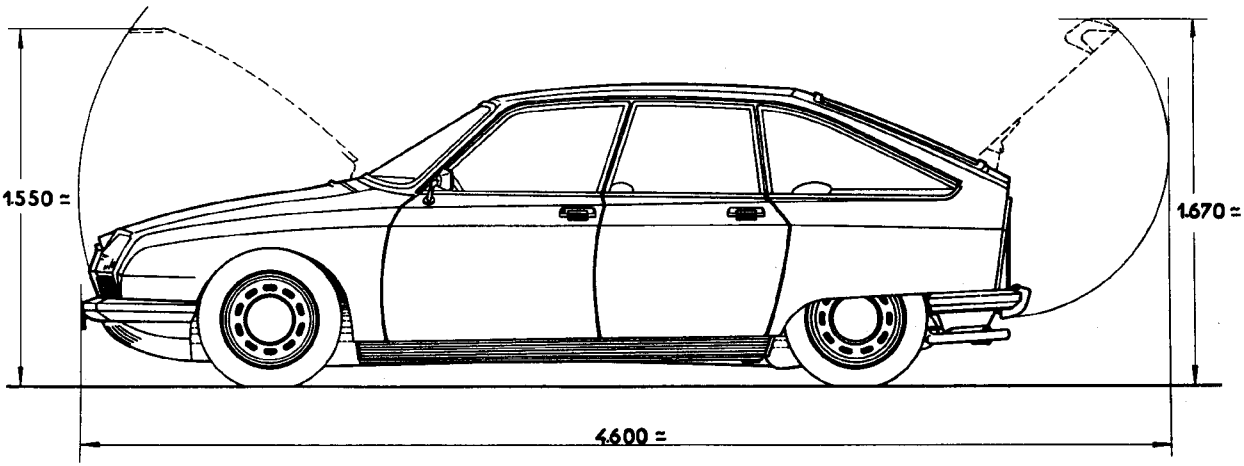
Total window area 2.79 m^2 (30 sq. ft.)

Total capacity of boot 465 dm^3 (16.4 cu. ft.)





G 80-15



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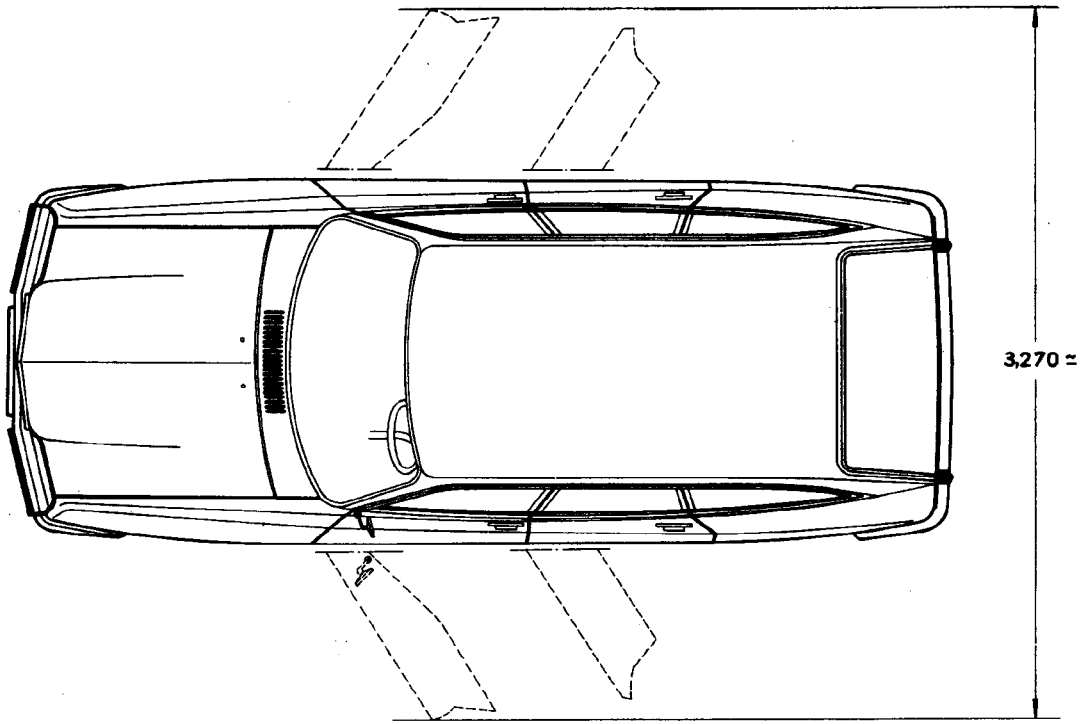
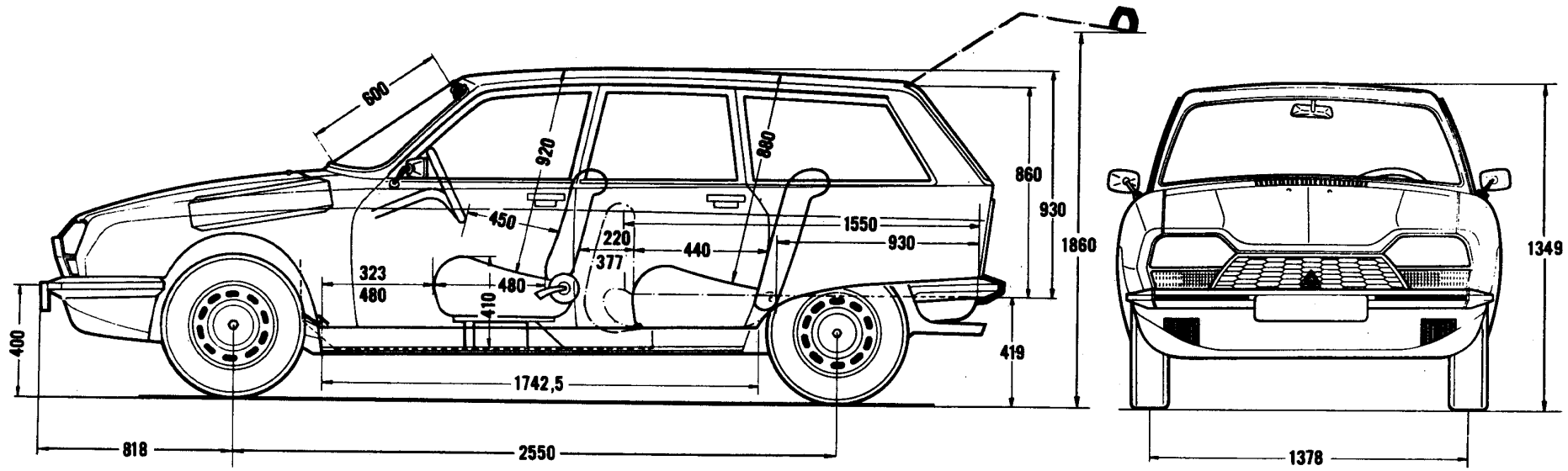
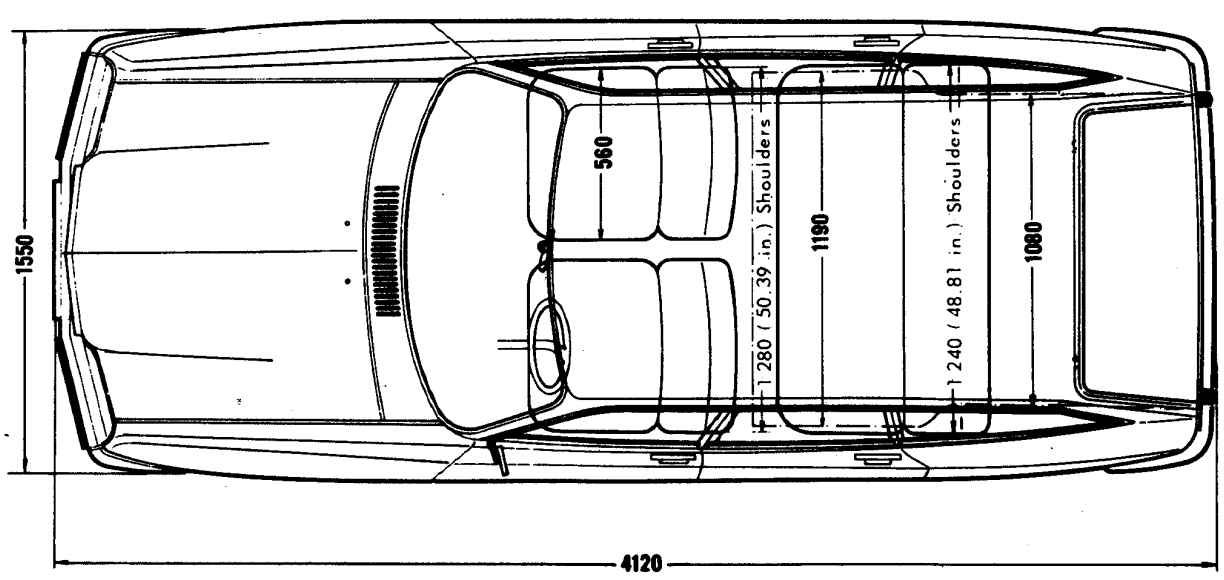
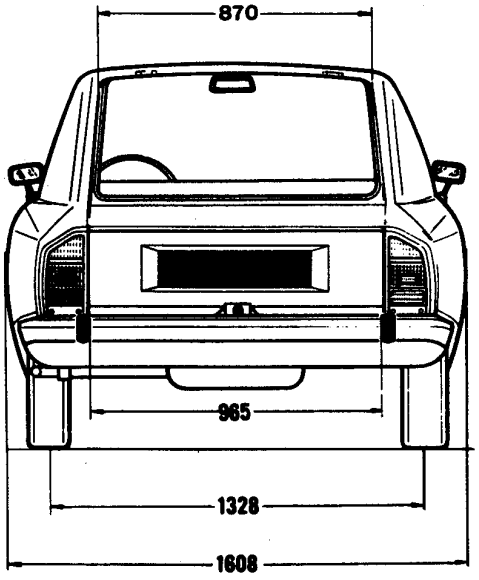




Total window area = 2.60 m^2 (27.98 sq. ft.)
Total capacity of boot = 710 dm^3 (25.06 cu. ft.)

Total volume of boot
Rear seat lowered
} 1.510 dm (53.30 cu. ft.)





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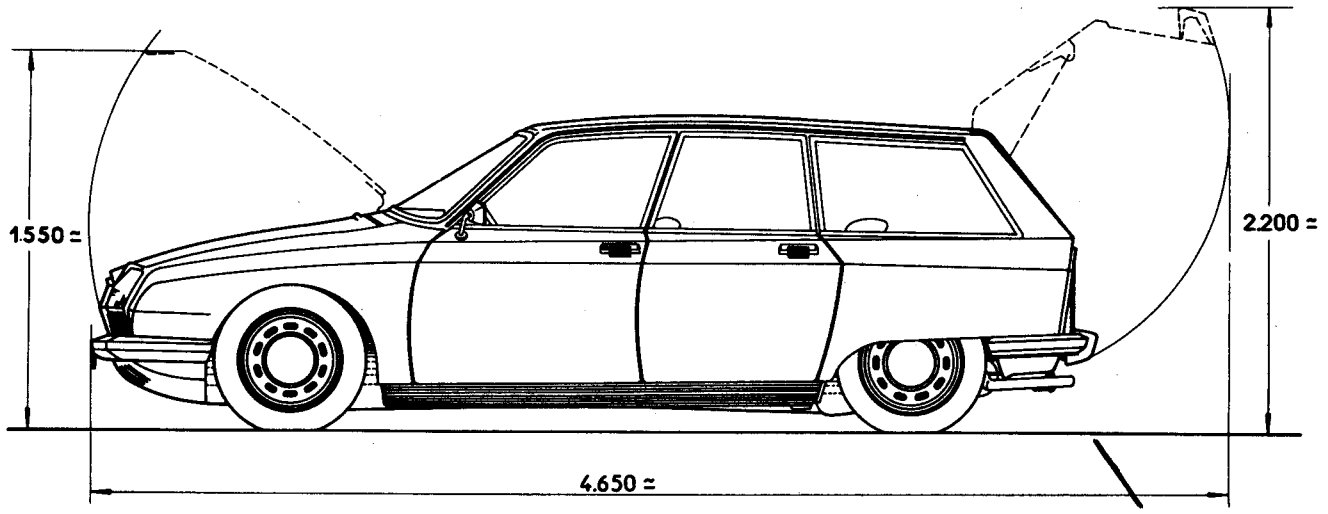
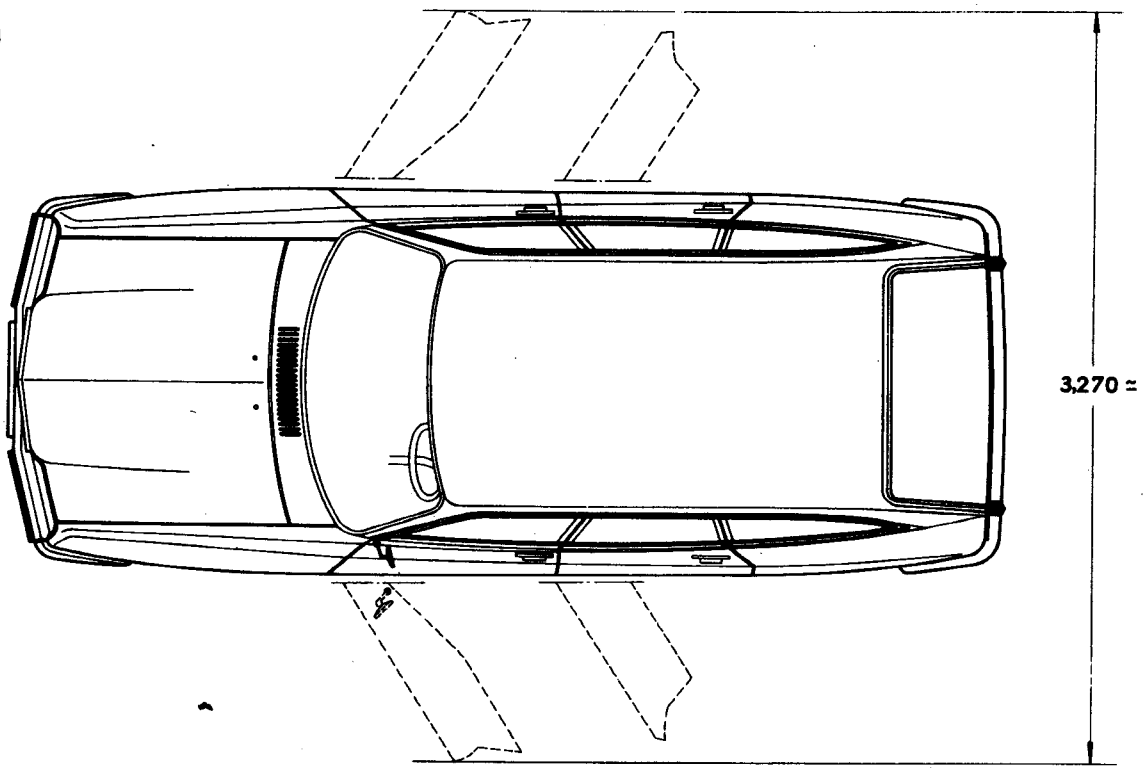
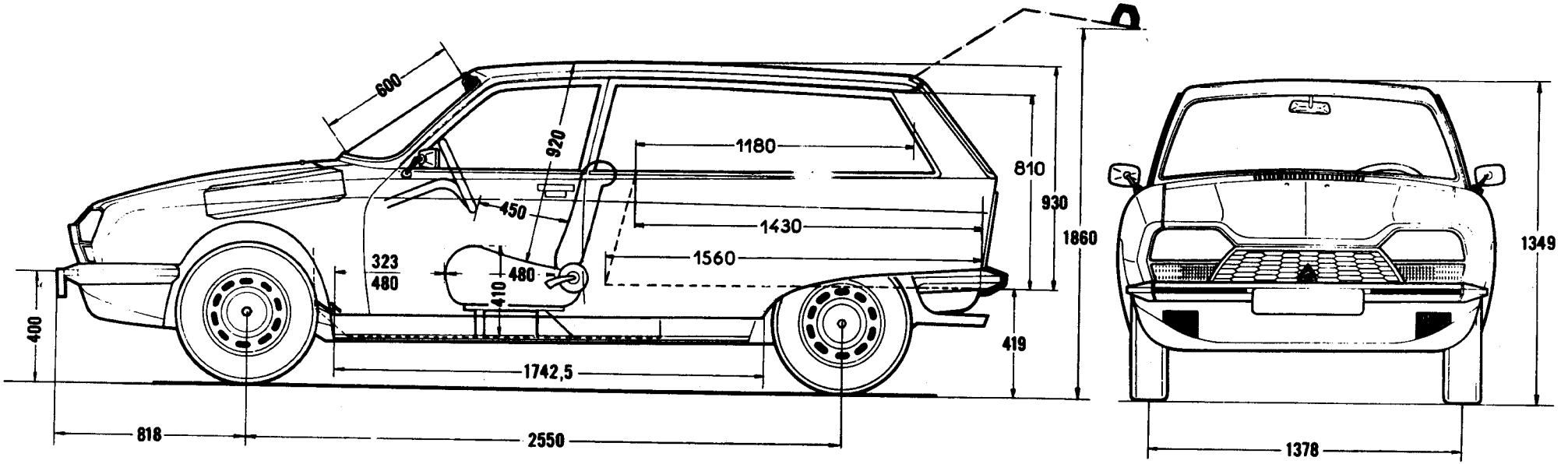
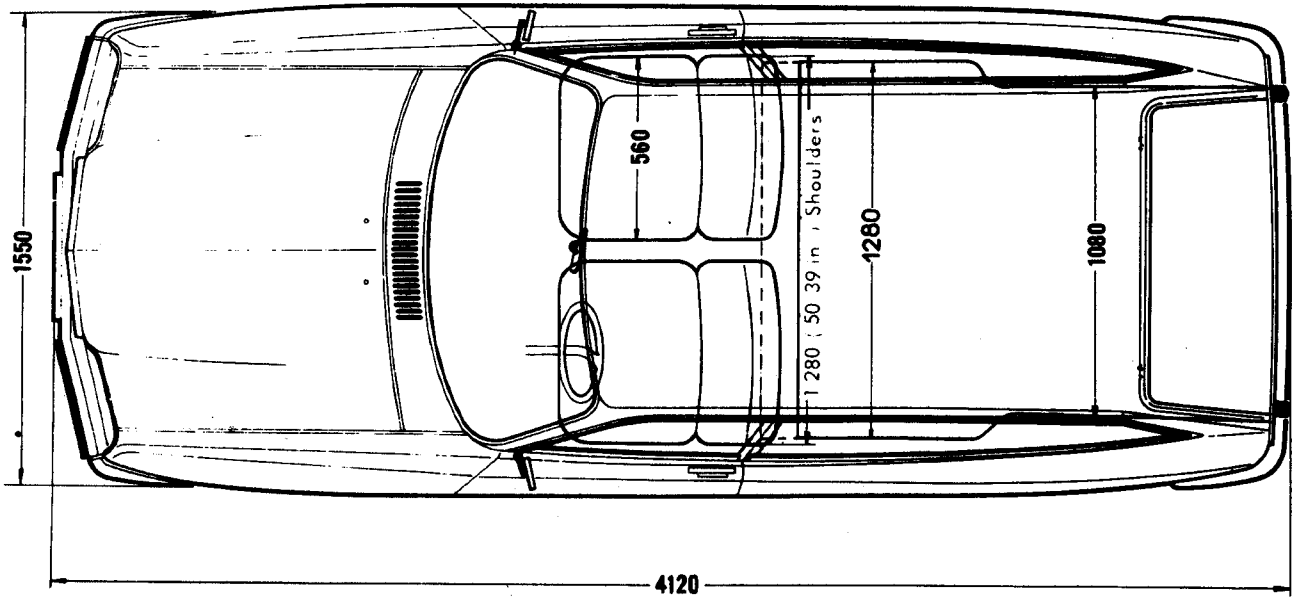


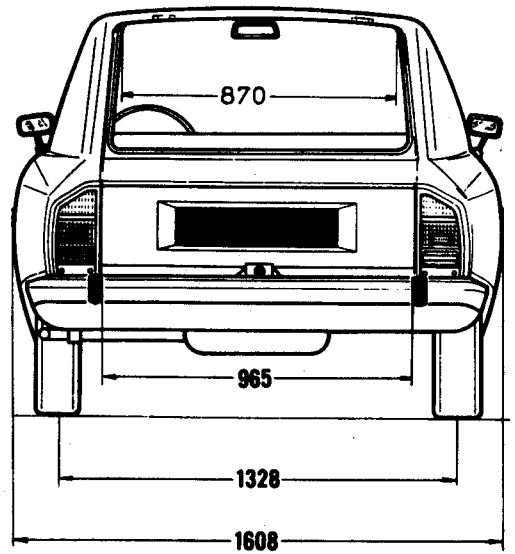
G. 80-14

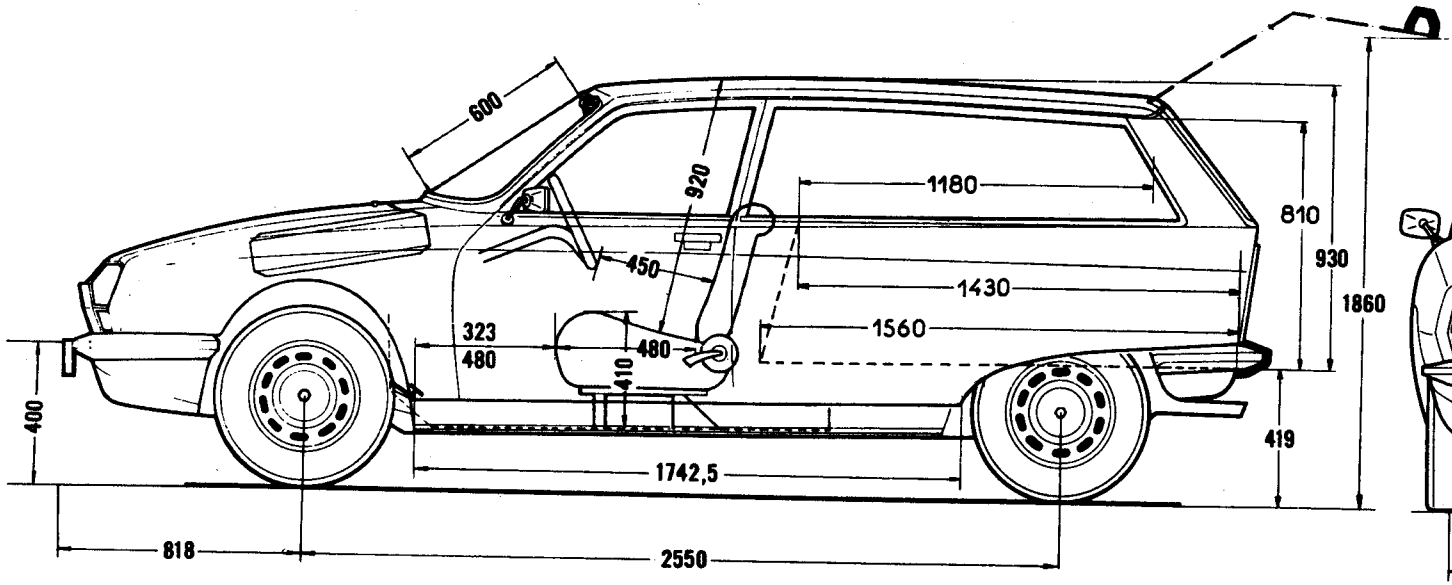


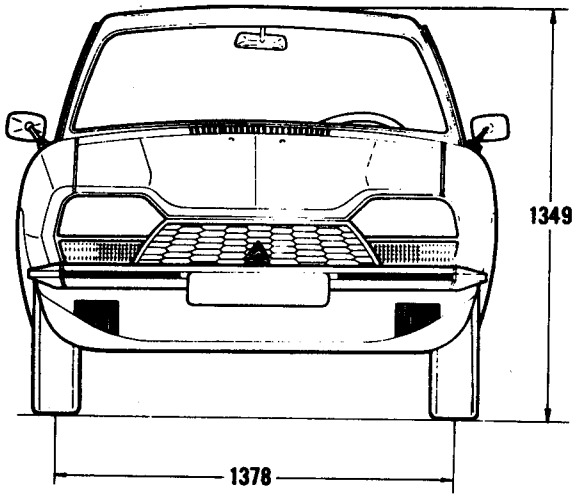


Total window area	1.68 m^2 (18. sq. ft.)
Total capacity of boot	1660 dm^3 (57.6 cu. ft.)



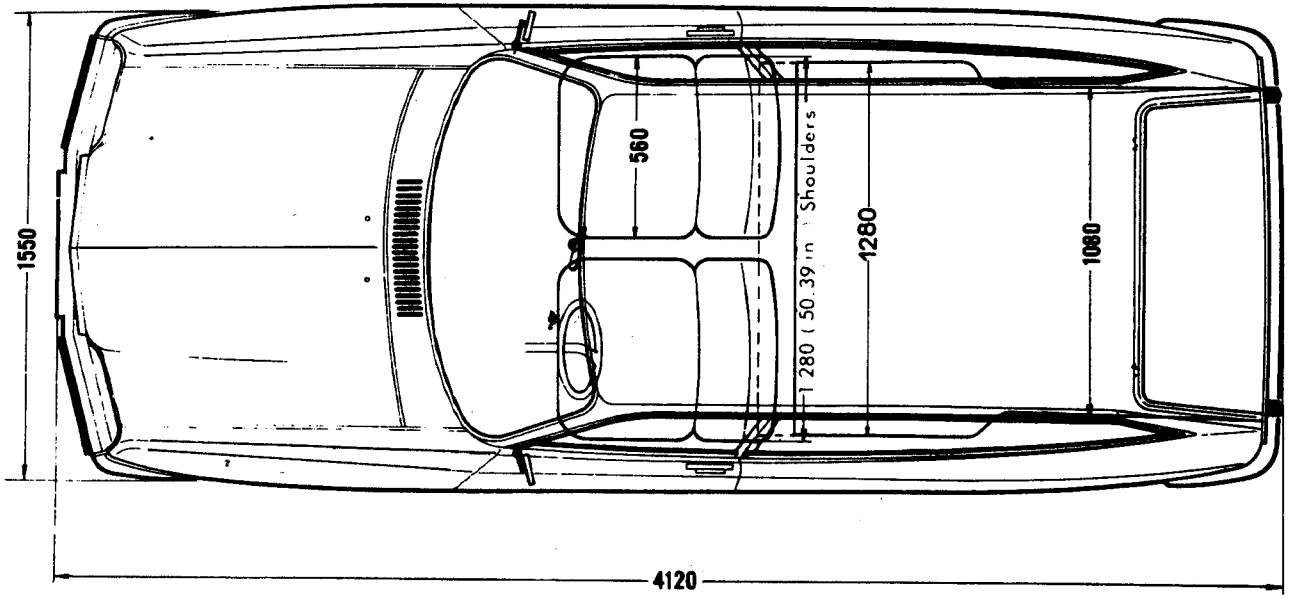


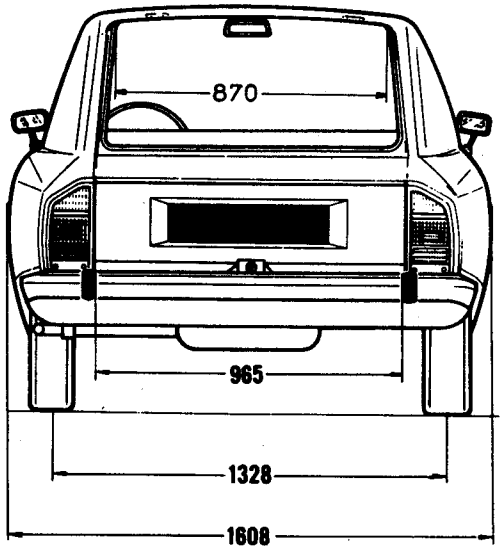




Total window area 2.64 m^2 (28.41 sq. ft.)

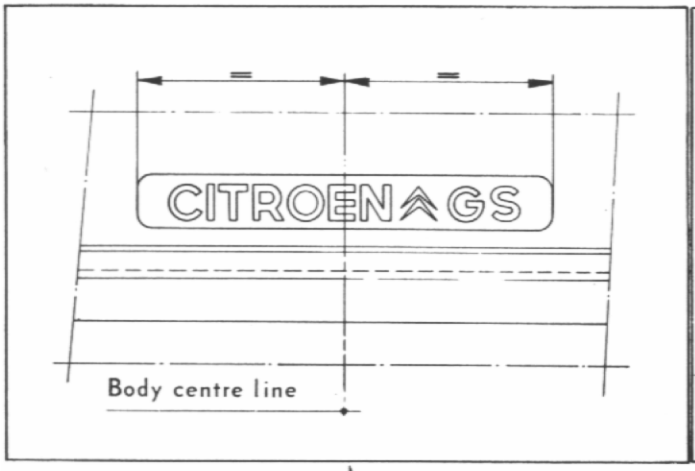
Total capacity of boot 1660 dm^3 (57.6 cu. ft.)



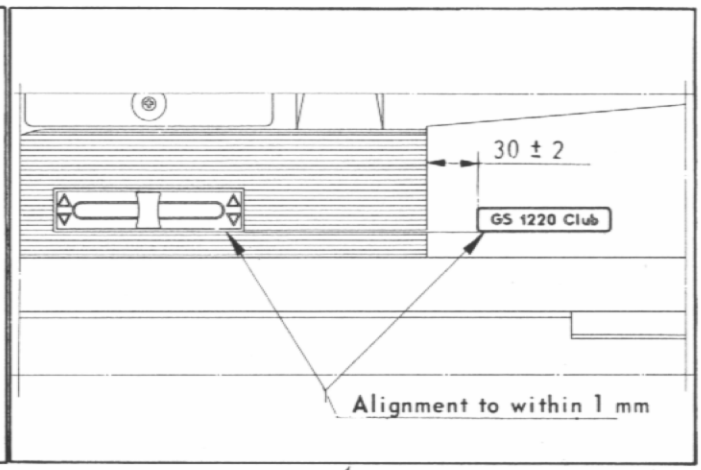


FITTING THE MONOGRAMS

G. 80-18



G. 80-19



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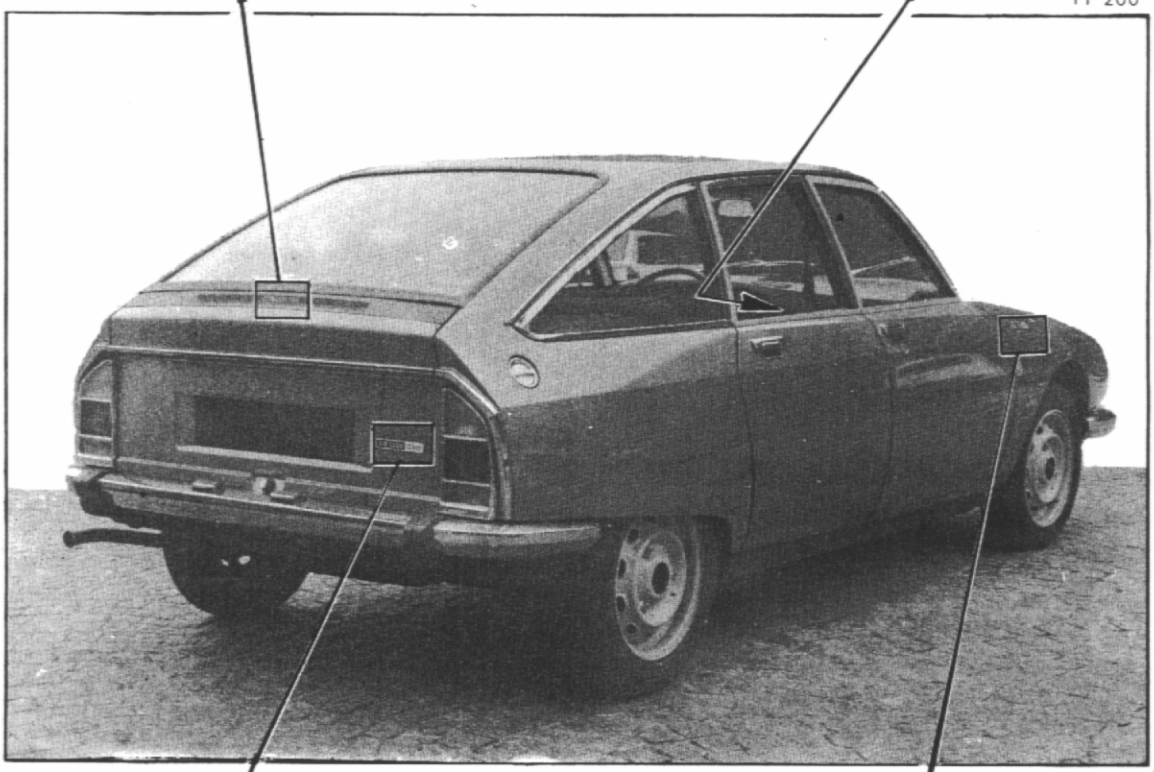
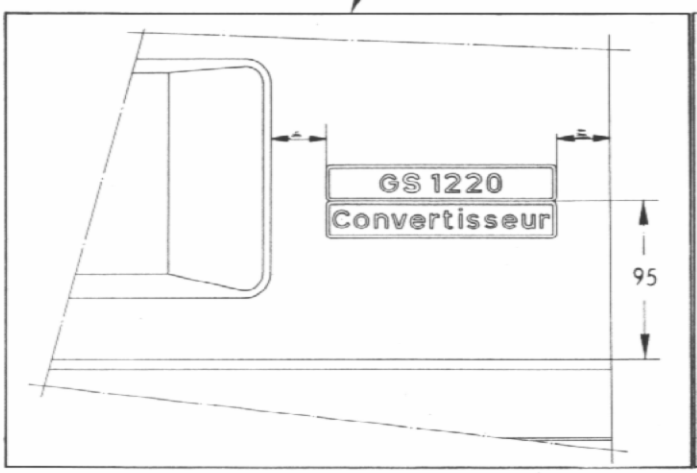
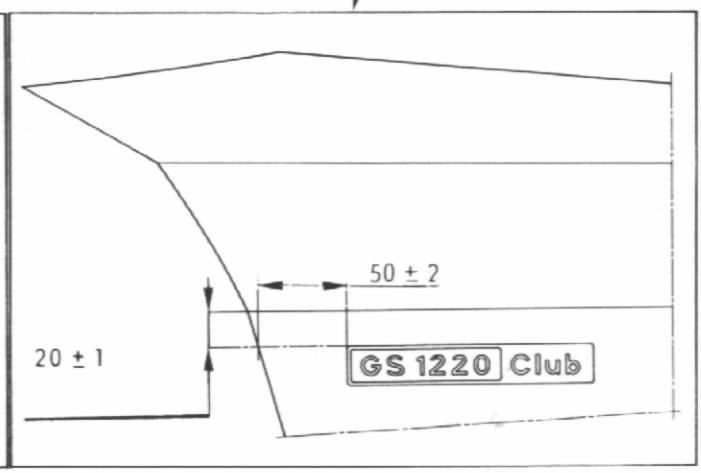


G. 80-17



G. 80-20 a



FITTING A MONOGRAM :

- Carefully clean with methylated spirit the surface area of the body element where the monogram is to be fitted.
- Slightly outline the position of the monogram on the element.
- Lift off the paper protecting the adhesive side of the monogram.

WARNING : Do not touch this side with the fingers.

- Fit the monogram in position while pressing it hard on the body element.

PROTECTION OF THE ELECTRICAL UNITS
PRECAUTIONS WHEN CARRYING OUT WORK ON THE CAR

Incorrect actions or short-circuits must be avoided if serious damage, fire or accidents are to be prevented.

1. BATTERY :

a) Disconnect the negative terminal first, then the positive one.

b) Carefully connect the battery terminals, leaving the *negative one till last.*

c) Before connecting the negative lead ensure that there is no flow of current. This can be established by briefly touching the negative battery terminal with the lead end : sparks indicate a short-circuit which must be corrected first.

d) The battery must be properly connected with the negative terminal to earth.

e) Before using the starter ensure that the two lead ends are correctly tightened on their respective.

2. ALTERNATOR - REGULATOR :

a) Do not rotate the alternator unless connected to the battery.

b) Before connecting the alternator ensure that the battery is correctly connected (negative terminal to earth).

c) Do not check the operation of the alternator by short-circuiting either the positive or the « Exc » terminals and the earth terminal.

d) Take care not to reverse the leads connected to the regulator.

e) Do not attempt to re-energize the alternator : this is never necessary and in any case would damage both the alternator and the regulator.

f) Do not connect a suppressor capacitor at the « Exc » terminal of the alternator or the regulator.

g) Do not connect a charging unit to the battery and never carry out arc welding (or spot-welding) on the car chassis unless both the positive and the negative leads are disconnected from the battery.

3. IGNITION COIL :

a) Connect the supply lead for the coil to the plug of the external resistor and not to the terminal marked « BAT » of the coil.

b) Do not connect a suppressor capacitor to the terminal « RUP » of the coil, use a capacitor recommended by the makers, and connect it to the « + » terminal or terminal marked « BAT » of the coil.

4. Q.I. BULBS (« Club » cars) :

a) Do not change a Q.I. bulb unless the headlight is switched off. If the headlights have been on wait five minutes for the bulb to cool before handling it.

b) Do not touch a Q.I. bulb with the fingers. Should the bulb inadvertently contact skin the bulb must be cleaned with soap and water and dried with a lintfree cloth.

I - PRECAUTIONS WHEN WORKING WITH HYDRAULIC UNITS OR THE SYSTEM

The correct functioning of the entire hydraulic system presupposes perfect cleanliness of the fluid and the hydraulic units. Stringent precautions must therefore be taken when working on the hydraulic system and during the storage of the fluid and components.

1. HYDRAULIC FLUID :

Mineral hydraulic fluid (LHM) is the only suitable type and must be used to the exclusion of all others in the hydraulic system of the car.

This LHM fluid is *green in colour* and similar to the engine oil.

The use of *any other fluid would ruin* the rubber rings and seals in the system.

2. RUBBER UNITS AND PARTS :

Suitable components are identified by their *green colour* and may only be replaced by genuine spares painted or marked in green.

All rubber parts (joints, hoses, diaphragms, etc...) are of a *special quality for use with LHM fluid* and are identified by their white or green colour.

3. STORAGE :

Components must be stored *full of fluid and blanked off.* Like the piping they must be protected against shock and the ingress of dust.

Rubber tubing and joints must be stored away from dust, air, light and heat.

LHM hydraulic fluid must be stored in its original containers carefully sealed. We advise the use of litre (for topping up) or five litre containers (for refilling) to avoid having to keep contaminated containers.

4. CHECKS BEFORE CARRYING OUT WORK :

Before disturbing the hydraulic system in case of incorrect operation ensure that :

a) *There are no stresses in the controls or the mechanical linkage of the units or the group of hydraulic units involved.*

b) *The H.P. circuit is under pressure,* as follows :

With the engine slow-running :

- Unscrew the pressure-release screw of the pressure regulator by one or one and one half turns : a sound of leakage should be heard from the regulator.
- Retighten the release screw : cutting-out must occur, this results in a reduction in the running noise emitted by the H.P. pump.

If not, check in the following sequence :

- that sufficient fluid is present in the reservoir,
- that the reservoir filter is clean and in good condition,
- that the H.P. pump is primed and there is no air leak on the suction side of the pump,
- that the release screw of the pressure regulator is correctly tightened.

5. PRECAUTIONS TO BE TAKEN BEFORE DISTURBING THE HYDRAULIC SYSTEM :

a) *Carefully clean* the area of work, the unions and the unit to be removed.

- Disconnect the lead from the negative terminal of the battery.
- Only use petrol or white spirit for cleaning.

b) *Release the pressure* in the circuits.

- Place the vehicle in the High Position, stop the engine.
- Slacken the Pressure Regulator pressure-release screw.
  Wait until the front of the car has reached the low position.
- Place the Manual Height Control lever at the Normal position and wait for the rear of the car to stabilise.
- Place the Manual Height Control lever at the High position and wait for the whole car to reach the Low position.

6. PRECAUTIONS TO BE TAKEN DURING REMOVAL :

a) *Blank off the metal pipes* with plugs, and rubber tubes with round pins of the correct diameter.

b) *Blank off the openings* of components with plugs of the correct diameter.

NOTE : Plugs and pins must be carefully cleaned before insertion.

7. CHECK OR TEST OF HYDRAULIC UNITS :

- Use 3654-T *test bench* equipped and designed for use with LHM fluid.
  This bench is *painted green* and its accessories are marked green.
- Never use the bench with another fluid or for testing components operating with another fluid (units of a «D» car using LHS 2 for instance).

NOTE : The pump «Le Bozec» used on test benches for checking DIESEL injectors can be resorted to for testing components operating with LHM mineral fluid providing the bench is cleaned first.

8. PRECAUTIONS TO BE TAKEN DURING REFITTING :

a) *Cleaning :*

- steel pipes must be blown through with compressed air,
- rubber tubes and joints must be washed in petrol or white spirit and then dried with compressed air,
- hydraulic units must also be cleaned with petrol or white spirit and blown through with compressed air.

NOTE : Renew all joints and seals during refitting.

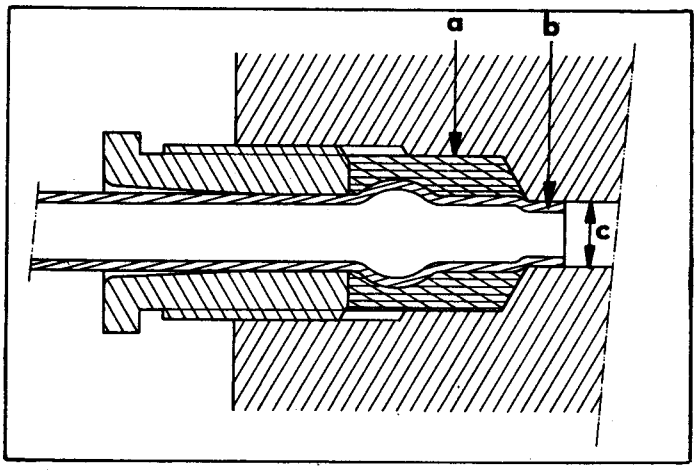
b) *Lubrification :*

- Follow the indications with regard to operations in the Manual.
- Joints and internal parts must be lightly oiled before fitting (use mineral fluid LHM only).
- If parts in contact with hydraulic units have to be greased use a mineral grease only (as employed for Cardan shafts or rolling bearings).

c) Fitting :

- Only use joints of a quality compatible with the mineral fluid LHM.
- To connect a union proceed as follows :

TT. 00-5



- Locate the sleeve-seal « a » lightly coated with LHM fluid ; this sleeve seal should be back from the end of the pipe « b ».

Centre the pipe in the housing by lining it up with the axis of the hole, avoiding all stress. (Ensure that the end « b » of the pipe enters into the small bore « c »).

Start the union nut by hand.

Tighten nut moderately : excessive force could cause a leak because of deformation of the pipe.

NOTE : Tightening torques :

3.5-mm pipe	5.8 to 6.6 ft.lbs
4.5-mm pipe	8 to 9 mΛN (0.8 to 0.9 mkg)
6.0 -mm pipe	6.6 to 8.0 ft. lbs
	9 to 11 mΛN (0.9 to 1.1 mkg)

The design of the various joints ensures that their sealing action increases with fluid pressure. The oiltightness is therefore not improved by greater tightness of the unions.

To connect a rubber tube a rubber ring of suitable diameter has to be positioned between the tube and the hose clip.

9. CHECKS ON COMPLETION OF WORK

On completion of work on hydraulic units or the system itself check the following :

a) Unions for leaks.

b) Clearance between pipes : pipes must not touch one another or any component nor may any other unit, whether fixed or movable, exert any stress on them.

II - REPAIRS TO PLASTIC TUBING

OBSERVATIONS :

a) This operation can be carried out by sleeving the damaged tube.

b) If two sleeves are to be located on one length of tube the interval between them must be about 30 in. in order to retain the flexibility of the tubing.

c) Obtain a bottle of Rilsan adhesive (60 cc) sold by the firm of Boyriven, 37 bis Rue de Villiers - 92 Neuilly-sur-Seine - Tel. 624-36-11.

(Rilsan adhesive harms the skin : avoid touching it with the fingers but use a wooden spatula instead).

1. Cut the tubing and roughen the ends over a length of some 3.5 in. with abrasive paper No. 600.

2. Carefully degrease the roughened ends and the sleeve with trichlorethylene.

3. Heat the Rilsan adhesive in a water-bath to raise its temperature to 60 °C.

Do not exceed this temperature.

NOTE : This operation is essential to cut down drying time.

4. Coat the ends of the tube and the inside of the sleeve with adhesive.

Leave the parts to dry for a few minutes.

Insert the ends of the tube into the sleeve.

Allow the assembly to dry for three to four hours before using the repaired tube again.

III - DRAINING THE HYDRAULIC SYSTEM

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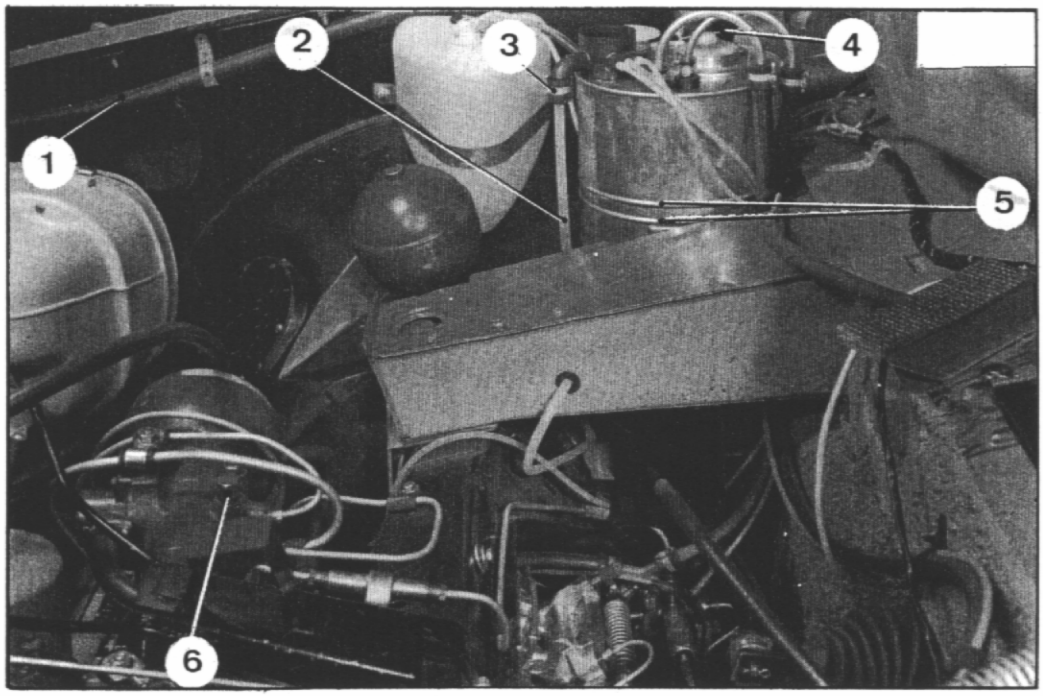


DRAINING :

a) Place the manual control lever in the *normal driving position.*

b) Open the release screw of the pressure regulator (6).

c) Set the manual control lever to the *high* position.

Drain the reservoir as follows :

- Slacken the clip (3)
- Disconnect the nylon tube (2) and connect it to a hose
- Unclip the filter (4)
- Drain the reservoir
- Withdraw the filter and drain the H.P. pump suction line (1)
- *Clean the filter in petrol, or white spirit*
- Blow filter through with compressed air.

REFILLING :

- Fill the reservoir with LHM hydraulic fluid *(green).*
- Prime the H.P. pump :
  Fill the hydraulic pump with fluid through the suction line.
- Start the engine.
- Tighten the release screw of the pressure regulator.
- Top up the reservoir with hydraulic fluid (car in *high* position).
- The level of the fluid in the reservoir must be between the two *rings* (5).

MAIN MATERIALS RECOMMENDED IN THE REPAIR MANUAL

PRODUCT	USAGE	SUPPLIER
POLYCLENS	De-greasing fluid for mechanical parts. Use pure or diluted and must be washed off with copious water rinse	ACBIMEX S.A.M. 12, avenue F. D. Roosevelt 75008 PARIS Tel : 359-84-32 ou Palais de la Scala MONTE-CARLO Tel : 30-53-79
ADEXOLIN 56	Adhesive	AREXONS (S.I.P.A.L.) 406 cours Emile Zola 69100 VILLEURBANNE - FRANCE Tel : 84-17-35
Colle RILSAN	Adhesive for plastic tube	BOYRIVEN 37 bis, rue de Villiers 92200 NEUILLY-sur-SEINE FRANCE Tel : 624-36-11
PROTOJOINT	Sealing joints of half crankcases or lids. Resistant to hydrocarbons	Jean BRASSART 44, rue la Boétie 75008 PARIS - FRANCE Tel : 359-54-82
CURTYLON	Sealing paste for crankcase	CEFILAC Departement Joints CURTY 25, rue Aristide Briand 69800 SAINT-PRIEST Tel : 20-08-94 ou 7 a 11, rue de la Py 75020 PARIS - FRANCE Tel : 797-01-49
DEVCON	For sealing casting porosities	COMET 10, rue Emile Cazeau 60300 Z.I. de SENLIS FRANCE Tel : 455-35-40
LOCTITE AUTOFORM	Sealing joints or half crankcases or lids. Resistant to hydrocarbons	
METALIT	For sealing casting porosities	DISIMPEX 1, rue Goethe 75016 PARIS - FRANCE Tel : 727-89-59
SILASTIC 733 R.T.V.	For sealing casting porosities	DOW CORNING S.A.R.L. 140, avenue Paul Doumer 92500 RUEIL MALMAISON FRANCE Tel : 997-00-40
MOLYKOTE 557	Silicone grease	

PRODUCT	USAGE	SUPPLIER
METOLUX A	Sealing casting porosities	METOLUX 167, avenue de Fontenay 94300 VINCENNES - FRANCE Tel : 808-55-11
OIL AND GREASE REMOVER	De-greasing fluid for mechanical parts	MULLER & Cie 28, avenue de l'Opéra 75002 PARIS - FRANCE Tel : 742-58-36
ROCOL ASP	Grease	LABO INDUSTRIE 1, rue Lavoisier 92000 NANTERRE - FRANCE Tel : 204-62-00
GREASE G.S.I. 160	Silicone grease for bearings	P.C.A.S. 23, rue Bossuet 91160 LONJUMEAU - FRANCE Tel : 920-00-71
ARALDITE	Adhesive	PROCHAL 5, rue Bellini 92800 PUTEAUX - FRANCE Tel : 722-99-39
MASTI-JOINT HD 37	Sealing paste	REXON 33, avenue du Général Bizot 75012 PARIS - FRANCE Tel : 307-79-56
LOWAC PASTE	Sealing paste resistant to hydrocarbons	S.E.B.I.S. 3 a 5, rue de Metz 75010 PARIS - FRANCE Tel : 770-13-08
PASTICOL D.C.O. 625	Sealing paste for crankcase studs	SYNTHESIA 28, rue de l'Arbroust 94130 NOGENT-sur-MARNE - FRANCE Tel : 871-09-36
HEAT RESISTANT ADHESIVE Ref : 1500 - (COLLAFEU)	Sealing the heater ducts for the intake manifold	Ets BARTHELEMY 61-64-71, rue Defrance 94300 VINCENNES - FRANCE Tel : 328-42-87

LOCTITE

The Replacement Parts Division sells two qualities of LOCTITE compound under the following numbers : GX.01 459 01 A and GX.01 460 A. Also the accelerator LOCQUIC-T GX.01 461 01 A.

INSTRUCTIONS FOR THE USE OF « LOCQUIC » :

LOCQUIC accelerator is an activating bath intended for parts to which LOCTITE compound is applied.
Non-metallic parts first require treatment with LOCQUIC accelerator, also the majority of zinc or cadmium-plated parts and those aluminized or of stainless steel, to ensure that the Loctite joints harden rapidly.
LOCQUIC-T accelerator can also be used to degrease parts.
Use it also to prime inert materials.
Spray the surfaces to which LOCTITE is to be applied, brushing or wiping the grease off.
Spray again to clean perfectly, repeating the process as necessary.
Only coat with LOCTITE when the accelerator is *perfectly dry*.

PRECAUTIONS TO BE OBSERVED :

Provide adequate ventilation when using LOCQUIC.
Avoid prolonged or repeated contact with the skin, or spraying on painted surfaces. Do not swallow.
Do not store at a temperature higher than 44 °C.

I - TECHNICAL DATA

	G. 10 (1015 cc)	G. 103 (1220 cc)
Type	G. 10 (1015 cc)	G. 103 (1220 cc)
Number of cylinders	4 (flat)	4 (flat)
Engine horsepower (French fiscal rating)	6 HP	7 HP
Cubic capacity	1015 cc	1220 cc
Bore	74 mm	77 mm
Stroke	59 mm	65.6 mm
Compression ratio	9 : 1	8.2 : 1
Brake horsepower	53.5 CV (DIN) at 6.500 rpm	60 CV (DIN) at 5.750 rpm
Maximum torque	6.9 m.kg (DIN) at 3.500 rpm (52 ft. lb.)	8.9 m.kg (DIN) at 3.250 rpm (64 ft. lb.)

Cooling : Air circulated by ducted fan.

Lubrication :

Under pressure fed by an oil pump, «EATON» type, driven by timing gear belt.
Oil cartridge type «PURFLUX» or «FRAM».

Fuel and air supply :

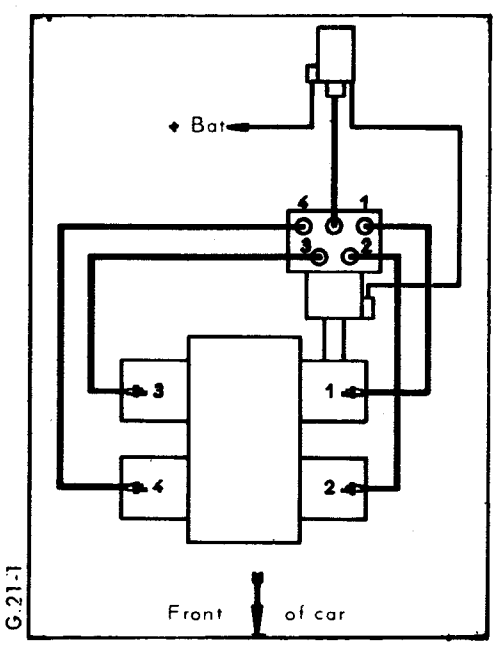
Dual choke carburettor, «COMPOUND» type.
Makes : SOLEX or WEBER.
Intake silencer : dry type with interchangeable elements.
Regulation of the air intake temperature by thermostatically controlled flap.
Fuel normally used : «PREMIUM» (97-99 octane) (4 star).

Ignition : Distributor driven by camshaft - left hand side.
Made : SEV - MARCHAL or DUCELLIER.
Sparking plugs : *see corresponding Technical Notes.*
On G. 10 engines introduced in June 1972, and on G. 103 engines, *it is imperative to fit long-reach sparking plugs.*
Firing order 1 - 4 - 3 - 2 (for numbering of cylinders see below).

Valve gear :

One overhead camshaft over each pair of cylinders.
The camshafts are driven by toothed belts.

Layout of cylinders :

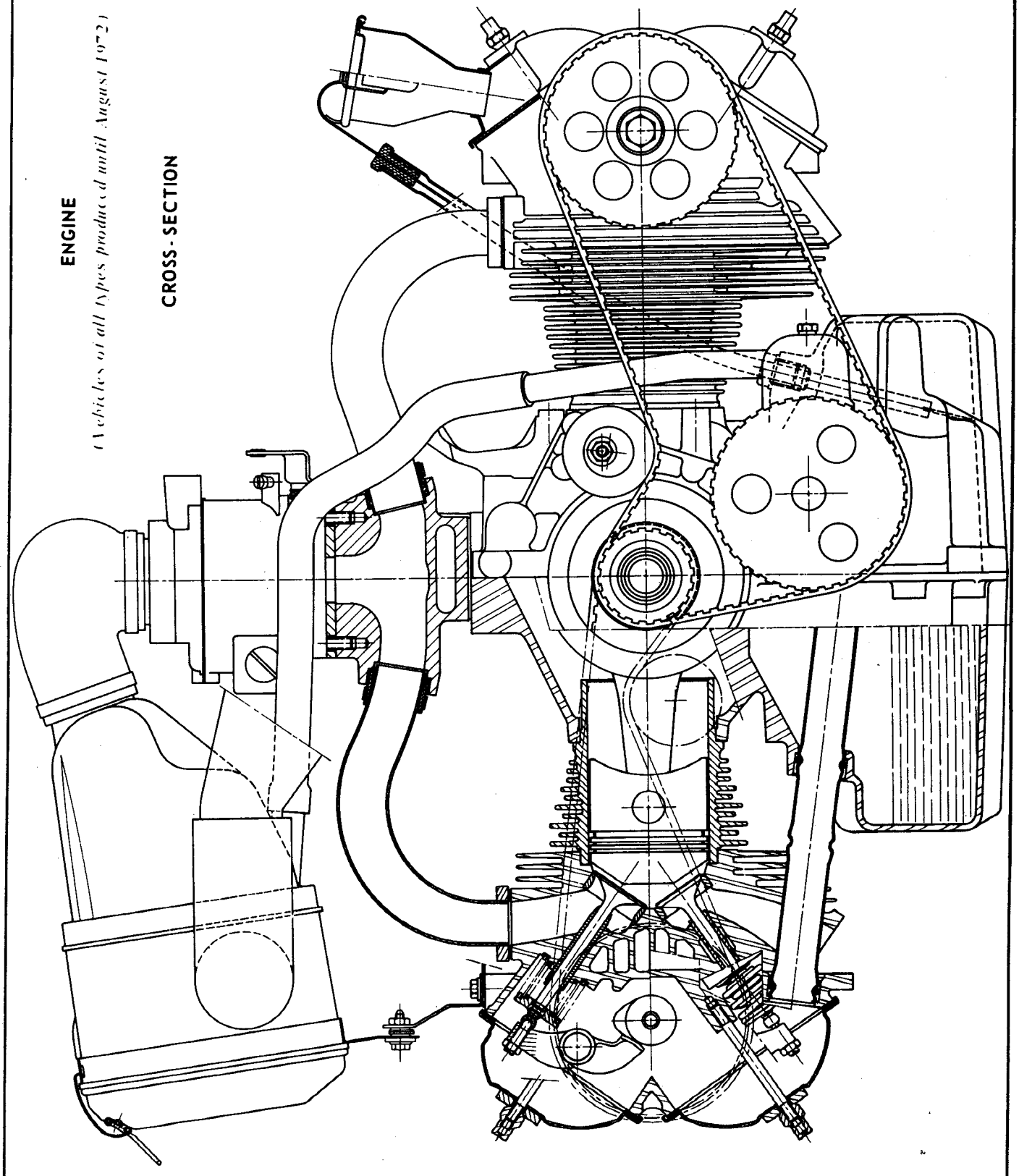


G. 10-2

ENGINE

(Vehicles of all types produced until August 1972)

CROSS-SECTION

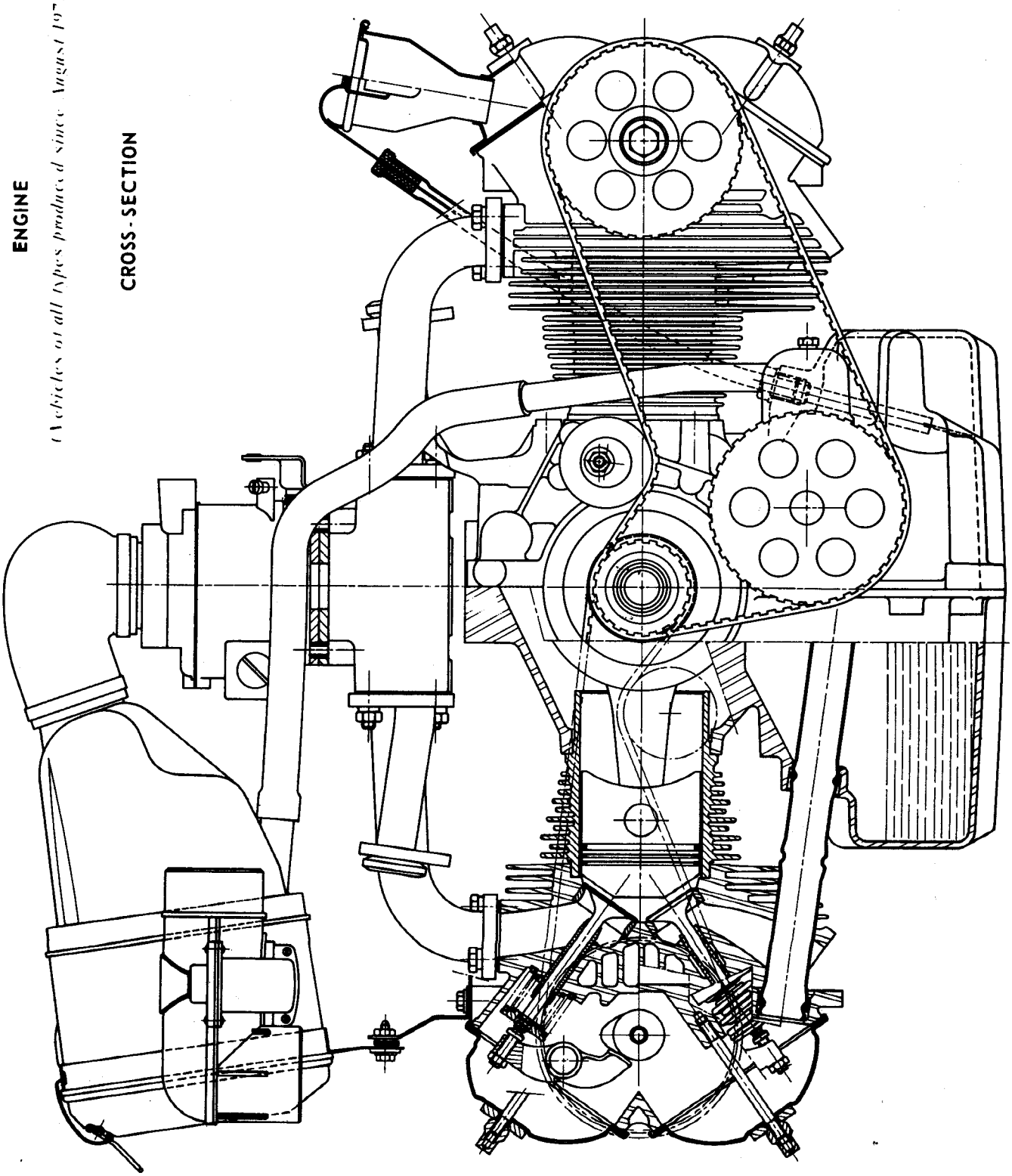


G. 10-2 a

ENGINE

(Vehicles of all types produced since August 1972)

CROSS-SECTION



G. 10-1 a

ENGINE

HORIZONTAL SECTION

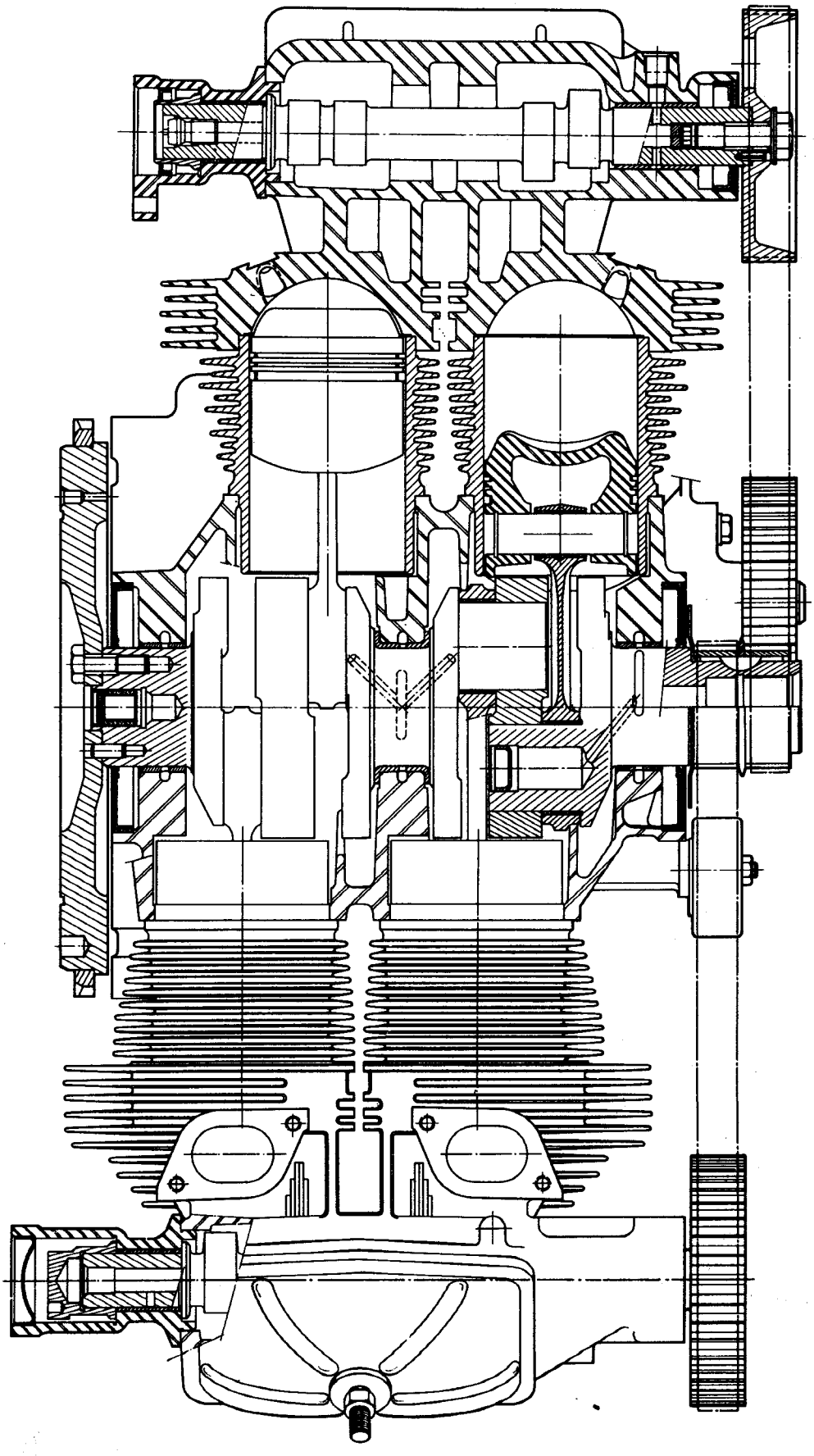
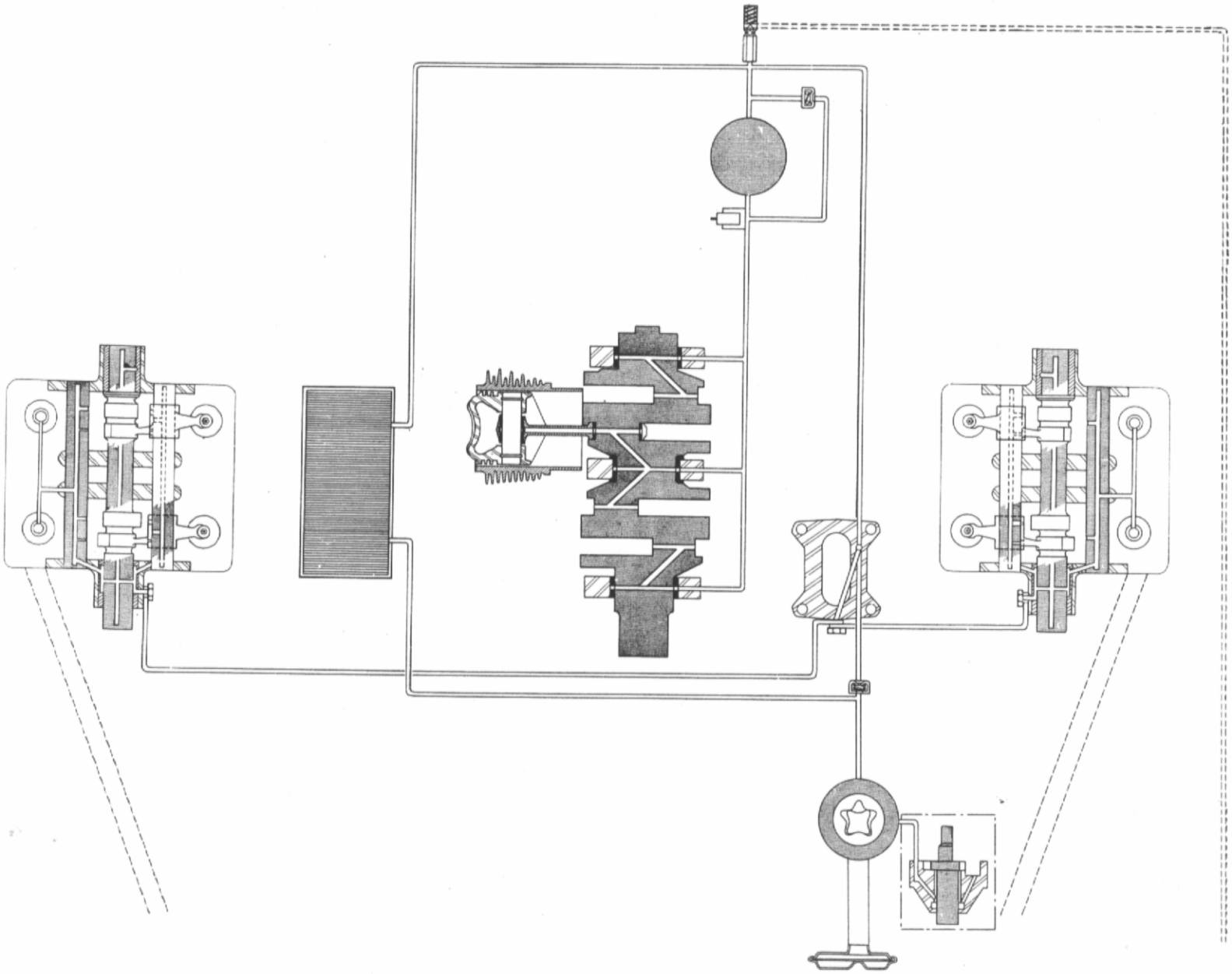


DIAGRAM OF LUBRIFICATION SYSTEM

(Vehicles GX all types produced until September 1971)

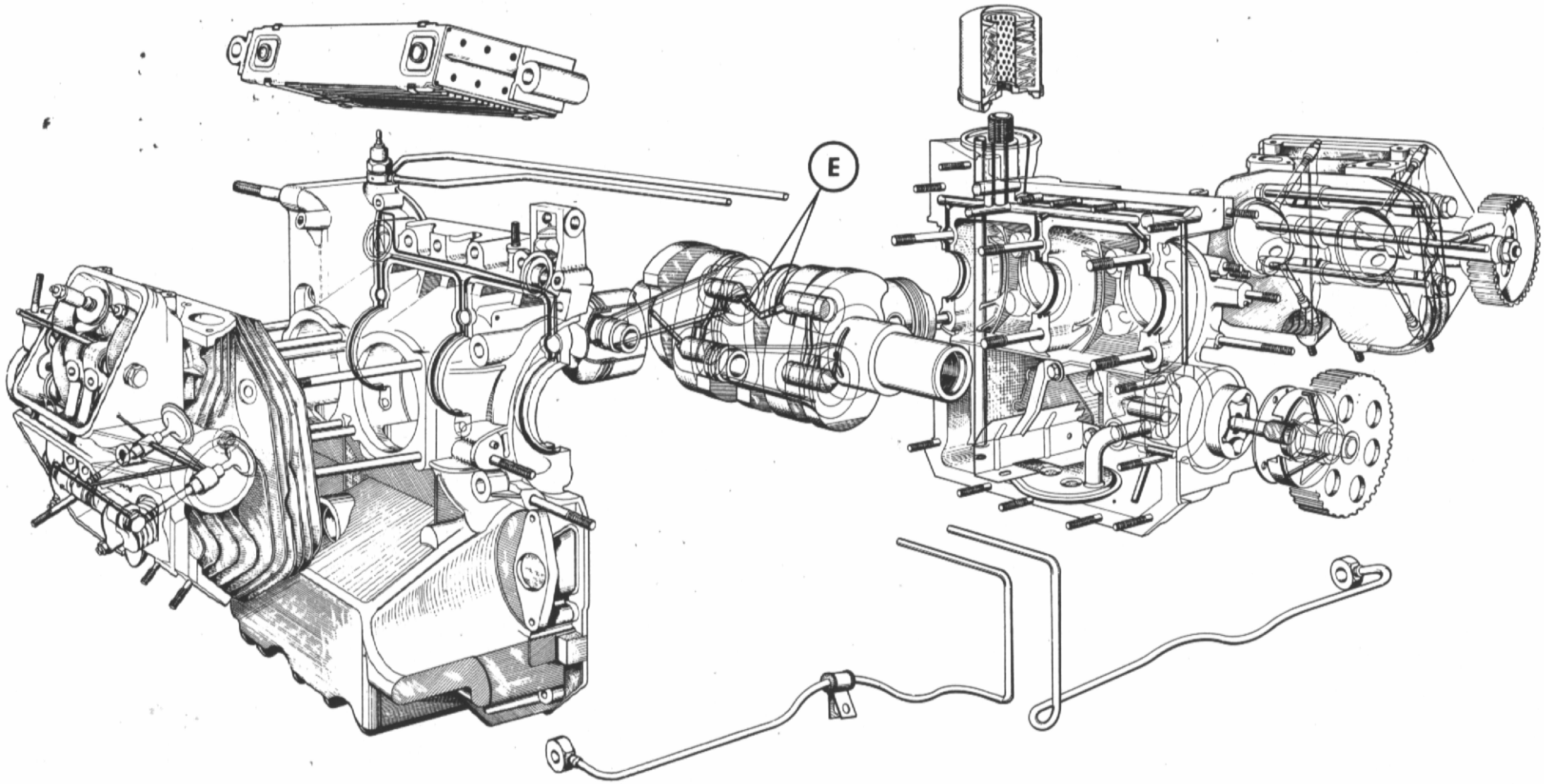


G. 22-1 b

DIAGRAM OF LUBRIFICATION SYSTEM

A.22-4-a

(Vehicles GX all types produced since August 1972)



(E) Balance-piping

II - SPECIAL POINTS

Crankcase :

Tightening torques :

- Nut for halves of crankcase	12 to 15 mΛN (1.2 to 1.5 m.kg)	9 to 11 ft. lb.
- Bearing nut	34 to 45 mΛN (3.4 to 4.5 m.kg)	24 to 32 ½ ft. lb.
- Engine support on crankcase (must be the same make)	50 to 60 mΛN (5 to 6 m.kg)	36 to 43 ½ ft. lb.
- Dipstick nut	30 to 40 mΛN (3 to 4 m.kg)	22 to 29 ft. lb.
- Drain plug	35 to 40 mΛN (3.5 to 4 m.kg)	24 to 29 ft. lb.
- Oil pump bearing screw	15 to 18 mΛN (1.5 to 1.8 m.kg)	11 to 13 ft. lb.
- Securing screws or nuts for intake manifold	18.5 mΛN (1.8 m.kg)	13 ft. lb.
- Cylinder head studs	6 to 8 mΛN (0.6 to 0.8 m.kg)	4.4 to 5.0 ft. lb.
- Oil strainer	14 mΛN (1.4 m.kg)	10 ft. lb.

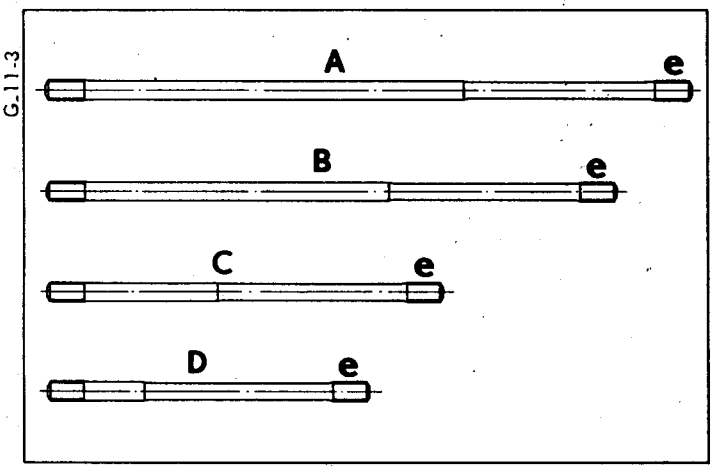
Cylinder-head studs :

a) Four lengths of studs :
End « e » in crankcase.
Shorter length of threaded portion.

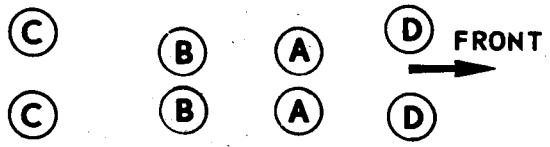
b) Location of various studs.

c) Length of the studs are different for engines G. 10 and G. 103.

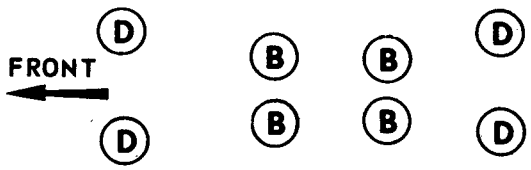
G.11-3



Right-hand side :



Left-hand side :



Crankshaft - connecting rods :

- Centre bearing « with flange » :	- Inner diameter	57.5 mm without identification (first possibility) 57.4 mm with red paint marking (second possibility)
	- Total width	25.9 $^{+0.05}_{0}$ mm
	- Bearing width	15.3 mm
- Front and rear bearings :	- Inner diameter	57.5 mm without identification (first possibility) 57.4 mm with red paint marking (second possibility)
	- Total width	20.8 $^{+0.05}_{0}$ mm
	- Bearing width	16.05 mm

- Endfloat on crankshaft at centre bearing (not adjustable) 0.09 to 0.20 mm

Do not score front and rear bearing surfaces of crankshaft (micro-turning) :

- Bore of small-end bushes of connecting rods ..... 20.005 $^{+0.011}_{-0.006}$ mm
- Bore of small-end bushes of connecting rods (1220 cc)... 22.005 $^{+0.011}_{-0.011}$ mm
- Endfloat of connecting rods ..... 0.13 to 0.18 mm

Flywheel :

- Max. runout of starter ring ..... 0.3 mm
- Ring fitted with tooth entry towards the gearbox.

Tightening torques on fixing screw :

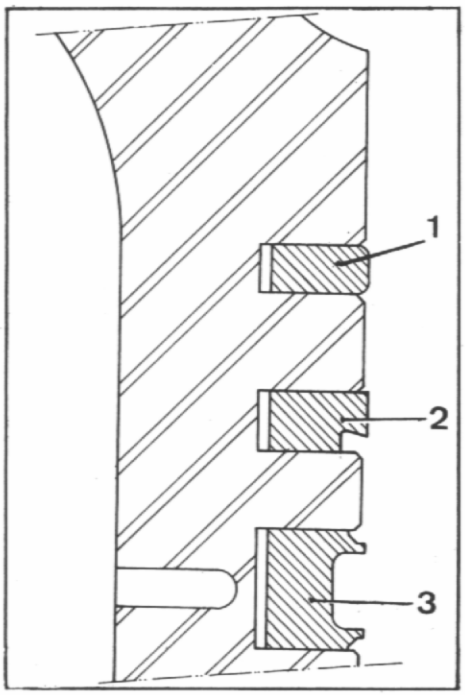
- Flywheel or diaphragm (converter). Fit new screws with marked heads each time dismantled. Tighten, with head-face and threads oiled, to ..... 64 to 69 mΛN (6.4 to 6.9 m.kg) 46 to 49 ft. lb.
- Securing screws for clutch mechanism ..... 18.5 mΛN (1.8 m.kg) 13 ft. lb.

Cylinders :

	G. 10 Engine	G. 103 Engine
- Two classes of cylinders according to height : *red mark*	75.78 to 75.80 mm	86.88 to 86.90 mm
green mark	75.80 to 75.82 mm	86.89 to 86.92 mm

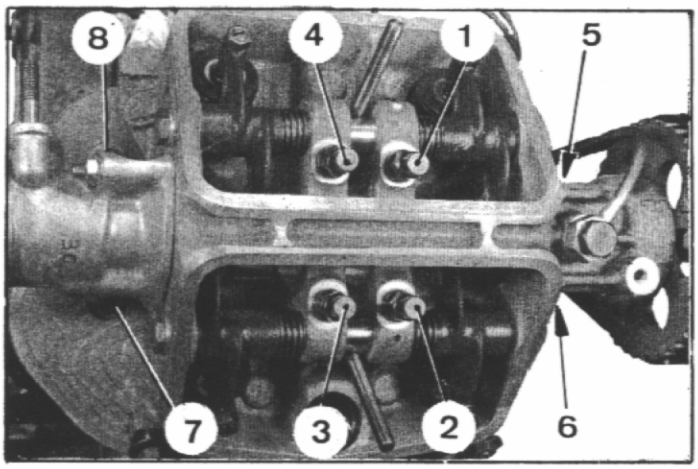
WARNING : *Both cylinders fitted to one side of the engine must be of the same class.*

Pistons - rings



Cylinder-head :

SEQUENCE OF TIGHTENING THE FIXING NUTS



Manual 810-1

7979

Pistons :

- The gudgeon pins are fully floating.
- Correct fitting of pistons :
  After fitting, the number giving the compression ratio must be legible the right way up.

Piston rings :

- The identification or manufacturer's mark must be towards the crown of the piston.
- Sequence (starting from crown of piston) :
  1 - compression ring
  2 - scraper ring
  3 - scraper-collector ring

Tightening torques :

- Cylinder-head nut :	
First pass	5.8 to 7.2 ft. lb. 8 to 10 mAN (0.8 to 1 m.kg)
Second pass	
- 12 mm A/F nut	16 to 18 mAN (1.6 to 1.8 m.kg) 11.6 to 13 ft. lb.
- 13 mm A/F nut	20 to 25 mAN (2 to 2.5 m.kg) 14 ½ to 18 ft. lb.
- Rocker cover nut	8 to 10 mAN (0.8 to 1 m.kg) 5.7 to 7.2 ft. lb.
- Rocker shaft plug	17 to 18 mAN (1.7 to 1.8 m.kg) 12.3 to 13 ft. lb.
- Exhaust clamp nut	15 mAN (1.5 m.kg) 10.9 ft. lb.
- Camshaft-bearing stud (fitted with LOCTITE No. GX 01 45901 A)	3 to 5 mAN (10.3 to 0.5 m.kg) 2.2 to 1.1 ft. lb.
Oil connection screw	18 to 20 mAN (1.8 to 2 m.kg) 13 to 14.5 ft. lb.
- Stop screw for rocker	Allen key 3 mm (shaft fitted with LOCTITE No. GX. 01 45901 A)
- Inlet flange nut	18.5 mAN (1.8 m.kg) 13 ft. lb.
- Camshaft-bearing nut	15 to 18 mAN (1.5 to 1.8 m.kg) 10.9 to 13 ft. lb.

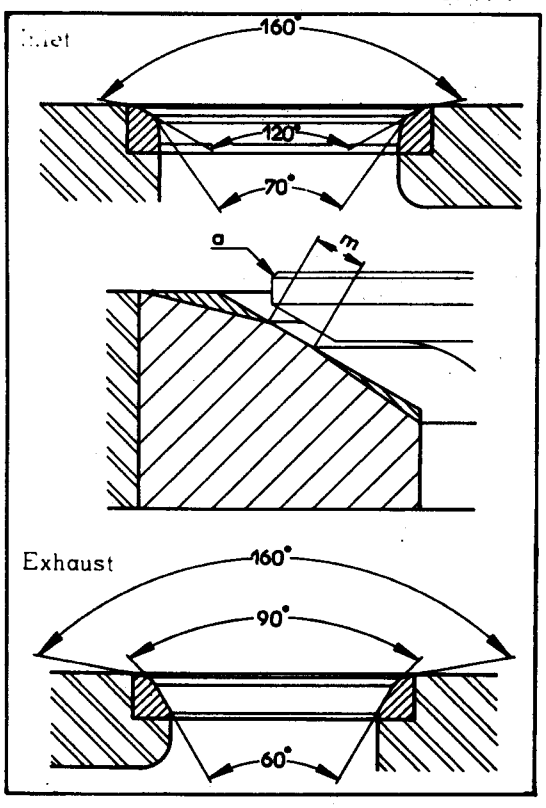
Valves	Angles (degrees)	Head dia. (mm)	Stem dia. (mm)	Length (mm)
Inlet	120	39	8 $^{-0.005}_{-0.020}$	97.4
Exhaust	90	34	8.5 $^{-0.021}_{-0.036}$	96.3

Valve springs :

Springs	Length under load (mm)	Load (kg)	Length under load (mm)	Load (kg)	Direction of turns
G. 10 ENGINES					
2 springs					
outer	32	23.5 ± 2	24.5	50 ± 3	left-hand
inner	26,8	9.9 ± 0.0	19.3	21.1 ± 1	right-hand
G. 10 - G. 103 ENGINES					
1 spring	32	25.4 ± 2.5	24	59.6 ± 2	left-hand

Seats and guides :

G. 11-1



Seats and guides	Inlet	Exhaust
- Bore of valve guides		
inlet	8 $^{+ 0.030}_{- 0.005}$ mm	
exhaust		8.5 $^{+ 0.015}_{- 0.010}$ mm
- Width of contact surface (m)		
inlet	1.3 mm max.	
exhaust		1.8 mm max.

Valve gear :

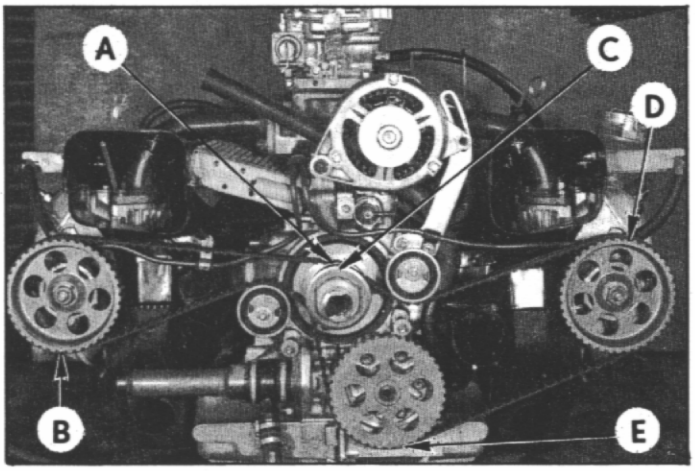
- Endfloat of camshaft (not adjustable) ..... 0.05 to 0.15 mm
- Timing

A - THEORETICAL SETTINGS

With 1 mm clearance between rockers and valve stems, inlet and exhaust.

DESCRIPTION	G. 10 Engine (1015 cm3)	G. 103 Engine (1220 cm3)
Inlet valve opens BTDC	2° ± 1° 30'	4° 10' ± 1° 30'
Inlet valve closes ABDC	34° ± 1° 30'	31° 50' ± 1° 30'
Exhaust valve opens BBDC	34° ± 1° 30'	36° 10' ± 1° 30'
Exhaust valve closes ATDC	2° 30' ± 1° 30'	0° 20° ± 1° 30'

10965



B - CHECK OF REFERENCE MARKS ON BELTS G. 10 Engines (1015 cc)

Right-hand toothed belt :

Total length	866.775 mm
Total number of teeth	91
Two white marks A & B separated (on tensioner side) by	42 teeth

Left-hand toothed belt :

Total length	981.075 mm
Total number of teeth	103
Two white marks C & D separated by	32 teeth
One yellow mark E (oil pump) so that E to C equals	25 teeth

C - CHECK OF REFERENCE MARKS ON BELTS G. 103 Engines (1220 cc)

Right-hand toothed belt :

Total length	885.825 mm
Total number of teeth	93
Two white marks A & B separated (on tensioner side) by	43 teeth

Left-hand toothed belt :

Total length	1.000.125 mm
Total number of teeth	105
Two white marks C & D separated by	33 teeth
One yellow mark E (oil pump) so that E to C equals	25 teeth

Tightening torques :

- Nut for tensioner roller	18.5 m\N (1.8 m.kg)	13 ft. lb.
- Nut for camshaft wheel	82 m\N (8.2 m.kg)	60 ft. lb.
- Tensioner stud (fitted with LOCTITE No. GX 01 45901 A)	3 to 5 m\N (0.3 to 0.5 m.kg)	2 ¼ to 3 ½ ft. lb.

Valve rockers :

- Valve rocker running clearances *between rocker and cam with the engine cold :*
  Inlet and exhaust ..... 0.20 mm (0.008 in.)

  Set each clearance individually when the heel of the rocker is on the back of the cam.

- Identification of rocker shafts :
  - Left-hand inlet shaft identical to right-hand exhaust : no mark.
  - Right-hand inlet identical to left-hand exhaust : mark, i.e. blind hole at centre of shaft.

Lubrication system :

- Grade of oil	TOTAL Altigrade GTS 20 W 50 or GT 20 W 40	
- Sump capacity :		
- after dismantling	4 litres	7 pints Imp.
- after draining	3.5 litres	6 ¼ pints Imp.
- between min. and max.	0.5 litres	⅞ pint Imp.
- Oil pressure at 80 °C :		
- at 2.000 rpm	4.7 bars (min.)	68 psi (min.)
- at 6.000 rpm	6.2 to 7 bars	90 to 102 psi
- Pressure switch set to	0.5 to 0.8 bar	7 to 11.6 psi
- Temperature at which oil temperature switch operates	135 ± 3 °C	
- Calibration of relief-valve spring :		
- free length	58.5 mm	
- length under load of 8.5 ± 0.4 kg	33 mm	
- Calibration of by-pass valves :		
- filter (white mark)	0.9 to 1.15 bars	12.8 to 16.6 psi
- oil cooler (green mark)	1.8 to 2.5 bars	26.1 to 36.2 psi
- Filter element, colour of printing :		
- up to 600 miles	red	
- after 600 miles	white	
- Oil suction pipe fitted in crankcase with	LOCTITE No. GX 01.46001 A	

Tightening torques :

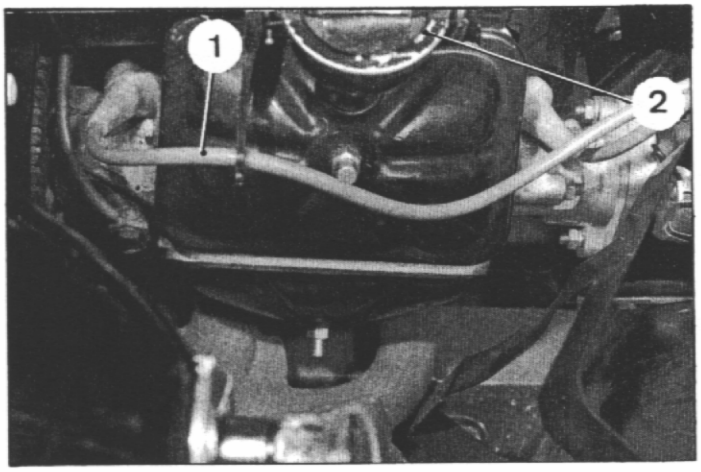
- Insert of filter element (LOCTITE No. GX 01 45901 A)	10 to 15 mAN (1 to 1.5 m.kg)	7 to 11 ft. lb.
- Securing screw for oil cooler	18.5 mAN (1.8 m.kg)	13 ft. lb.
- By-pass valve plug for oil cooler (LOCTITE No. GX 01 45901 A)	45 to 50 mAN (4.5 to 5 m.kg)	32 ½ to 36 ft. lb.
- Union screw for oil pipe	18 to 20 mAN (1.8 to 2 m.kg)	13 to 14 ½ ft. lb.
- Blanking plug for oil gallery (LOCTITE No. GX 01 45901 A)	35 to 40 mAN (3.5 to 4 m.kg)	25 ½ to 29 ft. lb.
- Filter element : After element contacts the crankcase tighten by ½ to ¾ turn (joint oiled)		
- Oil pressure switch	22 mAN (2.2 m.kg)	16 ft. lb.
- Union for oil temperature switch	50 to 55 mAN (5 to 5.5 m.kg)	36 to 40 ft. lb.
- Oil temperature switch	25 mAN (2.5 m.kg)	18 ft. lb.

Fan :

- Outer diameter	290 mm	
- Number of blades	9	
- Adjustment of starter dog :		
a) *at TDC line up dog horizontally*		
a) *projection of the starter dog beyond locknut after adjustment (approx.)*	5 mm of thread	
- Tightening torque for locknut (face oiled)	170 to 200 mAN (17 to 20 m.kg)	122 to 144 ft. lb.

ADJUSTING THE ROCKERS

8360



1. Place a cloth over the exhaust manifold.

Left-hand side : Remove the lead (1) from sparking plug No. 2.
- Remove the rocker cover.

2. **Adjusting the valve-rocker clearances :**

NOTE : This adjustment is made with the engine cold.

Adjust the rockers one after the other as follows :

a) Turn the engine until the heel of the rocker to be adjusted is on the back of the relevant cam (valve completely closed).

b) Adjust the valve-rocker clearance :
Adjust the clearance between the heel of the rocker and the back of the relevant cam at « a ».
Inlet and exhaust : 0.20 mm (0.008 in.).

NOTE : When the engine is installed in the car the adjustment is facilitated by using a cranked screwdriver A.

3. **Fitting the rocker covers :**

- Ensure that the joint faces are smooth, clean and dry.
- Stick the gasket in the rocker cover (BOSTIK 1400 or MINNESOTA F. 19 adhesive).
- Ensure that the covers are correctly centred.

NOTE : The upper and lower rocker covers are different : take care they are fitted the right way.

- The oil filler opening (2) is located to the left.

WARNING : Incorrect fitting of the gaskets, covers not centred or insufficient tightness of the securing nut can result in all the oil being lost.

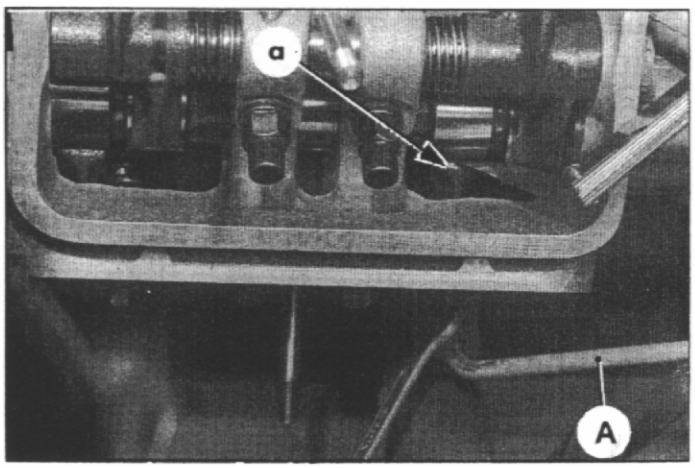
- Tighten the nut to 8 to 10 mΛN (0.8 to 1 m.kg) 5.8 -7 ft. lbs.

Left-hand side : reconnect plug lead.

4. When the engine is hot adjust the slow running as necessary.

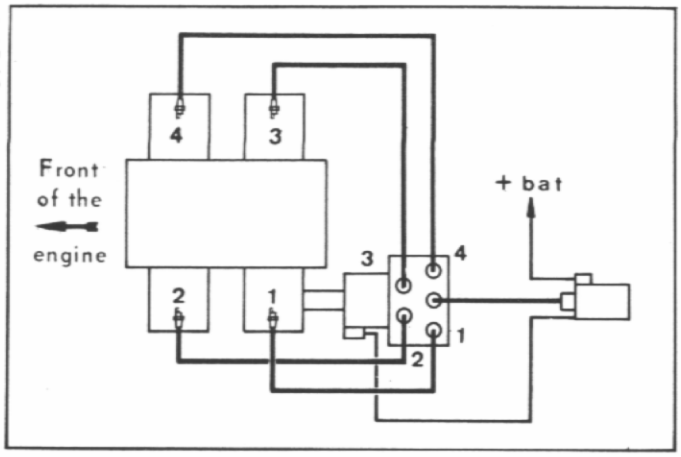
- Check the joints for leaks.
- Check the oil level.

8364

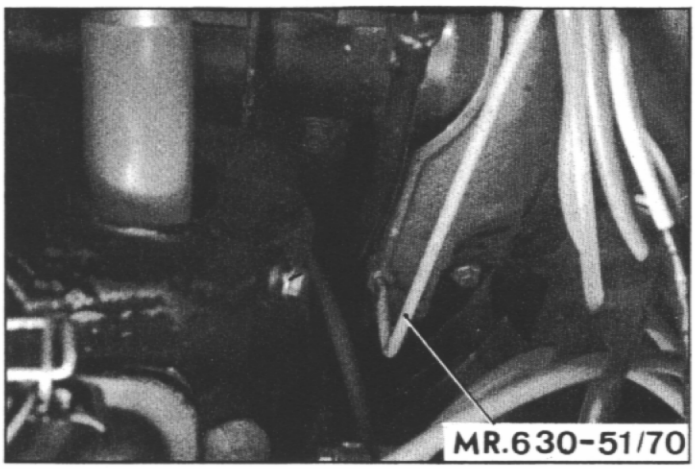


CHECKING THE VALVE TIMING

G. 21-1

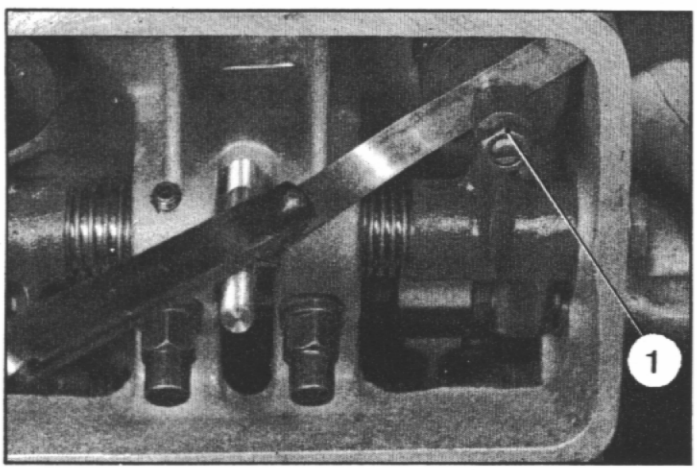


9731

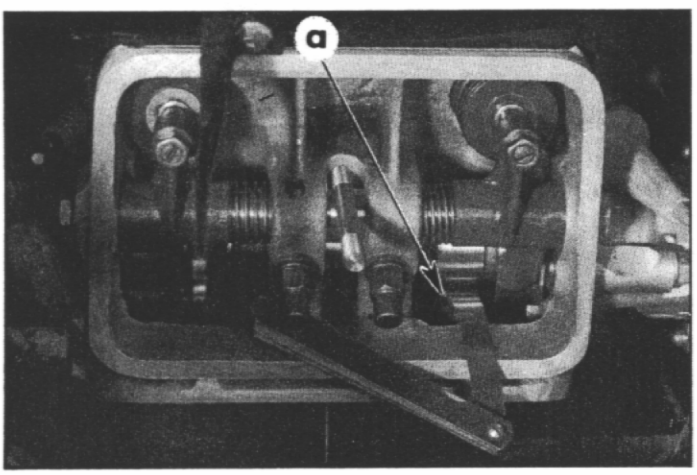


Manual 810-1

9732



8362



IMPORTANT : *This job must be carried out when the engine is cold.*

1. On each side remove the upper cylinder-head cover.

2. Insert a rod MR 630-51/70 (dia. 5 mm) in the hole on the left-hand side of the crankcase.

   On engines fitted with a graduated sector : turn the motor to bring the mark of the flywheel (« V » groove) opposite the 10° mark of the graduated sector.

3. **Check the timing of the left-hand camshaft :**

   NOTE : Start checking on either the left or right camshaft.

   a) Turn the engine in its normal direction of rotation until the valves of cylinder No. 1 are « rocking » (end exhaust - beginning inlet). Insert the rod into the corresponding hole of the flywheel.

   b) *On the inlet rocker of No. 1 cylinder :* Slacken the nut and adjust the screw so that there is *no play or constraint* between the screw and the end of the valve. Tighten nut without forcing.

   c) Disengage the rod and turn the engine in a clockwise direction until the rod enters the flywheel hole once more (end of compression).

   d) On the inlet rocker measure the clearance existing between the adjusting screw and the end of the valve.

   This clearance must be between 0.50 and 1 mm.

4. **Check the timing of the right-hand camshaft :**

   Proceed as for the left-hand camshaft but using cylinder No. 3.

5. Remove the rod MR 630-51/70.

6. **Adjusting the rocker clearance :**

   Proceed in the same way for the inlet and exhaust.

   a) Turn the engine to bring the back of the corresponding cam under the heel of the rocker to be adjusted.

   b) Adjust the clearance at « a » between the heel of the rocker and cam.

   Inlet = exhaust = 0.20 mm.

7. **Fitting the rocker covers :**

   (See operation G 112-0).

I - CARBURETTOR : SOLEX 28 CIC UNTIL SEPTEMBER 1972

CHARACTERISTICS :

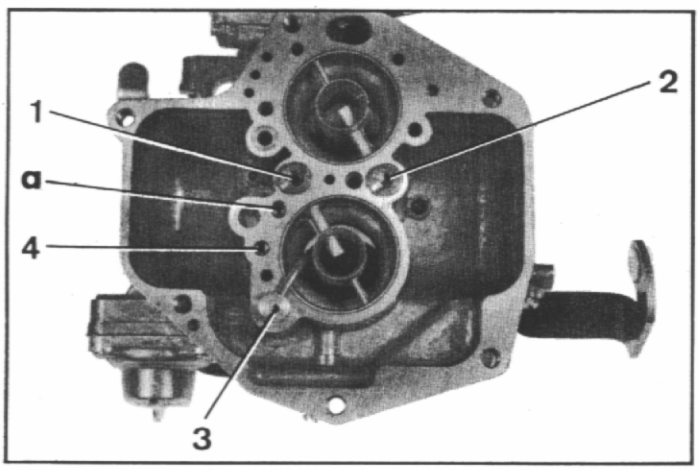
Dual-choke carburettor, «SOLEX» compound type, with opening of the secondary butterfly controlled by mechanical differential linkage.

