

#### 4. High tension wires:

Brand: .....ELECTRIFIL-BOUGICORD

Reference: ..... 400 RTF-33-0

Resistance of the wires (@ 68° F):

- Coils to distributors..... 510 to 784Ω
- Distributor to cylinder No.1 .. 676 to 1037Ω
- Distributor to cylinder No.2 .. 736 to 1127Ω
- Distributor to cylinder No.3 .. 1000 to 1523Ω
- Distributor to cylinder No.4 .. 904 to 1379Ω
- Distributor to cylinder No.5 .. 844 to 1289Ω
- Distributor to cylinder No.6 .. 568 to 875Ω

#### 5. Ignition condensers:

Capacity..... 0.25 to 0.30 μF

Resistance (min.) ..... 5 MΩ

## II - PARTICULARS

### Ignition circuit:

#### a) Ignition coil (5) right side:

*This fires cylinders 1, 2 and 3*

The primary wire (1) of the upper cassette connects to the terminal marked **B1** on the distributor.

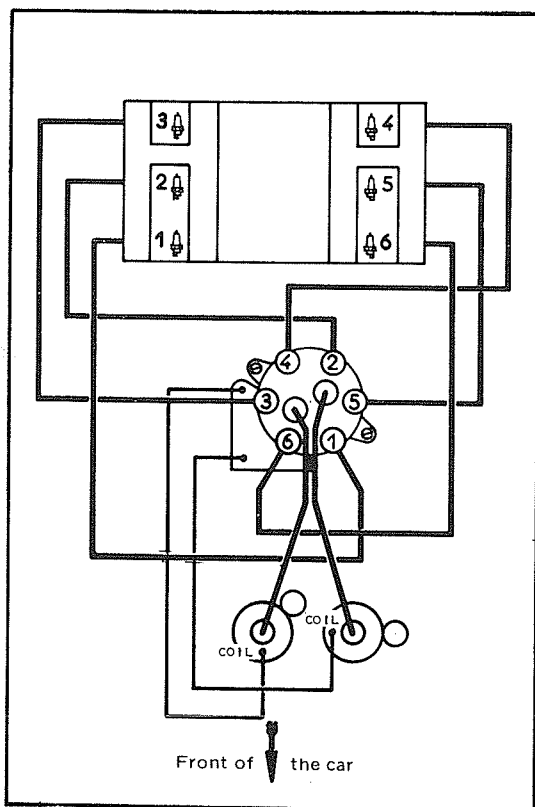
The high tension wire (6) connects onto the distributor cap at the post marked **B1**

#### b) Ignition coil (3) left side:

*This fires cylinders 4, 5 and 6.*

The primary feed wire (4) of the lower cassette connects to the terminal marked **B2** on the distributor.

The high tension wire (2) connects onto the distributor cap at the post marked **B2**



**I - INSPECTION OF THE IGNITION****1. Verify the adjustment of the gap of the distributor breaker points in place on the car.****a) With the help of a cam angle meter or an oscilloscope:**

The motor running, read a closing angle of the points equal to  $88^{\circ} \pm 4^{\circ}$ .

**b) With the help of a dwell meter:**

The motor running, read a "dwell ratio" equal to  $73\% \pm 3\%$ .

**2. Verify the adjustment of the breaker point gap on a distributor removed from the car:****a) With the help of a distributor test bench:**

See paragraph 12.

**b) Using a set of feeler gauges A (see figure):**

Remove: - the distributor cap  
- the rotor

Disengage the support assembly (1) of the condensers from the distributor body. Turn the distributor shaft so as to open the points to the maximum. At this point check the gap of the contacts. It should be .014" to .018". Repeat this inspection on the other set of breaker points.

**3. Verify the synchronization of the two sets of points in place on the car:****a) Using a stroboscopic (timing) light:**

The motor being warm (stable speed) allow it to run at idle.

- Connect the high tension wire of the strobe light (B) to the post of the distributor cap corresponding to the wire of cylinder No.1. After having removed the rubber plug, flash the timing hole "a" of the clutch housing and read the advance on the flywheel.

- Connect the high tension wire of the strobe light (B) to the post of the distributor cap corresponding to the wire of cylinder No.5. Flash the hole "a" and read the advance on the flywheel. It should be:

*the figure read previously +  $30 \pm 2^{\circ}$ .*

**b) Using a continuity test lamp:**

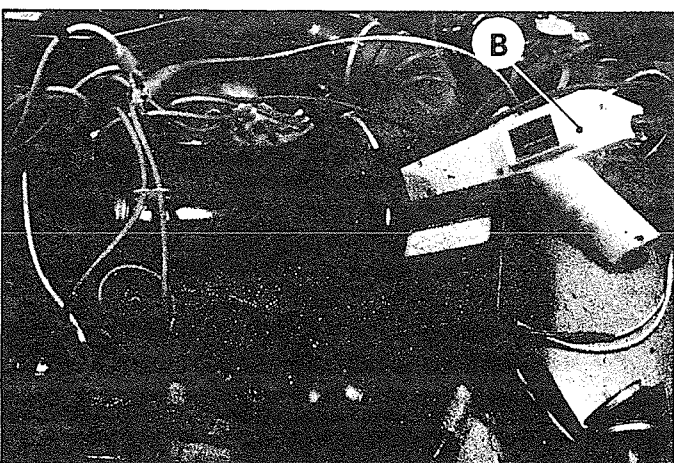
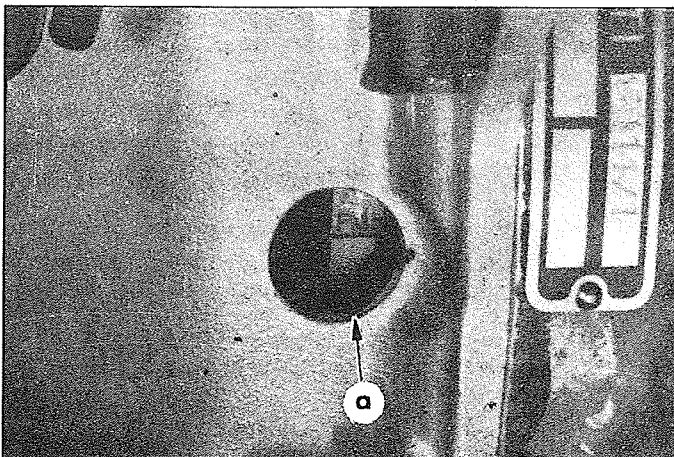
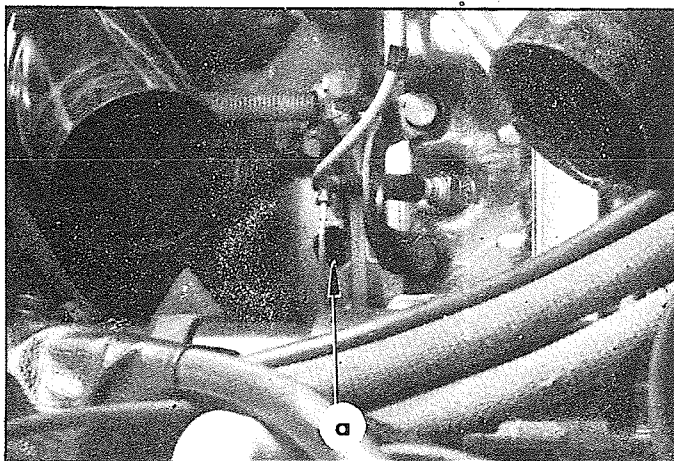
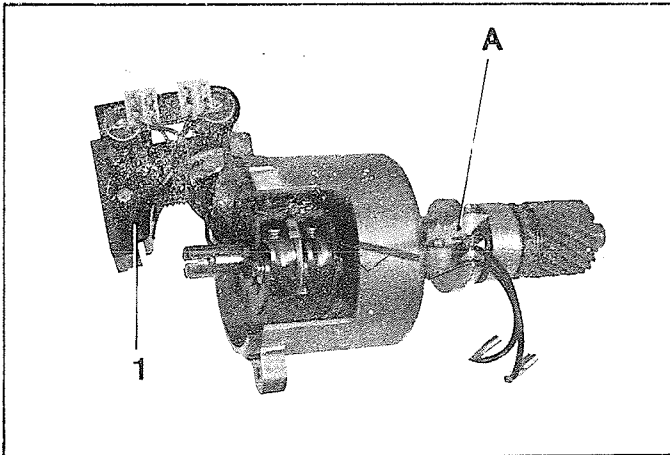
Raise the left front wheel (left side supported) and shift to 5th speed. Turn the ignition on but do not start the motor.