Type : 28 CIC.

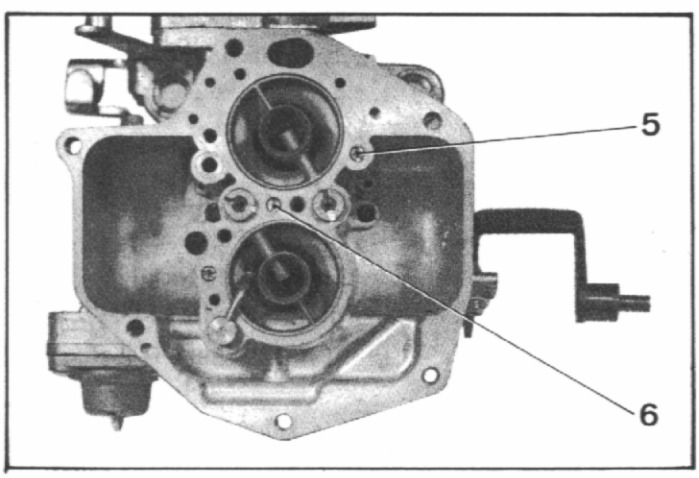
Identification : (on aluminium plate) :

- CIT 118 *until December 1970*
- CIT 118[1] *from December 1970 :* Elimination of the supplementary idling jet at «a» which is replaced by a plug. From March 1971 the hole «a» is made blind, and consequently the plug is eliminated.
- CIT 118[2] *from May 1971 :* Modification of the choke control affecting, amongst other things, the opening of the secondary butterfly. (Better starting when cold, see adjustment on back).
- CIT 118[3] *from June 1971 :* Modification of the throttle butterfly lever.
- CIT 133 *from July 1971 :* New settings.
- CIT 133[1] *from October 1971 until September 1972 :* New settings.

Manual 810-1



9402



10408

Location of settings :

a) *Carburettors with mark CIT 118, 118 , 118[1], 118[2], 133[3] and 133[1] :*

1) Air correction jet for primary choke.
2) Air correction jet for secondary choke.
3) Accelerator-pump injector.
4) Slow running jet.
   - Main jet of first choke located at the bottom of well of (1).
   - Main jet of second choke located at the bottom of well of (2).

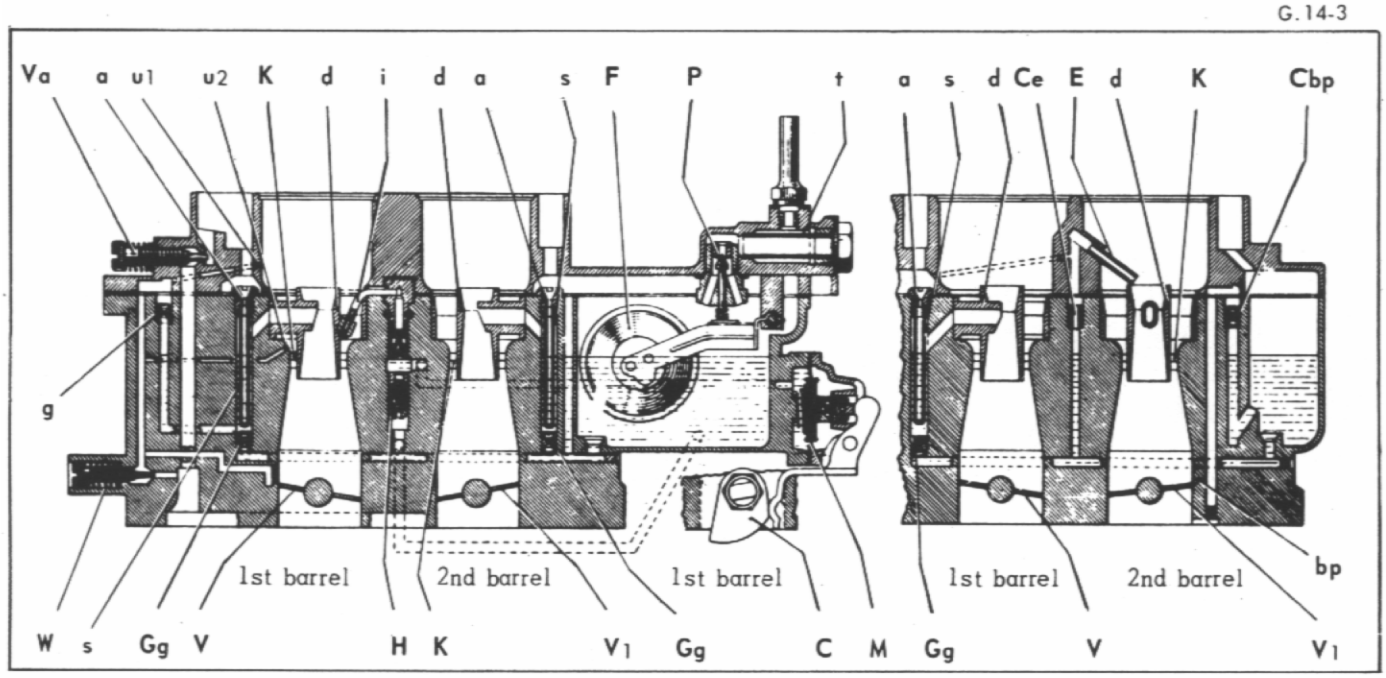
b) *Carburettors with mark CIT 133 or 133[1].*

5) By-pass jet on secondary choke.
6) Econostat jet on secondary choke *(on CIT 133[1])* or plug *(on CIT 133)*.

SETTINGS

DESCRIPTION	CIT 118 - CIT 118[1] CIT 118[2] - CIT 118[3]		CIT 133		CIT 133[1]	
	1st choke	2nd choke	1st choke	2nd choke	1st choke	2nd choke
Venturi bore	21	21	19	19	19	19
Main jet	110	90	100	90	100	70
Emulsion tube assembly	1 P 1	2 U 1	1 P 1	2 P 2	1 P 1	2 P 2
Slow running jet	50		50		50	
Accelerator pump injector	35		35		45	
«By-pass» jet				40		40
Econostat jet						140
Needle valve seating (with spring)	1,7		1,7		1,7	
Double polyamide float						

G.14-3



Key to diagram :

- a : Air correction jets
- bp : «By-pass» jet 2nd choke
- C : Pump cam
- Cbp : By-pass jet
- d : Sprayers
- F : Econostat
- Ce : Econostat
- F : Float
- g : Slow-running jet
- Gg : Main jets
- H : Pump inlet-valve
- i : Pump injector
- K : Choke tubes
- M : Pump membrane
- P : Needle valve with spring
- s : Emulsion tubes
- t : Filter element
- ul : Idling air orifice
- u2 : Calibrated orifice
- V : Throttle (1st barrel)
- V1 : Throttle (2nd barrel)
- Va : Air regulating screw
- W : Volume control screw

II - CARBURETTOR : WEBER 30 DGS (W. 50-00) FROM SEPTEMBER 1972

(with anti-pollution system)

CHARACTERISTICS :

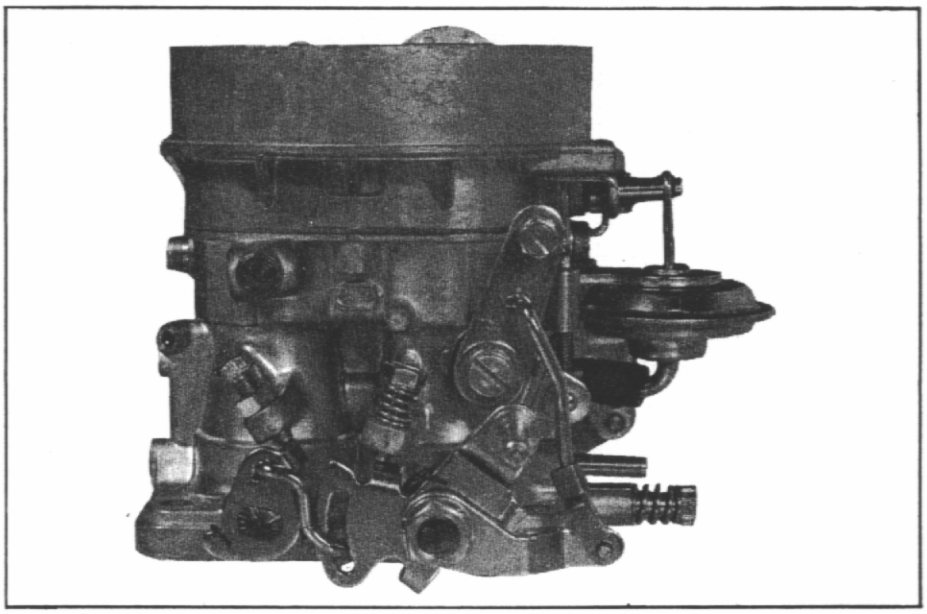
Dual-choke carburettor of the « compound » type, mechanical control of the secondary choke.

Type : 30 DGS.

Mark : W 50-00 (on aluminium plate).

Strangler flap on primary barrel.

10943

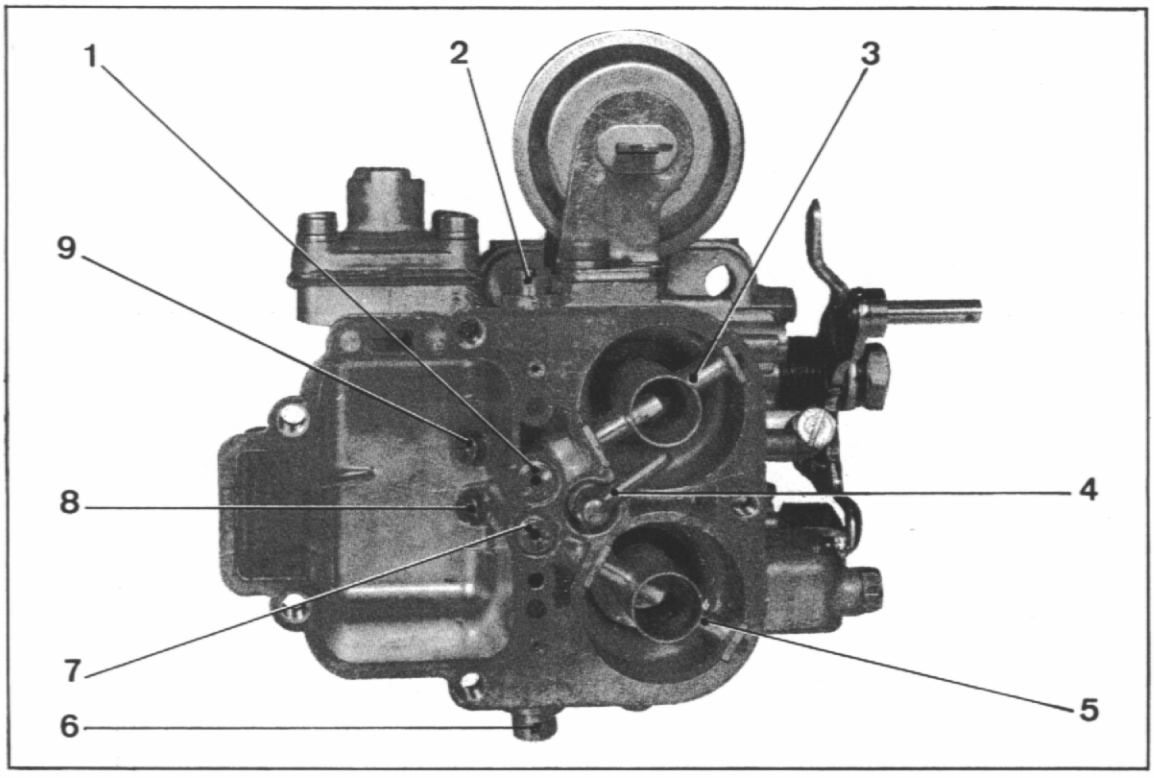


SETTINGS

DESCRIPTION	Primary Choke	Secondary Choke
Venturi-bore	20	20
Main jet	100	100
Air correction jet	AD 1	AD 2
Emulsion tube	F 20	F 20
Slow-running jet	45	45
Accelerator pump injector	50	
Sprayers	4,5	4,5
Needle valve	$\phi = 1,5$	
Float (brass) weight	11 g	
With cold start strangler flap fully closed, distance between the edge of the primary butterfly and its bore must be between	1,25 and 1,35 mm	

Layout of the various components

10951



(1) Air correction jet for primary choke.

(2) Idling jet for primary choke.

(3) Mixing jet for primary choke.

(4) Accelerator pump injector.

(5) Mixture jet for secondary choke.

(6) Idling jet for secondary choke.

(7) Air correction jet for secondary choke.

(8) Main jet for secondary choke.

(9) Main jet for secondary choke.

III - CARBURETTOR : SOLEX 28 CIC^2 (CIT 137) from September 1972 (with anti-pollution system)

CHARACTERISTICS :

Carburettor SOLEX anti-pollutant.

Type : 28 CIC^2.

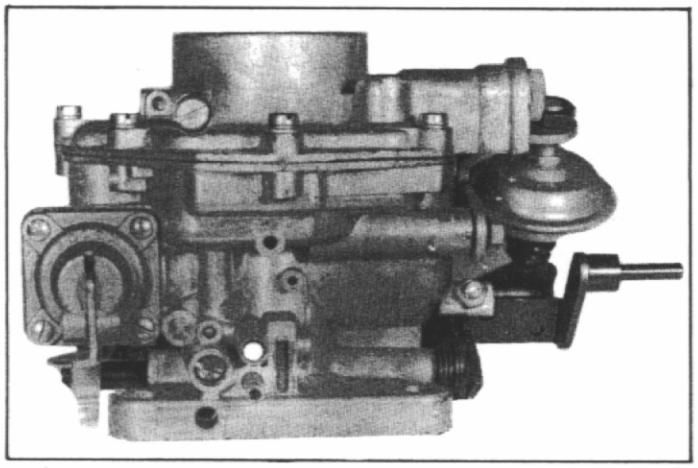
Mark : (on aluminium plate) CIT 137.

Dual choke « Compound » with opening of secondary choke governed by mechanical control.

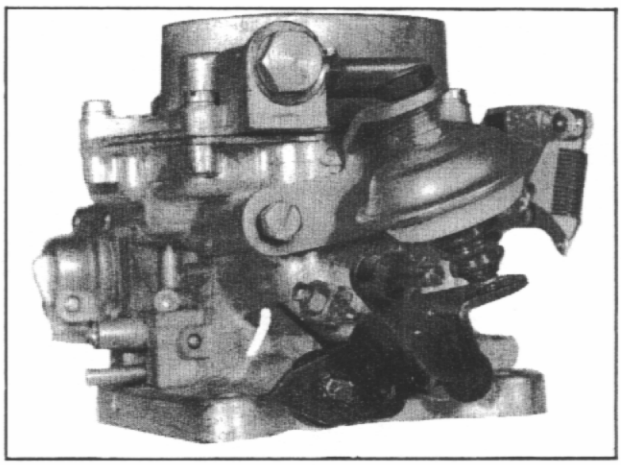
Choke and accelerator pump mechanically controlled.

Throttle-closing dashpot.

10292



10293



Manual 810-1

SETTINGS

DESCRIPTION	Primary Choke	Secondary Choke
Venturi-bore	19	19
Main jet	100	75
Emulsion tube assembly	1 P 2	2 P 3
Idling jet	45	
Constant richness idling jet	35	
Acceleration pump injector	50	
« By-pass » jet		50
Econostat jet		160
Hole in throttle butterfly of secondary choke		ϕ = 2 mm
Float needle	1,7	
Float (double, plastic) weight	11,4 g	

I - CARBURETTOR : WEBER 30 DGS[1] (W 51-00)

CHARACTERISTICS :

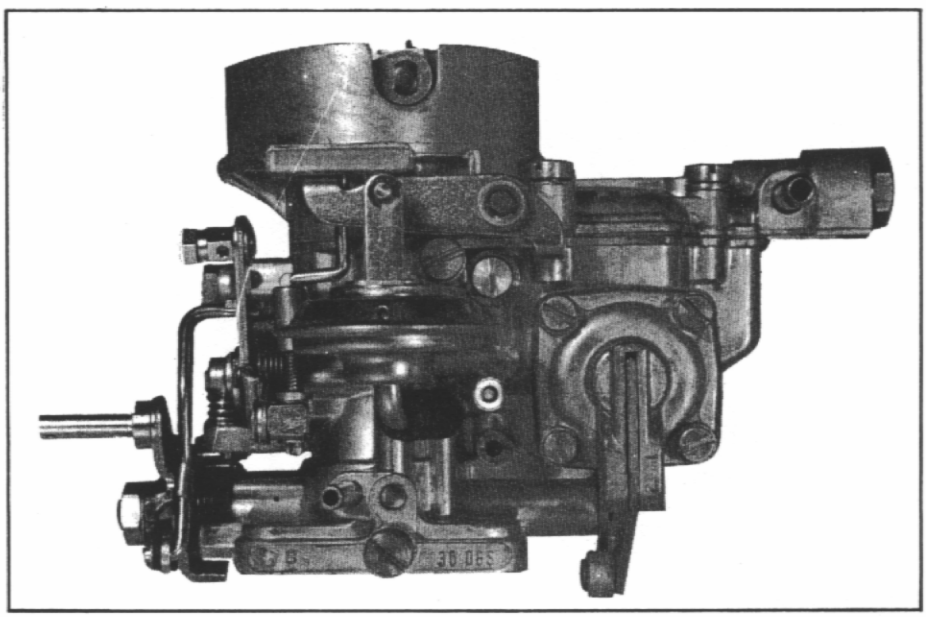
Dual-choke carburettor of the compound type, with mechanical control of the secondary choke.

Type : 30 DGS[1].

Mark : W 51-00 (on aluminium plate).

Strangler flap on primary barrel.

10946



SETTINGS

DESCRIPTION	Primary Choke	Secondary Choke
Venturi-bore	20	20
Main jet	100	107
Air correction jet	AD 2	AD 2
Emulsion tube	F 20	F 20
Idling jet	45	45
Acceleration pump injector	50	sans
Mixture jet (sprayer)	4,5	4,5
Float needle	ϕ = 1,5	
Float (brass) weight	11 g	
With cold start strangler flap fully closed, distance between the edge of the primary butterfly and its bore must be between	1 and 1,1 mm	

NOTE : Positions of components are the same as those for carburettor mark W 50.00 *(See Op. 142-00).*

II - CARBURETTOR : SOLEX 28 CIC 3 (CIT 131[4])

CHARACTERISTICS :

Carburettor SOLEX (anti-pollutant)

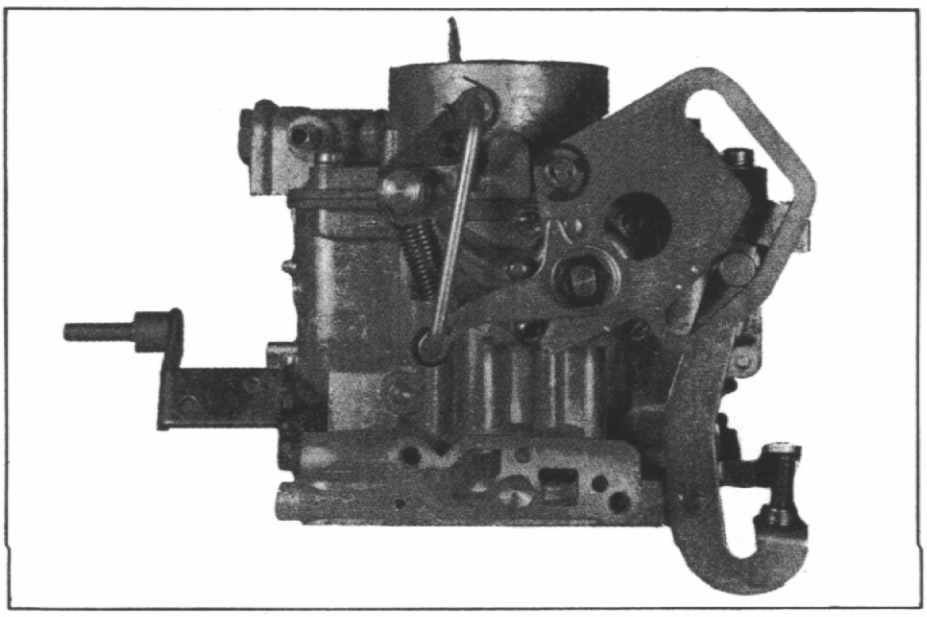
Type : 28 CIC 3

Mark : CIT 131[4] (on aluminium plate)

Dual-choke carburettor of the compound type with mechanical control of the secondary butterfly.

Disc-valve starting device, plus flap on secondary choke.

11061

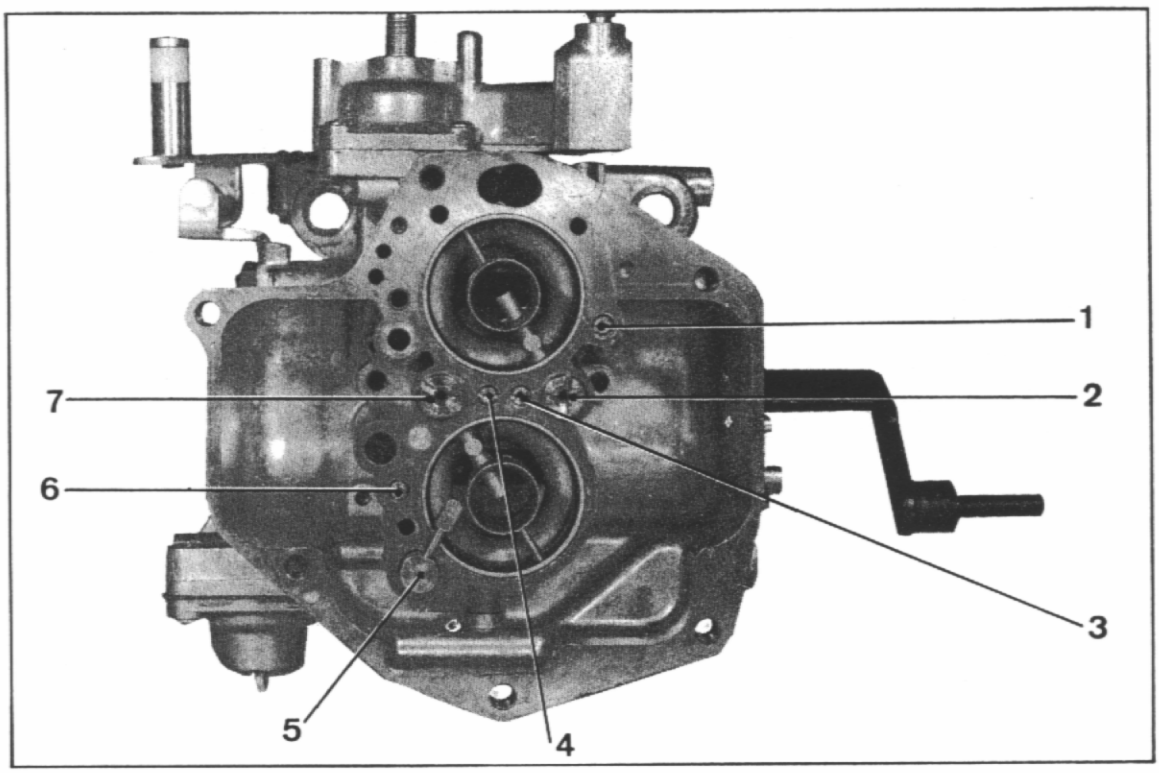


SETTINGS

DESCRIPTION	Choke 1	Choke 2
Venturi bore	19	19
Main jet	100	80
Air correction jet	1 P 3	2 P 4
Idling jet	50	
Constant richness idling jet	35 *	
Acceleration pump injector	50	
Econostat jet		130
« By-pass » jet		40
Hole in throttle butterfly		200
Needle valve (with spring)	1,7	
Float (double, plastic) : weight	11,5 g	

* 30 *from 12/1972.*

10960



Manual 810-1

(1) By-pass jet for primary choke

(2) Air jet for secondary choke

(3) Econostat for secondary choke

(4) Constant richness idling jet

(5) Acceleration pump injector

(6) Idling jet

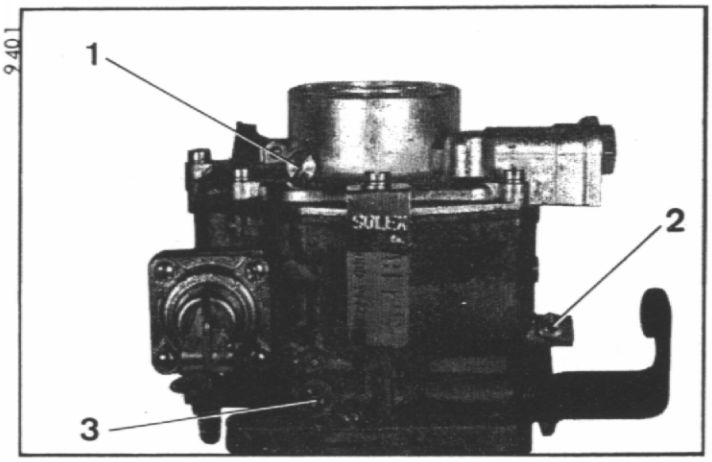
(7) Air jet for primary choke

Main jet for primary choke : located at the bottom of well for jet (7)

Main jet for secondary choke : located at the bottom of well for jet (2)

I - ADJUSTING CARBURETTOR : SOLEX 28 CIC until September 1972 (CIT 118 and CIT 133 Series)

9401



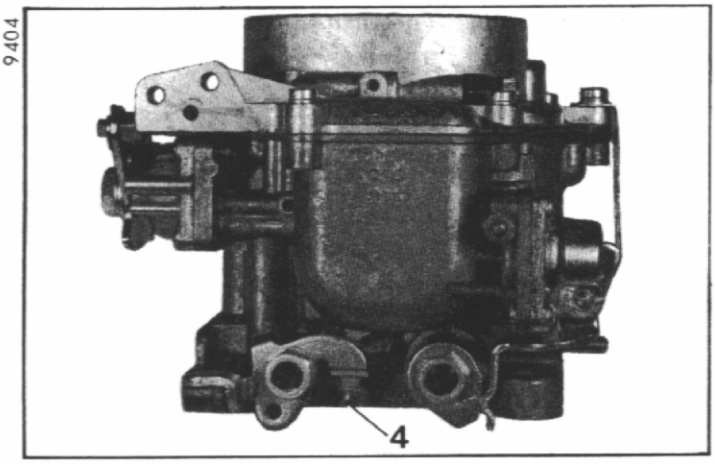
WARNING :

- The carburettor is set by the manufacturer. The position of the stop screws (2) and (4) for the butterflies of the primary and secondary chokes, is obtained by using a micro-measuring device and these *screws must in no circumstances be altered.* Only the idling air screw (1) may be adjusted to obtain the correct idling speed.

If the engine is running badly, the following points must be checked before any work is carried out on the carburettor :

- valve clearances,
- ignition and, in particular, the sparking plugs,
- strobe-timing of the distributor,
- carburettor cleanliness (blow the fuel-passages through with compressed air).

9404



Manual 810-1

A. CHECKING AND SETTING THE LEVEL OF FUEL IN THE FLOAT CHAMBER

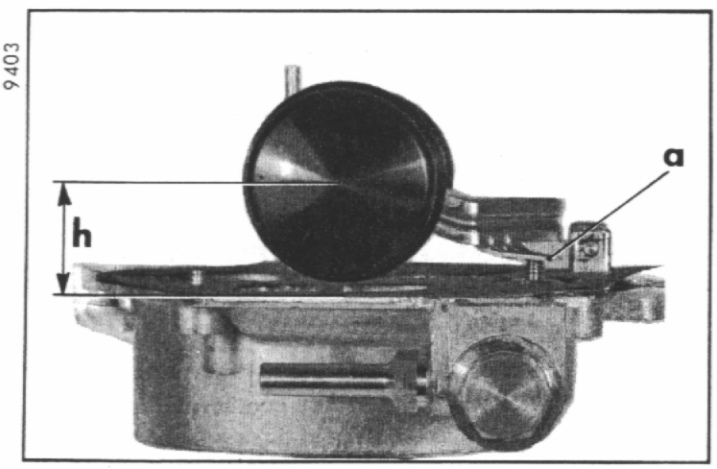
1. Disconnect the fuel feed pipe.
2. Remove the carburettor cover.
3. Check the float level :
   The dimension measured between the float centreline and joint face of cover (gasket in position) must be :
   a) Carburettors of CIT 118 series :
   h = 20 ± 1 mm
   b) Carburettors of CIT 133 series :
   h = 18 ± 1 mm
   If these conditions are not met, modify the position of the float by moving lug (a) to obtain dimension «h» for the type of carburettor being adjusted.

NOTE : The dimension «h» must be approximately the same for both floats (within 1 mm).

4. Fit the carburettor cover and ensure that the float does not touch the walls of the float chamber.
5. Connect the fuel feed pipe.

NOTE : When the float is set at the dimension «h» the float level (with cover removed) is such that the distance between the free surface of the petrol and the joint face of the float chamber should be 26 ± 1 mm. If not, re-adjust.

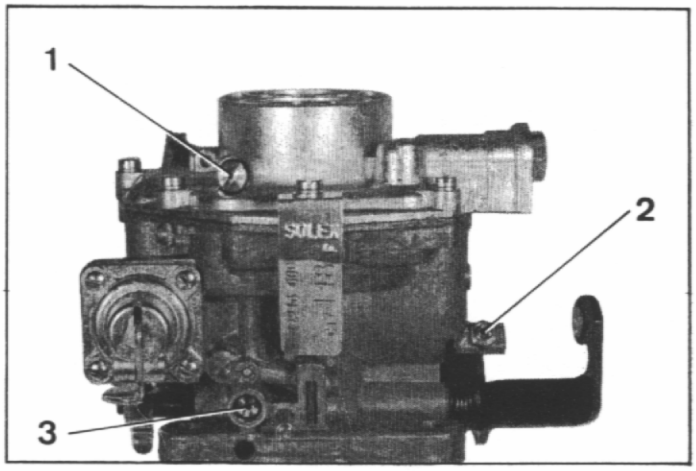
9403



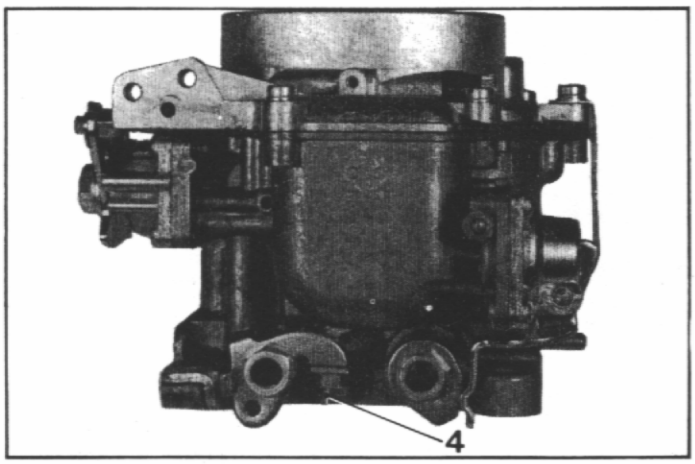
B. IDLING ADJUSTMENT

1. Ensure that the throttle butterflies, for the primary and secondary chokes, close properly.
2. Slacken the pressure regulator bleed screw.
3. **Pre-setting :**
   a) Tighten fully, without forcing, the volume control screw (3) then unscrew six turns.
   b) Tighten fully the air screw (1) then unscrew four turns.

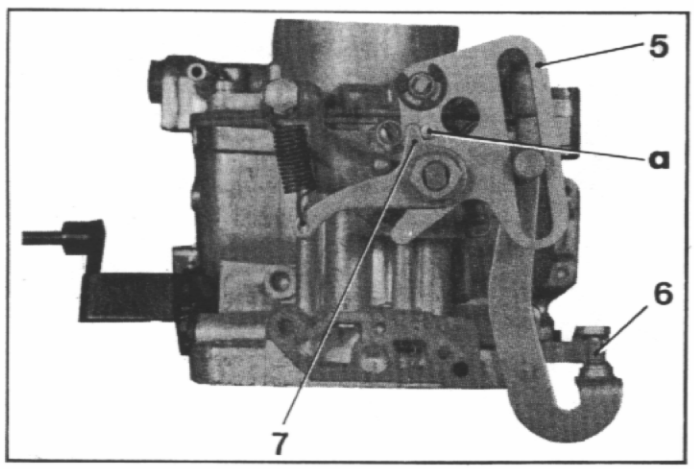
9401



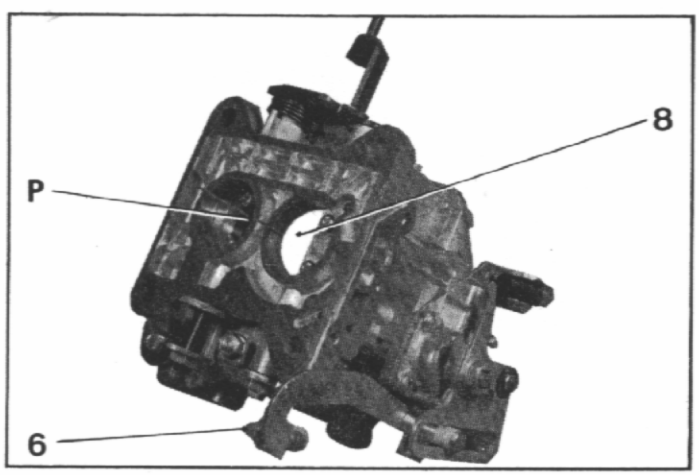
9404



10135



10138



4. **Adjustment** (use a workshop tachometer) :

a) Using the air screw (1) bring the idling speed to :

- $850 \begin{smallmatrix} +50 \\ 0 \end{smallmatrix}$ rpm (engine with torque converter)

- $900 \begin{smallmatrix} +50 \\ 0 \end{smallmatrix}$ rpm (engine with mechanical gearbox)

b) Find the peak idling speed by adjusting the volume control screw (3) in and out.

c) Then screw this screw (3) in, so as to cause the idling speed to fall by between 10 and 20 rpm.

d) If the final speed obtained is different from that quoted in a), reset it, and repeat operations b) and c).

NOTE : If, after repeated efforts to obtain the required settings, it is still impossible to obtain correct idling speed, check the opening of the butterflies as determined by their pre-set stop screws.

To do this :

e) Mark the position of stop screws (2) and (4) for the butterflies in the primary and secondary chokes.

f) Slacken the locknuts and unscrew these two screws until it is possible to obtain (manually) complete closure of each butterfly.

g) Continue as follows :

- Screw (2) in until it contacts the lever.
- Screw (4) in until it contacts the stop on the bottom of the float chamber.

h) Screw these two screws in to bring them to their original mark - there must be :

- three-quaters of a turn for screw (2)
- one turn for screw (4).

Otherwise adjust them to these settings.

- Tighten the locknut of each screw.

i) Adjust the idling speed as indicated in Part B above.

C. ADJUSTMENT OF THE CHOKE CONTROL

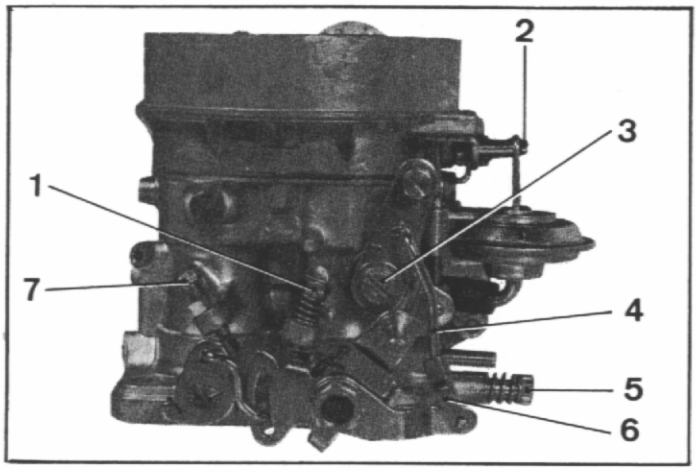
(On Carburettors marked CIT 118[2], CIT 118[3], CIT 133 and CIT 133[1]).

With the choke lever (5) in position indicated in the illustration (peg «a» in firm contact with lever (7), a rod P of 0.5 mm dia. must pass snugly but freely between the edge of the secondary throttle butterfly (8) and the body of the carburettor.

Otherwise adjust screw (6) to achieve this condition.

II - ADJUSTING CARBURETTOR : WEBER 30 DGS (50-00) until September 1972

(anti-pollution system)



10943

A. IDLING ADJUSTMENT

WARNING :

- *Do not alter secondary butterfly stop screw (7).* This is set, using a micro measuring device, by the manufacturer.
- Adjustment of the idling speed must only be carried out on an engine having the rockers and ignition correctly set.

Adjustment of idling speed and readings of CO and CO^2 (using a gas analyser) :

1. Ensure that the throttle butterflies in the primary and secondary chokes close properly.
2. Slacken the pressure-regulator bleed screw.
3. Ensure engine oil has reached a *temperature of between 70° and 80° (158° - 176°F).*
4. Adjust screw (1) to obtain correct idling speed :

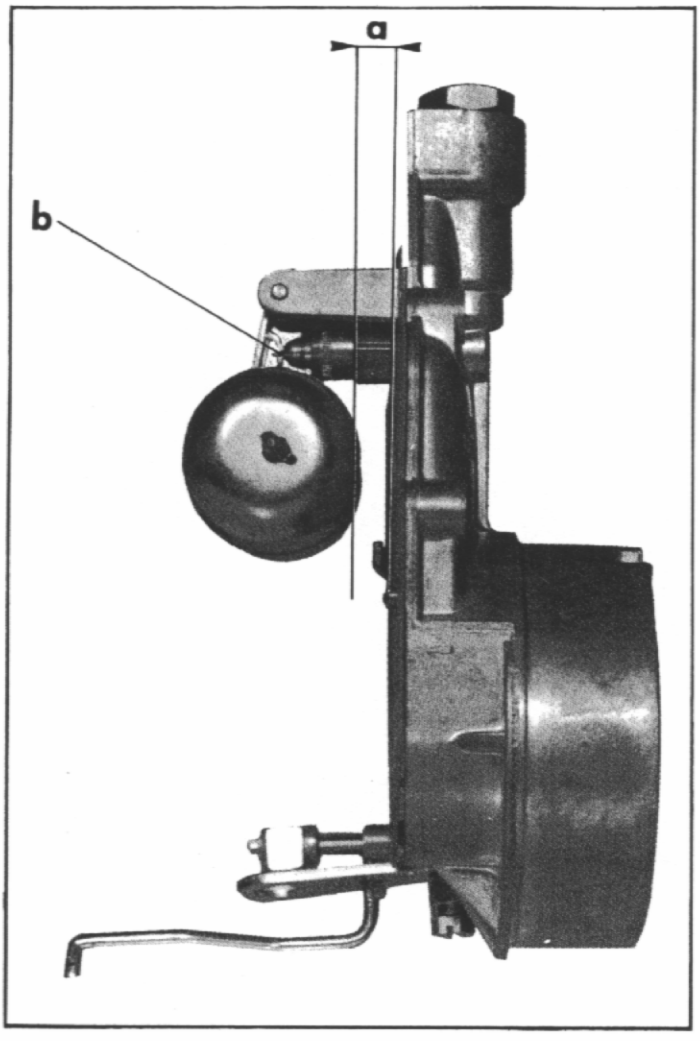
$$900 \begin{matrix} +50 \\ 0 \end{matrix} \text{ rpm}$$

5. Using screw (5) adjust the mixture to obtain :
   A CO reading of 2 to 3.5
   A CO^2 reading of 10 to 13 .

NOTES :

1) These readings have to be obtained with the engine idling at the speeds indicated in para 4. Both operations must be performed simultaneously.
2) The authorized CO and CO^2 readings are given for an ambient air temperature of between 15° and 30°C (61° and 86°F).

Manual 810-1



10950

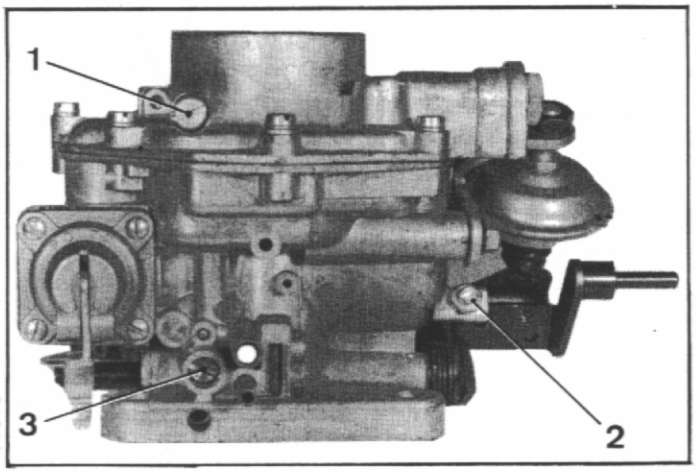
B. CHECKING AND ADJUSTING THE FLOAT LEVEL

1. Remove the carburettor cover.

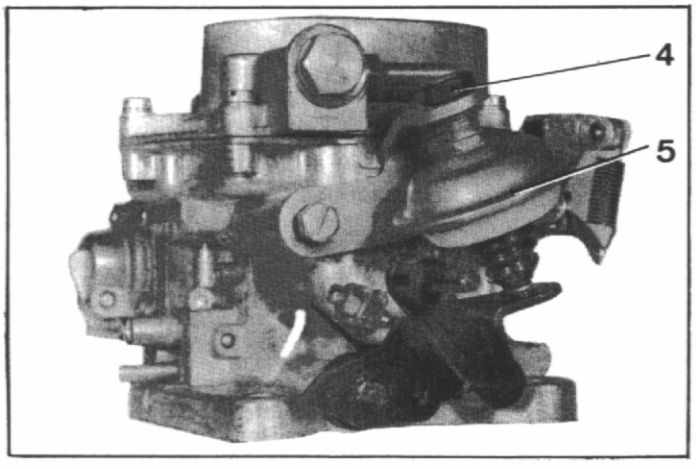
   To do this :
   - Remove clip (6) and its rubber washer and disconnect linkage rod (4) from throttle butterfly control lever.
   - Disconnect the choke lever from the carburettor body by removing screw (3) and its spring.
   - Disconnect the control lever from the capsule by removing circlip (2).
   - Remove the five cover-securing screws, and lift off the cover.
2. Hold the cover vertically as shown in the illustration (the needle valve ball not depressed). Measure distance «a» between the joint face of the cover (gasket in position) and the float. This distance must be *6.5 ± 0.25 mm* (use a shim or rod of this thickness). If not, adjust lug «b».
3. Refit the cover (reverse the operations detailed in para. 1 and 2 above).

III - ADJUSTING CARBURETTOR : SOLEX CIT 137 until September 1972

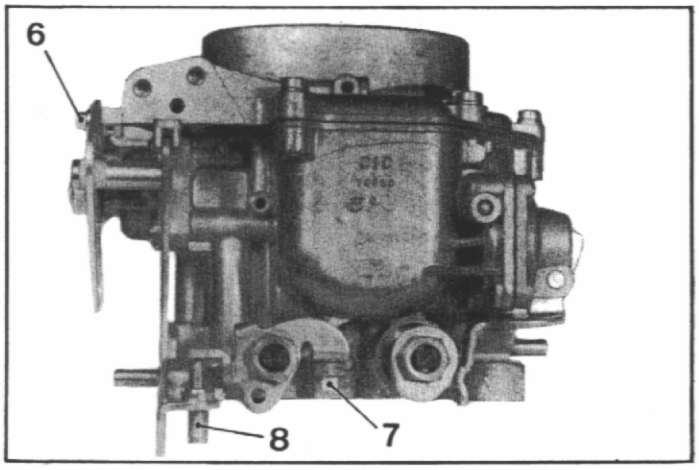
(anti-pollution system)



10292



10293



10291

A. IDLING ADJUSTMENT

WARNING :

- *Do not alter the position of butterfly stop screws (2) and (7)* of primary and secondary chokes. They are set, using a micro-measuring device, by the manufacturer.
- Adjustment of idling speed must only be carried out on an engine having the rockers and ignition correctly set.

Adjustment of idling speed and readings of CO and CO^2 (using a gas analyser) :

1. Ensure that the throttle butterflies in the primary and secondary chokes, close properly.
2. Slacken the pressure regulator bleed screw.
3. Ensure engine oil has reached a *temperature of between 70° and 80°C. (158° - 176°F).*
   Maintain this temperature throughout the adjustment operations.
4. Adjust screw (1) to obtain the correct idling speed
   $$900 \begin{smallmatrix} +50 \\ 0 \end{smallmatrix} \text{ rpm}$$
5. Using screw (3) adjust the mixture to obtain :
   - *A CO reading of 2 to 3.5* %
   - *A CO reading of 10 to 13* %.

NOTES :

(1) These readings have to be obtained with the engine idling at the speeds indicated in para. 4. Both operations must be performed simultaneously.

(2) The authorized CO and CO readings are given for an ambient air temperature of between 15° and 30° (61° and 86°).

B. CHECKING AND ADJUSTING THE CLOSING-DELAY OF THE THROTTLE-CLOSING DAMPER

1. **Check the closing delay :**
   The engine speed must fall from 2.500 to 1.000 rpm in a time of between 2 and 5 seconds.
2. **Adjust the closing delay :**
   Slacken the nut (4).
   Screw in the throttle-closing damper (5) to reduce the closing delay or reverse the action to increase it. Tighten the nut (4) between each time-measurement.

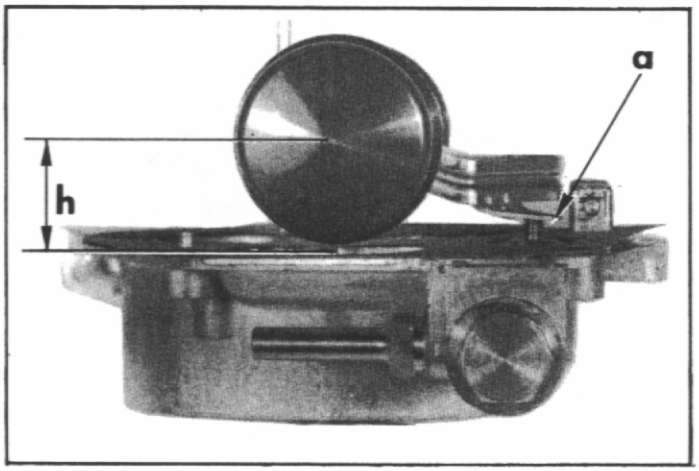
C. ADJUSTING THE CHOKE CONTROL

With the choke control (6) at the first notch (starting from the no-choke position) a 0.35 mm dia. rod must go through easily, but snugly between the secondary throttle butterfly and the body of the carburettor.

Otherwise adjust screw (8) to obtain this result.

D. CHECKING AND ADJUSTING THE LEVEL OF FUEL IN THE FLOAT-CHAMBER

9403



1. Disconnect the fuel feed pipe.

2. Remove the carburettor cover.

3. **Check the float level :**

   The dimension measured between the float centreline and joint face of cover (gasket in position) must be :

   H = 18 ± 1 mm

   and approximately the same for each float (within 1 mm).

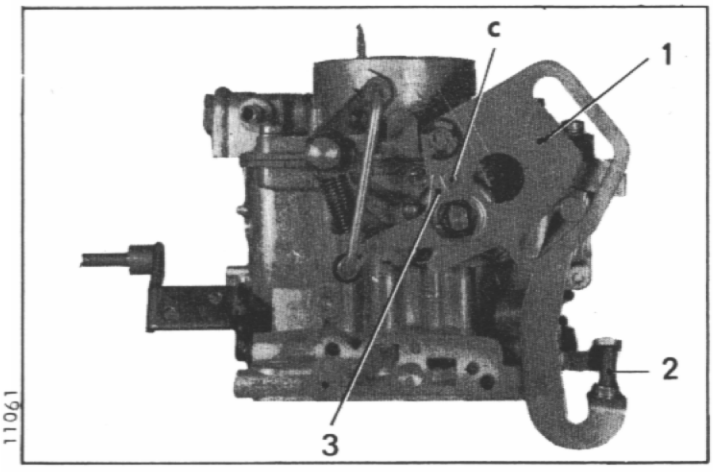
   If this dimension is not obtained, adjust lug « a » to modify the position of the float.

4. Fit the carburettor cover and ensure that the float does not touch the walls of the float-chamber.

5. Connect the fuel feed pipe.

NOTE : When the float is set at dimension « h », the fuel level in the float-chamber (with cover removed) is such that the distance between the free surface of the petrol and the joint face of the float chamber should be 26 ± 1 mm. If not, re-adjust.

II - ADJUSTING THE CHOKE CONTROL



11061

1. *On carburettors for vehicles produced until June 1973 and fitted with the choke lever A :*

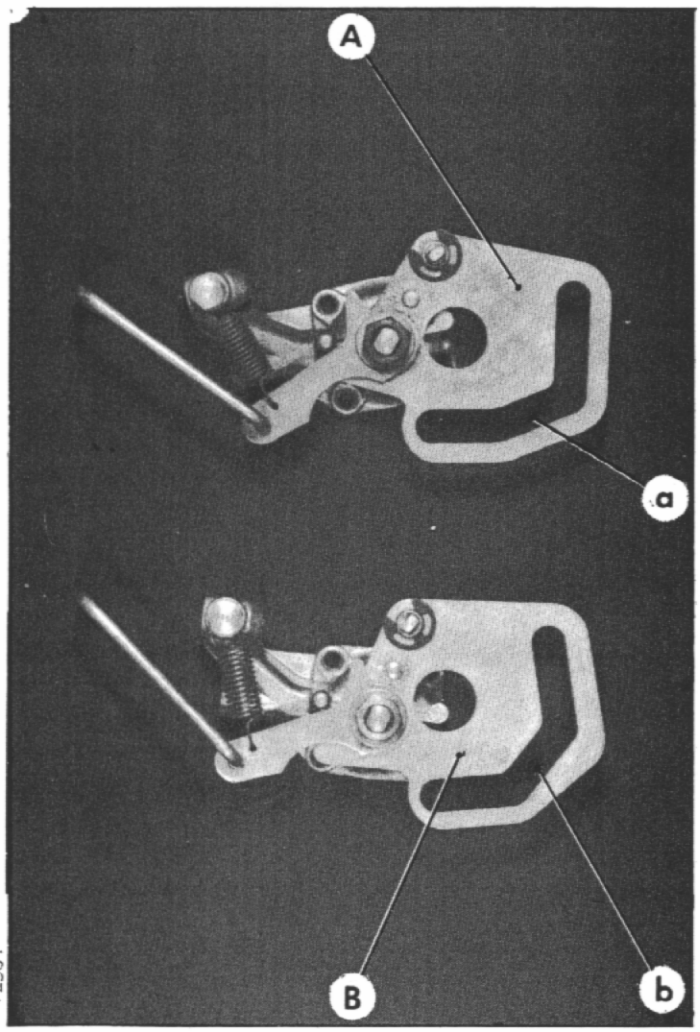
With choke lever (1) in position indicated in the illustration (peg «c» in firm contact with lever (3), a rod of *0.35 - 0.40 mm* must pass *freely but snugly* between the edge of the secondary throttle butterfly and the body of the carburettor.

Otherwise adjust screw (2) to obtain this result.

2. *On carburettors for vehicles produced since June 1973 and fitted with the choke lever B :*

With choke lever (1) in position indicated in the illustration (peg «c» in firm contact with lever (3), a rod of *0.25 - 0.35 mm* must pass *freely but snugly* between the edge of the secondary throttle butterfly and the body of the carburettor.

Otherwise adjust screw (2) to obtain this result.

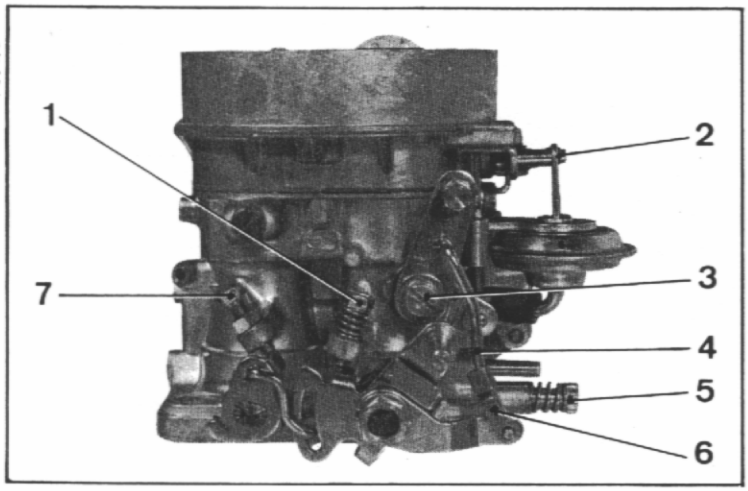


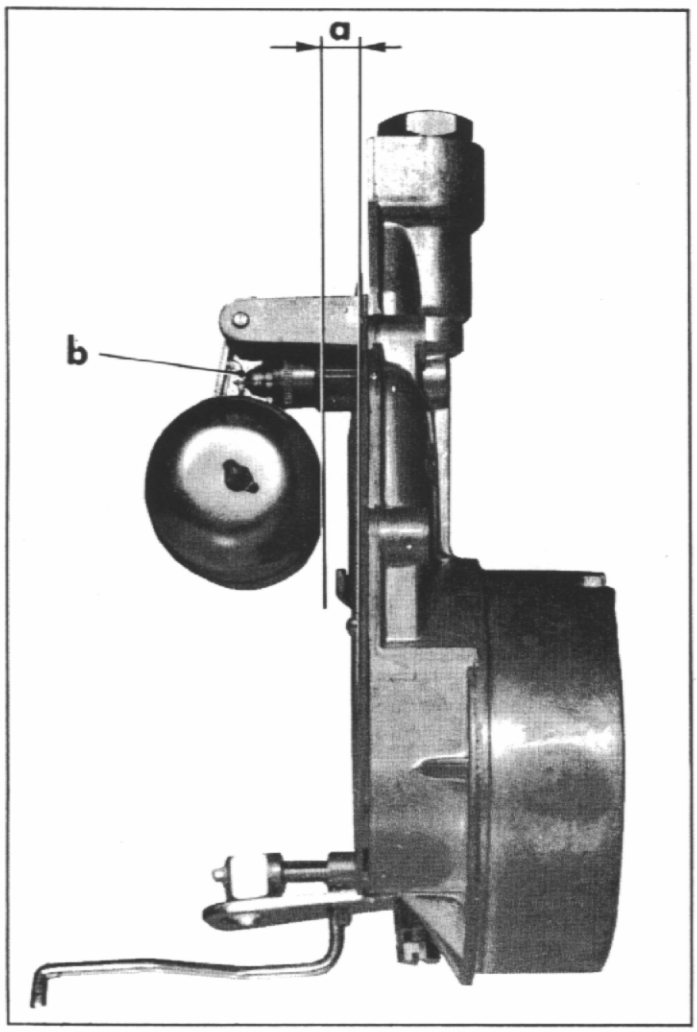
Manual 810-1
12561

NOTE : It is recommended that the choke control assembly A be replaced by the assembly B.
In this case, adjust the control as indicated above (Section 2).

WARNING : Before proceeding to any replacement or adjustment of the choke control, it is most essential to take note of the difference in profile of the slots in the choke levers :
«a» for lever A
«b» for lever B

ADJUSTING CARBURETTOR : WEBER 30 DGS[1] (W 51-00)





I - IDLING ADJUSTMENT

WARNING :

- *Do not alter the butterfly stop screw (7) of the secondary choke.* This is set, using a micro-measuring device, by the manufacturer.
- Adjustment of idling speed must only be carried out on an engine having a clean air-filter and the rockers and ignition correctly set.

Adjustment of idling speed and readings of CO and CO^2 (using a gas analyser).

1. Ensure that the throttle butterflies in the primary and secondary chokes close properly.
2. Slacken the pressure regulator bleed screw.
3. Ensure that the engine oil has reached a temperature of between *70° and 80 °C (158° and 176 °F).*
   Maintain this temperature throughout the adjustment operations.
4. Adjust screw (1) to obtain correct idling speed, depending on the type of vehicle.
   a) Vehicle with a torque converter :
   850 to 900 rpm
   b) Vehicle with conventional clutch :
   900 to 950 rpm
5. Using screw (5) adjust the mixture to obtain :
   A CO reading of 2 to 3.5
   A CO^2 reading of 10 to 13

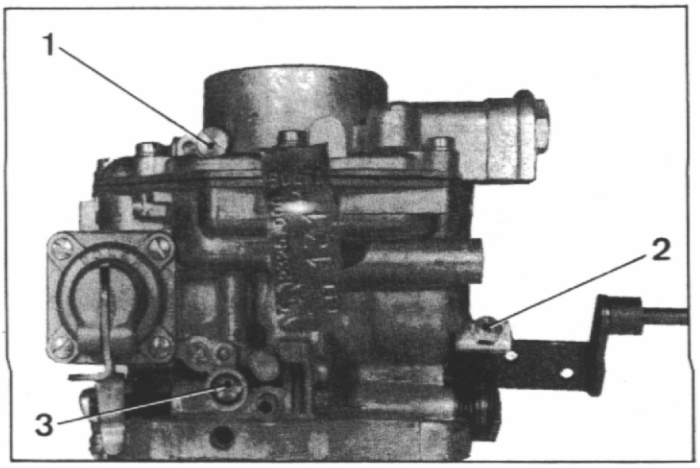
   NOTES :
   1) These readings have to be obtained with the engine idling at the speeds indicated in para. 4. Both operations must therefore be carried out simultaneously.
   2) The authorized CO and CO^2 readings are given for an ambient air temperature between 15° and 30 °C (61° and 86 °F).

II - CHECKING AND ADJUSTING THE LEVEL OF THE FLOAT

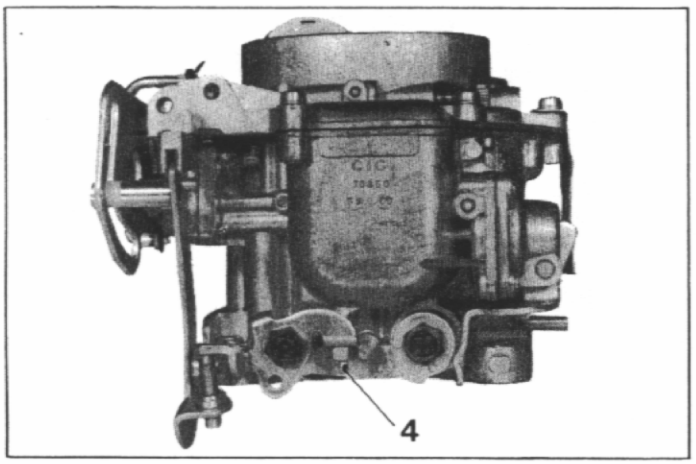
1. Remove the carburettor cover. To do this :
   - Remove clip (6) and its rubber washer and disconnect linkage rod (4) from throttle butterfly control lever.
   - Disconnect the choke control from the carburettor body by removing screw (3) and its spring.
   - Disconnect the control lever from the capsule by removing circlip (2).
   - Remove the five cover-securing screws and take off the cover.
2. Hold the cover vertically as shown in the illustration *(needle ball not depressed).*
   Measure the distance « a » between the joint face of the cover (gasket in position) and the float.
   This distance must be :
   « a » 6.5 ± 0.25 mm (use a shim of this thickness). If not, adjust lug « b ».
3. Refit the cover (reverse the sequence of operations detailed in para. 1 and 2 above).

ADJUST CARBURETTOR : SOLEX 28 CIC^3 (CIT 131^4)

10955



10956



I - IDLING ADJUSTMENT

WARNING :

- *Do not alter the butterfly stop screws (2) and (4)* of the primary and secondary chokes. These are set, using a micro-measuring device, by the manufacturer.
- Adjustment of idling speed must only be carried out on an engine having the rockers and ignition correctly set.

Adjustment of idling speed and readings of CO and CO^2 (using a gas analyser) :

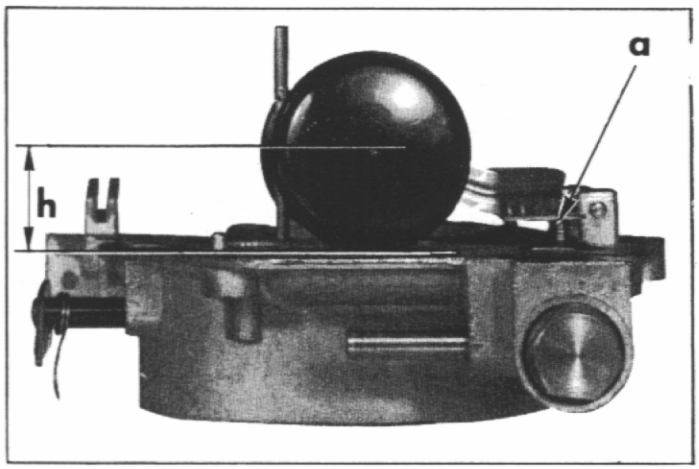
1. Ensure that the throttle butterflies in the primary and secondary chokes close properly.
2. Slacken the pressure-regulator bleed screw.
3. Ensure engine oil has reached a *temperature of between 70° and 80 °C (158° and 176 °F).*
   Maintain this temperature throughout the adjustment operations.
4. Adjust screw (1) to obtain correct idling speed, depending on the type of vehicle :
   a) Vehicle with torque converter :
   850 to 900 rpm
   b) Vehicle with conventional clutch :
   900 to 950 rpm
5. Using screw (3), adjust the mixture to obtain :
   A CO reading of 2 to 3.5
   A CO^2 reading of 10 to 13

NOTES :

(1) These readings have to be obtained with the engine idling at the speeds indicated in para. 4. Both operations must, therefore, be carried out simultaneously.

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

10959



III - CHECKING AND SETTING THE LEVEL OF FUEL IN THE FLOAT CHAMBER

1. Disconnect the fuel feed pipe.

2. Remove the carburettor cover.

3. **Check the float level :**

The distance measured between the float centreline and joint face of cover (gasket in position) must be **h = 18 ± 1 mm** and approximately the same for each float (within 1 mm). If this dimension is not obtained adjust lug « a » to modify the position of the float.

4. Fit the carburettor cover and ensure that the float does not touch the walls of the float chamber.

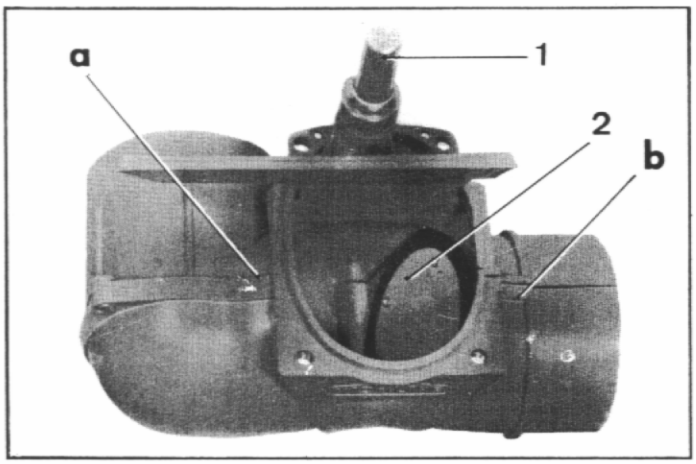
5. Connect the fuel feed pipe.

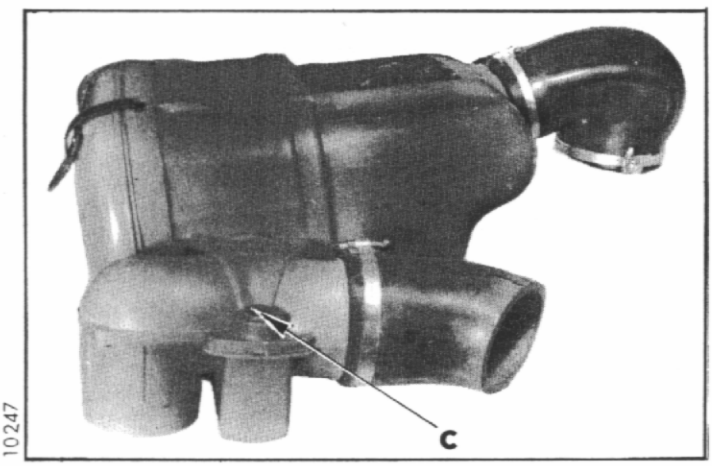
NOTE : When the float is at dimension « h » the fuel level (with cover removed) is such that the distance between the free surface of the float chamber should be 26 ± 1 mm.
If not, re-adjust.

PREHEATING OF THE AIR INTAKE SYSTEM

CHECKING THE THERMOSTATIC CONTROL

10472





10247

Manual 810-1

Checking Procedure :

- For an ambient temperature of below 36°C (97°F), the flap (2) closes the duct (b) (ambient intake air).

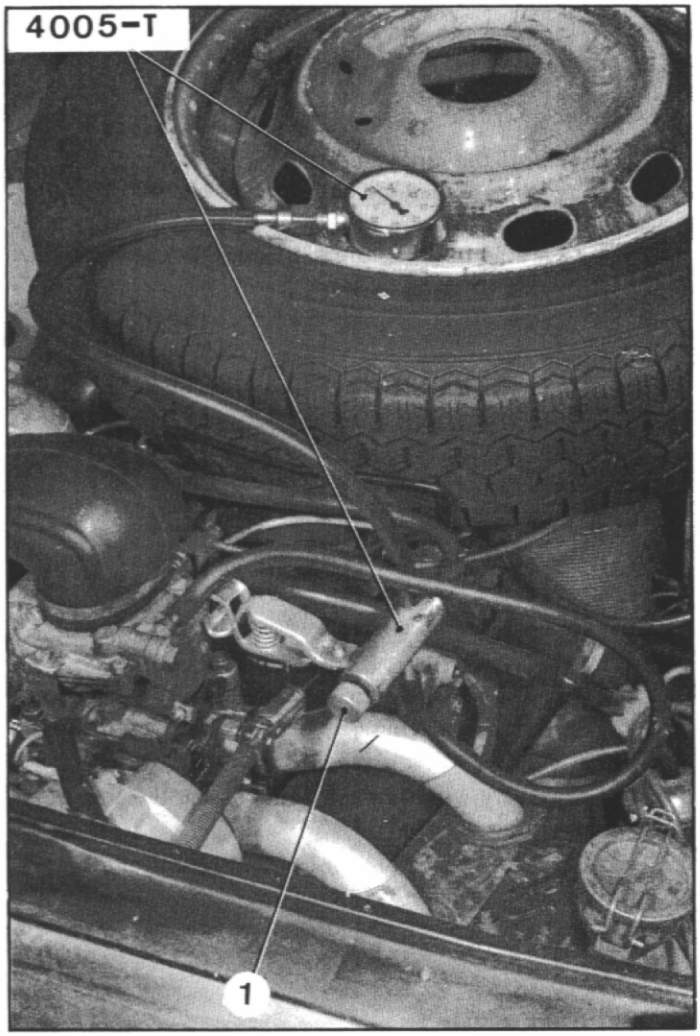
- Dip the gauge (1) in cold water.

- Slowly heat water to raise its temperature progressively.

- When it reaches or exceeds 39° ± 3°C (102° ± 5°F), the flap (2) should progressively close the duct (a) (preheated air) and stay in that position.

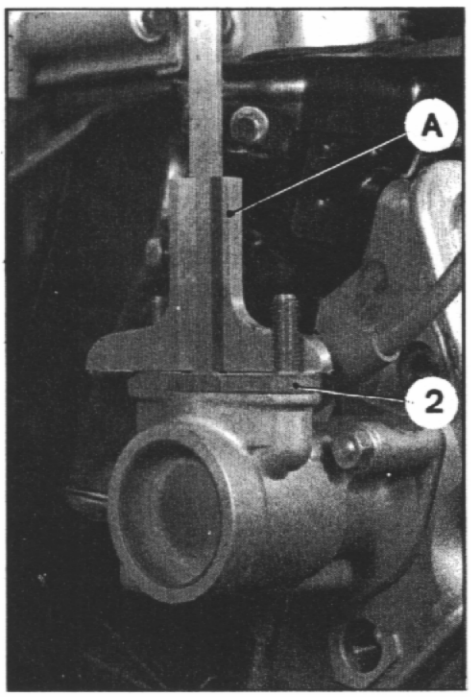
- Let the water cool. When its temperature reaches or falls below 30° ± 3°C (102° ± 5°F), the flap (2) should close the duct (b) (ambient intake air).

NOTE : During the warming-up of the engine on a vehicle, it is possible to check the movement of the flap by observing the mark (c) placed on the end of the flap spindle, or by inserting a thin rod into the rubber air-intake hose.



11145

Manual 810-1



8654

FUEL PUMP

1. Characteristics :

Suction and pressure pump of the diaphragm type actuated by an eccentric at the end of the camshaft.

Suppliers	GUIOT	AC DELCO
References	567 A	6930

2. Checks using test device 4005-T :

- Put the device in position as indicated on figure on the left.
- Unscrew the knurled knob (1) approximately one and a half turns.
- Start the engine.

a) *Pressure check at zero delivery :*
- Screw in completely the knurled knob (1).
- Read on the pressure-gauge the stabilized pressure which must be : 250 mb (3.5 psi) max.

b) *Check fuel-tightness of the pump inlet valve :*
- Stop the engine.
  The pressure must not drop abruptly.

c) *Check the fuel-tightness of the carburettor needle valve :*
- Slacken the knurled knob (1).
- Start the engine and let it run for a few seconds.
- Stop the engine.
  The pressure must not drop abruptly.

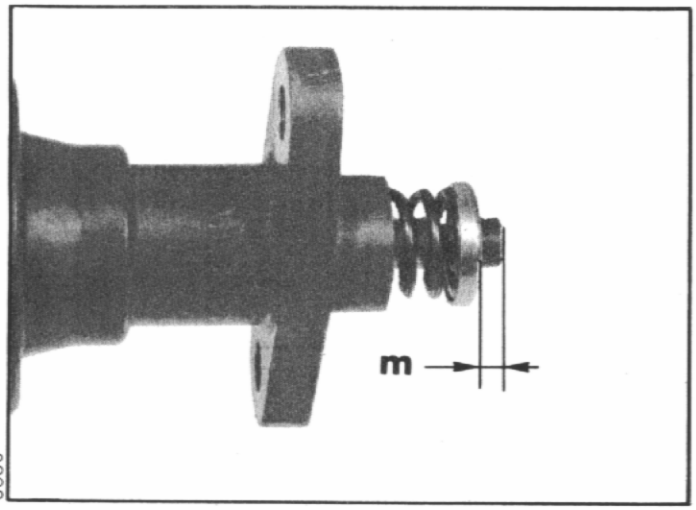
Remove the device 4005-T.

Re-connect the fuel feed pipe to the carburettor.

3. Check the travel of the pump push-rod :

a) Using a depth gauge « A » measure the distance between the upper face of the spacer (2) and the actuating eccentric of the pump, first *at the high.* then *at the low position.*

Turn the engine with the starting handle or the starter-ring to facilitate this operation. This distance should be between : *21.5 and 22 mm (high position of eccentric) and 26.5 and 27 mm (low position of eccentric).*



b) Measure the distance (m) between the spring-cup and the end of the pump spindle ; *this must be at least 4 mm.*

4. **Check for leaks :**

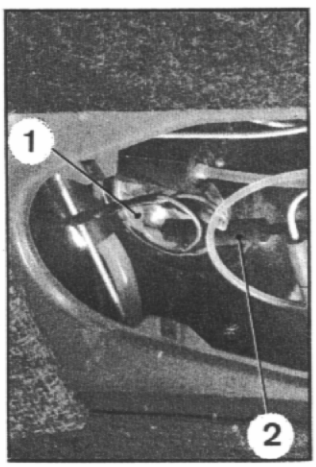
Blank off the outlet pipe.
Blow compressed air at a pressure of 800 mb (11 $\frac{1}{2}$ psi) into the inlet pipe of the pump. Immerse the unit in a container filled with clean petrol.
No leaks must be visible.

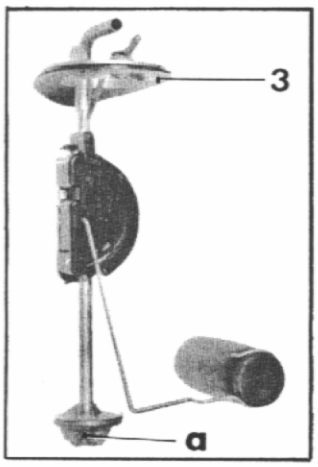
CLEANING A FUEL FILTER

REMOVAL :

5. Disconnect the earth lead from the battery.

6. Remove the fuel-gauge sender, gaining access from inside the boot, as follows :
   - Remove the cover plate.
   - Disconnect the two leads and uncouple the flexible pipe (1) from the sender. Remove the transmitter locking-ring (2) from the tank by rotating it $\frac{1}{6}$ of a turn anti-clockwise.
   - Carefully withdraw the sender from the tank, avoiding damage.
   - Clean the filter element (a) in petrol and blow out with compressed air.

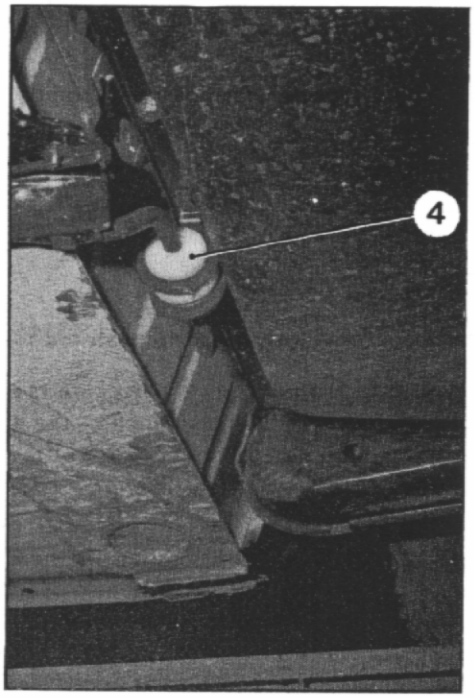




FITTING :

7. Fit the sender :
   - First insert the float into the tank, then the suction pipe.
   - Correctly locate the gasket (3).
   - Fit the locking ring (2) and turn it $\frac{1}{6}$ turn clockwise.
   - Connect the leads and couple up the flexible pipe (1) to the sender.
   - Fit the cover plate.

8. Connect the earth lead at the battery and check the operation of the fuel gauge sender.



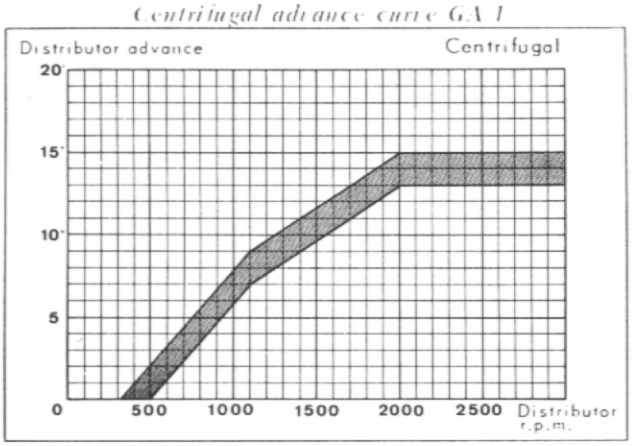
FUEL FILTER

Make : GUIOT.
Reference : G. 20.
Since February 1972 a filter (4) is fitted to the fuel feed system between the tank and pump.

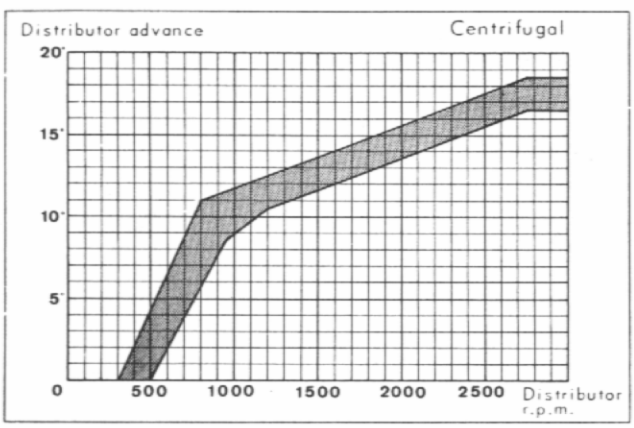
NOTE : The filter must be renewed every 20.000 km (12.000 miles).
Strictly observe the correct direction of fitting ; an arrow indicates the direction of petrol flow.

OPERATION No. G. 210-00 : *Characteristics of the ignition system Engine G. 10 (1015 cc)*

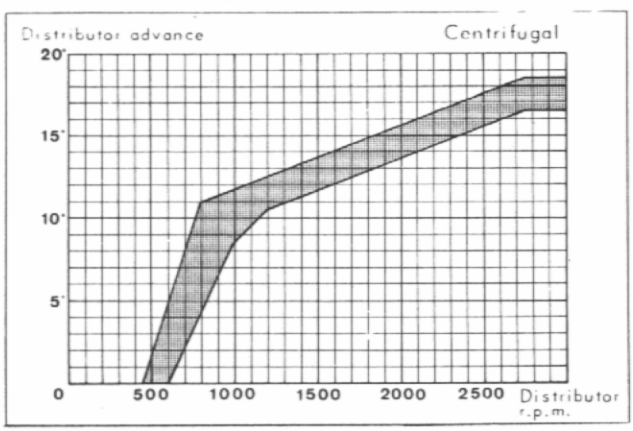
Centrifugal advance curve GA 1



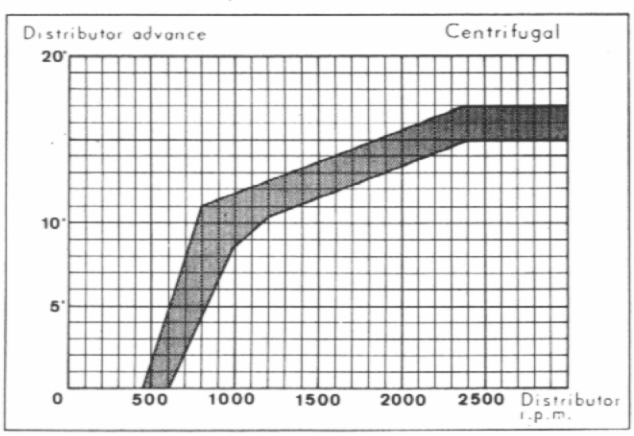
Centrifugal advance curve GA 2



Centrifugal advance curve GA 4



Centrifugal advance curve GA 5



CHARACTERISTICS

DISTRIBUTOR

Make and references (engraved on body)

SEV-MARCHAL («Cassette» type) :

41310002 until 1/1971
41301002 from 1/1971 until 12/1971
41301202 from 12/1971 until 9/1972
41301302 from 9/1972

DUCELLIER :

4310 A from 1/1971 until 12/1971
4431 A from 12/1971 until 9/1972
4451 A from 9/1972

These distributors are fitted with :
- centrifugal-advance device
- Vacuum-advance device

Direction of rotation (seen from drive end) : clockwise.

Firing order : 1 - 4 - 3 - 2

Contact-breaker gap :
0.35 to 0.45 mm (0.014 to 0.018 in.)
Dwell angle of contact-breaker : 57 ± 2°
Dwell ratio : 63 ± 3 %

Static setting : 10° before TDC.

Mark on flywheel :

a) Vehicles produced until Oct. 71 :
- rod hole corresponding to 10° initial advance before TDC.

b) Vehicles produced from Oct. 71 :
A chisel mark is imprinted into the flywheel **and a sector graduated in crankshaft degrees is fixed on the crankcase.**

WARNING : When the mark on the flywheel is aligned with the zero mark on the graduated sector, the crankshaft is at TDC of cylinders No. 1 and 3.

References of ignition advance-curves (engraved on the distributor) :

a) Distributors fitted on vehicles until 1/1971

Description	Refer.	Supplier's Reference
		SEV
Centrifugal advance	GA1	A270
Vacuum advance	GD1	C100

b) Distributors fitted on vehicles from 1/1971 until 11/1971

Description	Refer.	Supplier's Reference	
		SEV	Ducellier
Centrifugal advance	GA2	A283	4310 A
Vacuum advance	GD1	C100	

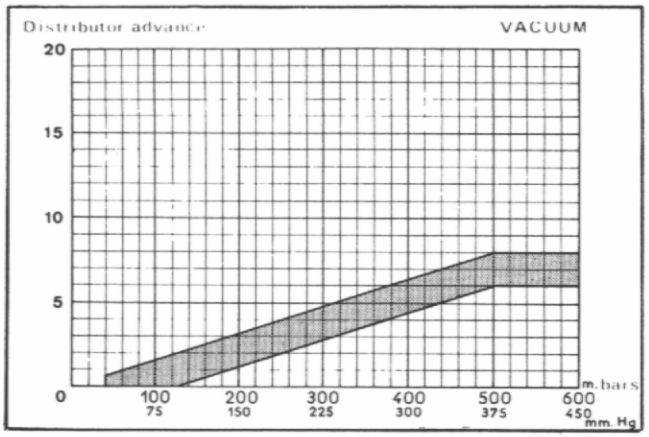
c) Distributors fitted on vehicles from 12/1971 until 9/1972

Description	Refer.	Supplier's Reference	
		SEV	Ducellier
Centrifugal advance	GA4	A296	4431 A
Vacuum advance	GD1	C100	

d) Distributors fitted on vehicles from 9/1972

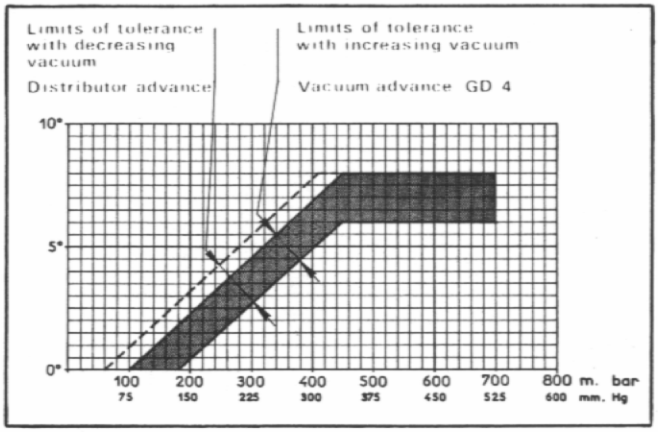
Description	Refer.	Supplier's Reference	
		SEV	Ducellier
Centrifugal advance	GA5	A314	4451 A
Vacuum advance	GD4	C114	

Vacuum advance curve GD. 1



G. 21-5

Vacuum advance curve GD. 4



G. 21-11

Static setting of the distributor with a timing lamp :

Reference on distributor	GA 1 or GA 1 - GD 1	GA 2 - GD 1		GA 4 - GD 1 GA 5 - GD 4
		until 10/1971	*from 10/1971*	
Setting (Static timing)	15° BTDC (2 teeth before pin enters hole)	10° BTDC (pin enters hole)	10° BTDC (Graduated sector engine)	

Check the advance curve (engine running), using a strobe light :
(vacuum disconnected)

Distributor curve	Time at these engine rpm	Advance in crankshaft degrees		Advance in distributor degrees in relation to timing static setting *(read on Graduated Sector 3093-T)*
		Total advance	Advance in relation to static setting	
GA 1 or GA 1 - GD 1	2000 rpm	29°	19°	9° 30
GA 2 - GD 1 *until 10/1971*	2500 rpm	33°	23°	11° 30
GA 2 - GD 1 *from 10/1971*	2500 rpm	33° *(read on graduated sector fixed on engine)*		
GA 4 - GD 1 GA 5 - GD 4	2500 rpm			

SPARKING PLUGS

Electrode gap :

0.6 to 0.7 mm until 5/1972 (0.024 to 0.028 in.)
0.65 to 0.8 mm from 4/1972 (0.026 to 0.032 in.)

Tightening Torque :

(head cold) 20 to 25 m\N
(2 to 2.5 m.kg) 14 to 18 ft. lb.

NOTE : Refer to Technical Notes appearing periodically, describing makes and types of sparking plugs.

COIL

Type with external resistor.

References :

DUCELLIER ..... 2777B until 7/1971
DUCELLIER ..... 2777C from 7/1971
or SEV-MARCHAL... E 44910312
or MARELLI ..... BZR 206 A from 6/1972

CONTACT-BREAKER CAPACITOR

Capacitance ..... 0.25 to 0.30 μF

HIGH-TENSION LEADS

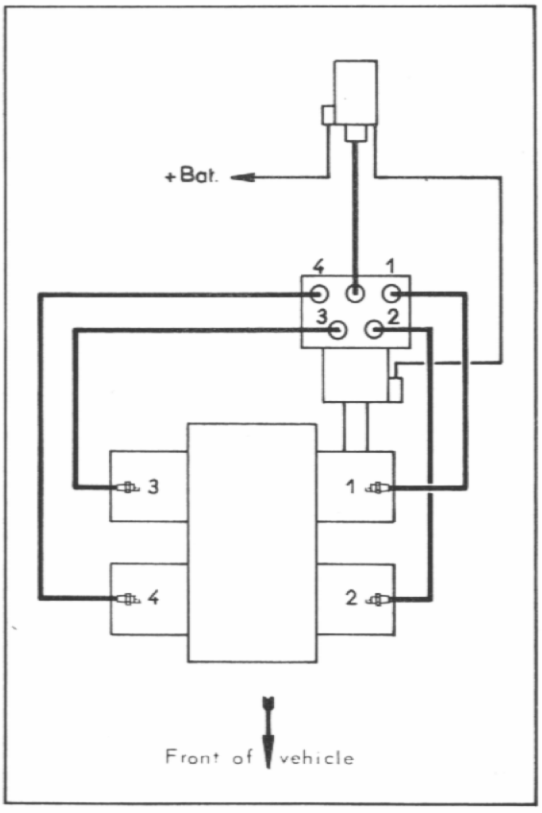
Make ..... ELECTRICFIL BOUGICORD

Reference ..... 400 RTF 33-0

Resistance of leads (at 20°C) :

- Coil to distributor..... 160 to 250 Ω until 9/1971
  420 to 720 Ω from 9/1971
- Distributor to cyl. No. 1 ..... 370 - 570 Ω
- Distributor to cyl. No. 2 ..... 650 - 990 Ω
- Distributor to cyl. No. 3 ..... 1200 - 1820 Ω
- Distributor to cyl. No. 4 ..... 1430 - 2160 Ω

I - CHECKING THE CONTACT BREAKER GAP



1. Using a dwell-angle meter or an oscilloscope :

With the engine running read a dwell-angle of the contact breaker equal to $57° \pm 2°$.

2. Using a dwellmeter :

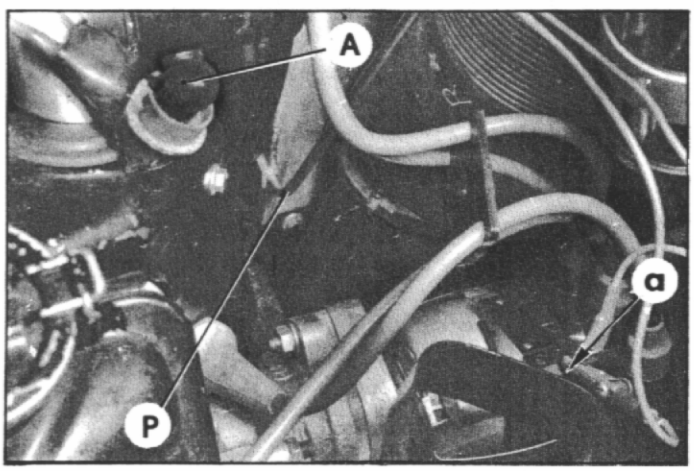
With the engine running read a dwell ratio equal to $63\ \% \pm 3\ \%$.
Should these values not be obtained, remove the distributor cap, then the distributor itself, and adjust the contact breaker on a distributor test bench.

3. Using a set of feeler gauges :

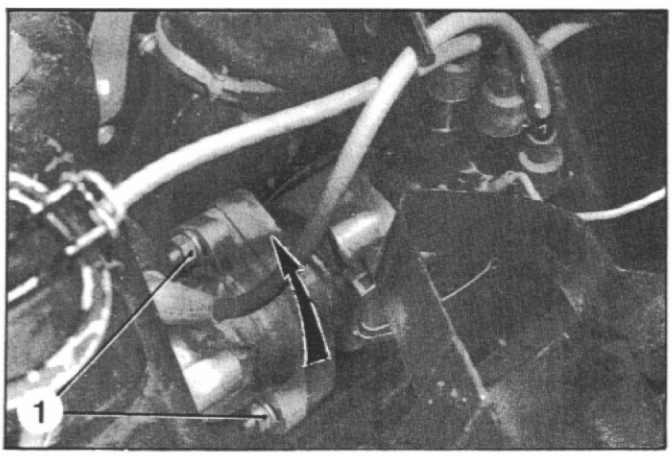
Remove the distributor as described in 2. above. Turn the distributor shaft until one of the cam lobes lifts the arm to its maximum height. At this point measure the gap between the contact points ; it should be *0.35 to 0.45 mm* (0.016 ± 0.002 in.). If not, adjust to this dimension.

II - SET THE DISTRIBUTOR WITH AID OF A TIMING LAMP AND CHECK ADVANCE CURVE WITH A STROBE-LIGHT

Manual 810-1



8356

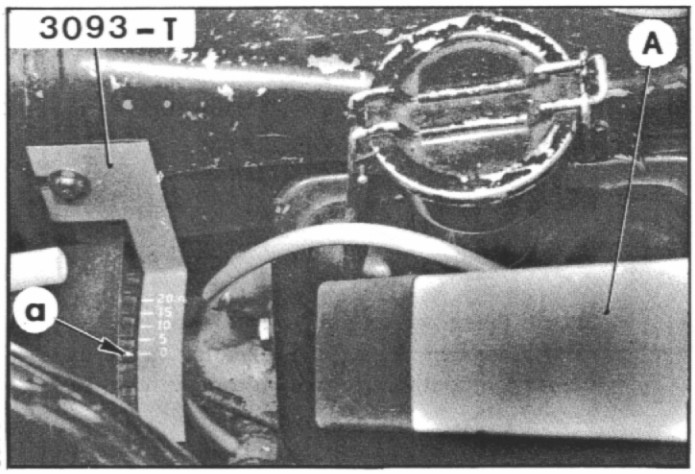


8358

1. *Vehicles produced until October 1971 and fitted with a distributor reference : GA1 or GA1-GD1 or GA 2 - GD 1.*

A - SETTING WITH A TIMING LAMP :

a) Set cylinder No. 1 to the end of compression stroke, i.e. TDC.
b) Insert a static timing pin of 5 mm dia. into the hole provided in the crankcase (left-hand side).
c) Turn the engine with handle until :
- the flywheel is two teeth before the point where the pin enters the flywheel hole, i.e. 15° before TDC.
(For a distributor with reference GA 1 or GA 1 - GD 1).
- Pin enters the hole in the flywheel i.e. 10° before TDC.
(For a distributor with reference GA 2 - GD 1).
At this instant the engine is at the static timing position.
d) Withdraw the timing pin.
e) Connect a timing lamp, A, between earth and the terminal at «a» of the capacitor on the distributor.
f) Switch on the ignition.
g) Slacken the distributor fixing-nuts (1). Slowly turn the distributor body in the direction of the arrow (see fig.). Stop turning the moment the lamp lights, indicating separation of the points.
Tighten the fixing-nuts.
h) Switch off the ignition.



8390

B - CHECKING THE TIMING WITH A STROBE LIGHT :

IMPORTANT : This operation must be carried out immediately following the previous operation.

a) Insert the pin into the crankcase and slowly turn the engine until the pin enters the hole in the flywheel *(Distributor with reference GA 1 or GA 1 - GD 1 only).*
Withdraw the pin.

b) Fit the graduated sector 3093-T as shown in figure (to the left).

c) Paint a fine line in white (a) on the camshaft wheel (left-hand side), in line with graduation «0» of the sector.

d) Disconnect the flexible pipe to the vacuum advance.

e) Connect a workshop tachometer.

f) Switch on the strobe light A and connect the h.t. lead to the ignition circuit of cylinder No. 1.

g) Run the engine. Light up the graduated sector with the strobe light and accelerate the engine : the mark on the camshaft pulley must appear to move.

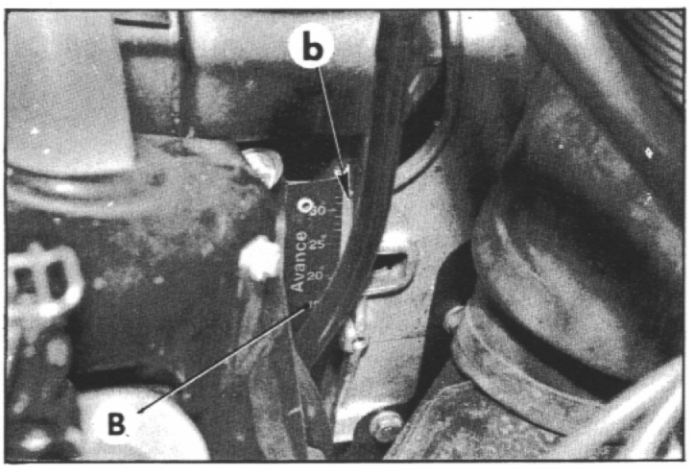
h) **Check the strobe timing point :** *For a distributor with references GA 1 or GA 1 - GD 1 :* at *2 000 ± 50 rpm* the mark (a) must become steady and correspond to :
9° 30' ± 1° on the graduated sector.
0

For a distributor with reference GA 2 - GD 1 : at *2 500 ± 50 rpm* the mark (a) must become steady and correspond to :
11° 30' ± 1° on the graduated sector.
0

IMPORTANT : If this condition is not correct, do not change the distributor setting (the advance initial adjustment would also become incorrect). In this case remove the distributor and correct the advance curve on a distributor testing bench.

i) Switch off the ignition, disconnect the test equipment. Remove the graduated sector 3093-T.

j) *Re-connect the flexible pipe to the vacuum advance.*



10394

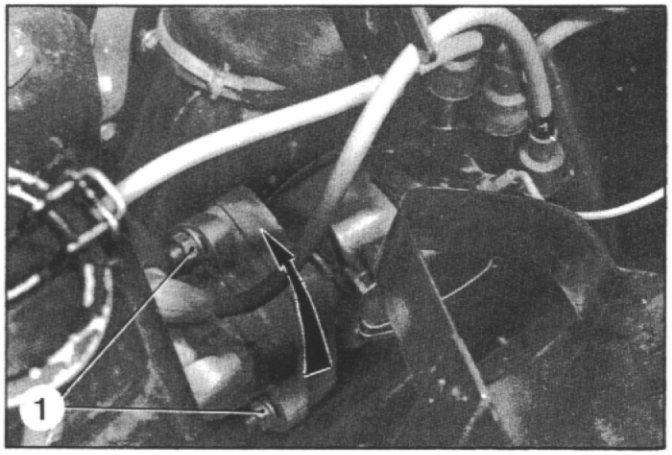
2. *Vehicles produced since October 1971 and fitted with distributors with references :*

GA 2 - GD 1 to 11/1971
or GA 4 - GD 1 to 9/1972
or GA 5 - GD 2 from 9/1972 (1015 cc) engine
or GA 3 - GD 4 from 9/1972 (1220 cc) engine

NOTE : On these vehicles a mark «b» is engraved on the flywheel and *a sector B graduated in crankshaft degrees* is fixed to the crankcase.

When the mark «b» on the flywheel is aligned with the graduation «0» of sector B the pistons of cylinders No. 1 and 3 are at TDC.

8358



A - SETTING WITH A TIMING LAMP

a) Set the cylinder No. 1 to the end of compression stroke.

b) Turn the engine so that mark « b » of flywheel is aligned with the 10° graduation on sector B (use mirror).

c) Switch on ignition and connect the timing lamp between the terminal « RUP » of the ignition coil, and earth.

d) Slacken the fixing nuts (1) and turn distributor in the direction of the arrow (see fig.) until the lamp lights. At this instant the engine is at the static setting.

e) Tighten the fixing nuts.

f) Switch off the ignition and remove the lamp.

B - CHECKING THE STROBE TIMING WITH A STROBE LIGHT

IMPORTANT : This operation must be carried out immediately following the previous operation.

a) *Disconnect the flexible vacuum advance pipe.*

b) Connect a workshop tachometer.

c) Switch on the strobe light and connect the h.t. lead to the ignition circuit of cylinder No. 1.

d) Run the engine and accelerate. Light up the graduated sector B and flywheel with the strobe light. The mark (b) must appear to move.

e) **Check the strobe-timing at :**

2.500 ± 50 rpm the mark (b) must become steady and correspond to :

$33° \pm 2°$ on the graduated sector.
0

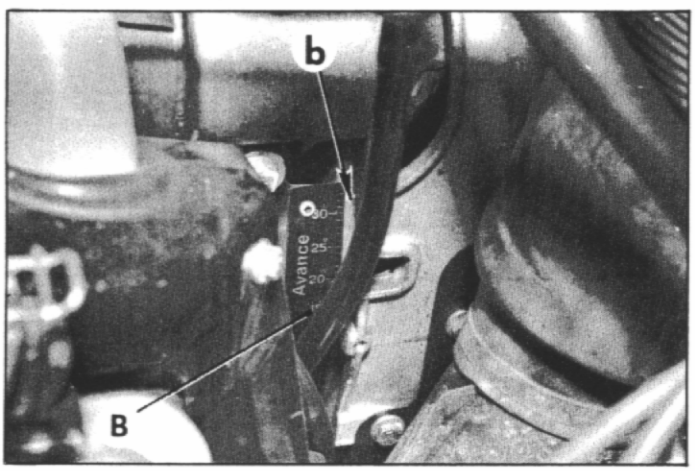
IMPORTANT : If this condition is not correct do not change the setting of the distributor. (The initial setting would also become incorrect). In this case, remove the distributor and correct the advance curve on a distributor test bench.

f) Switch off the ignition, disconnect the test equipment.

g) *Re-connect the flexible pipe to the vacuum advance.*

Manual 810-1

10394



III - CHECK OF THE ADVANCE CURVE CHARACTERISTICS ON THE DISTRIBUTOR TEST BENCH

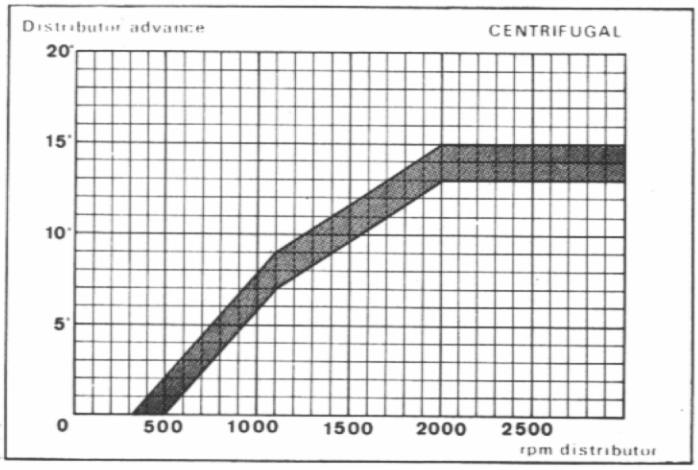
1. Check of the centrifugal advance curves GA. 1 - GA. 2 - GA. 3 - GA. 4 - GA. 5 :

These curves are checked *at zero vacuum* (capsule disconnected).

Plot several points on the curve, while raising the speed of the distributor from 1.000 to 4.000 rpm, lowering it to 0 rpm, and finally increasing it again from 0 to 1.000 rpm.

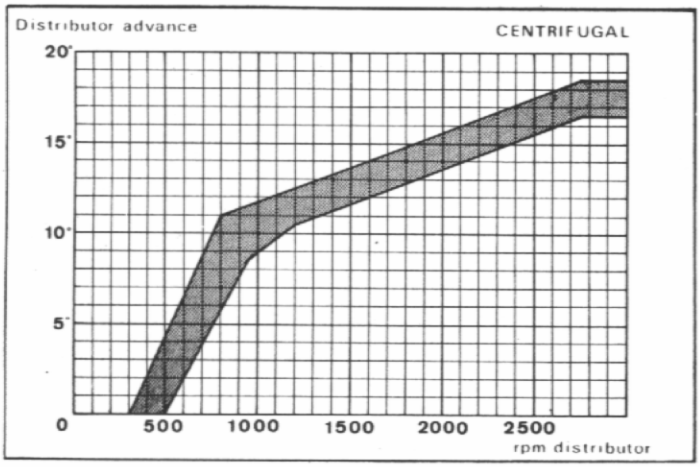
The points are plotted without ever going back and they must fall within the graph of the corresponding curve. If not, correct the advance curve, by modifying the spring tensions of the advance mechanism weight, by bending their attachment-lugs.
If necessary, fit new springs.

Curve for centrifugal advance GA. 1



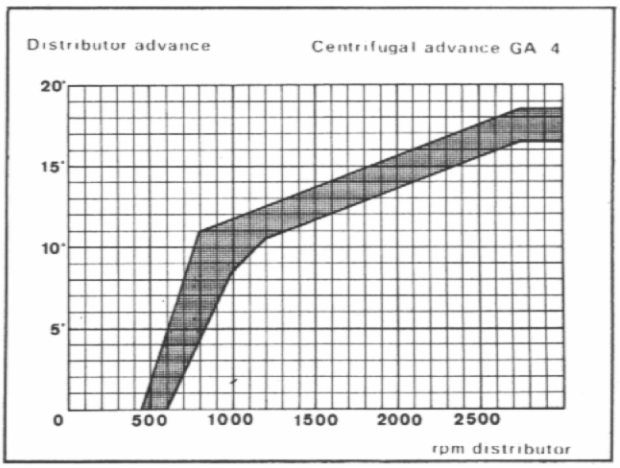
G. 21-2

Curve for centrifugal advance GA. 2



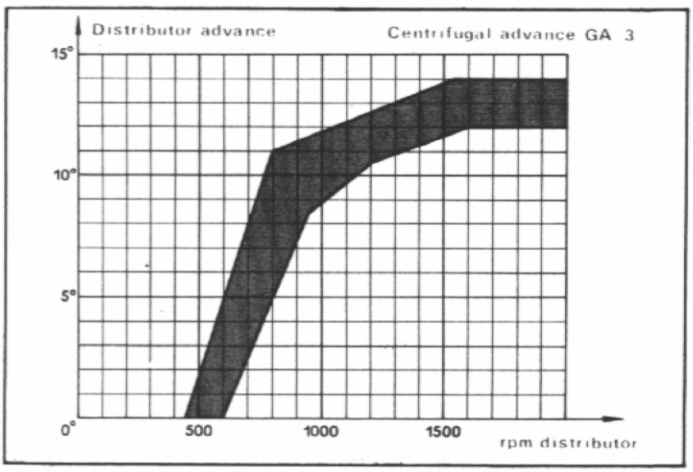
G. 21-4

Curve for centrifugal advance GA. 4



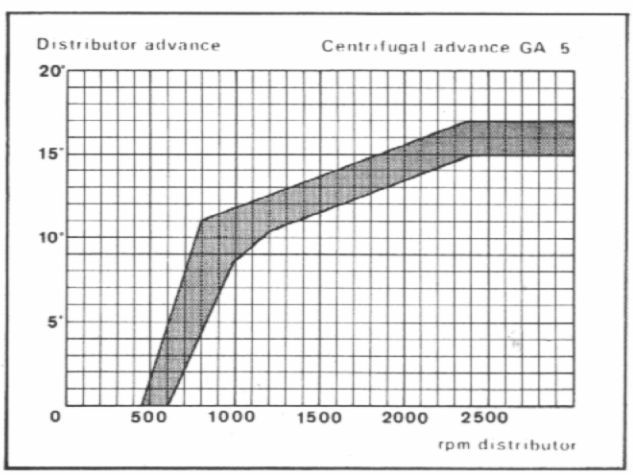
G. 21-8

Curve for centrifugal advance GA. 3



G. 21-10

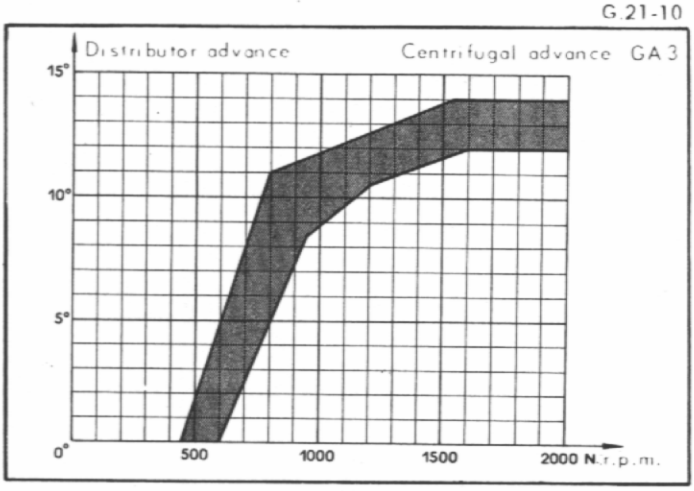
Curve for centrifugal advance GA. 5



G. 21-7 a

CHARACTERISTICS

G. 21-10



DISTRIBUTOR :

Makes and references : (engraved on body).
- DUCELLIER 4411 B
- SEV-MARCHAL 41301402 («cassette» type).

These distributors are fitted with :
- a centrifugal advance device
- a vacuum advance device

Direction of rotation :
Clockwise (seen from drive end).

Firing order : 1 - 4 - 3 - 2.

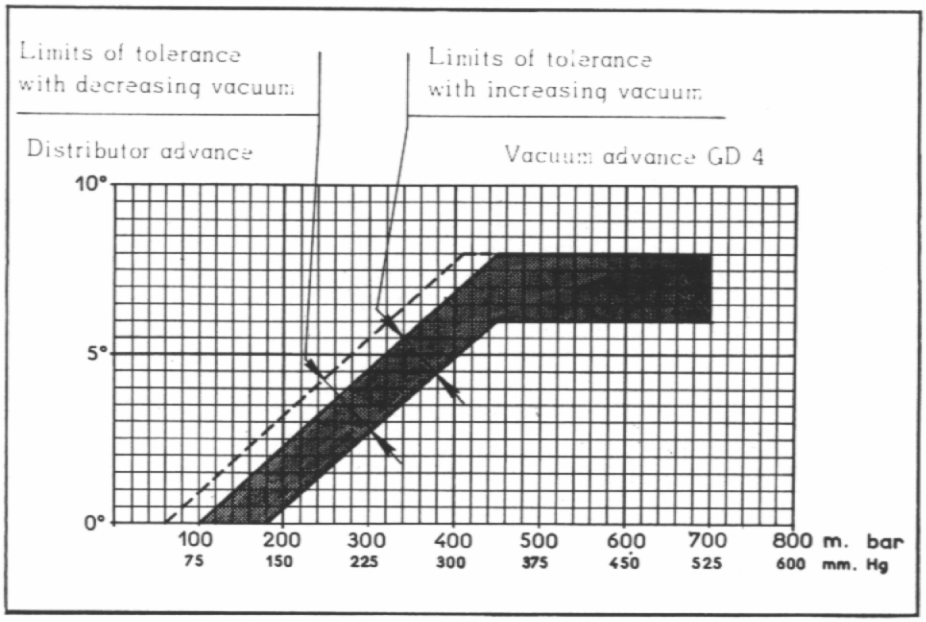
Contact-breaker gap :
0.35 to 0.45 mm (0.014 to 0.018 in.).
Dwell angle of contact breaker : 57° ± 2°.
Dwell ratio : 63 ⁻ ± 3 ⁻.

Static setting : 10° before TDC.
(Reference chisel mark imprinted on the flywheel aligned with the 10° mark on the graduated sector fixed to the crankcase).

Advance : 33° on the graduated sector, at 2.500 rpm (vacuum disconnected).

References of advance curves (engraved on body) :
Reference CITROEN : GA 3 - GD 4
Reference DUCELLIER : 4411 B
Reference SEV-MARCHAL : A 312 - C 114

G. 21-11



Manual 810-1

SPARKING PLUGS (LONG REACH) :

Electrode gap :
0.65 to 0.80 mm (0.026 to 0.032 in.)
Tightening torque (head cold) :
20 to 25 m.\N (2 to 2.5 m.kg) 14 to 18 ft. lb.

NOTE : Refer to Technical Notes, appearing periodically, describing makes and types of sparking plugs.

COIL :

Type with external resistor.
Reference :

- DUCELLIER	2777 C
- SEV-MARCHAL	E 449 10312
- MARELLI	BZR 206 A

CONTACT-BREAKER CAPACITOR :

Capacitance : 0.25 to 0.30 μF.

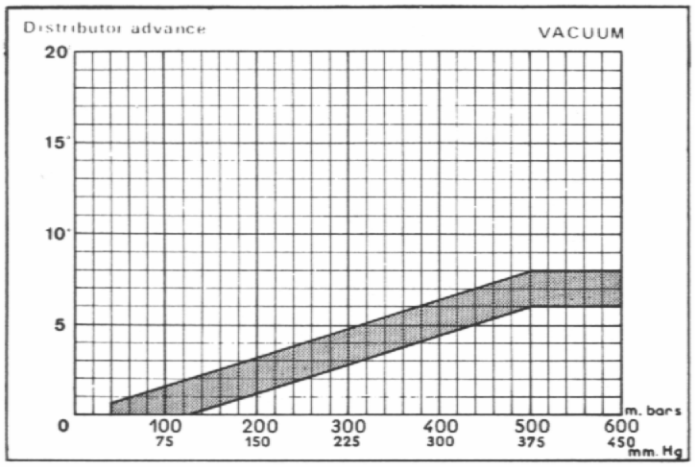
HIGH TENSION LEADS

Make : ELECTRICFIL-BOUGICORD
Reference : 400 RTF 33-0
Resistance of leads (at 20°C) :

- Coil to distributor	420 to 720 Ω
- Distributor to cyl. No. 1	370 to 570 Ω
- Distributor to cyl. No. 2	650 to 990 Ω
- Distributor to cyl. No. 3	1200 to 1820 Ω
- Distributor to cyl. No. 4	1430 to 2160 Ω

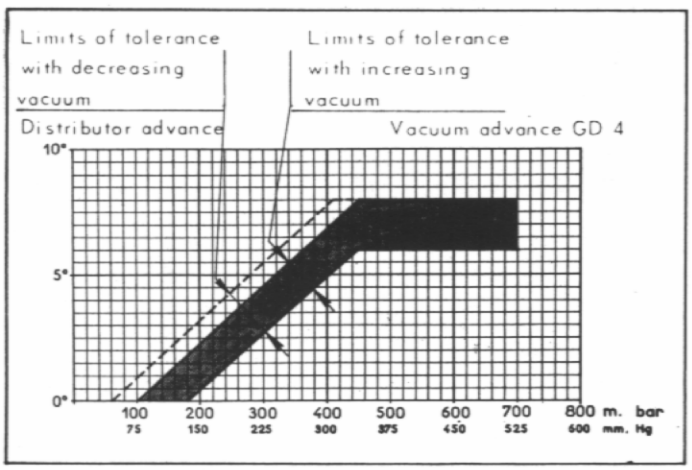
Vacuum advance curve GD. 1

G. 21-5



Vacuum advance curve GD. 4

G. 21-11



Manual 810-1

2. Check of the vacuum advance curves GD. 1 and GD. 4 :

These curves are checked *with zero centrifugal advance* and at constant speed (200 ± 50 rpm).

IMPORTANT : In the case of a DUCELLIER distributor, plug the small hole on the vacuum capsule during the check.

Plot several points on the curve, increasing the vacuum from 0 to 600 millibars (or 0 to 450 mm/ Hg), then decreasing it from 600 to 0 milli bars (or 450 to 0 mm/ Hg).

The points plotted must be within the graph of the curves for the corresponding distributor.

If this is not the case, adjust the control rod for the vacuum capsule.

Change the capsule, if necessary.

IV - CHECK THE IGNITION COIL

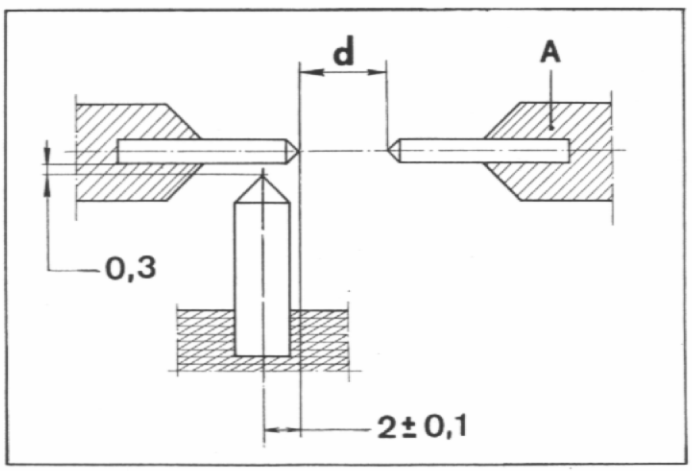
Coil : DUCELLIER 2777 B or 2777 C or SEV-MARCHAL E 449103 12 or MARELLI BZR 206 A

1. Check the primary winding :

a) Check the insulation of the winding, using an ohmmeter connected between the terminal marked « BAT » and the coil casing.
The reading obtained must be infinite.

b) Measure the resistance of the winding, using an ohmmeter connected between the terminals marked « BAT » and « RUP ».
The resistance must be :
Coil DUCELLIER 1.32 Ω + 5 at 20 °C.
Coil SEV MARCHAL 1.5 Ω min. at 20 °C.
Coil MARELLI 1.35 Ω ± 4 at 20 °C.

c) Measure the value of the resistance in series with the primary winding. *The resistance must be :*
Coil DUCELLIER 0.68 ± 0.02 Ω at 20 °C
Coil SEV MARCHAL 1.1 to 1.2 Ω at 20 °C
Coil MARELLI 0.8 Ω + 10 at 20 °C.



TT. 00.7

2. Check the secondary winding :

Measure the resistance of the winding, using an ohmmeter connected between the terminal marked « RUP » and the central H.T. contact of the coil.

The resistance must be :

- Coil DUCELLIER : 7.500 ± 1.000 Ω at 20 °C
- Coil SEV-MARCHAL : 6.000 Ω ± 5 % at 20 °C
- Coil MARELLI : 7.500 Ω ± 10 % at 20 °C.

3. Check the coil on the test bench :

With the coil connected in series with its external resistor, install it on the test bench with a shunted as shown in the figure.

a) Run the distributor at *500 rpm*. With the spark gap set to 15 mm at least, slowly bring the adjustable point « A » closer and stop it as soon as the first sparks appear.

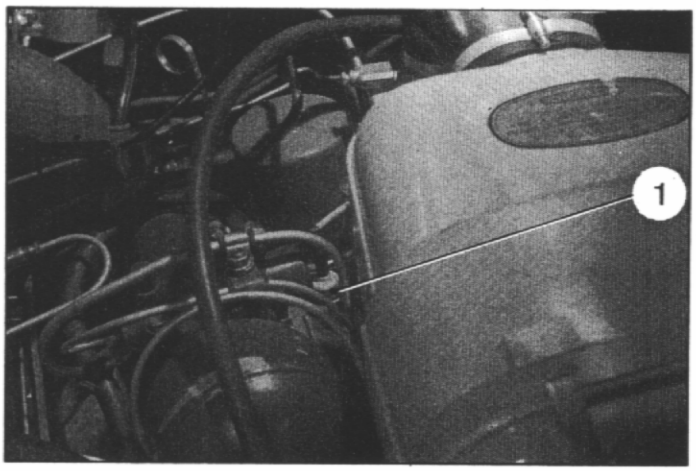
At this moment measure the gap « d ».

Repeat this test at least three times and calculate the average gap. This must be a minimum of *9 mm*.

b) Run the distributor at *3.000 rmp*. Carry out the test as for 5000 r.p.m. The average gap must be a minimum of *5 mm*.

CHECKING THE OIL PRESSURE ON THE CAR

8379



1. Remove the spare wheel.
   Check the oil level, top-up if necessary.
   Warm up the engine
   (oil temperature 80°C).

2. Remove the oil-pressure switch (1).
   Substitute the union from the Kit 3099-T (copper gasket).

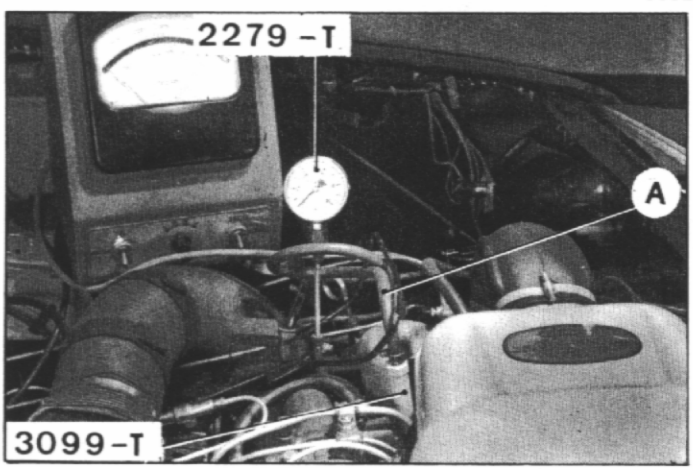
   Use a pressure gauge 2279-T calibrated from 0 to 10 bars (0 to 150 psi), equipped with a flexible connection A.

3. Run the engine. With the oil at 80 ± 5°C the pressure must be :
   - *4.7 bars (68 psi) min. at 2.000 rpm.*
   - *6.2 to 7 bars (90 to 101.5 psi) at 6.000 rpm.*

4. If the pressure is incorrect, fit a new relief valve spring.

   NOTE : If this action fails to correct the pressure check the oil cooler, the filter element, the oil pump and the lubrification system in general.

8382



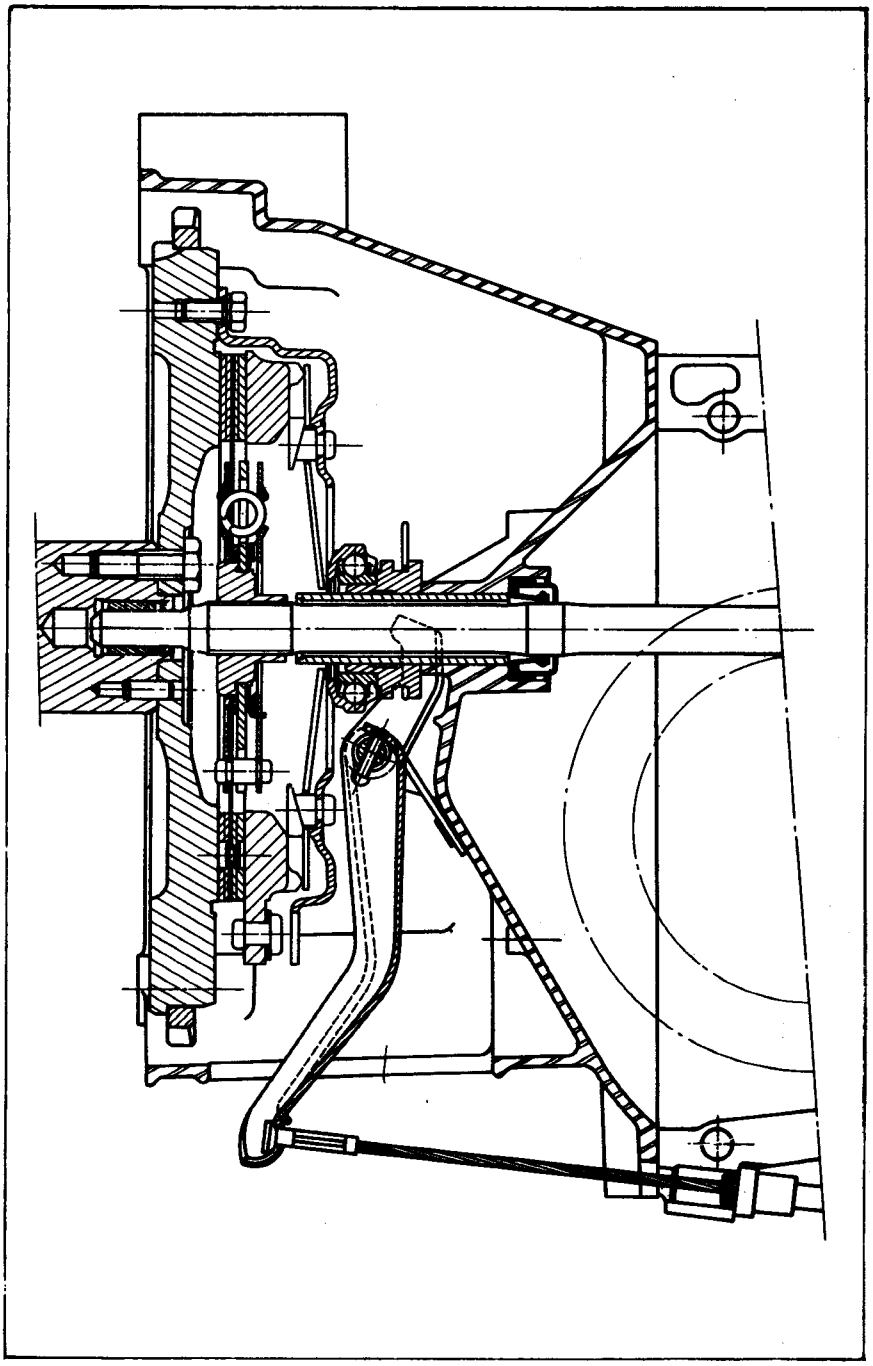
5. Remove the pressure gauge 2279-T and the connection, returning the latter to the Kit 3099-T.

6. Refit the pressure switch (copper gasket).
   Tighten to 22 mΛN (2.2 m.kg) 16 ft. lb.
   Re-connect the electrical lead.

7. Check the oil level.
   Refit the spare wheel.

OPERATION No. G. 312-00 : *Characteristics and special features of the mechanical clutch* **Op. G. 312-00** 1

G. 31-1



Manual 810-1

I - CHARACTERISTICS

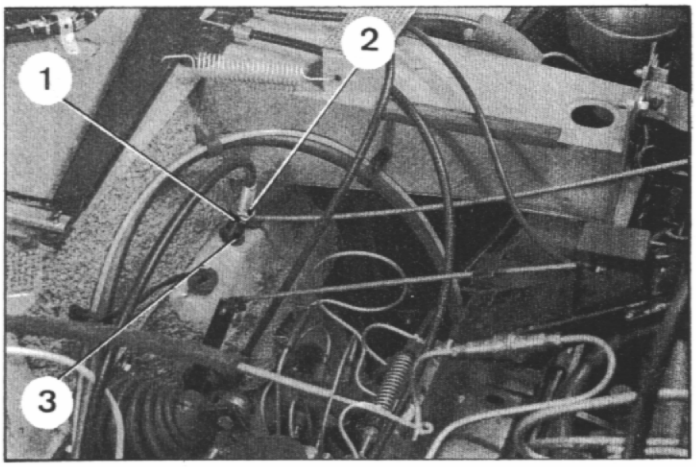
Mechanism : (Mark 180 DBR 285) type	diaphragm
Disc. : (G. 10 Engine : six springs of same colour)	type with spring-damped centre
Disc. : (G. 103 Engine : six springs of different colours 2 grey, 2 blue, 2 white)	type with spring-damped centre
Lining : manufacturer and quality	FERODO A. 755

II - SPECIAL FEATURES

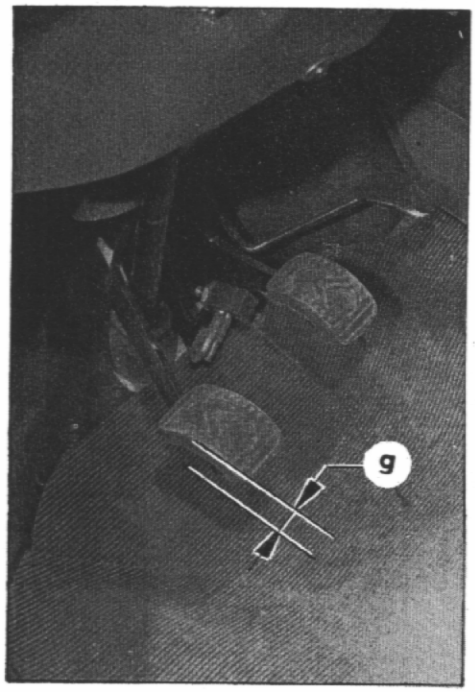
- Clearance between the thrust-race and the diaphragm	1 to 1.5 mm
- Free movement of pedal	15 to 20 mm (0.59 to 0.78 in.)
- Thickness (initial) of disc lining	7.7 mm (0.30 in.)
- Tightening torque for mechanism screws	18.5 mN (1.8 m.kg) (13 ft. lb.)

ADJUSTING THE CLUTCH CLEARANCE

8460



8440



1. Remove the spare wheel.

2. **Adjust the clutch clearance :**

   - Slacken the locknut (2).

   - Turn the nut (1) to obtain :

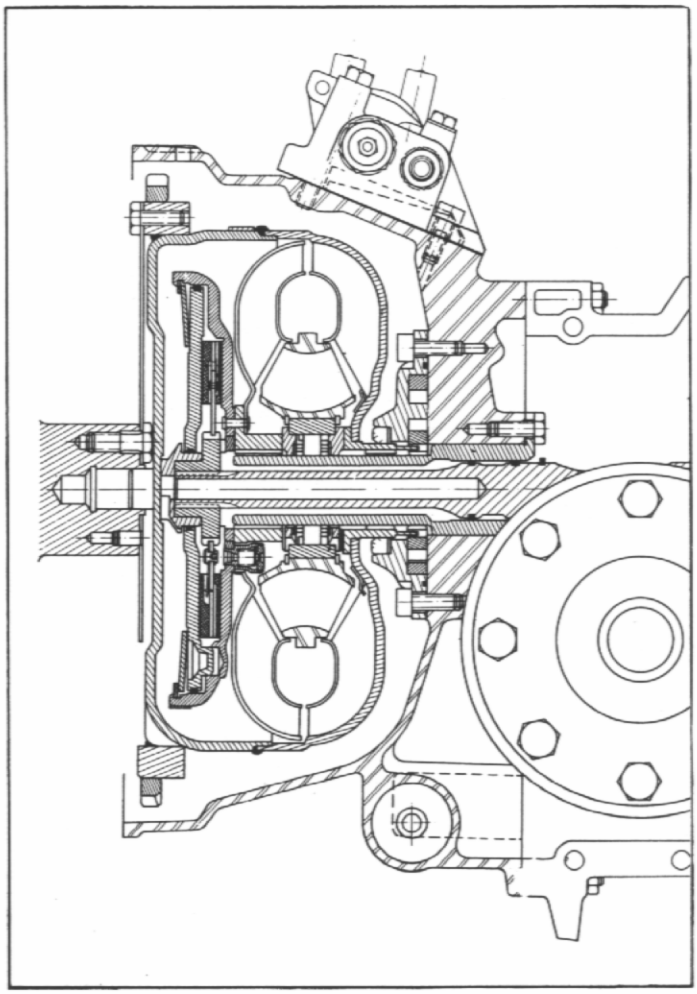
   A clearance of 3.2 to 4.8 mm between the fixed tube (3) and the nut (1).

   Under these conditions the free movement of the clutch pedal is :

   g = 15 to 20 mm.

I - CHARACTERISTICS

- Torque Converter with internal disc clutch. Make : FERODO.
- Engagement and disengagement of the clutch are controlled by a hydraulic valve operated by a solenoid. This electro-valve is controlled in turn by switches operated by the movement of the gearbox selector fork shafts.



G.33-5 b

II - SPECIAL FEATURES

- Adjustments :

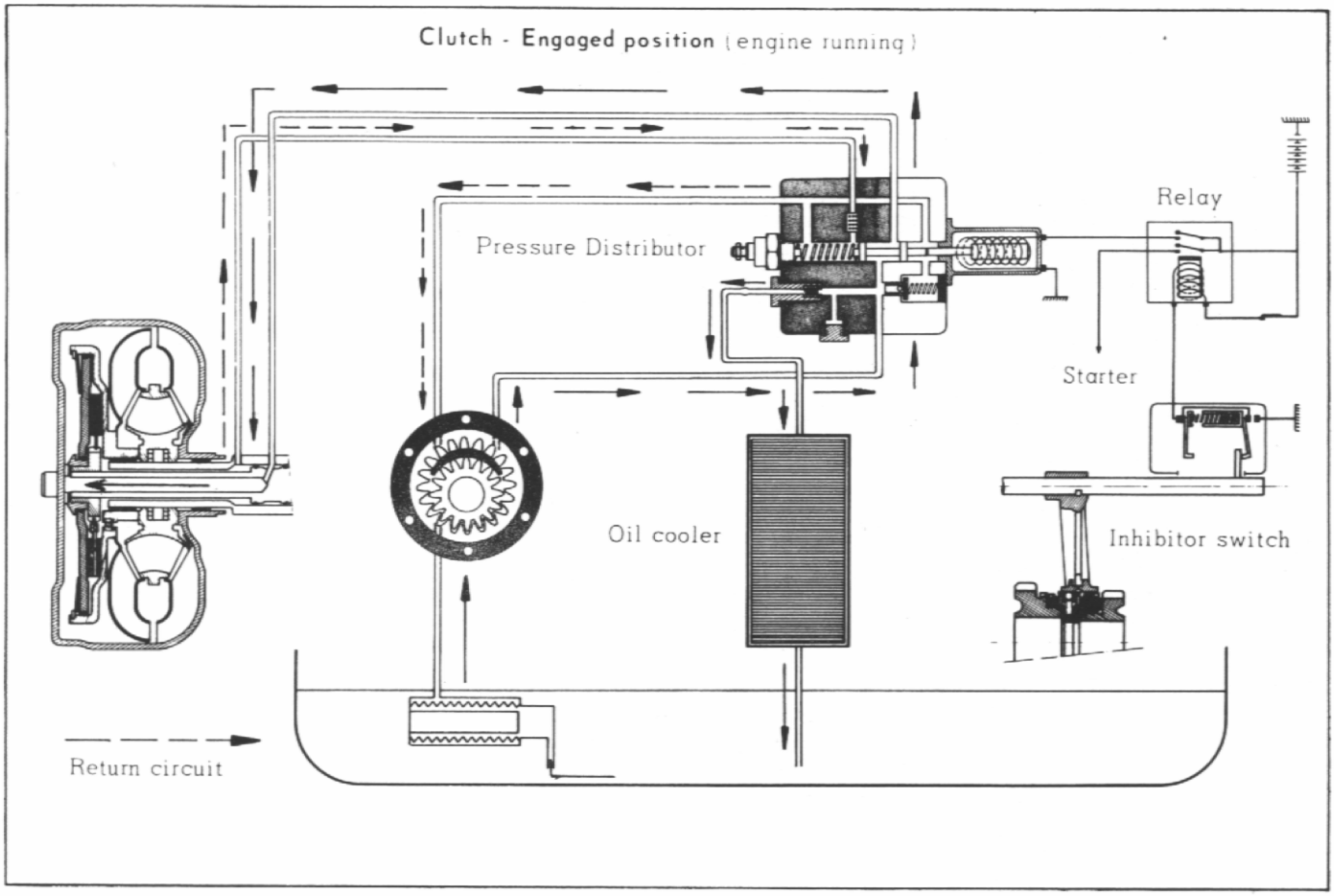
- Contact-gaps of switch for electro-valve ..... 1.4 ± 0.05 mm
- Temperature at which oil-temperature-switch operates ..... 135 ± 3°C
- Operating pressure ..... 5.5 to 6.5 bars (80 to 95 psi) at 5000 ± 100 rpm
- Type of oil ..... TOTAL FLUID T
- Total capacity (gearbox included) ..... 4 litres (7.1 pints Imp.) approx.
- Pump inlet strainer

Filling of converter : during filling, make the electro-valve operate ten times.

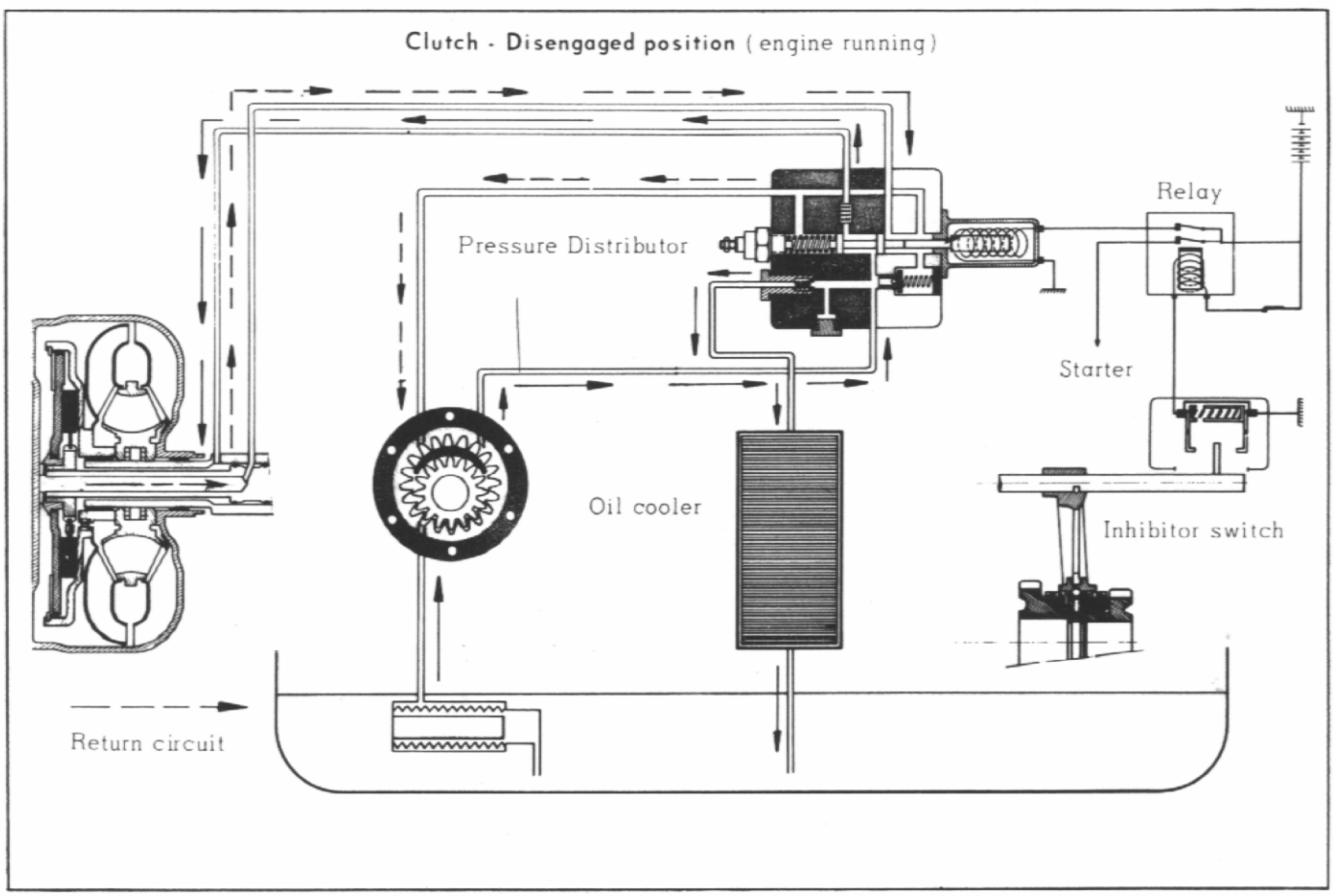
- Tightening torques :

- Oil pump fixing screws	18.5 mΛN (1.8 m.kg) 13 ft. lb.
- Electro-valve fixing	12 to 17 mΛN (1.2 to 1.7 m.kg) 8.7 to 12.3 ft.lb. (Allen key 6 mm)
- Pipe union screws	35 to 45 mΛN (3.5 to 4.5 m.kg) 25 ½ to 32 ½ ft. lb.
- Pump inlet strainer	10 to 15 mΛN (1 to 1.5 m.kg) 7 ½ to 10 ½ ft. lb.
- Screws fixing switch base	3.5 to 4 mΛN (0.35 to 0.40 m.kg) 2 ½ to 3 ft.lb. (Allen key 4 mm)
- Screws fixing contact blades	3.5 to 4 mΛN (0.35 to 0.40 m.kg) 2 ½ to 3 ft.lb. (Allen key 4 mm)
- Screws fixing drive-plate to Converter	20 to 23 mΛN (2 to 2.3 m.kg) 14 ½ to 16 ½ ft. lb.
- Screws fixing drive-plate to Crankshaft, to be replaced each time they are removed by new screws with mark on head (Head, face and thread oiled) (LOCTITE GX 01 460 01 A)	64 to 69 mΛN (6.4 to 6.9 m.kg) 46 to 50 ft. lb.

III - DIAGRAMS SHOWING OPERATING PRINCIPLES OF THE TORQUE CONVERTER



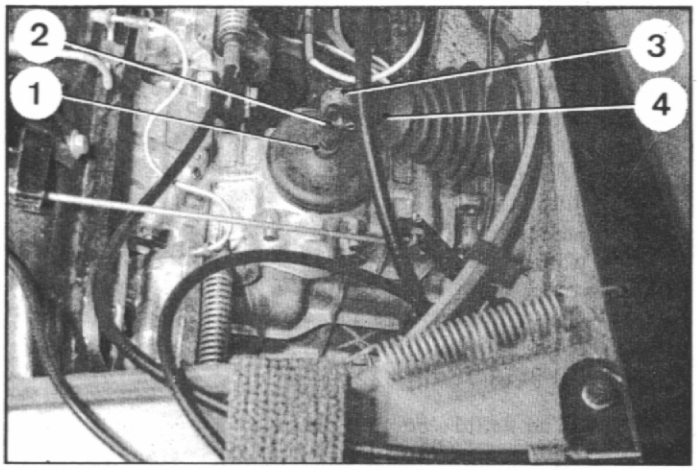
G.32-4b



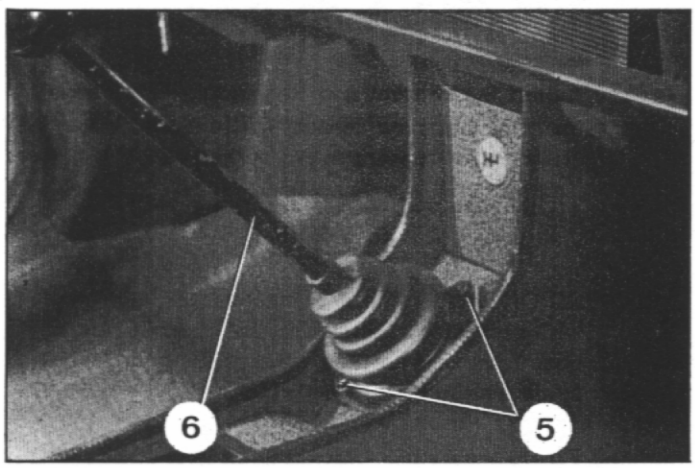
G.32-3 a

I - CHECKING AND ADJUSTING THE CONTACT-GAPS IN THE SWITCH CONTROLLING THE ELECTRO-VALVE

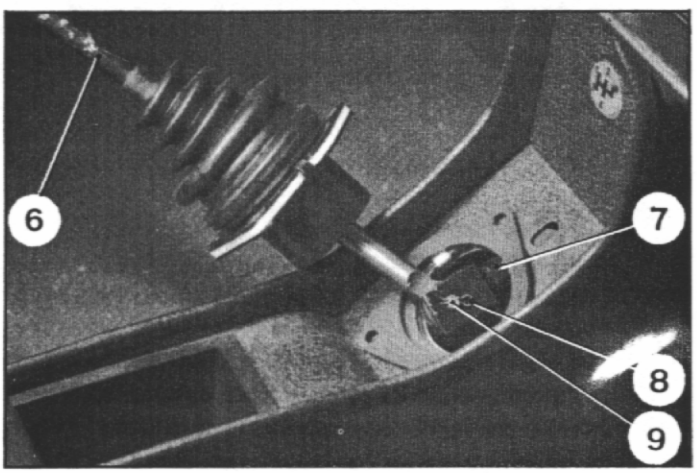
8447



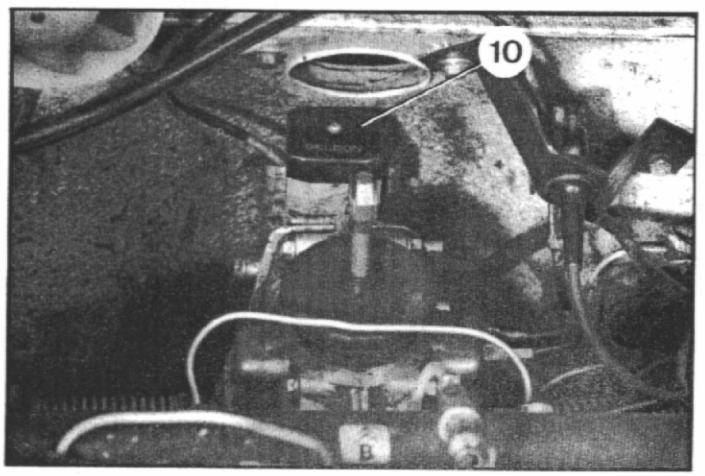
8872



Manual 810-1



9181



9634

1. Remove the spare wheel.

2. Disconnect the negative cable from the battery.

3. Unscrew the pressure-release screw of pressure regulator to eliminate the pressure in the suspension circuits.

4. Remove the duct from the left-hand heater box.

5. **Disconnect the gear-change controls :**

a) On the gearbox :

Remove the pin (2) and clevis (3).

Free the rod (4) from control-lever (1).

b) On the central console :

Remove the screws (5) fixing the gaiter to the console.

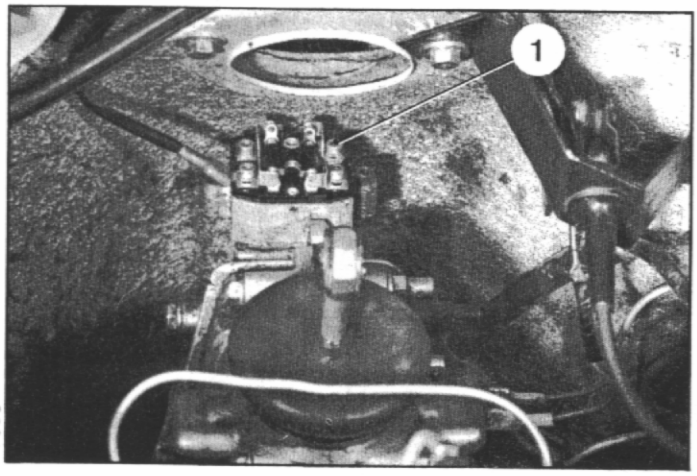
Pull the gearchange lever (6) and remove Pull the gearchange lever (6) and remove pin (8) and clevis (9).

Disconnect the rod (7) from lever (6).

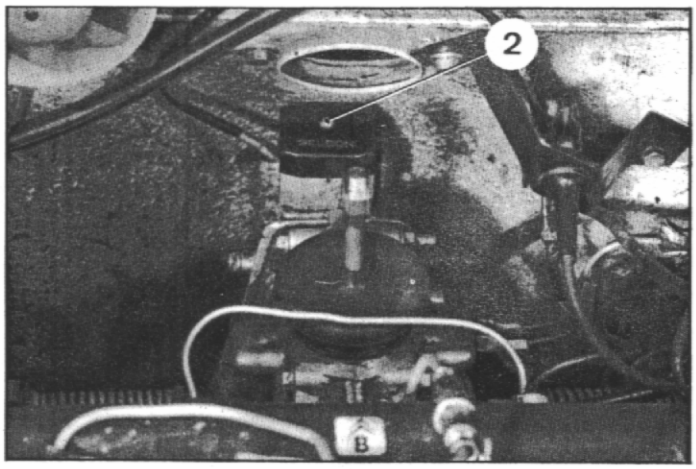
c) Withdraw the rod forwards through the scuttle front.

NOTE : The fixing plate for the gaiter remains in the central console. To remove it, the console must be removed.

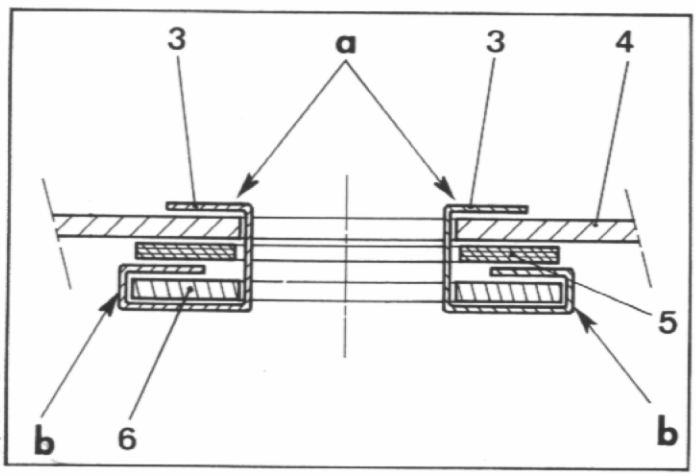
6. Remove cover (10) from the electro-valve control-switch.



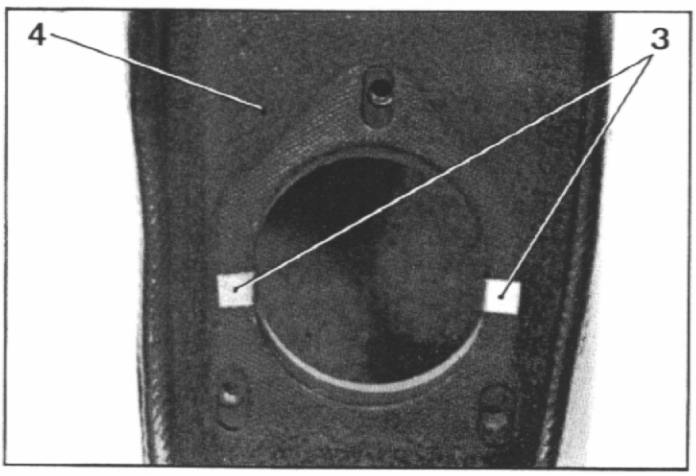
9635



9634



G. 33-12



9134

7. Check the contact gaps :

The procedure is the same for each of the four contacts.

a) Select a gear.

WARNING : To obtain the correct contact-gap the corresponding gear must be fully engaged, otherwise the adjustment or check would be wrong.

b) Check the contact gap corresponding to the gear engaged. For this purpose, use the gauges in Kit 3112-T.

- The «mini» gauge (dia. 1.4 mm) *must pass through without moving the contacts.*
- The «maxi» gauge (dia. 1.5 mm) *must not pass through.*

c) Adjust the contact gap by undoing the screw (1) for securing fixed contact (Allen key, 3 mm) and sliding this contact in its guide.

Tighten the screw (1) 3.5 to 4 mΛN (0.35 to 0.40 m.kg) $2\frac{1}{2}$ to 3 ft.lb.

IMPORTANT : This adjustment must be made with precision. Otherwise the clutch can disengage from time to time without the gear lever being handled.

d) Fit the cover and tighten the screw (2).

8. Prepare the plate fixing the gaiter onto the console :

To facilitate the fitting of the gaiter, proceed as follows :

a) From a sheet of 0.5 mm metal, cut out two strips (3), 10 mm wide (0.39 in.) and 40 mm (1.57 in.) long.

b) Fold one end «b» of each strip over for a length of 10 mm (0.39 in.) approx. (see figure).

c) Through the console opening, position the lower seal (5) and the fixing plate (6) for the gaiter, under the metal body (4) of the console.

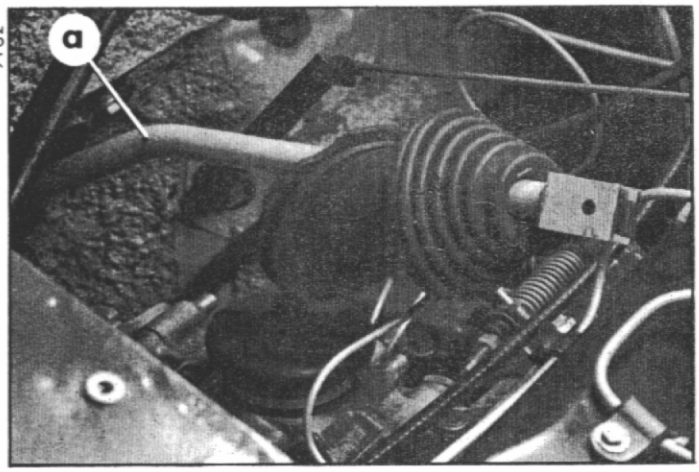
Engage folded end «b» of each strip over plate (6) as indicated on figure left.

Fold the other end «a» over the metal body (4) of the console so that it holds the plate (6) and seal (5) in position.

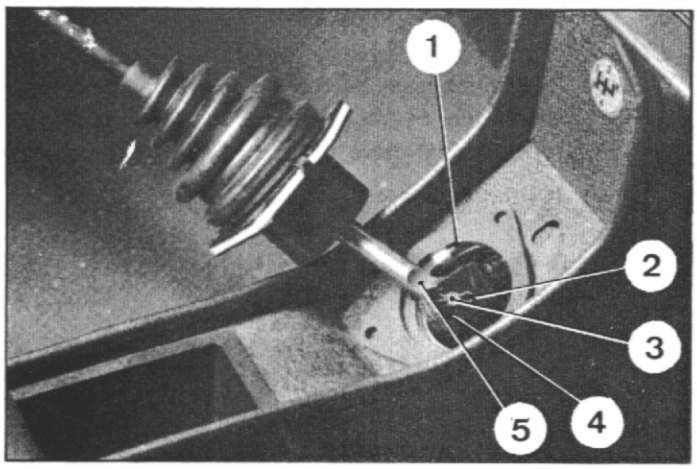
9. Fit the rod :

Fit the rubber dustshield over the rod.

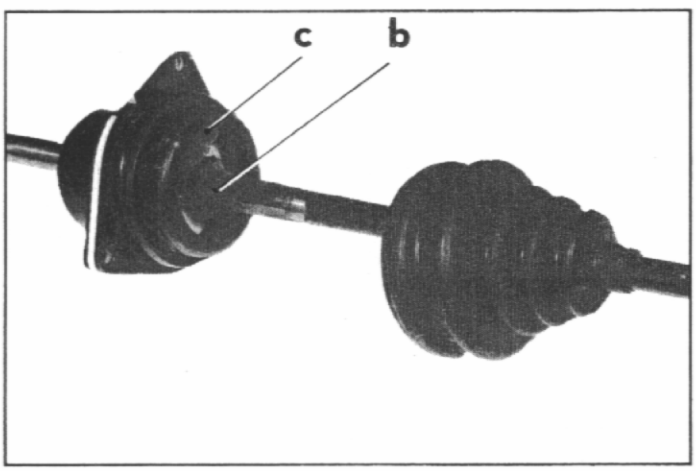
Fit the rod into the console from the front through the scuttle-panel.



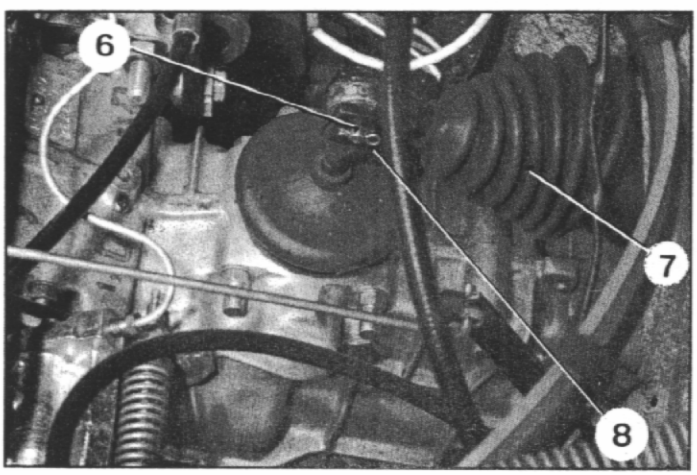
9182



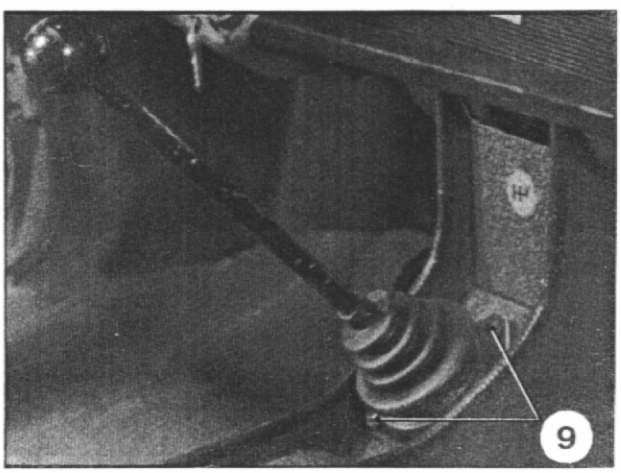
9181



8987



8447



8872

Manual 810-1

10. Couple up the rod to the levers

Check that the curve «a» of the rod is correctly positioned upwards.

a) *Console end :*

Fit the rubber-seal on the console.
Engage the lever-ball (4) into the fork end of the rod.
Fit the clevis (3) and pin (2).

WARNING : Stop pin «b» for reverse gear must be positioned towards the right-hand side.

b) *Gearbox end :*

Engage the fork-end of rod (4) over the selector shaft control lever.
Fit the clevis (6).
Fit the pin (8).
Fit the dust,shield (7) into its housing in the scuttle.

11. Fix the gear-lever assembly and gaiter onto the console :

Position the flat «c» of the gaiter base towards the right-hand side (towards reverse-gear stop).
Engage the gaiter base in its housing on the console.
Tighten the screws (9).
Install the gaiter on its base.
Check that when the lever is in first gear position, it does not touch the base or the seat (L.H. or R.H.).
Move the base in its fixing slots if necessary.

12. Connect the cable to the negative terminal of the battery.

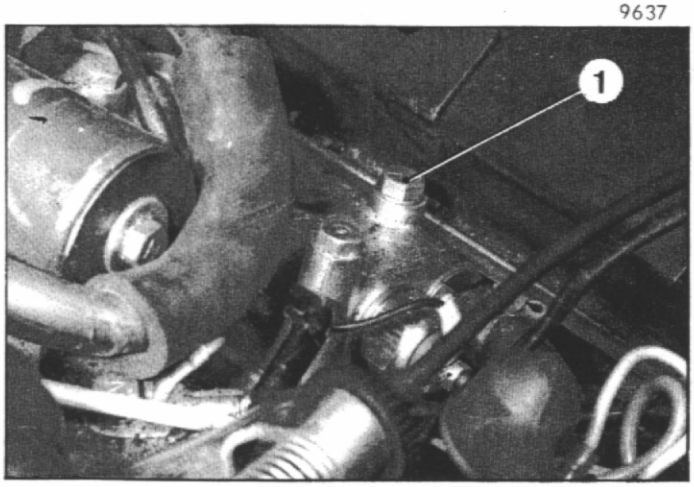
13. Tighten the pressure release screw on the pressure regulator.

14. Fit the heater hose.

15. Fit the spare wheel.

II - CHECKING THE PRESSURE OF CONVERTER OIL-FEED SYSTEM

9637



1. Remove :
   - the spare wheel
   - the spare wheel support

2. Remove the plug (1) from the electro-valve. Fit in place, according to the diameter, one of the two unions (6 or 7 mm) of test Kit 3112-T. Connect this union to a pressure-gauge 2279-T (graduated from 0 to 10 bars) 0 to 145 psi.

3. **Check the pressure :**

   a) This check must be carried out when the oil temperature of the gearbox is at 70 ± 5°C. For this, test-drive the vehicle on the road.

   b) Run the engine at :

   5.000 ± 100 rpm

   The pressure must be : *5.5 to 6.5 bars. (80 to 94 psi).*

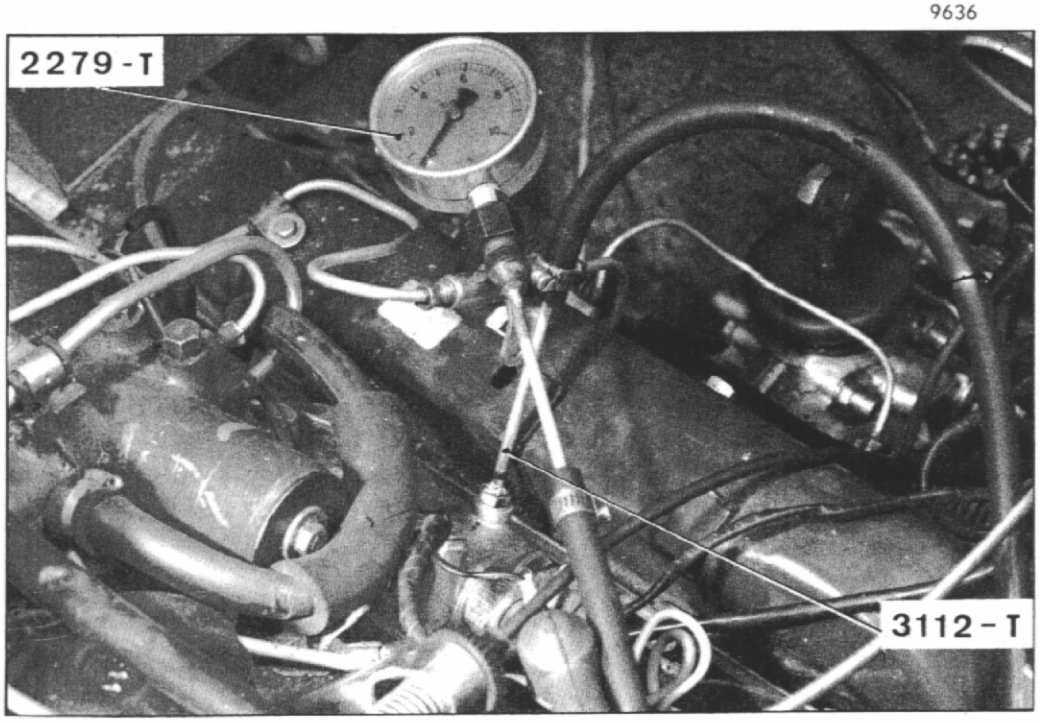
   c) Run the engine at :

   850 $^{50}_{0}$ *rpm*

   The pressure must be : 4 bars min. (58 psi).

   NOTE : If this pressure is incorrect, and before any other operation, check the gearbox oil level and the state of cleanliness of the suction strainer for the converter feed-pump.

9636



GEARBOX WITH TORQUE CONVERTER

GX vehicles, all types (1015 cc.) produced until August 1972

I - CHARACTERISTICS

- Gear ratios (with 145-15 ZX tyres) :

Gears	Gearbox ratios	CW et P	Overall ratios	Road speed per 1000 engine rpm Km/h	mph
1st	14/39 = 0.3589 (2.79 : 1)	8/35 (4.375 : 1)	0.0820 12.18 : 1	9.200	5.72
2nd	20/34 = 0.5882 (1.70 : 1)		0.1344 7.44 : 1	15.079	9.37
3rd	25/28 = 0.8928 (1.12 : 1)		0.2040 4.90 : 1	22.888	14.22
Rev.	14/19 × 19/35 = 0.4000 (2.50 : 1)		0.0914 10.94 : 1	10.255	6.37
Ratio of speedometer drive : 6/14 (2.33 : 1)					

Manual 810-1

- Lubrication :

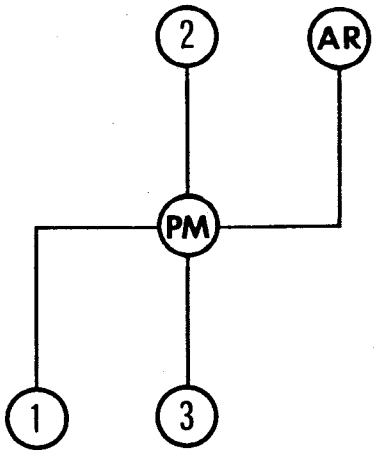
Grade of oil ..... TOTAL «T FLUID»
Total capacity (converter included) ..... 4 litres approx. 7 pts. Imp.
Oil change quantity ..... 1.4 litre approx. 2.5 pts. Imp.

VERY IMPORTANT : It is essential to use TOTAL «T FLUID» oil.

- Gearchange :

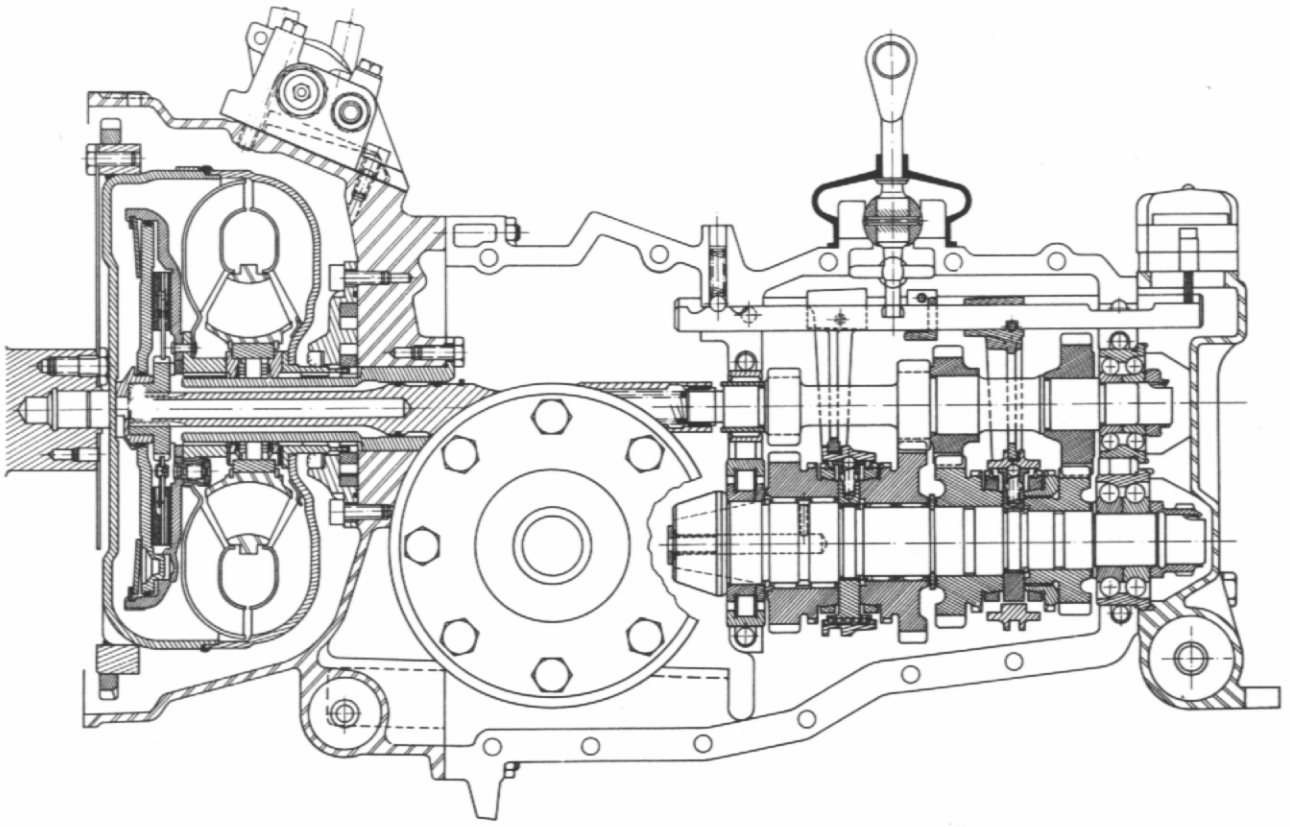
Gearlever on floor.
Gear positions :

AR = Rev.
PM = Neut.



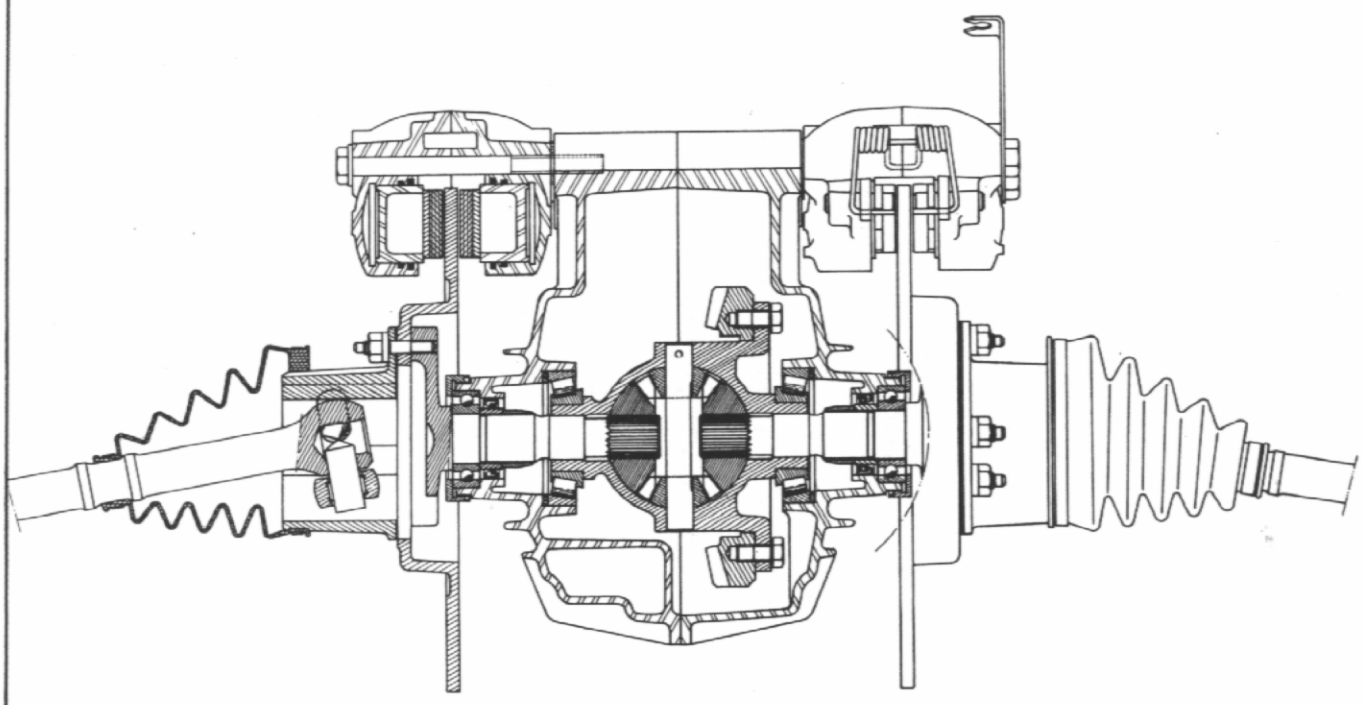
G. 33-5 b

LONGITUDINAL SECTION



G. 33-2 b

TRANSVERSE SECTION



GEARBOX WITH TORQUE CONVERTER

GX vehicles, all types, fitted with a G. 103 (1220 cc) engine (produced since September 1972)

I - CHARACTERISTICS

Gear ratios (with 145-15 ZX tyres) :

Gears	Gearbox ratios	CW & P	Overall ratios		Road speed per 1000 engine rpm km/h	mph
1st	14/39 = 0.3589 (2.79 : 1)	8/33 (4.125 : 1)	0.0870	11.51 : 1	9.761	6.07
2nd	20/34 = 0.5882 (1.70 : 1)		0.1426	7.01 : 1	15.999	9.94
3rd	25/28 = 0.8928 (1.12 : 1)		0.2164	4.62 : 1	24.280	15.09
Rev.	14/19 × 19/35 = 0.4000 (2.50 : 1)		0.0969	10.31 : 1	10.872	6.76
Ratio of speedometer drive : 6/13 (2.17 : 1)						

Manual 810-1

Lubrification :

Grade of oil	TOTAL « T FLUID »
Total capacity (converter included)	4 litres approx. 7 pts. Imp.
Oil change quantity	1.4 litre approx. 2.5 pts. Imp.

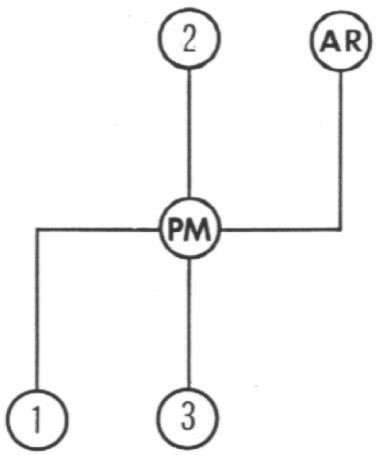
VERY IMPORTANT : It is essential to use TOTAL « T FLUID » oil.

Gearchange :

Gear lever on floor.

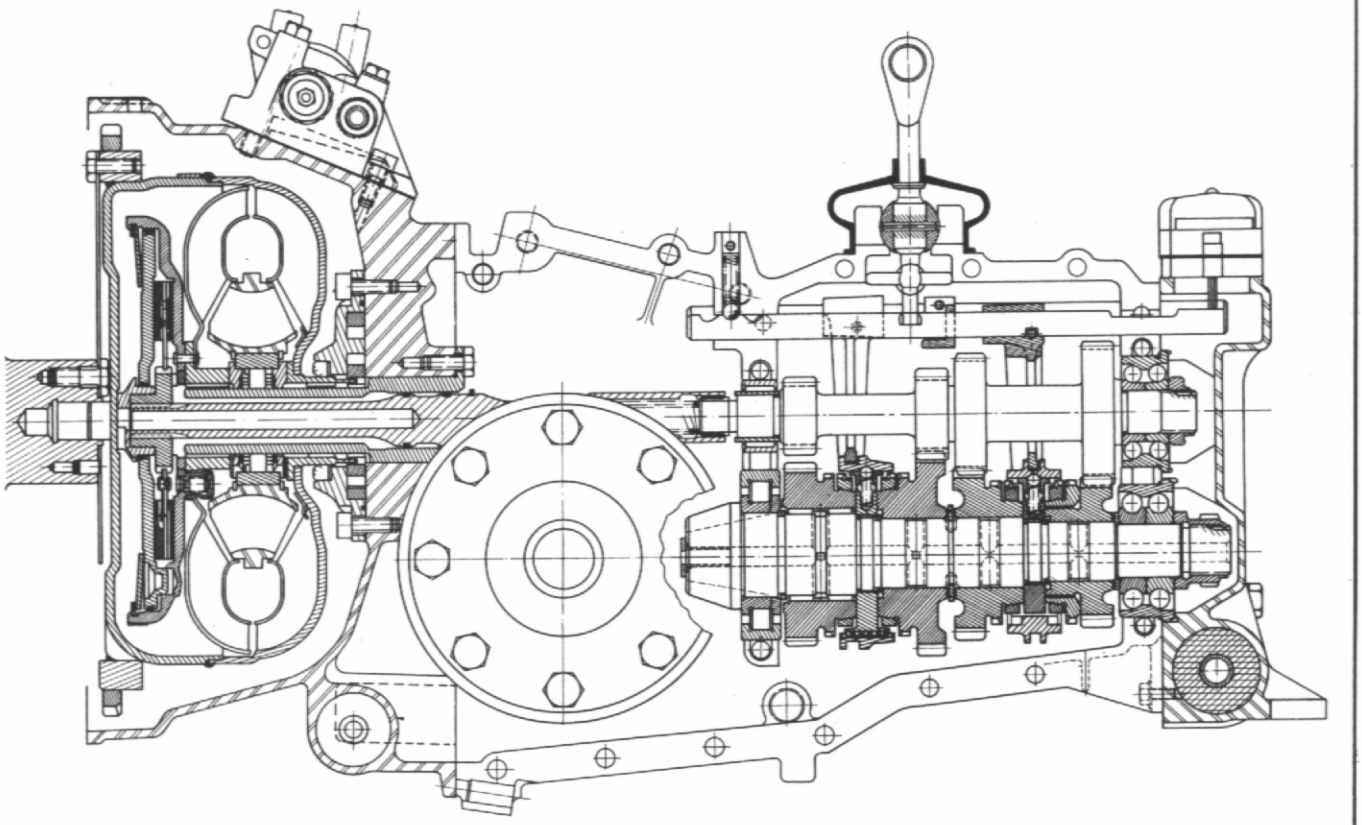
Gear positions :

AR = Rev.
PM = Neut.



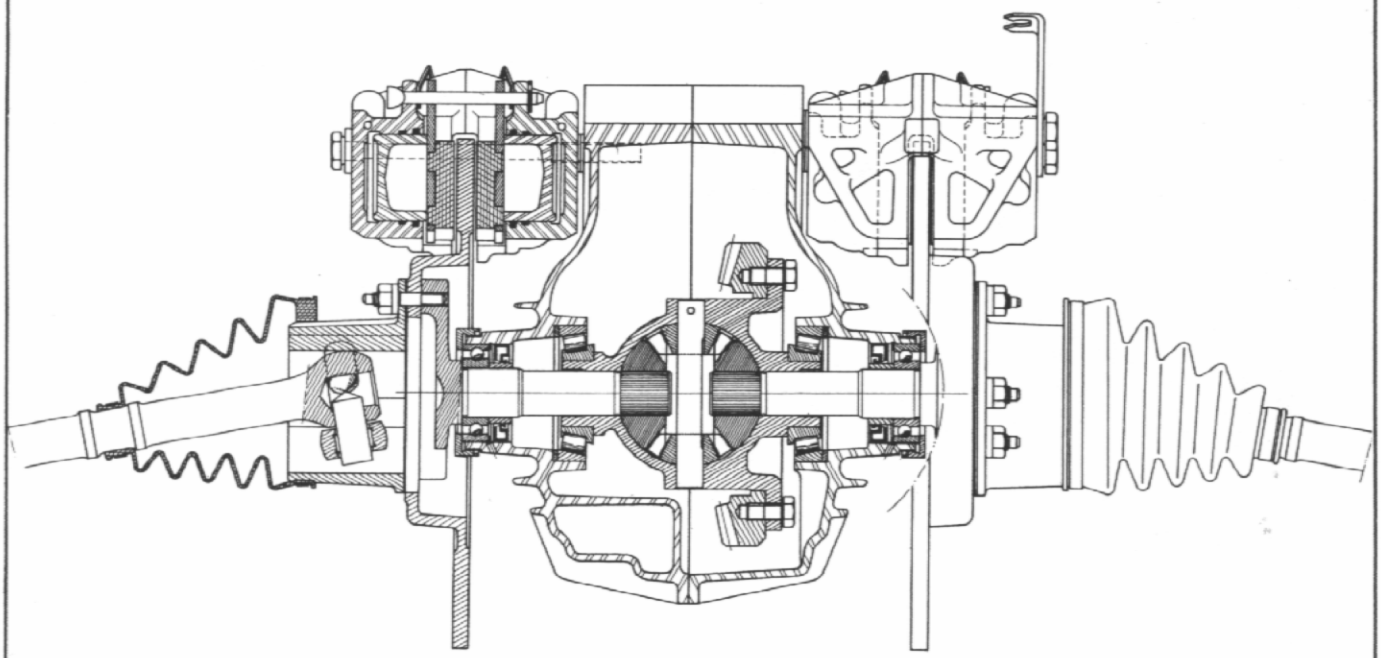
G. 33-5 d

LONGITUDINAL SECTION



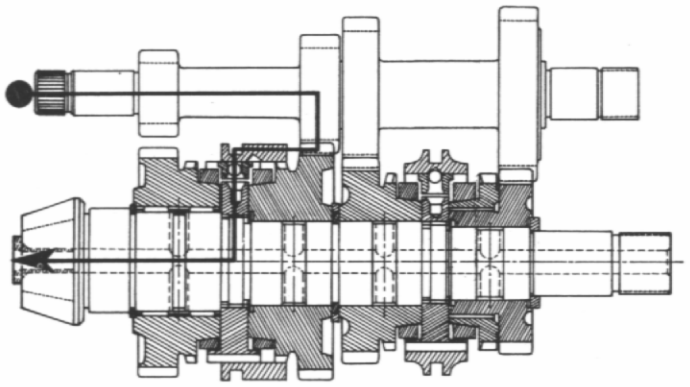
A. 33-10

TRANSVERSE SECTION

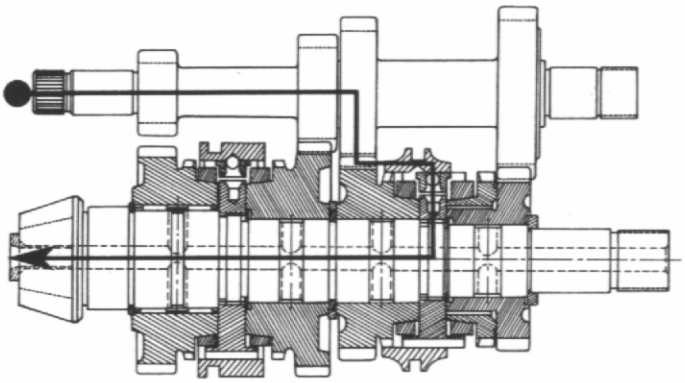


POWER FLOW

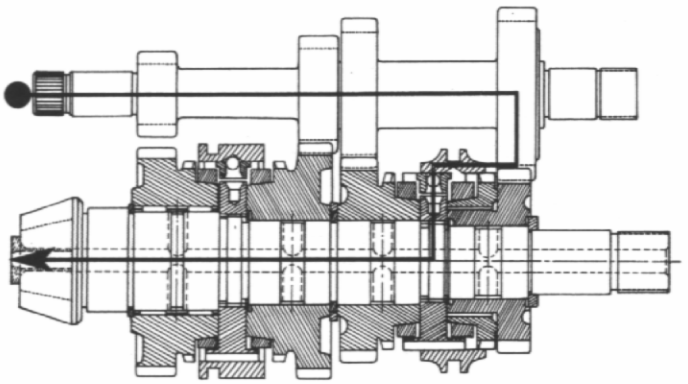
G.33-3 a



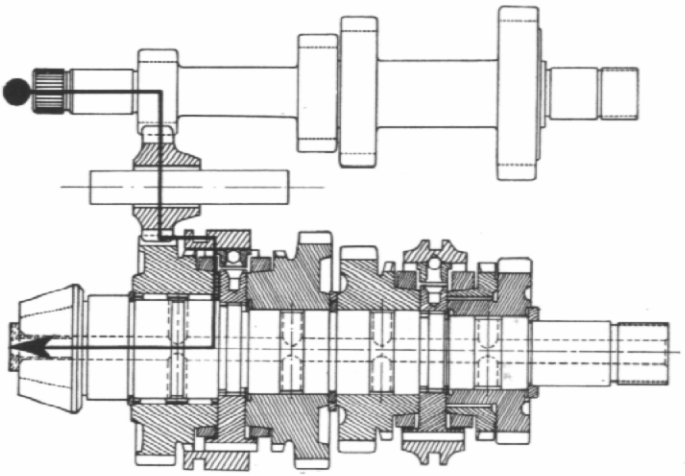
FIRST GEAR



SECOND GEAR



THIRD GEAR



REVERSE

NOTE : For 1st 2nd and 3rd the driving pinions on the main shaft are in constant mesh with the driven pinions on the bevel pinion shaft.

II - SPECIAL FEATURES

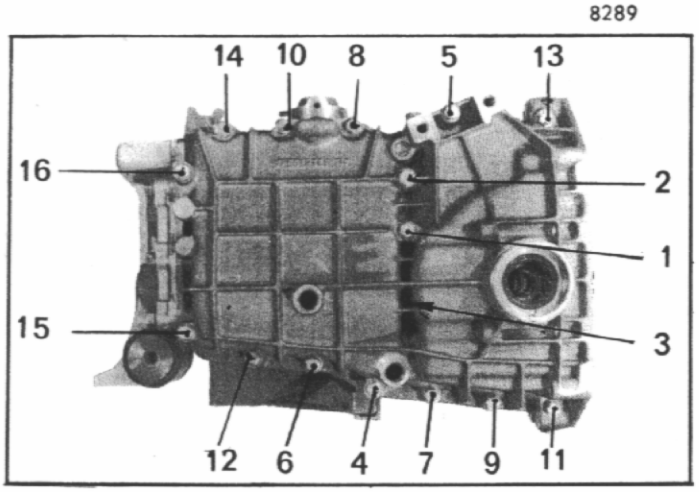
Settings :

- Endfloat of the 1st and rev. synchro hub. ..... 0,05 mm max.
- Endfloat of the 2nd and 3rd synchro hub. ..... 0.05 mm max.
- Clearance of half-washers between 1st and 2nd pinions .. 0.05 mm max.
- Backlash between crownwheel and bevel pinion ..... 0.13 to 0.27 mm
- Total preload on differential ball bearings ..... 0.05 mm
- Contact gap electro-valve switch ..... 1.4 ± 0.05 mm
- Projection from shaft of the «Mecanindus» roll-pins operating the electro-valve switch :
  - shaft for 1st-Rev. ..... $14.4 \begin{smallmatrix}+1\\0\end{smallmatrix}$ mm
  - shaft for 2nd-3rd ..... $18.4 \begin{smallmatrix}+1\\0\end{smallmatrix}$ mm
- Pump inlet strainer to be renewed at the 600 mile (1000 km) service.

Tightening torques :	*ft. lb.*	
- Nut on main shaft	50 ½ to 61 ½	70 to 85 mΛN (7 to 8.5 m.kg)
- Nut on bevel-pinion shaft	72 ½ to 86 ½	100 to 120 mΛN (10 to 12 m.kg)
- Bush-nut on differential bearing	43 ½ to 72 ½	60 to 100 mΛN (6 to 10 m.kg)
- «Deraeve» nut (output shaft)	101 to 115 ½	140 to 160 mΛN (14 to 16 m.kg)
- Reverse selector lever spindle	19 ½ to 21.66	27 to 30 mΛN (2.7 to 3 m.kg)
- Differential crown wheel screws (fit with LOCTITE No. GX 01.460 01 A) dia. 9 mm	34 ½ to 38 ½	48 to 53 mΛN (4.8 to 5.3 m.kg)
- Differential crown wheel screws (dia. 10 mm) (face and thread oiled)	58 to 65	80 to 90 mΛN (8 to 9 m.kg)
- Drain plug	25 ½ to 33	35 to 45 mΛN (3.5 to 4.5 m.kg)
- Reverse lamp switch	8 ½ to 11	12 to 15 mΛN (1.2 to 1.5 m.kg)
- Clutch bell-housing nuts	9 to 11	13.5 to 15 mΛN (1.3 to 1.5 m.kg)
- Rear cover screws	18 to 21 ½	25 to 30 mΛN (2.5 to 3 m.kg)
- Nuts securing half-gearcase	9 to 11	13.5 to 15 mΛN (1.3 to 1.5 m.kg)
- Oil pump screws	12	18.5 mΛN (1.8 m.kg)
- Electro-valve fixing screws	8 ½ to 12	12 to 17 mΛN (1.2 to 1.7 m.kg)
- Pipe union screws	25 ½ to 33	35 to 45 mΛN (3.5 to 4.5 m.kg)
- Strainer plug	7 to 11	10 to 15 mΛN (1 to 1.5 m.kg)
- Fixing screws for the electro-valve control switch	2.16 to 2.88	3.5 to 4 mΛN (0.3 to 0.4 m.kg)
- Fixing screws for contact	2.16 to 2.88	3.5 to 4.5 mΛN (0.3 to 0.4 m.kg)
- Filler plug	7 to 11	10 to 15 mΛN (1 to 1.5 m.kg)
- Studs securing drive shafts to gearbox outlets	2.88	4 mΛN (0.4 m.kg)

Assembly of gearbox casing :

8289



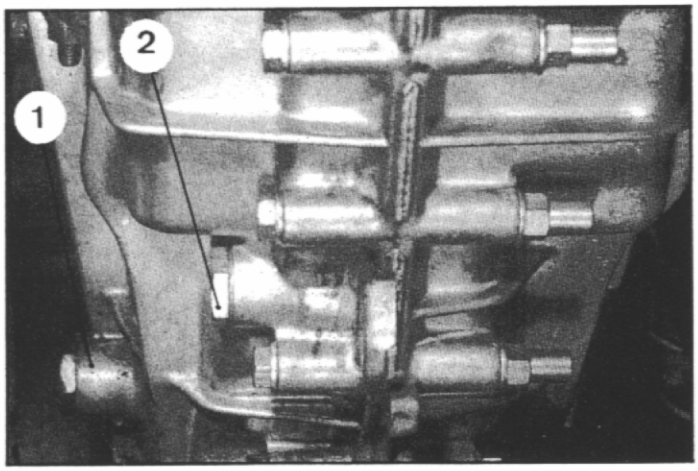
a) *Oiltightness :* Lightly coat the mating surfaces of the gearbox halves, the clutch bell-housing and of the rear cover with CURTYLON compound.

b) *Sequence of assembly :*

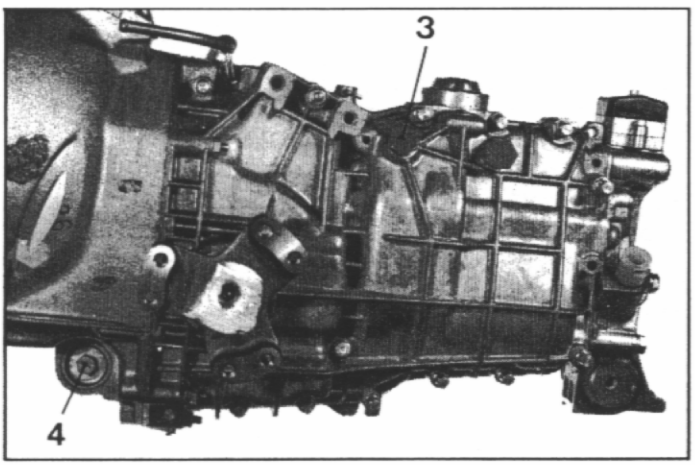
- Screw up the nuts for gearcase halves, without tightening.
- Tighten the rear cover screws (to line up gearbox halves).
- Screw up the nuts for clutch bell-housing, without tightening.
- Unscrew the screws for rear cover on the right-hand gearcase-half.
- Finally, tighten positively the nuts for gearcase-halves (tightening sequence in figure alongside) and those for clutch bell-housing.
- Finally, tighten screws for rear cover.

III - OIL CHANGE AND REFILLING OF THE GEARBOX AND TORQUE CONVERTER

9643



Manual 810-1 9644



VERY IMPORTANT :

- ONLY « TOTAL FLUID T » SHOULD BE USED IN THIS BOX.
- THE USE OF ANY OTHER OIL MAY CAUSE SEVERE DAMAGE TO THE CLUTCH AND THEREFORE TO THE CONVERTER.

1. Put the vehicle over a pit or on a lift.

2. **Remove :**

   - the spare wheel
   - the drain plug (2)
   - the level plug (1)
   - the filler plug (3)

   IMPORTANT : The suction strainer of the converter pump must be replaced at the 600-mile (1.000 km) service.

3. **Refill :**

   Tighten the drain plus (2) 35 to 45 mΛN (3.5 to 4.5 m.kg) 25 ½ to 33 ft. lb.

   Refill the gearbox through the filler plug (3) opening (capacity 1.4 litre approx.) 2.5 pts. Imp.

   Put back the level plug (1) the filler plug (3) without over-tightening.

4. **Finalise the gearbox level :**

   To be sure that the oil level in the gearbox is correct, it is essential to proceed as follows :

   a) **Chock the front wheels and apply the hand brake.**

   b) Let the engine idle and engage a forward gear (3rd for example).

   Gently move the gear lever to energise the solenoid-operated valve controlling the clutch (it is energised when a faint click is heard).

   Repeat this operation ten times.

   c) With the engine still idling and a gear engaged, remove the level plug (1) and the filler plug (3) and top up the oil level of the gearbox.

   d) Fit the plugs :

   Tighten the level plus from 35 to 45 mΛN (3.5 to 4.5 m.kg) 25 ½ to 33 ft. lb. and the filler plug from 10 to 15 mΛN (1 to 1.5 m.kg) 7 to 11 ft. lb.

   IMPORTANT : The difference in the oil level between a « cold » box and a « hot » box is about 0.2 litre (¾ pts. Imp.). Because of this expansion, when checking the level on a « hot » box some fluid may run out : *do not top up.*

5. **Fit the spare wheel.**

GEARBOX WITH MECHANICAL CLUTCH

I - CHARACTERISTICS (1015 cc)

Gear ratios (with 145-15 ZX tyres) :

Gears	Gearbox ratios	CW & P	Overall ratios		Road speed per 1.000 engine rpm Km/h	mph
1st	11/42 = 0.2619 (3.82 : 1)	8/35 (4.375 : 1)	0.0598	16.72 : 1	6.709	4.17
2nd	16/38 = 0.4210 (2.38 : 1)		0.0962	10.39 : 1	10.793	6.71
3rd	21/32 = 0.6562 (1.52 : 1)		0.1500	6.67 : 1	16.830	10.46
4th	25/28 = 8928 (1.12 : 1)		0.2040	4.90 : 1	22.888	14.22
Rev.	11/23 × 23/46 = 0.2391 (4.18 : 1)		0.0546	18.30 : 1	6.126	3.81
Ratio of speedometer drive : 6/14 (2.33 : 1)						

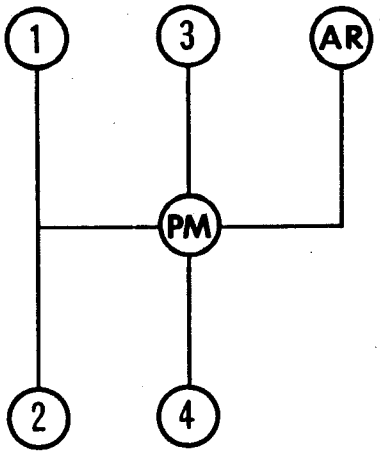
Lubrification :

Grade of oil ..... TOTAL EP. 80
Capacity ..... 1.4 litre (approx.) 2.5 pts. Imp.

Gearchange :

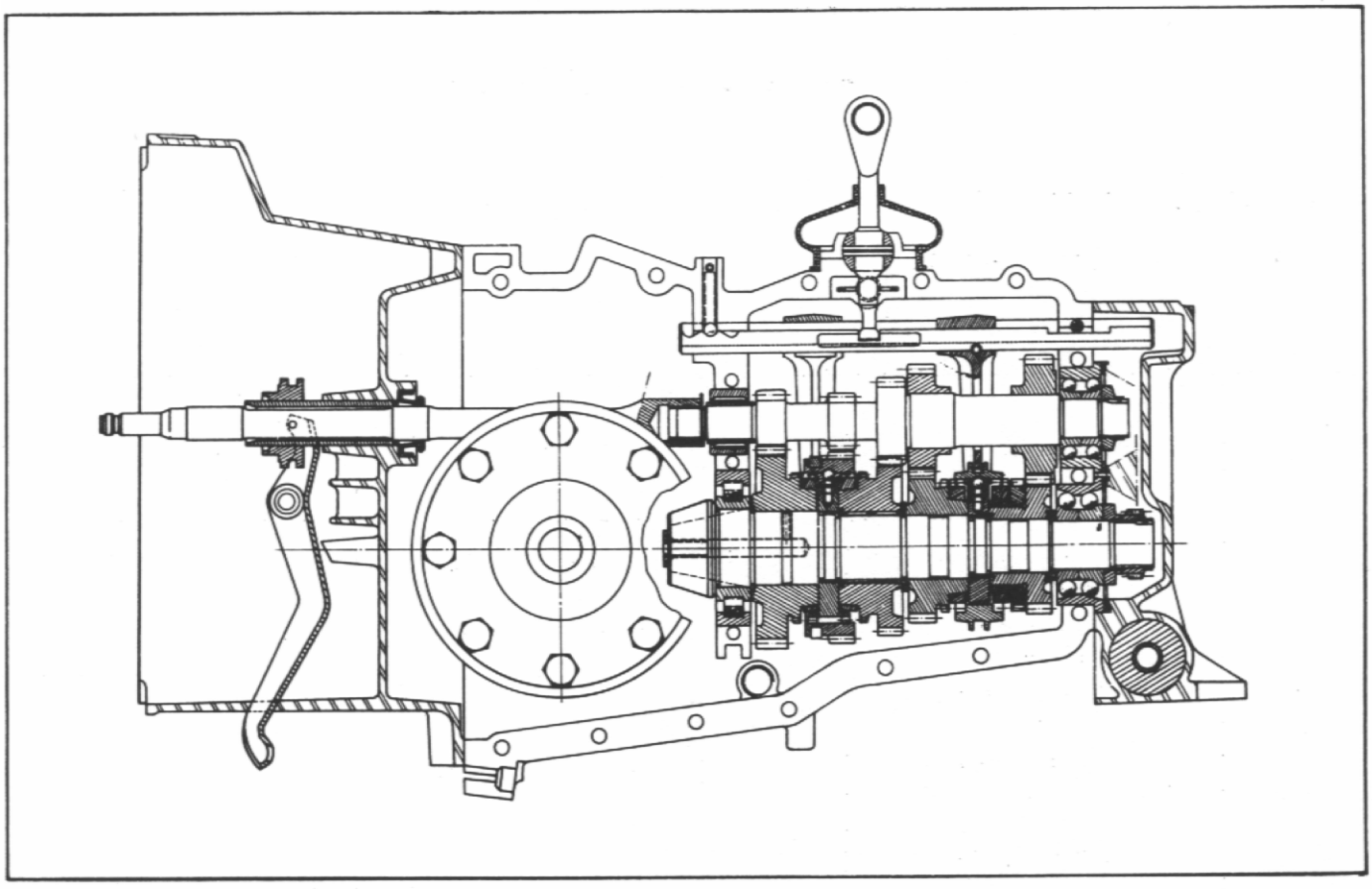
Gear lever on floor.
Gear positions :

AR = Rev.
PM = Neut.



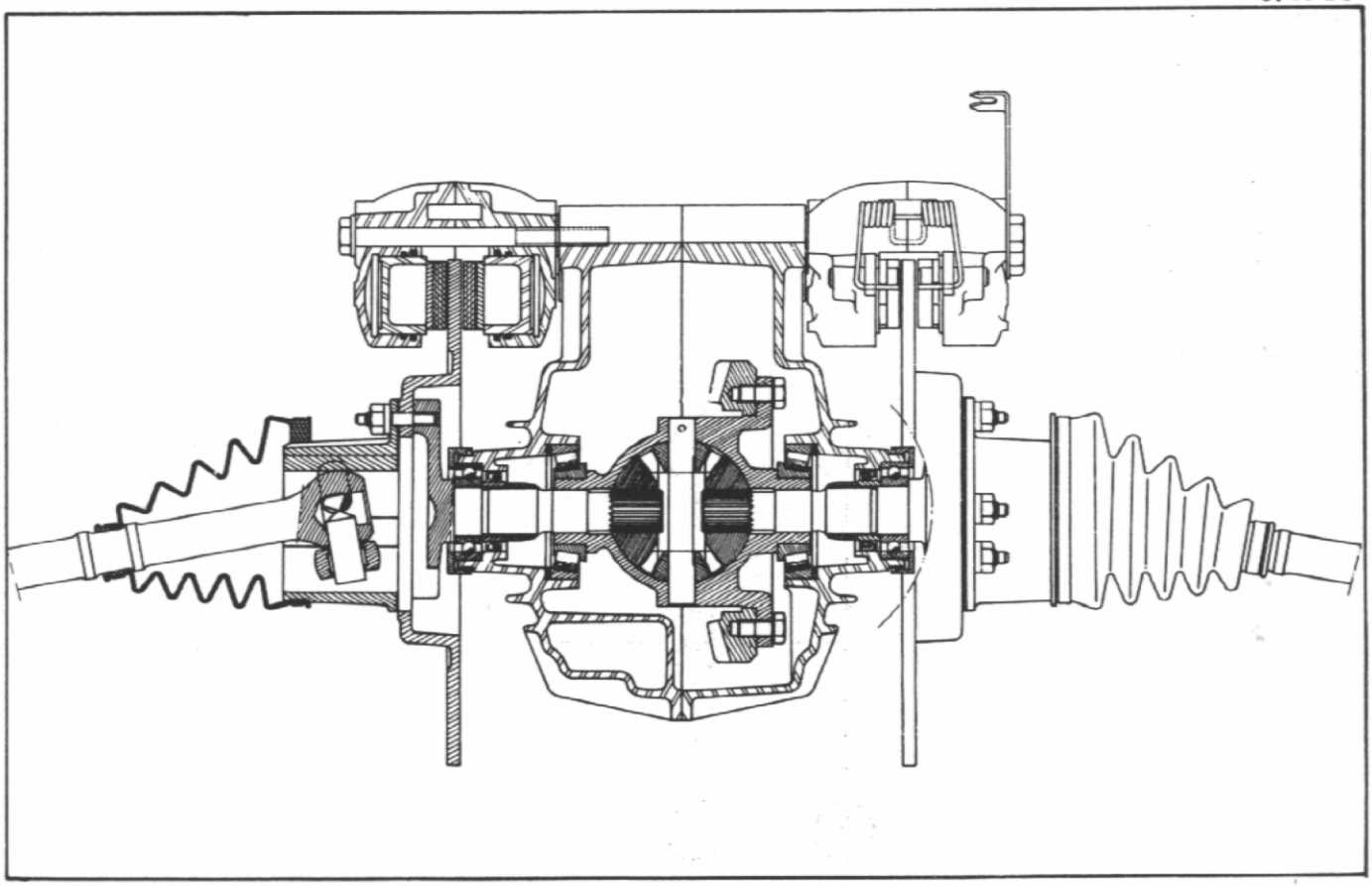
LONGITUDINAL SECTION

G 33-1 a



TRANSVERSE SECTION

G. 33-2 b



GEARBOX WITH MECHANICAL CLUTCH

GX vehicles, all types, fitted with a G. 10 (1015 cc) engine (produced since September 1972)

I - CHARACTERISTICS

Gear ratios (with 145-12 ZX tyres) :

Gears	Gearbox ratios	CW & P	Overall ratios		Road speed per 1.000 engine rpm Km/h	mph
1st	11/42 = 0.2619 (3.82 : 1)	8/35 (4.375 : 1)	0.0598	16.72 : 1	6.709	4.17
2nd	16/37 = 0.4324 (2.31 : 1)		0.0988	10.12 : 1	11.085	6.89
3rd	21/32 = 0.6562 (1.52 : 1)		0.150	6.67 : 1	16.830	10.46
4th	25/28 = 0.8928 (1.12 : 1)		0.204	4.90 : 1	22.888	14.22
Rev.	11/23 × 23/46 = 0.2391 (4.18 : 1)		0.0546	18.30 : 1	6.126	3.81
Ratio of speedometer drive : 6/14 (2.33 : 1)						

Manual 810-1

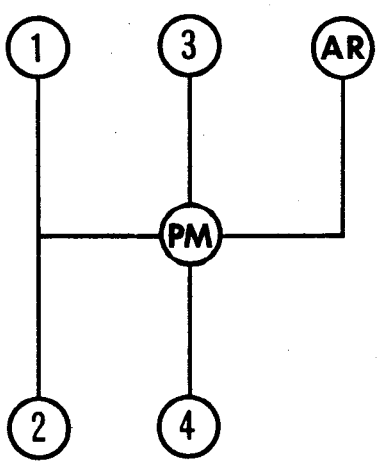
Lubrification :

Grade of oil ..... TOTAL EP. 80
Capacity ..... 1.4 litre (approx.) 2.5 pts. Imp.

Gearchange :

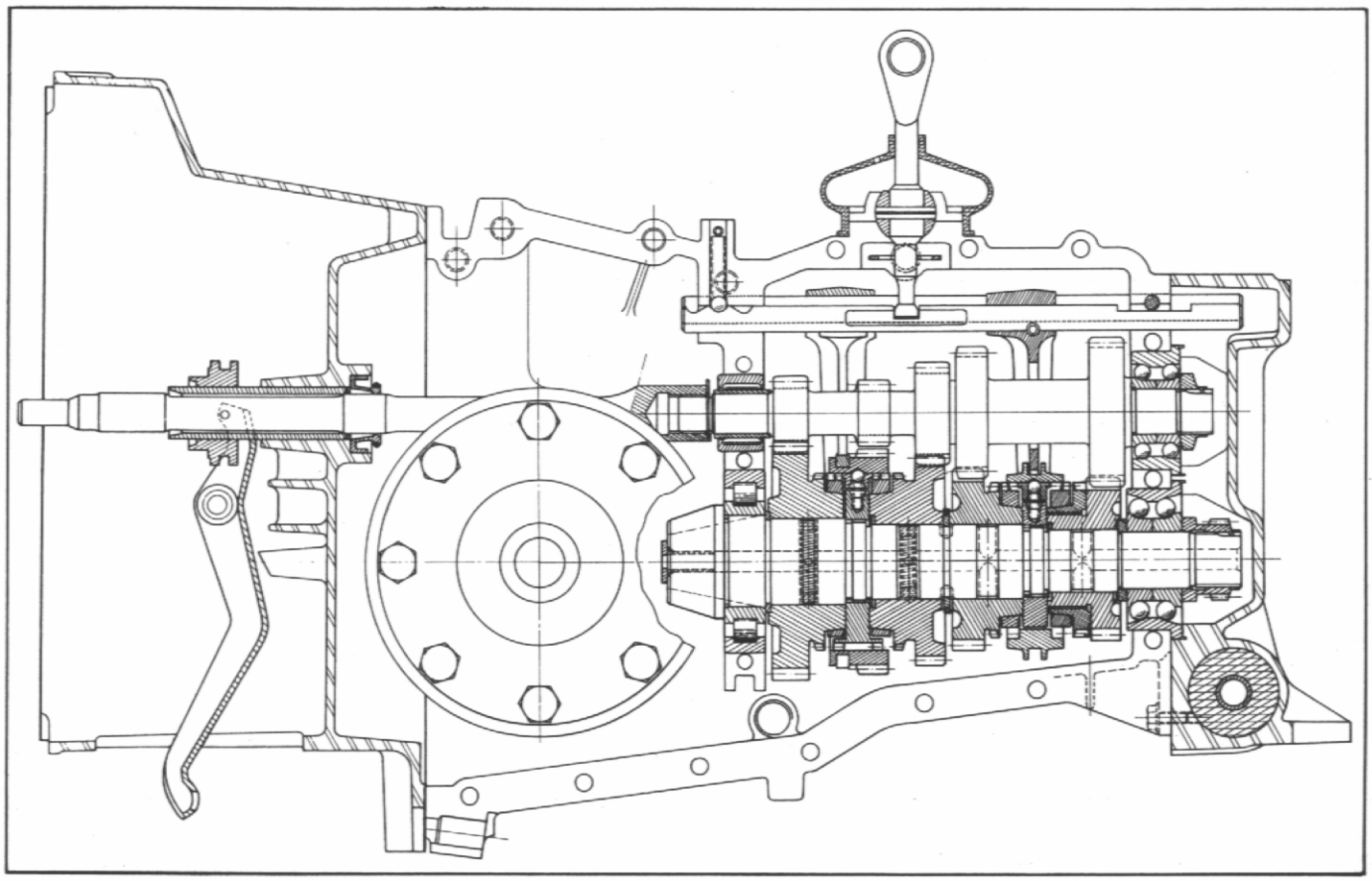
Gear lever on floor.
Gear positions :

AR = Rev.
PM = Neut.



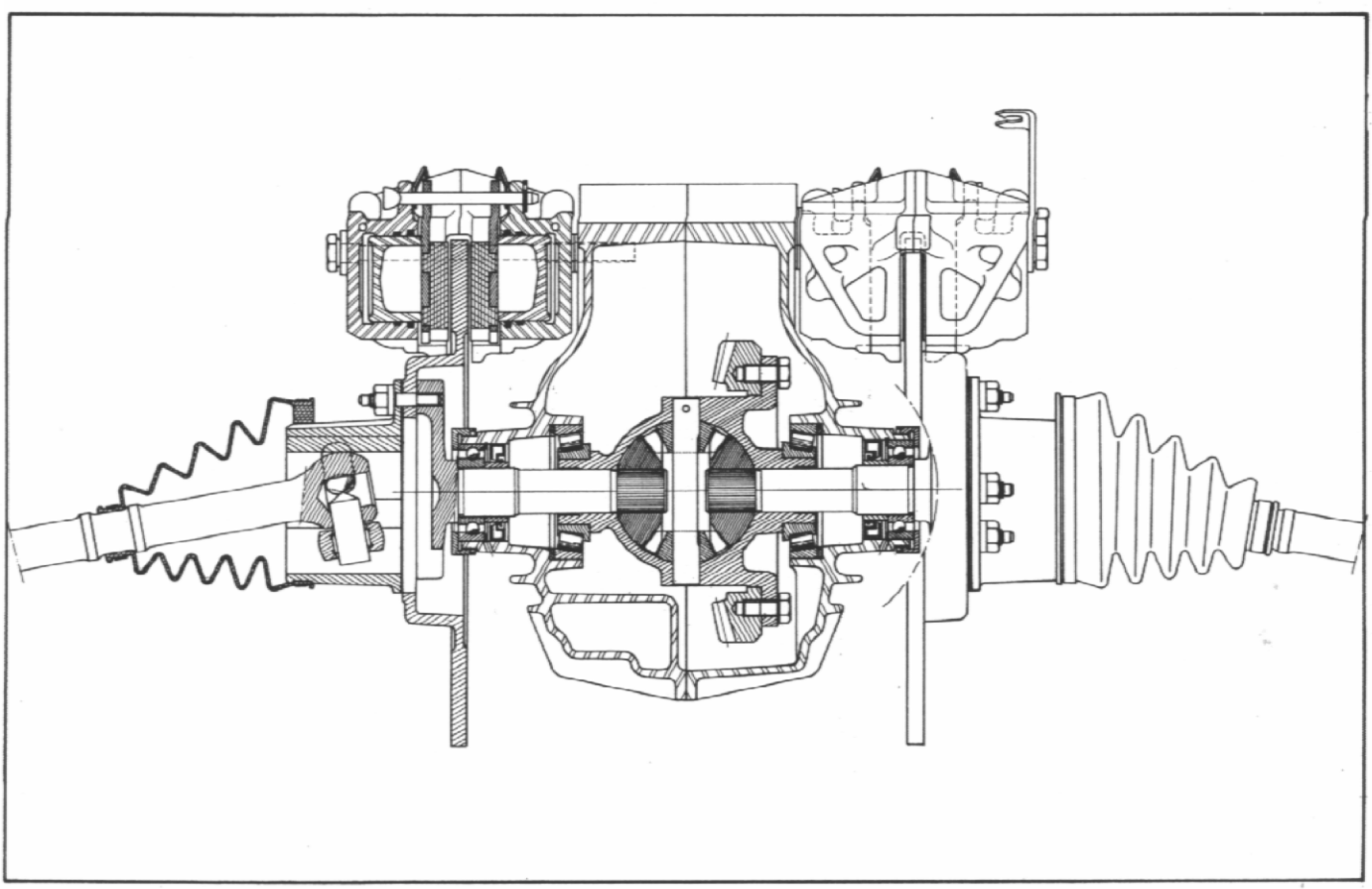
LONGITUDINAL SECTION

G.33-15b



TRANSVERSE SECTION

A 33-10



GEARBOX WITH MECHANICAL CLUTCH

GX vehicles, all types, fitted with a G. 103 (1220 cc) engine (produced since September 1972)

I - CHARACTERISTICS

Gear ratios (with 145-14 ZX tyres)

Gears	Gearbox ratios	CW & P	Overall ratios		Road speed per 1.000 engine rpm Km/h	mph
1st	11/42 = 0.2619 (3.82 : 1)	8/33 (4.125 : 1)	0.0634	15.75 : 1	7.113	4.42
2nd	16/37 = 0.4324 (2.31 : 1)		0.1048	9.80 : 1	11.758	7.31
3rd	21/32 = 0.6562 (1.52 : 1)		0.1590	6.28 : 1	17.839	11.08
4th	25/28 = 0.8928 (1.12 : 1)		0.2164	4.62 : 1	24.280	15.09
Rev.	11/23 × 23/46 = 0.2391 (4.18 : 1)		0.0579	17.25 : 1	6.462	4.02
Ratio of speedometer drive : 6/13 (2.17 : 1)						

Manual 810-1

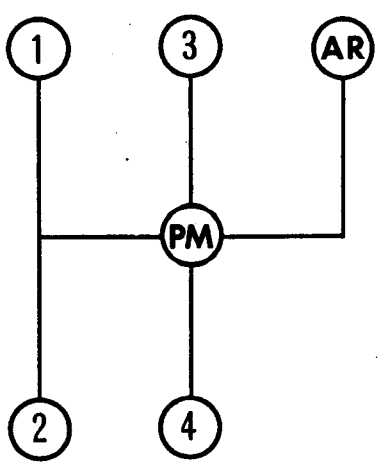
Lubrication :

Grade of oil ..... TOTAL EP. 80
Capacity ..... 1.4 litre (approx.) 2.5 pts. Imp.

Gearchange :

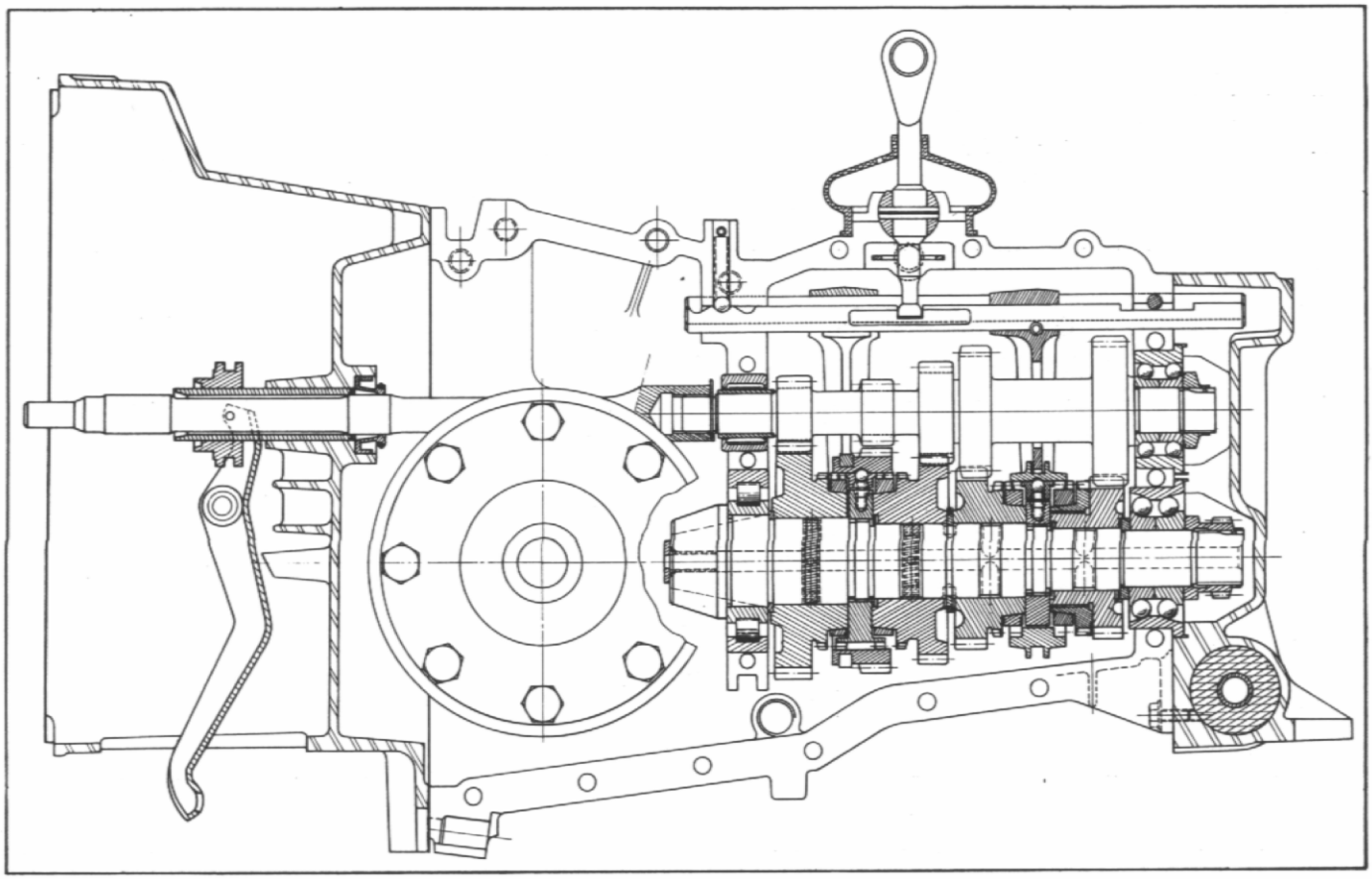
Gear lever on floor.
Gear positions :

AR = Rev.
PM = Neut.



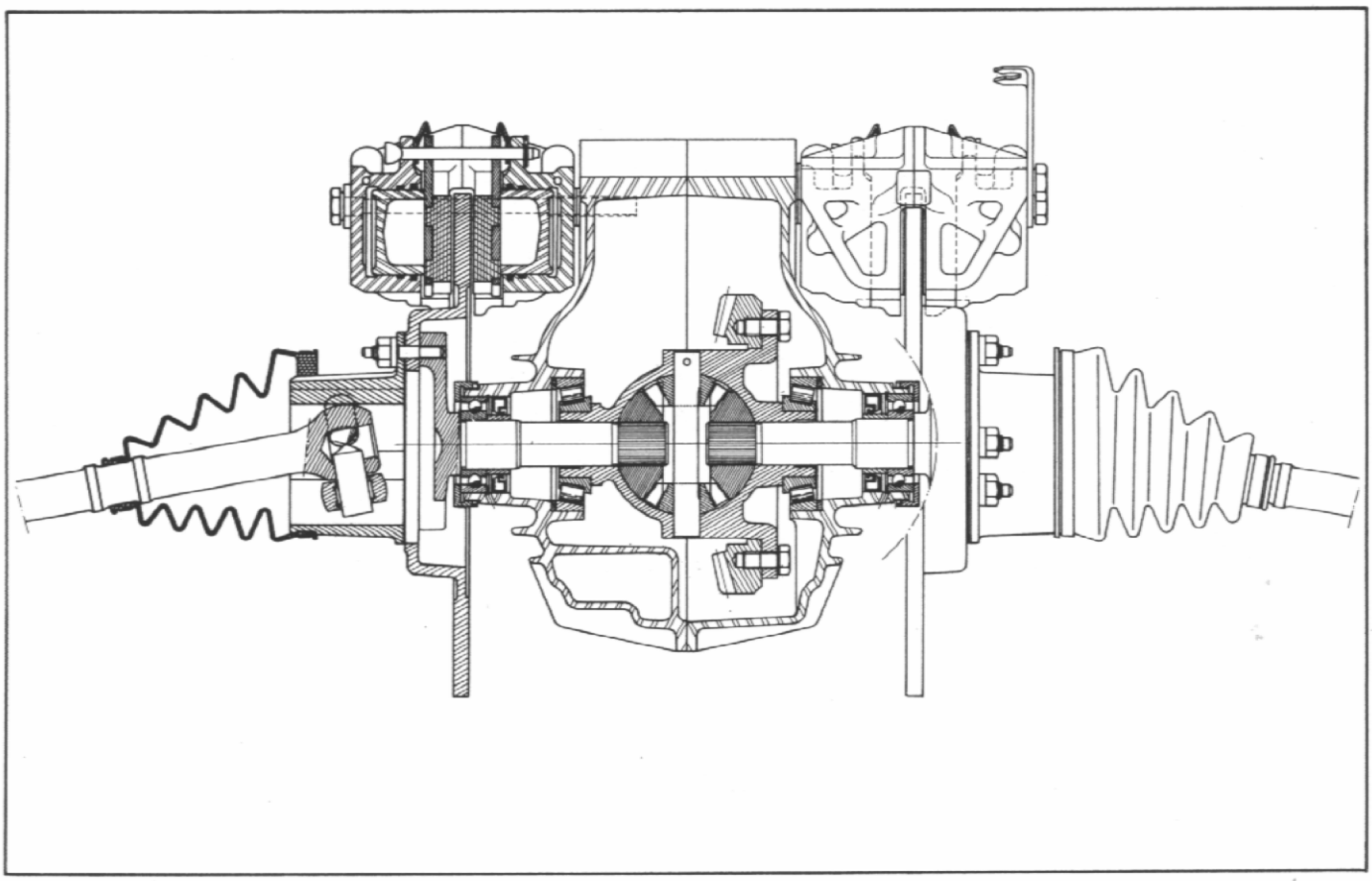
LONGITUDINAL SECTION

G. 33-15 b



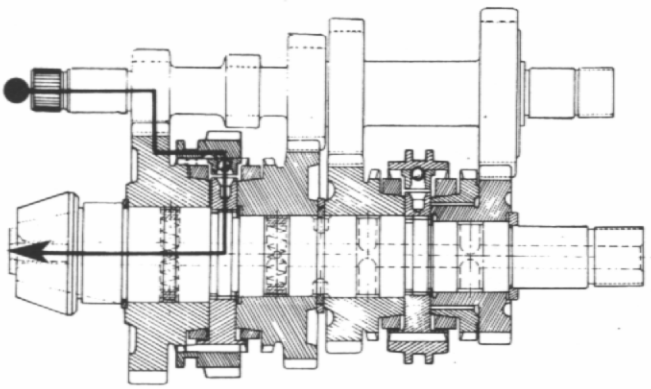
TRANSVERSE SECTION

A. 33-10

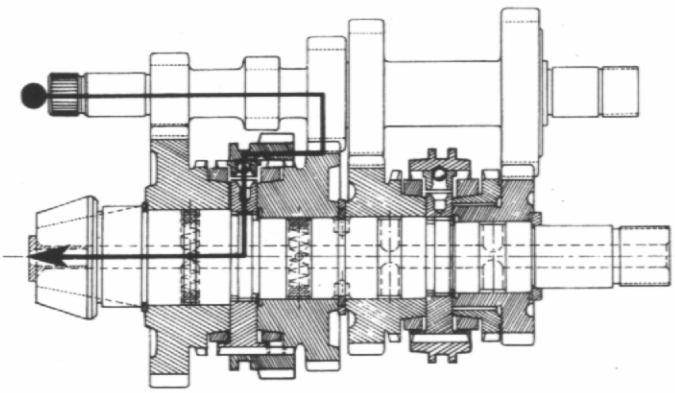


POWER FLOW

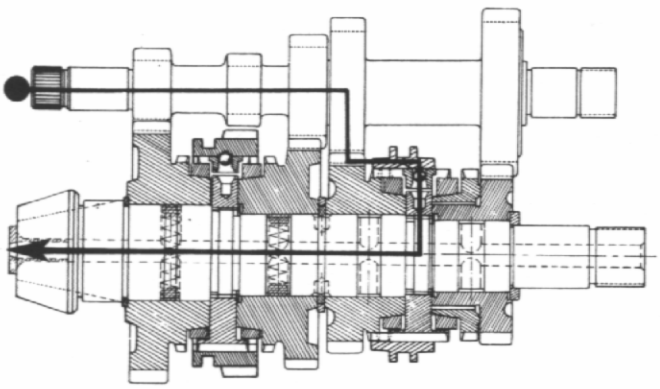
G.33-4 c



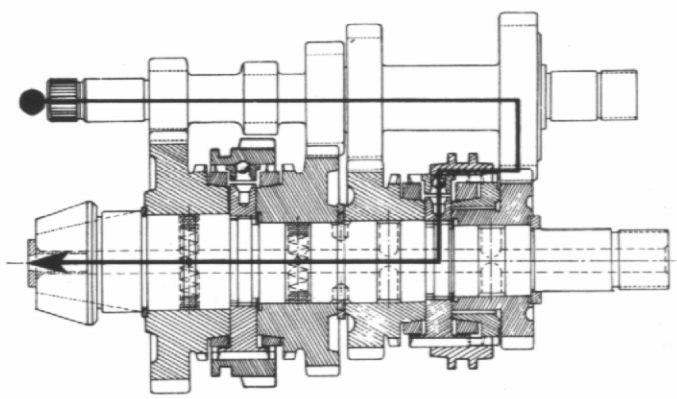
FIRST GEAR



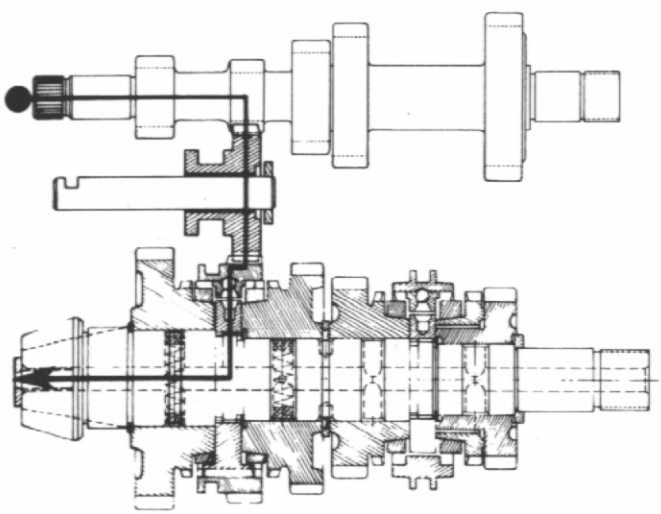
SECOND GEAR



THIRD GEAR



TOP GEAR



REVERSE GEAR

NOTE : For 1st, 2nd, 3rd and 4th, the driving pinions on the main shaft are in constant mesh with the driven pinions on the bevel-pinion shaft.

II - SPECIAL FEATURES

Adjustments :

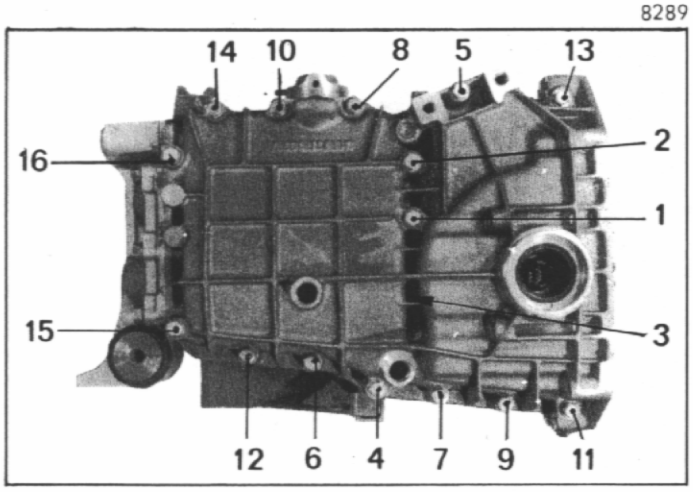
- Endfloat of the 1st - 2nd synchro hub.	0.05 mm max.
- Endfloat of the 3rd - 4th synchro hub.	0.05 mm max.
- Clearance of half-washers between 2nd and 3rd gearwheels	0.05 mm max.
- Backlash between crown-wheel and bevel pinion	0.13 to 0.27 mm
- Total preload on differential ball bearings	0.05 mm

Tightening torques :

	ft. lb.	
- Nut on main shaft	50 ½ to 61 ½	70 to 85 mΛN (7 to 8.5 m.kg)
- Nut on bevel-pinion shaft	72 ½ to 87	100 to 120 mΛN (10 to 12 m.kg)
- Bush-nut on differential bearing	43 ½ to 72 ½	60 to 100 mΛN (6 to 10 m.kg)
- « Deraeve » nuts (output shaft)	101 to 116	140 to 160 mΛN (14 to 16 m.kg)
- Reverse selector lever spindle	19 ½ to 22	27 to 30 mΛN (2.7 to 3 m.k)
- Differential crownwheel screws 9 mm dia. (fit with LOCTITE No. GX 01.46001 A)	35 to 38 ½	48 to 53 mΛN (4.8 to 5.3 m.kg)
- Differential crownwheel screws 10 mm dia. (face and thread oiled)	57 ¾ to 65	80 to 90 mΛN (8 to 9 m.kg)
- Drain and filter plug	25 ½ to 32 ½	35 to 45 mΛN (3.5 to 4.5 m.kg)
- Reverse lamp switch	8 ½ to 10 ¾	12 to 15 mΛN (1.2 to 1.5 m.kg)
- Clutch bell-housing nuts	9 ½ to 11	13.5 to 15 mΛN (1.3 to 1.5 m.kg)
- Rear cover screws	18 to 21 ½	25 to 30 mΛN (2.5 to 3 m.kg)
- Nuts securing half-gear cases	9 ½ to 11	13.5 to 15 mΛN (1.3 to 1.5 m.kg)
- Studs securing drive shafts on gearbox outlets	2 ¾	4 mΛN (0.4 m.kg)

Assembly of gearbox half-casings :

8289



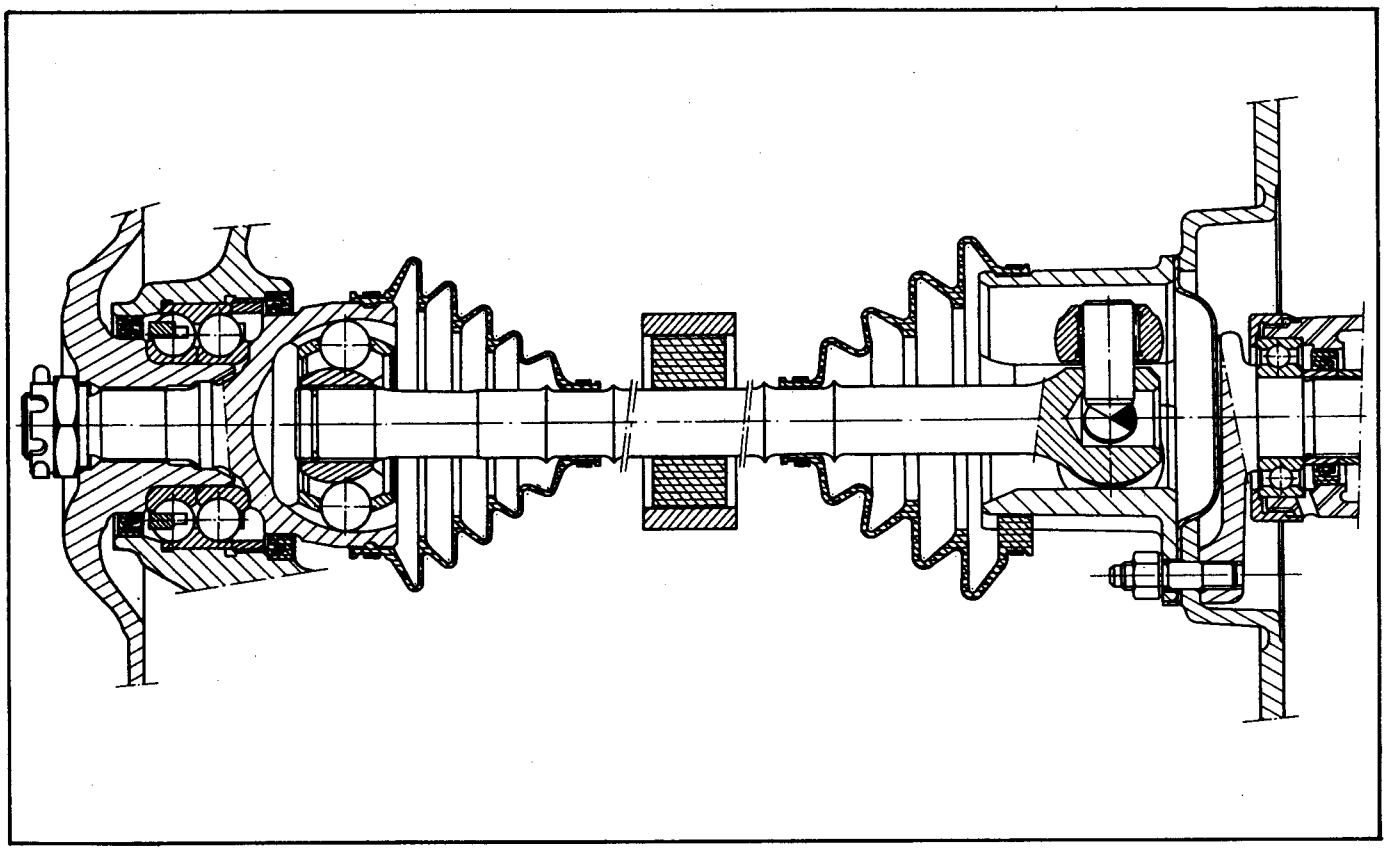
a) *Oiltightness :* Lightly coat the mating surfaces of the gearbox halves, the clutch bell-housing and the rear cover with CURTYLON compound.

b) *Sequence of assembly :*

- Screw up the nuts for gear-case halves, without tightening.
- Tighten the rear cover screws (to line up gearcase-halves).
- Screw up the nuts for clutch bell-housing without tightening.
- Unscrew the screws fixing rear cover to right-hand half of gearcase.
- Tighten positively the nuts for gearcase halves (tightening sequence in figure alongside) and those for clutch bell-housing.
- Tighten finally, screws for rear cover.

OPERATION No. G. 372-00 : *Characteristics and special features of the drive shafts*

G. 37-1 a



Manual 810-1

I - CHARACTERISTICS

- Ball-type constant velocity joint at wheel end.
- Tri-axe joint at gearbox end.

II - SPECIAL FEATURES

Tightening torques :

- Securing nuts on gearbox output shaft	32 ½ to 36 ft. lb. 45 to 50 m.\N (4.5 to 5 m.kg)
Hub nut (faces and threads greased)	252 to 288 ft. lb. 350 to 400 m.\N (35 to 40 m.kg)

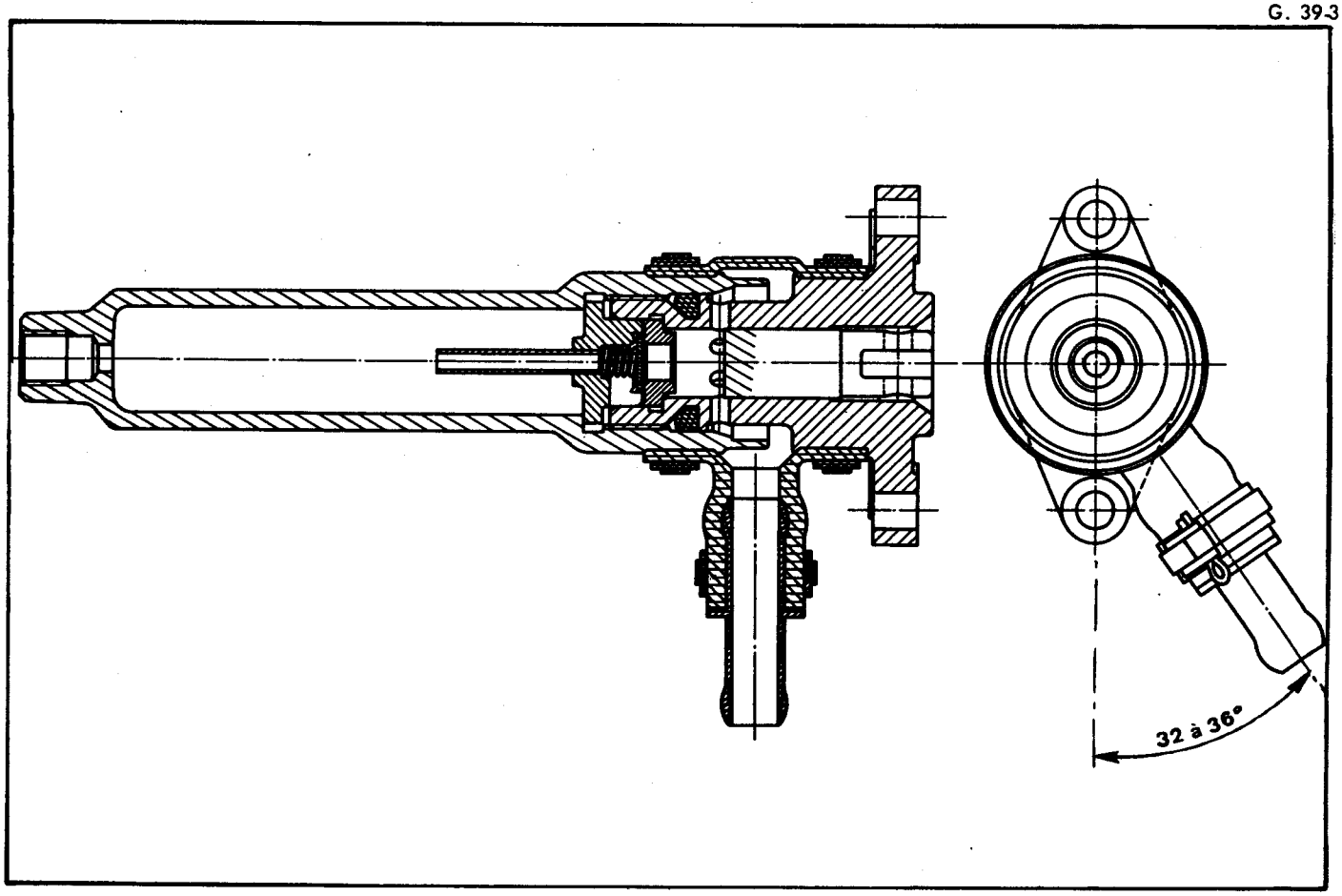
Greasing :

- Grease : TOTAL MULTIS MS.

HYDRAULIC SOURCE AND RESERVE OF PRESSURE

HIGH-PRESSURE PUMP

G. 39-3



Manual 810-1

CHARACTERISTICS

Single cylinder pump actuated by a connecting rod and an eccentric machined on the oil-pump shaft.

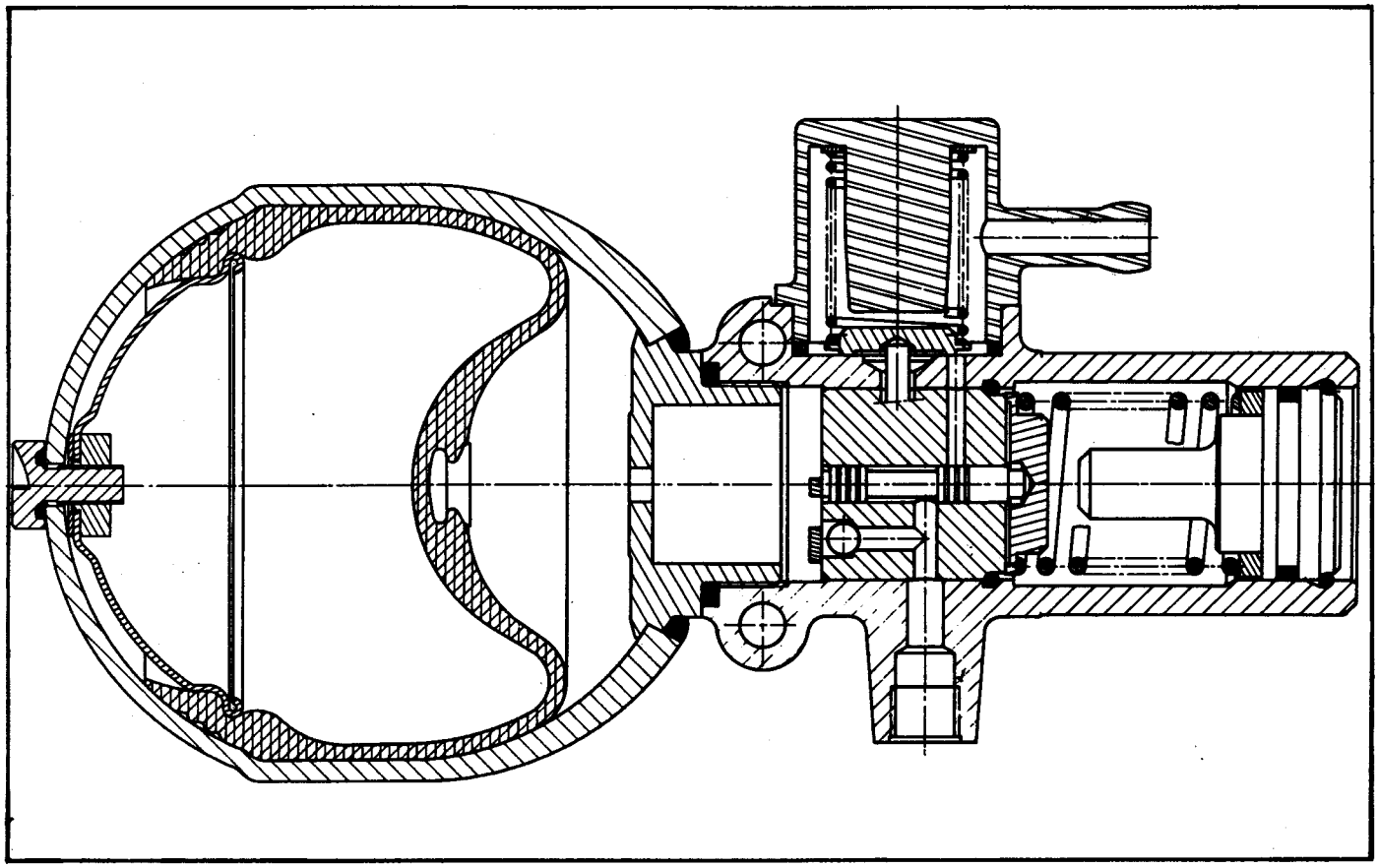
- Ratio pump speed/engine speed ..... 1 : 2
- Piston diameter ..... 15 mm
- Piston stroke ..... 10 ± 0.05 mm
- Output - under load of 175 bars (2.490 psi) oil at 60 °C ..... 0.9 cc per turn at 250 rpm
- Reservoir : maximum capacity ..... 3.3 litres 5.8 pts. Imp.

SPECIAL FEATURES

- *Renew the sealing ring during every reassembly.*
- Ensure the suction tube is correctly angled (see fig.).
- **Tightening torques :**
  - Plug for receiving-chamber ..... 25 ½ ft. lb. 35 mΛN (3.5 m.kg)
  - Pump securing nut ..... 9 to 10 ft. lb. 12 to 14 mΛN (1.2 to 1.4 m.kg)

PRESSURE REGULATOR
MAIN ACCUMULATOR

G. 39-13



CHARACTERISTICS

Pressure regulator with pilot slide-valve :

- Cut-out pressure	170 ± 5 bars	2418 ± 71 psi
- Cut-in pressure	145 ± 5 bars	2062 ± 71 psi

Main accumulator :

- Capacity	0.40 litre	400 cc
- Pression de tarage : *(until 3/1973)*	40 ± 5 bars	370 ± 71 psi
(from 3/1973)	$60\ ^{+\ 5}_{-\ 10}$ bars	711 to 925 psi

Pressure switch :

- Inflation pressure : *(until 3/1973)*	60 to 80 bars	853 to 1138 psi
(from 3/1973) (Mark U.N. on pressure switch)	75 to 95 bars	1068 to 1351 psi

SPECIAL FEATURES

Pressure regulator :

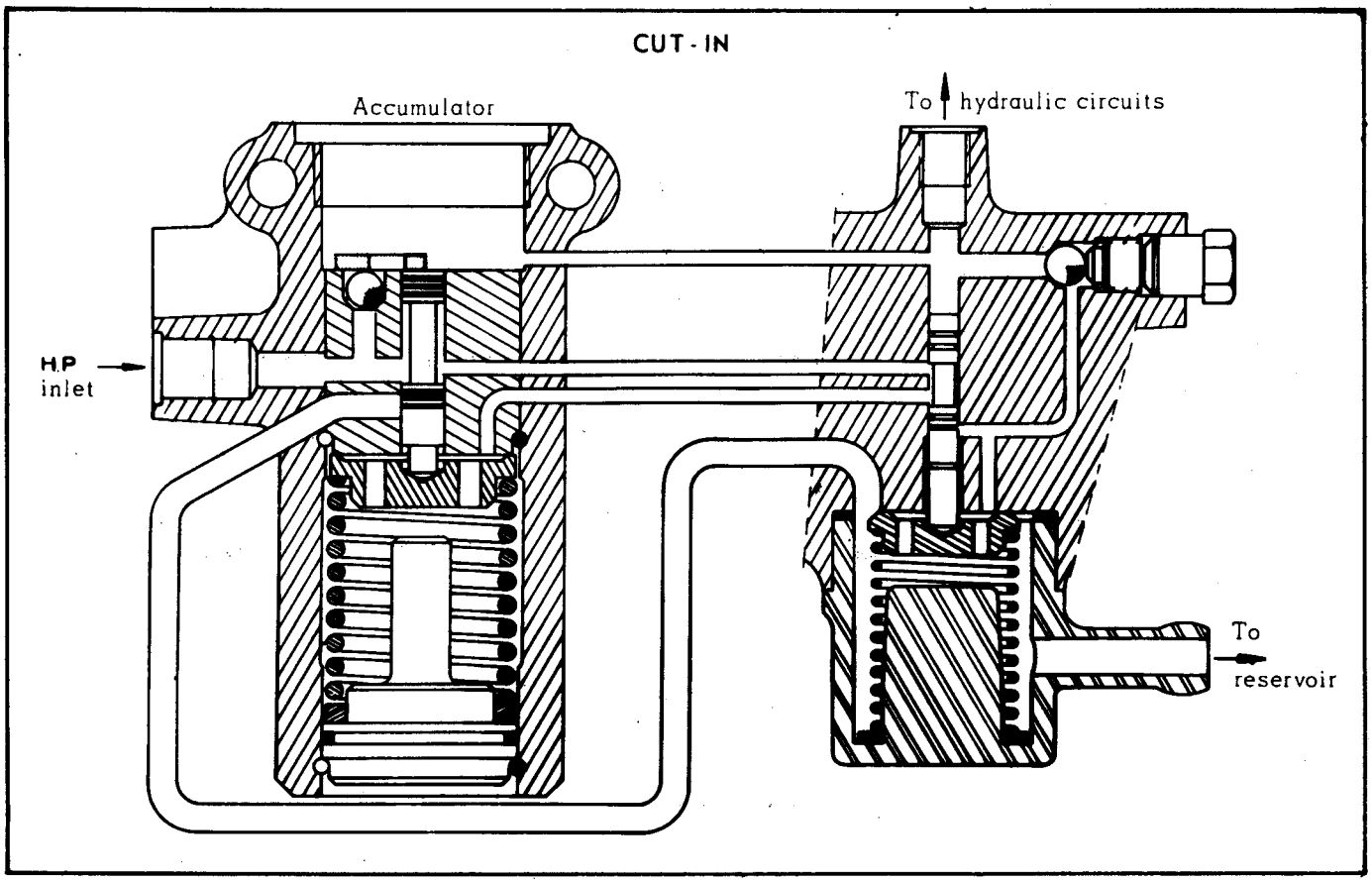
- Thickness of shims for setting : cut-out	0.30 mm	
cut-in	0.30 and 0.70 mm	
- A shim of 0.30 mm alters the pressure by	3 bars	43 psi (approx.)
- A shim of 0.70 mm alters the pressure by	7 bars	57 psi (approx.)

Tightening torques :

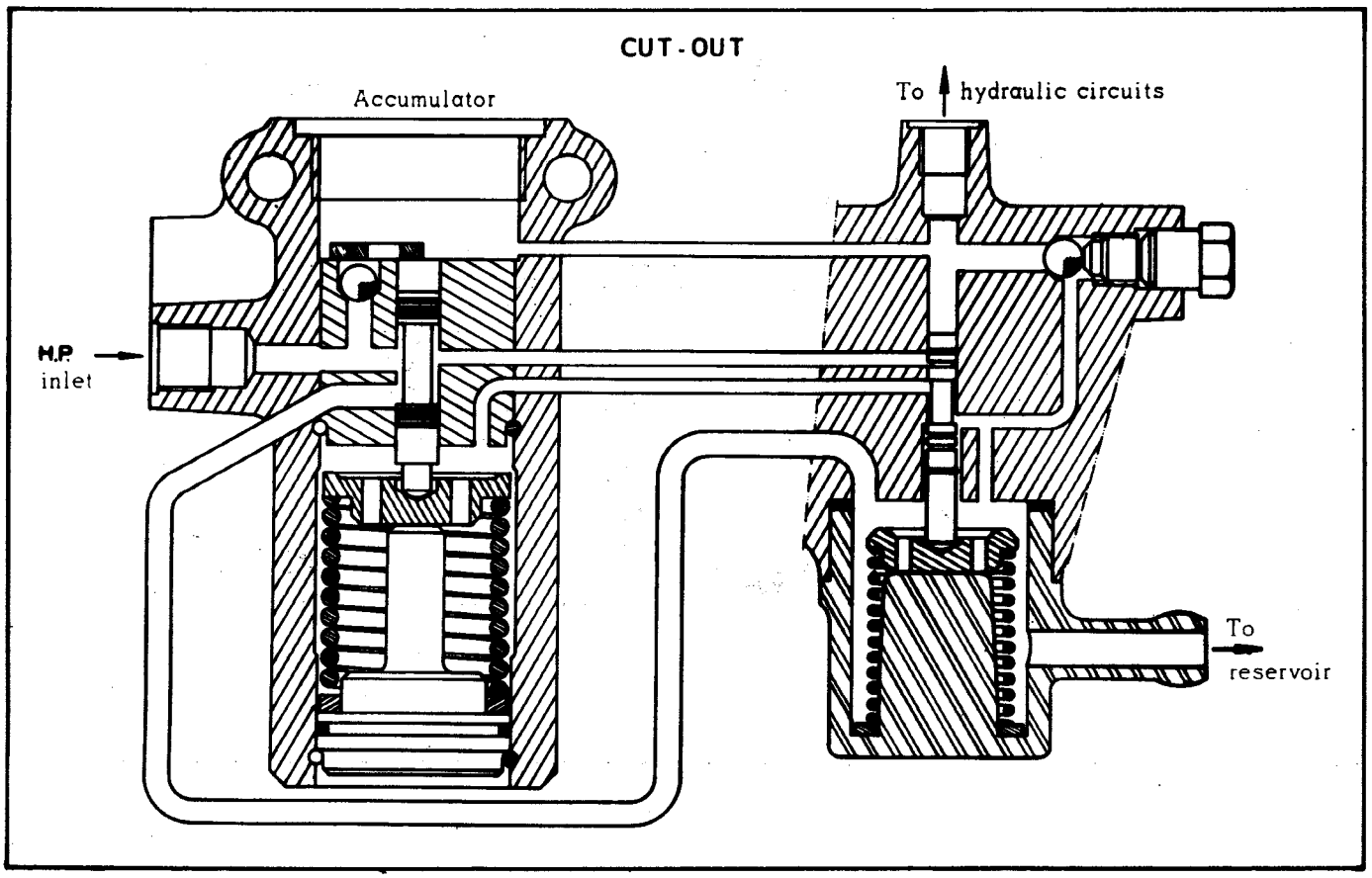
- Securing screws for pressure regulator	18 mΛN (1.8 m.kg) 13 ft. lb.
- Main accumulator	25 to 45 mΛN 18 to 32 ½ ft. lb. (2.5 to 4.5 m.kg)
- Pressure switch	11 to 12 mΛN 8 to 9 ft. lb. (1.1 to 1.2 m.kg)

FUNCTIONAL DIAGRAMS

D. 39-50 a

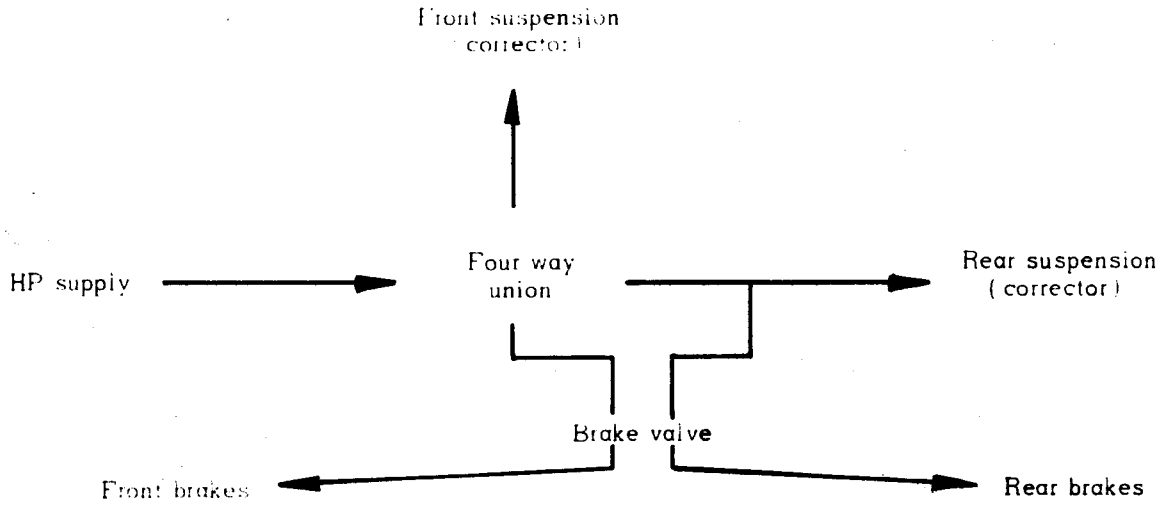


D. 39-51 a



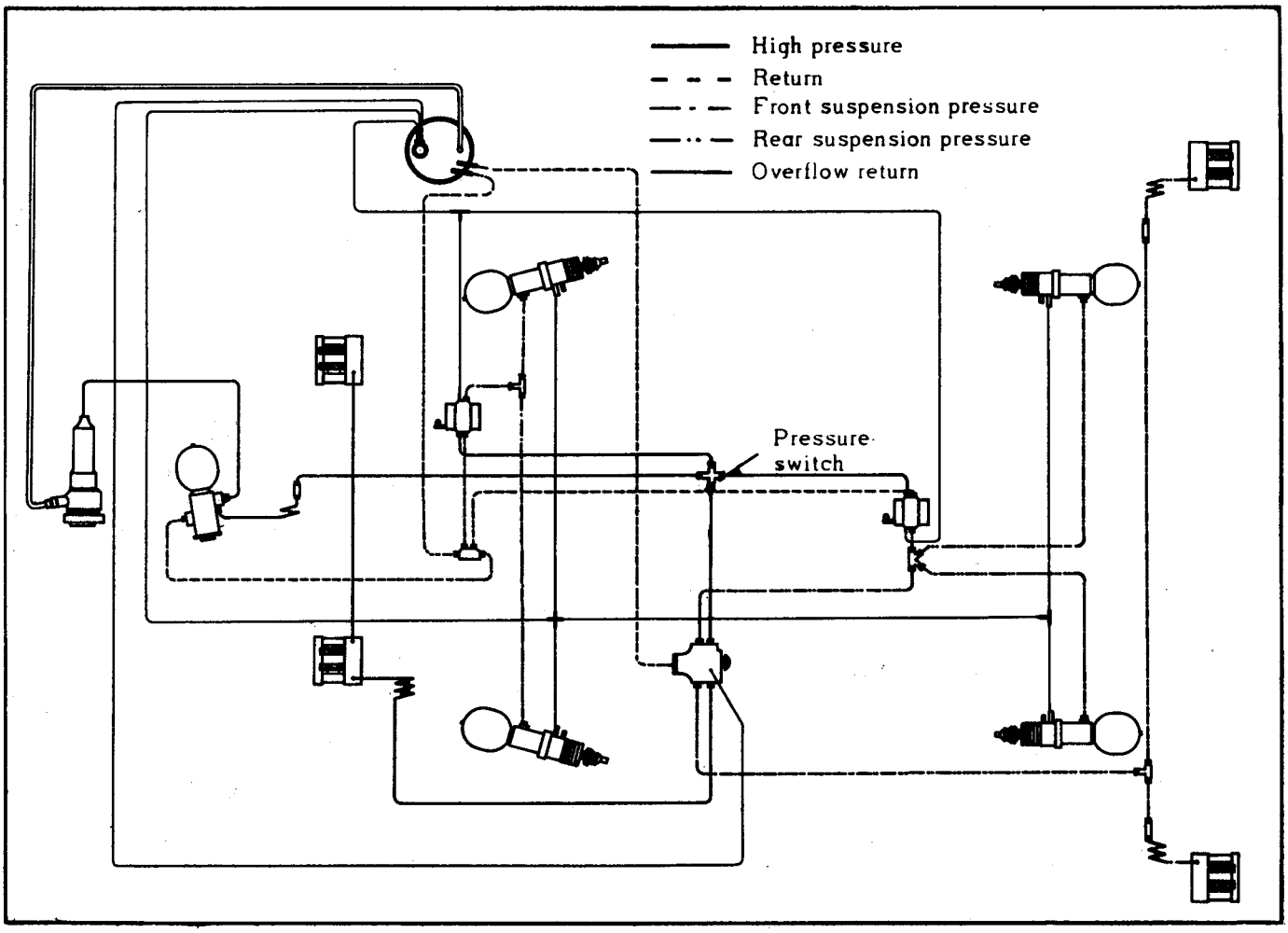
HYDRAULIC CIRCUIT

1. Diagram of operation



2. Assembly diagram

G. 39-1



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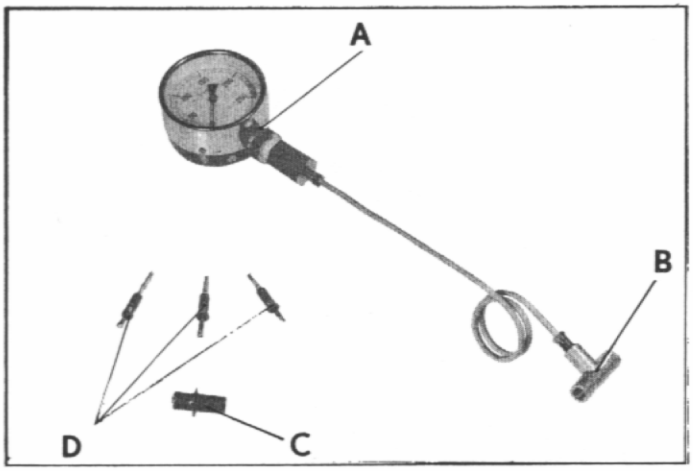

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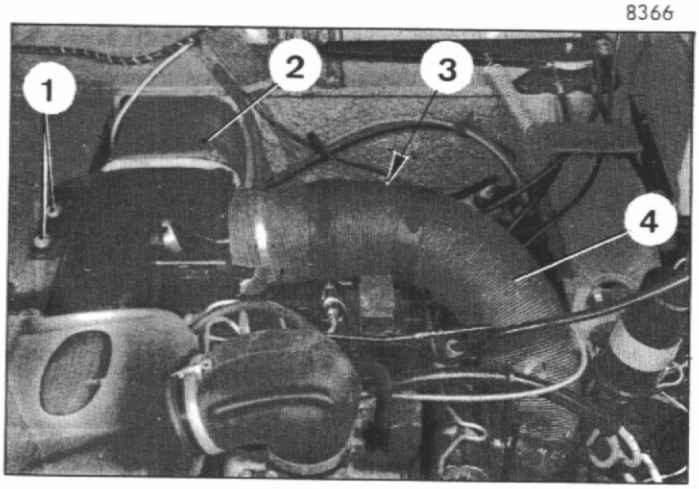

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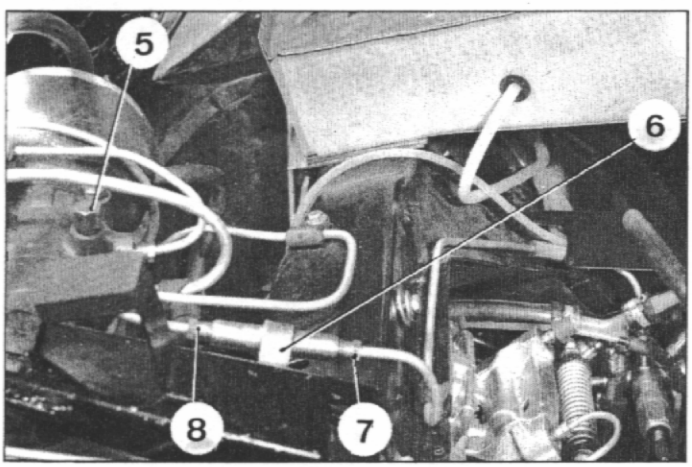

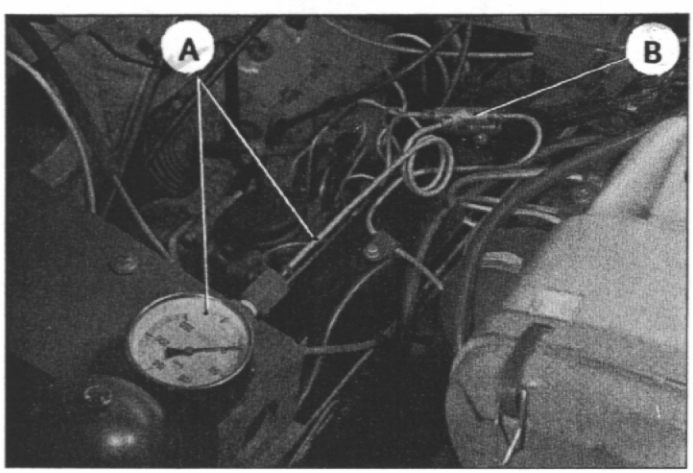

CHECK OF THE HYDRAULIC UNITS

NOTE : To carry out these checks use :

- 1 three-way union B (HY-453-134)
- 1 pressure gauge A graduated from 0 to 250 bars (0 to 4.000 psi).
- 3 blanking plugs D (male) dia. 8 × 125 mm
- 1 blanking plug C (female) dia. 8 × 125 mm (modified two-way union AM-453-37).

PREPARATION :

1. **Ensure first that :**
   - The filter in the hydraulic reservoir is clean.
   - The hydraulic fluid is at operating temperature (drive the car on road first if cold).

2. **Depressurise the system :**

   Place the manual control lever in the « normal road » position.

   Open the pressure regulator bleed-screw (5) (release-screw).

   Place the manual control lever in the « high » position.

3. **Remove the heater distribution box :**
   - Remove the screw (1).
   - Slacken the screws (at 3).
   - Lift out the box complete with ducts (2 and 4).

4. Slacken the union screws and withdraw the ends (7) and (8) of the supply tube from the union (6). Connect them to the three-way union B fitted with pressure gauge A.

   The assembly consisting of the three-way union B and the pressure gauge A will remain in position throughout the check.

NOTE : *The sequence of checks listed is mandatory.*

If a unit proves defective during the check, change or repair it before proceeding with the next check.

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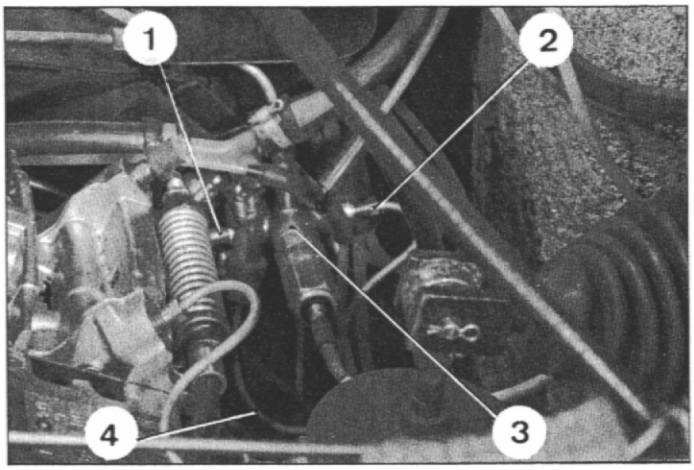

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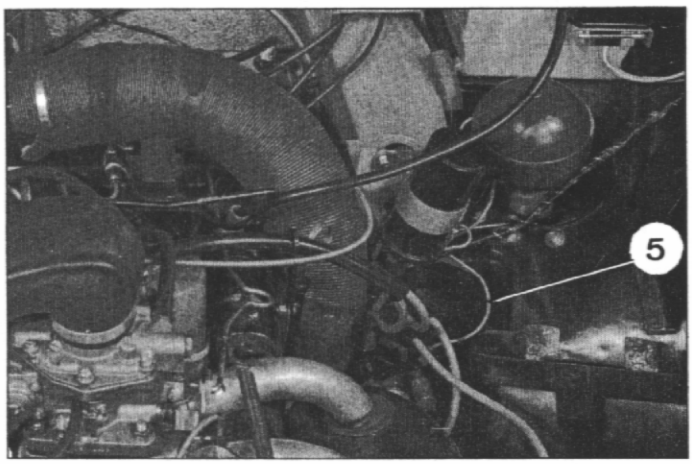

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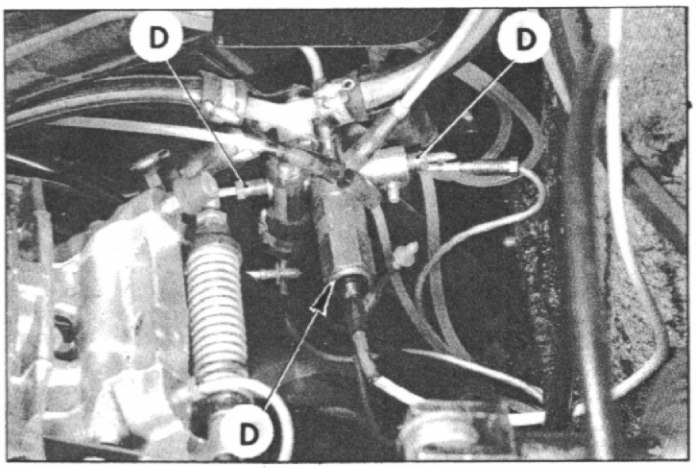

CHECKS

5. Check of the main accumulator :

a) Disconnect the following from the four-way union (3).

- The supply pipe to the front brakes (4).
- The supply pipe to the front suspension (1).
- The supply pipe to the rear suspension (2).

b) Blank off the openings of the four-way union (3) with the plugs D.

c) Tighten the pressure regulator bleed-screw.

- Disconnect the contact breaker lead (5).
- Operate the starter motor while watching the needle of the pressure gauge : it should rise gradually and then appear to stabilize.
- Note this value i s the inflation pressure of the accumulator.
- This pressure must be :

40 ± 5 bars (570 ± 70 psi) (until March 1973)

or $60 \begin{smallmatrix} + 5 \\ - 10 \end{smallmatrix}$ *bars* ($853 \begin{smallmatrix} + 70 \\ - 140 \end{smallmatrix}$) *(from March 1973)*

- Connect the contact breaker lead (5).

6. Check of the pressure regulator :

a) *Check of the cut-out pressure :*

- Start the engine.
- With the pressure regulator bleed screw closed, watch the needle of the pressure gauge. Maximum cut-out pressure is indicated when it ceases to rise.
- This pressure must be *170 ± 5 bars (2.420 ± 70 psi)*.
  When the cut-out pressure is reached, let the engine run a few moments to stabilize the pressure.
- Stop the engine.
- Watch the pressure gauge : Note the drop in pressure during *3 minutes*.
  If this drop is more than 10 bars (140 psi) check the plugs D for leaks and repeat the operation if necessary.
- If the pressure falls is confirmed, the pressure regulator is defective ; renew or recondition it.

b) *Check the cut-in pressure :*

- Start the engine.
- When cut-out occurs, slightly open the pressure regulator bleed screw.
- The pressure gauge needlt will fall gently, then rise again when the HP pump begins to charge.
- The minimum value indicated by the gauge corresponds to the cut-in pressure.
- This pressure must be equal to *145 ± 5 bars (2.060 ± 70 psi)*. If the cut-out and cut-in pressure are outside the diven tolerances, adjust the pressure regulator.

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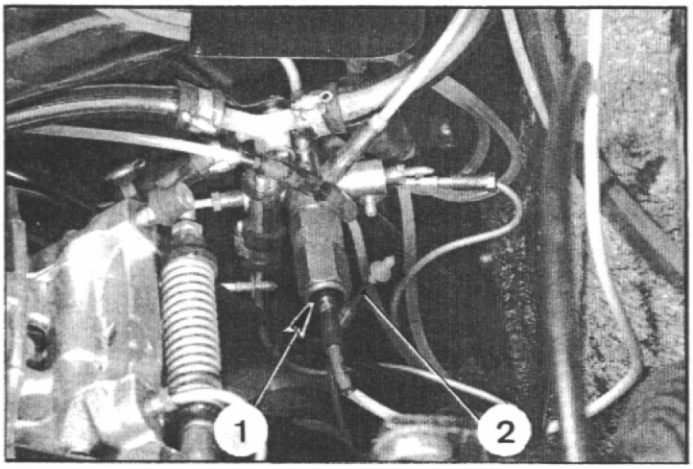

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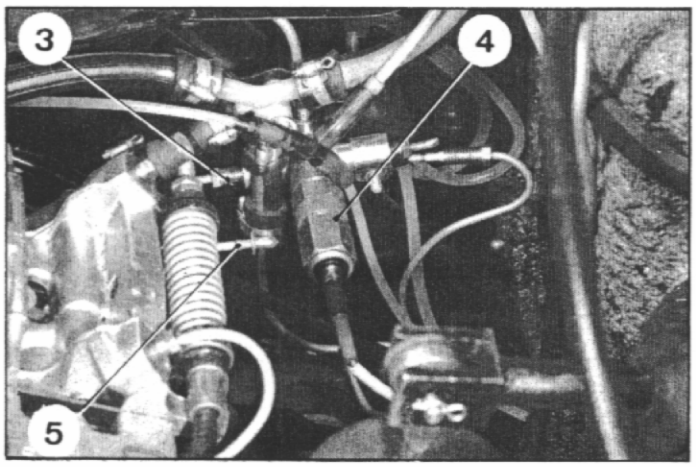

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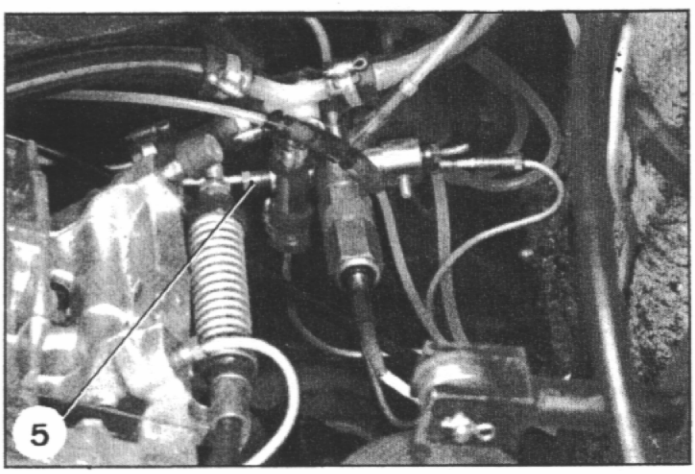

7. Check of the hydraulic brake control unit :

- Slacken the release screw of the pressure regulator.
- Remove the blanking plug (1).
- Connect the supply pipe for the front brakes (2).
- Tighten the release screw of the pressure regulator.
- Run the engine.
- After cut-out wait a few moments to allow the pressure to stabilize.
- Stop the engine.
- Watch the pressure-gauge needle and note the drop in pressure *during 3 minutes.*
- If the pressure drops by more than 10 bars (140 psi) repeat the operation.
- If the result is confirmed the brake control unit is faulty : renew it.

8. Check of the pressure switch (4) :

- Preparations are the same as for checking the brake control unit above.
- Run the engine to obtain the cut-out pressure.
- Stop the engine.
- Operate the brake pedal until the hydraulic-pressure warning light is permanently on.
- Read off the pressure on the gauge at the moment : it should be between 60 and 80 bars (850 and 1140 psi). If not change the pressure switch.

9. Check of the front suspension :

- Slacken the release screw of the pressure regulator.
- Remove the blanking plug (3).
- Connect the supply pipe for the front suspension (5).
- Tighten the release screw of the pressure regulator.
- Run the engine.
- Place the manual control in the *normal* road position.
- Wait until the front of the car rises and cut-out takes place.
- Allow the pressure to stabilize.
- Stop the engine.

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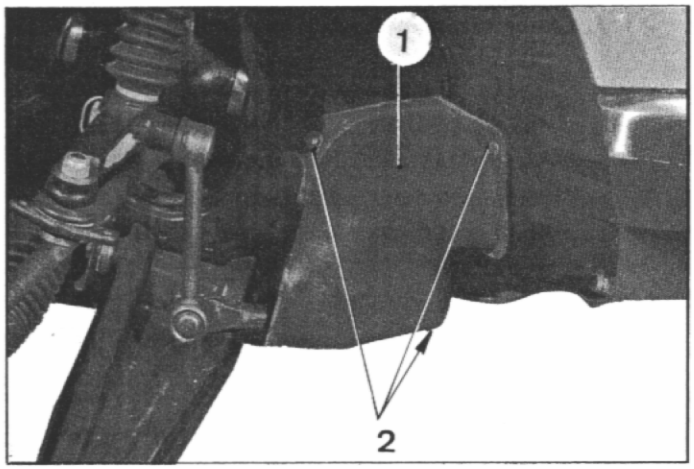

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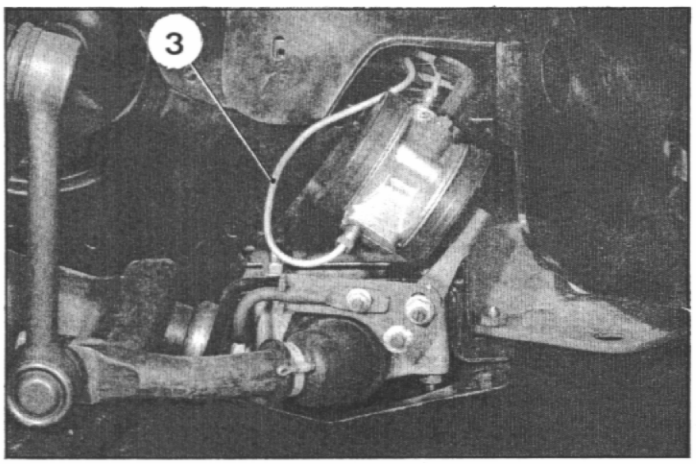

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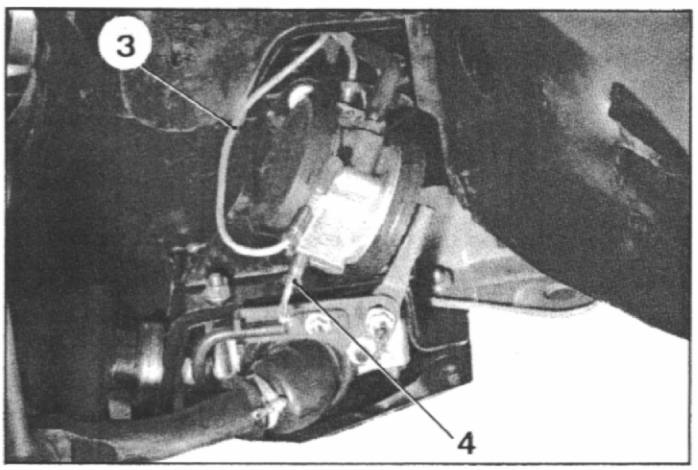

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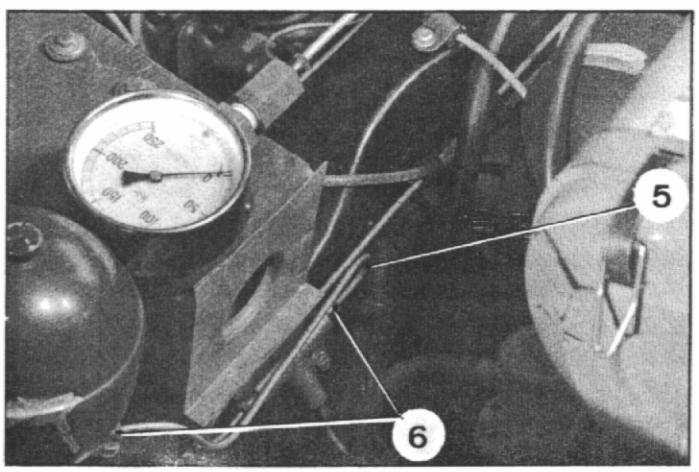

- Note the drop in pressure on the gauge. If this drop is more than 10 bars (140 psi) *during 3 minutes* repeat the operation.
- If the result is confirmed find the unit(s) which leak and which could be :
  - the front corrector or
  - one or both suspension cylinders.
- These three units are checked by successive elimination.

a) *Check the front height corrector :*

- Remove the protective casing (1).
  - Remove the three screws (2).
- Slacken the release screw of the pressure regulator.
- Place the manual control in the *high* position.
- Disconnect the supply pipe to the front cylinders (3).
- Blank off the opening of the corrector by means of a plug (4).
- Tighten the release screw of the pressure regulator.
- Place the manual control in the *normal* position.
- Run the engine.
- Allow the pressure to stabilize.
- Stop the engine.
- Note the drop in pressure on the gauge.
- If this drop in pressure is more than 10 bars (140 psi) during *3 minutes* repeat the operation.
- If the result is confirmed the front height corrector is faulty : renew it.
- Remove the blanking plug and connect the pipe (3) to the corrector.

b) *Check the front right suspension cylinder :*

- Slacken the release screw of the pressure regulator.
- Place the manual control in the *high* position.
- Disconnect the unions (6) and remove the supply pipe (5) to the cylinder.
- Blank off the opening of the three-way union with a plug (7).
- Repeat the check as described in the previous paragraph.
- If the front right suspension cylinder is faulty, change or repair it.
- Remove the plug (7).
- Refit the supply pipe (5).

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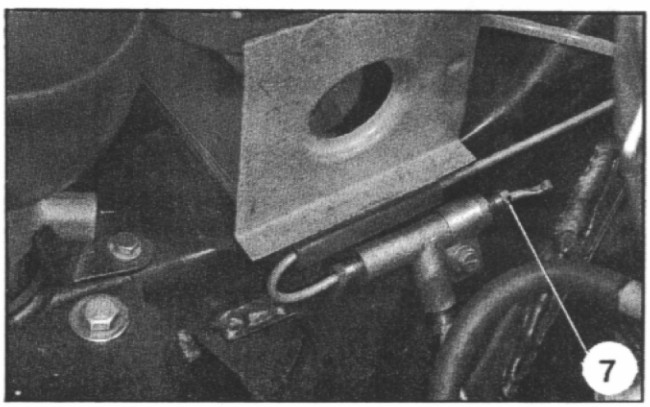

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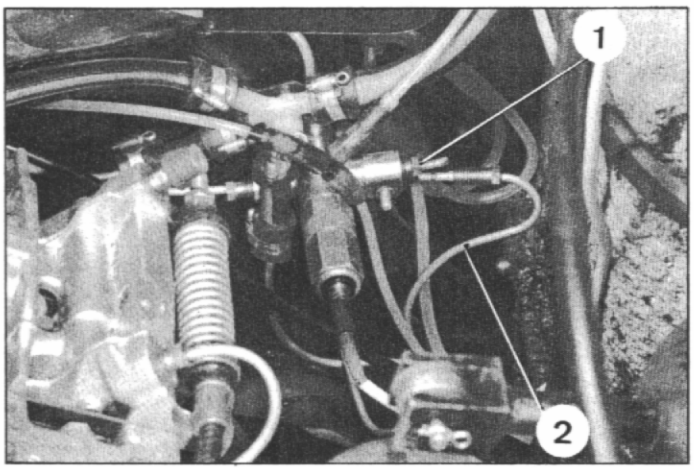

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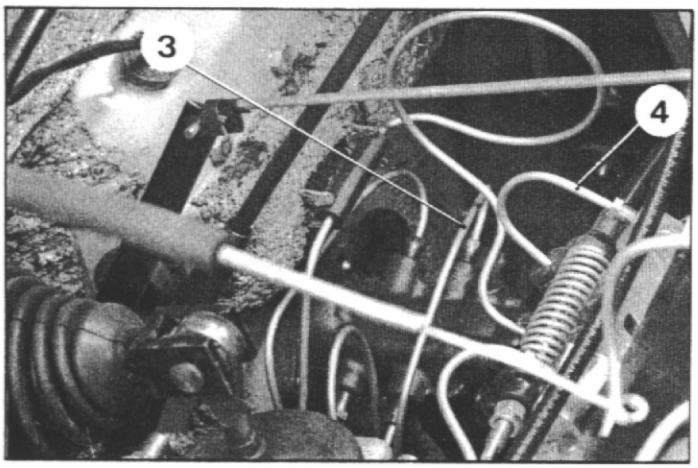

Manual 810-1

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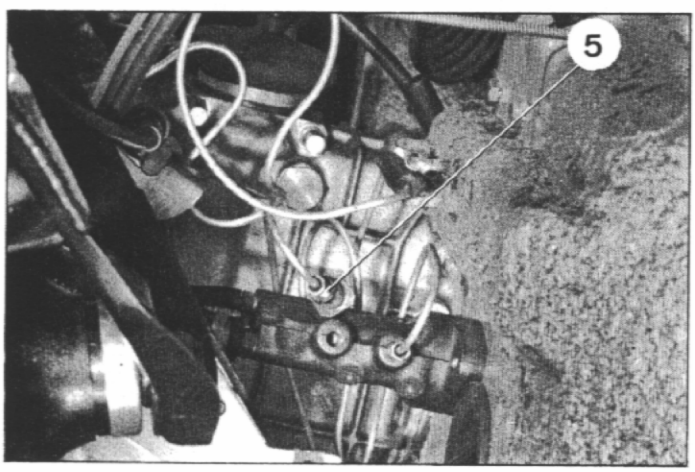

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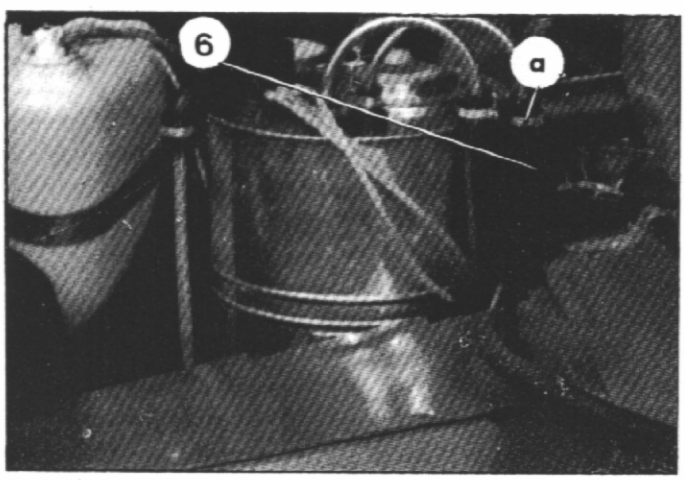


c) Check the front left suspension cylinder :

- If, after having checked the front height corrector and the front right suspension cylinder, the drop in pressure continues, the left front cylinder must be faulty.
- Change or repair the cylinder.

10. Check of the rear suspension :

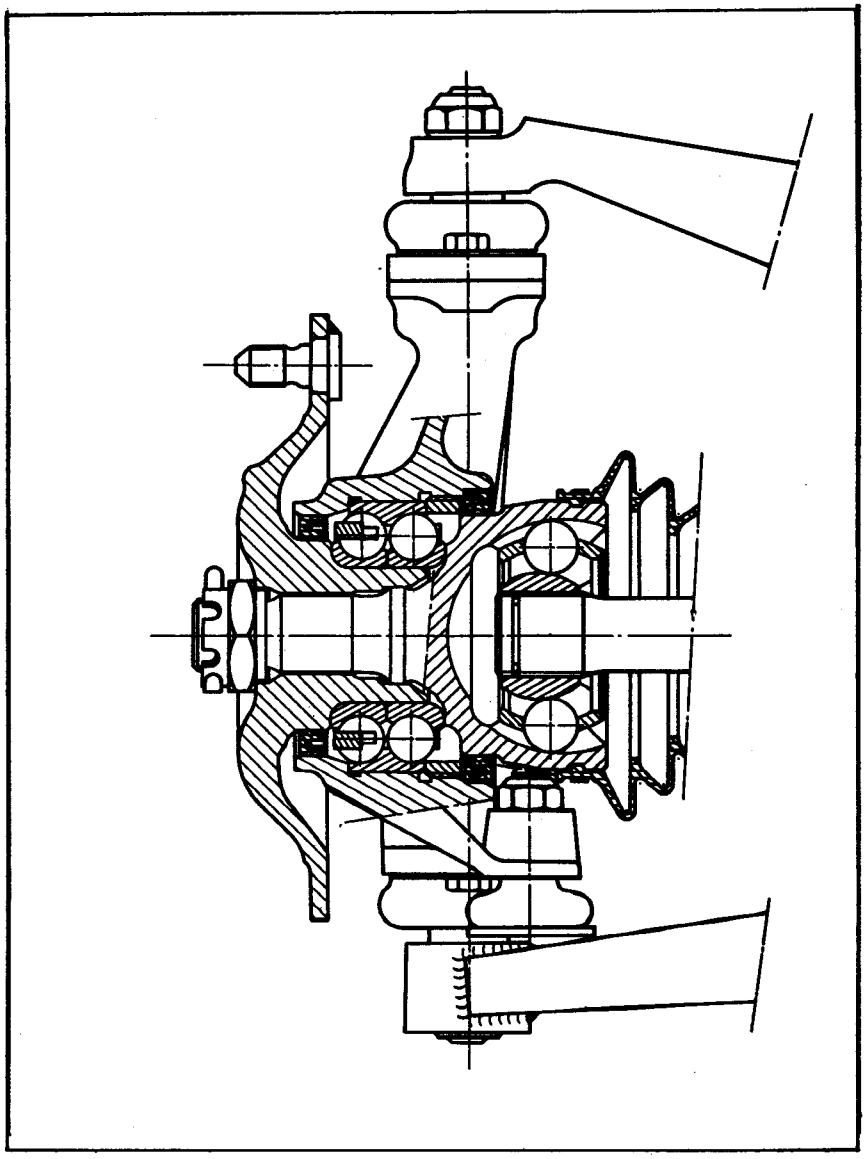
- Slacken the release screw of the pressure regulator.
- Place the manual control in the *high* position.
- Remove the plug (1).
- Connect the supply pipe (2) for the rear suspension.
- Disconnect the supply pipe (3) for the rear brakes at the brake control valve.
  (If necessary disconnect the supply pipe (4) for the front brake units).
- Blank off the pipe opening by means of a plug (5).
- Tighten the release screw of the pressure regulator.
- Place the manual control in the *normal* road position.
- Proceed as described for the check of the front suspension.

11. Simplified check for leaks from the brake control unit :

- Slacken the release screw of the pressure regulator.
- Place the manual control in the *high* position.
- Remove the blanking plug (5).
- Connect the supply pipe (3) for the rear brakes at the dosing unit.
  (If the supply pipe (4) for the front brake units was disconnected in the previous paragraph reconnect it to carry out the check).
- Disconnect the rubber pipe (at « a ») (6) acting as brake return line.
- Attach a transparent plastic tube to the end, leaving the assembly vertical.
- Tighten the release screw of the pressure regulator.
- Start the engine.
- Place the manual control in the *normal* position.
- When the car has settled depress the brake pedal until fluid appears in the plastic tube.
- Release the brake pedal and watch the fluid level in the plastic tube : it must remain virtually constant. If not change the brake control unit.

PIVOT

G 41-1



I - CHARACTERISTICS

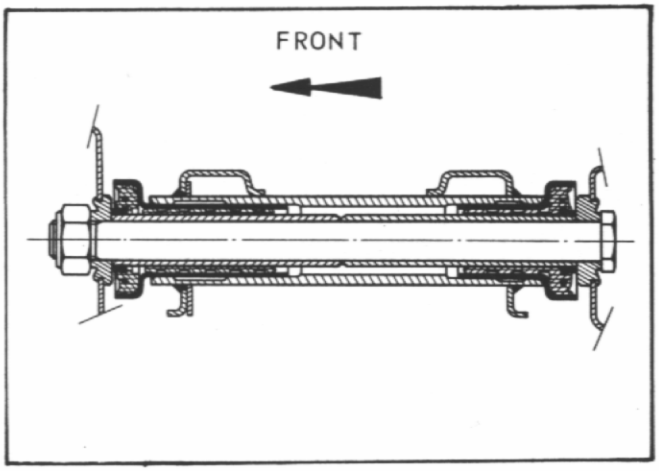
- Castor (not adjustable)	1° 15' $^{+\ 1°\ 25'}_{-\ 1°\ 15'}$
- Camber (not adjustable)	0 ± 1°
- Steering lock angle (not adjustable)	44° 36'
- Toe-in of the wheels towards the front	0 to 2 mm

IMPORTANT :

Checks of the steering lock angle and the toe-in of the wheels must be made with the car in the *normal road* position.

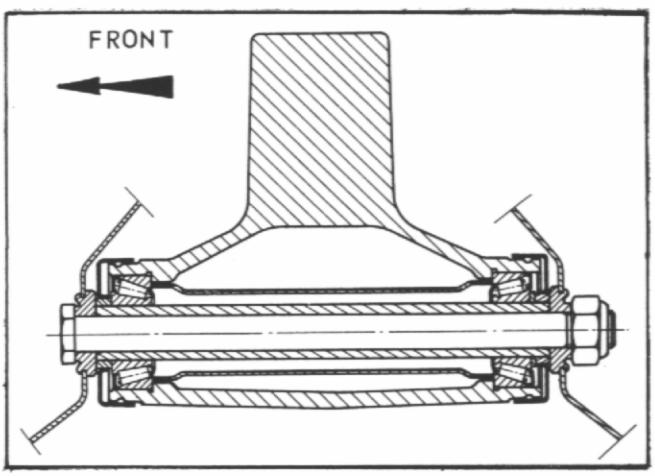
ATTACHMENT OF WISHBONES TO FRONT AXLE

G. 43-5



LOWER WISHBONE

G. 43-5



UPPER WISHBONE

II - SPECIAL FEATURES

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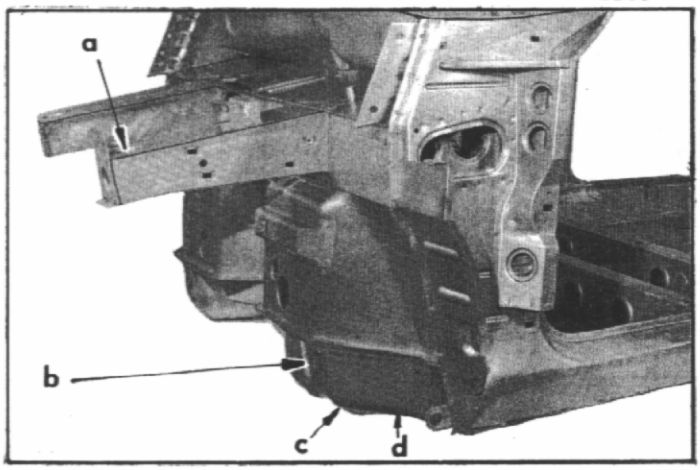


Fitting the front axle unit :

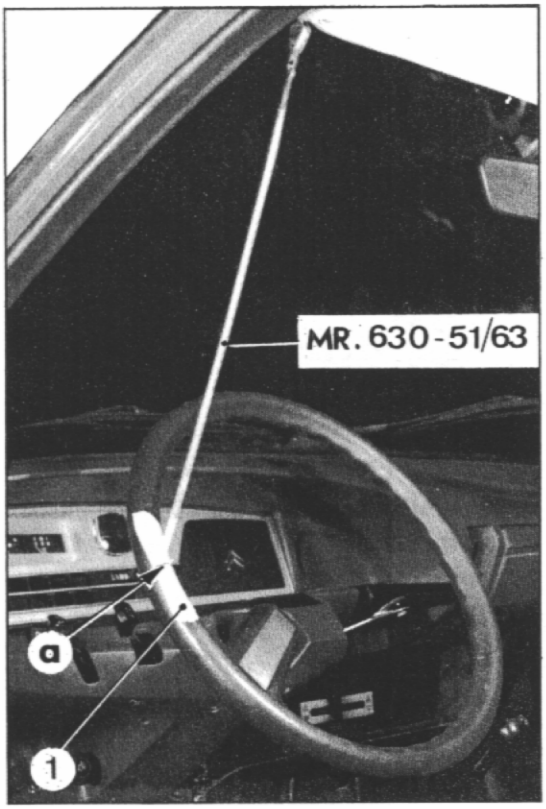
On each side :

1) Tighten at «c» to	20 mΛN (2 m.kg) (14 ½ ft. lb.)
2) Tighten at «a» to	45 to 50 mΛN (4.5 to 5 m.kg) (32 ½ to 36 ft. lb)
3) Tighten at «c» and «d» to	45 to 50 mΛN (4.5 to 5 m.kg) (32 ½ to 36 ft. lb)
4) Shim as necessary at «b» (to within 0.5 mm) and tighten to	90 to 100 mΛN (9 to 10 m.kg) (65 to 72 ft. lb)

Tightening torques :

- Nuts for upper swivel ball pins	19 ½ to 22 ft. lb. 27 to 30 mΛN	(2.7 to 3 m.kg)
- Nuts for lower swivel ball pins	19 ½ to 22 ft. lb. 27 to 30 mΛN	(2.7 to 3 m.kg)
- Securing screw for ball pins	13 ft. lb. 18 mΛN	(1.8 m.kg)
- Upper wishbone spindle	43 to 47 ft. lb. 59 to 65 mΛN	(5.9 to 6.5 m.kg)
- Lower wishbone spindle (face and thread oiled)	58 to 63 ½ ft. lb. 80 to 88 mΛN	(8 to 8.8 m.kg)
- Nut for hub of bearing	289 to 361 ft. lb. 400 to 500 mΛN	(40 to 50 m.kg)
- Nut for steering arm ball pin	13 to 14 ½ ft. lb. 18 to 20 mΛN	(1.8 to 2 m.kg)
- Ball pin nut for anti-roll bar	40 to 51 ft. lb. 55 to 70 mΛN	(5.5 to 7 m.kg)
- Ball pin nut for anti-roll bar link on upper wishbone	18 to 22 ft. lb. 25 to 30 mΛN	(2.5 to 3 m.kg)
- Wheelnuts	29 to 43 ½ ft. lb. 40 to 60 mΛN	(4 to 6 m.kg)

8503



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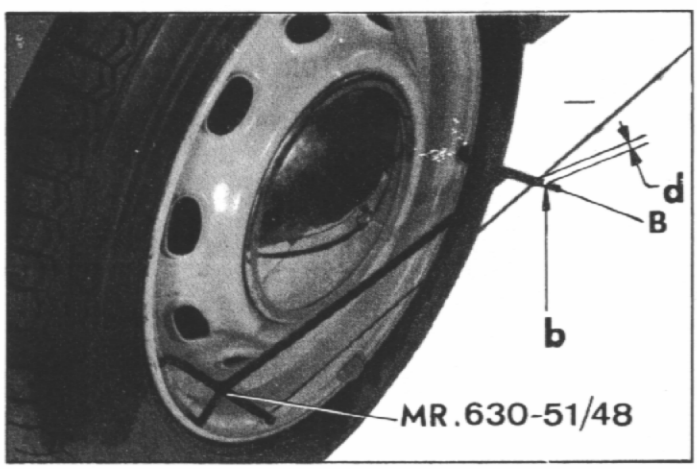

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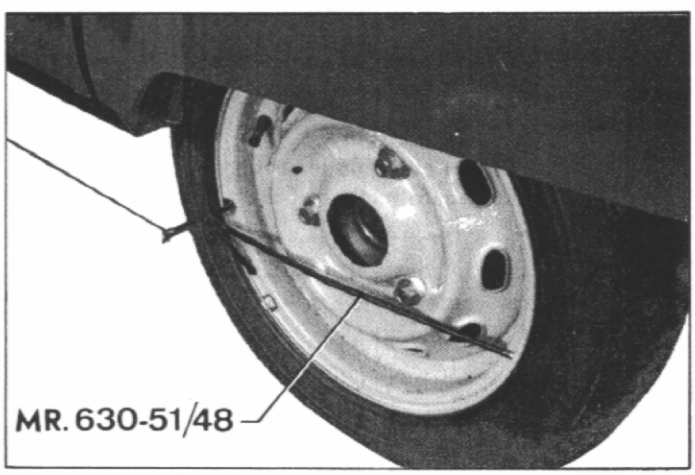

Manual 810-1

I - MARKING THE «STRAIGHT AHEAD» POSITION OF THE STEERING

IMPORTANT : The wheels must be positioned *exactly* in the «straight ahead» position before attempting a check of the camber, castor or alignment.

1. Check that there is no play in the ball joints of the steering arm or at the rack and pinion, otherwise the operation will be unreliable.

   Check the tyre pressures (145 - 15 ZX)
   Front : 1.8 bar (26 psi) -
   Rear : 1.9 bars (28 psi).

2. To reduce the turning effort and to ensure accurate positioning, place a turntable under each of the front wheels.

   NOTE : If a turntable is not available, place two metal sheets (400 × 400 mm) with lightly greased contact surfaces, under each wheel.

3. Attach the rod MR 630-51 / 63 to the spindle of the driver's sun vizor (see fig. alongside). Place the steering approximately in the straight ahead position. Fix a piece of adhesive paper (1) to the steering wheel level with the end of the rod.

4. Remove the wheel nave-plates and fit in place the four rods MR 630-51 / 48 on the wheels. Join the two rods on the same side (one at the front and one at the rear) using two lengths of thin cord (length 1.37 metre, 54 in.) connected by a rubber band (length = 150 mm, 5.9 in.).

5. Set the rods approximately parallel to the ground, the string level with the peg «B» of the front rod but without touching it.

6. On each side, measure the distance «d» between the string and the mark «b» (saw-cut) on peg B on each side.

7. Turn the steering wheel until the *distance «d» is the same on each side.*

8. Make a mark «a» on the adhesive paper (1) opposite the end of the rod MR 630-51 / 63 («straight ahead» mark).

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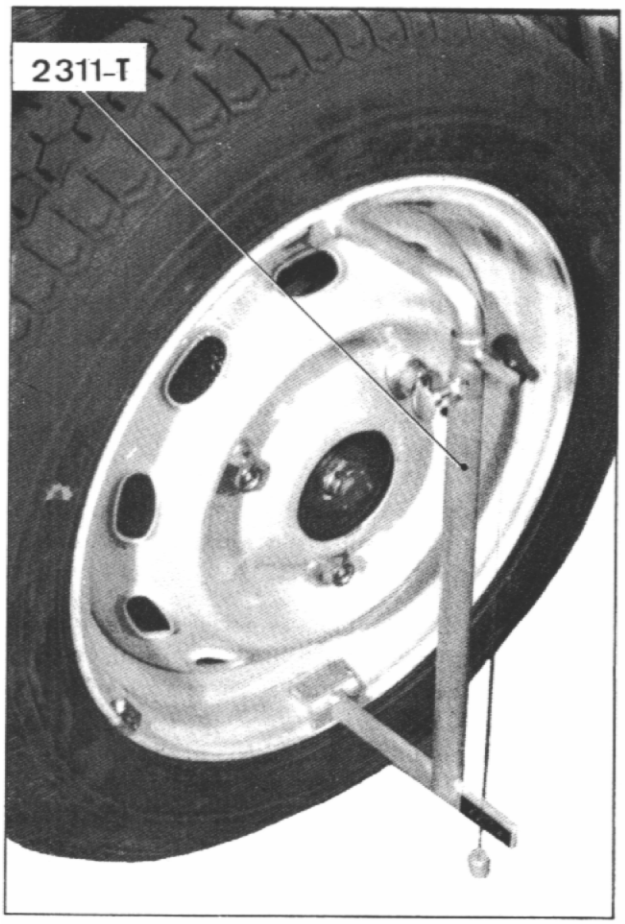

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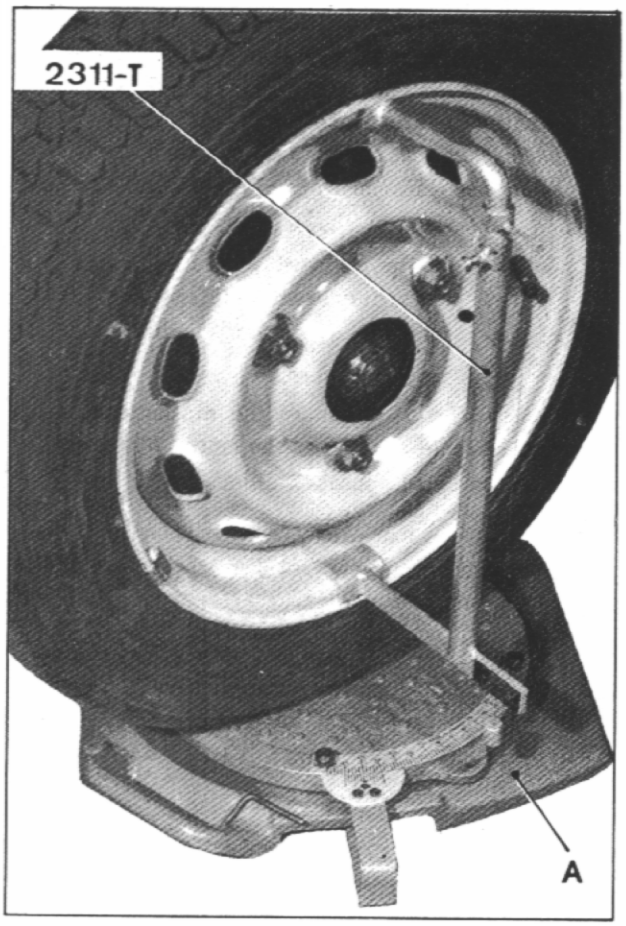


II. CHECKING THE CAMBER

NOTE : The camber is not adjustable.

9. Preparation of the car :

a) Check the tyre pressures (145 - 15 ZX)
Front : 1.8 bar (26 psi)
Rear : 1.9 bar (28 psi).

b) Position the car on a level, horizontal surface.

c) Place the manual control into « high » position.

10. Turn the steering to the « straight ahead » mark (see Part I) :

11. Check the camber for each wheel :

Use the camber gauge 2311-T.

The thread must indicate between 1° pos. and 1° neg.

Carry out the check at several points of the wheel periphery and average the values found.

III. CHECKING THE CASTOR

NOTE : The castor is not adjustable.

12. Preparation of the car :

a) Check the tyre pressures (145 - 15 ZX).
Front : 1.8 bar (26 psi)
Rear : 1.9 bar (28 psi).

b) Position the car on a level, horizontal surface.

c) Set the manual control to *high* position.

13. Turn the steering to the « straight ahead » mark (see Part I).

14. Check the castor of each wheel :

a) Position the front wheels in the centre of the two turntables A.
Place a block under each rear wheel of thickness equal to that of the turntables.

b) Check that the steering is in the « straight ahead » position, and unlock the plates. Place the « zero » of the graduated sector opposite the fixed mark.

c) *Turn the wheel through 30°.*

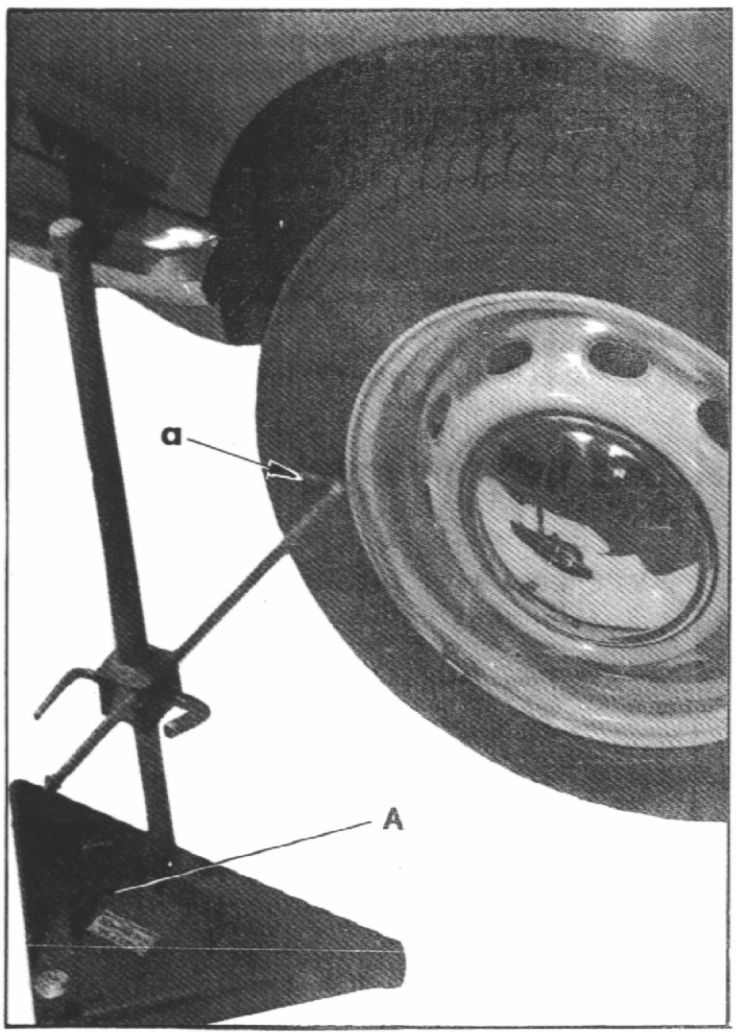
NOTE : If no turntable is available, turn the steering wheel through $1\frac{1}{2}$ turns precisely.

d) Position the indicator 2311-T :

The cord must indicate : $1°\,15' \begin{matrix} +\,1°\,25' \\ -\,1°\,15' \end{matrix}$

IV - CHECK AND ADJUSTMENT OF THE ALIGNMENT

8521



Manual 810-1

IMPORTANT : Before this operation can be carried out the heights of the car must be correctly adjusted :

Front = 189 ± 10 mm.
Rear = 272 ± 10 mm.

15. Preparation of the car :

a) Check the tyre pressure (145 - 15 ZX)
Front = 1.8 bar (26 psi).
Rear = 1.9 bar (28 psi).

b) Place the car on a level, horizontal surface.

c) Set the manual control to the *normal road* position.

d) *Run the engine throughout the operation.*

16. Ensure that the steering is set to the « straight ahead » mark (see Part I) :

17. Check the toe-in of the wheels :

The front wheels must « toe-in » by 0 to 2 mm.

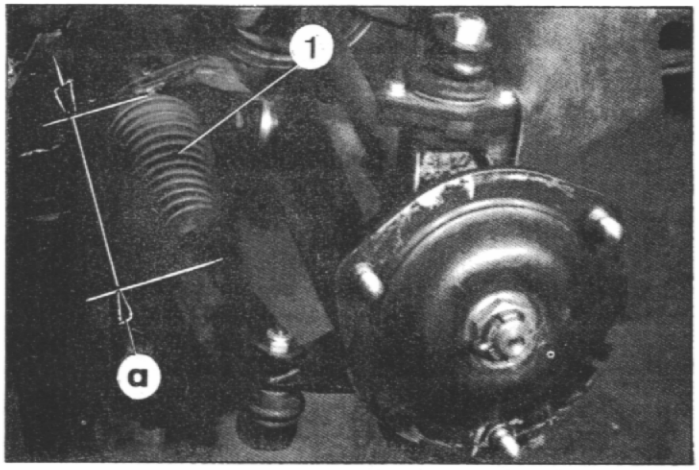
Use a track gauge « A » ; various commercial models are obtainable. In this case, proceed as follows :

a) *Measure the distance between the edges of the wheels at the front,* level with the centreline of the wheels.

b) Mark with chalk (at « a ») where the measurement was made on each tyre. Roll the car forward half a turn of the wheels, so that the marks « a » are once again level with the centreline of the wheels.

c) *Measure the distance between these points, now behind the centres :* it must be greater than the distance at the front by 0 to 2 mm.

8441



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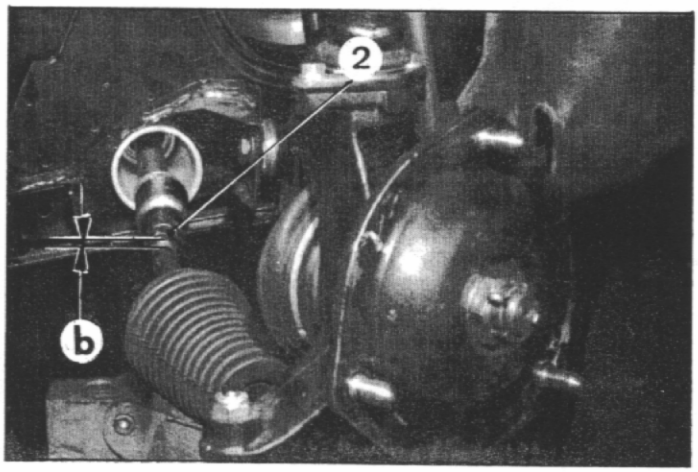

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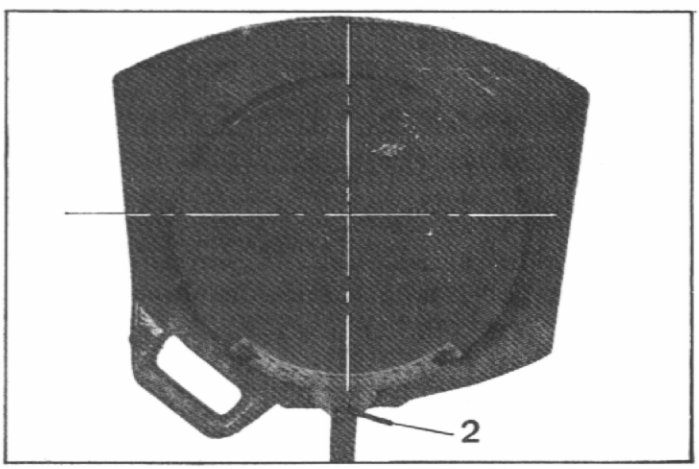

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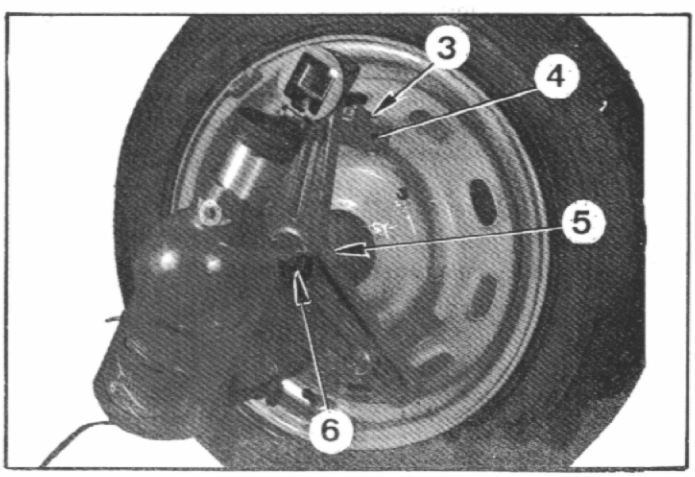


18. Adjusting the toe-in :

a) Slide back the rubber bellows (1).

b) Slacken the locknuts (2).

c) Turn the ball-pin ends by a fraction of a turn at a time to obtain the correct adjustment.

NOTE : Turn both ball-pin ends through the same angle as each other.

One turn of each ball-pin alters the adjustment by about 4 mm (approx.).

d) Tighten the locknuts (2) to a torque of 36 to 40 mΛN (3.6 to 4 m.kg) 26 to 28 ft. lb.

Check the adjustment.

IMPORTANT : The lengths of the threaded portions « b » visible on the left and right steering rods, must be the same to within 2 mm.

e) Refit the rubber bellows (1) so that their lengths are :

a = 155 ± 3 mm (6.10 in. ± 0.12 in.).

(with the steering at the « straight line » mark).

V - CHECKS WITH THE AID OF AN OPTICAL ALIGNMENT GAUGE

19. Preparation and positioning of the car :

a) Check the tyre pressures (145 - 15 ZX) :
Front = 1.8 bar (26 psi).
Rear = 1.9 bar (28 psi).

b) Lock the turntables.
Move the car slowly forward in a straight line *until the front wheels are at the centres of the plates.*

IMPORTANT : If the turntables are not set into the floor, place a compensating block of the same thickness under the rear wheels.

c) Apply hand brake.

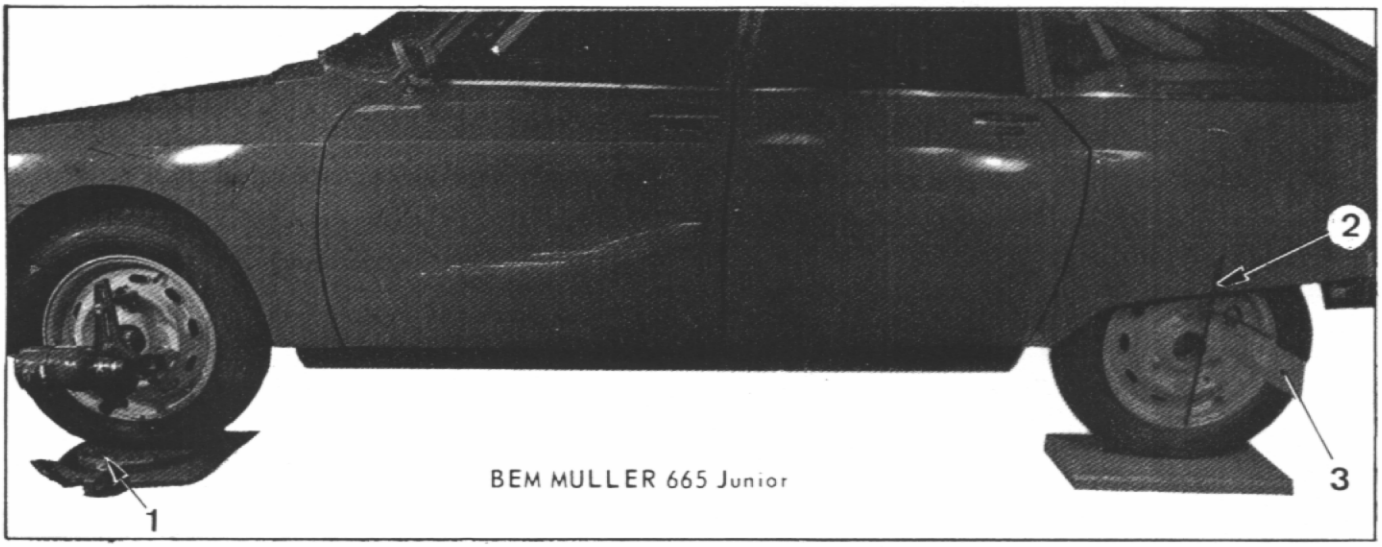
d) Removes the wheel naveplates.
Adjust the position of the magnetic feet (4) so that, with the support in position, its central hole is in line with the centre (5) of the wheel. Insert the safety peg (3).

e) Mount the lamp on the support and gently tighten the knurled screw (6).

f) Carry out the same operations for the other wheel.

NOTE : The two instruments must be very carefully located, since the accuracy of the checks depend on this.
Connect the lamps to a suitable power supply.

8573



20. Marking the « straight ahead » position of the steering :

IMPORTANT : The following checks will be inaccurate unless the turntables are precisely zeroed with the front wheels exactly in the straight ahead position.

a) When the car is prepared and positioned as described in the previous paragraph, remove the locking pins (1) from the plates.
Allow the engine to idle, and set the manual control to the normal road position.

b) Position the magnetic supports (2) for the graduated plates (3) on the vertical centreline of the rear sheels. Push each plate (3) to its maximum setting against its stop (4).

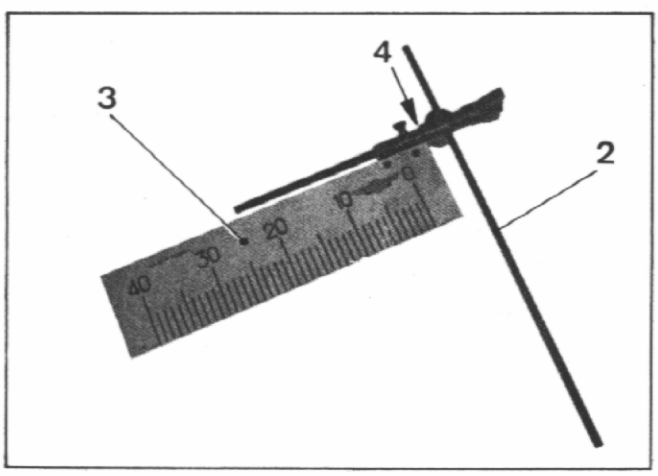
c) Direct the light beams onto the graduated plates and focus them so that the luminous vee-marks fall clearly on the graduations.

d) *Turn the steering wheel to obtain the same reading on each side of the car.*

e) Line up the « zero » marks of the graduated sectors (5) opposite the fixed mark « a » of each turntable. Lock the sectors.

f) Remove the lamps.

8645



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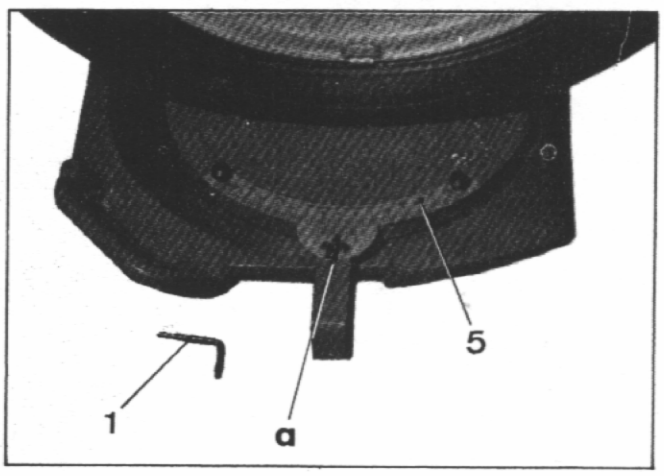

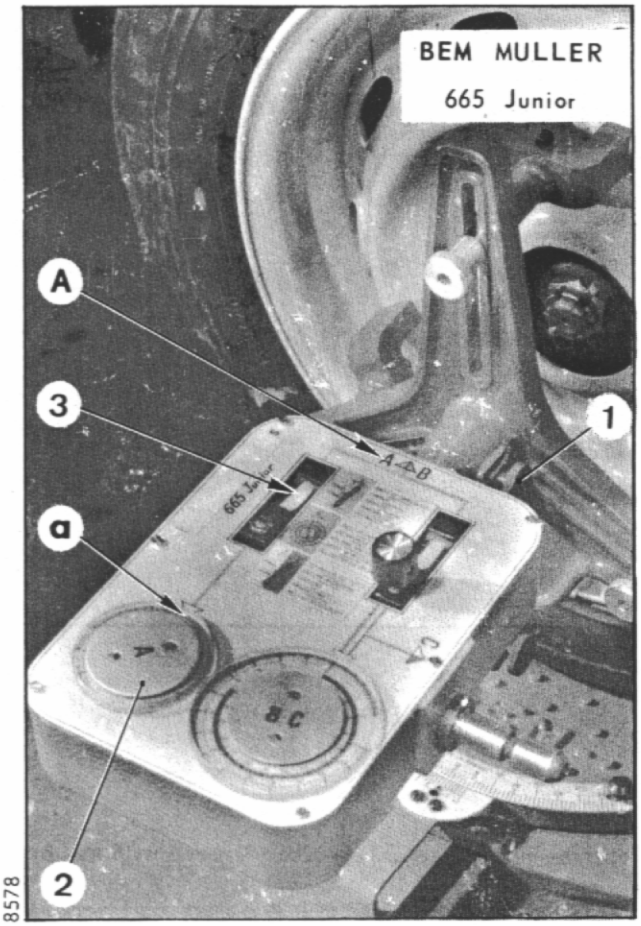

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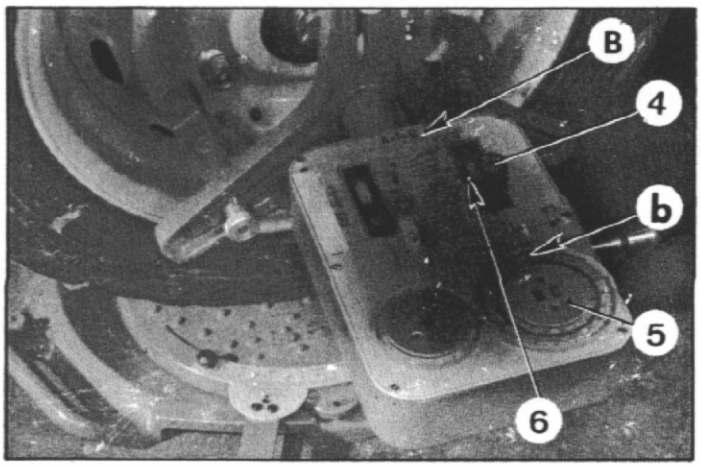

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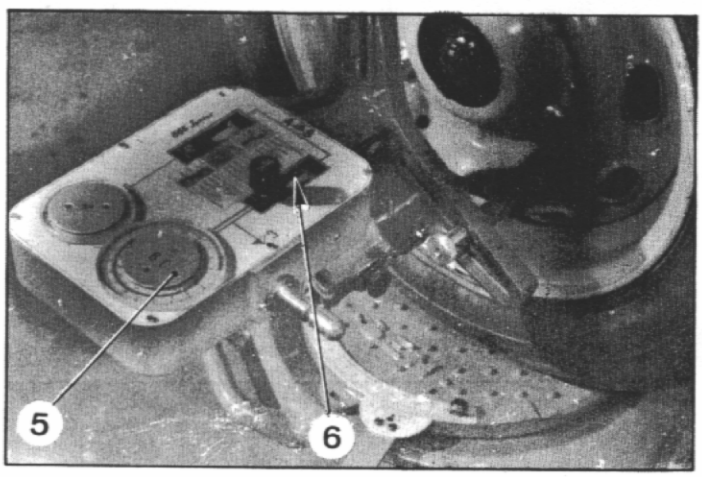

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21. Check the camber angle :

NOTE : The camber is not adjustable.

a) *Prepare the car* (see paragraph 19).

b) *Turn the steering to the « straight ahead » position* (see paragraph 20).

c) Place the level A on the magnetic support of the wheel being checked.
Use the shaft corresponding to the *blue arrow at « A »*.
Keep the level visibly horizontal.
Tighten the locking screw (1).

d) Rotate the disc (2) until the bubble of the fixed level (3) is centred.
Read off the camber angle from the *blue scale* (at « a »).

e) Carry out the same operation for the other wheel.
The camber angle must be between 1° pos. and 1° neg.

22. Check the castor angle :

NOTE : The castor angle is not adjustable.

a) *Prepare the car* (see paragraph 19).

b) *Turn the steering to the « straight ahead » position.*

c) Place the level (see paragraph 20) on the magnetic support of the wheel being checked, using the shaft corresponding to the *green arrow « B »*.

d) Turn the wheels 20° outwards : to the left for the left-hand wheel, to the right for the right-hand wheel.
Keep the level visibly horizontal and tighten the locking screw (1).

e) Turn the disc (5) until the zero mark is opposite the arrow (at « b »).

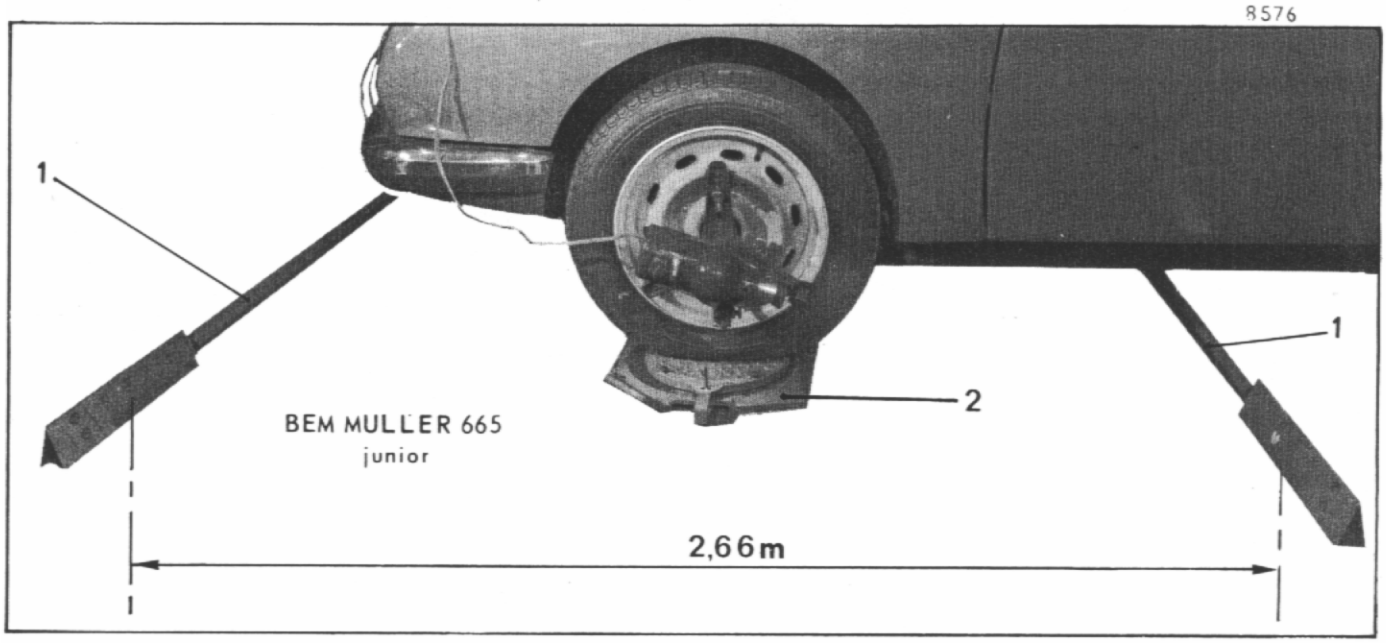
f) Turn the knurled screw (4) until the bubble of the adjustable level (6) is centred.

g) Turn the wheel 20° inwards. Bring the level back to horizontal. Turn disc (5) until the bubble in level (6) is centred again.
Read the castor angle on the *green scale* (at « b »).

h) Repeat for the other wheel.

The castor angle must be :

$1°15' \begin{matrix} + 1°25' \\ - 1°15' \end{matrix}$ i.e. from 0° to 2° 40°.



23. Check the toe-in of the front wheels : *The toe-in must be : 0 to 2 mm.*

a) *Prepare the car* (see paragraph 19).

b) *Turn the steering to the « straight ahead » position* (see paragraph 20).

IMPORTANT : Once the steering is in the « straight ahead » position (with the marks in line with zero on the sectors of the turntables) the steering wheel or the road wheels must not be touched throughout the operation.

Allow the engine to idle and set the manual control to the normal road position.

c) Adjust the length of the telescopic rods (1) approximately according to the track of the vehicle, the two rods must be of the same length.

IMPORTANT : Place the rods on each side of the front axle so that the distance between them is exactly **2.66 m (104 $\frac{3}{4}$ in)**. The rods need not necessarily each be at the same distance from the axle, but the distance between them is vital.

d) Swing one of the two lamps towards the rod at the front and read off the value indicated by the luminous vee-mark on the graduated plate. Next, swing the lamp towards the rear rod and move the rod sideways until the same reading is obtained as for the front rod.

e) Swing the other lamp first towards the rear rod and then towards the front rod, and each time note the value indicated by the luminous mark.

The reading at the rear must be 0 to 2 mm greater than the reading at the front, which corresponds to a toe-in of 0 to 2 mm on front wheels.

NOTE : Never adjust the lens between the two front and rear readings.

CHECKS OF THE REAR AXLE

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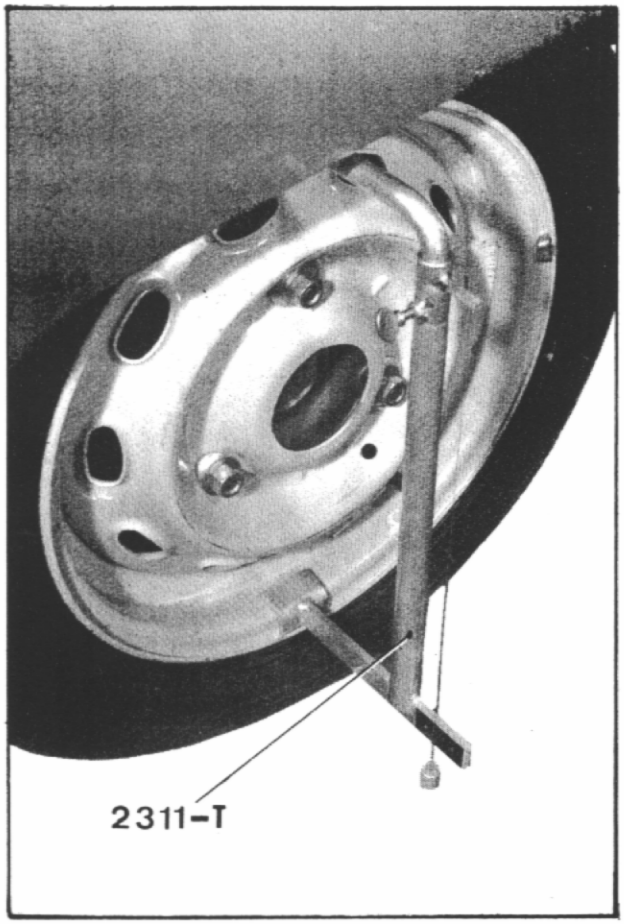

I - CHECK THE CAMBER ANGLE

1. Preparation of the car :

Check the tyre pressures :
- front 1.8 bar (26 psi).
- rear 1.9 bar (28 psi).

Position the car on a level, horizontal surface.

Set the suspension to the «high» position.

2. Check the camber angle :

Use the instrument 2311-T.

The camber angle should be : 0° ± 40'.

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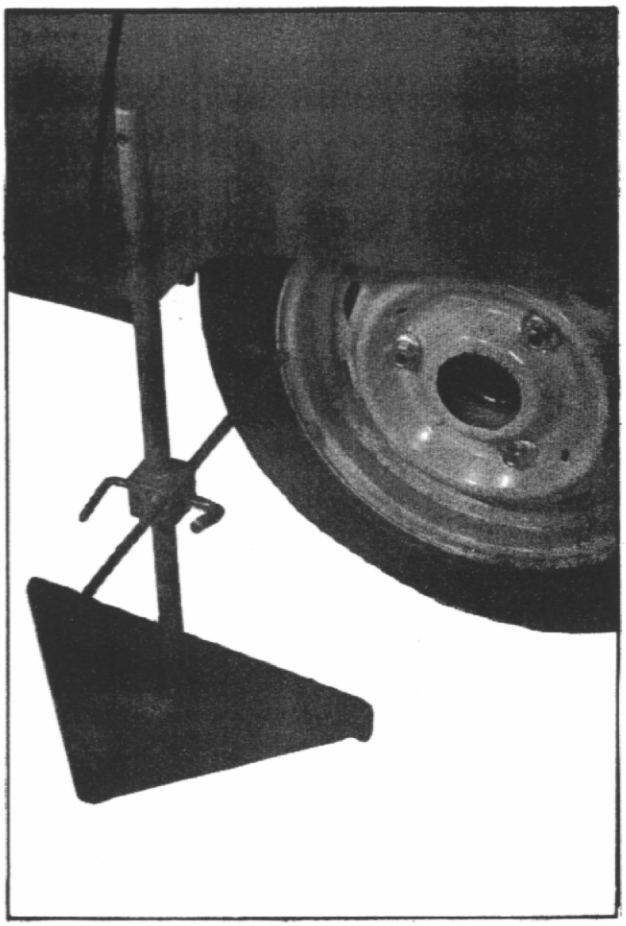

II - CHECK THE ALIGNMENT

3. Set the suspension to the *normal road* position.

4. Check the alignment :

Use a track gauge ; various commercial models are available.

Proceed as for the front wheel check.
The rear wheels must be parallel to within : 4 mm toe-in to 4 mm toe-out *for vehicles produced until 7 September 1972.*

For vehicles produced since 8 September 1972. the toe-in of rear wheels must be 0 to 2 mm.

III - USING AN OPTICAL ALIGNMENT GAUGE

NOTE : A detailed description of how to use an optical gauge can be found under Operation G. 410-0.

5. Check of the rear axle alignment :

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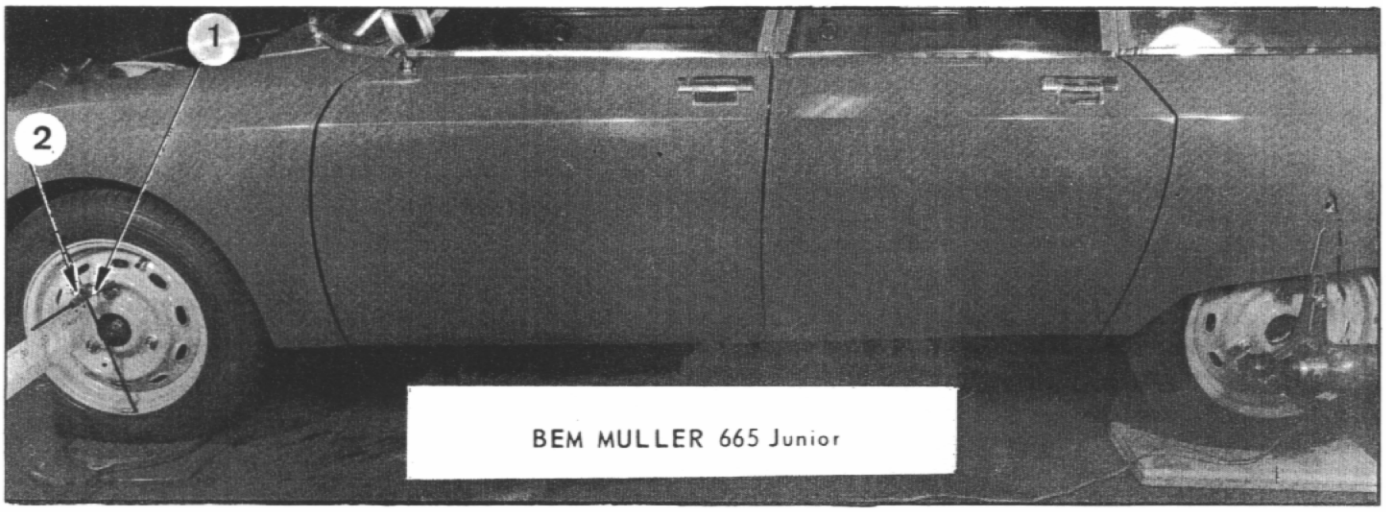

a) With the vehicle positioned on the turntables (engine running, and the manual control to the *normal road setting*) (turntable marks at zero) place a graduated plate (1) on the vertical centreline of each front sheel.

b) Fit the lamp unit to each rear wheel.

c) Swivel the lamps towards the graduated plates. Adjust the luminous vee-mark onto the graduations.

d) Push the graduated plates up against their stops (2). The alignment of the rear axle is correct when there is *no difference between the readings for the left and right-hand sides.*

6. Check the rear wheel alignment :

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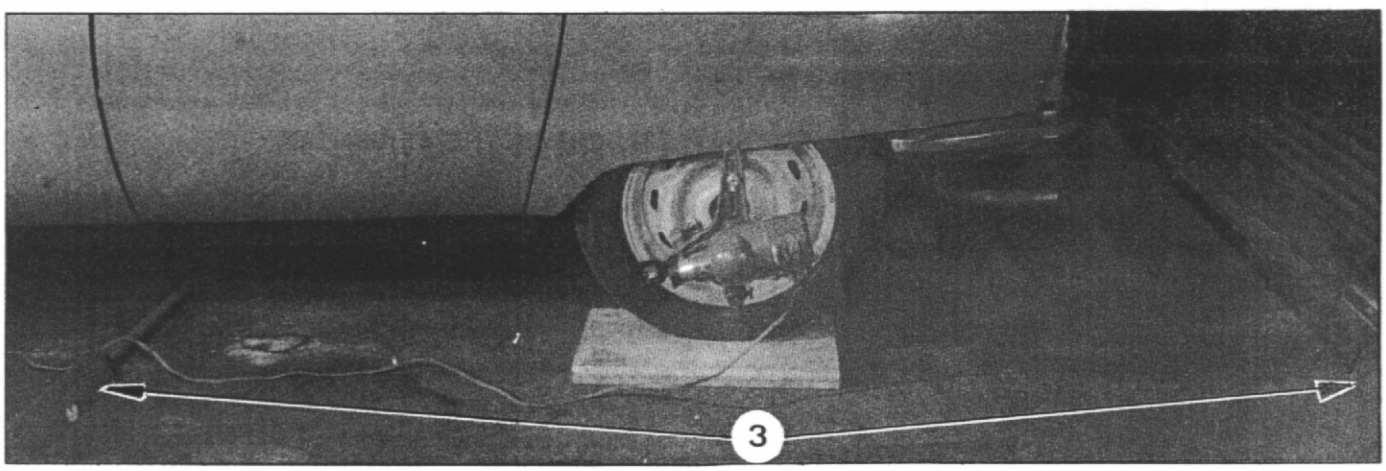

Place the two toe-in bars (3) on each side of the rear axle and proceed as for the front wheels. The wheels should be parallel to within 4 mm toe-in to 4 mm toe-out for vehicles produced *until 7 September 1972.*

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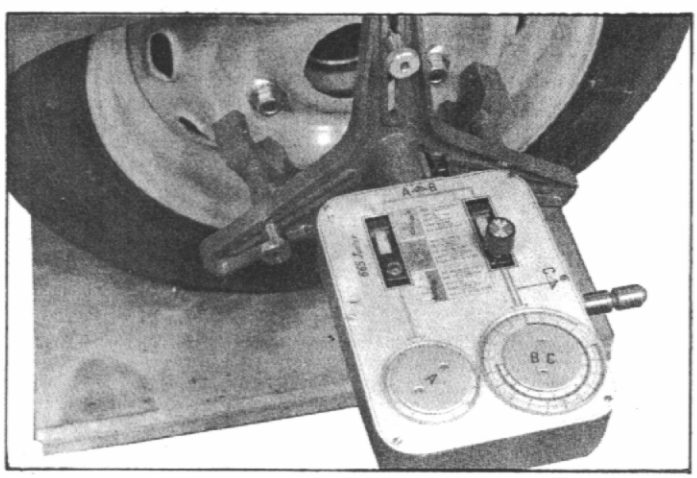


For vehicles produced *from 8 September 1972* the toe-in of rear wheels must be 0 to 2 mm.

7. Check the camber angle :

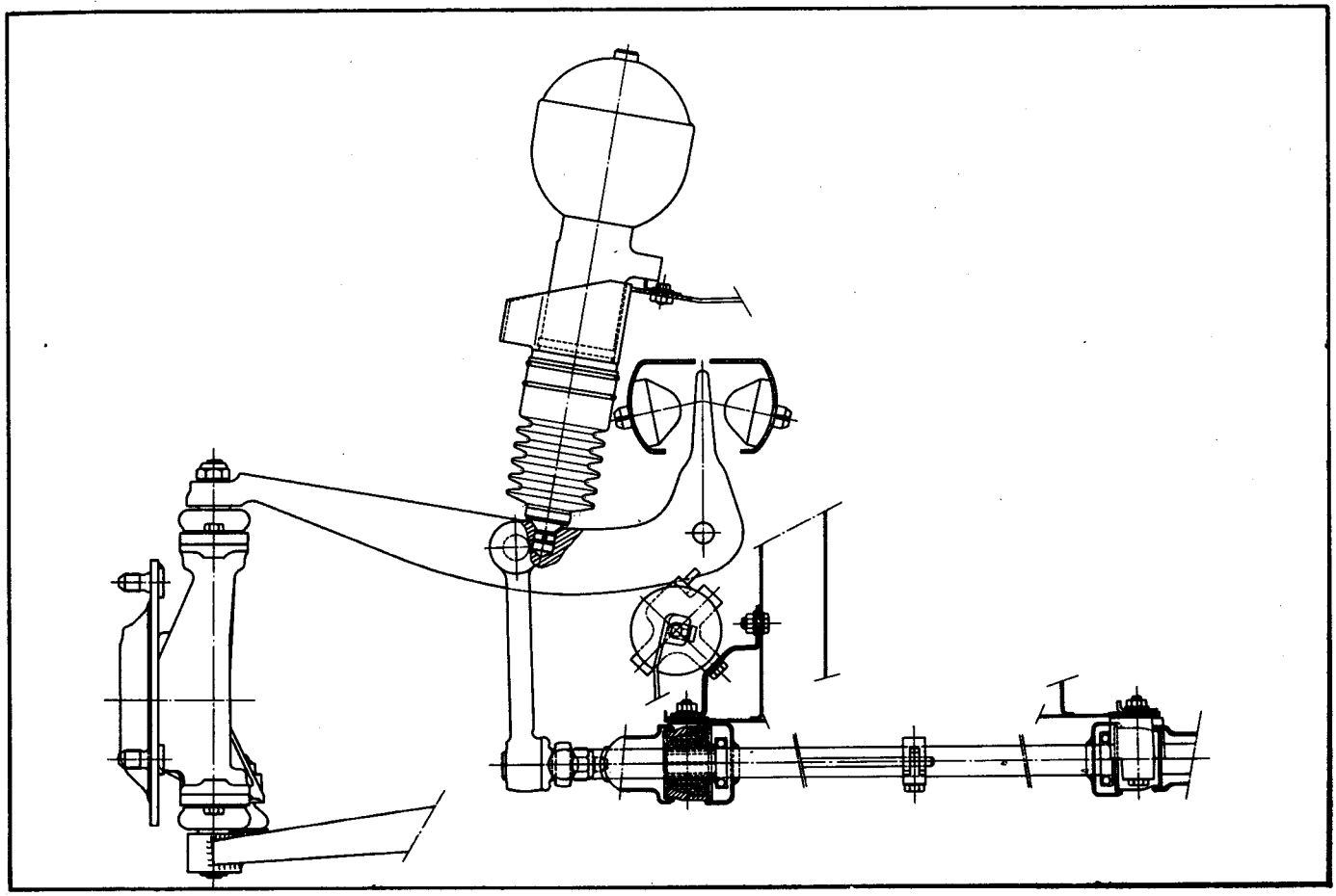
Proceed as for the front wheels.

Value of the camber angle = 0° ± 40'.

OPERATION N° G. 430-00 : *Characteristics and special features of the suspension*

FRONT SUSPENSION

G. 43-4



Manual R10-1

CHARACTERISTICS

Suspension spheres :

- Inflation pressures : Front sphere *(until 2/1973)* ..... 50 $^{+5}_{-10}$ bars (710 $^{+70}_{-140}$ psi)

(from 2/1973) ..... 55 $^{+5}_{-10}$ bars (780 $^{+70}_{-140}$ psi)

Rear sphere ..... 35 $^{+5}_{-10}$ bars (500 $^{+70}_{-140}$ psi)

- Markings : The inflation pressures are stamped on the filler screws.

Suspension cylinders : Identical front and rear

- Piston diameter ..... 35 mm
- Length of piston ..... 117 mm

Dampers : Clinched in the suspension sphere.

Anti-roll bars :

- Diameter of front bar ..... 21 mm
- Diameter or rear bar ..... 18 mm
- Coupling to right-hand wheel arm ..... 30 splines
- Coupling to left-hand wheel arm ..... 32 splines (paint mark)

Manual height control : three settings :

1° Normal road 2° Intermediate 3° High

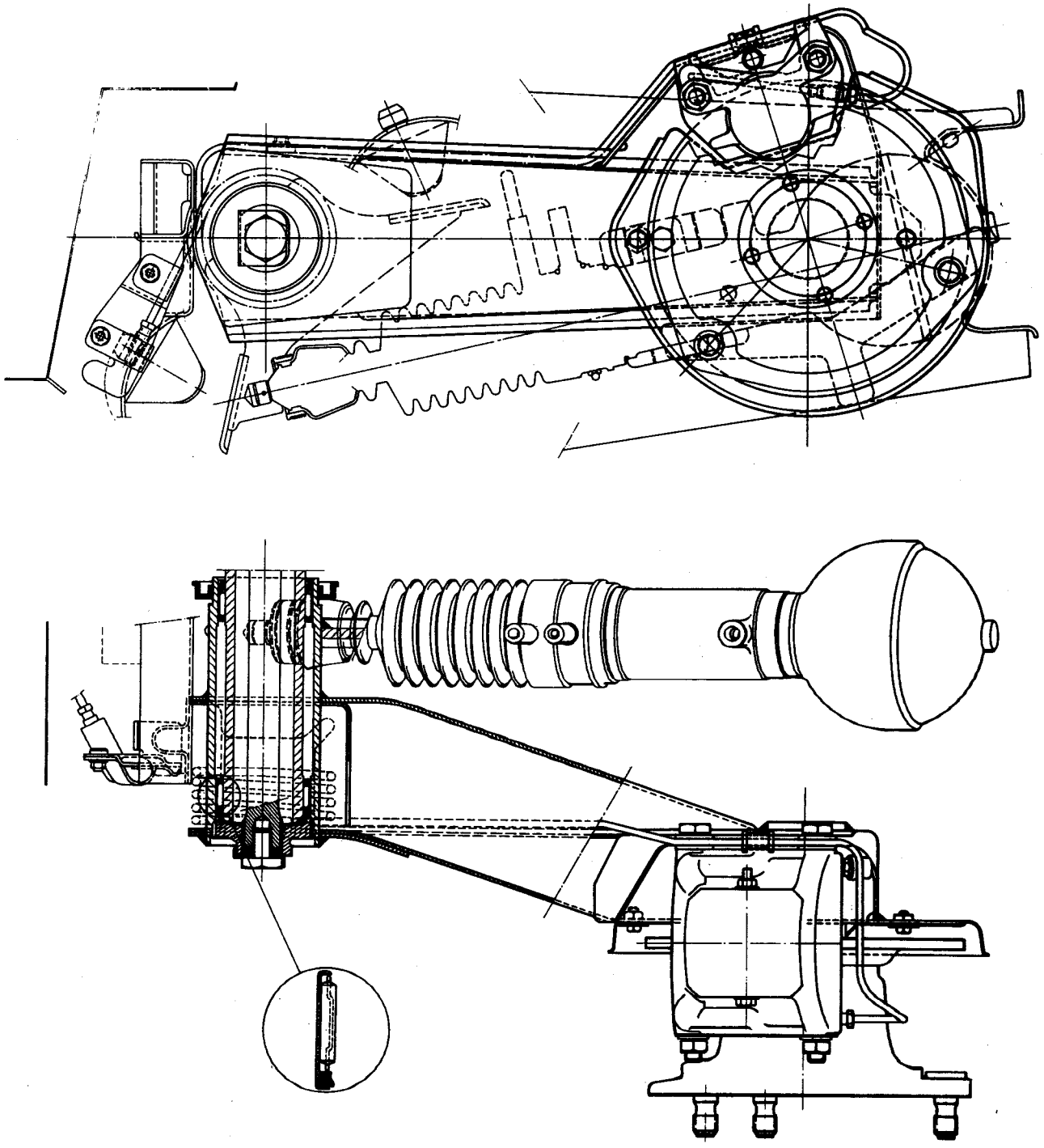
Heights :

- The front heights are measured from the centre of the anti-roll bar between the underside and the ground.
- The rear heights are measured between the under-centre point of the rear flanged adge of the subframe, and the ground.

Front height : (normal road position)	189 ± 10 mm	(7.44 ± 0.4 in.)
Rear height : (normal road position)	272 ± 10 mm	(10.71 ± 0.4 in.)

REAR SUSPENSION

G. 43-6 b



III - CHECK OR ADJUSTMENT OF THE MANUAL HEIGHT CONTROL

(Vehicles produced until 1st March, 1972)

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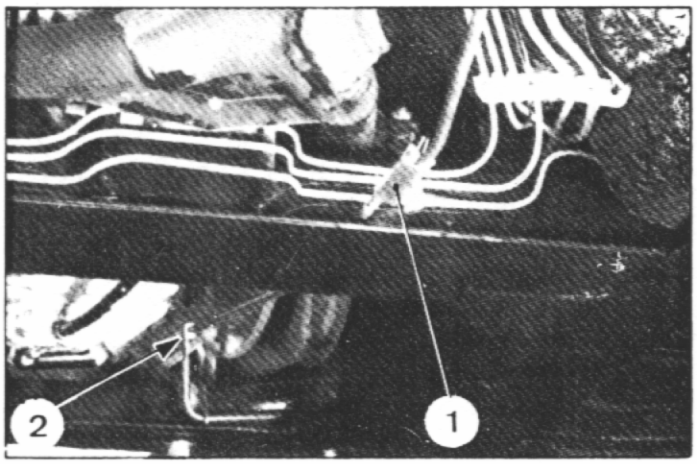

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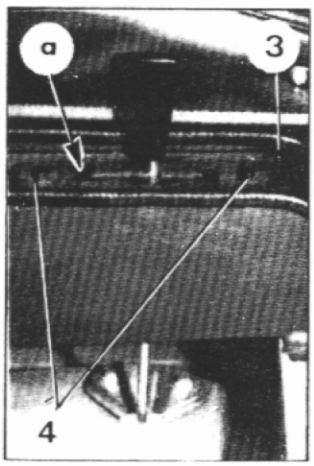

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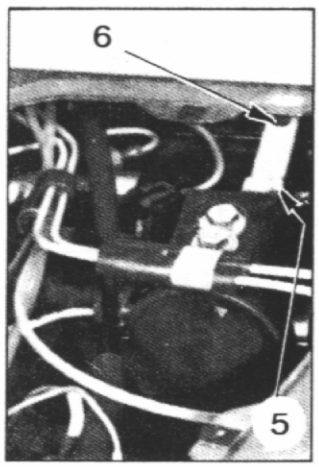

Manual 810-1

9. Adjust or check the heights (see Part II).
10. Remove the access cover for the rear corrector (under the floor covering in the boot).
11. Set the manual control to the *normal road* position «a».

    NOTE : The manual control has three positions:
    1. *Normal road*
    2. *Intermediate*
    3. *High.*
12. Underneath the front axle, check that the pin of the front fork is in the centre of the slot (2). If not, slacken the screws (4) of the sector (3) and move the latter until the condition is satisfied.

    IMPORTANT : If the adjustment is unobtainable reset the length of the front control as follows :

    a) Place the sector (3) in the centre of the slots. Tighten the screws (4).

    b) Slacken the clamp (1) of the front control and adjust its length until the pin of the fork is in the middle of the slot (2).

    c) Tighten the clamps (1).
13. Check that the pin of the rearfork is in the centre of the slot (6). If not, slacken the plastic fork screw (5) and adjust until the condition is satisfied. Tighten the screw (5).
14. Operate the manual control and return to the normal road position.
    Check the adjustments.
15. Refit the access cover for the rear corrector and replace the floor covering in the boot.

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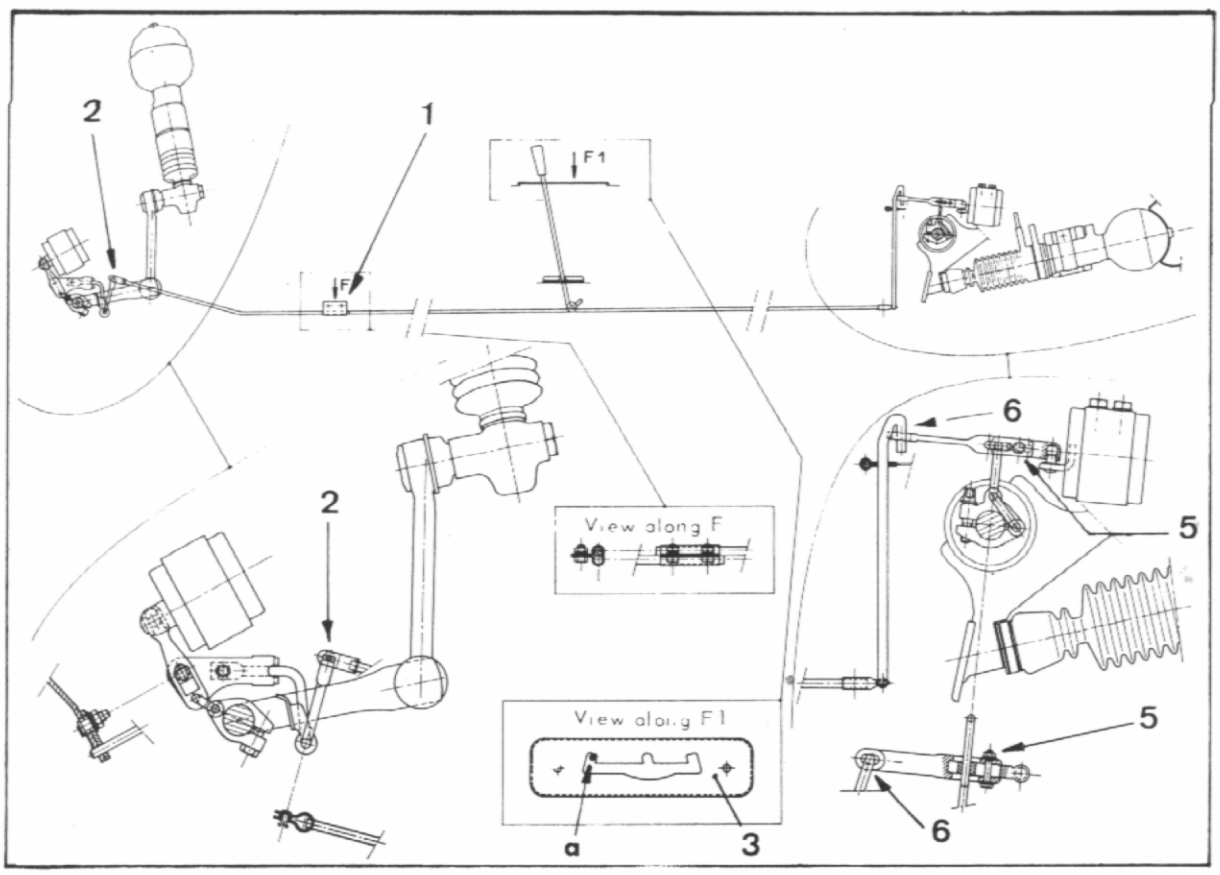
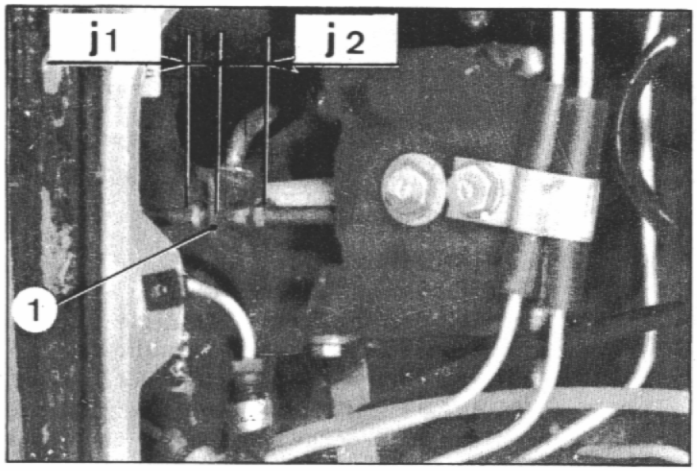


IV - CHECK OR ADJUSTMENT OF THE MANUAL HEIGHT CONTROL

(Vehicles produced since March 1 st. 1972)



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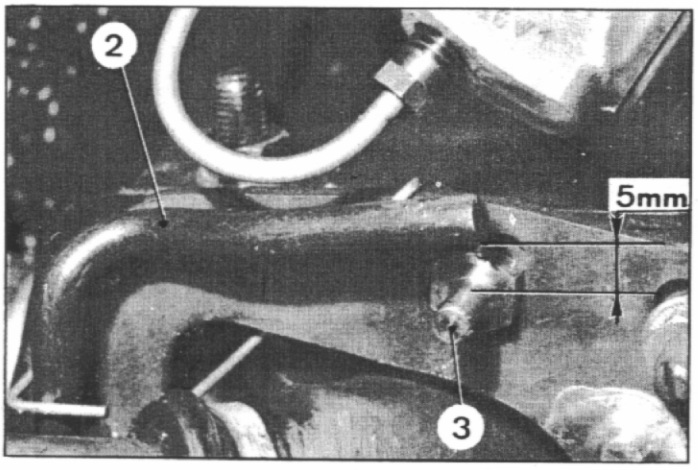

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9. Adjust or check the heights (see II).

10. Remove the three screws and the protection panel for the front corrector.
Remove the access cover for the rear corrector (under the floor covering in the boot).

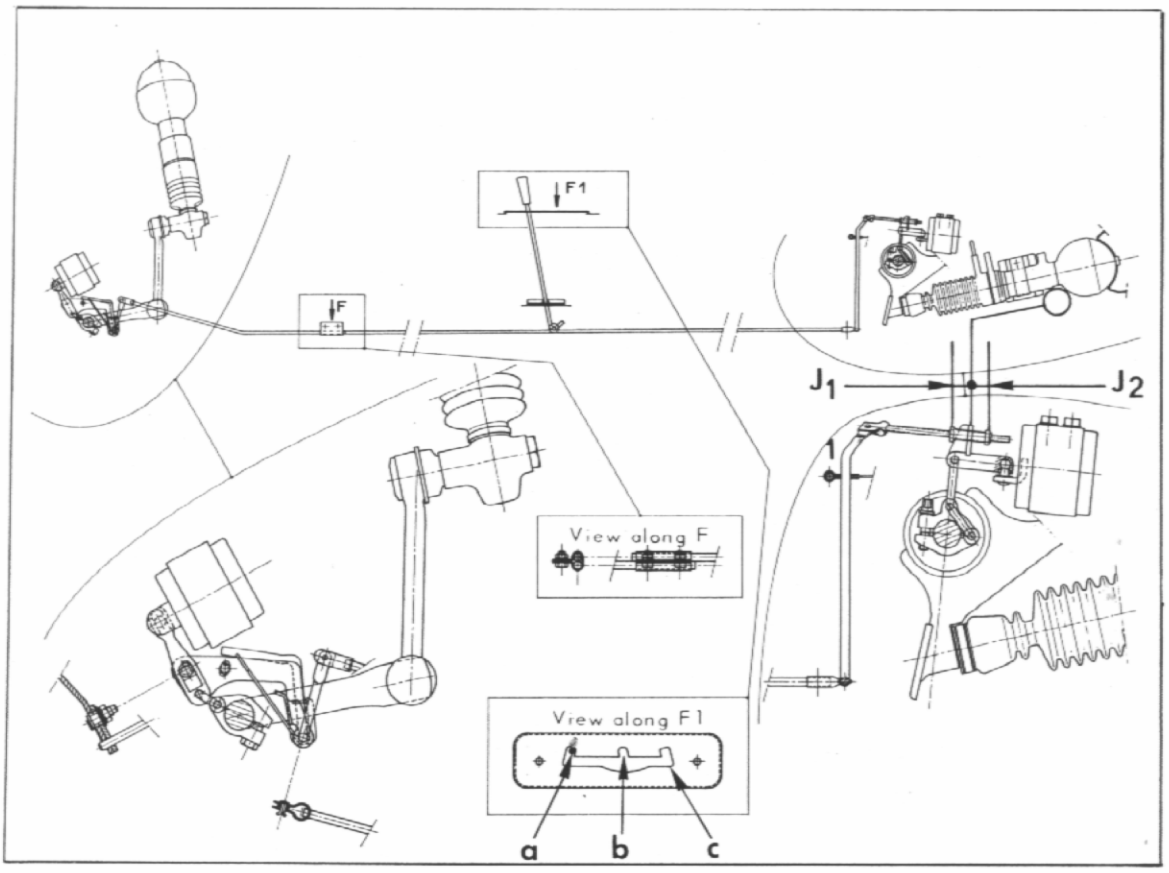
11. Set the manual height control to the road position at « a ».

NOTE : The manual height control has three positions :
1°) *normal road* « a »,
2°) intermediate « b »,
3°) *high* « c ».

12. On the front corrector control :
The lever (2) must not be pressing on the adjusting screw (3). Allow a clearance of approx. 5 mm.
On the rear corrector control :
The clearances J 1 and J 2 must be as nearly equal as possible on each side of the fork (1).

13. Set the manual height control to position « b ».
The height variation must be of 30 to 40 mm.
Adjust at (3) or at (1) to obtain this condition.

14. Refit the protection panels of the correctors and reset the manual height control *to normal road position.*



G. 43-7 a

V - LUBRIFICATION OF FRONT AND REAR SUSPENSION BALLS

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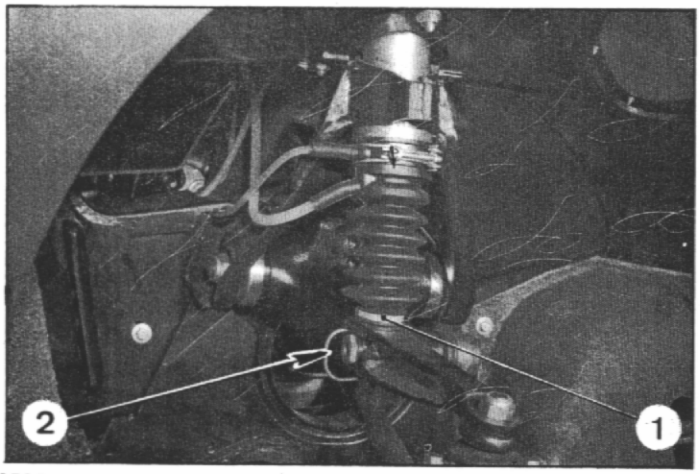

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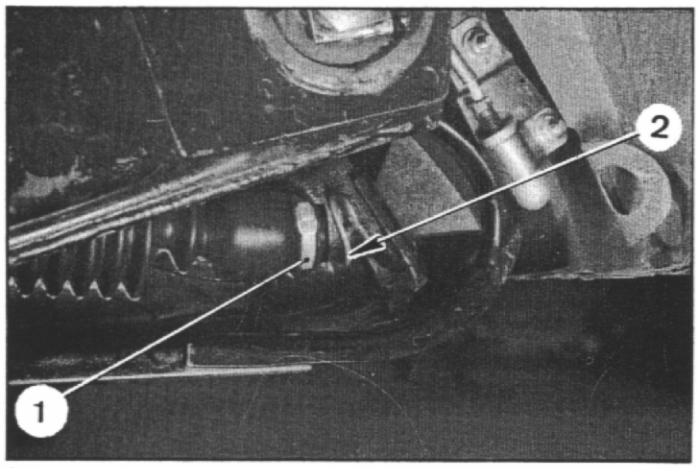

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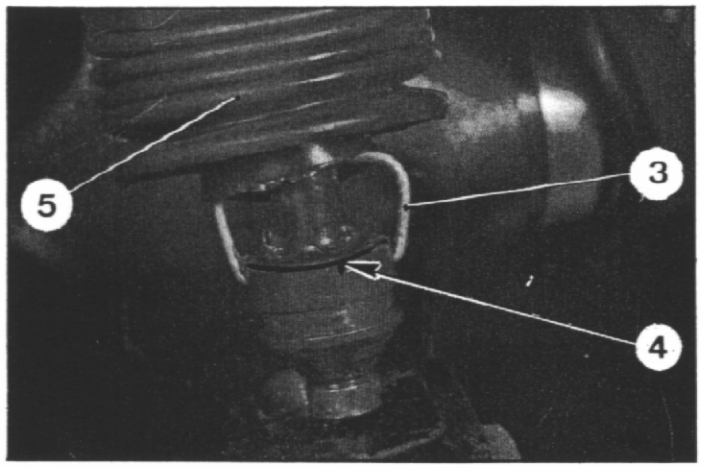

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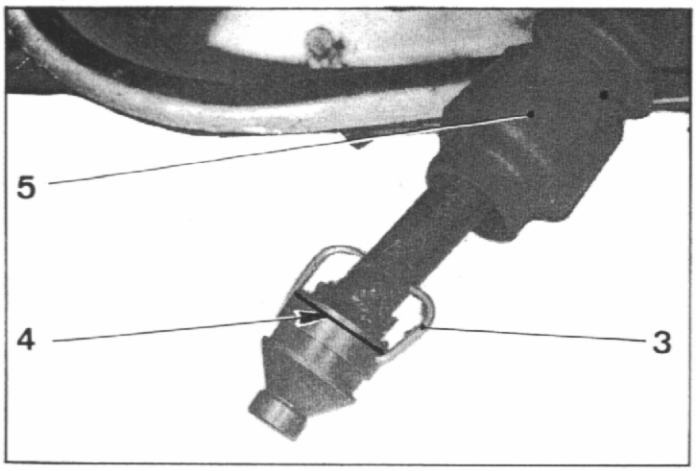


NOTE : Since November 1972, the dust shields contain LHM fluid :
(Front cylinder : 7 cm^3 - 0.42 cu. in.
Rear cylinder : 25 cm^3 - 1.52 cu. in.)

REMOVAL

1. **Chock up the car :**

   Put the car in « *high* » *position* to allow a trolley-jack fitted with a beam 2510-5, to enter.
   Lift the front, place on stands with the front wheels hanging free.
   Position the jack with the beam in line with the rear seats.

2. **Drop the pressure of the suspension system :**

   Place the height control to « *normal road* » *position.*
   Slacken the pressure regulator bleed-screw.
   Set the control to « *high* » *position* and wait for the rear suspension to collapse completely.
   Lift and place the rear of the car on stands, with the wheels clear.

3. Remove the four wheels.

4. IMPORTANT : Thoroughly clean the working area.

5. **Remove the suspension balls :**

   Proceed in the same way for each arm.

   a) Remove the pin (2) securing the socket into the arm.
   Remove the clip (1).
   Disengage the protection thimbles and push dust shield back along the push the rod.

   b) Remove the clip (4) and disengage the socket securing pin (3) fron the push rod.

   c) Remove the socket and the ball.

   d) Thoroughly clean the socket, the ball and the push rod.

REFIT

6. **Fit the suspension balls :**

   Follow the same procedure for each arm.

   a) Smear the socket with grease (TOTAL MULTIS). Insert the ball into its socket.

   b) Couple up the socket to the push rod (end greased). Locate the pin (3) and fit the clip (4). Locate the dust shield (5) and the protection thimble. Tighten the clip (1).

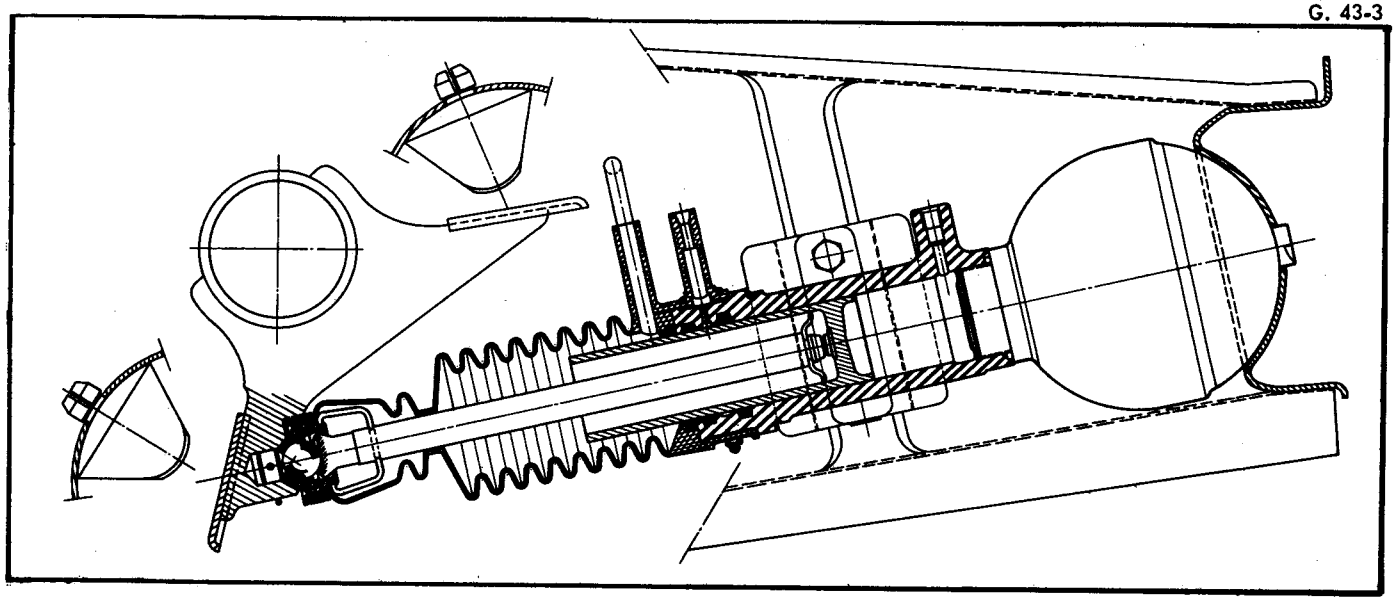
   d) Connect the socket to the suspension arm. Fit the securing pin (2).

7. Fit the four wheels.

8. Lower the car to the ground. Tighten the pressure regulator bleed-screw.

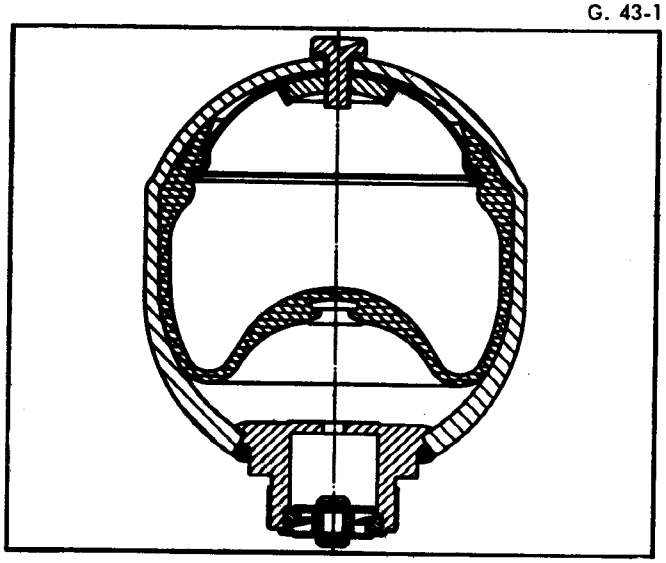
SUSPENSION CYLINDER

G. 43-3



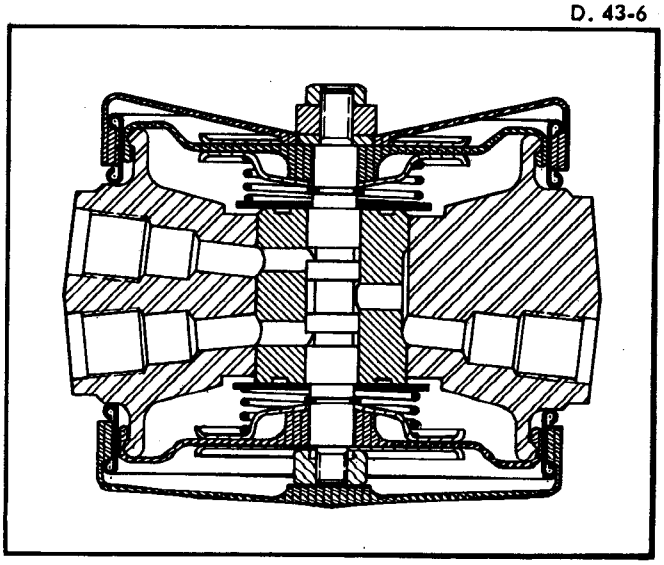
SUSPENSION UNIT

G. 43-1



HEIGHT CORRECTOR

D. 43-6



SPECIAL FEATURES

Tyre pressures : type 145-15 ZX :

- front ..... 1.8 bar (26 psi)
- rear ..... 1.9 bar (28 psi)

Pre-setting the heights :

- With the height correctors in the neutral position, slacken the clamps of the automatic height-control rods on the front and rear anti-roll bars.
- Adjust to obtain equal clearances between the bump and rebound buffers and their levers to within ..... 2 mm (0.08 in.)

Adjustment of the anti-roll bar :

A. Front :

- Lateral position : projection on both sides equal to within ..... 2 mm (0.08 in.)
- Angular position : mounting without stress on the ball joints.
- End float nil : bearings fitted under pre-loads of ..... 35 to 40 kg 77 to 88 lb.

B. Rear :

- Angular position : insert splines lining up the markings on the bar and the wheel arm.
- Play of bar and arm under load of ..... 200 kg. (440 lb.) 0.01 to 0.10 mm (0.0004 to 0.004 in.)

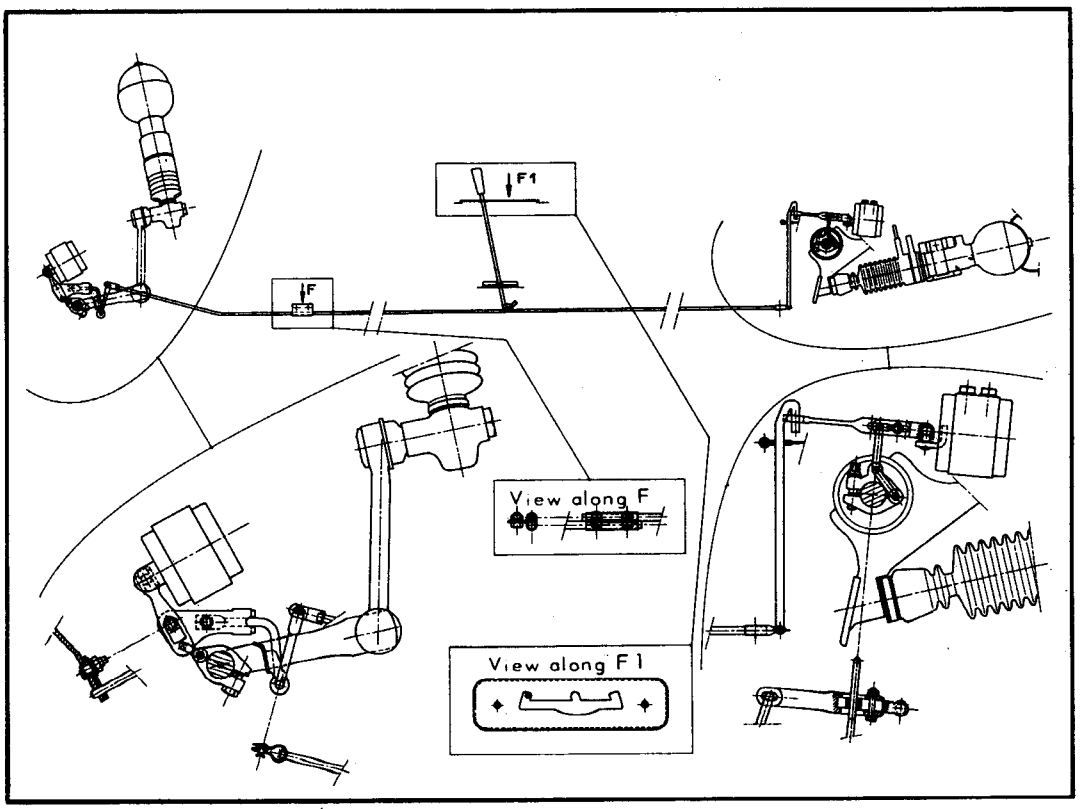
Tightening torques :

		ft. lb.
- Automatic control rod clamp on anti-roll bar (thread oiled)	13.5 to 15 mΛN (1.3 to 1.5 m.kg)	9 ¼ to 10 ¾
- Lateral adjustment clamp on anti-roll bar	10 to 11 mΛN (1 to 1.1 m.kg)	7 ¼ to 8
- Bearing securing-screw on anti-roll bar	18 to 21 mΛN (1.8 to 2 m.kg)	13 to 14 ½
- Ball pin nut on anti-roll bar	63 to 70 mΛN (6.3 to 7 m.kg)	45 ½ to 50 ½
- Bush nut for ball pin for link lever on upper wishbone	27 to 30 mΛN (2.7 to 3 m.kg)	19 ½ to 21 ½
- Securing screw for rear anti-roll bar	18 to 20 mΛN (1.8 to 2 m.kg)	13 to 14 ½

MANUAL HEIGHT CONTROL

Vehicles produced until 1 st March 1972

G. 43-7



Vehicles produced since 1 st March 1972

G. 43-7 a

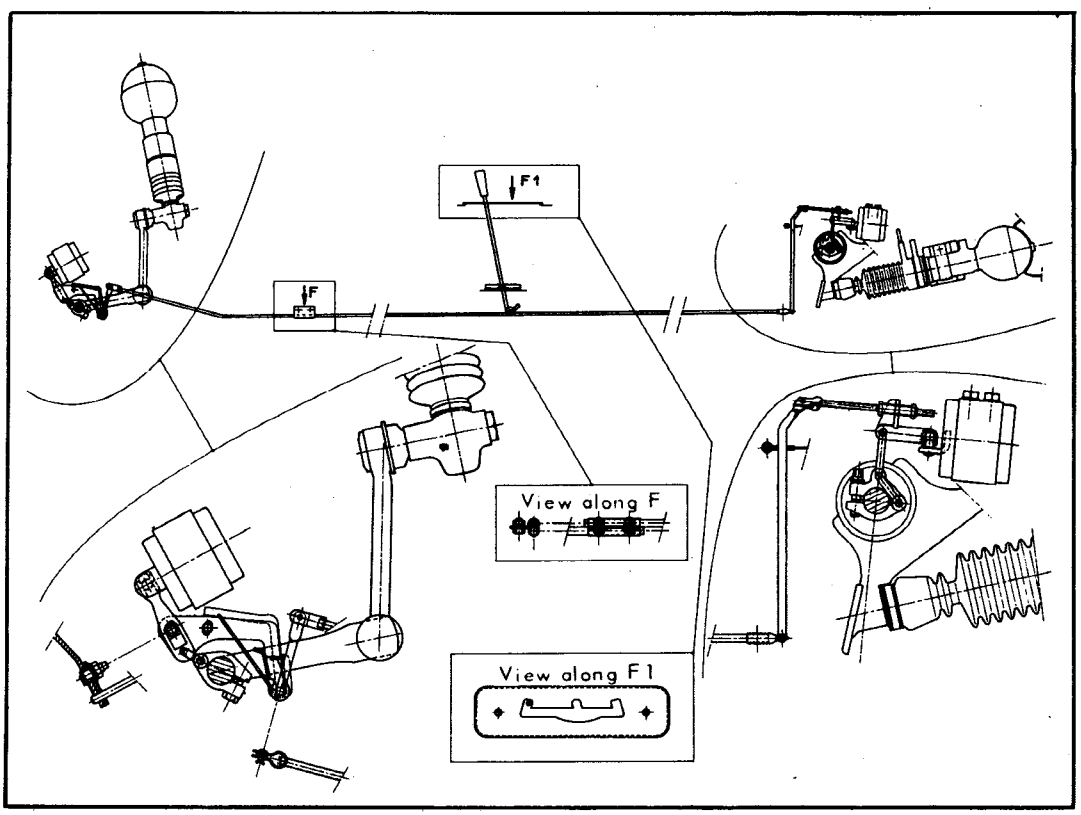
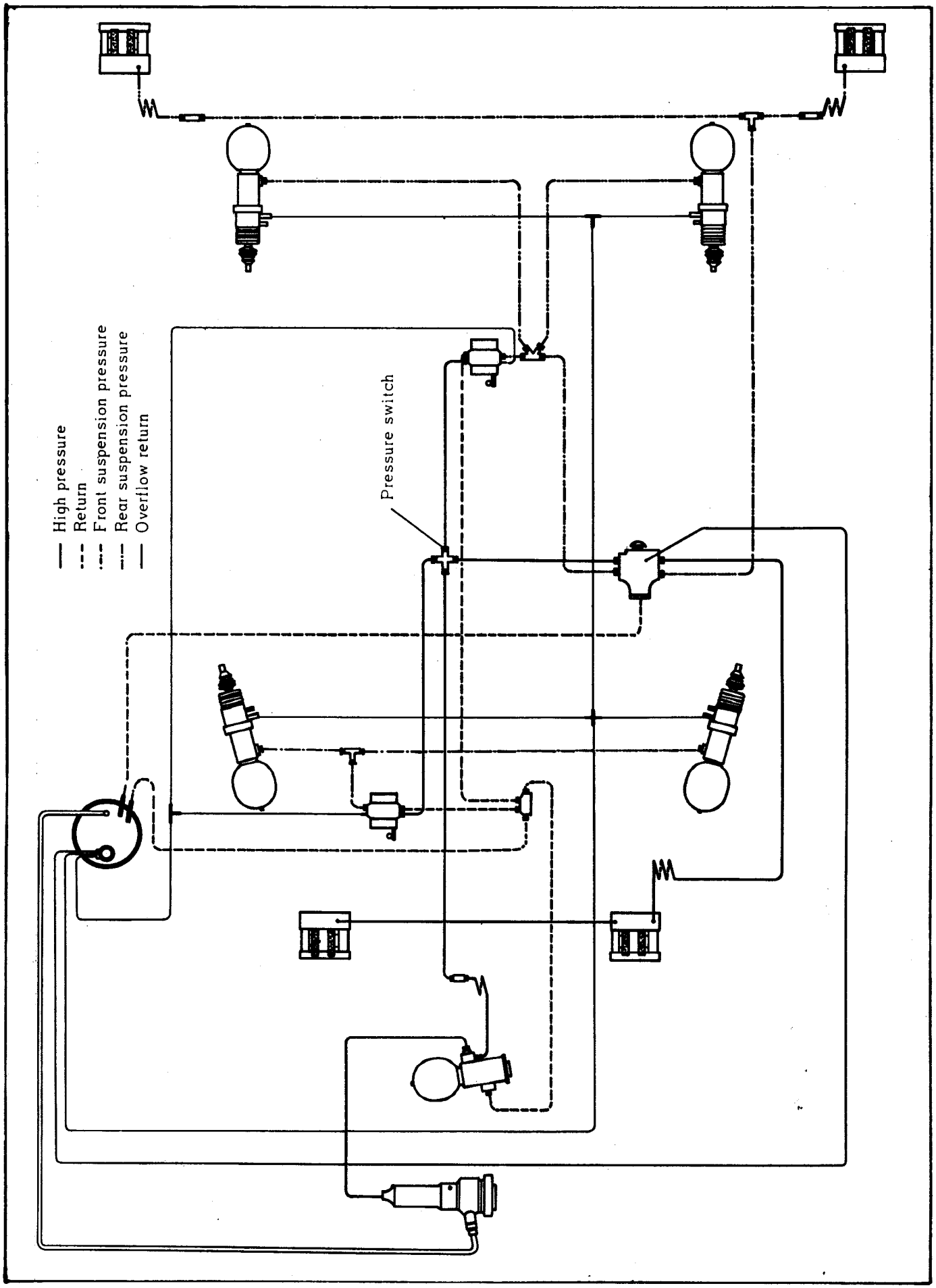
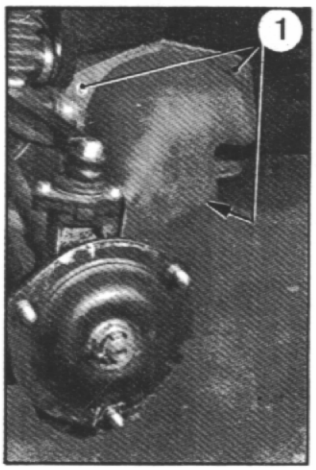


DIAGRAM OF HYDRAULIC SYSTEM

G. 39-1



8441



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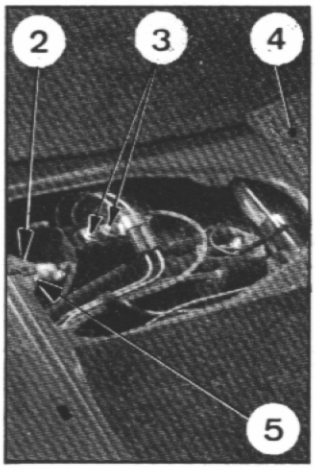

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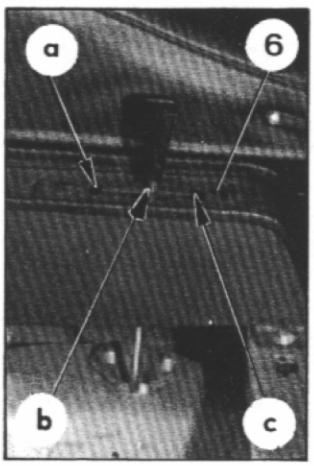

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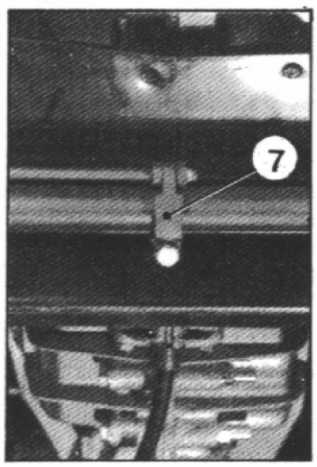


Manual 810-1

I - PRESETTINGS THE HEIGHTS

NOTE : Presetting the heights enables an approximate adjustment to be made. It should be carried out whenever major components of the suspension are replaced.

1. Position the front and rear suspension arms :

Remove :

- the three screws (1) and the protection panel over the front corrector.
- the access cover to the rear corrector, having first raised the floor-covering (4) of the boot.

a) Slacken the front automatic rod control clamps (7) (from underneath the front axle).

b) Slacken the screws (3) holding the rear corrector, slide them to the centre of their slots. Tighten the screws (3).

c) Set the manual control to the normal road position.

NOTE : The manual control has three settings :

1. *Normal road « a »*
2. *Intermediate « b »*
3. *High « c »*

d) Relieve the stress on the corrector slide valves as necessary by displacing the sector (6) and slackening the plastic fork end (old type control) or bush nut of the control rod.

e) Position the wheel arms so that :

- the lever (8) of the front wishbones is halfway, i.e. *J1 = J2 ± 2 mm (0.08 in.).*

NOTE : The lever (8) is halfway when the suspension arms are raised using a beam, the latter being hard up against the axle unit.

- the levers (9) and (10) of the rear wheel-arms are at an equal distance from the rubber buffers, i.e. : *J3 = J4 ± 2 mm.*

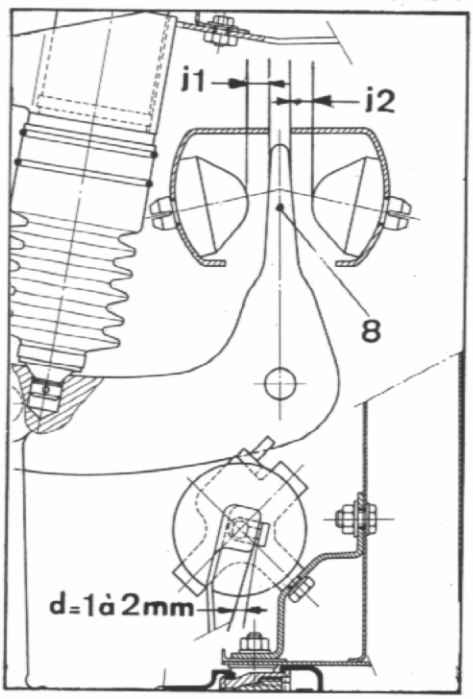
f) Ensure that the slide valves of the front and rear correctors are at the neutral position.

2. Tighten the clamps of the front and rear automatic control rods, taking care :

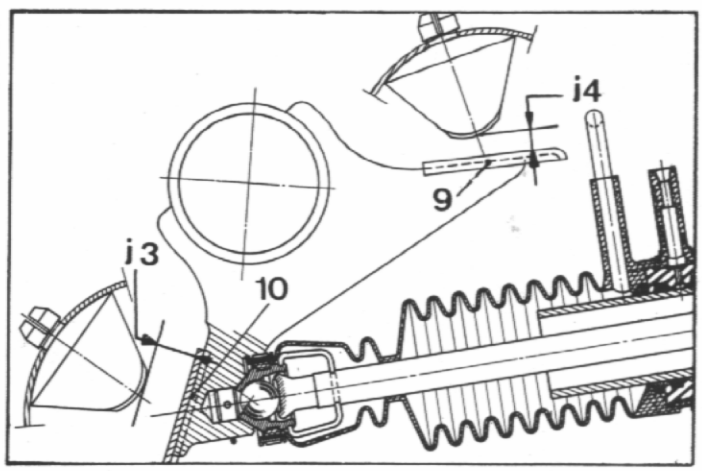
- *at the front :* not to jam the ball joint of the corrector slide valve in its fork. (d = 1 to 2 mm) 0.04 to 0.08.
- *at the rear :* not to touch the edge of the hole with the rod of the automatic control rod (2).

Clamps tightened to :
8 to 9 mΛN (0.8 to 0.9 m.kg) 5.8 to 6.5 ft.lb.

G. 43-4



G. 43-3



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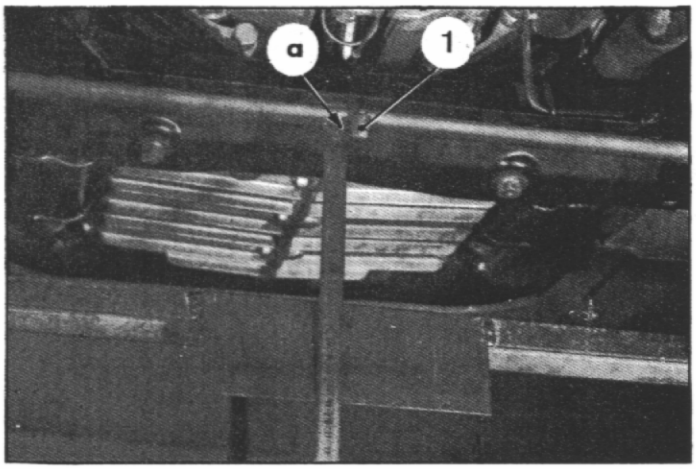

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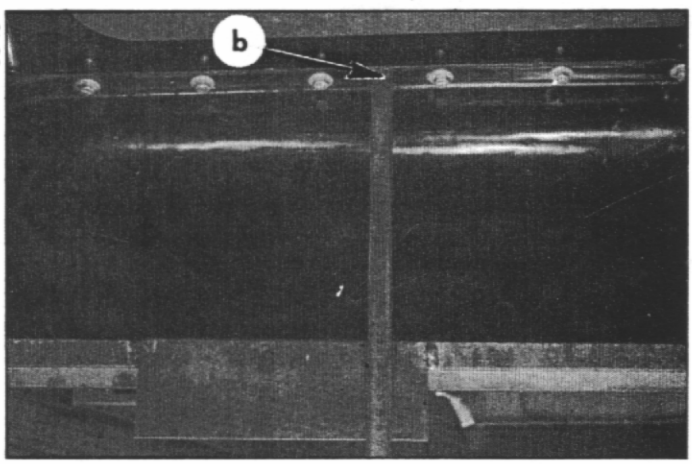

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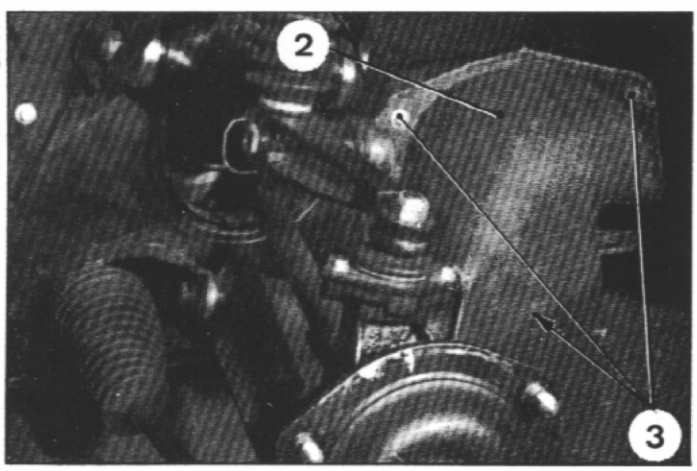
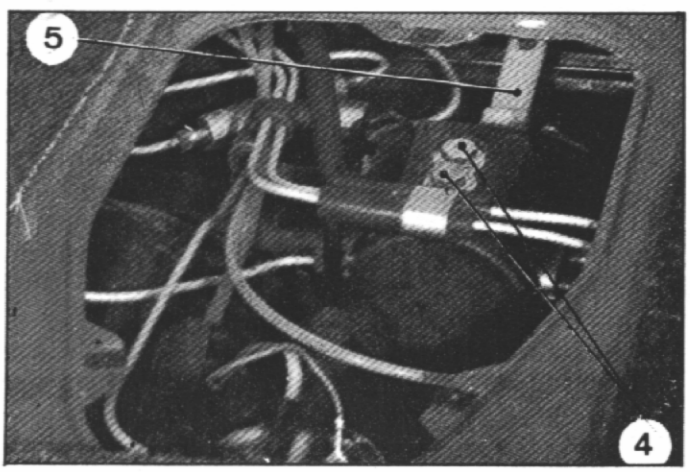


8760



II - ADJUSTING THE HEIGHTS

NOTE : This adjustment can be made without presetting if the heights of the car need only slight alteration.

IMPORTANT : The heights are measured as follows :

- *at the front :* between the lower edge at the centre « a » of the anti-roll bar and the plane on which the wheels are standing.
- *at the rear :* between the centre « b » of the rear flanged edge of the subframe and the plane on which the wheels are standing.

3. Check the tyre pressures : (MICHELIN 145 × 15 ZX)
- front : 1.8 bar (26 psi) - rear : 1.9 bar (28 psi).

4. Remove :
- the three screws (3) and the protection panel (2) for the front corrector.
- the access plate to the rear corrector, having raised the floor covering (5) in the boot.

Set the manual control to the normal road position and check that there is no stress on the front and rear corrector slide valves.
Allow the engine to idle.

5. Adjust the heights :

a) Disconnect the manual control from the front and rear correctors.

b) *At the front :* slightly slacken che clamp (1) and adjust the latter to obtain :
- *Height at the front :*
189 ± 10 mm (7 ± 0.39 in.)

Tighten the clamp (1) to : 13.5 to 15 mΛN (1.3 to 1.5 m.kg) 9 $\frac{1}{4}$ to 10 $\frac{3}{4}$ ft.lb.

c) *At the rear :* slacken the screws (4) securing the corrector and move the latter to obtain :
- *Height at the rear :*
272 ± 10 mm (10.70 ± 0.39 in.).

Tighten the screws (4).

d) Connect and adjust the manual height control.

6. Check the heights :

With the manual control lever in the normal *road position, allow the engine to idle.*
Ensure that the ball joint of the front corrector is not jammed in its fork, clearance of 1 to 2 mm, i.e. 0.04 to 0.08 in. (see Part 1, same operation).
At the front :

a) Lift the car by hand. Release when the weight becomes too great to support. The car will drop, then rise again and settle.
Note the front height.

b) Push the car down by hand and release when the car can no longer be held down. The car will rise again, then drop and settle.
Note the height.

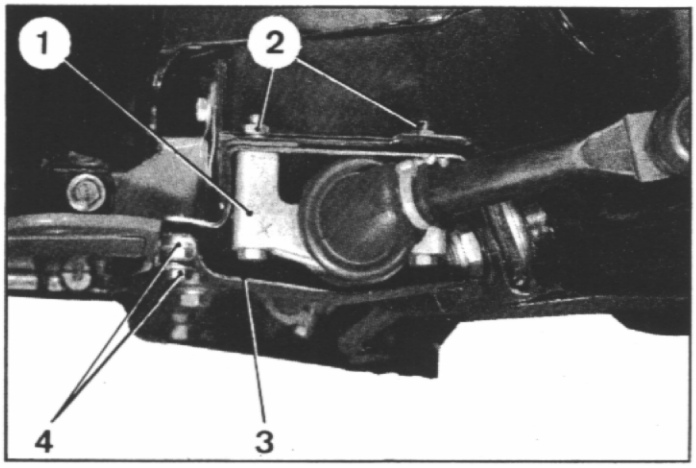
c) Calculate the average of the two measurements. It should be between 179 and 199 mm.

At the rear : Proceed in the same manner.
The average of the heights should be between : 262 and 282 mm.

7. Fit the front corrector protection panel (2). Tighten the screws (3).

8. *(Vehicles produced until 1st March 1972).*
Adjust the clearance of the plastic fork end (5) of the rear manual control (see Part III, same operation).
(Vehicles produced since 1st March 1972).
Even out the clearance of the bush nut on each side of the fork end of the automatic height control rod.

ADJUSTING THE ANTI-ROLL BAR



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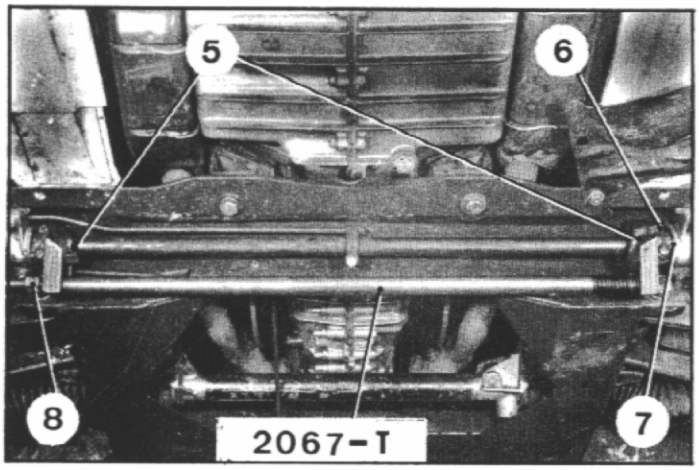


9931

Manual 810-1

NOTE : The anti-roll bar must be mounted with an axial pre-load of 35 to 40 kg, i.e. 77.16 to 88.18 lb, on the clamp bearings.

1. Put the vehicle on a lift or over a pit.

2. Remove the protection panels (3) for the clamps (1).

3. Disengage the lower part of the inner dust shields (5).

   IMPORTANT : *On vehicles produced before 1st September 1971.* the bearing clamps do not have a clip to ensure that the upper part of the dust-shield (5). is held. To make it easy to fit these later, **interpose as a matter of course on every car, between the axle unit and each of the two bearing clamps :**

   a) Two shims GX 202 3001 A where there is no adjusting shim under one or the other of the bearing clamps.

   b) A single shim GX 202 3001 A where there is already an adjusting shim under one of the two bearing clamps.

   NOTE : There is only one type of shim : GX 202 3001 A (1 mm thick).
   Tighten the bearing clamp screws (2) to 21 m.\N (2.1 m.kg) 15 ft. lb.

4. **Adjust the pre-load on the bearings :**

   For this use tool 2067-T.

   a) Slacken one screw (6) of one of the clamps (7) only.

   b) Compress the springs of the tool, using the nut (8).

   c) Offer up the tool (see fig.) so that forked ends are resting on the two stop clamps (7).
   Completely unscrew the nut (8) so that the tool exerts the correct pre-load on the two bearings.

   d) Tighten the screw (6) to 10 to 11 m.\N (1 to 1.1 m.kg) 7 $\frac{1}{4}$ to 8 ft. lb.

   e) Remove the tool 2067-T.

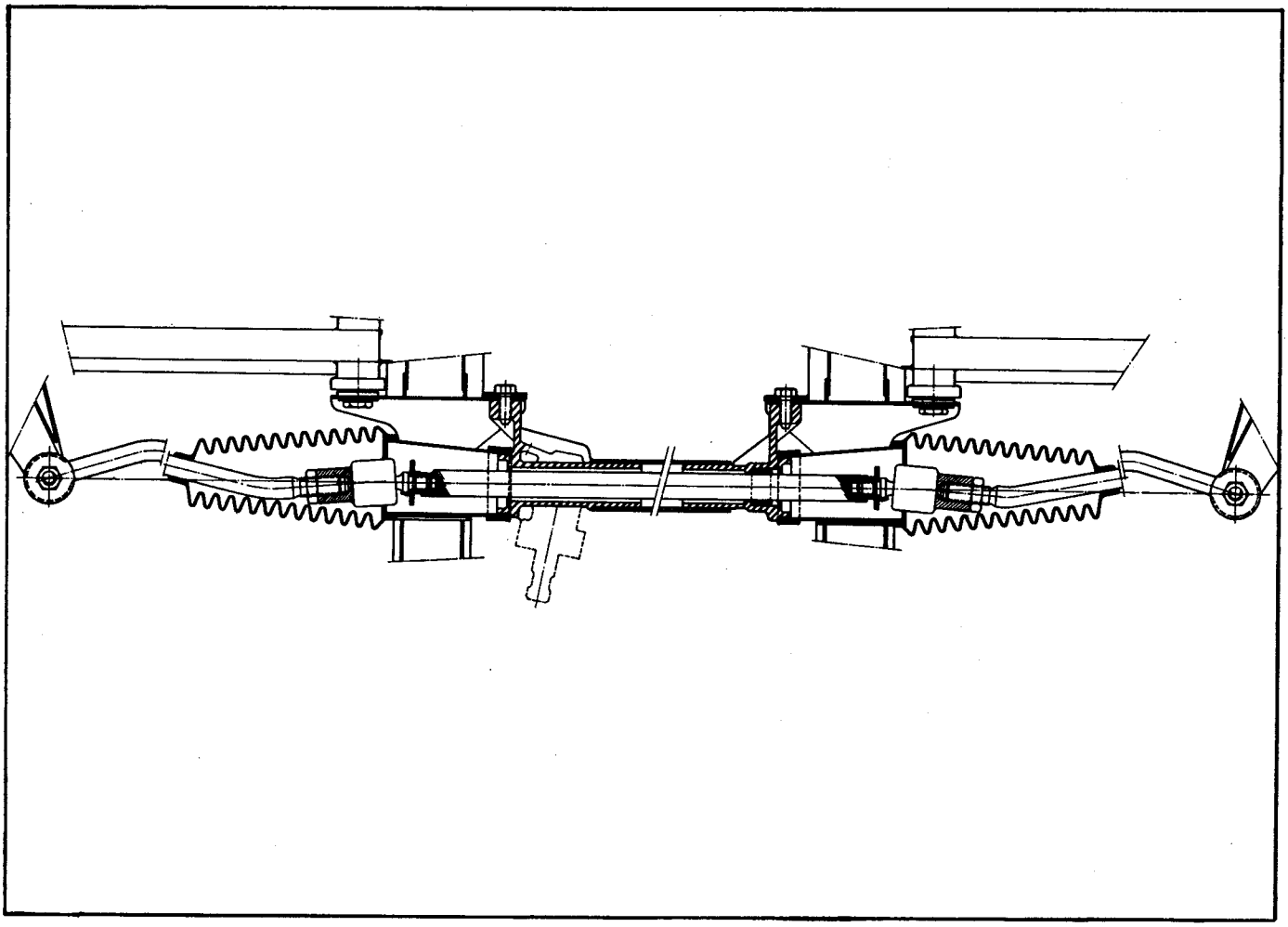
5. Locate the dust shields (5) onto the bearing clamps.

6. Fit the protection panels (3).
   Ensure that they do not touch the anti-roll bars.
   If they do, insert a plain washer between the panel and axle unit at the front fixing points (4).

I - CHARACTERISTICS

LONGITUDINAL SECTION

G. 44-1



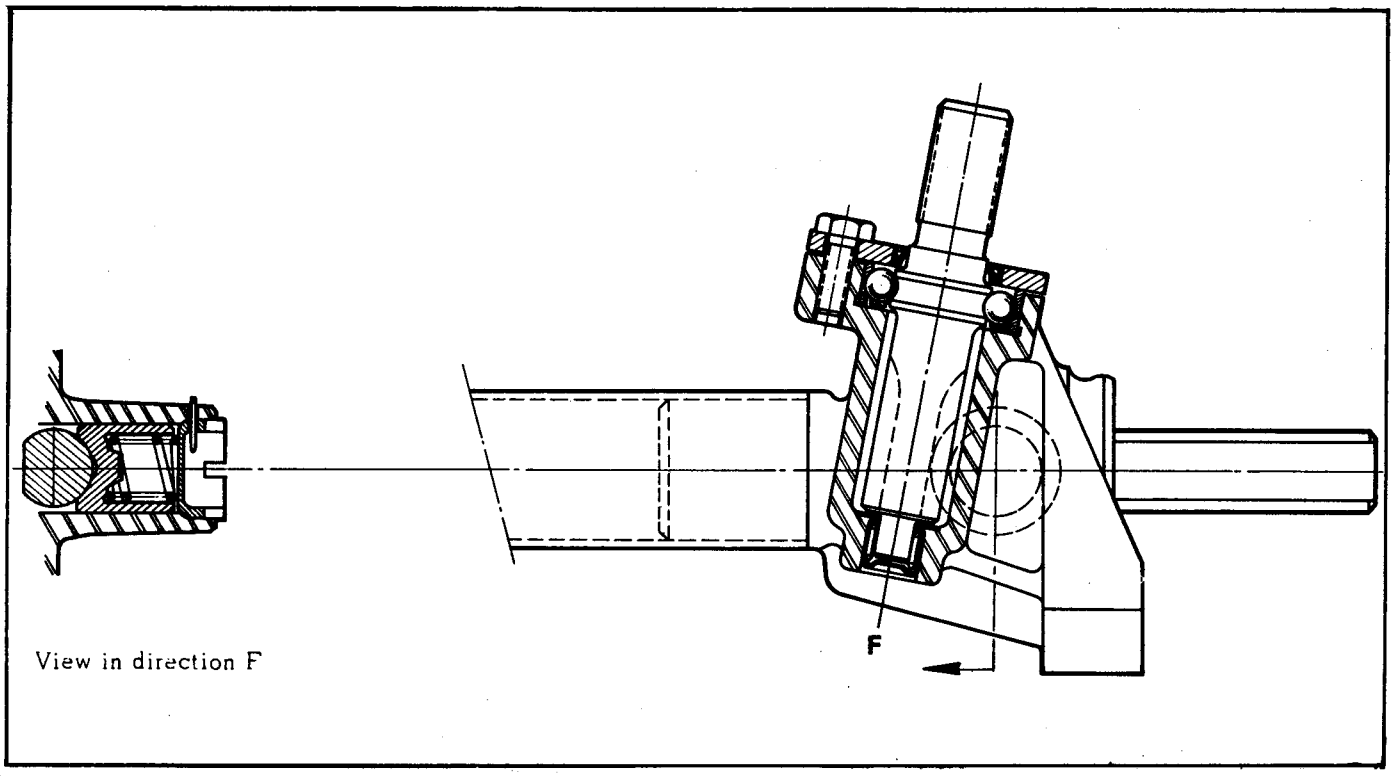
Rack and pinion steering :

- Wheel toe-in (in normal road position) ..... 0 to 2 mm (0 to 0.08 in.)
- Lock angle (not adjustable) ..... 44° 36'
- Turning circle « between walls » (approx.) ..... 10.20 m (33 $\frac{1}{2}$ ft.)
  « between kerbs » (approx.) ..... 9.40 m (30 $\frac{3}{4}$ ft.)
- Steering ratio ..... 1 : 19

II - SPECIAL FEATURES

SECTIONS THROUGH RACK AND PINION HOUSING

G.44-2 b



After adjustment of wheel alignment, the threaded portion of the steering arms projecting from the locknuts must be equal on both sides to within 2 mm (0.08 in.).

Centre position of the rack : the rack must extend by the same amount on both sides.

- Clearance at rack plunger (at hardest point)	0.1 to 0.25 mm	0.004 to 0.01 in.
- Turning torque for pinion, after adjustment of plunger	0.6 mΛN max. (0.06 m.kg)	0.43 ft. lb. max.
- Turning torque at kingpin after adjustment (wheels hanging free)	15 mΛN max. (1.5 m.kg)	11 ft. lb. max.
- Length of bellows over rack in « straight ahead » position	155 ± 3 mm	6.1 ± 0.12 in.

Steering column :

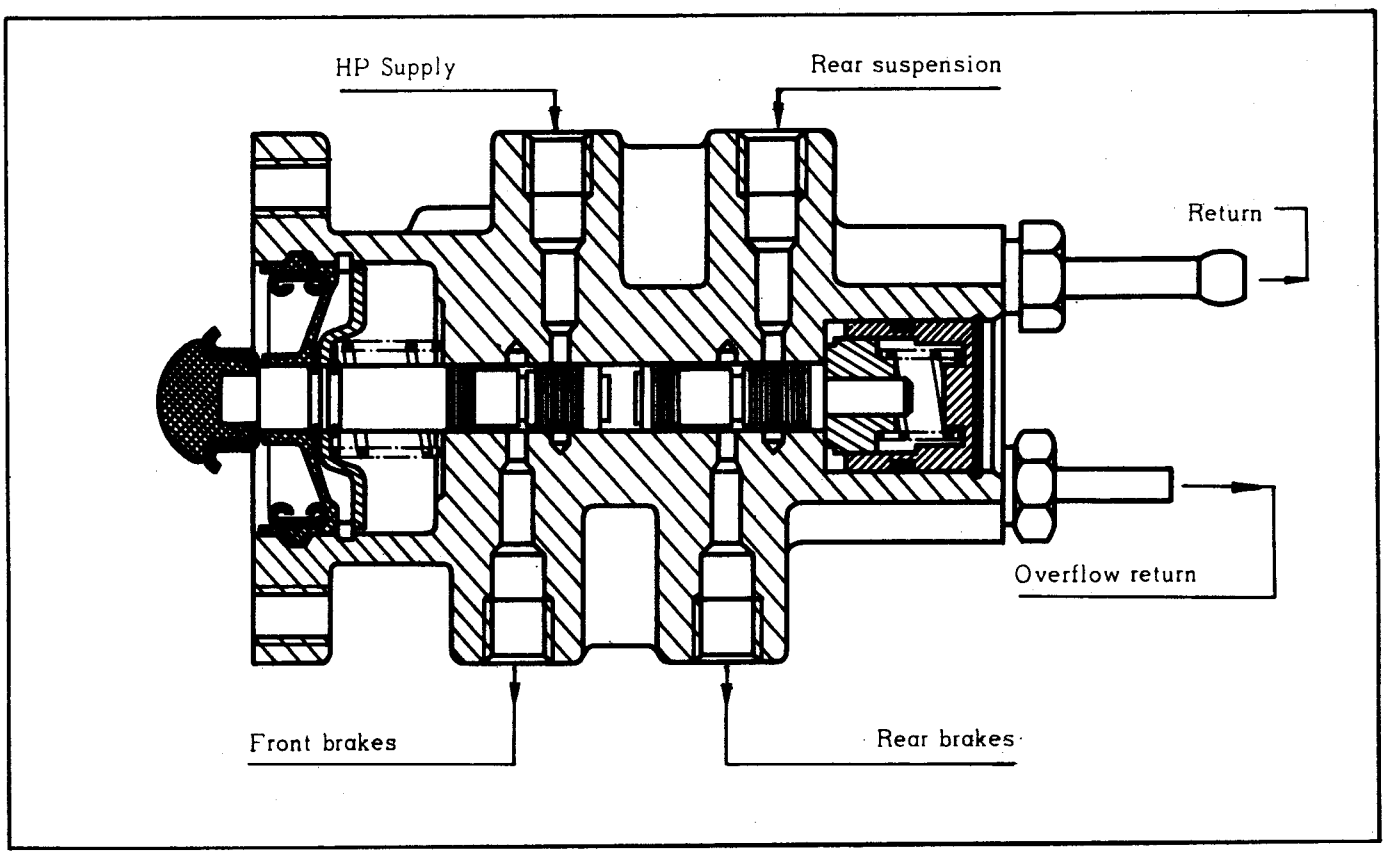
- Clearance between the upper Cardan shaft and the fixed steering tube	1 to 1.5 mm	0.04 to 0.06 in.
- Position of the steering wheel spoke in the « straight ahead » position	30° below horizontal towards outside of car	

Tightening torques :

		ft. lb
- Attachment of rack casing to front axle unit	36 to 40 mΛN (3.6 to 4 m.kg)	26 to 29
- Rack ball pin	36 to 40 mΛN (3.6 to 4 m.kg)	26 to 29
- Steering arm locknut	36 to 40 mΛN (3.6 to 4 m.kg)	26 to 29
- Pinion securing flange	13 to 14 mΛN (1.3 to 1.4 m.kg)	9 ½ to 10
- Cardan clamp on steering column	13 to 14 mΛN (1.3 to 1.4 m.kg)	9 ½ to 10
- Attachment of fixed steering tube	13 to 14 mΛN (1.3 to 1.4 m.kg)	9 ½ to 10
- Ball pin nut for steering arm	18 to 20 mΛN (1.8 to 2 m.kg)	13 to 14 ½

BRAKE VALVE

G. 45-1



Manual 810-1

I - CHARACTERISTICS

- Main brake :

- Disc brakes on all four wheels (two pistons per brake unit).
- Control with hydraulic power-operation (system with «dosing unit»).
  - the front circuit is supplied from the main accumulator.
  - the rear circuit is supplied from the rear suspension.

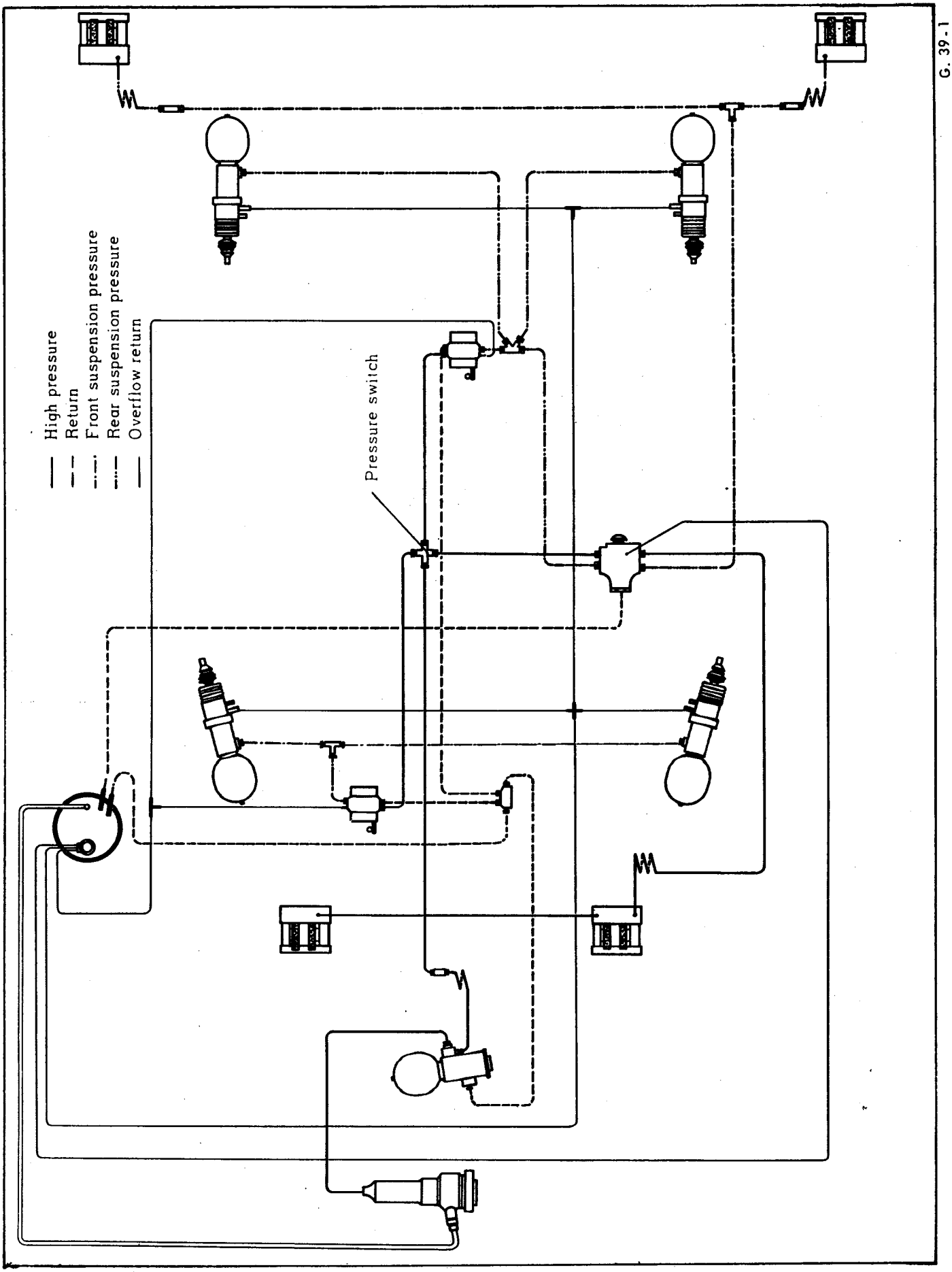
- Parking brake :

- Independent of the main braking system.
- Achieved by using two pads acting on each front disc.

- Total braking areas :

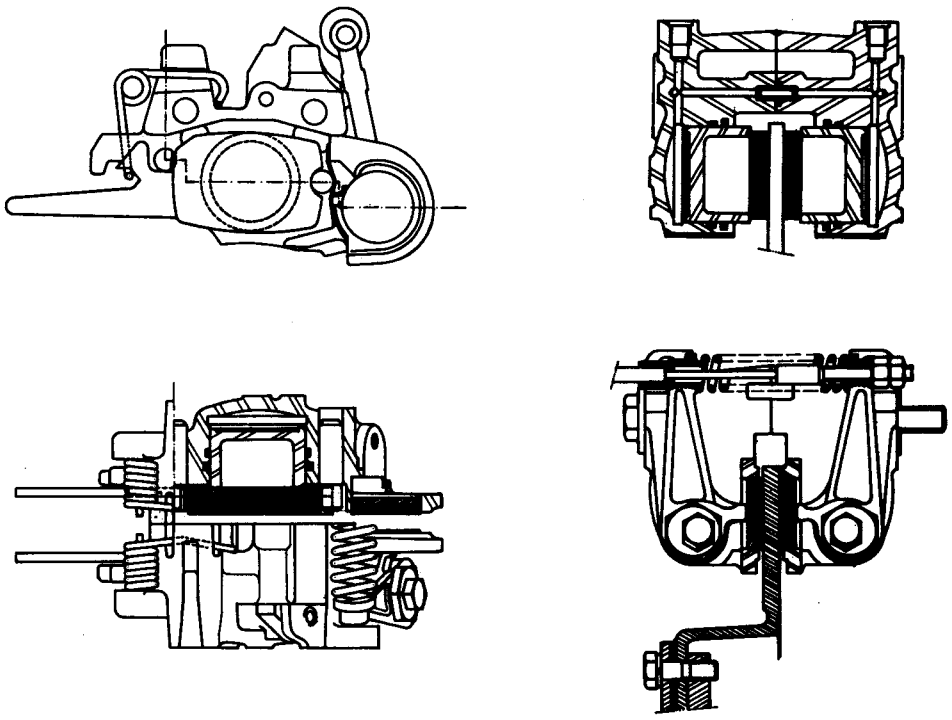
- Main brake	*(until 9/1972)*	148 cm2	22.94 Sq. in.
	(from 9/1972)	212 cm2	32.86 Sq. in.
- Parking brake	*(until 9/1972)*	28 cm2	4.34 Sq. in.
	(from 9/1972)	44 cm2	6.82 Sq. in.

SCHEMATIC DIAGRAM OF HYDRAULIC SYSTEM



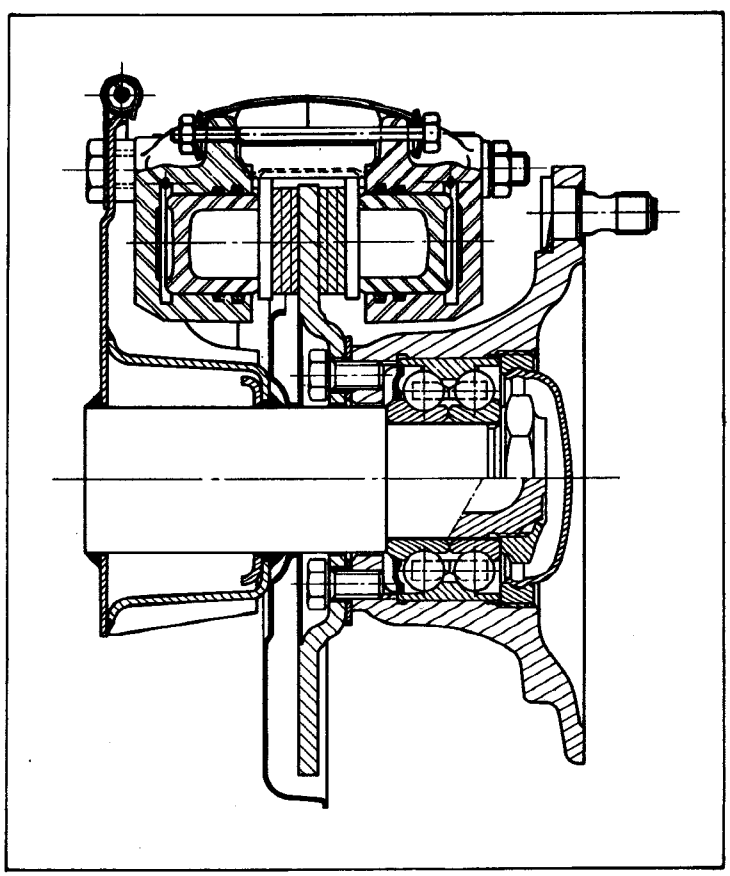
FRONT BRAKE UNIT *(Vehicles fitted with 1015 cc G. 10 engine)*

G. 45-2



REAR BRAKE UNIT

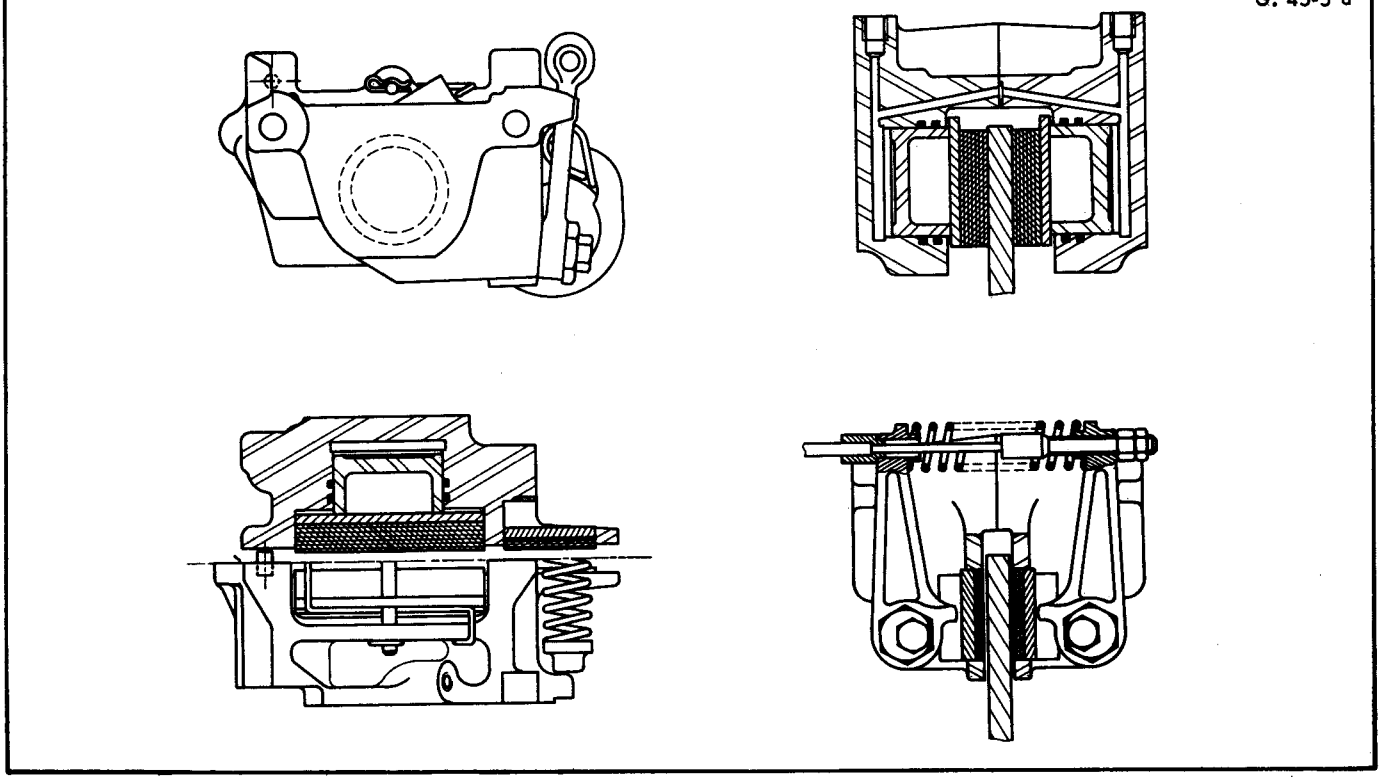
G.43-3 b



FRONT BRAKE UNIT

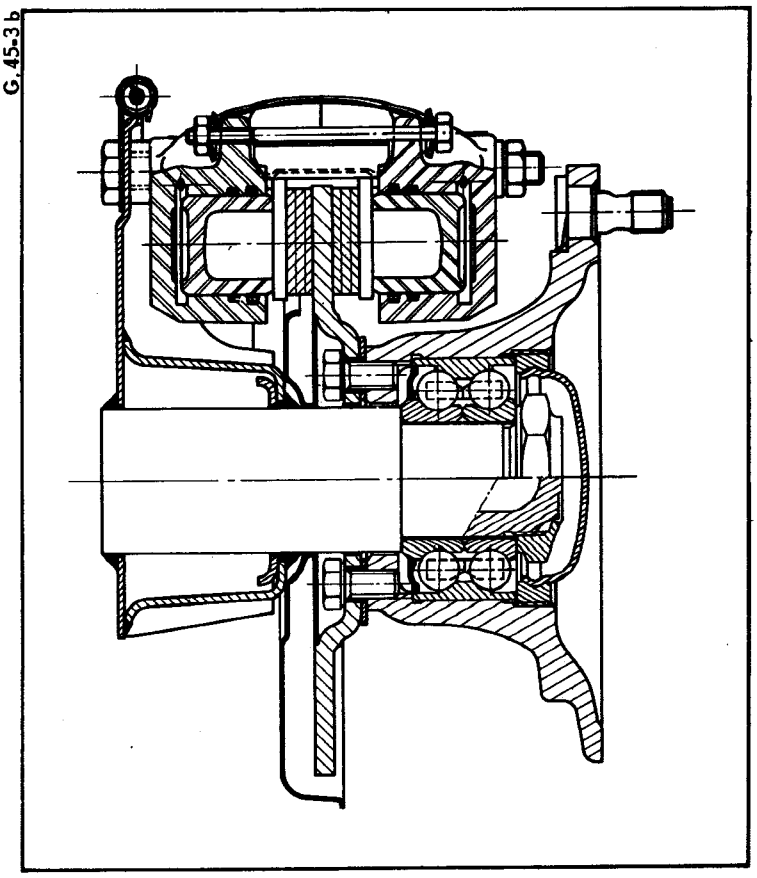
(Vehicles fitted with 1220 cc G. 103 engine)

G. 45-5 a



REAR BRAKE UNIT

G. 45-3 b



II - SPECIAL FEATURES

Clearance between the pedal and the brake valve ..... 0,1 à 0,5 mm
Stoplight switch : the lamps must light immediately the pedal contacts the brake valve.

Main brake	FRONT	REAR
- Disc diameter	270 mm	178 mm
- Disc thickness *(Vehicles fitted with G. 10 1015 cm3 engine until 9/1972)*	7 mm	6 mm
- Disc thickness *(Vehicles All Types, 1015 and 1220 cc. from 9/1972)*	9 mm	6 mm
- Min. thickness after wear	4 mm	4 mm
- Max. run-out of disc	0.2 mm	0.2 mm
- Diameter of operating pistons *(Vehicles fitted with G. 10 1015 cc. engine until 9/1972*	42 mm	30 mm
- Diameter of operating pistons *(Vehicles All Types, 1015 and 1220 cc. from 9/1972)*	45 mm	30 mm
- Surface area of one pad *(Vehicles fitted with G. 10 1015 cc. until 9/1972)*	23 cm2 (3.57 sq. in.)	13 cm2 (2.01 sq. in.)
- Surface area of one pad *(Vehicles All Types, 1015 and 1220 cc. from 9/1972)*	36 cm2 (5.58 sq. in.)	13 cm2 (2.01 sq. in.)
- Thickness of pad *(Vehicles fitted with G. 10 1015 cc. engine) (pads with wear leads)*	8.55 mm	7.55 mm
- Thickness of pad *(Vehicles All Types, 1015 and 1220 cc. from 9/1972) (pads with wear leads)*	12 mm	7.55 mm

Check of plane-parallel condition of discs : Carry out measurement at eight different points, the variation of thickness must not exceed ..... 0.02 mm

Parking brake

- Thickness of pad ..... 3.65 mm
- Surface area of a pad *(Vehicles with 1015 cc. engine until 9/1972)* ..... 7 cm2 (1085 sq. in.)
  (Vehicles All Types, 1015 and 1220 cc. from 9/1972) ... 11 cm2 (1705 sq. in.)

Adjustment of the pads : the clearance between pad and disc at the point of maximum run-out must be ..... 0.1 mm (0.004 in.)

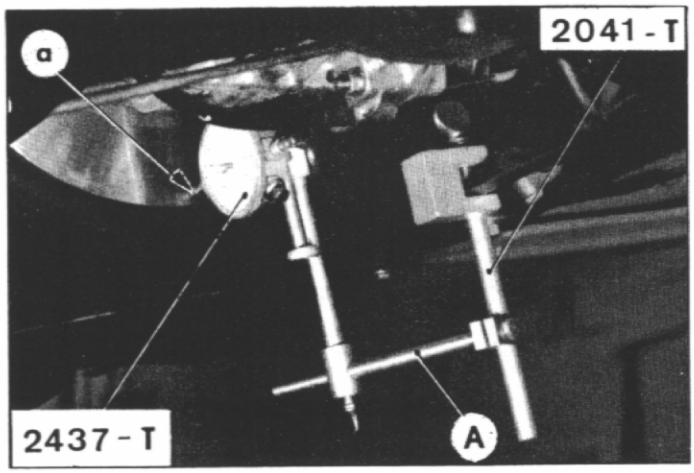
Adjustment of the brake units

- The plane of the joint between the two halves of the brake unit must coincide with the centre-plane of the disc to within ..... 0. 5 mm

Tightening torques

- Attachment of rear brake unit (face and thread oiled)	36 to 40 mΛN (3.6 to 4 m.kg)	26 to 29
- Attachment of rear brake to wheel plate	45 to 50 mΛN (4.5 to 5 m.kg)	32 1/2 to 36
- Attachment of front brake disc (first model)	45 to 50 mΛN (4.5 to 5 m.kg)	32 1/2 to 36
- Attachment of front brake disc (second model)	60 mΛN (6 m.kg)	43
- Eccentric of parking brake	40 mΛN (4 m.kg)	29
- Cable locknut for parking brake	15 mΛN (1.5 m.kg)	11
- Attachment of brake valve	17 to 18 mΛN (1.7 to 1.8 m.kg)	12 to 13
- Attachment of pedal unit	18.5 mΛN (1.85 m.kg)	13 1/2
- Drive shaft fixing studs on gearbox	4 mΛN (0.4 m.kg)	3

8846



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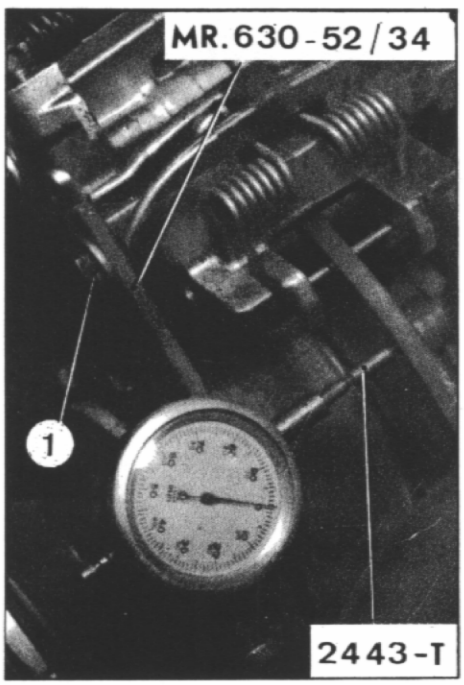

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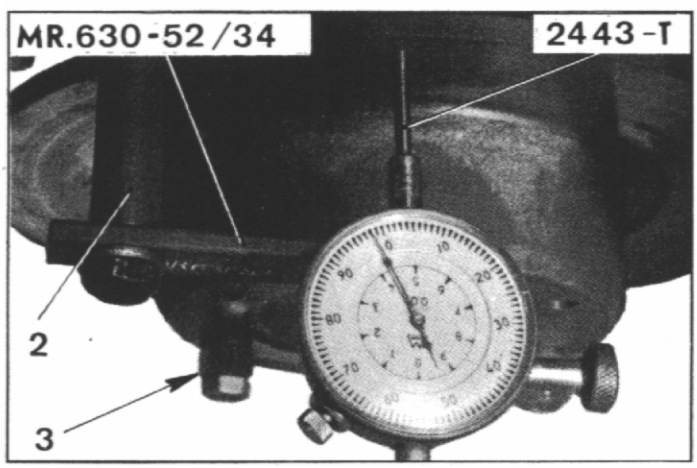


I - CHECK OF THE RUN-OUT OF THE FRONT BRAKE DISC

A. On the car :

1. Equipment required :
   - 1 stand for universal dial-test indicator 2041-T.
   - 1 extension A.
   - 1 Dial Gauge 2437-T.

2. Raise front of car and place on stands, then assemble equipment as shown in figure.

3. Align the button «a» of the dial gauge as perpendicular *as possible to the face of the disc.*

B. On gearbox when removed :

4. Fit the button 2443-5 to the dial gauge.

5. Fit the disc to the gearbox output shaft by means of nuts and spacers (3).

   a) *With brake unit in position :*

   Fit the bracket stand MR 630-52/34 with the aid of the brake-unit securing screw (1).

   b) *On brake-unit when removed :*

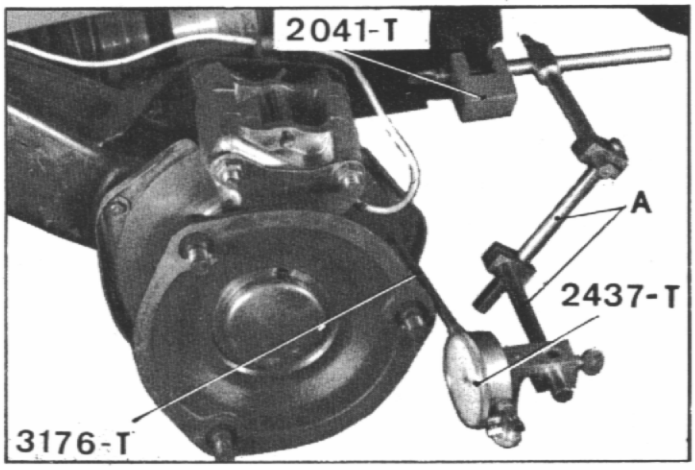
   Fit the distance tube (2) (length : 110 mm, ID : 10 mm) between the stand MR 630-53-34 and the gearbox.

   The run-out thus revealed must not exceed 0.2 mm.

NOTE : This measurement gives the sum of the run-outs of the disc and the output shaft of the gearbox. If it exceeds 0.2 mm the disc can be refitted in any of its six positions and the minimum tolerance still achieved.

If this result cannot be attained renew the disc.

8866



II - CHECK OF THE RUN-OUT OF THE REAR BRAKE DISC

6. Equipment required :

- 1 stand for universal dial gauge 2041 - T.
- 2 extensions A.
- 1 dial gauge 2437 - T complete with button 3176 - T.

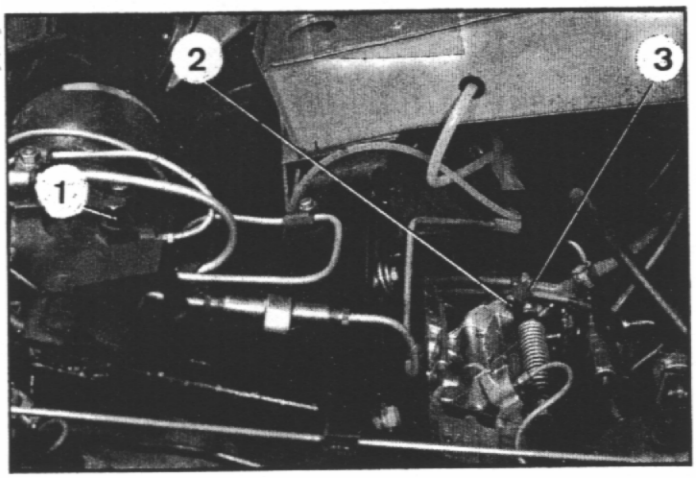
7. Fit the equipment as shown in the figure (wheel removed) :

Align the button of the dial gauge as perpendicular *as possible to the face of the disc.*

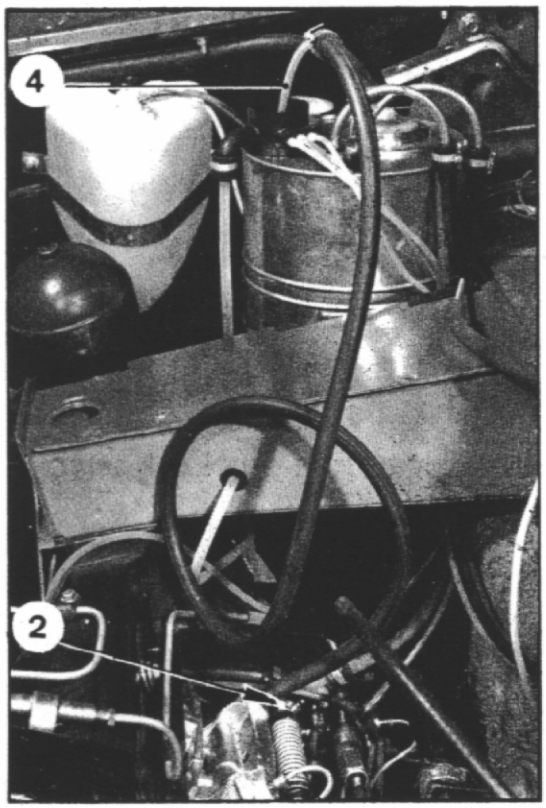
The run-out thus revealed must not exceed 0.2 mm.

8. If this measurement is more than 0.2 mm, renew the disc.

8475



8474



h) Open the brake bleed screws (6) and push the brake pedal hard down.

5. **Bleed the brakes :**

a) Tighten the pressure release screw (1) on the pressure regulator. Keep the brake pedal depressed and start *the engine*.

b) Allow fluid to flow until free from air bubbles. Then tighten the bleed screws. Release the brake pedal.

WARNING : The pressure will now build up in the system and the wheel arms will assume the « *high* » position.

c) Remove the jack from the suspension arm.

d) Remove the bleed pipes. Check the bleed screws for leaks (brake pedal depressed).

- Fit the rubber caps.
- Stop the engine.

6. Fit the rear wheels.
Lower the car to the ground.

BLEEDING THE FRONT BRAKES

NOTE : This operation must be carried out *without pressure* to prevent emulsifying the fluid with air, which could result in the later formation of air bubbles in the system.

1. **Release the pressure in the system :**

a) With the engine stopped, slacken the pressure-release screw (1) on the pressure regulator.

b) Set the manual control *to the normal road position.*

c) Connect the bleed screw (2) of the right-hand brake unit to the reservoir using a transparent bleed pipe (4).

d) Keep the brake pedal depressed and slacken the brake bleed screw.

2. **Bleed the brakes :**

a) *Start the engine.*

b) Tighten the pressure release screw on the pressure regulator and allow fluid to emerge until the fluid in the bleed pipe is free from bubbles. Then tighten the bleed screw.

c) Release the brake pedal and remove the bleed pipe.

- Check the bleed screw for leaks by pushing the brake pedal hard down.
- Stop the engine and replace the rubber cap (3) over the bleed screw.

BLEEDING THE REAR BRAKES

3. Set the vehicle to « high » position to allow the insertion of a jack fitted with a beam 2510-T. Place it immediately below the rear seats.

4. **Release the pressure in the system :**

a) Set the manual control *to the normal road position.*

b) Open the pressure release screw on the pressure regulator (1).

c) Set the manual control to the high position.

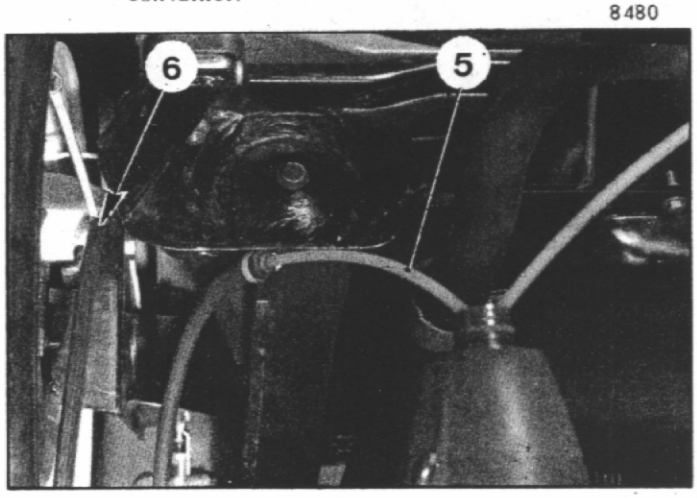
d) Wait for the car to sink down.

e) Jack-up the vehicle, place it on stands, and remove the rear wheels.

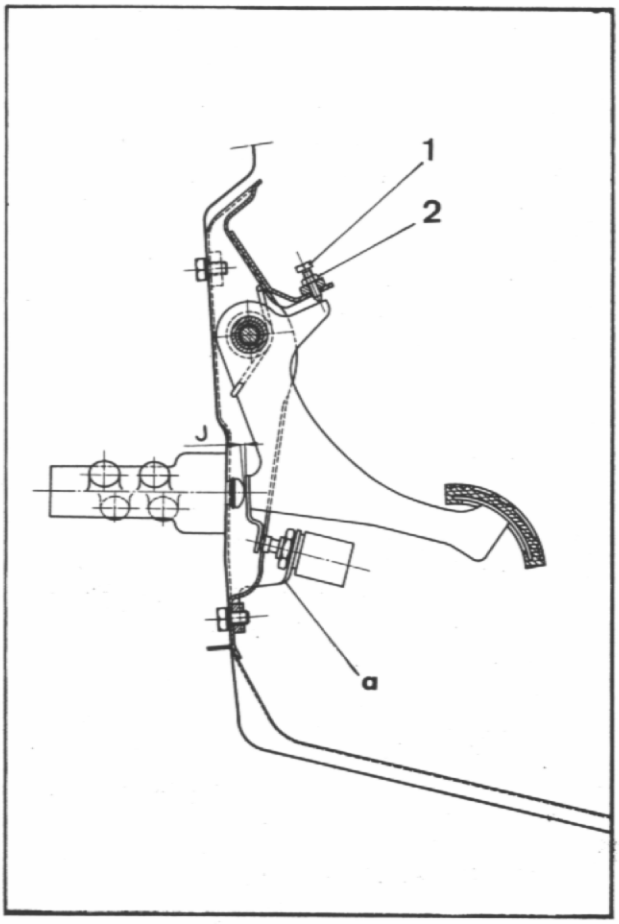
f) With the aid of a jack, lift one rear suspension arm (the rear corrector will then be in the « inlet » position.

g) Connect a transparent bleed pipe (5) over each bleed screw, the other end of the pipe in a clean container.

8480



G. 45-4



8440

ADJUSTMENT OF THE FREE PEDAL TRAVEL

1. Turn the screw (1) to obtain a clearance of :

$$l = 0.1 \text{ to } 0.5 \text{ mm}$$

Tighten the locknut (2).

2. Check the operation of the brake pedal.

a) Release the pressures in the systems :

- Set the manual control to the normal road position.
- Slacken the screw on the pressure regulator.
- Set the manual control to high position.

b) Having first actuated the pedal three or four times to move the control slide valve to the end of its stroke, ensure that the pedal returns freely as far as its stop.

NOTE : The measured clearance « J » must not be different from the original setting.

Tighten the the screw on the pressure regulator.

ADJUSTMENT OF THE STOPLAMP SWITCH

3. Check the adjustment of the free movement of the brake pedal (see 1 and 2 above).

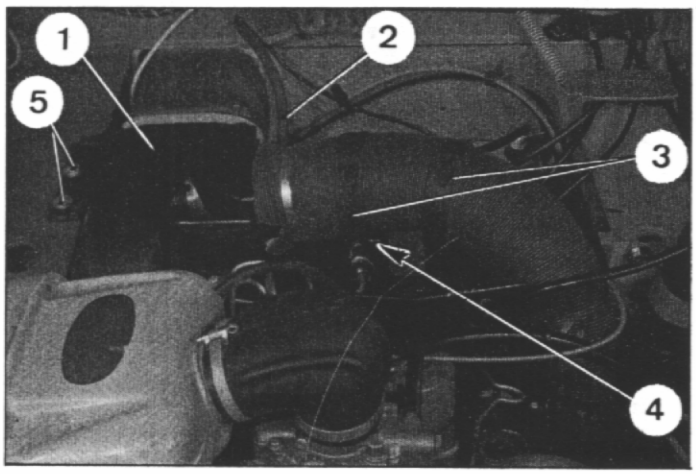
4. Adjust the stop lamp switch.

The lamps must light as soon as the pedal contacts the brake valve.

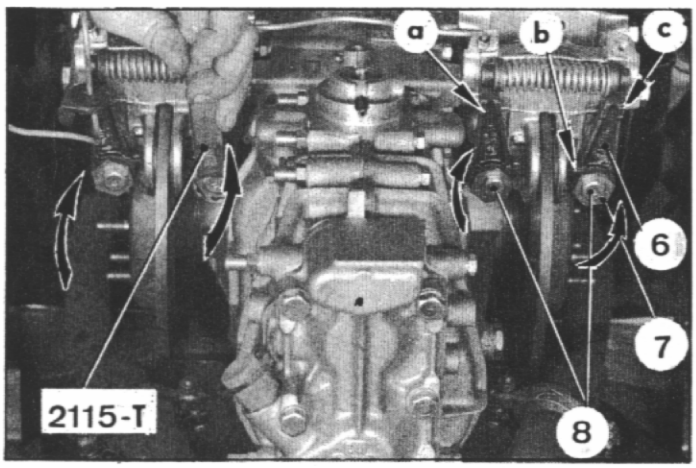
Bend the support plate « a » of the switch in order to achieve this condition.

CHECK AND ADJUSTMENT OF THE PARKING BRAKE

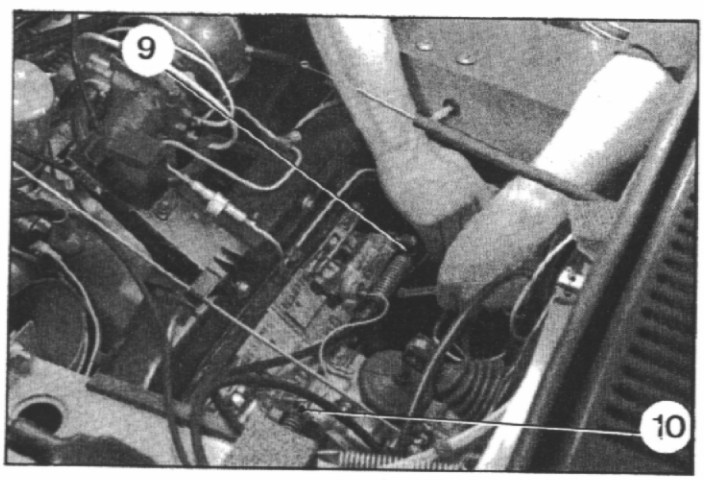
8366



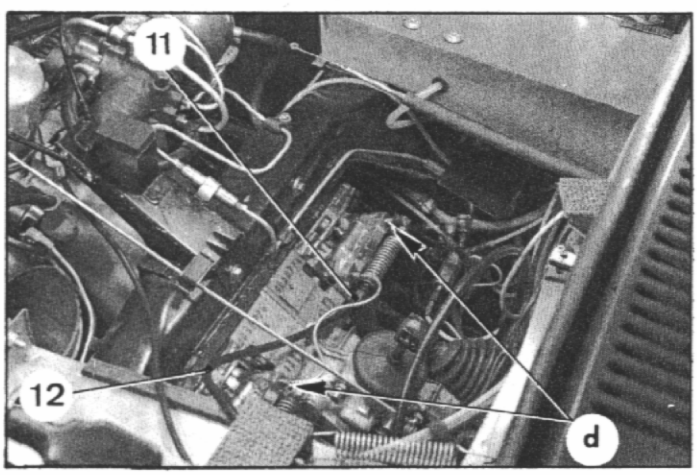
8613



Manual 810-1



8457



8458

1. Raise the front of the car and place on stands.
Push the parking-brake handle fully in.
Remove the spare wheel.

2. Remove the heating distribution box (1) then :
- the screws (5),
- the rubber clips (3),
- the cable and sheath (2),
- Slacken the screw (4),
- Withdraw box (1).

Withdraw the box (1) complete with heating ducts (do not remove the securing clamps).

3. **Adjust the eccentrics :**

a) Slacken the locknuts and the nuts (9) and (10) for adjusting the parking-brake cables.

b) *On each brake unit :*
- Slacken the screws (8) of the eccentrics (7).
- Set the eccentrics to the position which produces the maximum clearance (spanner 2115-T).
- Ensure that the arms (6) are on their stops at « a » and « c » on the brake unit.
- Turn the eccentrics (7) in the direction of the arrows until *a clearance of 0.1 mm is obtained between the pad backplates and the heel « b » of each arm* (6) (feeler gauges).
This clearance must be adjusted *at the point of maximum disc run-out* (turn the disc with the appropriate wheel).
- Tighten the screws (8) to 29 ft. lbs, ensuring that the eccentrics do not turn (re-check).

4. **Adjust the parking-brake cable (12) :**

On each brake unit :
- Ensure that the sheath ends (end (11) on brake unit side and end on dashboard side) are in place, also the sheath.
- Screw on the adjusting nut (9) for the cable until it contacts the arm (6) (pull on the cable (12) to facilitate this operation).

NOTE : Turn the nuts (9) and (10) alternately so that the free lengths at « d » of the threaded ends for the cable are the same on both sides (± 5 mm).
- Tighten the locknuts to 11 ft. lbs
15 mAN (1,5 mkg).

5. **Check of the parking brake :**

Operate the control several times, ensuring that the adjustment does not vary and that the locking functions satisfactorily.

6. Fit the distribution box (1), interposing a gasket on the bulkhead.
Connect the heating ducts.
Fit the rubber clips (3), the cable and its sheath (2).
Replace the spare wheel.
Lower the car to the ground.

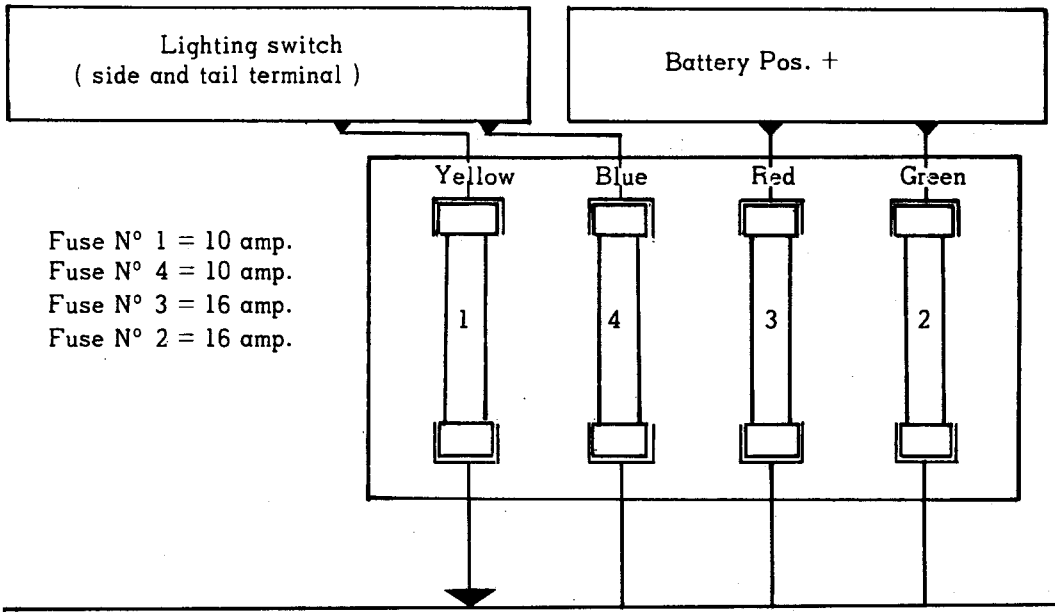
OPERATION N° G. 510-00 : *Arrangement of the electrical installation on French Market vehicles introduced until July 1973.* **Op. G. 510-00** 1

" GS " FRENCH MARKET VEHICLES INTRODUCED UNTIL JULY 1973

TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main or dipped beams	2	P.45t 41	12 V	45/40 W	R. 136-15	
Q.I. headlamps *(Club)*	2	P. 14.5 s	12 V	55 W	R. 136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15 s/19	12 V	21 W	R. 136-12	P.25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA.15 s/19	12 V	5 W	R. 136/13	R. 19/1
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C - 11
Mileage indicator lamp *(Confort)*	1	BA. 9 s	12 V	2 W	R. 136-34	T 8/2
Speedometer lamp	1	BA. 9 s	14 V	4 W	R. 136-33	
Tachometer and clock lamp *(Club)* *Warning lamps for :* - engine oil pressure - brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. brake pad wear *and optional :* - heated rear window - Converter oil temp.	1 1 1 1 1 1 1 1 1	NO (Wedge base type) Tubular 10 mm dis.	12 V	2 W		

TABLE OF FUSES



Fuse N° 1 = 10 amp.
Fuse N° 4 = 10 amp.
Fuse N° 3 = 16 amp.
Fuse N° 2 = 16 amp.

Sidelight warning lamp - lighting rheostat ⟶ lighting : tachometer, clock, battery meter *(Club)*
Number-plate lamps : left-hand side and tail lamps

Right-hand side and tail lamps

Stop lamp switch ⟶ stop lamps
Boot lighting
Interior lamp
Ignition switch *(mauve mark on connector lead)* :
- Battery meter
- Fuel gauge rheostat
- Windscreen wiper and washer switch ⟶ windscreen wiper
- Engine oil pressure warning lamp
- Brake pressure warning lamp
- Converter's oil temperature warning lamp *(with converter option)*
- Warm air blower switch ⟶ warm air blower
- Speedometer lighting rheostat ⟶ speedometer light
- Clutch control relay pad *(converter option)*
- Engine oil temp. and brake pad wear warning lamp.

Cigar lighter *(Club)*
Clock *(Club)*
Terminal for accessories
Ignition switch *(yellow lead on connector)*
- Voltage regulator
- Reversing lamp switch ⟶ reversing lamps *(Club)*
- Rear window heating switch ⟶ rear window heating *(Option)*
  ⟶ warning lamp
- Fresh air blower ⟶ fresh air blower *(Option)*
- Flasher unit ⟶ direction indicator switch ⟶ direction indicators
  ⟶ direction indicator warning lamp

KEY TO WIRING DIAGRAM

1. Direction indicator and sidelamp right-hand
2. Headlamp, right-hand
3. Alternator
4. Headlamp, left-hand
5. Direction indicator and side lamp, left-hand
6. Horn
7. Engine oil pressure switch
8. Starter with solenoid
9. Ignition coil
10. Distributor
11. Fuse box
12. Windscreen washer
13. Brake system pressure switch
14. Electro-valve *(torque converter option)*
15. Oil temperature switch
16. Voltage regulator
17. Windscreen wiper motor
18. Warm air blower
19. Switch on gearbox *(torque converter option)*
20. Reversing lamp switch *(Club)*
21. Stoplamp switch
22. Battery
23. Fresh air blower *(Option)*
24. Door pillar switch, right-hand
25. Terminal for accessories
26. Door pillar switch, left-hand
27. Lighting rheostat for tachometer, clock and battery meter *(Club)*
28. Speedometer light rheostat
29. Cigar lighter *(Club)*
30. Lighting switch
31. Relay *(torque converter option)*
32. Ignition and starter switch
33. Printed circuit connector for tachmeter and clock unit *(Club)*
34. Speedometer light
35. Printed circuit connector for instrument and warning lamp unit
36. Printed circuit connector for warning lamps
37. Fresh air blower switch *(Option)*
38. Warm air blower switch
39. Heated rear window switch *(Option)*
40. Flasher unit
41. Direction indicator switch
42. Windscreen wiper and washer switch
43. Fuel gauge tank unit
44. Interior lamp
45. Boot lamp switch
46. Rear heated window
47. Boot lamp
48. Reversing lamp, right-hand *(Club)*
49. Tail lamp, right-hand
50. Stoplamp, right-hand
51. Rear direction indicator, right-hand
52. Number plate lamp
53. Rear direction indicator, left-hand
54. Stop lamp, left-hand
55. Tail lamp, left-hand
56. Reversing lamp, left-hand *(Club)*
62. Front brake unit, right-hand
63. Engine oil temperature thermal switch
64. Front brake unit, left-hand

NOTE : Some leads do not bear a coloured identification sleeve at connectors, in this case the colour of the insulation is given (e.g. green lead without coloured identification sleeve = green ld).

Harness	Lead N°	Sleeve or lead colour (ld)	Description of leads
Front	1	Black Black Black Green Red Red Black Black White	Starter (8) : - to alternator (3) (terminal « + ») - to direction indicator switch (41) - to fuse box (11) (Fuse N° 2) - to fuse box (11) (Fuse N° 3) - to ignition/starter switch (32) - to ignition switch (30) - to clutch control relay (31) *(torque converter)* - via connector to ignition/ anti-theft switch (32)
Torque converter (Option)	2	Blue White	Clutch control relay (31) *(Converter)* - to ignition/ starter switch (32) NOTE : on vehicles without converter option the wires marked Bc1 and Bc2 are connected together (Ignition and anti-theft switch connector)
Torque converter (Option)	3	Red Red	Clutch control relay (31) *(torque converter)* - to electro-valve (14)
Front	4	Brown Red	Ignition/ starter switch (32) - to starter solenoid (8)
Front	5	Green Black Black Black Green (ld)	Fuse box (11) (Fuse N° 2) - to ignition/ starter switch (32) - to cigar lighter (29) *(Club)* - to accessory terminal (25) - to printed circuit connector (33) clock supply *(Club)*
Front	6	Yellow ld. Grey id. Mauve Green Blue Black	Ignition/ starter switch (32) - to voltage regulator (16) via connector - to reversing lamp switch (20) *(Club)* - to rear heated window switch (39) *(Option)* - to fresh air blower switch (37) *(Option)* - to flasher unit (40) (terminal « + »)
Front	7	Yellow Grey	Reversing lamp switch (20) *(Club)* - to front - rear junction
Front	8	Blue Red	Fresh air blower switch (37) *(Club)* - to fresh air blower
Front	9	Green White	Flasher unit (40) (terminal « R ») - to printed circuit connector (35) for dir. ind. warning light
Front	10	None Red	Direction indicator switch (41) - to flasher unit (40) (terminal « C »)
Front	11	Green Blue Blue	Direction indicator switch (41) - to dir. indicator (1) front right-hand - to front - rear junction
Front	12	Yellow Blue White	Direction indicator switch (41) - to dir. indicator (5) front left-hand - to front - rear junction

Harness	Lead N°	Sleeve or lead (ld) colour	Description of leads
Front	13	Blue White	Direction indicator switch (41) - to horn (6)
Front	14	Grey ld. Red	Ignition/starter switch (32) - to ignition coil (9)
Front	15	Blue Blue Black	Ignition coil (9) - to distributor (10) - to printed circuit connector (33) (tachometer) *(Club)*
Front	16	Yellow None Yellow None Yellow Brown Blue	Lighting switch (30) - to headlamp right-hand (2) (main beam) *(Confort)* or to Q.I. lamp (main beam) *(Club)* - to headlamp left-hand (4) main beam *(Confort)* or to Q.I. lamp (main beam) *(Club)* - to direction indicator switch (41) - to printed circuit connector (35) (headlamp main-beam warning lamp)
Front	17	Green None None	Lighting switch (3) - to headlamp right-hand (2) dipped beam - to headlamp left-hand (4) dipped beam
Front	18	Red Yellow Blue	Lighting switch (30) - to fuse box (11) (Fuse N° 1) - to fuse box (11) (Fuse N° 4)
Front	19	Yellow Mauve Yellow Red Mauve	Fuse box (11) (Fuse N° 1) - to printed circuit connector (35) (side lamp warning lamp) - to lighting rheostat (27) for tachometer and clock *(Club)* - to side lamp left-hand (5) - to front-rear junction
Front	20	Yellow Red	Lighting rheostat (27) for tachometer and clock *(Club)* - to printed circuit connector (33) *(Club)*
Front	21	Blue Red Green	Fuse box (11) (Fuse N° 4) - to side lamp right-hand (1) - to front-rear junction
Front	22	Red Green Black Black	Fuse box (11) (Fuse N° 3) - to ignition/starter switch (32) - to stop lamp switch (21) - to front-rear junction
Front	23	Mauve Green ld. Black Black Red Red	Ignition/starter switch (32) - to printed circuit connector (35) (« + » on battery meter and warning lamp) - to windscreen wiper and washer switch (42) - windscreen wiper motor (17) automatic stop - to warm air blower switch (38) - to speedometer lighting rheostat (28)
Front	24	Yellow Yellow	Voltage regulator (16) - to alternator (3) (terminal « EXC »)
Front	25	Red Red	Stoplamp contactor (21) - to front-rear junction

Harness	Lead N°	Sleeve or lead (ld) colour	Description of leads
Front	26	Red Brown	Printed circuit connector (35) (engine oil warning lamp) - to engine oil pressure switch (7)
Front	27	Grey Grey	Printed circuit connector (35) (brake pressure warning lamp) - to brake pressure switch (13)
Front	28	Yellow Yellow	Printed circuit connector (35) (Fuel gauge) - to front-rear junction
Front	29	Blue Blue	Windscreen wiper and washer switch (42) - to windscreen wiper motor (17) lst speed
Front	30	Red Red	Windscreen wiper and washer switch (42) - to windscreen wiper motor (17) 2nd speed
Front	31	White White	Windscreen wiper and washer switch (42) - to windscreen wiper motor (17) (return from automatic stop)
Front	32	Mauve Mauve	Windscreen wiper and washer switch (42) - to windscreen washer pump (12)
Windscreen wiper	33	None None	Windscreen wiper motor (17) - to earth (on bulkhead right-hand)
Front	34	Brown Brown	Door pillar switch right-hand (24) - to front-rear junction
Flying lead	35	Brown None	Door pillar switch left-hand (26) - to earth (bulkhead left-hand)
Flying lead	36	Brown None	Door pillar switch right-hand (24) - to earth (bulkhead right-hand)
Flying lead	37	None None	Windscreen washer pump (12) - to earth (bulkhead right-hand)
Front	38	None None None None None None None None None None None Brown ld. Brown ld. Brown	Earth (bulkhead left-hand) - to dir. ind. and side lamp left-hand (5) earth - to headlamp left-hand (4) (earth, main and dipped beams) *(Confort)* - to headlamp Q.I. bulb (4) earth *(Club)* - to headlamp Q.I. bulb (2) earth *(Club)* - to headlamp right-hand (2) (earth, main and dipped beams) *(Confort)* - to dir. ind. and side lamp right-hand (1) (earth) - to alternator (3) earth - to regulator (16) earth (via connector) - to battery (22) (terminal « - ») - to cigar lighter (29) - to printed circuit connector (33) (tachometer and clock) *(Club)* - to printed circuit connector (35) (battery meter and warning lamps) - to fresh air blower (23) *(Club)* (earth)
Flying lead	23	Red Mauve	Fresh air blower switch (38) - to relay (31) (torque converter option) (supply)

Harness	Lead N°	Sleeve or lead (ld.) colour	Description of leads
Flying lead	39	Red Red	Speedometer light rheostat (28) - to speedometer lamp (34)
Flying lead	40	Brown None	Warm air blower (18) - to earth
Flying lead	41	None None	Electro-valve (14) *(torque converter option)* - to earth (common earth with battery « – »)
Front	42	Red Green	Warm air blower switch (38) - to warm air blower (18)
Torque converter (Option)	43	Brown Brown	Relay (31) *(torque converter option)* - to switch (19) on gearbox
Torque converter (Option)	44	Black Blue	Printed circuit connector (36) terminal N° 3 (torque converter oil temperature warning lamp) - to torque converter oil temperature thermal switch (15)
Rear heated window (Option)	45	Green Black Green ld.	Rear heated window switch (39) *(Option)* - to rear heated window (46) - to printed circuit connector (36) terminal N° 6 (Rear window warning lamp)
Rear heated window (Option)	46	Black None	Rear heated window (46) *(Option)* - to earth
Front	57	Green ld. Blue Grey	Printed circuit connector (36) (terminal N° 2) Engine oil temp. warning lamp and brake-pad wear - to junction for engine oil temp. switch (63) - to junction on brake unit harness (62) (64)
Rear	7	Grey Grey Grey	Front-rear junction - to reversing lamp left-hand (56) *(Club)* - to reversing lamp right-hand (48) *(Club)*
Rear	11	Blue Blue	Rear junction - to dir. indic. (51) rear right-hand
Rear	12	White Blue	Front-rear junction - to dir. indic. (53) rear left-hand
Rear	19	Mauve Mauve Mauve	Front rear-junction - to tail lamp left-hand (55) - to junction of number plate lamp harness
Rear	21	Green Mauve	Front-rear junction - to tail lamp right-hand (49)
Rear	22	Black Green ld. Black	Front-rear junction - to interior lamp (44) - to boot lamp (47)

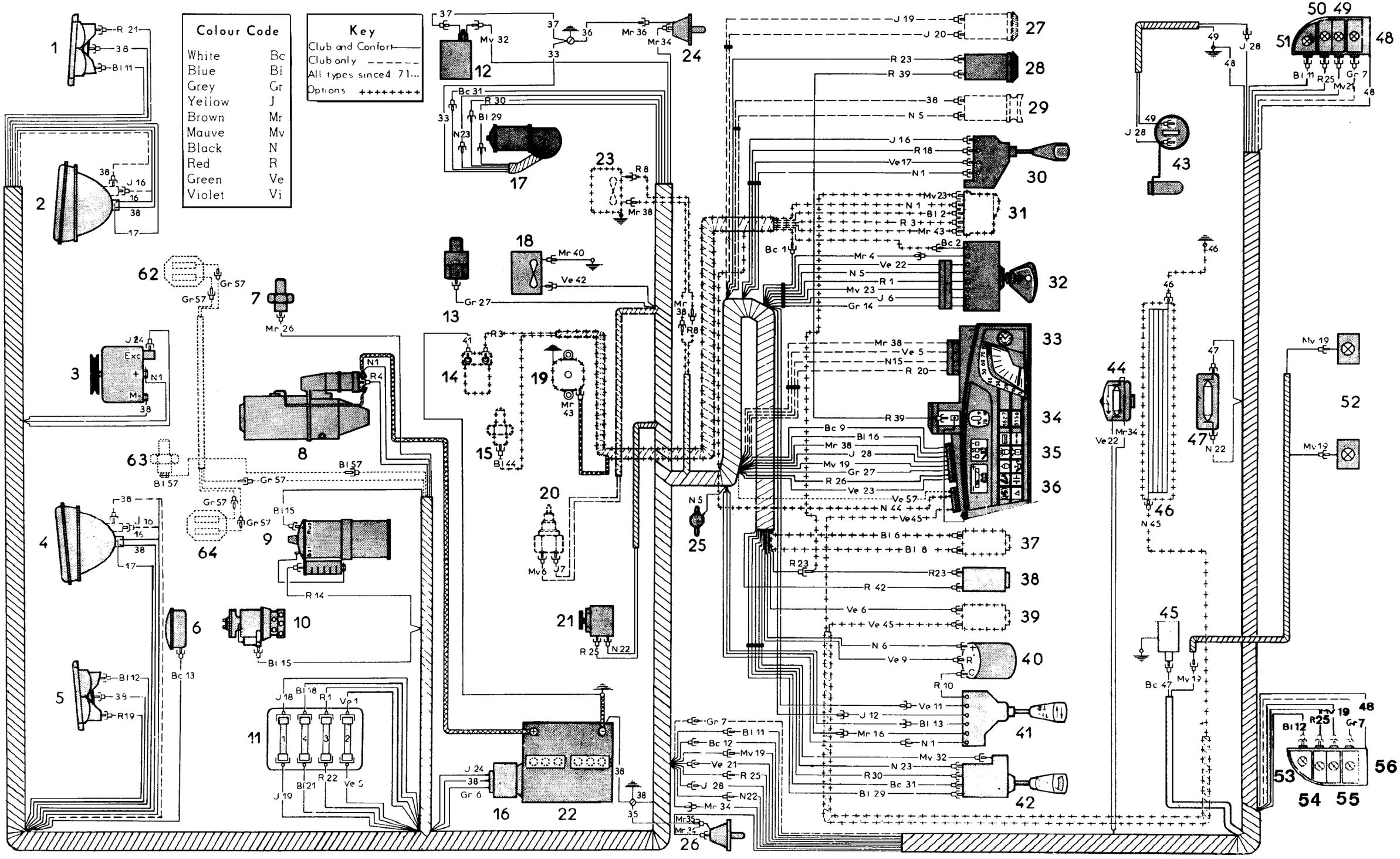
Harness	Lead N°	Sleeve or lead (ld.) colour	Description of leads
Rear	25	Red Red	Front-rear junction - to stop lamps right-hand (50) and left-hand (54)
Rear	28	Yellow Yellow	Front-rear junction - to junction with harness for fuel gauge rheostat
Rear	34	Brown ld. Brown Brown	Interior lamp (44) - to door pillar switch left-hand (26) - to front-rear junction
Rear	47	White None	Boot lamp switch (45) *(Confort only)* - to boot lamp (47)
Rear	48	None None	Earth (common with earth of fuel gauge rheostat) - to rear lamp clusters R.H. and L.H (earth)
Number plate lighting	19	Mauve	Junction rear harness to number plate harness - to number plate lamps (52) right and left
Fuel gauge rheostat	28	Yellow Yellow	Junction rear harness to gauge rheostat harness - to fuel gauge rheostat (43)
Fuel gauge rheostat	49	None None	Fuel gauge rheostat (43) - to earth

WIRING DIAGRAM

P.T.O.

WIRING DIAGRAM

(G All types)



« GS » FRENCH MARKET VEHICLES INTRODUCED SINCE JULY 1973

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e.g. F gr. : grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers **(65)** and **(60)**

b) Read the position of the brake lamps **(65)** and **(60)** in the list of components : position (15) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (15) and (16) in which the lamps **(65)** and **(60)** are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch **(32)** (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 19).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

TABLE OF BULBS

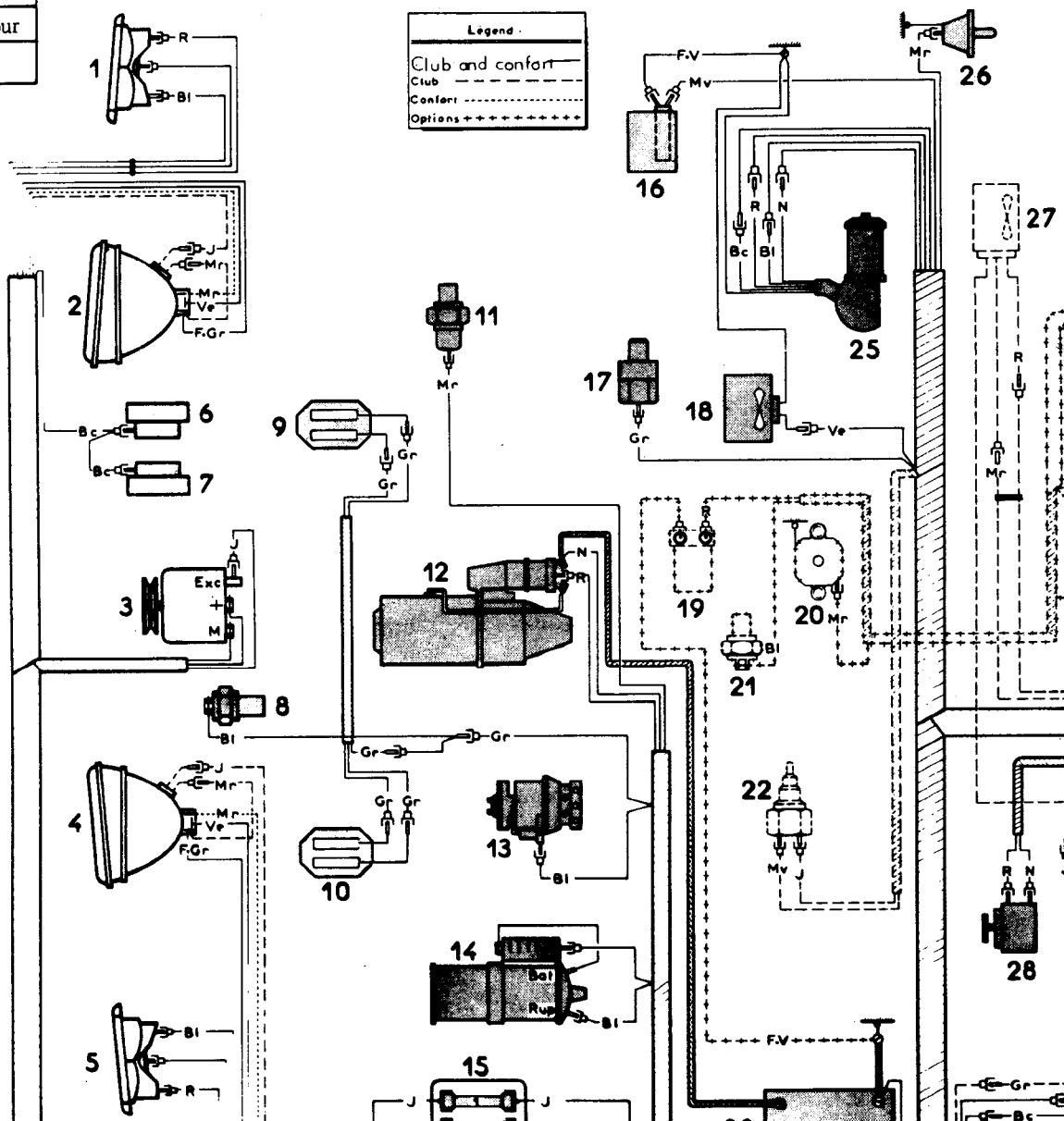
Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main or dipped beams	2	P.45 t.41	12 V	45/40 W	R.136-15	
Q.I. headlamps *(Club)*	2	P. 14.5 s	12 V	55 W	R.136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15s/19	12 V	21 W	R.136-12	P.25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA.15s/19	12 V	5 W	R.136-13	R. 19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C-11
Mileage indicator lamp *(Confort)*	1	BA. 9 s	12 V	2 W	R.136-34	T 8/2
Speedometer lamp	1	BA. 9 s	14 V	4 W	R.136-33	
Tachometer and clock lamp *(Club)* Lighting for battery indicator and fuel gauge *(Club)* *Warning lamps for :* - engine oil pressure - brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. - brake pad wear *and optional :* - heated rear window - Converter oil temp. - heating -20° C (-4° F)	1 1 1 1 1 1 1 1 1 1 1 1	NO (Wedge base type) Tubular 10 mm dia.	12 V	2 W		

Colour Code

Bc : White	Mr : Brown
Bl : Blue	Mv : Mauve
Gr : Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F + symbol = Insulation colour

Fv = Flying lead



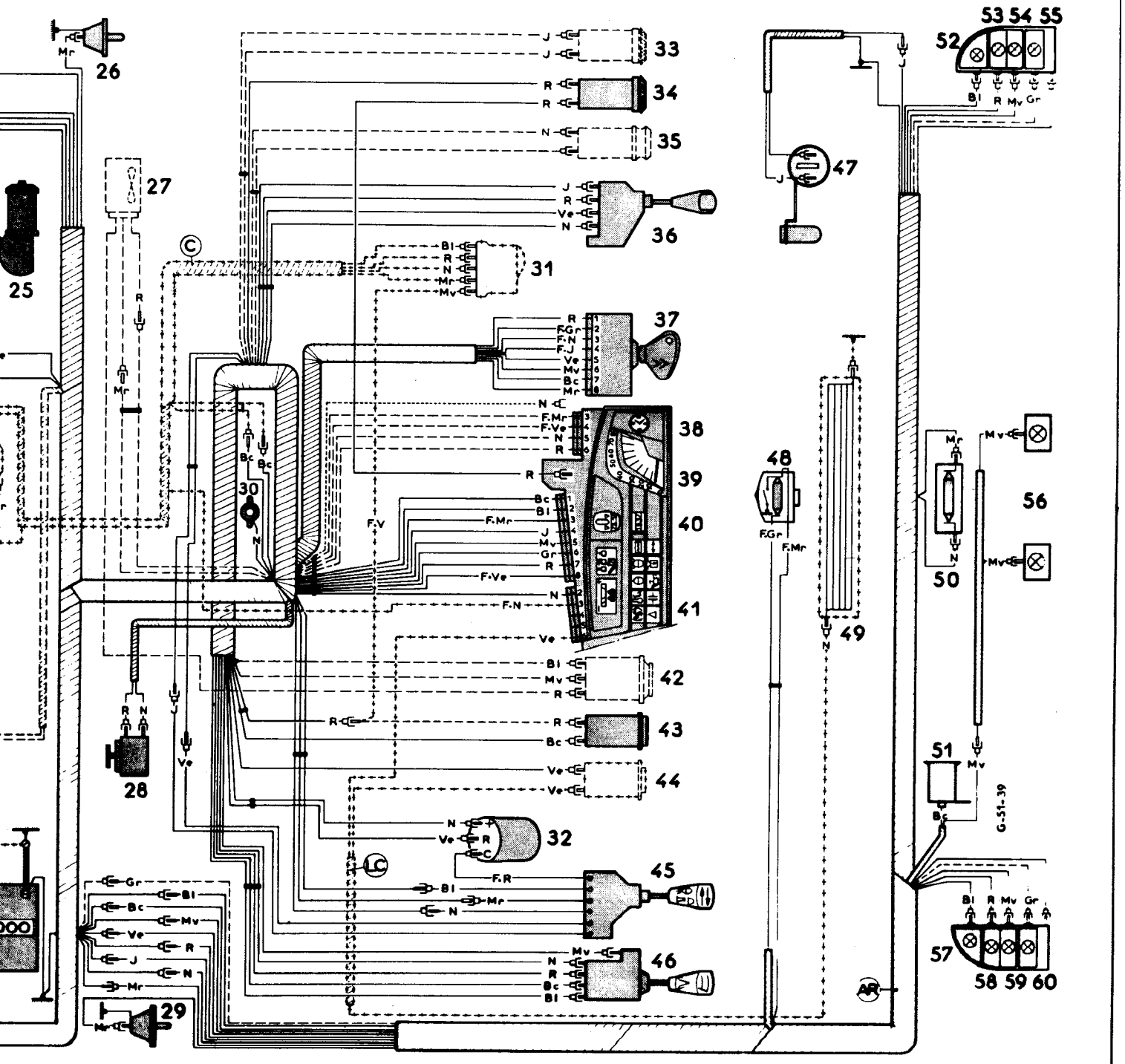

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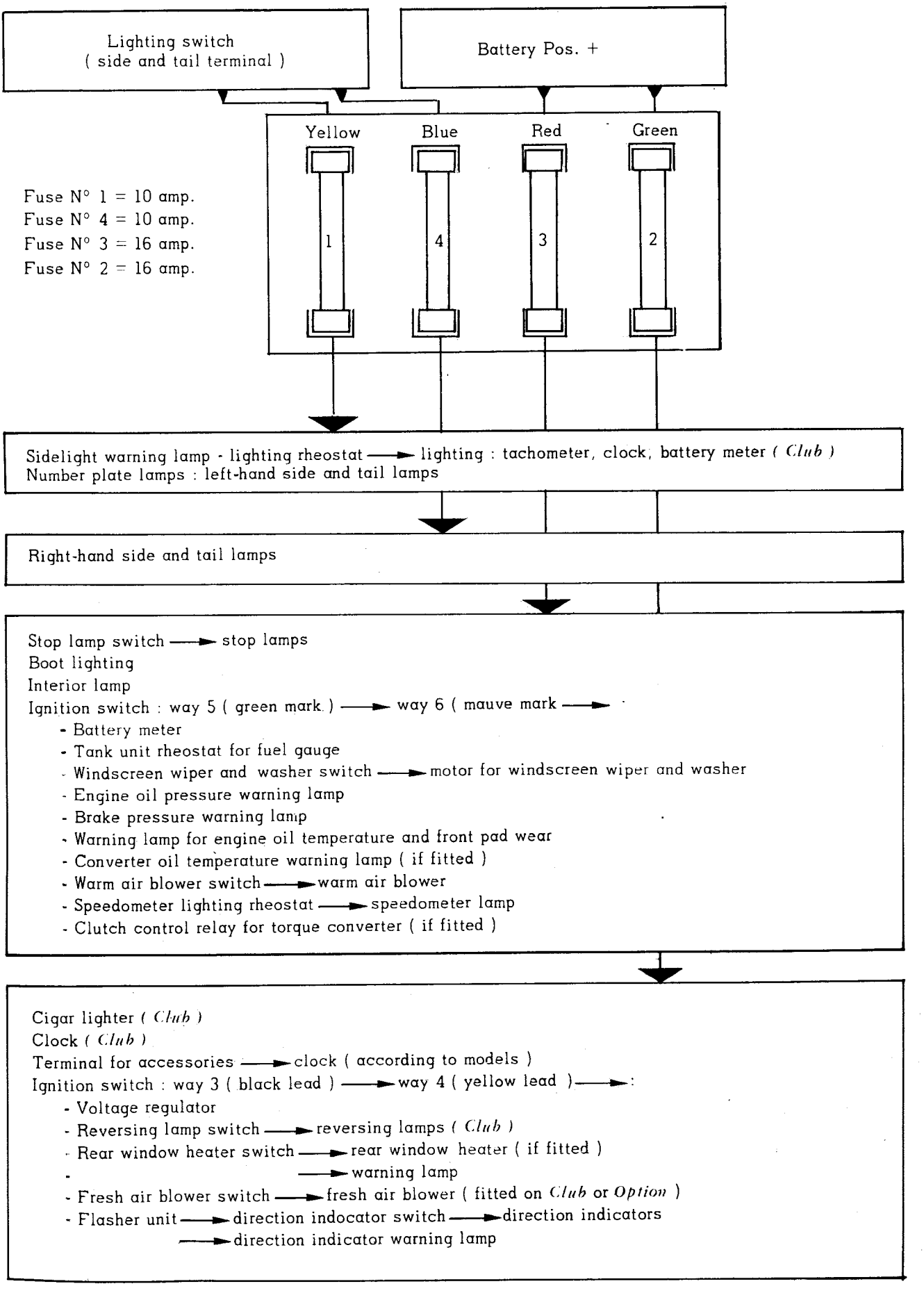
TABLE OF FUSES



« GS » EXPORT VEHICLES FOR ALL COUNTRIES INTRODUCED UNTIL FEBRUARY 1972 EXCEPT :
Western Germany, Belgium, Denmark, Italy, Norway, Switzerland,
The Netherlands, Austria and RHD Vehicles

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter-motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Manual 810-1

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e.g. F gr. = grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers (65) and (60)

b) Read the position of the brake lamps (65) and (60) in the list of components : position (15) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (15) and (16) in which the lamps (65) and (60) are situated.
- The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch (32) (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 19).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main or dipped beams	2	P.45.t41	12 V	45/40 W	R. 136-15	
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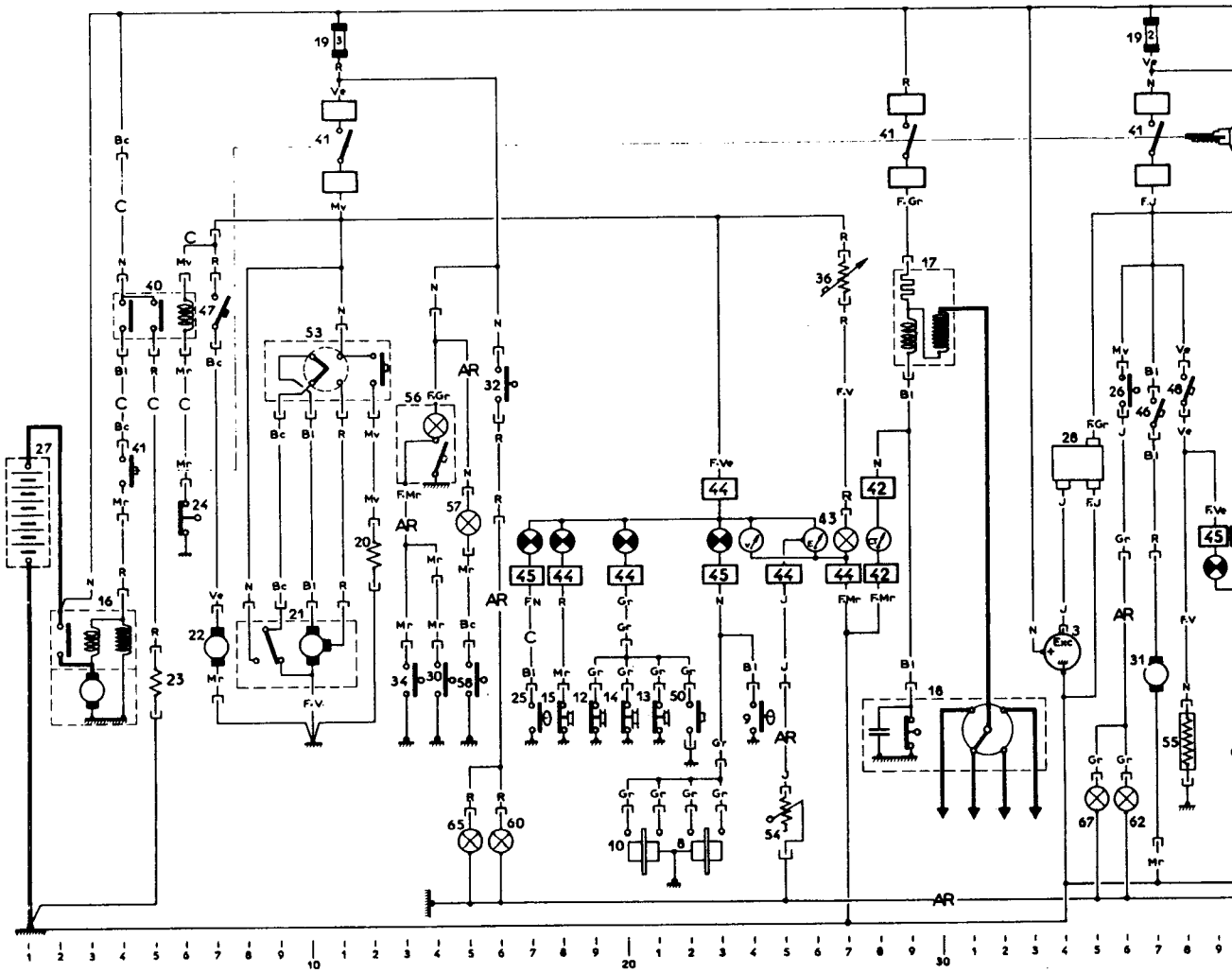
Front dir. indicators Rear dir. indicaros Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15 s/19	12 V	21 W	R. 136-12	P. 25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA.15s/19	12 V	5 W	R. 136-13	R.19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C-11
Mileage indicator lamp *(Confort)*	1	BA. 9 s	12 V	2 W	R. 136-34	T 8/2
Speedometer lamp	1	BA. 9 s	14 V	4 W	R. 136-33	
Tachometer and clock light *(Club)* Lighting for battery indicator and fuel gauge *(Club)* *Warning lamps for :* - engine oil pressure - brake pressure - sidelamps - headlamps - direction indicators - engine oil temp. - brake pad wear *and optional:* - heated rear window - converter oil temp. - heating - 20° C (-4° F)	1 1 1 1 1 1 1 1 1 1 1 1	NO (Wedge base type) Tubular 10 mm dis.	12 V	2 W		

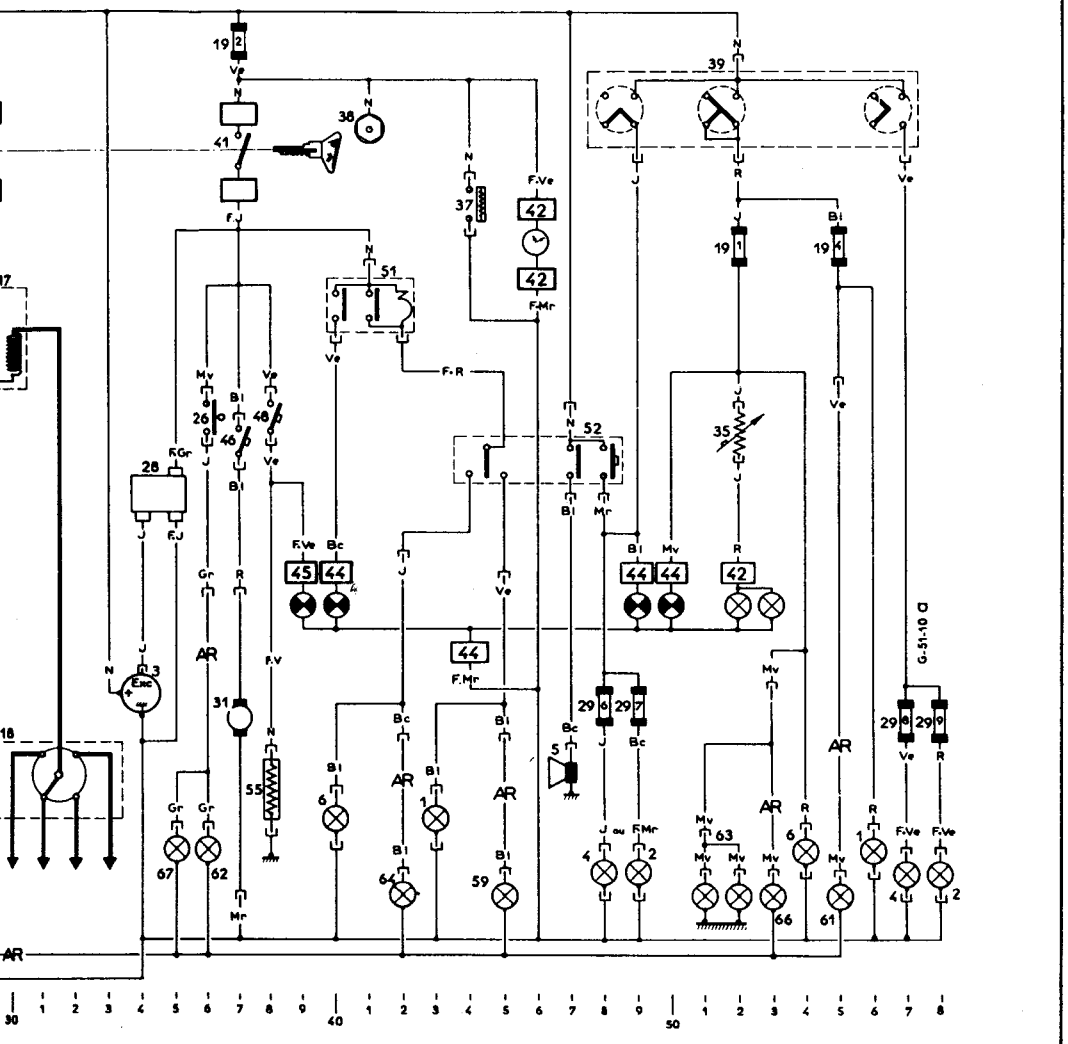
Colour Code
Bc : White
Bl : Blue
Gr : Grey
J : Yellow
Mr : Brown
Mv : Mauve
N : Black
R : Red
Ve : Green



Ref.	Description	Position
1	Front lamp cluster, R.H :	
	- dir. indicator	43
	- sidelamp	56
2	Front headlamp, RH :	
	- Main beam	49
	- Dip	58
3	Alternator	34
4	Front headlamp, LH :	
	- Main beam	48
	- Dip	57
5	Horn (s)	47
6	Front lamp cluster, LH :	
	- dir. indicator	40
	- sidelamp	54
8	Brake unit, RH	22 - 23
9	Switch for eng. oil temp. waming lamp	24
10	Brake unit, LH	20 - 21
12	Front brake, leak detector	19
13	Rear brake, leak detector	21

Ref.	Description	Position
14	Switch for hydr. pressure warning lamp	20
15	Switch for eng. oil pressure warning lamp	18
16	Starter motor	2 to 4
17	Coil, ignition	29-30
18	Distributor	29
19	Fuse box, forward	11-37-52-55
20	Pump for screenwash	12
21	Motor for screenwiper	8 to 11
22	Warm air blower	7
23	Solenoid valve for converter clutch	5
24	Control switch unit on gearbox (*Converter*)	6
25	Switch for conv. oil temp. warning lamp	17
26	Switch for reversing lamps	36
27	Battery	1
28	Voltage regulator	34-35
29	Fusebox, rear	48-49-57-58
30	Switch,door pillar RH (*Club*)	14

Ref.	Description
31	Blower fresh air (*Option* (fitted on *Club*)
32	Switch for stoplamps
34	Switch, door pillar LH,
35	Rheostat for tachometer, cl
36	Rheostat for speedometer
37	Cigarette-lighter
38	Accessory terminal
39	Lighting switch (Side, Tail Dip)
40	Relay for torque converter
41	Switch for anti-theft
42	6-way connecting-block, R panel :
	- Feed for tachometer (
	- Earth for tachometer (way 3)
	- Feed for clock (way
	- To tachometer and cl (way 6)



Key to Symbols

Wiring connector
Connection block
Fuse
Switch, manual
Switch, mechanical
Switch, thermal
Switch, pressure
Coil, winding
Resistor
Rheostat
Capacitor
Dial instrument
Motor, electr.
Lighting
Warning lamp

Wiring harnesses

Without mark : Front
AR : Rear
C : Torque converter
FV : Flying lead

NOTE : *Ref.* = Identification N° of component on circuit diagram and wiring diagram.
Position : = Figure of vertica line numbered along lower edg on circuit diagram.

.	Description	Position
	Blower fresh air (*Option*)	
	(fitted on *Club*)	37
	Switch for stoplamps	16
	Switch, door pillar LH,	13
	Rheostat for tachometer, clock (*Club*)	52
	Rheostat for speedometer	27
	Cigarette-lighter	44
	Accessory terminal	41
	Lighting switch (Side, Tail, Main, Dip)	49 to57
	Relay for torque converter *(Option)*	4 to 6
	Switch for anti-theft	4-11-29- 37
	6-way connecting-block, RH on facia panel :	
	- Feed for tachometer (way 5)	28
	- Earth for tachometer and clock (way 3)	28-46
	- Feed for clock (way 4)	46
	- To tachometer and clock lighting (way 6)	52

Ref.	Description	Position
43	Speedometer lighting	27
44	8-way connecting-block on facia panel :	
	- Feed for printed circuit (way 8)	23
	- Warning lamp, eng. oil press. (way 7)	18
	- Warning lamp-hydr.press. (way 6)	20
	- Fuel gauge (way 4)	25
	- Earth for printed circuit (way 3)	27-44
	- Warning lamp, dir. indic. (way 1)	40
	- Warning lamp, headlamp main beam (way 2)	49
	- Warning lamp side and tail lamp (way 5)	50
45	6-way connecting-block, LH, on facia panel :	
	- Warning lamp, conv. oil temp. (way 3)	17
	- Warning lamp. eng. oil temp. and front pad wear (way 2)	23
	- Warning lamp, rear window heater (if fitted) (way 6)	39
46	Switch for fresh air blower (if fitted)	37
47	Switch for warm air blower	7

Ref.	Description	Position
48	Switch for rear window heater (if fitted)	38
50	Check button for warning lamps (Sweden)	22
51	Flasher unit	40 to 42
52	Switch for direct. indic., horn, headl. flashers	44 to 48
53	Switch for windscreen wiper and washer	9 to 12
54	Tank unit rheost. for fuel gauge	25
55	Heater for rear window (if fitted)	38
56	Interior lamp	13-14
57	Boot lamp (Saloon)	15
58	Switch for boot lamp (Saloon)	15
59	Rear direction indicator. RH	45
60	Stoplamp, RH	16
61	Tail lamp, RH	55
62	Reversing lamp, RH (Club)	36
63	Number plate lamps	51-52
64	Rear direction indicator, LH	42
65	Stoplamp, LH	15
66	Tail lamp, LH	53
67	Reversing lamp, LH (Club)	35

Colour Code

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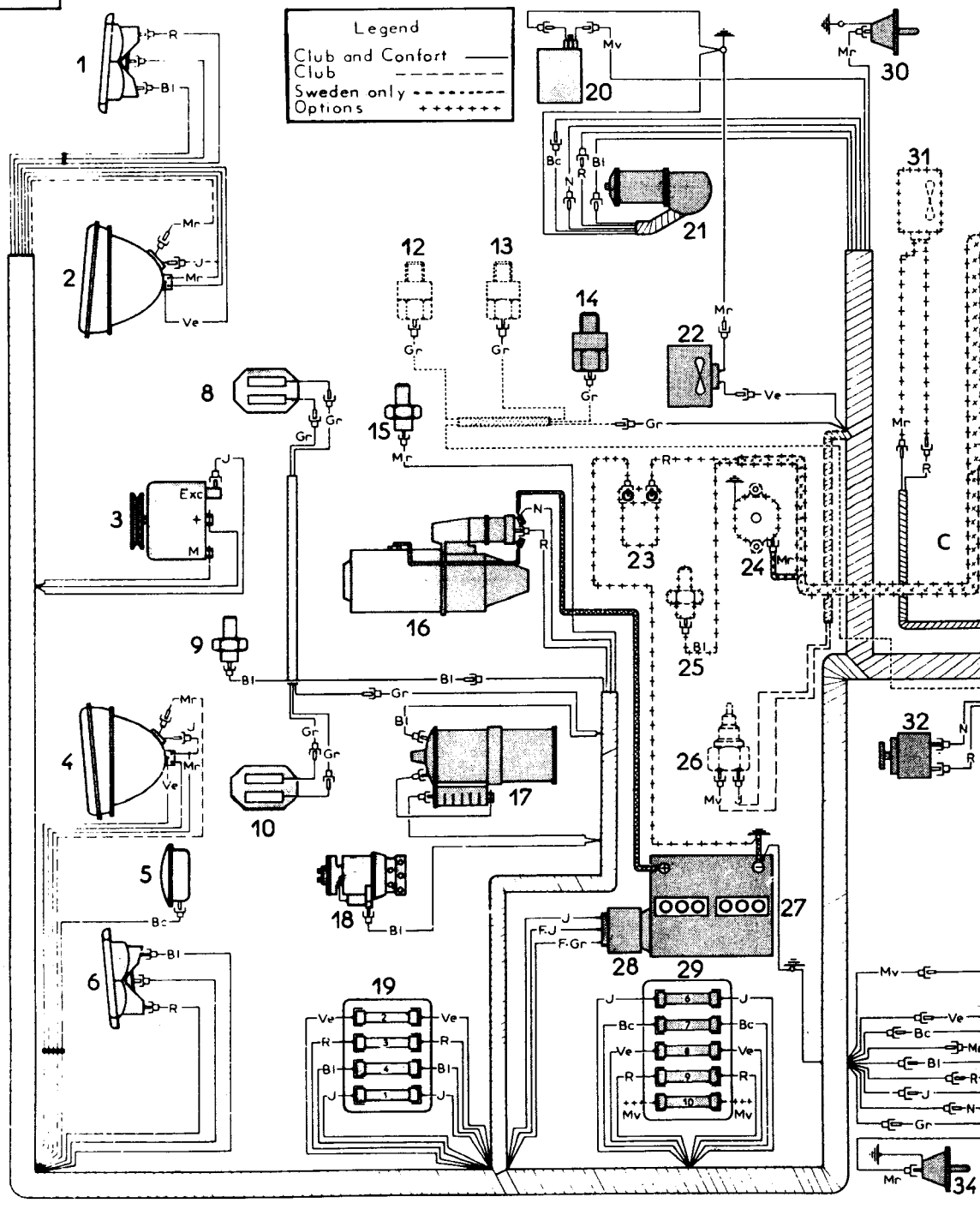
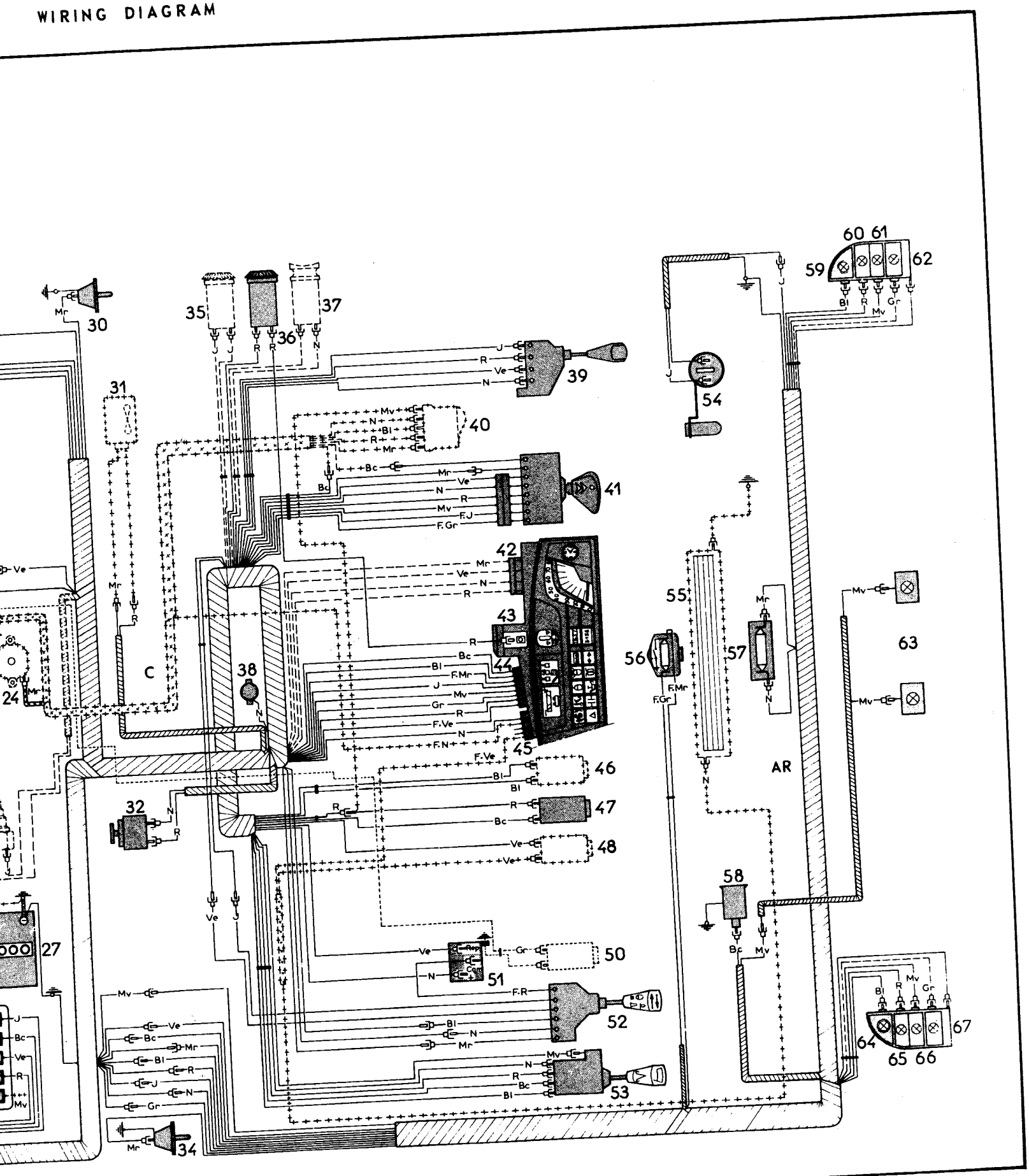
Bl : Blue	Mv : Mauve
Gr : Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F + symbol = Insulation colour



WIRING DIAGRAM



" GS " ALL R.H. D. MODELS INTRODUCED SINCE MARCH 1971

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter-motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram, note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Manual 810-1

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None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- - The sleeve colour identifies a lead
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- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers **(62)** and **(60)**

b) Read the position of the brake lamps **(62)** and **(60)** in the list of components : position (17) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (17) and (16) in which the lamps **(62)** and **(60)** are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch **(29)** (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° **14**).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French standard	International standard
Main dipped beams (only dip filament used on Club)	2	P.45 T. 41	12 V	45/40 W	R. 136-15	
Q.I. headlamps (main beam) *(Club)*	2	P. 14.5	12 V	55 W	R. 136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15 s/19	12 V	21 W	R. 136-12	P.25/1
Front sidelamps Tail lamps Number plate lamps	2 2 2	BA. 15s/19	12 V	5 W	R. 136	R. 19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	
Speedometer lamp	1	BA. 9 s	12 V	4 W		
Tachometer and clock lamp	1	BA.9 s	12 V	2 W	R. 136-34	T 8/2
Warning lamps for : - Engine oil pressure - Brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. / - Brake pad wear *and optional :* - Heated rear window - Converter oil temp.	 1 1 1 1 1 1 1 1	BA. 9 s	12 V	2 W	R. 136-34	T 8/2

Colour Code
Bc : White
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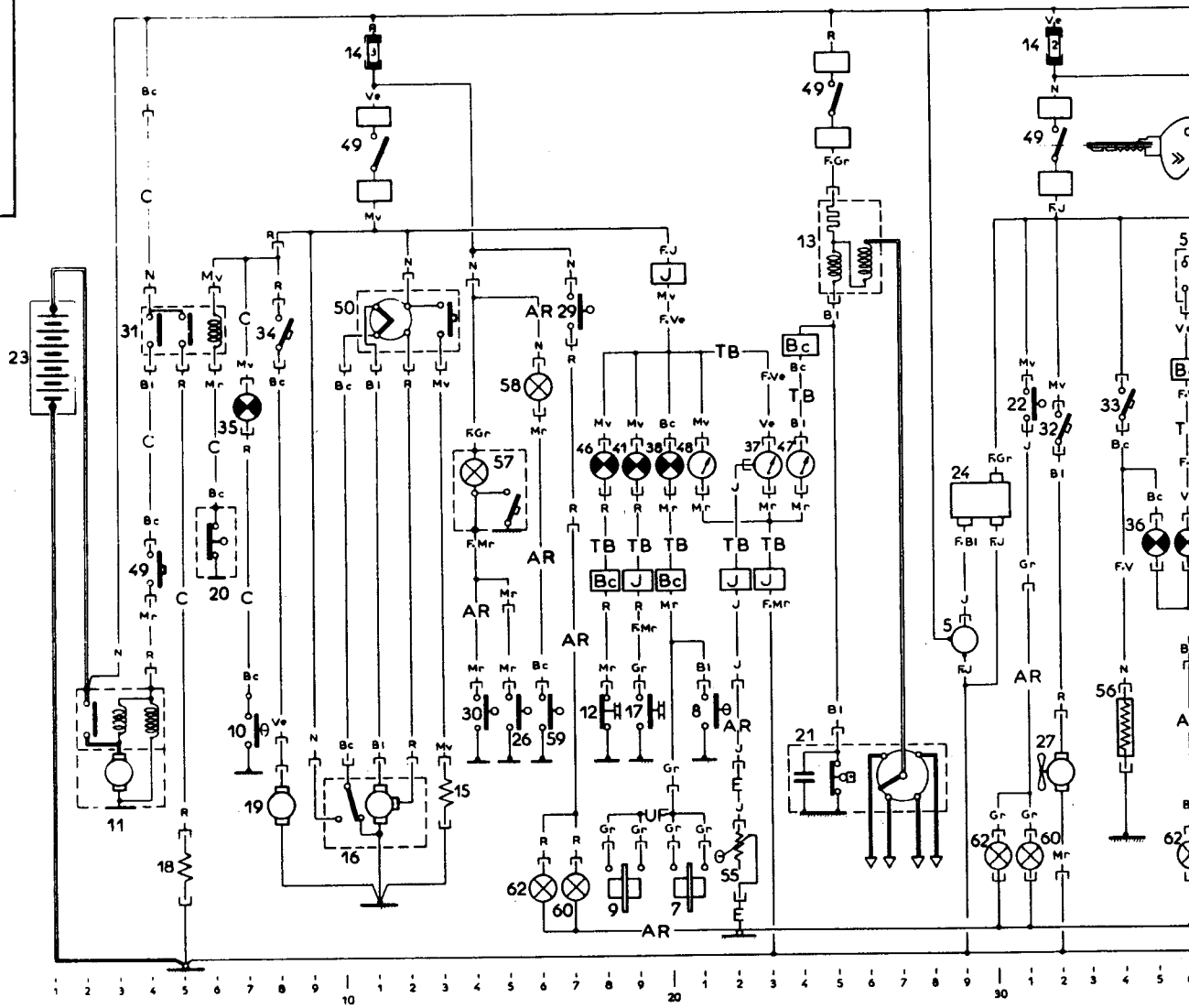
J : Yellow
Mr : Brown
Mv : Mauve
N : Black
R : Red
Ve : Green



Ref.	Description	Position
1	Front lamp cluster R.H. :	
	- dir. indicator	39
	- sidelamp	53
2	Front headlamp R.H. :	
	- main beam	45
	- dip	56
3	Front headlamp L.H. :	
	- main beam	44
	- dip	55
4	Front lamp cluster L.H. :	
	- direction indicator	37
	- sidelamp	52
5	Alternator	29
6	Horn (s)	40
7	Brake unit, R.H.	20. 21
8	Switch for eng.oil temp.warning lamp	21
9	Brake unit, L.H.	18. 19

Ref.	Description	Position
10	Switch for T. conv. oil temp. warning lamp (T.C. option)	7
11	Starter motor	3
12	Switch for eng. oil pressure warning lamp	18
13	Coil, ignition	25
14	Fusebox (forward)	49.32.10. 53
15	Pump for screenwash	13
16	Motor, screenwiper	11
17	Switch for hyd.pressure warning lamp	19
18	Solenoid valve for converter clutch (T-C option)	5
19	Blower, warm air	8
20	Control-switch unit on gearbox (T-C option)	6
21	Distributor	25
22	Switch for reversing lamps (Club)	31
23	Battery	1

Ref.	Description
24	Voltage regulator
25	Fusebox (headlamp fuses)
26	Switch (door pillar R.H)
27	Blower, fresh air
28	Accessory terminal
29	Switch for stoplamps
30	Switch (door pillar L.H
31	Relay for torque-conv.
32	Switch for fresh air blo
33	Switch for rear window
34	Switch for warm air blo
35	Warning lamp T-Conv.oi
36	Warning lamp, rear win
	(if fitted)
37	Fuel gauge
38	Warning lamp, ft. pad w
	oil temp.

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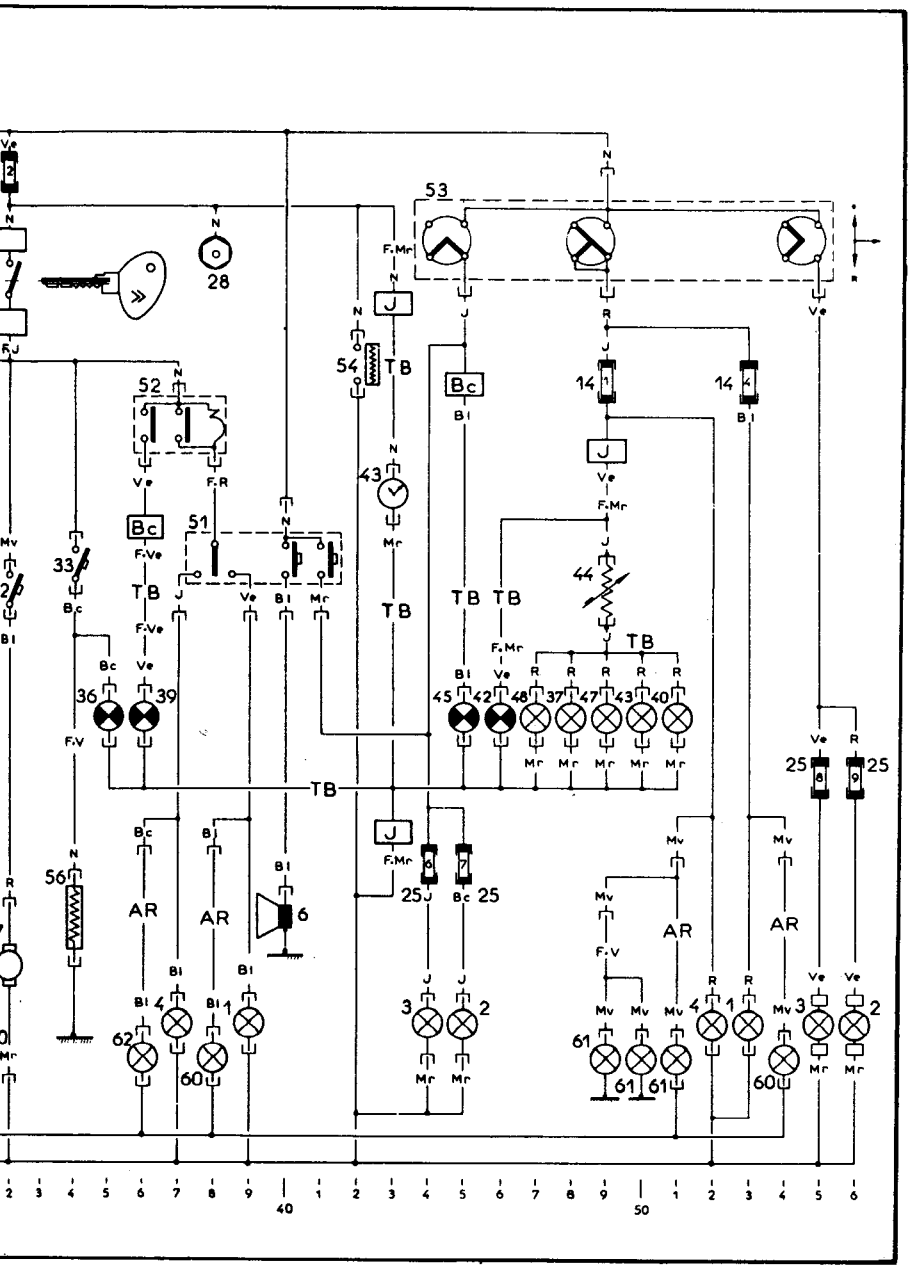


Key to Symbols

- Wiring connector
- Connection block
- Fuse
- Switch, manual
- Switch, mechanical
- Switch, thermal
- Switch, pressure
- Coil; winding
- Resistor
- Rheostat
- Capacitor
- Dial instrument
- Motor, electric
- Lighting
- Warning lamp

Wiring harnesses

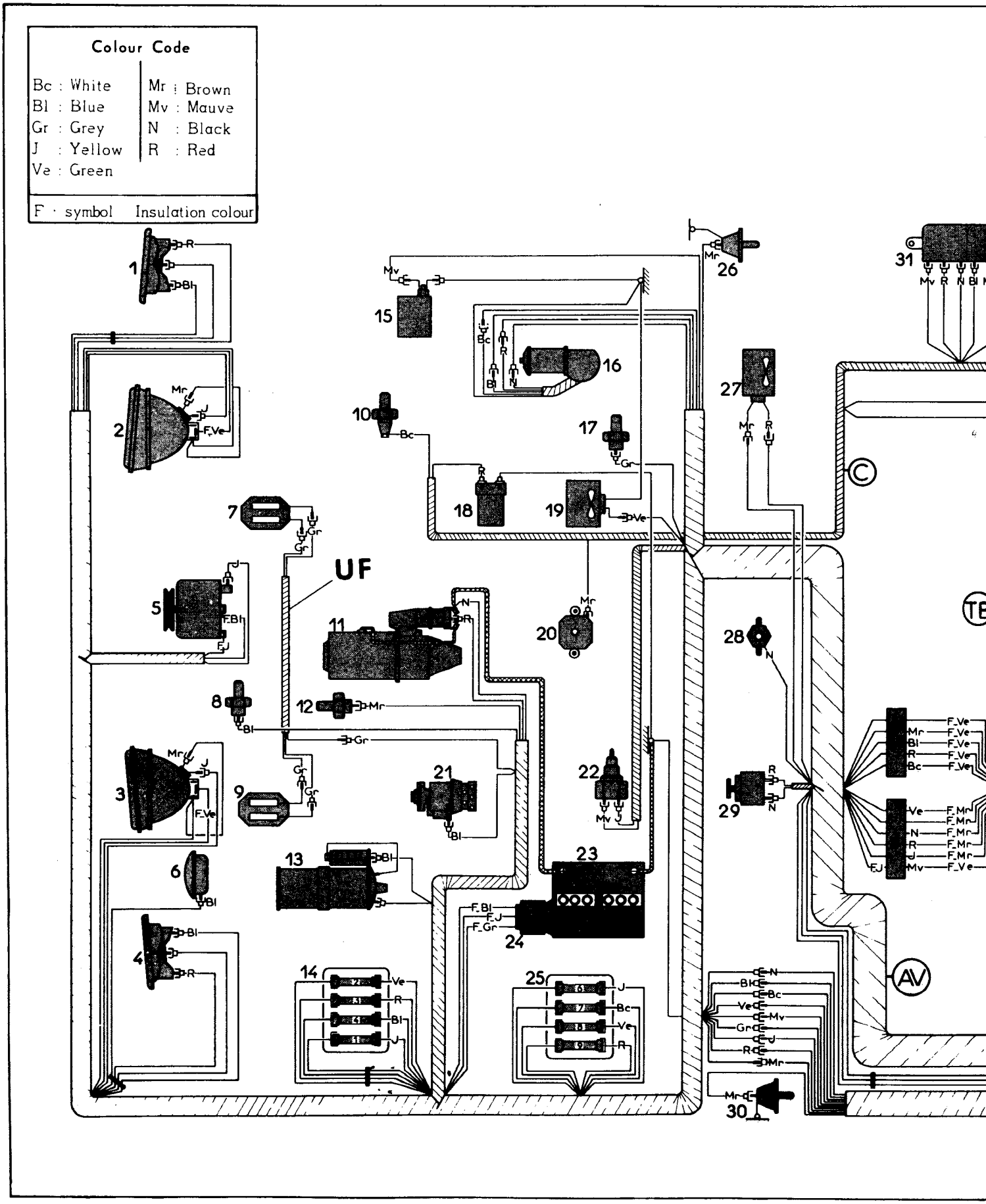
AV : Front harness
AR : Rear harness
C : Torque converter
TB : Instrument panel harness
E : Fuel tank harness
UF : Brake pad wear harness

NOTE : *Ref.* = Identification N° of component on circuit diagram and wiring diagram
Position : = Figure of vertical line numbered along lower edge on circuit diagram.

scription	Position
gulator	29
eadlamp fuses)(rear) 44.45.55.	56
or pillar R.H) for int. lamps	15
esh air	32
terminal	38
stoplamps	17
oor pillar L.H) for int. lamps	14
torque-conv. (T-C option)	4
fresh air blower	32
rear window heater	34
warm air blower	8
mp T-Conv.oil temp. (T-C.op)	7
mp, rear window heater	
)	35
e	23
mp, ft. pad wear and eng.	
	20

Ref.	Description	Position
39	Warning lamp, direction indicators	36
40	Speedometer lighting	51
41	Warning lamp, hydraulic pressure	19
42	Warning lamp, side and tail lamps	46
43	Clock and its lighting	43. 50
44	Rheostat for panel lighting	49
45	Warning lamp, headlamp main beam	45
46	Warning lamp, engine oil pressure	18
47	Tachometer and its lighting	24.49
48	Thermal voltmeter and its lighting	21.47
49	Switch for ignition with anti-theft device	4.11. 25.32
50	Switch for windscreen wiper and washer	11
51	Switch for direction indicators, horn, and headlamp flasher	37 to 41
52	Flasher unit for direction indicators	36
53	Lighting switch (side, tail, main, dip)	44 to 55

Ref.	Description	Position
54	Cigar-lighter	42
55	Tank-unit rheostat for fuel gauge	22
56	Heater for rear window (if fitted)	34
57	Interior lamp	14
58	Boot lamp	16
59	Switch for boot lamp	16
60	Rear lamp cluster R.H. :	
	- Direction indicator	38
	- Stop lamp	17
	- Tail lamp	54
	- Reversing lamp	31
61	Number plate lamps	49.50
62	Rear lamp cluster L.H.	
	- Direction indicator	36
	- Stoplamp	16
	- Tail lamp	51
	- Reversing lamp	30


Colour Code
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Bl : Blue
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Ve : Green
Mr : Brown
Mv : Mauve
N : Black
R : Red
F · symbol Insulation colour
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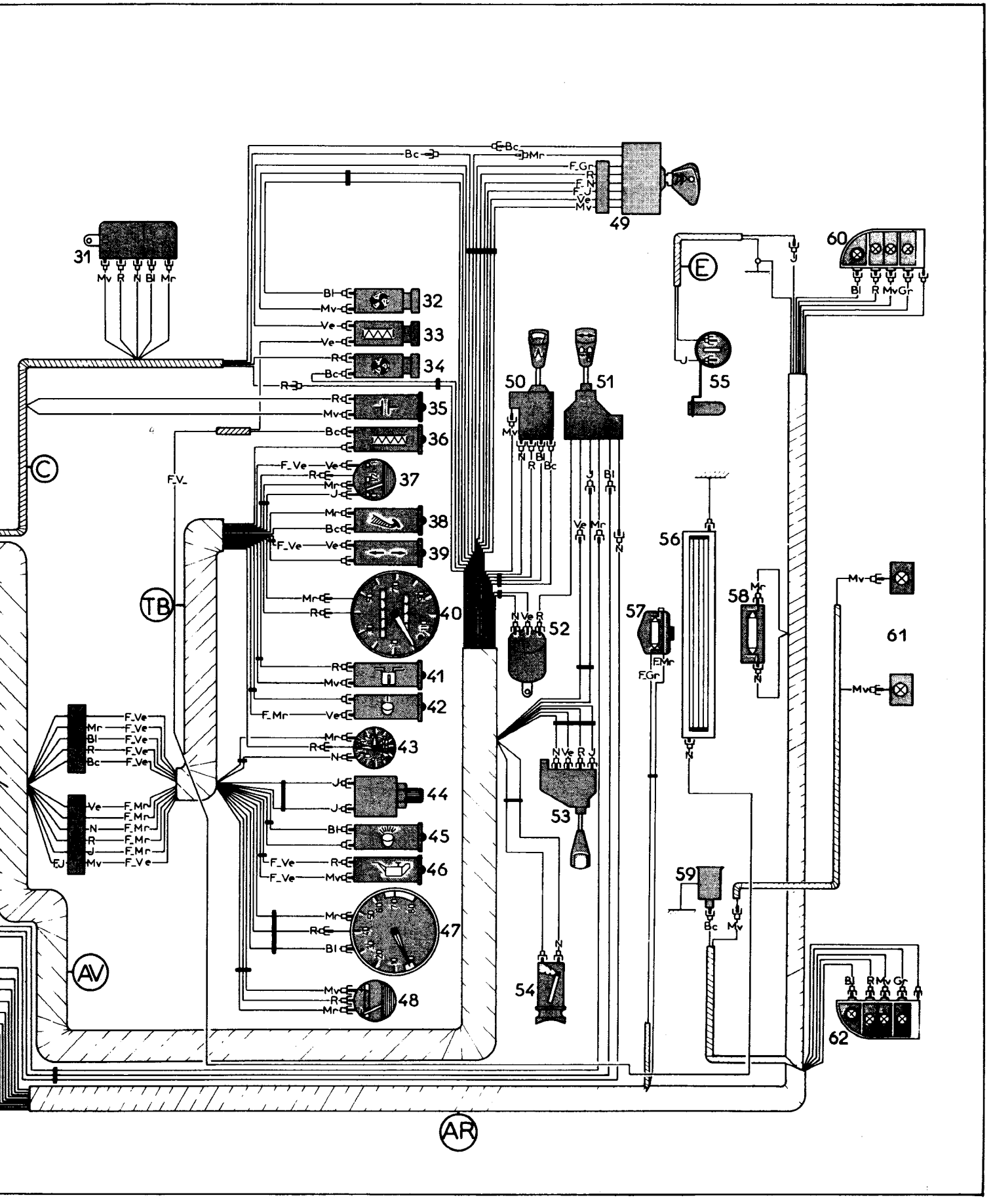
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R 41
Mv
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F_Ve Mv
Mr 47
R
Bl
Mv 48
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50
Mv
N Bl R Bc
51
J Bl
Ve Mr N
52
N Ve R
53
N Ve R J
54
N
55
E
J
60
J
Bl R Mv Gr
56
N
57
F_Mr
F_Gr
58
Mr
N
Mv
61
Mv
62
Bl R Mv Gr
59
Bc Mv
F_Ve
Mr R Bl F_Ve
Bc F_Ve
Ve F_Mr
F_Mr
N F_Mr
R F_Mr
J F_Mr
EJ Mv F_Ve
C
F_V_
TB
AV
AR

FUSES

There are two fuseboxes, each containing four fuses, on the inner valance of the LH front wing, adjacent to the battery.

FRONT BOX (Ref. 14)

List of fuses and items protected

1. Yellow marking (10 A)
Front and rear LH sidelamps
Number plate lighting
Clock lighting *
Tachometer lighting *
Battery indicator lighting *
Fuel gauge lighting *
Side and tail lamps warning lamp
Speedometer lighting

2. Green marking (16 A)
Direction indicators
Fresh-air blower *
Rear-window heating *
Regulator
Cigarette lighter *
Clock *
Radio *
Reversing lamps *

3. Red marking (16 A)
Battery indicator (charging indicator)
Fuel gauge
Windscreen wipers
Windscreen washer
Oil pressure warning lamp
Hydraulic pressure warning lamp
Torque convertor oil temperature warning lamp *
Engine oil temperature and brake pad wear warning lamp
Stop lamps
Boot lighting (on Saloon)
Interior lamp
Torque converter-clutch relay *
Heater blower *

4. Blue marking (10 A)
Front and rear R.H. sidelamps

REAR BOX (Ref 25)

6. Green marking (16 A)
Headlamp Dipped beam L.H.

7. Red marking (16 A)
Headlamp Dipped beam, R.H

8. Yellow marking (16 A)
Headlamp Main beam, L.H.

9. White marking (16 A)
Headlamp Main beam, R.H.

Items not protected by fuses :

Horns
Starter Solenoid
Clutch Solenoid (T-C)
Coil
Tachometer
Feed for headlamp flasher
Main beam warning lamp

* *If fitted*

« GS » ALL R.H.D. MODELS INTRODUCED SINCE SEPTEMBER 1973

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter-motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram, note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Manual 810-1

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e:g. F gr. = grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers (62) and (60)

b) Read the position of the brake lamps (62) and (60) in the list of components : position (17) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (17) and (16) in which the lamps (62) and (60) are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch (29) (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 14).

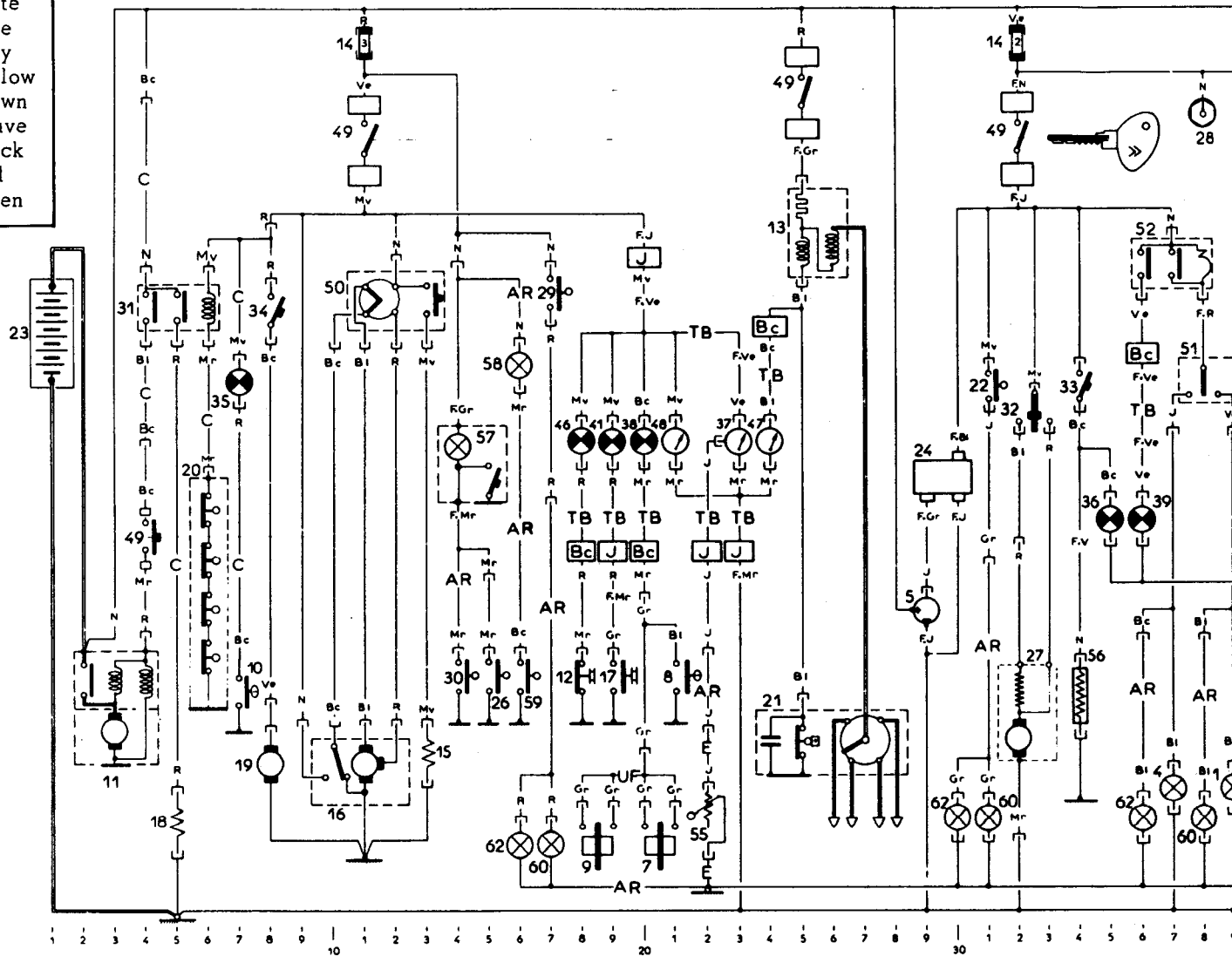
d) Ensure correct operation of each component and continuity of the leads and lead junctions.

TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main dipped beams (only dip filament used on Club)	2	P.45. t. 41	12 V	45/40 W	R. 136-15	
Q.I. headlamps (main beam) *(Club)*	2	P. 14,5 s	12 V	55 W	R. 136-16	
Front dir. indicatos Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15 s/19	12 V	21 W	R. 136-12	P.25/1
Front sidelamps Tail lamps Number plate lamps	2 2 2	BA.15 s/19	12 V	5 W	R. 136-13	R. 19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C. 11
Speedometer lamp	1	BA. 9 s	12 V	4 W		
Tachometer and clock light Lighting for battery indicator and fuel gauge *Warning lamps for :* - Engine oil pressure - Brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. and brake pad wear *and optional :* - Heated rear window - Converter oil temp.	2 2 1 1 1 1 1 1 1 1	BA. 9 S	12 V	2 W	R. 136-34	T 8/2

Colour Code

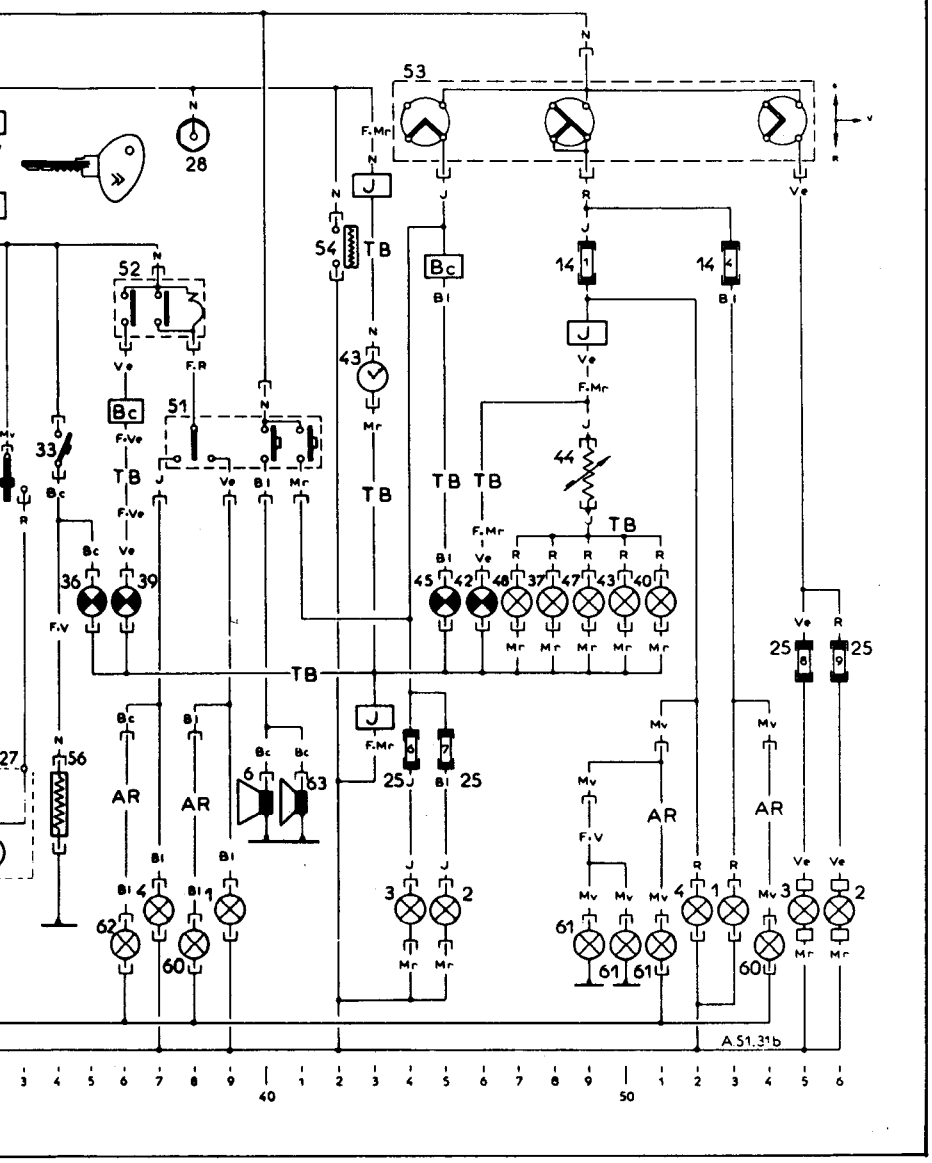
Bc : White
Bl : Blue
Gr : Grey
J : Yellow
Mr : Brown
Mv : Mauve
N : Black
R : Red
Ve : Green



Ref.	Description	Position
1	Front lamp cluster, R.H. :	
	• dir. indicator	39
	• sidelamp	53
2	Front headlamp R.H. :	
	- main beam	45
	- dip	56
3	Front headlamp L.H. :	
	• main beam	44
	- dip	55
4	Front lamp cluster L.H. :	
	- direction indicator	37
	- sidelamp	52
5	Alternator	29
6	First horn	40
7	Brake unit, R.H.	20.21
8	Switch for eng.oil temp. warning lamp	21
9	Brake unit, L.H.	18.19
10	Switch for T. conv. oil temp. warning lamp (T.C. option)	7

Ref.	Description	Position
11	Starter motor	3
12	Switch for eng. oil pressure warning lamp	18
13	Coil, ignition	25
14	Fusebox (foward)	49.32.10.53
15	Pump for screenwash	13
16	Motor, screenwiper	11
17	Switch for hydr. pressure warning lamp	19
18	Solenoid valve for converter clutch (T.C. option)	5
19	Blower, warm air	8
20	Control-switch unit on gearbox (T.C. option)	6
21	Distributor	25
22	Switch for reversing lamps (Club)	31
23	Battery	1
24	Voltage regulator	29

Ref..	Description
25	Fusebox (headlamp fuses) (re
	4
26	Switch (door pillar R.H.) for in
27	Blower, fresh air
28	Accessory terminal
29	Switch for stoplamps
30	Switch (door pillar L.H.) for in
31	Relay for torque conv. (T.C. op
32	Switch for fresh air blower
33	Switch for rear window heater
34	Switch for warm air blower
35	Warning lamp T. Conv. oil temp.
36	Warning lamp, rear window heate
	(if fitted)
37	Fuel gauge
38	Warning lamp, ft. pad wear and
	oil temp.



Key to Symbols

- Wiring connector
- Connection block
- Fuse
- Switch, manual
- Switch, mechanical
- Switch, thermal
- Switch, pressure
- Coil, winding
- Resistor
- Rheostat
- Capacitor
- Dial instrument
- Motor electric
- Lighting
- Warning lamp

Wiring harnesses

AV : Front harness
AR : Rear harness
C : Torque converter
TB : Instrument panel harness
E : Fuel tank harness
UF : Brake pad wear harness
FV : Flying lead

NOTE : *Ref* = Identification N° of component on circuit diagram and wiring diagram.
Position = Figure of vertical line numbered along lower edge on circuit diagram.

escription	Position
(headlamp fuses) (rear)	
.....	44.45.55.56
door pillar R.H.) for int lamps	15
resh air	32
y terminal	38
r stoplamps	17
door pillar L.H.) for int. lamps	14
torque conv. (T.C. option)...	4
r fresh air blower	32.33
r rear window heater	34
r warm air blower	8
amp T. Conv. oil temp.(T-C opt.)	7
amp, rear window heater	
)	35
ge	23
amp, ft. pad wear and eng.	
.....	20

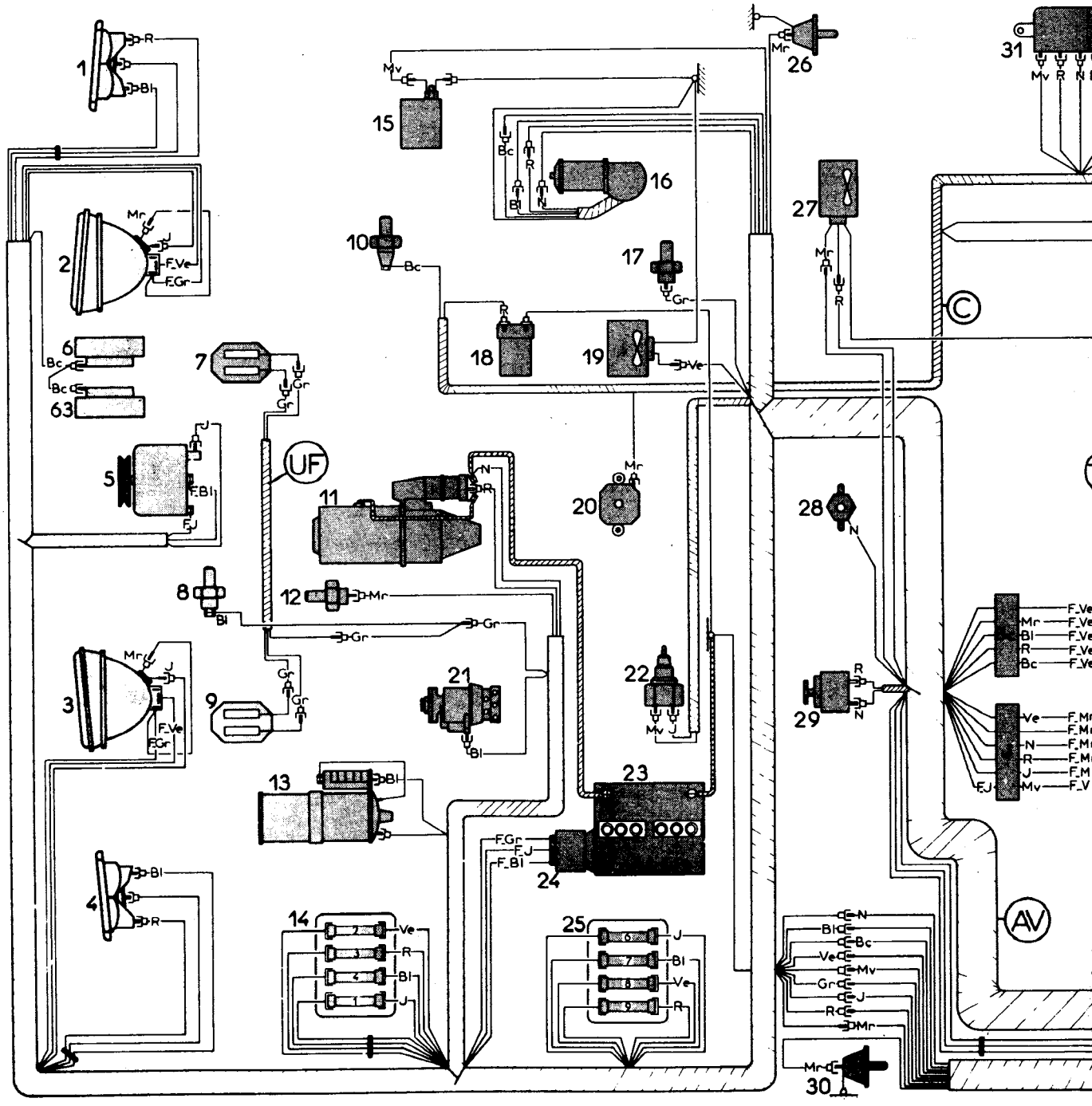
Ref.	Description	Position
39	Warning lamp, direction indicators	36
40	Speedometer lighting	51
41	Warning lamp, hydraulic pressure	19
42	Warning lamp, side and tail lamps	46
43	Clock and its lighting	43. 50
44	Rheostat for panel lighting	49
45	Warning lamp, headlamp main beam ...	45
46	Warning lamp, engine oil pressure	18
47	Tachometer and its lighting	24. 49
48	Thermal voltmeter and its lighting	21. 47
49	Switch for ignition with anti-theft device	4.11.25.32
50	Switch for windscreen wiper and washer	11
51	Switch for direction indicators, horn, and headlamp flasher	37 to 41
52	Flasher unit for direction indicators ...	36

Ref.	Description	Position
53	Lighting switch (side, tail, main, dip)	44 to 55
54	Cigar-lighter	42
55	Tank-unit rheostat for fuel gauge	22
56	Heater for rear window (if fitted)	34
57	Interior lamp	14
58	Boot lamp	16
59	Switch for boot lamp	16
60	Rear lamp cluster R.H. :	
	- Direction indicator	38
	- Stop lamp	17
	- Tail lamp	54
	- Reversing lamp	31
61	Number plate lamps	49. 50
62	Rear lamp cluster L.H. :	
	- Direction indicator	36
	- Stoplamp	16
	- Tail lamp	51
	- Reversing lamp	30
63	Second horn	41

Colour Code

Bc : White	Mr : Brown
Bl : Blue	Mv : Mauve
Gr ; Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F + symbol = Insulation colour



ING DIAGRAM (« G » Models RHD September 1973 ⟶)

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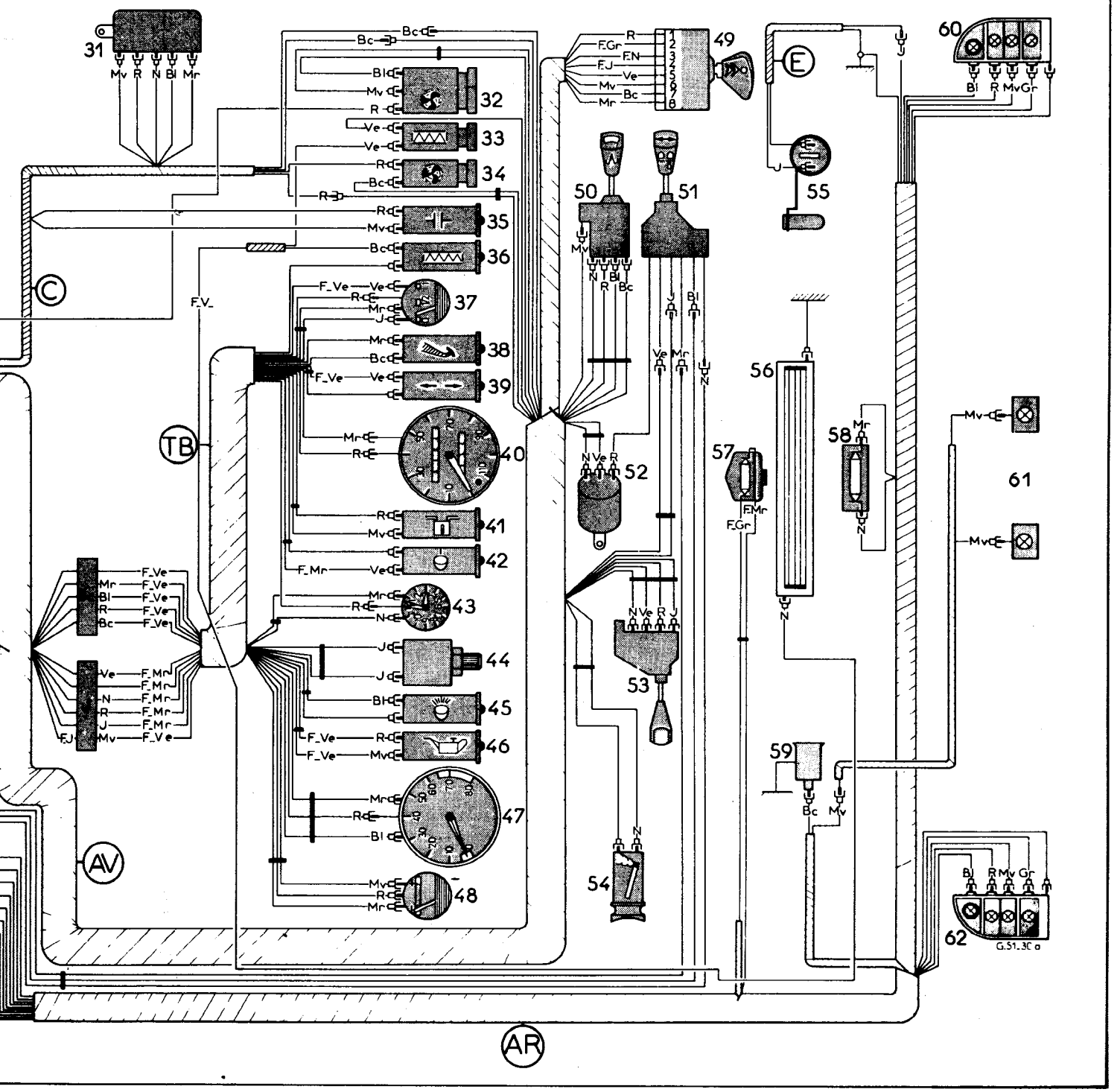


FUSES

There are two fuseboxes, each containing four fuses, on the inner valance of the LH front wing, adjacent to the battery.

FRONT BOX (Ref. 14)

List of fuses and items protected

1. Yellow marking (10 A)
Front and rear LH sidelamps
Number plate lighting
Clock lighting *
Tachometer lighting *
Battery indicator lighting *
Fuel gauge lighting *
Side and tail lamps warning lamp
Speedometer lighting

2. Green marking (16 A)
Direction indicators
Fresh air blower *
Rear-window heating *
Cigarette lighter *
Clock *
Radio *
Reversing lamps *
Accessory terminal

3. Red marking (16 A)
Battery indicator (charging indicator)
Fuel gauge
Windscreen wipers
Windscreen washer
Oil pressure warning lamp
Hydraulic pressure warning lamp
Torque convertor oil temperature warning lamp *
Engine oil temperature and brake pad wear warning lamp
Stop lamps
Boot lighting (on Saloon)
Interior lamp
Torque converter-clutch relay *
Heater blower *

4. Blue marking (10 A)
Front and rear R.H. sidelamps

REAR BOX (Ref. 25)

6. Green marking (16 A)
Headlamp dipped beam L.H.

7. Red marking (16 A)
Headlamp dipped beam R.H.

8. Yellow marking (16 A)
Headlamp main beam L.H.

9. White marking (16 A)
Headlamp main beam R.H.

Items not protected by fuses :

Horns
Starter Solenoid
Clutch Solenoid (T-C)
Coil
Tachometer
Feed for headlamp flasher
Main beam warning lamp

**If fitted*

« GS » EXPORT VEHICLES FOR NORWAY

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter-motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram. follow vertically upwards to find the component number.

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R. Gr. Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e.g. F gr. : grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers **(65)** and **(60)**

b) Read the position of the brake lamps **(65)** and **(60)** in the list of components : position (15) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (15) and (16) in which the lamps **(65)** and **(60)** are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch **(32)** (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 19).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

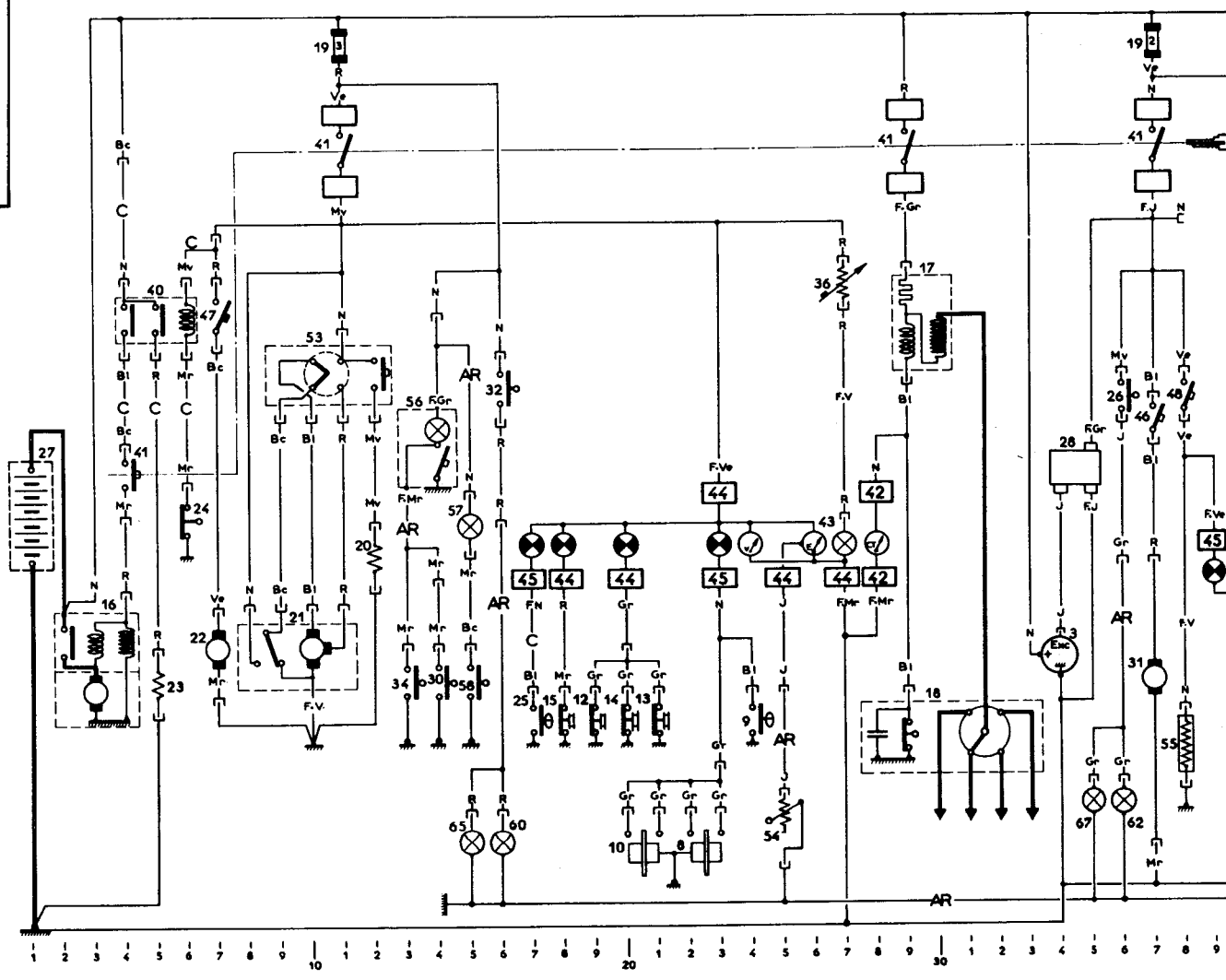
TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French standard	International standard
Main dipped beams	2	P.45 t.41	12 V	45/40 W	R.136-15	
Q.I. headlamps *(Club)*	2	P.45.5 s	12 V	55 W	R.136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15s/19	12 V	21 W	R.136-12	P.25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA.15s/19	12 V	5 W	R.136-13	R.19/5
Interior lamp	1	Festoon	12 V	7 W	R.136-05	
Boot lamp	1	Festoon	12 V	5 W	R.136-14	C-11
Mileage indicator lamp *(Confort)*	1	BA. 9 s	12 V	2 W	R.136-34	T 8/2
Speedometer lamp	1	BA. 9 s	14 V	4 W	R.136-33	
Tachometer and clock lamp *(Club)* Lighting for battery indicator and fuel gauge *(Club)* *Warning lamps for :* - engine oil pressure - brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. - brake pad wear *and optional :* - heated rear window - Converter oil temp. - Heating - 20°C(-4° F)	1 1 1 1 1 1 1 1 1 1 1 1 1	NO (Wedge base type) Tubular 10 mm dia.	12 V	2 W		

WIRING DIAGRAM

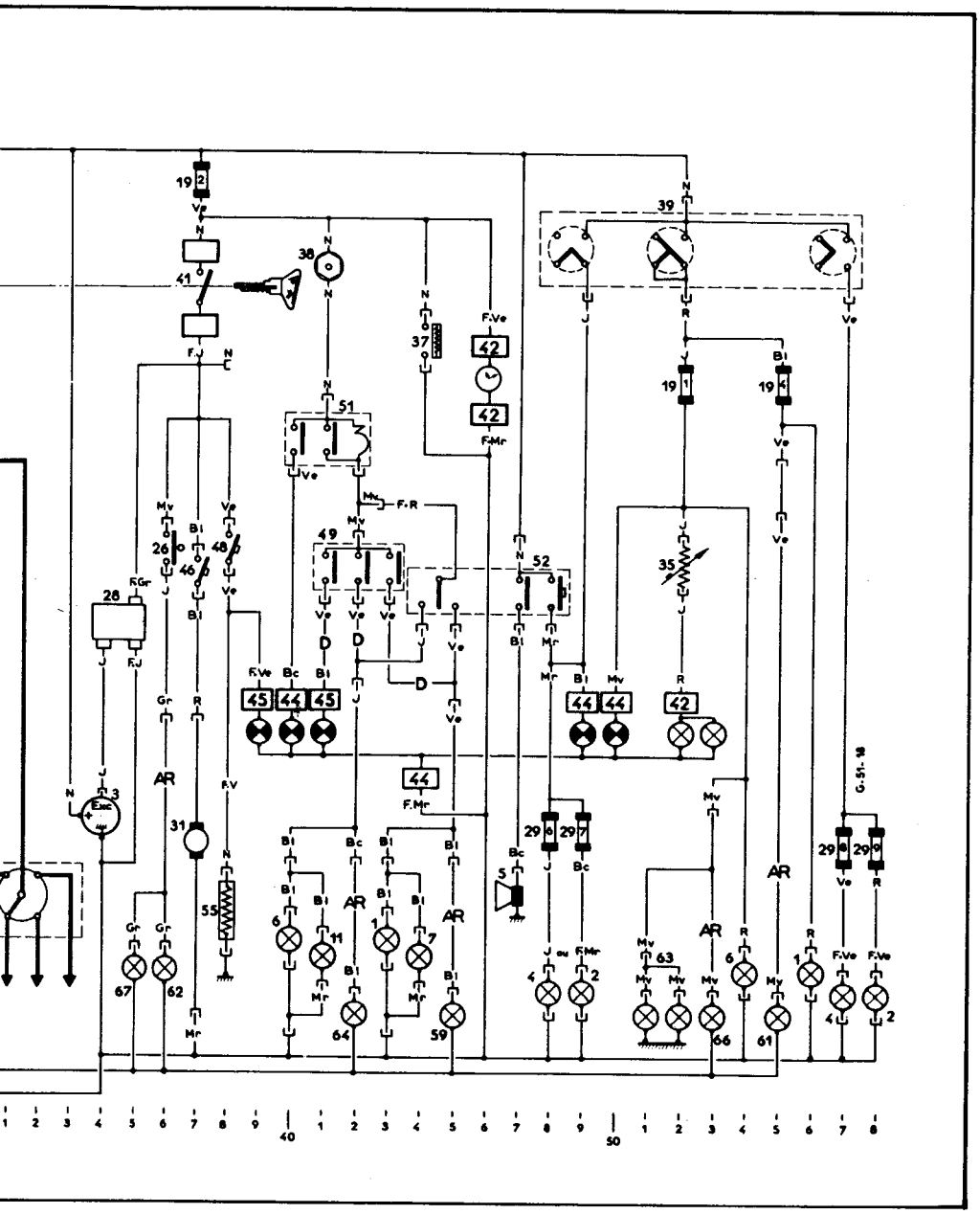
P.T.O.

Colour Code	
Bc	White
Bl	Blue
Gr	Grey
J	Yellow
Mr	Brown
Mv	Mauve
N	Black
R	Red
Ve	Green



LIST OF COMPONENTS

Ref.	Description	Position
1	Front lamp cluster, RH :	
	- Direction indicator	43
	- Sidelamp	56
2	Front headlamp, RH :	
	- Main beam	49
	- Dip	58
3	Alternator	34
4	Front headlamp, LH	
	- Main beam	48
	- Dip	57
5	Horn (s)	47
6	Front lamp cluster, LH :	
	- Direction indicator	40
	- Sidelamp	54
7	Warning lamp, direction indicator RH	40
8	Brake unit, LH	22. 23
9	Switch for eng. oil temp. warning lamp	24
10	Brake unit, LH	20. 21
11	Warning lamp, direction indic. LH	41
12	Front brake, leak detector	19
13	Rear brake, leak detector	21
14	Switch for hydr. pressure warning lamp	20
15	Switch for eng. oil pressure warning lamp	18
16	Starter motor	2 to 4
17	Coil, Ignition	29. 30
18	Distributor	29
19	Fuse box, forward	11.37.52.55
20	Pump for screenwash	12
21	Motor for screenwiper	8 to 11
22	Warm air blower	7
23	Solenoid valve for converter clutch	5
24	Control switch unit on gearbox (Converter)	6
25	Switch for conv. oil temp. warning lamp	17
26	Switch for reversing lamps	36
27	Battery	1
28	Voltage regulator	34. 35
29	Fusebox, rear	48.49.57. 58
30	Switch door pillar RH (Club)	14
31	Blower fresh air (Option) (fitted on Club)	37
32	Switch for stoplamps	16
34	Switch, door pillar LH	
35	Rheostat for tachometer, clo	
36	Rheostat for speedometer	
37	Cigarette-lighter	
38	Accessory terminal	
39	Lighting switch (Side, Tail, Dip)	
40	Relay for torque converter (	
41	Switch for anti-theft	
42	6-way connecting-block, RH	
	- Feed for tachometer (way	
	- Earth for tachometer and c (way 3)	
	- Feed for clock (way 4)	
	- To tachometer and clock l (way 6)	
43	Speedometer lighting	
44	8-way connecting-block on	
	- Feed for printed circuit (	
	- Warning lamp, eng. oil pre	
	- Warning lamp, hydr. pressu	



Key to Symbols

- Wiring connector
- Connection block
- Fuse
- Switch, manual
- Switch, mechanical
- Switch thermal
- Switch pressure
- Coil; winding
- Resistor
- Rheostat
- Capacitor
- Dial instrument
- Motor electric
- Lighting
- Warning lamp

Wiring harnesses

Without mark	: Front
AR	: Rear
C	: Torque converter
D	: Hazard flashers
F.V.	: Flying lead

NOTE : *Ref.* = Identification N° of component on circuit diagram and wiring diagram.
Position = Figure of vertical line numbered along lower edge on circuit diagram.

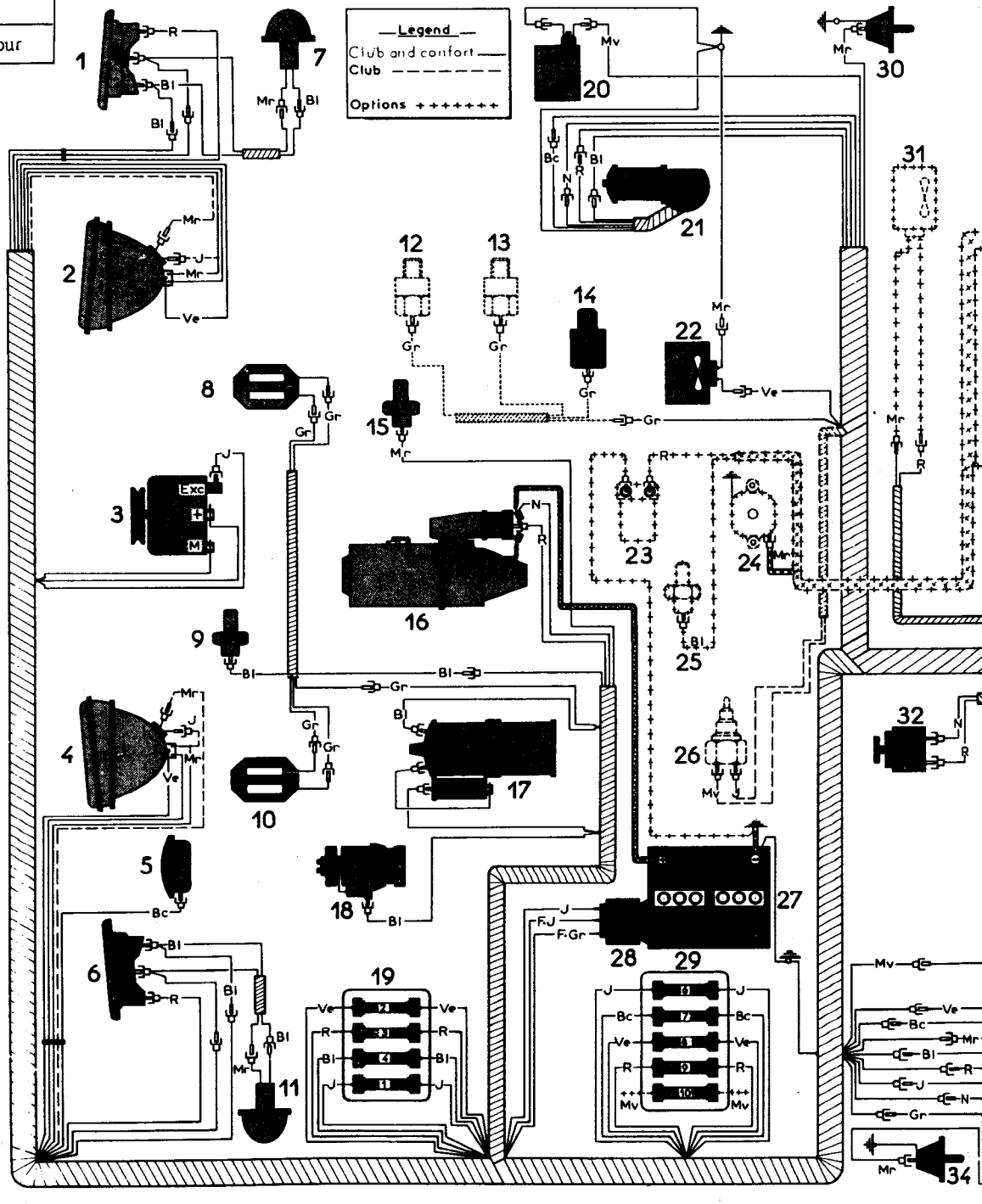
TS

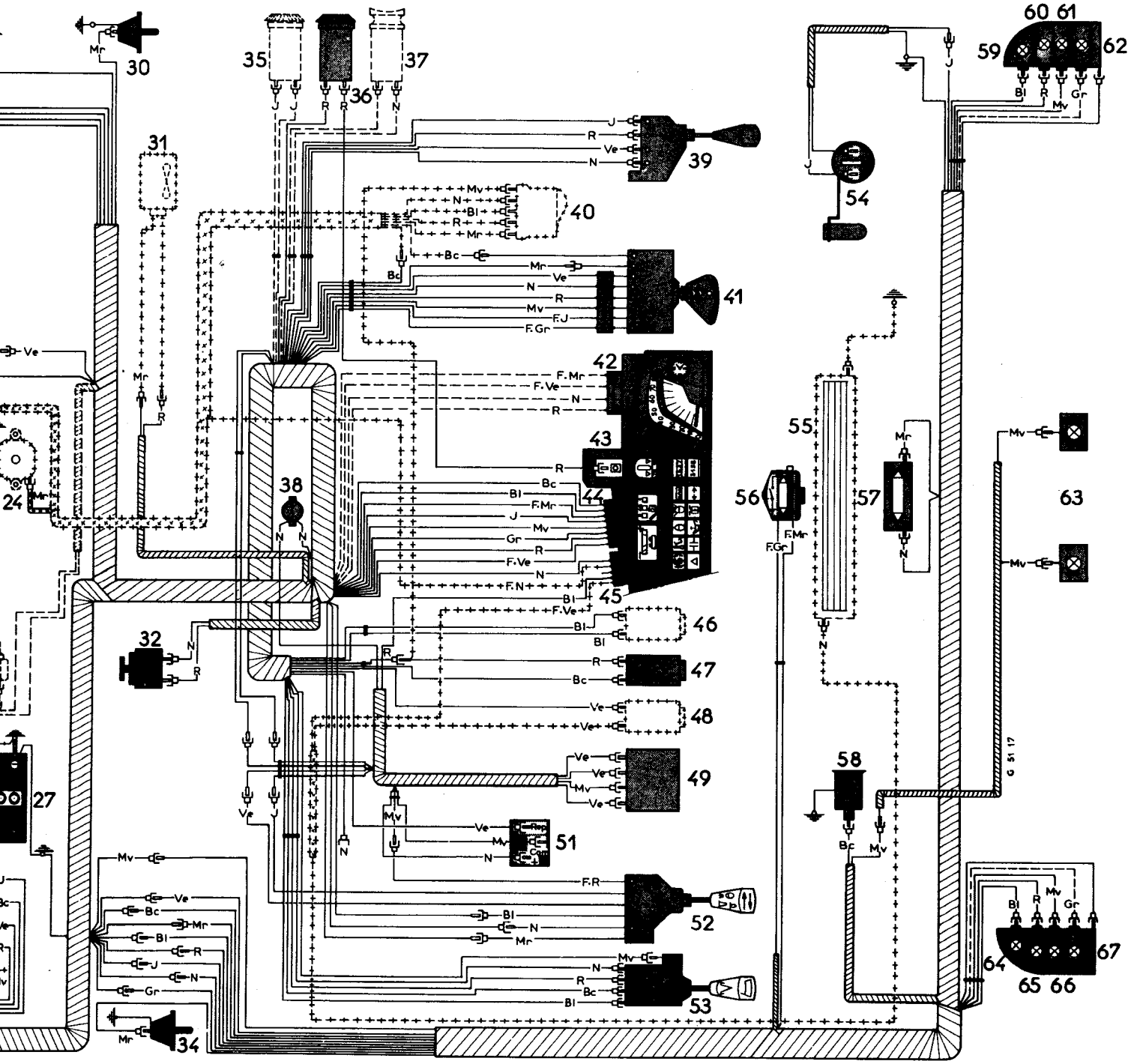
Description	Position	Ref.
vitch, door pillar LH	13	
heostat for tachometer, clock (Club)	52	
heostat for speedometer	27	
garette-lighter	44	
ccessory terminal	41	
ghting switch (Side, Tail, Main, p)	49. 57	
lay for torque converter (Option)	4 to 6	
vitch for anti-theft	4.11.29.37	
way connecting-block, RH on facia panel :		45
Feed for tachometer (way 5)	28	
Earth for tachometer and clock (way 3)	28 - 46	
Feed for clock (way 4)	46	
To tachometer and clock lighting (way 6)	52	
peedometer lighting	27	
way connecting-block on facia panel :		
Feed for printed circuit (way 8)	23	
Warning lamp, eng. oil pressure (way 7)	18	46
Warning lamp, hydr. pressure (way 6)	20	47
- Fuel gauge (way 4)	25	48
- Earth for printed circuit (way 3)	27. 44	49
- Warning lamp, direction indicators (way 1)	40	51
- Warning lamp, headlamp main beam (way 2)	49	52
- Warning lamp, side and tail lamp (way 5)	50	53
6-way connecting-block, LH, on facia panel :		54
- Warning lamp, converter oil temp. (way 3)	17	55
- Warning lamp, eng. oil temp. and front pad wear (way 2)	23	56
- Warning lamp, rear window heater (if fitted) (way 6)	39	57
- Warning lamp, hazard flashers (way 5)	41	58
Switch for fresh air blower (if fitted)	37	59
Switch for warm air blower	7	60
Switch for rear window heater (if fitted)	38	61
Switch for hazard flashers	42	62
Flasher unit	40 to 42	63
Switch for direct. indicator, horn, headlamp flashers	44 to 48	64
Switch for windscreen wiper and washer	9 to 12	65
Tank unit rheostat for fuel gauge	25	66
Heater for rear window (if fitted)	38	67
Interior lamp	13. 14	
Boot lamp (Saloon)	15	
Switch for boot lamp (Saloon)	15	
Rear direction indicator, RH	45	
Stoplamp, RH	16	
Tail lamp, RH	55	
Reversing lamp, RH (Club)	36	
Number plate lamps	51. 52	
Rear direction indicator, LH	42	
Stoplamp, LH	15	
Tail lamp, LH	53	
Reversing lamp, LH (Club)	35	

Colour Code

Bc : White	Mr : Brown
Bl : Blue	Mv : Mauve
Gr : Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F + symbol = Insulation colour

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« GS » EXPORT VEHICLES FOR GERMANY, BELGIUM, THE NETHERLANDS

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter-motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Manual 810-1

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e.g. F gr. = grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers **(65)** and **(60)**

b) Read the position of the brake lamps **(65)** and **(60)** in the list of components : position (15) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (15) and (16) in which the lamps **(65)** and **(60)** are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch **(32)** (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 19).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

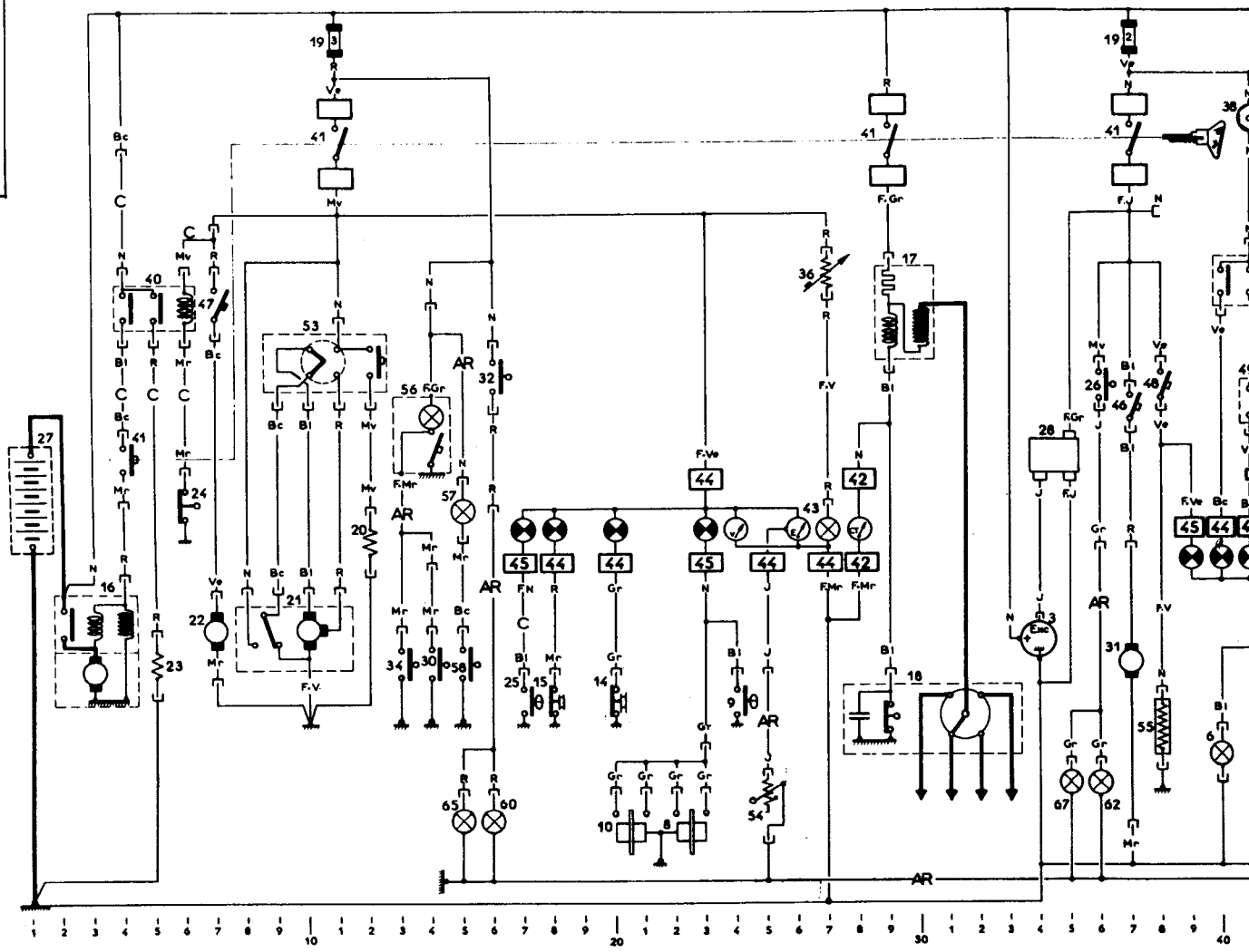
TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main or dipped beams	2	P.45 t 41	12 V	45/40 W	R. 136-15	
Q.I. headlamps (*Club*)	2	P. 14.5	12 V	55 W	R. 136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps (*Club*)	2 2 2 2	BA.15 s/19	12 V	21 W	R. 136-12	P 25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA. 15 s/19	12 V	5 W	R. 136-13	R. 19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C°11
Mileage indicator lamp (Confort)	1	BA. 9 s	12 V	2 W	R. 136-34	T 8/2
Speedometer lamp	1	BA. 9 s	14 V	4 W	R. 136-33	
Tachometer and clock lamp (*Club*)	1	NO (Wedge base type) Tubular 10 mm dia.	12 V	2 W		
Lighting for battery indicator and fuel gauge (*Club*)	1					
Warning lamps for :						
- engine oil pressure	1					
- brake pressure	1					
- Sidelamps	1					
- Headlamps	1					
- Direction indicators	1					
- Engine oil temp.	1					
- brake pad wear	1					
and optional :						
- heated rear window	1					
- Converter oil temp.	1					
- Heating – 20° C (–4° F)	1					

WIRING DIAGRAM

P.T.O.

Colour Code
Bc : White
Bl ; Blue
Gr : Grey
J : Yellow
Mr : Brown
Mv : Mauve
N : Black
R : Red
Ve : Green



Ref.	Description	Position
1	Front lamp cluster, RH :	
	- Direction indicator	43
	- Sidelamp	56
2	Front headlamp, RH :	
	- Main beam	49
	- Dip	58
3	Alternator	34
4	Front headlamp, LH :	
	- Main beam	48
	- Dip	57
5	Horn (s)	47
6	Front lamp cluster, LH :	
	- Direction indicator	40
	- Sidelamp	54
8	Brake unit, RH	22. 23
9	Switch for eng. oil temp. warning lamp	24
10	Brake unit, LH	20. 21
14	Switch for hydr. pressure warning lamp	20
15	Switch for eng. oil pressure warning lamp	28

Ref.	Description	Position
16	Starter motor	2 to 4
17	Coil; ignition	29.30
18	Distributor	29
19	Fuse box, forward	11.37.52.55
20	Pump for screenwash	12
21	Motor for screenwiper	8 to 11
22	Warm air blower	7
23	Solenoid valve for converter clutch	5
24	Control switch unit on gearbox (Converter)	6
25	Switch for conv. oil temp. warning lamp	17
26	Switch for reversing lamps	36
27	Battery	1
28	Voltage regulator	34.35
29	Fuse box, rear	48.49.57.58
30	Switch, door pillar RH (Club)	14
31	Blower fresh air (Option) (fitted on Club)	37
32	Switch for stoplamps	16
34	Switch, door pillar LH	13

Ref.	Description
35	Rheostat for tachometer, clock (Cl
36	Rheostat for speedometer
37	Cigarette-lighter
38	Accessory terminal
39	Lighting switch (Side, Tail, Main, Dip)
40	Relay for torque converter (Option
41	Switch for anti-theft
42	6-way connecting-block, RH on fa panel :
	- Feed for tachometer (way 5)
	- Earth for tachometer and clock (way 3)
	- Feed for clock (way 4)
	- To tachometer and clock lighting (way 6)
43	Speedometer lighting
44	8-way connecting-block on facia p
	- Feed for printed circuit (way 8

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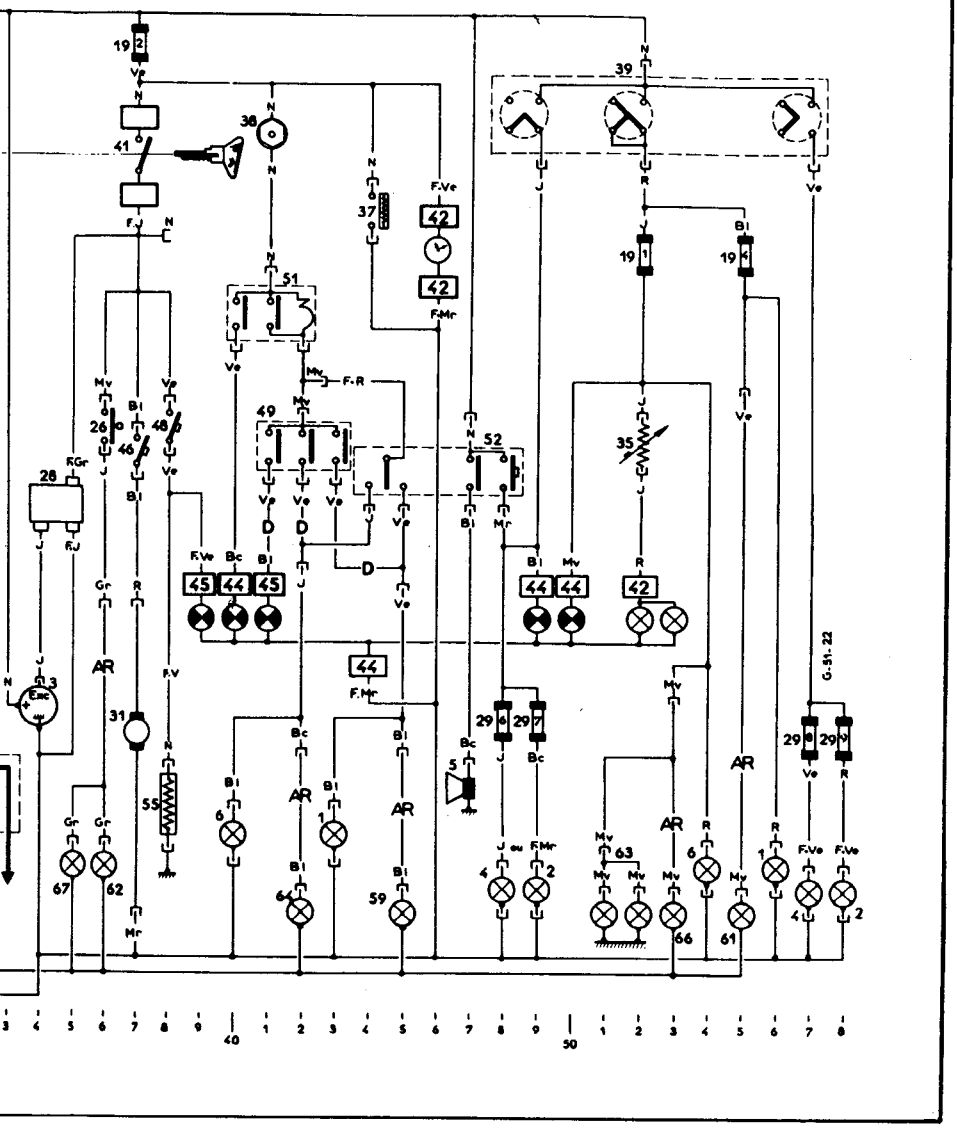


Key to Symbols

- Wiring connector
- Connection block
- Fuse
- Switch, manual
- Switch, mechanical
- Switch, thermal
- Switch, pressure
- Coil; winding
- Resistor
- Rheostat
- Capacitor
- Dial instrument
- Motor, electric
- Lighting
- Warning lamp

Wiring harnesses

Without mark : Front

AR : Rear

C : Torque converter

D : Hazard flashers

F.V. : Flying lead

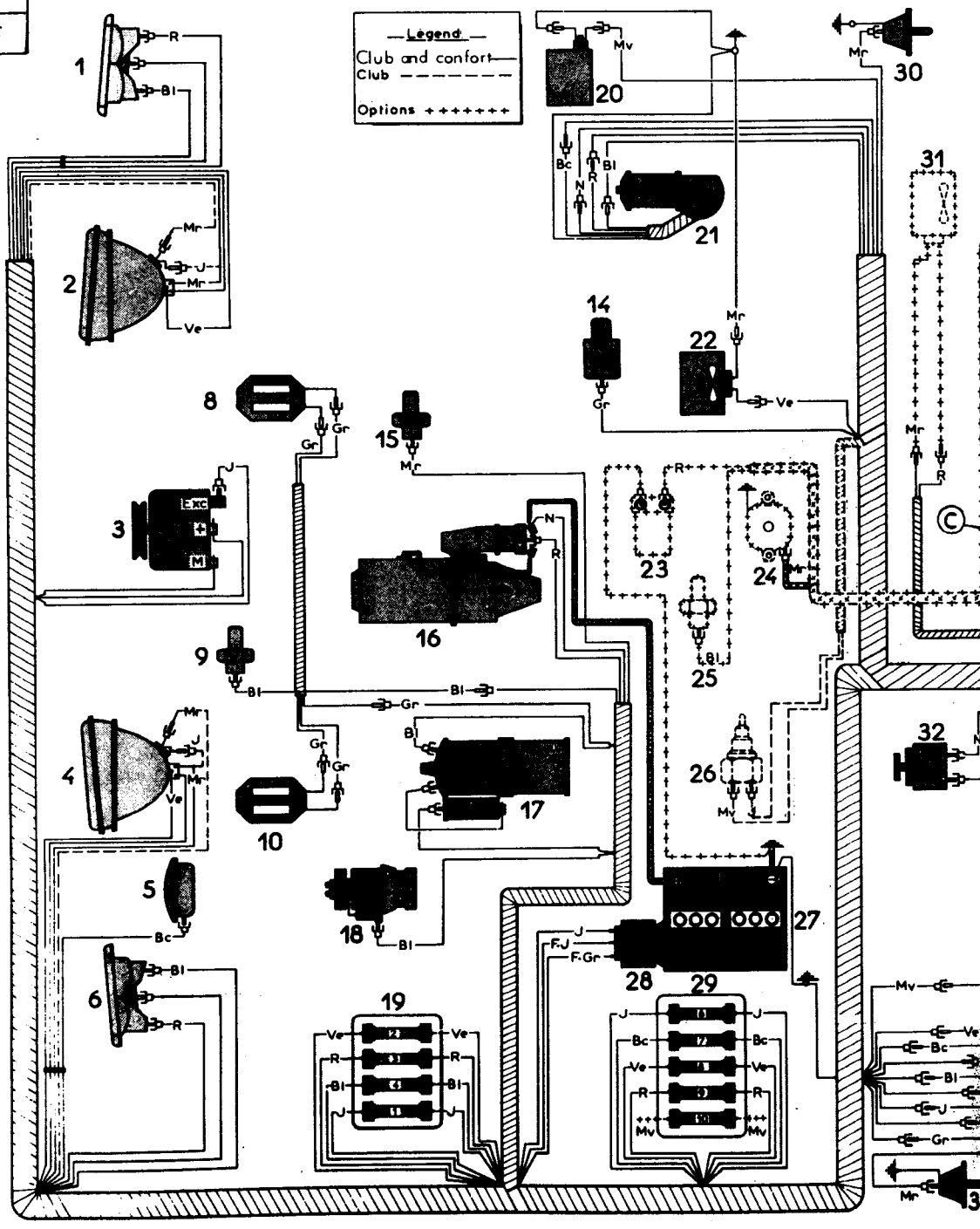
NOTE : *Ref.* = Identification N° of component on circuit diagram and wiring diagram
Position = Figure of vertical line numbered along lower edge on circuit diagram.

Description	Position	Ref.
for tachometer, clock (Club)	52	
for speedometer	27	
e-lighter	44	
y terminal	41	
switch (Side, Tail, Main,	49 to 57	
torque converter (Option)	4 to 6	
r anti-theft	4.11.29.37	
nnecting-block, RH on facia		
r tachometer (way 5)	28	
or tachometer and clock)	28.46	45
r clock (way 4)	46	
ometer and clock lighting)	52	
eter lighting	27	
nnecting-block on facia panel :		
r printed circuit (way 8)	23	
- Warning lamp, engine oil pressure (way 7)	18	
- Warning lamp, hydr. pressure (way 6)	20	
- Fuel gauge (way 4)	25	
- Earth for printed circuit (way 3)	27. 44	
- Warning lamp, direction indicators (way 1)	40	
- Warning lamp, headlamp main beam (way 2)	49	
- Warning lamp, side and tail lamp (way 5)	50	
6-way connecting-block, LH, on facia panel :		
- Warning lamp, converter oil temp. (way 3)	17	
- Warning lamp, eng. oil temp. and front pad wear (way 2)	23	
- Warning lamp rear window heater (if fitted) (way 6)	39	
- Warning lamp, hazard flashers (way 5)	41	
46 Switch for fresh air blower (if fitted)	37	
47 Switch for warm air blower	7	
48 Switch for rear window heater (if fitted)	38	
49 Switch for hazard flashers	42	
51 Flasher unit	40 to 42	
52 Switch for direc. indicator, horn, headl. flashers	44 to 48	
53 Switch for windscreen wiper and washer	9 to 12	
54 Tank unit rheostat for fuel gauge	25	
55 Heater for rear window (if fitted)	38	
56 Interior lamp	13-14	
57 Boot lamp (Saloon)	15	
58 Switch for boot lamp (Saloon)	15	
59 Rear direction indicator, RH	45	
60 Stoplamp, RH	16	
61 Tail lamp, RH	55	
62 Reversing lamp, RH (Club)	36	
63 Number plate lamps	51. 52	
64 Rear direction indicator, LH	42	
65 Stoplamp, LH	15	
66 Tail lamp, LH	53	
67 Reversing lamp, LH (Club)	35	

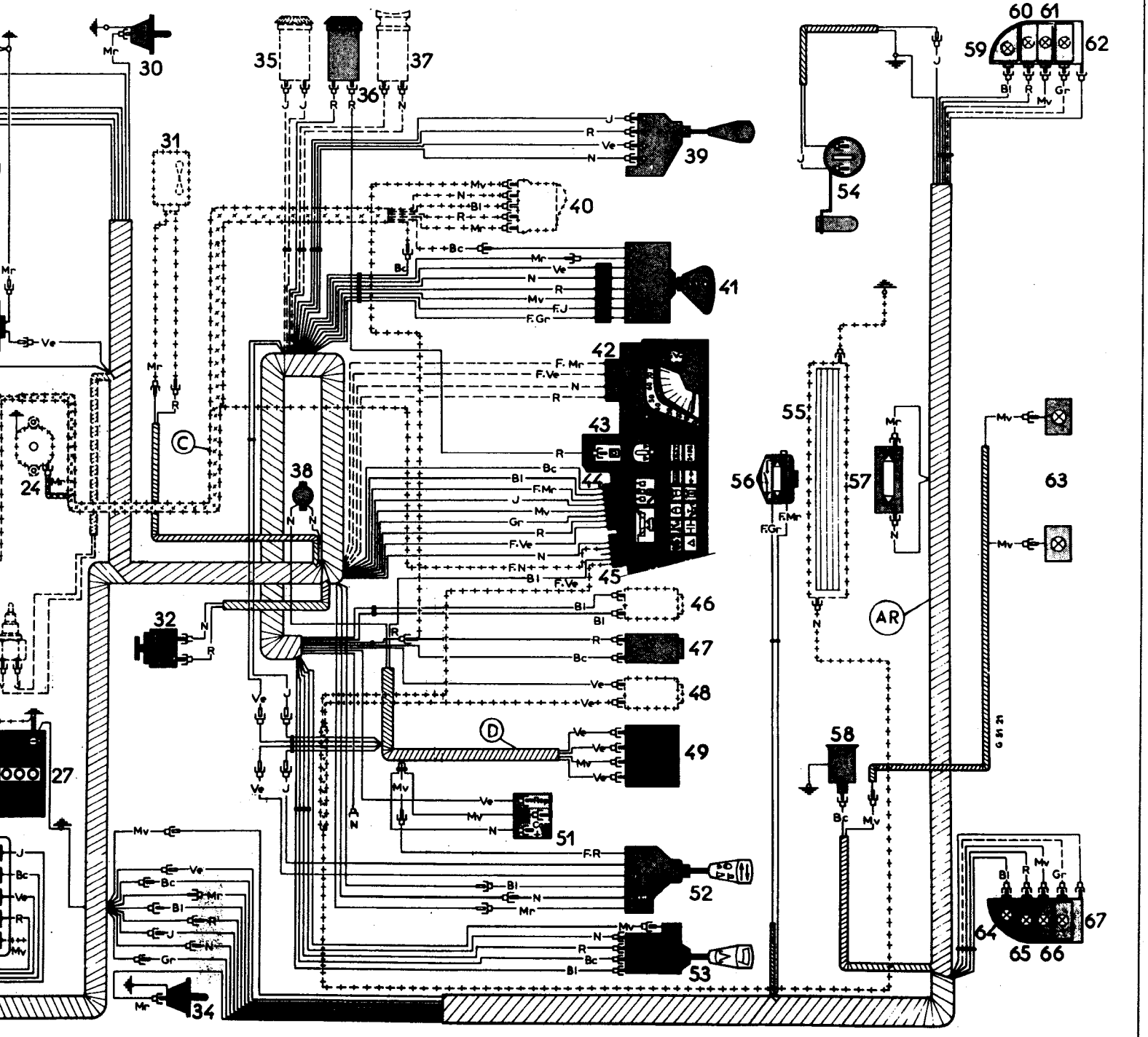
Colour Code

Bc : White	Mr : Brown
Bl : Blue	Mv : Mauve
Gr : Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F+ symbol = Insulation colour



WIRING DIAGRAM



« GS » VEHICLES FOR DENMARK

ARRANGEMENT OF THE ELECTRICAL INSTALLATION

PRESENTATION OF THE DIAGRAMS

The diagrams of the electrical installation are presented in two forms :

- A CIRCUIT DIAGRAM
- A WIRING DIAGRAM

I. THE CIRCUIT DIAGRAM shows the various individual circuits of the car, including lead junctions. Where a unit is connected to several circuits, its various sections are shown in « exploded » form.

Example : (the ignition switch is shown split into its functions of coil-feed, its two sections operating the ignition-controlled accessories, and the starter motor switch).

Identification of electrical components and harnesses :
On the diagram, each component is numbered; this number appears to the left of the description in the list of components.
Along the lower edge of the diagram is a second series of numbers corresponding to imaginary vertical grid lines. To locate a component on the diagram note the number appearing to the right of the description on the list, from the same number along the lower edge of the diagram, follow vertically upwards to find the component number.

Identification of leads and connectors : Three kinds of references are used :

a) Figures which refer to single parts (and not to the leads).
Capital letters, in gaps in the lines representing the leads, indicate for all except the front harness, the subsidiary harnesses in which the leads run (see key to wiring harnesses on the circuit diagram).
None of the above references appear on the components or wiring themselves.

b) The other letters (e.g. R, Gr, Vi, for:Red, Grey, Violet etc..) in the diagrams, indicate the colours of insulating sleeves protecting terminals, and of wiring connecting-blocks.

NOTE : For these last references, three cases may arise :
- = The sleeve colour identifies a lead
- No sleeve on a lead : the colour code letters preceded by F in the diagrams refer to the colour of the insulation of the lead itself (e.g. F gr. = grey lead)
- Lead without specified reference : its position cannot give rise to any confusion.
- The colour themselves appear on components and wiring on the car.

II. THE WIRING DIAGRAM shows the various components and harnesses as they appear on the car when viewed from above. The component numbers are the same as on the circuit diagram.

III. USING THE DIAGRAMS

Example : The brake lamps do not light up.

a) Look for the brake lamp references on the wiring diagram and then in the list : reference numbers **(65)** and **(60)**

b) Read the position of the brake lamps **(65)** and **(60)** in the list of components : position (15) and (16).

c) Refer to the Circuit Diagram and take note of the vertical lines (15) and (16) in which the lamps **(65)** and **(60)** are situated.
The diagram indicates that the lamps are supplied through the leads (red sleeves) which form a part of the rear harness. The feed lead is connected to the front harness by means of a connector (red sleeve) (at the junction of the front and rear harness), then to the brake lamp switch **(32)** (red sleeve).
The brake lamp switch itself is supplied through a lead (black sleeve) coming from fuse n° 3 (connecting-block n° 19).

d) Ensure correct operation of each component and continuity of the leads and lead junctions.

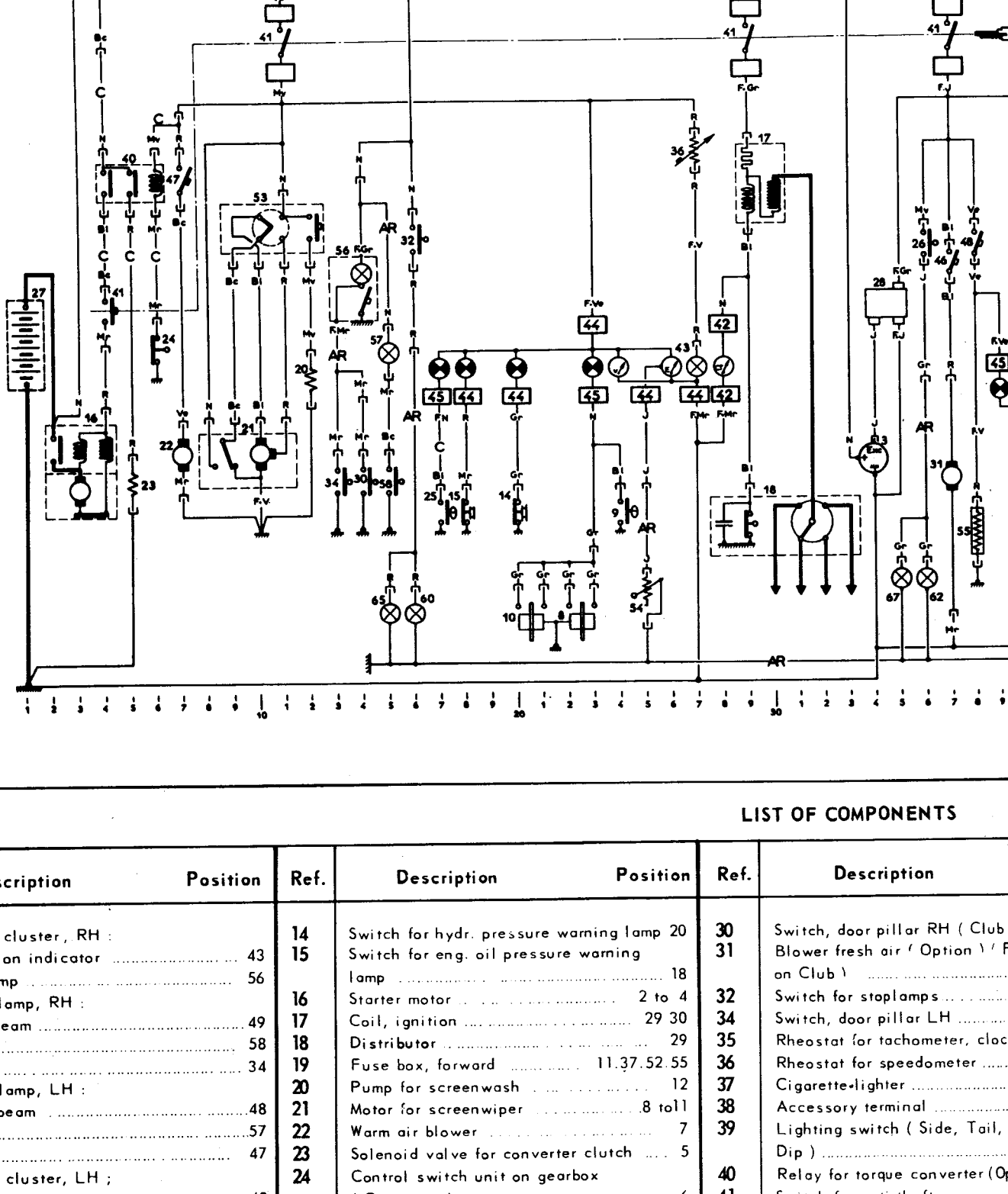
TABLE OF BULBS

Use	Quantity	Base	Voltage	Power	French Standard	International Standard
Main of dipped beams	2	P.45 t 41	12 V	45/40 W	R. 136-15	
Q.I. headlamps *(Club)*	2	P. 14.5 s	12 V	55 W	R. 136-16	
Front dir. indicators Rear dir. indicators Stop lamps Reversing lamps *(Club)*	2 2 2 2	BA.15s/19	12 V	21 W	R. 136-12	P. 25/1
Front sidelamps Tail lamps Number plate lamp	2 2 2	BA.15s/19	12 V	5 W	R. 136-13	R. 19/5
Interior lamp	1	Festoon	12 V	7 W	R. 136-05	
Boot lamp	1	Festoon	12 V	5 W	R. 136-14	C-11
Mileage indicator light *(Confort)*	1	BA. 9s	12 V	2 W	R. 136-34	T 8/2
Speedometer light	1	BA. 9 s	14 V	4 W	R. 136-33	
Tachometer and clock light *(Club)* Lighting for battery indicator and fuel gauge *(Club)* *Warning lamps for :* - engine oil pressure - brake pressure - Sidelamps - Headlamps - Direction indicators - Engine oil temp. - brake pad wear *and optional :* heated rear window - Converter oil temp. - Heating = 20° C(-4°F)	1 1 1 1 1 1 1 1 1 1 1 1	NO (Wedge base type) Tubular 10 mm dia.	12 V	2 W		

WIRING DIAGRAM

P.T.O.

Colour Code
Bc : White
Bl : Blue
Gr : Grey
J : Yellow
Mr : Brown
Mv : Mauve
N : Black
R : Red
Ve : Green

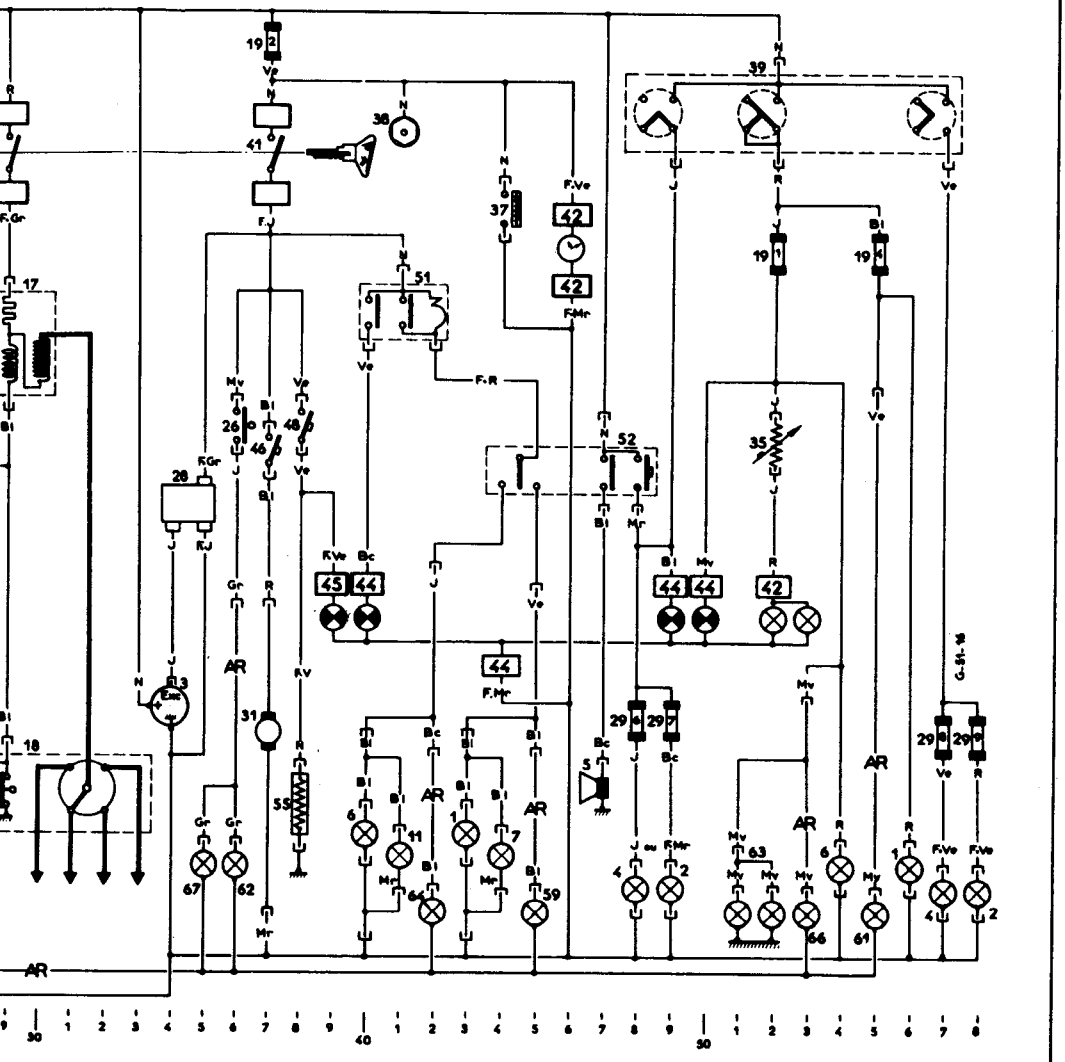


LIST OF COMPONENTS

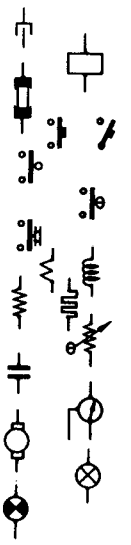
Ref.	Description	Position
1	Front lamp cluster, RH :	
	• Direction indicator	43
	- Sidelamp	56
2	Front headlamp, RH :	
	- Main beam	49
	- Dip	58
3	Alternator	34
4	Front headlamp, LH :	
	- Main beam	48
	- Dip	57
5	Horn (s)	47
6	Front lamp cluster, LH ;	
	- Direction indicator	40
	- Sidelamp	54
7	Warning lamp, dir. indicator RH	44
8	Brake unit, RH	22.23
9	Switch for eng. oil temp. warning lamp	24
10	Brake unit, LH	20.21
11	Warning lamp, dir. indicator LH	41

Ref.	Description	Position
14	Switch for hydr. pressure warning lamp	20
15	Switch for eng. oil pressure warning lamp	18
16	Starter motor	2 to 4
17	Coil, ignition	29 30
18	Distributor	29
19	Fuse box, forward	11.37.52.55
20	Pump for screenwash	12
21	Motor for screenwiper	8 to11
22	Warm air blower	7
23	Solenoid valve for converter clutch	5
24	Control switch unit on gearbox (Converter)	6
25	Switch for conv. oil temp. warning lamp	17
26	Switch for reversing lamps	36
27	Battery	1
28	Voltage regulator	34. 35
29	Fusebox, rear	48.49.57.58

Ref.	Description
30	Switch, door pillar RH (Club
31	Blower fresh air (Option) / F on Club)
32	Switch for stoplamps
34	Switch, door pillar LH
35	Rheostat for tachometer, cloc
36	Rheostat for speedometer
37	Cigarette-lighter
38	Accessory terminal
39	Lighting switch (Side, Tail, Dip)
40	Relay for torque converter (Op
41	Switch for anti-theft
42	6-way connecting-block, RH panel :
	- Feed for tachometer (way 5
	- Earth for tachometer feed fo (way 3)
	- To clock (way 4)
	- To tachometer and clock lightir



Key to Symbols



- Wiring connector
- Connection Block
- Fuse
- Switch. manual
- Switch, mechanical
- Switch, thermal
- Switch, pressure
- Coil; winding
- Resistor
- Rheostat
- Capacitor
- Dial instrument
- Motor, electric
- Lighting
- Warning lamp

Identification of wiring harnesses

Without repere : Front

AR : Rear

C : Torque converter

F.V. : Flying lead

NOTE : *Ref* = Identification N° of component on circuit diagram and wiring diagram.
Position = Figure of vertical line numbered along lower edge on circuit diagram.

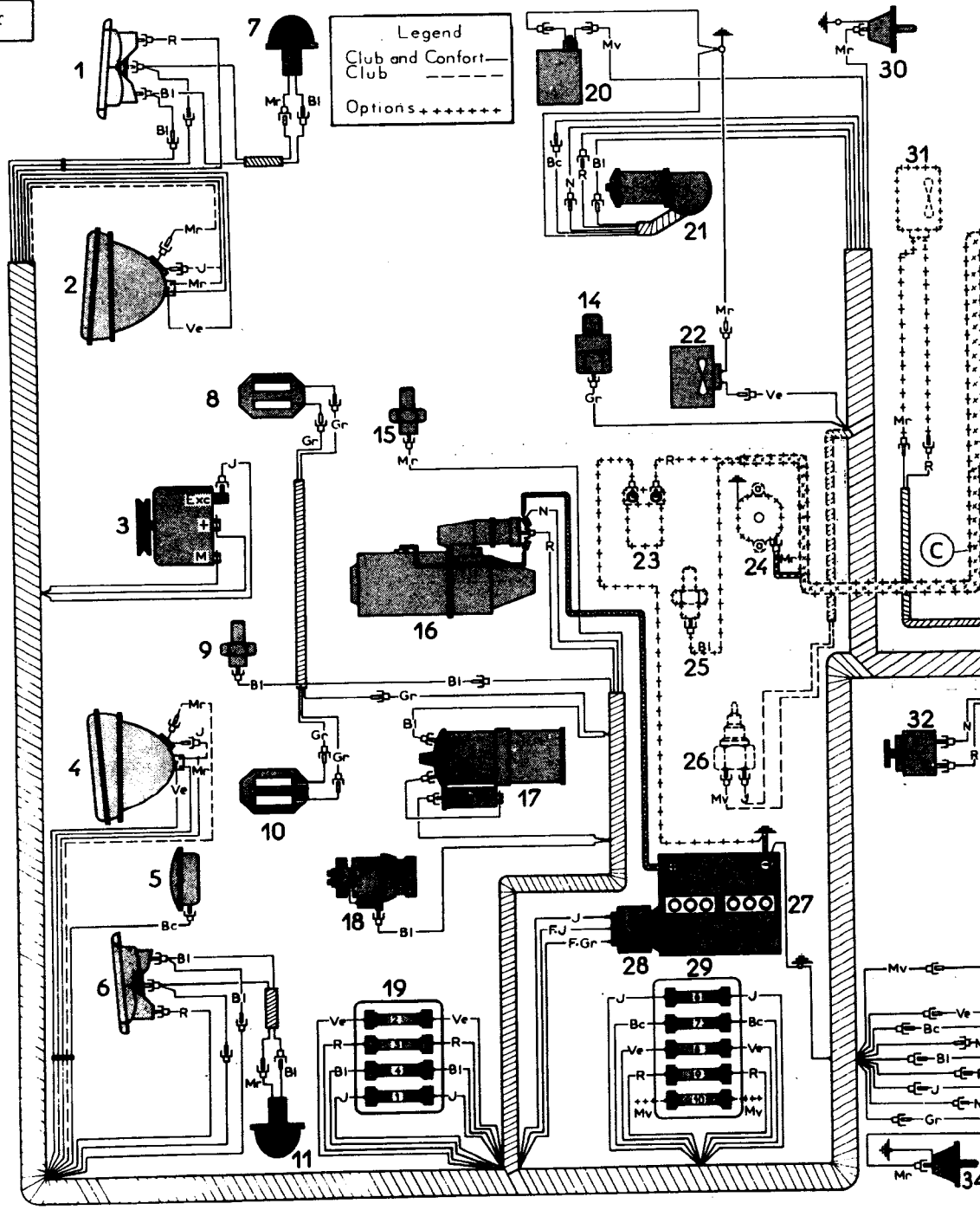
LIST OF COMPONENTS

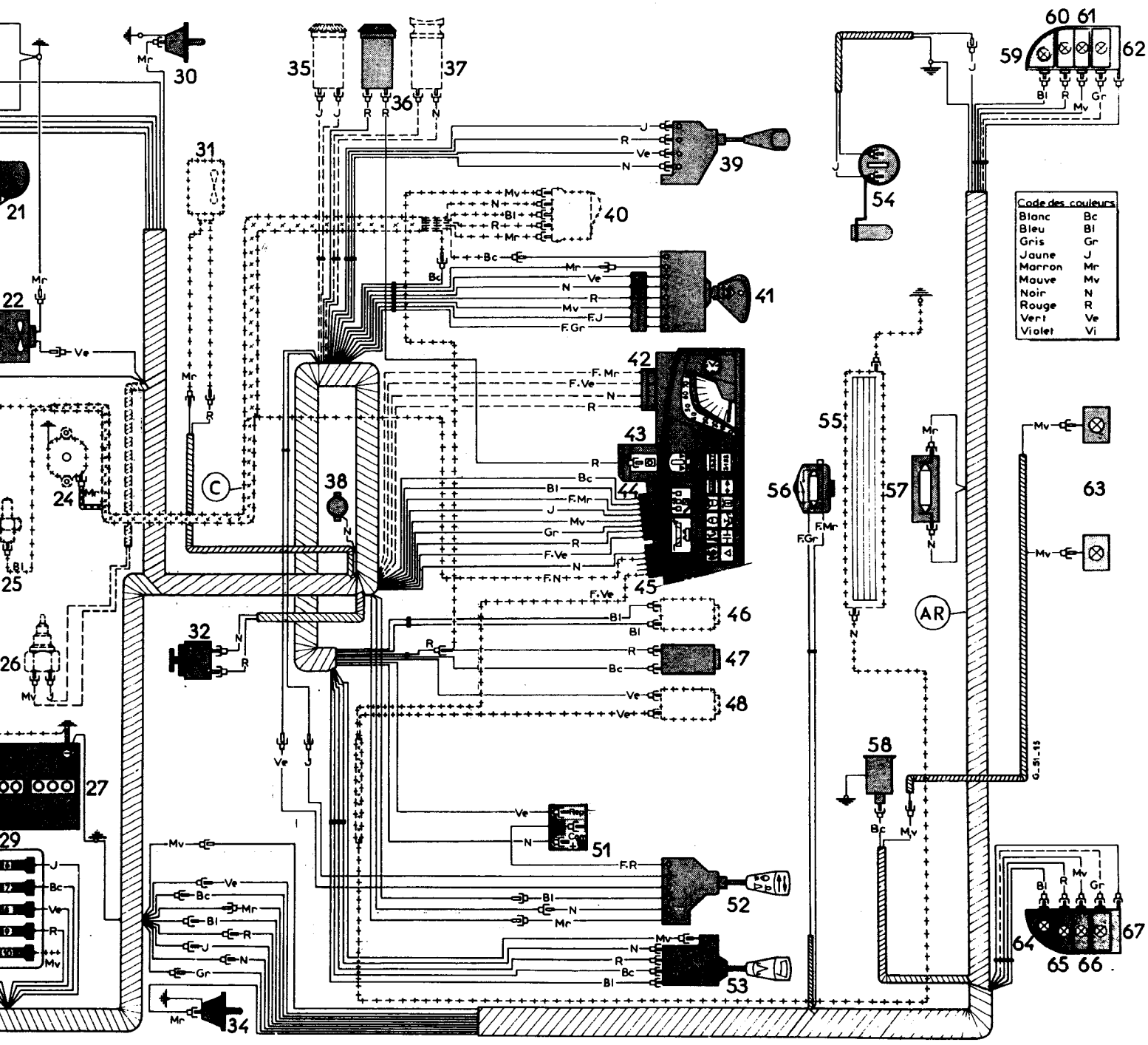
Ref.	Description	Position
43	Switch, door pillar RH (Club)	14
44	Blower fresh air (Option) (Fitted on Club)	37
	Switch for stoplamps	16
	Switch, door pillar LH	13
	Rheostat for tachometer, clock (Club)	52
	Rheostat for speedometer	27
	Cigarette-lighter	44
	Accessory terminal	41
	Lighting switch (Side, Tail, Main, Dip)	49to57
	Relay for torque converter (Option)	4 to 6
	Switch for anti-theft	4.11.29.37
45	6-way connecting-block, RH on facia panel :	
	- Feed for tachometer (way 5)	28
	- Earth for tachometer feed for clock (way 3)	28- 46
	- To clock (way 4)	46
	- To tachometer and clock lighting (way6)	52
	Speedometer lighting	27
	8-way connecting-block on facia panel :	
	- Feed for printed circuit (way 8)	23
	- Warning lamp, eng. oil pressure (way7)	18
	- Warning lamp,hydr. pressure (way 6)	20
	- Fuel gauge (way 4)	25
	- Earth for printed circuit (way 3)	27.44
	- Warning lamp, direction indicators (way 1)	40
	- Warning lamp, headlamp main beam (way 2)	49
	- Warning lamp, side and tail lamp (way 5)	50
	6-way connecting-block, LH, on facia panel :	
	- Warning lamp,conv. oil temp. (way 3)	17
	- Warning lamp,eng.oil temp. and front pad wear (way 2)	23
	- Warning lamp,rear window heater (if fitted) (way 6)	39
46	Switch for fresh air blower (if fitted)	37
47	Switch for warm air blower	7
48	Switch for rear window heater (if fitted)	38
51	Flasher unit	40to42
52	Switch for dir.indicator, horn, headl. flashers	44to 48
53	Switch for windscreen wiper and washer	9 to 12
54	Tank unit rheostat for fuel gauge	25
55	Heater for rear window (if fitted)	38
56	Interior lamp	13. 14
57	Boot lamp (Saloon)	15
58	Switch for boot lamp (Saloon)	15
59	Rear direction indicator,RH	45
60	Stoplamp, RH	16
61	Tail lamp, RH	55
62	Reversing lamp RH (Club)	36
63	Number plate lamps	51. 52
64	Rear direction indicator, LH	42
65	Stoplamp, LH	15
66	Tail lamp, LH	53
67	Reversing lamp, LH (Club)	35

Colour Code

Bc : White	Mr : Brown
Bl : Blue	Mv : Mauve
Gr : Grey	N : Black
J : Yellow	R : Red
Ve : Green	

F+symbol =Insulation colour




Code des couleurs
Blanc Bc
Bleu Bl
Gris Gr
Jaune J
Marron Mr
Mauve Mv
Noir N
Rouge R
Vert Ve
Violet Vi
AR
C
G.51-15

ALTERNATOR

I. VEHICLE INSTALLATIONS

A - *On vehicles all types without option :*

Alternator single-phase :

DUCELLIER 7540 A or 7540 B
or PARIS-RHONE A 11 M 7

B - *On vehicles all types with option :*

a) Alternator, three-phase :

DUCELLIER 7541 A or 7541 B *(until May 1971)*
or PARIS-RHONE A 11 R 1 *(until February 1973)*

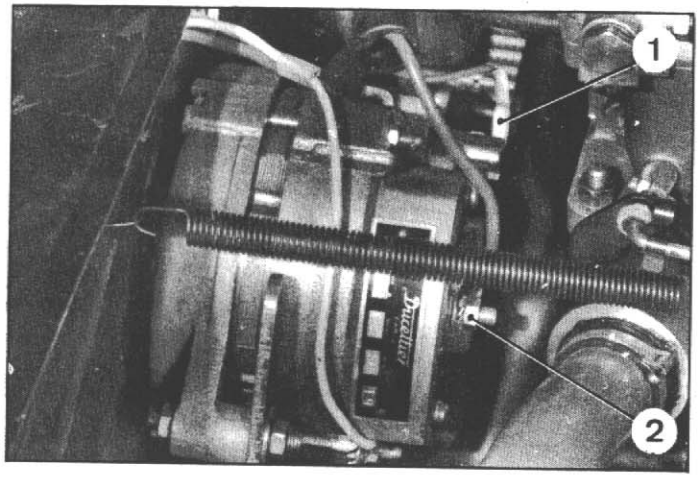
b) Alternator, single-phase :

DUCELLIER 7562 A *(from May 1972)*
or PARIS-RHONE A 12 M 5 *(from February 1973)*

II. CHARACTERISTICS

ALTERNATOR REFERENCES		7540 A or B A 11 M 7	7562 A	7541 A or B A 11 R 1
Voltage		14 V	14 V	14 V
Maximum current		30 A	35 A	37 A
Maximum output power		420 W	490 W	510 W
Begins to charge (when hot)	engine rpm	790 rpm	560 rpm	850 rpm
	alternator rpm	1400 rpm	1000 rpm	1500 rpm
Drive-ratio alternator/engine		1.77	1.77	1.77
Resistance of stator winding		7 ± 0.2 Ω	7 ± 0.2 Ω	7 ± 0.2 Ω
Minimum length of brushes (after wear)		10 mm	10 mm	10 mm
Tightening torque of pulley nut		40 mAN (4 m.kg) 29 ft.Ib	40 mAN (4 m.kg) 29 ft.Ib	40 mAN (4 m.kg) 29 ft.Ib
Direction of rotation (from driving end)		Clockwise	Clockwise	Clockwise

III. CHECK OF OUTPUT ON VEHICLE



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NOTE : The alternator output must be measured when running hot with full excitation.

The output check of the alternator must be carried out with a well-charged battery.

1. Connect the measuring instruments :

a) Disconnect the earth lead from the negative battery terminal. Disconnect the excitation lead (yellow end) from the terminal « EXC » (1) of alternator and the output lead (black end) from the terminal « + » (2) of alternator.

b) *Connect an ammeter in series and a rheostat in parallel with the charging circuit :*

For this purpose connect :

- The alternator terminal « + » (2) to the positive terminal « + » of the ammeter.
- The negative terminal « – » of the ammeter to the ring terminal of the disconnected output lead (black end).
- The rheostat between the negative terminal « – » of the ammeter and earth.

c) *Connect a voltmeter in parallel with the charging circuit.*

For this purpose connect :

- The positive terminal « + » of the voltmeter to positive terminal « + » of the battery.
- The negative terminal « – » of the voltmeter to earth.

Connect the earth lead to the negative terminal « – » of the battery.

Connect up a workshop tachometer.

2. Measure the output of alternator :

Start the engine and allow it to idle.

a) Alternator DUCELLIER 7540 A or B or PARIS-RHONE A 11 M 7 :

- Accelerate the engine up to about 1100 rpm and adjust rheostat to obtain voltage of 14 V, at which level the current should be 6 A.
- Increase the engine speed to about 2400 rpm and adjust rheostat to maintain 14 V. The current produced should be 22 A.
- Raise engine speed to about 4600 rpm. The current output should be 28 A for a voltage level of 14 V.

b) Alternator DUCELLIER 7541 A or B or PARIS-RHONE A 11 R 1 :

- Accelerate the engine up to about 1150 rpm and adjust rheostat to obtain voltage of 14 V, at which level the current should be 13 A.
- Increase engine speed to about 2550 rpm. For a voltage of 14 V (adjust rheostat) the current should be 31 A.
- Raise engine speed to about 4500 rpm. The current output should be 35 A for a voltage of 14 V.

c) Alternator DUCELLIER 7562 A :

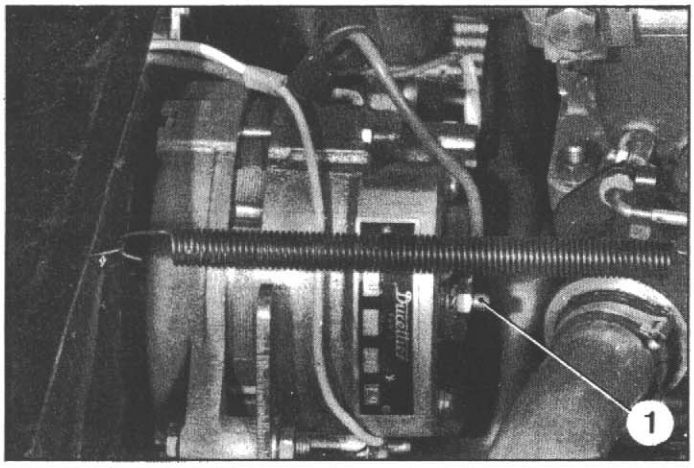
- Accelerate the engine to about 900 rpm and adjust rheostat to obtain voltage of 14 V, at which level the current should be 11 A.
- Increase engine speed to about 1700 rpm. For a voltage of 14 V (adjust rheostat) the current output level should be 26 A.
- Raise the engine speed to about 4500 rpm. The current output level should be 33 A for a voltage of 14 V.
- If these outputs are not obtained, check the drive belt and its tension. If this appears satisfactory have the alternator overhauled.
- Stop the engine.
- Disconnect the lead from the negative terminal of the battery. Remove the measuring instruments and connect the charging and excitation leads to the alternator.
- Connect the negative lead (from chassis) to negative terminal of the battery.

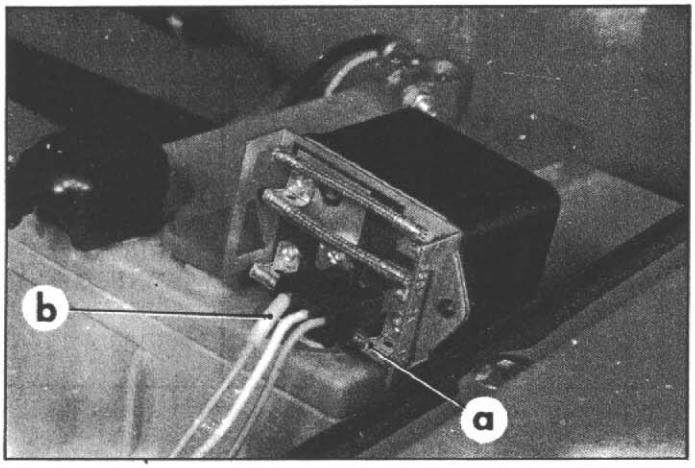
REGULATOR

CHARACTERISTICS

On vehicles of all types :
Single stage vibrating contact regulator.
One type only for the three types of alternator.

DUCELLIER : 8366 A
or PARIS-RHONE : AYC 213





CHECK OF THE VOLTAGE REGULATION

IMPORTANT : The leads to the regulator must be correctly connected. The side of the connector with the wire « b » *(yellow sleeve)* must be towards the centre of the regulator (as shown on figure).

NOTE : Checking the regulator must be carried out with a correctly charged battery.

1. Disconnect the battery earth lead.
2. Disconnect the output lead (black sleeve) from the positive terminal « + » (1) of the alternator.
3. Connect an ammeter in series and a rheostat in parallel in the charging circuit as follows :
   - positive terminal « + » of ammeter to the positive terminal « + » of the alternator.
   - negative terminal « - » of ammeter to the disconnected output lead (black sleeve)
   - the rheostat terminals between the negative terminal « - » of the ammeter and earth.
4. Connect a voltmeter in parallel with the charging circuit (fit the regulator on to the battery).
   - positive terminal « + » of the voltmeter to positive terminal « + » of regulator at « a » *(take care not to cause a short-circuit with regulator earth).*
   - negative terminal « - » of voltmeter to earth.
5. Connect the earth lead to the battery.
6. Connect a workshop tachometer.
7. Start the engine and allow it to idle.
8. Very briefly, switch off the ignition then on again (demagnetization of regulator).
9. Accelerate the engine to about 2800 rpm and maintain this speed during the check.
   Using the rheostat slowly increase the alternator output without ever reducing it.
   Note several values of the voltage, these should be within the range 13.8 to 14.4 V at a temperature of 20° ± 5°C.

   NOTE : The voltage varies inversely with the temperature by an average of 0.2 V per 10° C.
   If the above conditions are not satisfied, fit a new regulator.
10. Stop the engine.
11. Disconnect the earth lead from the battery and disconnect the measuring instruments.
12. Connect the output lead to the alternator.
13. Fit the regulator to its support and re-connect the earth lead to the negative battery terminal.

BATTERY

CHARACTERISTICS

Until 2/ 1972
Battery 12 V 150/ 30 Ah.
STECO : 2030 R
or TEM : 1540 TA
or FULMEN : AS 209 P
or TUDOR : 6 DK 54
Battery 12 V 175/ 35 Ah (Option ER- 20)

From 2/ 1972
Battery 12 V 200/ 40 Ah
STECO : 71 901

STARTER MOTOR

CHARACTERISTICS

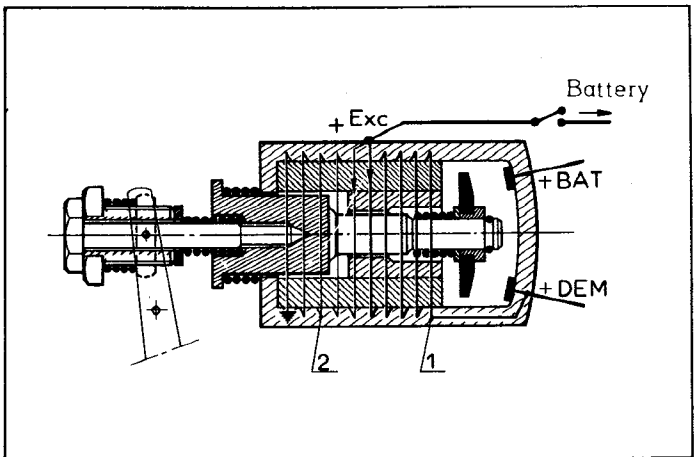
12 V solenoid starter with positive control, pre-engaged pinion type

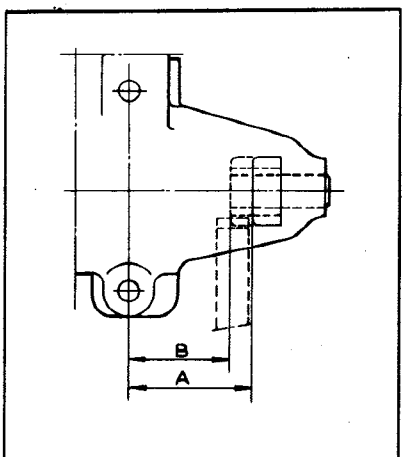
DESCRIPTION OF STARTER MOTORS	PARIS-RHONE D 8 E 103	DUCELLIER 6208 A until 12/1970 6208 B from 12/1970 until 3/1972	DUCELLIER 6217 from 3/1972 6217 B from 11/1972
Solenoid : Resistance of pull-in coil (1) (heavy-gauge wire winding connected in series with field coils)	0.3 Ω	0.24 Ω	
Resistance of hold-in coil (2) (light-gauge wire winding connected in parallel)	1 Ω	1.08 Ω	
Stator Resistance	0.011 Ω	0.0087 Ω	0.01 Ω
Rotor Min. dia. of commutator after machining	35 mm (1.378 in)	30 mm (1.181 in)	
Brushes Min. length after wear	7 mm	7 mm	
Starter pinion Adjustment: The starter pinion must assume the positions indicated on the figure		0	
Solenoid not energized	A = 47.7± 0.3mm	A = 48.5 - 1,2 mm	
Solenoid energized	B = 38.3 mm maxi	B = 37.5 mm maxi	

NOTE : The pull-in coil circuit (1) is earthed through the field coils, the rotor and the bushes.

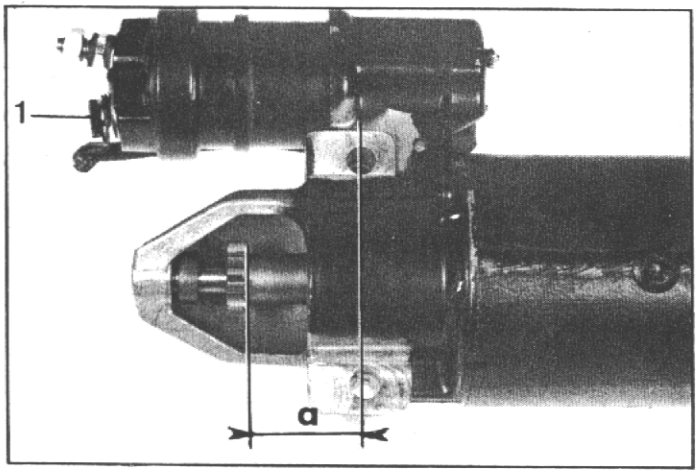
CHECKING THE STARTER MOTOR

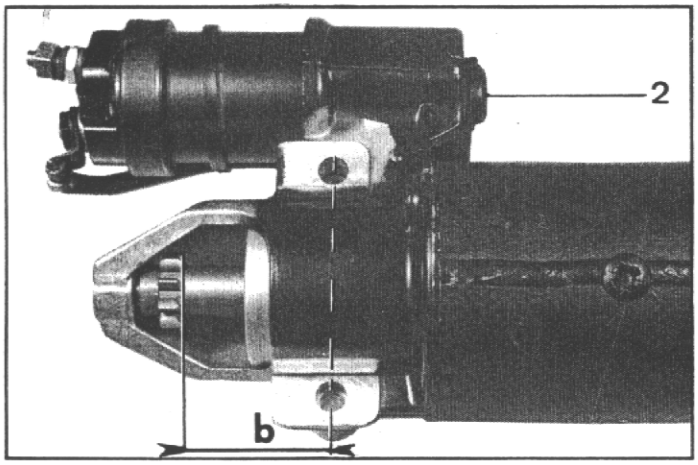
DESCRIPTION OF STARTER MOTORS	D 8 E 103	6208 A - 6208 B	6217 A or 6217 B
1. Check on car (*battery correctly charged*)			
a) Current taken with pinion locked (stall current)	350 A	260 A	320 A
b) Current taken during starting (*starter in use*)	90 to 110 A	90 to 110 A	90 to 110 A
2. Check on test bench :			
a) No-load current	50 A	42 A	50 A
b) Mean torque at 1000 rpm	5 mΛN (0.5 m.kg) 3.6 ft.lb	4 mΛN (0.4 m.kg) 2.9 ft.lb	5 mΛN (0.5 m.kg) 3.6 ft.lb
Current taken at this torque	220 A	200 A	240 A
c) Maximum power	625 W	460 W	610 W
Corresponding torque	3.5 mΛN (0.3 m.kg) 2.2 ft.lb	2.35 mΛN (0.2 m.kg) 1.5 ft.lb	3.5 mΛN (0.3 m.kg) 2.2 ft.lb
Current taken at this torque	170 A	150 A	180 A

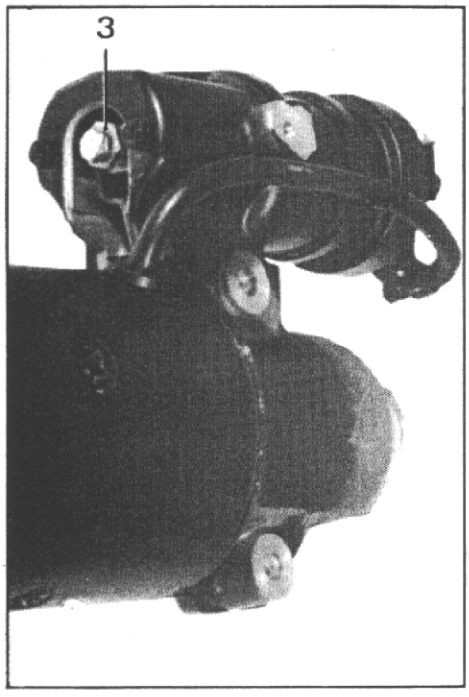




ADJUSTMENT OF DRIVE PINION ON A DUCELLIER STARTER MOTOR 6208 A, 6208 B, 6217 A or 6217 B







NOTE : This operation can only be carried out on a starter motor from the engine.

1. Remove the plastic plug (2).

2. Energize the solenoid. For this connect :

   a) The positive terminal of a 12 V battery to the supply terminal at the solenoid (flat blade connector).

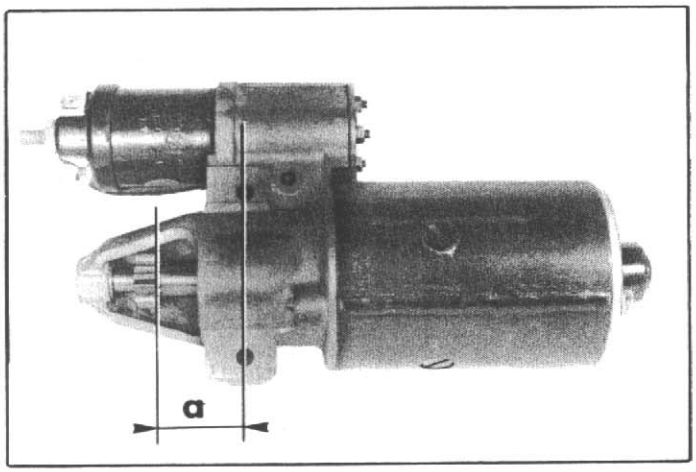
   b) The negative terminal of this battery to the terminal marked « DEM » (1).
   With the pinion then in the « engaged » position, measure *dimension « a » which should be 37.5 mm max.* (1.47 inches).

3. Disconnect the battery from the supply terminals of the solenoid and field coils.
   The pinion will return to occupy its free position.
   Measure *the dimension « b » which must be between 47.3 mm and 48.5 mm* (1.86 and 1.91 inches).

4. Obtain this measurement by operating the adjusting sleeve (3) on the solenoid.
   If these dimensions are not obtained the starter motor must be reconditioned.

5. Fit the plastic plug (2).

ADJUSTMENT OF DRIVE PINION ON A PARIS-RHONE D. 8 E 103 STARTER MOTOR



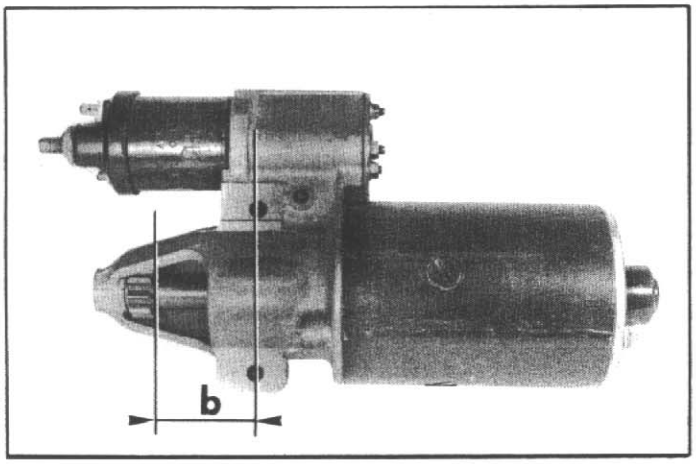
10170

1. Remove the starter motor.

2. Energize the solenoid. For this connect :

   a) The positive terminal of a 12 V battery to the blade terminal of the solenoid.

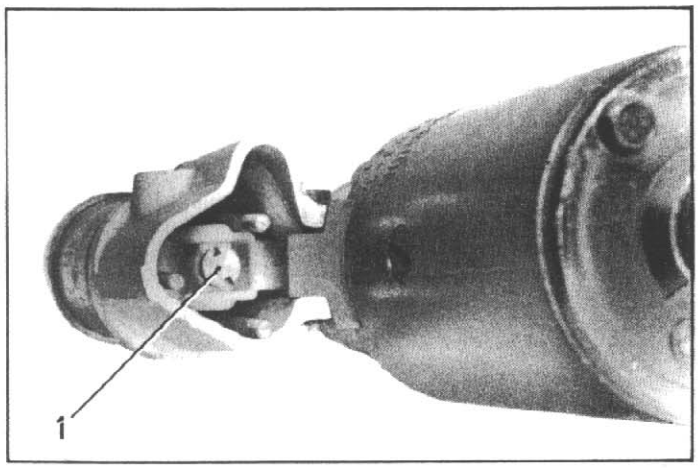
   b) The negative terminal of the battery to the field coil supply terminal « DEM ».
   With the pinion in the « engaged » position measure *the dimension « a » which should be 38.3 mm max.* (1.51 inches).



10171

3. Disconnect the battery from the supply terminals of the solenoid and field coils.
   The pinion will return to its free position.
   Measure *dimension « b » which must be between 47.4 mm and 48 mm* (1.86 and 1.89 inches).

4. Obtain this measurement by adjusting the sleeve (1) after having removed the solenoid securing flange.
   If these dimensions are not obtained, the starter motor must be reconditioned.



10173

5. Fit the solenoid securing flange together with its gasket.

6. Fit the starter motor on the engine.

ADJUSTMENT OF THE HEADLAMPS WITH AN INSTRUMENT OF THE TYPE « REGLOSCOPE » OR « REGLOLUX »

1. Conditions for adjustment :

With the car at its kerb weight :

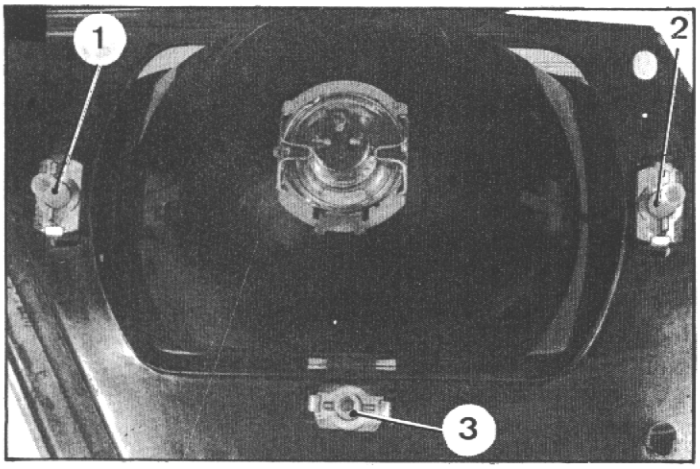
a) Ensure that the tyres are correctly inflated and the heights correctly adjusted.

b) Place the car on even horizontal ground.

c) Run the engine at idling speed and set the manual control to the *normal road* position.

d) Position the instrument opposite a headlamp and on the same plane as the car.

8625



2. Horizontal adjustment :

Switch on the dipped headlamps.

The pattern of the beam on the screen is a broken line.

By turning the knobs (1) and (2) the junction point of the two parts of this line is brought to the vertical axis of the screen.

3. Vertical adjustment :

Switch on the dipped headlamps.

By turning the knob (3) bring the horizontal part of the beam pattern within the zone marked on the screen.

4. Checking the setting :

Switch on the main beams.

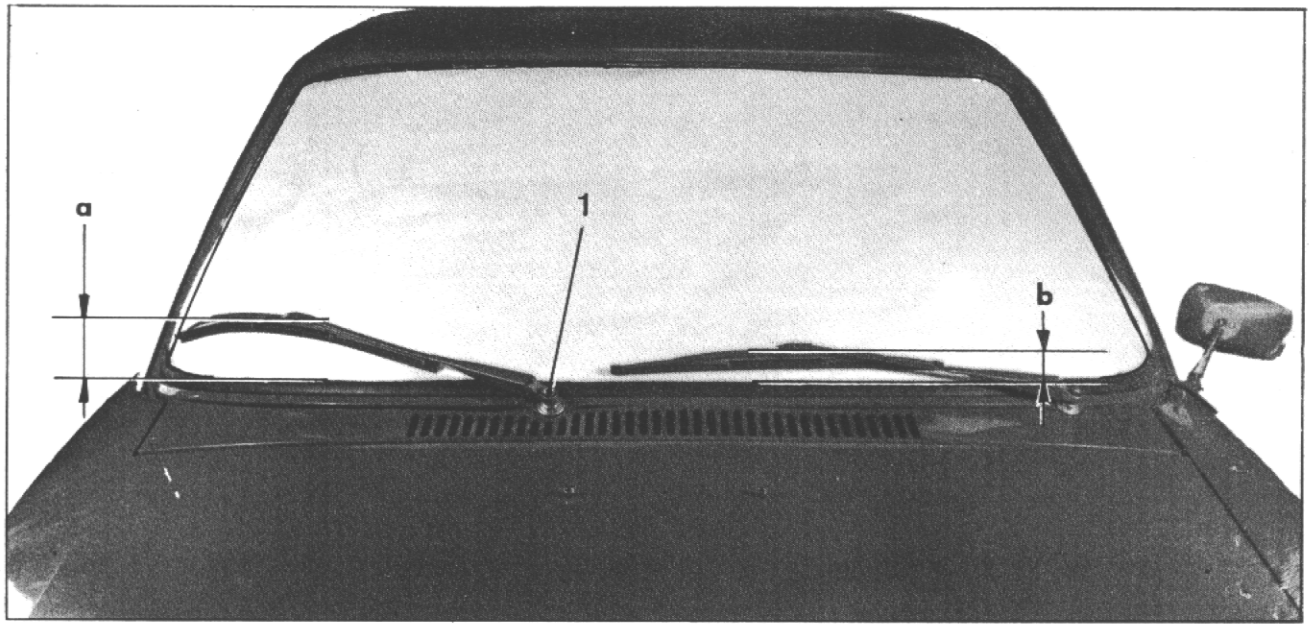
The point of maximum illumination should fall on the mark provided on the screen of the measuring instrument.

NOTE : If dark patches appear in the pattern renew the bulb.

5. Adjust the other headlamp.

ADJUSTMENT OF THE WINDSCREEN-WIPER ARMS

8780



Manual 810-1

With the windscreen-wiper motor at the « automatic stop » position, adjust the arms to obtain the following measurements (see figure)

$$a = 60 \pm 10 \text{ mm and } b = 35 \pm 10 \text{ mm}$$

(Measurements taken between the link pins of the blades, and the upper edge of the windscreen sealing strip).

To adjust, slacken the nut (1) and change the position of the arm on its shaft.
Tighten the nut (1) to 9 mN (0.9 m.kg) (6 1/2 ft.lbs) (« ondulex » washer).

CHECKING AND REPAIR OF A REAR WINDOW HEATER ELEMENT

I. CHECKS

Power requirements of the heating element :

a) *Saloon*	95 to 110 W at 13.5 ± 0.2 V
b) *Estate* until 6/1972	65 to 75 W at 13.5 ± 0.2 V
from 6/1972	85 to 98 W at 13.5 ± 0.2 V

To check the correct functioning of a rear window heater element measure :

1. Either check the current flowing in the element with an ammeter connected in series with the supply lead of the element : the current must be :

a) *Saloon*	6.2 to 7 2 A at 12 V
b) *Estate* until 6/1972	4.5 to 5 A at 12 V
from 6/1972	5 6 to 6.4 A at 12 V

2. Or check the resistance with an ohmmeter, the resistance must be :

a) *Saloon*	1.6 to 1.9 Ω
b) *Estate* until 6/1972	2.4 to 2.7 Ω
from 6/1972	1.8 to 2.1 Ω

II. REPAIRS

IMPORTANT : This repair can be carried out, with the rear window fitted on the vehicle.

1. Replacement of terminals :

Tin the part of the terminal to be soldered.
Solder in position, using a soldering iron.

2. Repair of an element lead :

a) Obtain from the Replacement Parts Department :
- 1 Repair kit ..... ZC 9 855 128 U

This kit contains :
- a small bottle of abrasive cleaning powder,
- five sachets of conducting enamel,
- a tube of adhesive,
- a tube of hardening product for the adhesive,
- a small bottle of metallic powder,
- a roll of thick self-adhesive tape,
- a warning light for detecting cuts,
- self-adhesive tape for detecting cuts (thermopaper)
- a plastic spatula,
- a glass plate for mixing the products.

b) **Locate the cut :**

With the resistance fed as normal :
- Locate the defective element lead by sticking the self-adhesive detecting tape in the centre of the rear window (on the inside) and on all resistance lines, so that the tape is perpendicular to the latter, The leads where the circuit is not broken will turn the Thermopaper blue when the temperature generated is raised.
- Onto the cut lead, slide the two pointed probes of the support of the warning light, used for detecting cuts. When the lamp lights up, the pointed probes are on both sides on the break in the resistance. By moving them slightly along the lead, one can determine the extent of the cut exactly.

c) **Preparing the window**

With the resistance no longer under voltage :

Clean out the area to be treated with the powder, contained in the bottle marked « Bimspulver ».
Sprinkle this powder on a small rag and rub. Then wipe clean with a second rag.

On both sides of the resistance, place a strip, 25 mm long, of the thick self-adhesive tape, marking the length of the repair to be carried out. The edges of the strip must be perfectly straight and clean, so as to avoid a cut during the repair.

d) **Repairs :**

1st Part

Empty the complete contents of one of the sachets of conducting enamel onto the glass plate. Mix the contents well, using the spatula.

Apply the paste, thus obtained, on the spot to be repaired, so as to completely fill the space between the two strips of tape. Only apply the paste to the cut.

Allow to dry for about 15 minutes, at a temperature of 20° C (68° F).

2nd Part

On the glass plate, prepare a mixture (of about the same size as a chestnut) containing equal amounts of the adhesive and the U.H.V. hardening product.

To this paste, add an equal amount of the metallic powder, contained in the bottle marked « Metallpulver ».
Mix well with the spatula.

Apply the paste, thus obtained, on the conducting enamel, exceeding the edges of the deposit of the latter, on both sides, by 10 mm, but with the length still limited by the strips of tape. Use the spatula to regulate the thickness, using the tape as a support.

Allow to dry for an hour and half, at atmospheric temperature, before removing the strips of tape. Move them aside, parallel to the surface of the rear window, to avoid removing the film deposited.
The drying time can be reduced by charging the resistance for half an hour.

NOTE : Wait 24 to 48 hours before proceeding to clean the inside of the rear window.

e) **Checking**

Carry out the check, using the self-adhesive detecting tape. Proceed as when locating the cut.

ADJUSTMENT OF THE BODYWORK ELEMENTS

8330

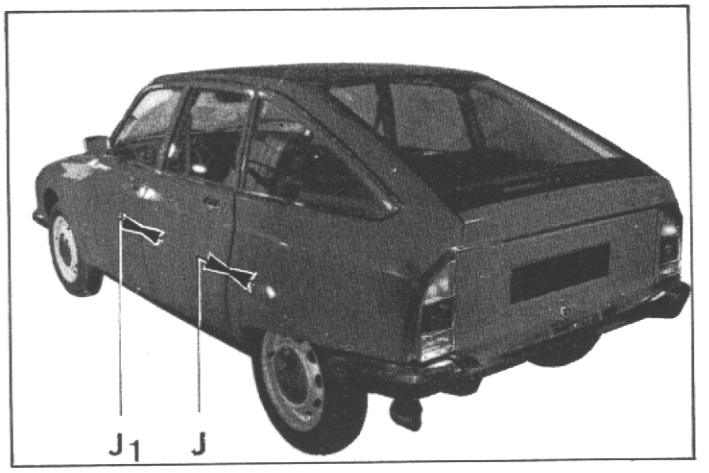
Manual 810-1

Clearance between wing and front door	6 ± 1 mm
Clearance between wing and windscreen surround	6 ± 1 mm
Clearance between the wing and the bonnet	6 ± 1 mm
Clearance between the wing and the front bumper	6 ± 1 mm
Clearance between the wing and the front winker	6 ± 1 mm
Clearance between the wing and the headlamp	5.5 ± 1 mm
Clearance between the frame of the front door window and the windscreen pillar	8 ± 1 mm
Clearance between the frames of the front and rear doors	10 ± 2 mm
Clearance between the front and rear doors	6 ± 1 mm

Maximum projection of the body components (from front to rear)

forward item proud of next rearward item by ..... 2 mm

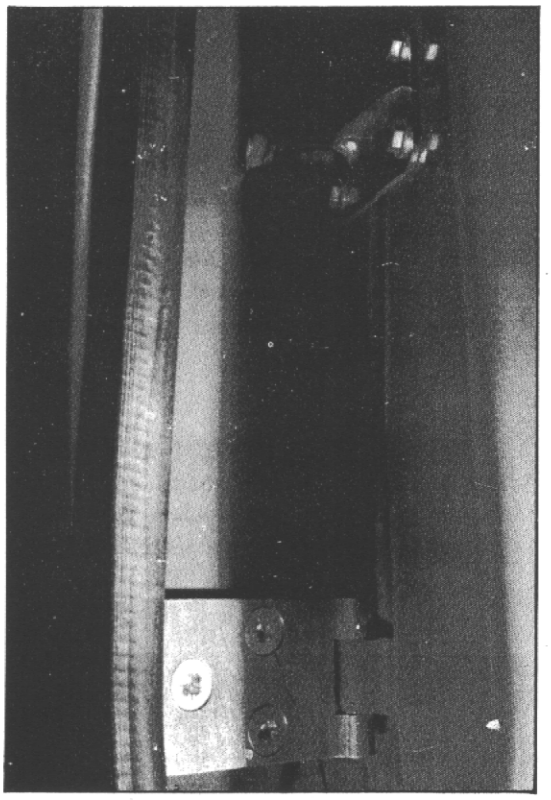
ADJUSTMENT OF A REAR DOOR



5. Check the clearance : $J = {}^{+\ 2}_{-\ 0.5}$ mm between the door and the rear wing and the clearance J1 = 6 ± 2 mm between the two doors. If necessary fit suitable shims between the centre pillar and the hinges of the rear door.

6. Adjust the fitting of the hinges to ensure that the rear edge of the front door does not stand proud by more than 2 mm with respect to the rear door. *Check the continuity of the line of light.*

8507

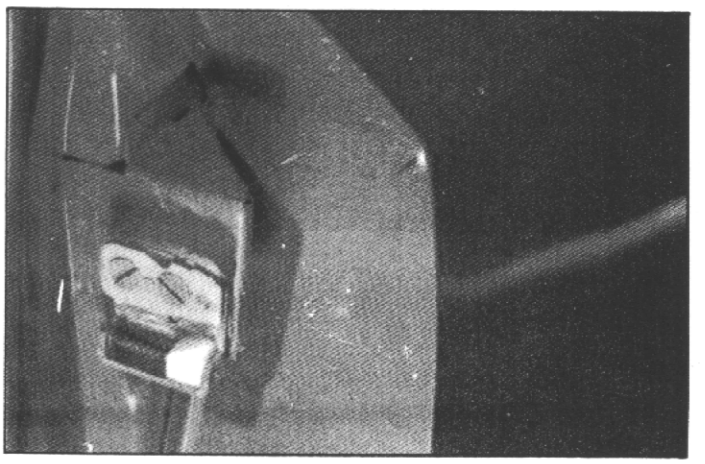


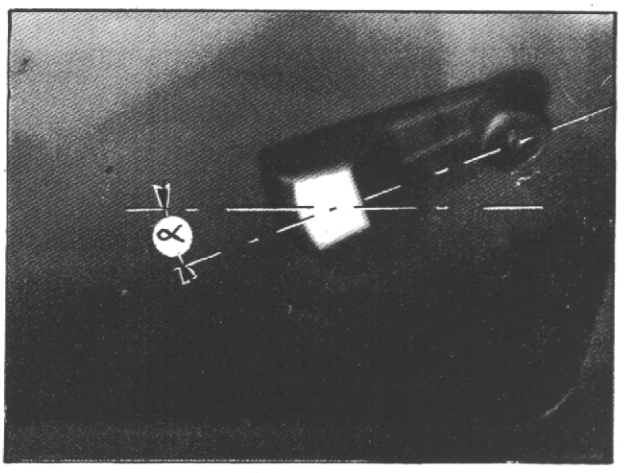
7. Adjust the striker plate so that correct locking is obtained and sufficient compression of the sealing strips.

   If necessary fit suitable shims between the striker plate and the rear pillar.

   The rear edge of the door must not stand proud by more than 2 mm with respect to the front of the wing.

8. Adjust the window winder handle so that it forms an angle of $\alpha = 30°$ when the window is closed. (The handle is mounted on splines).





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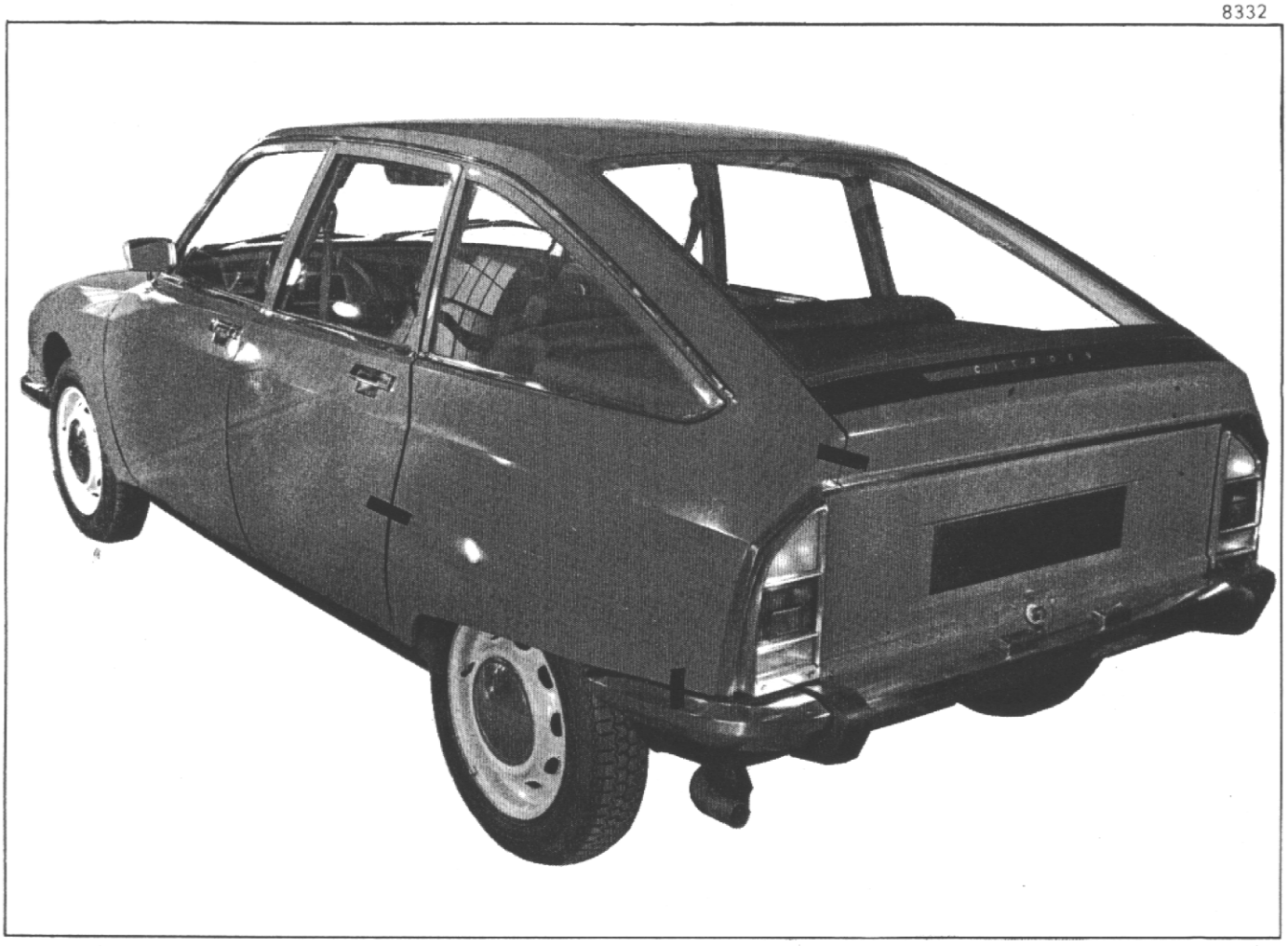


Clearance between the wing and the boot lid ..... 6 ± 1 mm

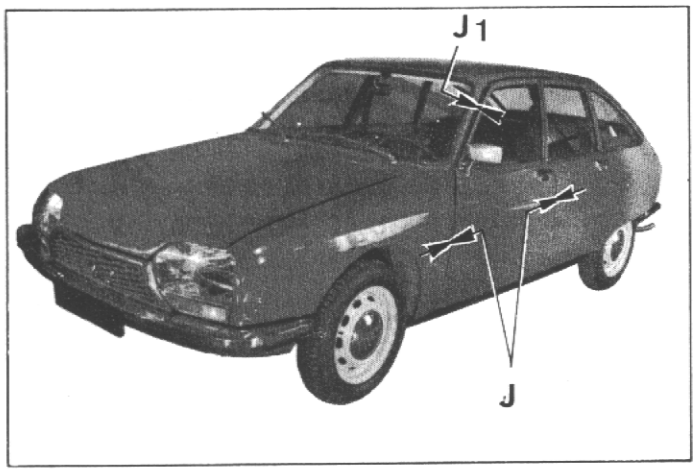
Clearance between the wing and the rear door ..... $6 \begin{smallmatrix} +2 \\ -0.5 \end{smallmatrix}$ mm

Clearance between the wing and the rear bumper ..... 6 ± 1 mm

Maximum projection of the body components (from front to rear)

forward item proud of next rearward item by ..... 2 mm

ADJUSTMENT OF A FRONT DOOR



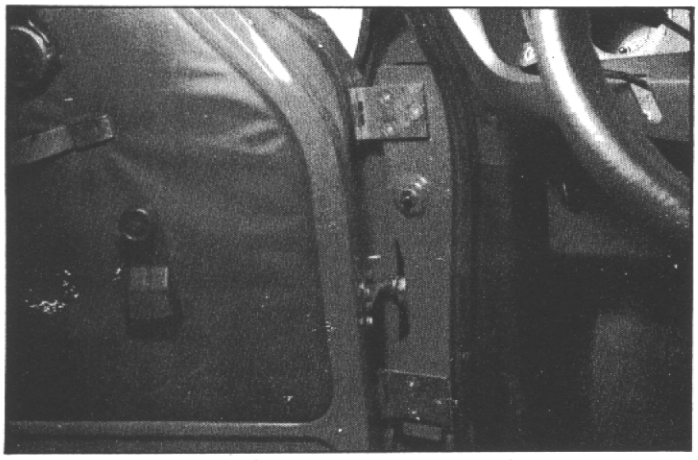
1. Check the clearance between the door and the front wing and also between it and the rear door : this should be : $J = 6 \pm 1$ *mm*.
If not fit suitable shims at « a ».

2. Slacken the cross-slot hinge screws and move the hinges to obtain the correct clearance between the door and the windscreen pillar :

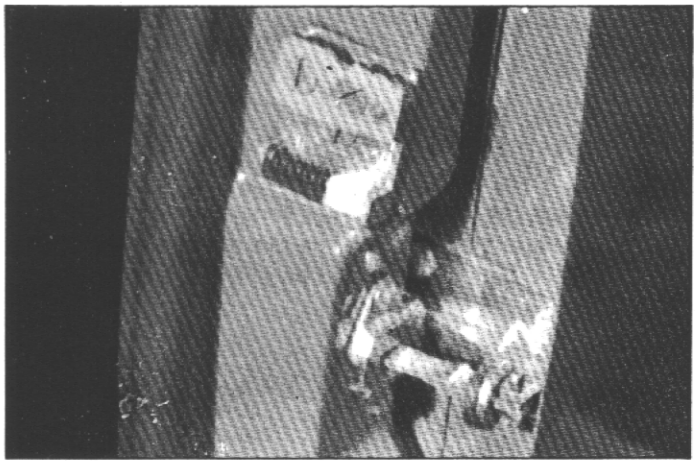
$$J1 = 8 \pm 1 \text{ mm}$$

Check the continuity of the line of light.

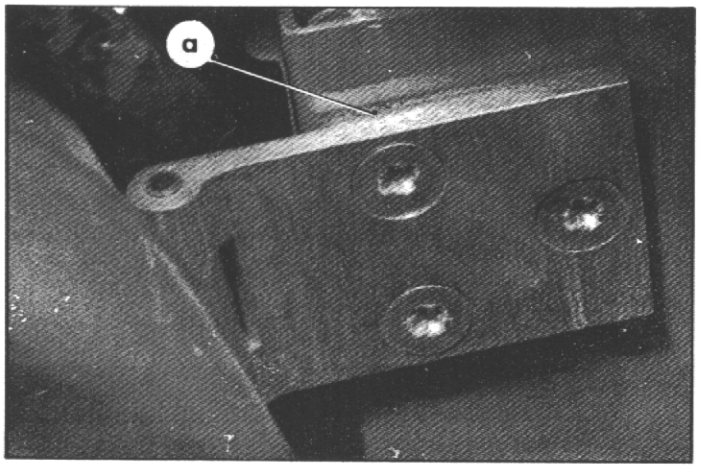
Move the hinges across to obtain the alignment between the surface of the wing and that of the door : the maximum projection is *2 mm* (wing proud of door).
Tighten the hinge screws.

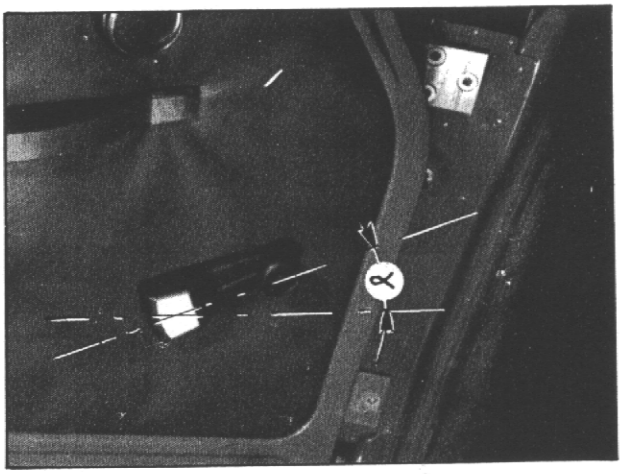


3. Adjust the striker plate (three securing screws) to ensure correct engagement and adequate compression of the sealing strips. If necessary fit suitable shims between the striker plate and the centre pillar.
The rear edge of the front door may not stand proud by more than 2 mm with respect to the front edge of the rear door.
Tighten the screws.



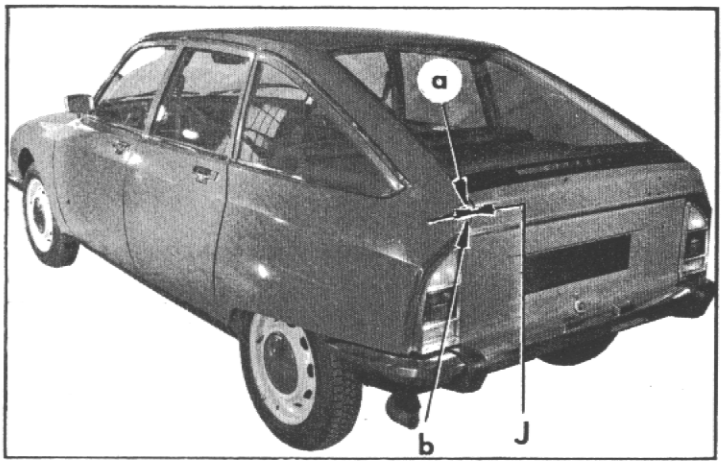
4. Adjust the window winder handle so that it forms an angle of $\alpha = 30°$ when the window is closed. (The handle is mounted on splines).





ADJUSTMENT OF THE BOOT LID

8332



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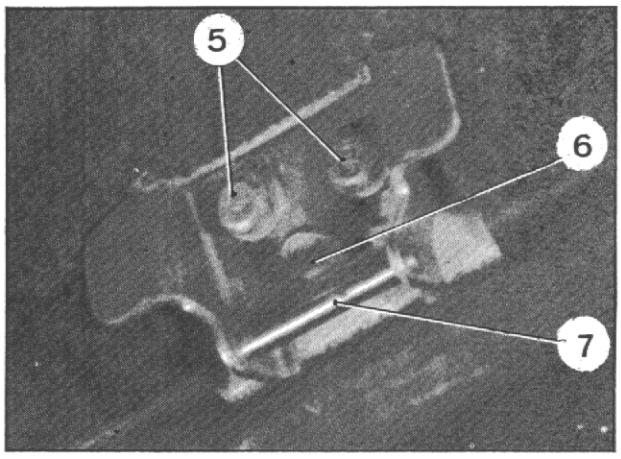

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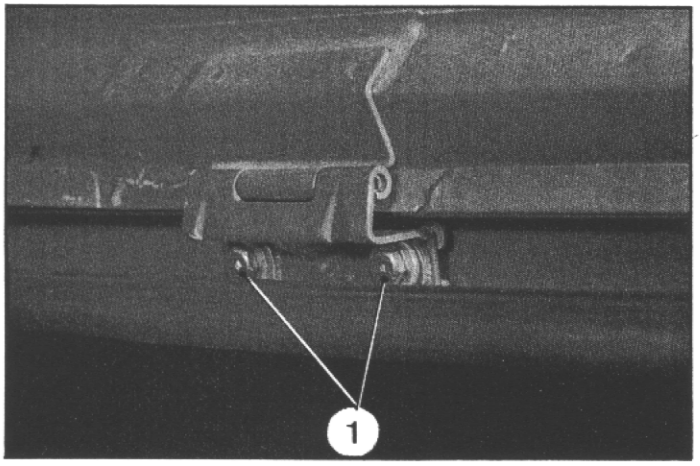


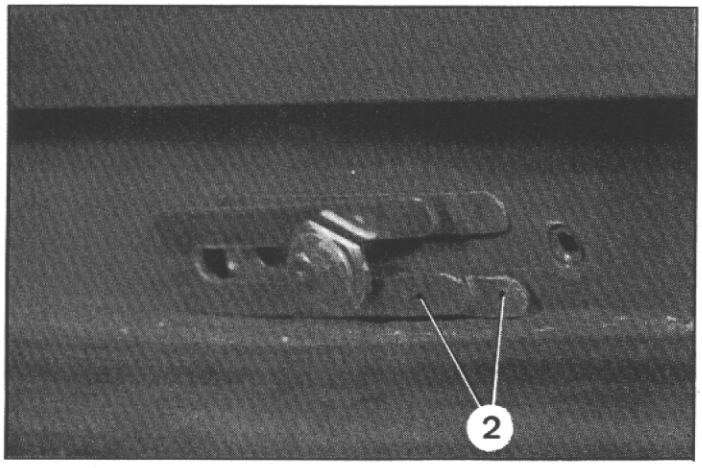
Manual 810-1

1. Adjust the hinges after slightly slackening their screws (1) to obtain :
- a clearance J of 6 ± 1 mm on each side
- alignment of ± 2 mm of the boot lid with the upper surfaces of the wings at « a ».

Tighten the screws.

2. If necessary, alter the number of shims (2) to obtain :
- alignment of ± 2 mm of the boot lid with the rear surfaces of the wings at « b ».

8762



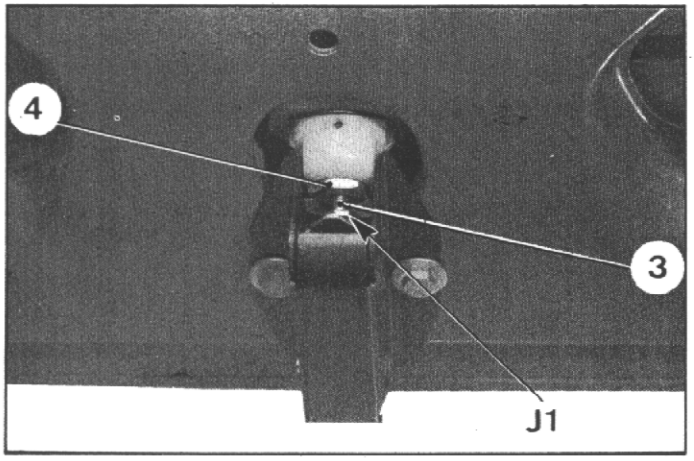
3. Adjust the stop screw (3) to obtain :
- a clearance G = 1 ± 0.5 mm between the torque and the lock control lever.

Tighten locknut (4).

IMPORTANT : *On cars produced since 22th September 1970* the boot door locks are fitted with two locking positions :
- 1st click : Safety catch
- 2nd click : Locked position.

Close the door a few times to ensure that both these positions operate.

8761

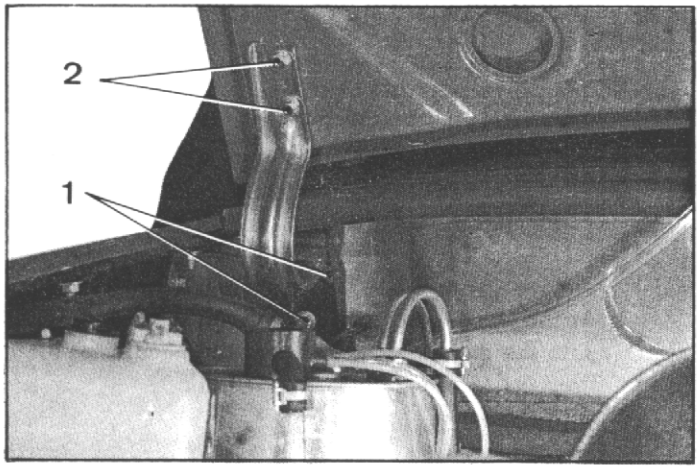


4. Slacken screws (5) and adjust the striker plate so that, when the boot lid is closed, there is no gap between the boot door and its sealing strips.

The boot lid must close and lock completely over both catches (6) and (7) in turn when released from the « dead centre point » of the stays and allowed to fall under its own weight.

I. ADJUSTMENT OF THE BONNET

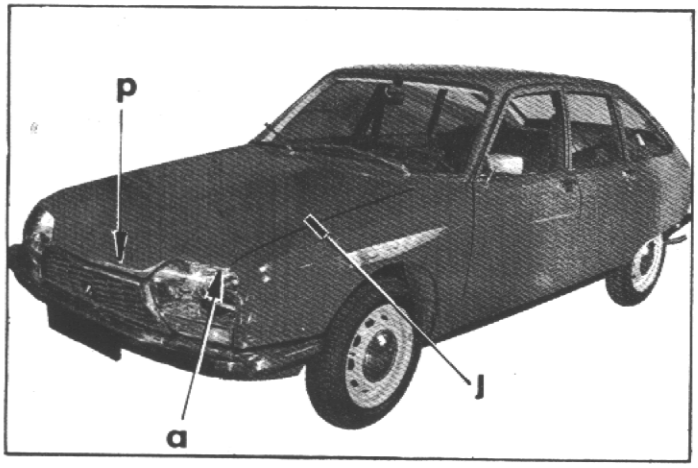
8745



1. Slacken slightly the hinge screws (1) to adjust the height of the bonnet to the upper edge of the front wing.

2. Slacken slightly the screws (2) securing the hinges to the bonnet, to obtain a clearance **J** of 6 ± 1 mm, that is, even and approximately equal on both sides. Check that the bonnet lines up with the front corner of each wing to within 3 mm at « a ».
Tighten the fixing screws (2).

8330

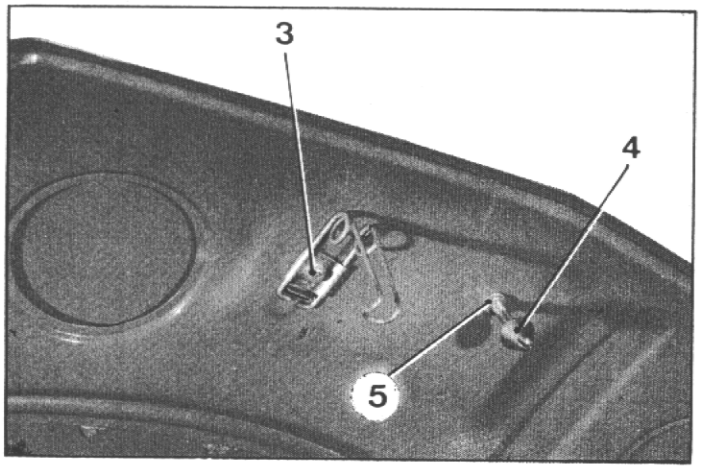


3. Slacken slightly the screw (3) to adjust the clearance of the safety catch : this must be between 0.5 and 2 mm.

4. Adjust the locking peg (4) of the bonnet so that no play is present when a lifting effort of 26 lb (11.8 kg) is applied at the point P.
Tighten the locknut (5).

Manual 810-1

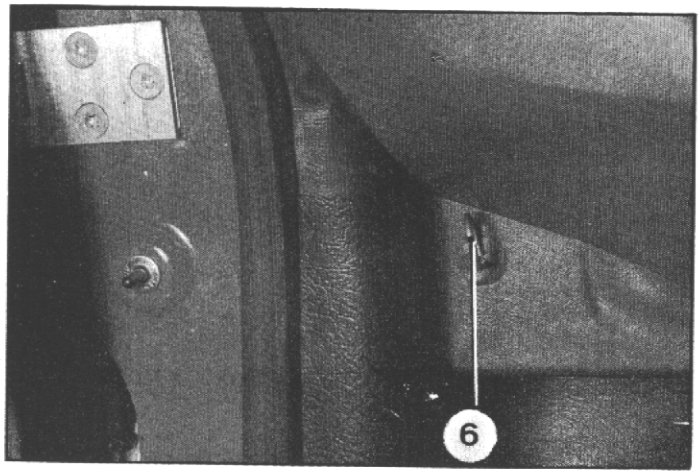
8746



5. With the bonnet open and the lock fully « free », check the clearance at the bonnet release (6) which should be 1 ± 0.5 mm.

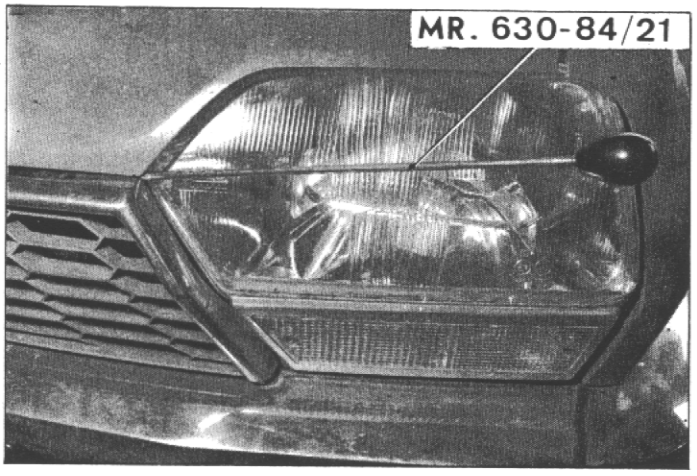
When dropped from about 250 mm (10 in.) the bonnet must close completely, and the lock engage fully, with the release in the « free » position.

8752



II. UNLOCKING A BONNET

(When the locking control is disconnected)



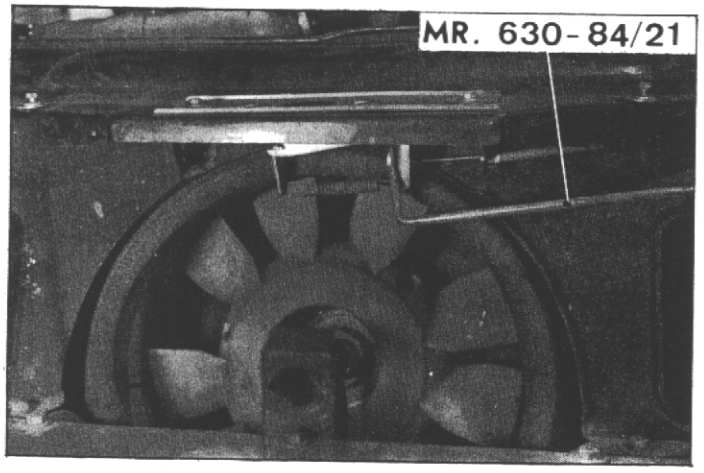
10183

NOTE : It is possible to unlock a bonnet when the control has become disconnected, because either :

- the control cables are not attached to the catch,
- or the cable is broken.

1. At the front (nearside), insert tool MR.630-84/21 into the gap existing between the headlamp, the front grille and the bonnet.

2. Illuminate the bonnet lock through the front grille.
   Hook the end of the tool into the bonnet release; slide and pull to operate the unlocking action.



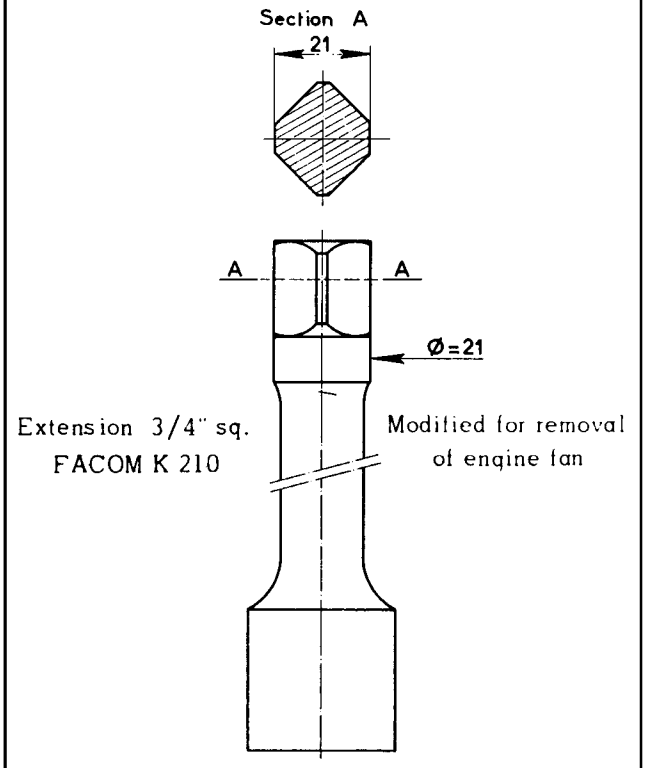
10184

LIST OF SPECIAL TOOLS IN VOLUME I OF MANUAL 810

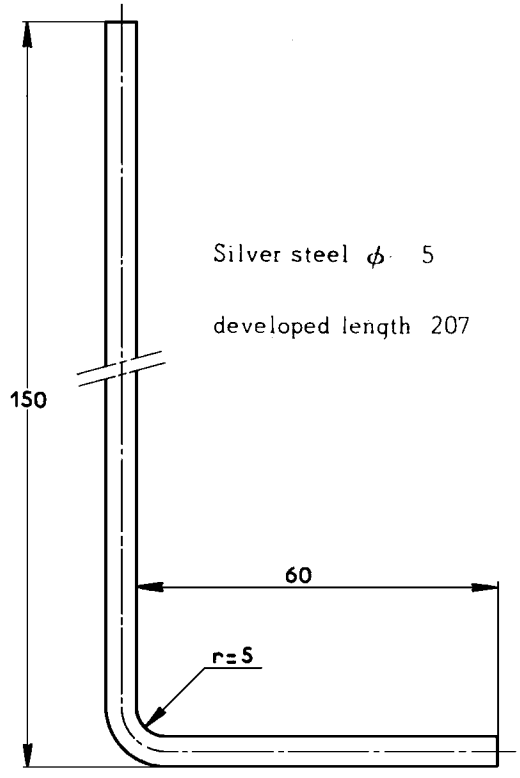
DESCRIPTION	MR. NUMBER	FENWICK TOOL REFERENCE
Vehicle lifting beam		2510-T
I. ENGINE		
Valve spring compressor lever		1652-T
Graduated sector for strobe setting ignition advance		3093-T
Cylinder-head spanner, for 12 mm A/F nuts		3094-T
Cylinder-head spanner, for 13 mm A/F nuts		4006-T.D and 4006-T.F
Extension for cylinder head spanner		4006-T.E
Rod for static ignition setting	MR. 630-51/70	
Adaptor for checking engine oil pressure (use with union 4009-T on cars produced since 29th August 1972)		3099-T + 4009-T
Pressure gauge (0 to 10 bars (0 - 140 psi)		2279-T
Apparatus for checking the fuel pressure		4005-T
II. TORQUE CONVERTER		
Torque converter checking kit		3112-T
This includes :		
- Two checking gauges for the contacts of the declutching control switch (min. dia. 1.4 mm - max. dia. 1.5 mm)		
- Two unions for oil pressure take-off (dia. 6 mm and dia. 7 mm)		
Pressure - gauge (0 to 10 bars (0 - 140 psi)		2279-T
III. STEERING		
Front and rear wheel alignment rods	MR. 630-51/48	
Rod for making straight-ahead position	MR. 630-51/63	
IV. FRONT AXLE		
Camber gauge		2311-T
Instrument for adjusting pre-load on the anti-roll bar bushes		2067-T
V. BRAKES		
Support for dial-gauge		2041-T
Spanner for adjusting the eccentrics of the parking brakes		2115-T
Dial gauge		2437-T
Extension stem for dial-gauge (L = 15 mm)		2443-T
Extension stem for dial-gauge (L = 94 mm)		3176-T
Support for checking the runout of brake discs	MR. 630-52/34	
VI. BODYWORK		
Tool for unlocking the bonnet	MR. 630-84/21	

Dimensions in mm (unless stated otherwise)

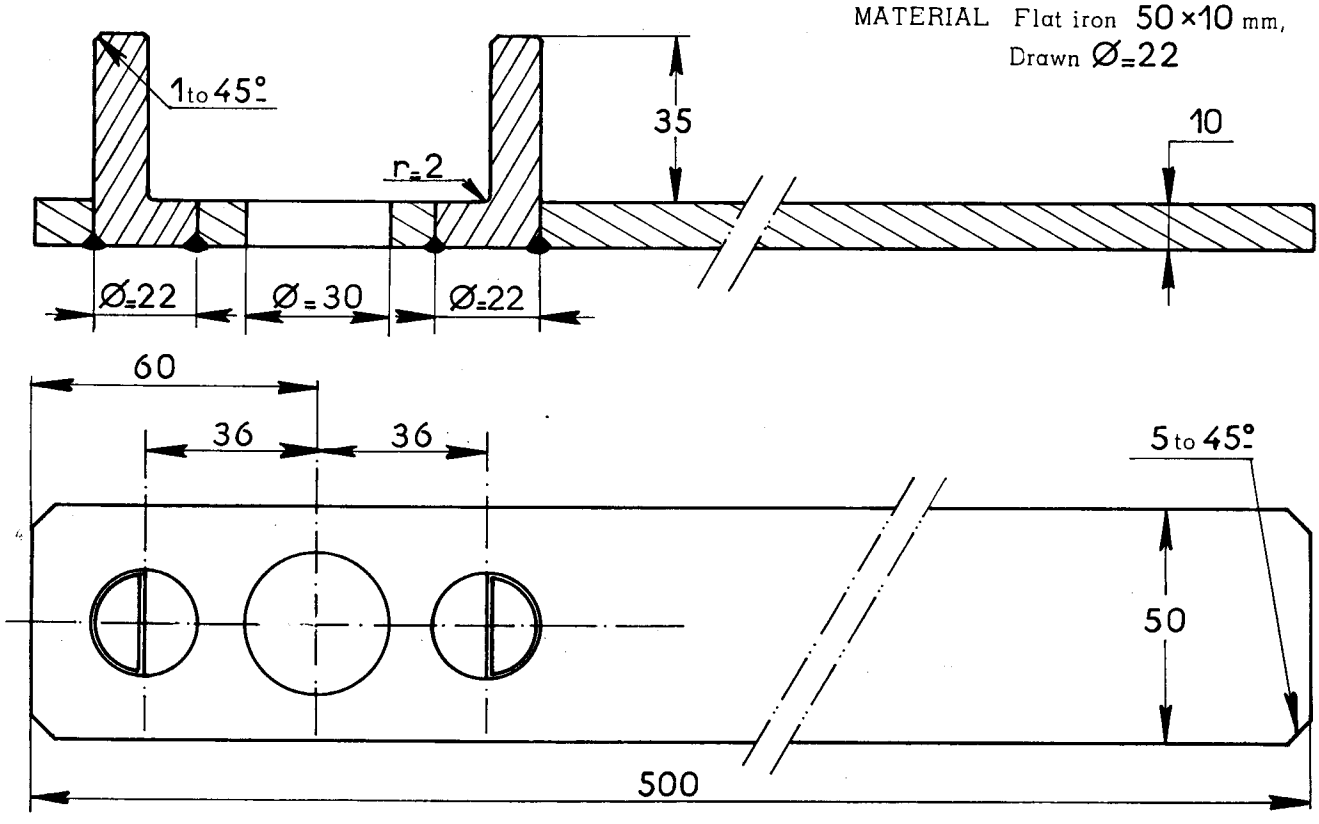
MR 630 – 17/1



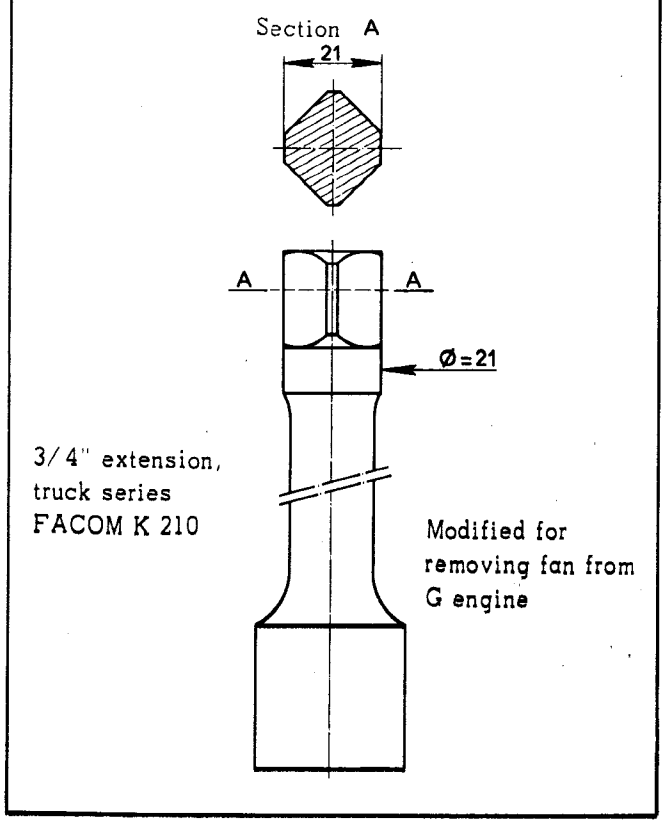
MR 630-51/70



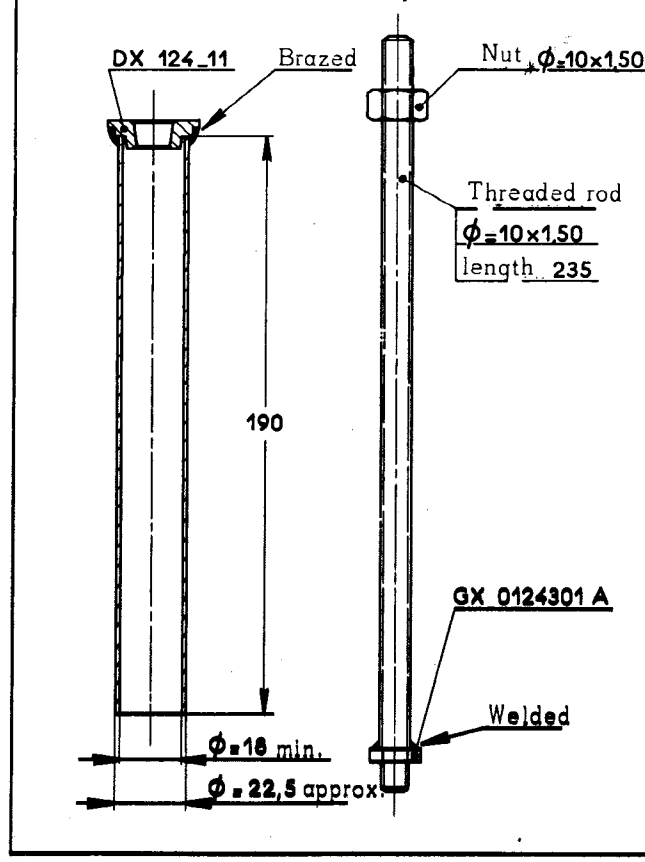
MR 630_11/26



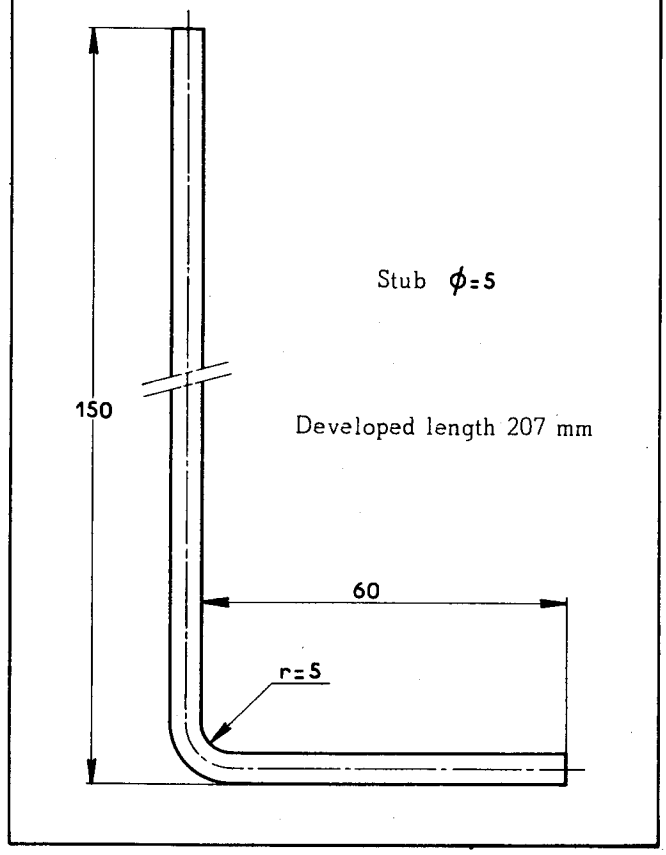
MR 630-17/1



MR 630_25/8



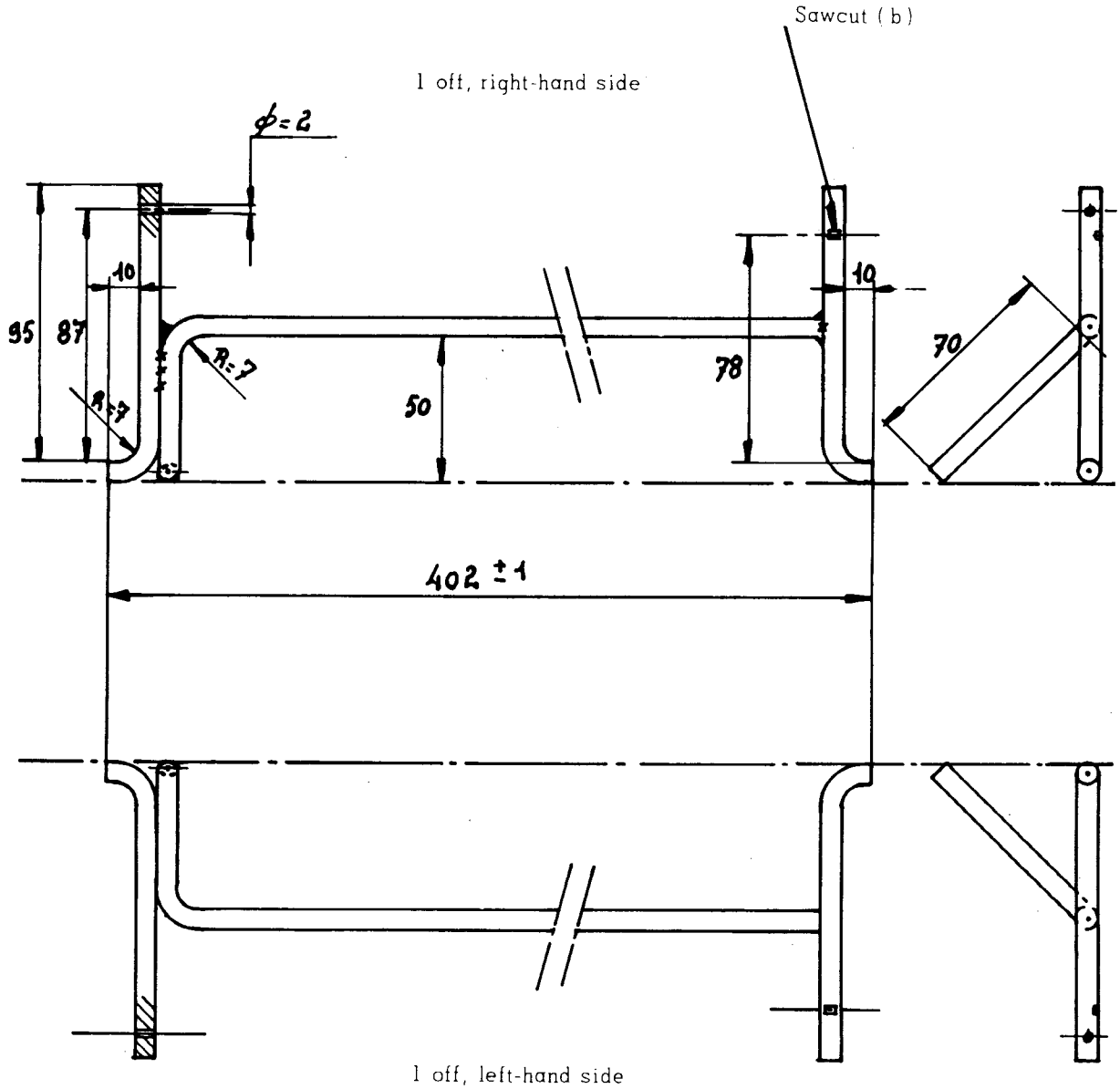
MR 630-51/70



MR. 630-51 48

RODS FOR FRONT WHEELS

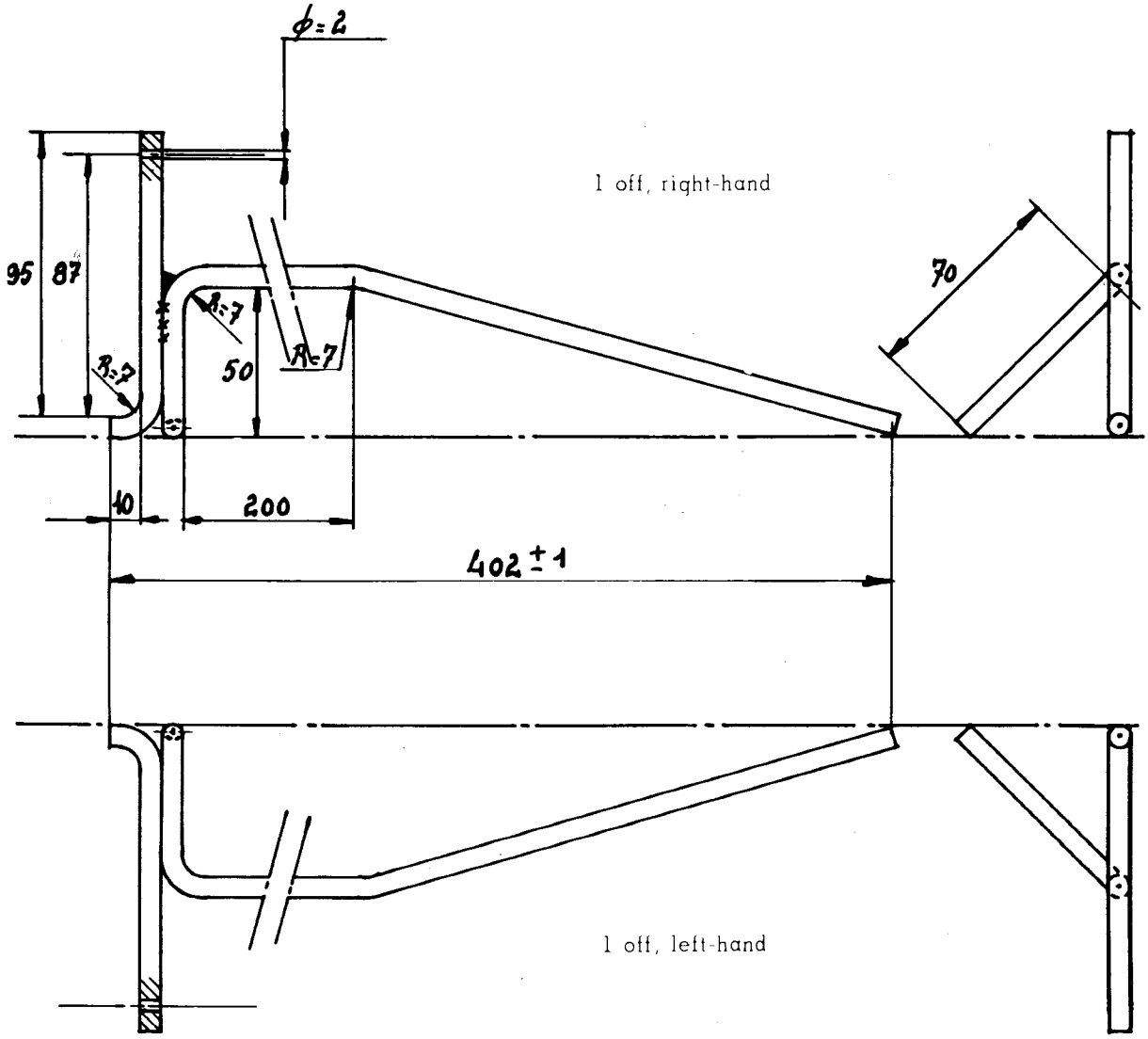
Dimensions in mm (unless stated otherwise)



MR. 630-51/48

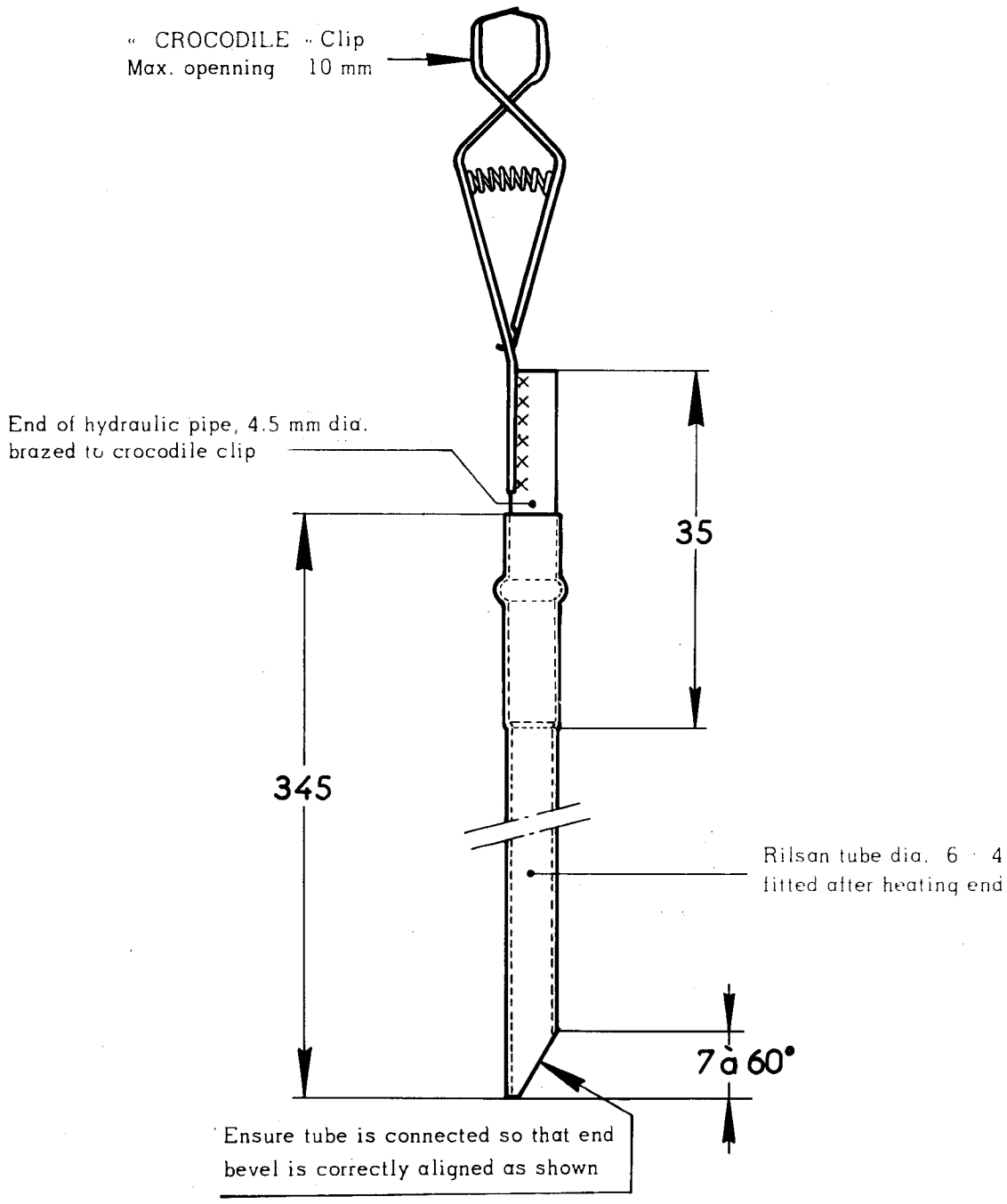
ROD FOR REAR WHEEL

Dimensions in mm (unless stated otherwise)



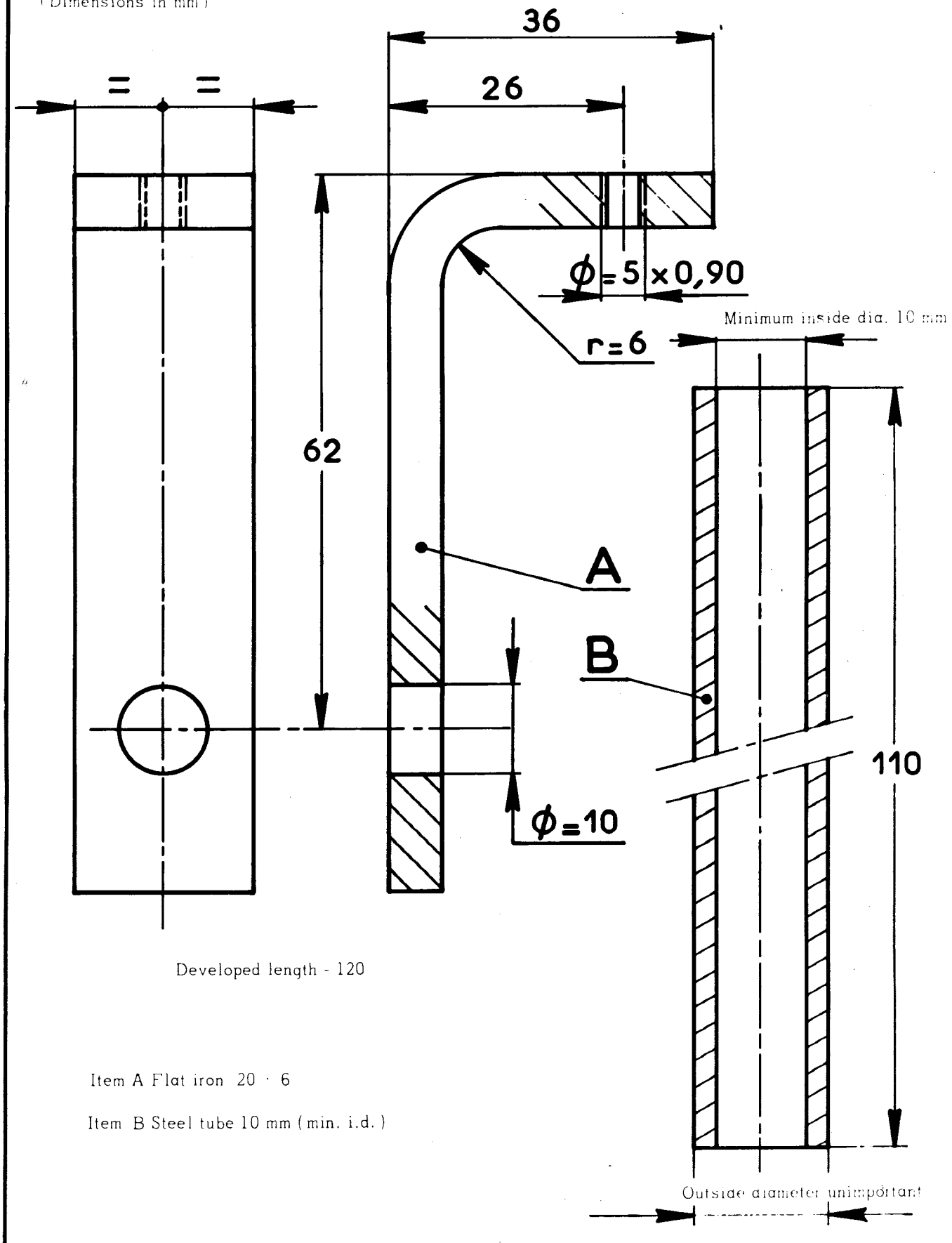
MR. 630-51/63

(Dimensions in mm)



MR 630_52/34

(Dimensions in mm)

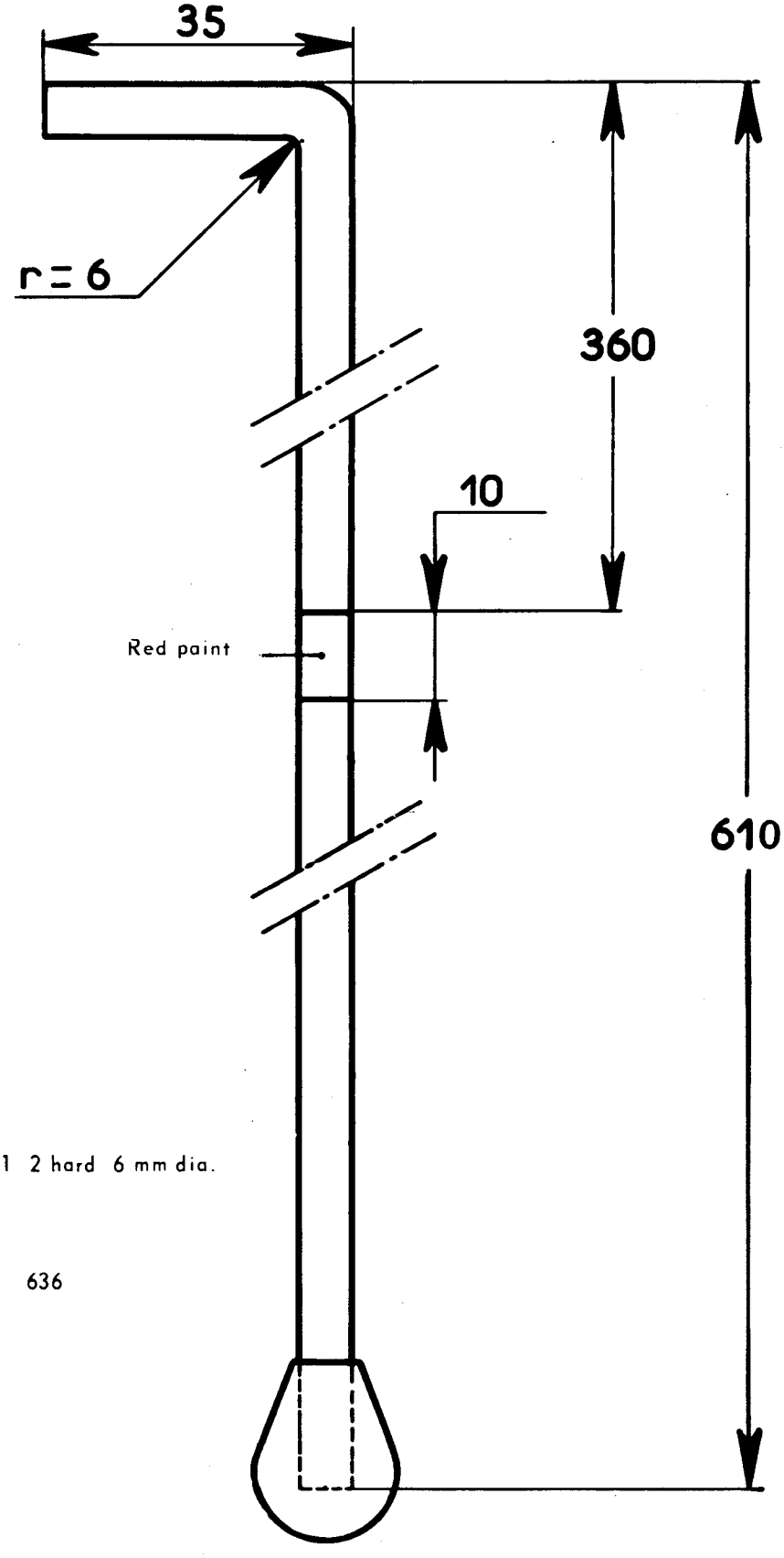


Developed length - 120

Item A Flat iron 20 · 6

Item B Steel tube 10 mm (min. i.d.)

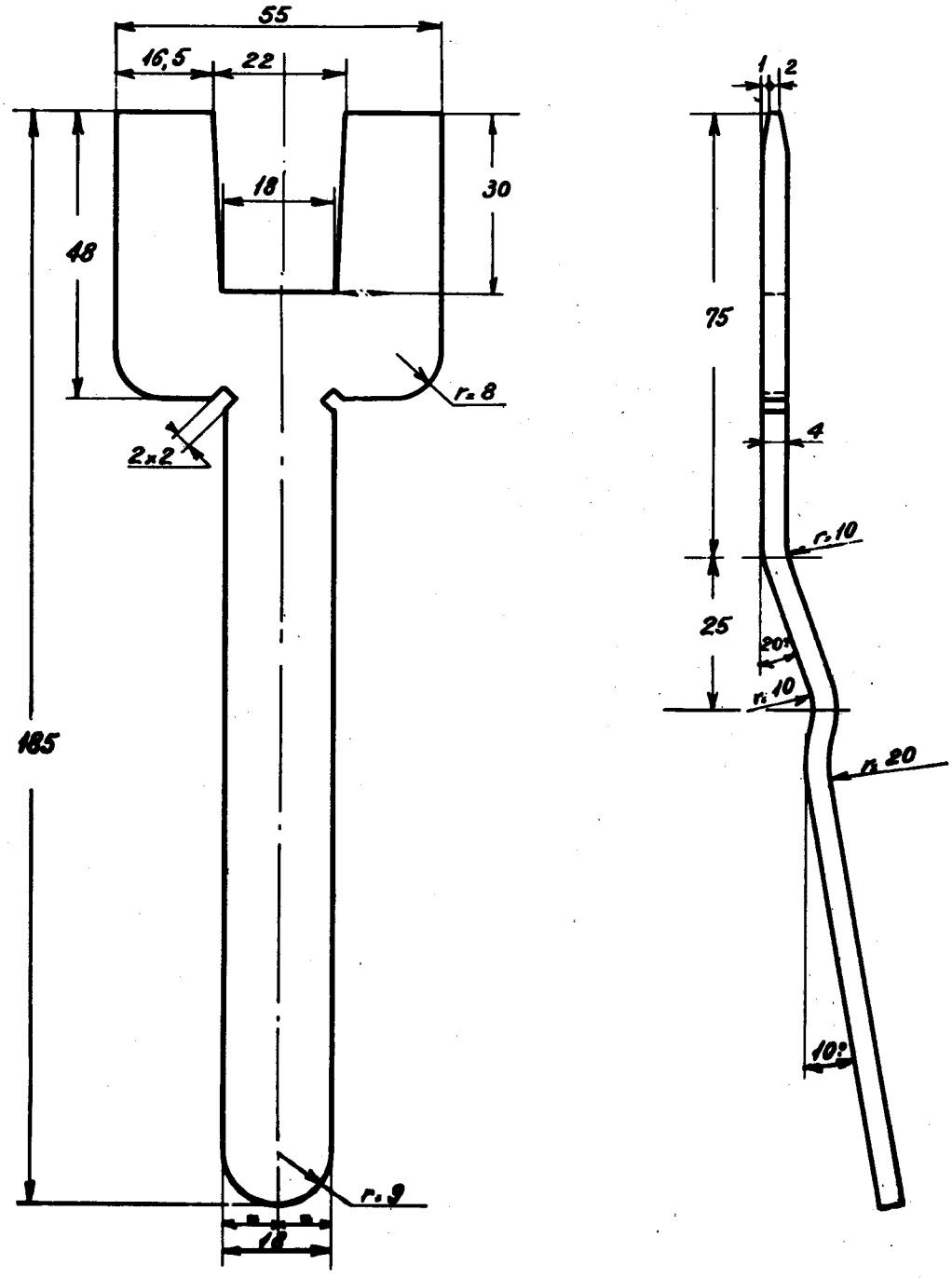
MR.630_84/21



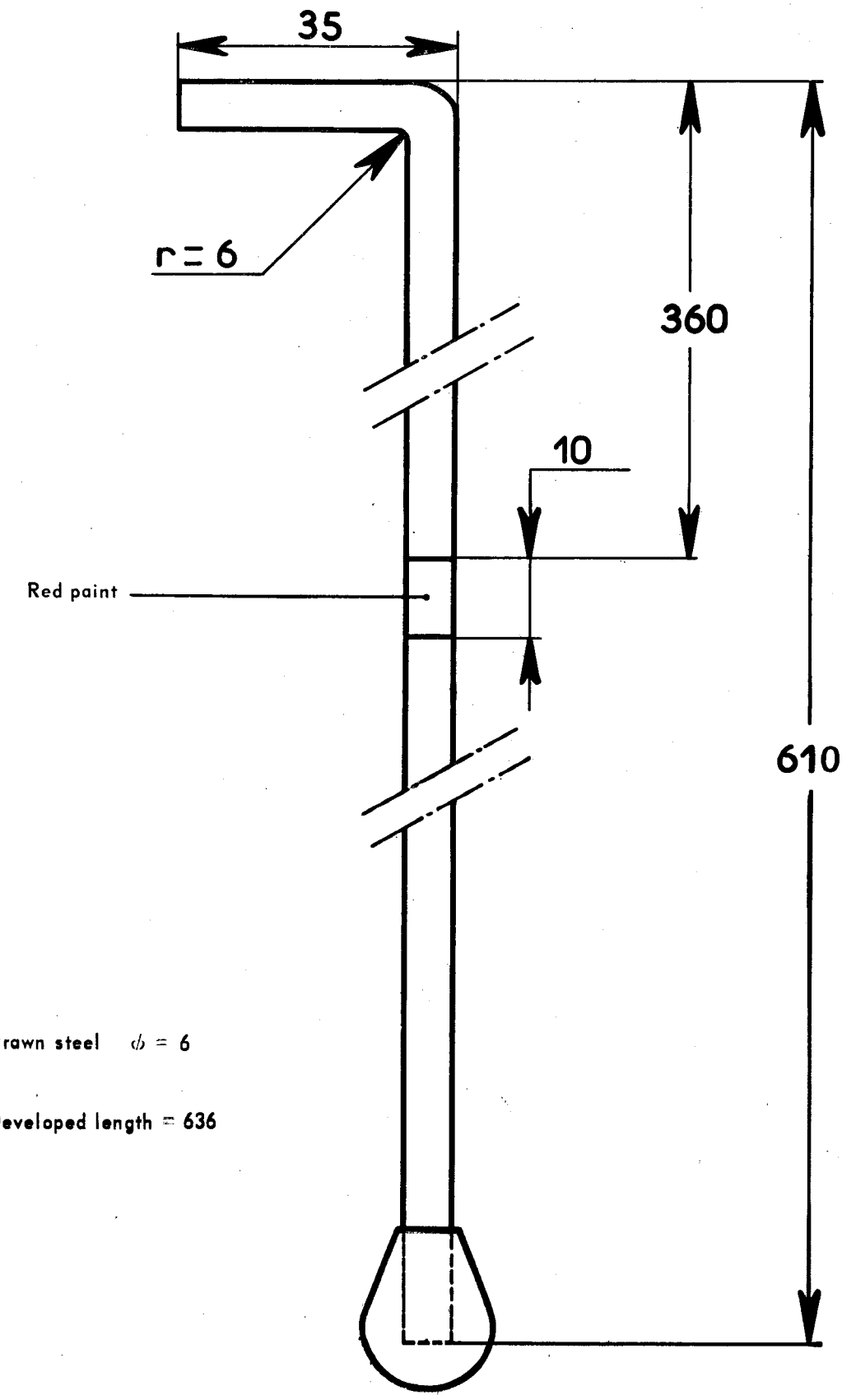
Drawn rod, steel, 1 2 hard 6 mm dia.

Developed length 636

MR. 630_84/14



MR.630_84/21



Drawn steel ϕ = 6

Developed length = 636