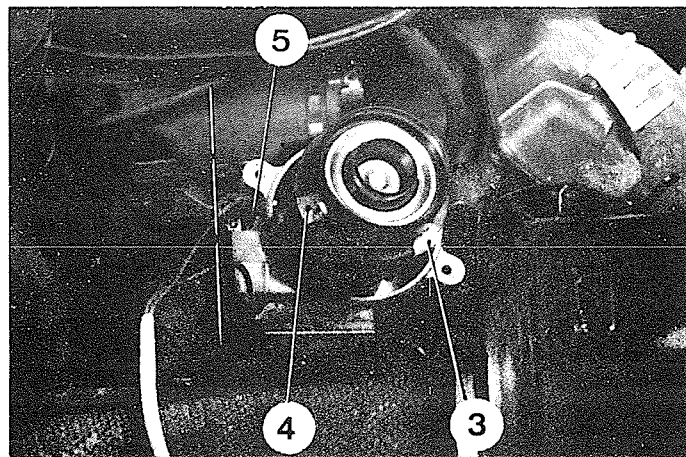
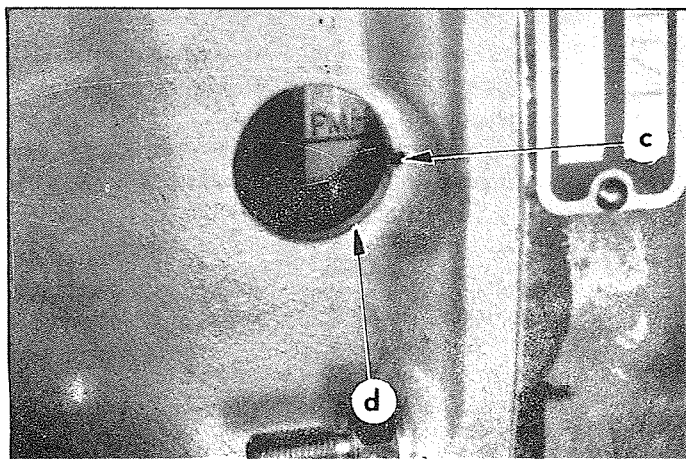
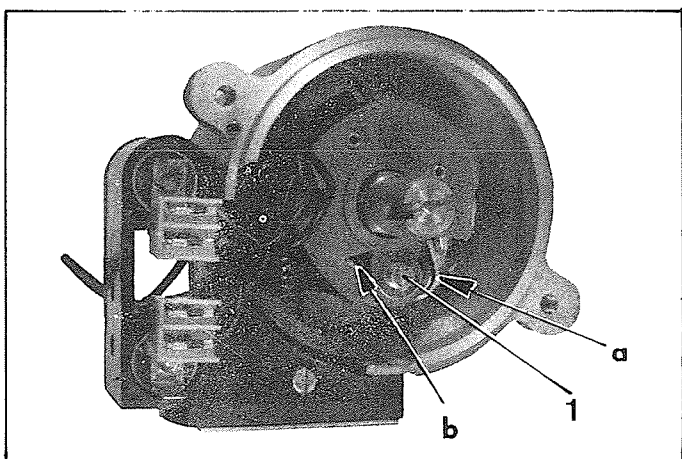
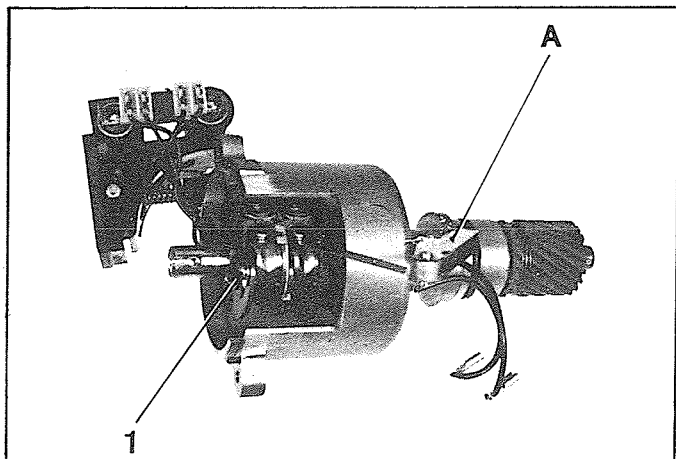
- Connect the test lamp to ground and to the "RUP" terminal of the right side ignition coil.

- Turn the left front wheel just to the moment when the cylinder No.1 reaches the point of ignition (the test lamp lights). Through the timing hole "a" read the advance on the flywheel.

- Connect the test lamp to ground and the "RUP" post of the left side ignition coil. Turn the left front wheel (a little less than 1 turn of the motor) just to the moment when cylinder No.5 reaches the point of ignition (the test lamp lights). Read the advance on the motor flywheel. It should be equal to:

- the previous figure +  $30 \pm 2^{\circ}$ .





4. **Verify the synchronization of the two breaker sets on a distributor removed from the car:**  
This inspection should be done on a distributor test bench: see paragraph 13.

5. **Verify the calibration of the distributor with a stroboscopic (timing) light:**  
The high tension wire of the timing light being connected to the post of the distributor cap corresponding to the wire of cylinder No.1, flash the flywheel through the timing hole "d".  
Run the motor at: **2000 R.P.M.**  
Read the advance on the flywheel in line with the stationary mark "C" (on the clutch housing).  
◆ This should be: ..... 27° BTDC

## II. ADJUSTMENT OF THE DISTRIBUTOR

6. **Adjustment of the gap of the breaker points on a distributor removed from the car:**
- a) **On a distributor test bench:** See paragraph 12. (the adjustment on a test bench is easier and more precise).
  - b) **Using a set of feeler gauges A:**  
Remove: - the distributor cap  
          - the rotor  
Disengage the support assembly (2) of the condensers from the distributor body. Turn the distributor shaft in order to open the lower set of points to the maximum (it is advisable to start with the lower cassette).  
◆ Slightly loosen the screw (1): using a screw driver, work on the lug "a" to obtain a contact gap of .014" to .018".  
Adjust the points of the upper cassette in the same fashion by working on the lug "b".  
Tighten the screw (1).  
**IMPORTANT:** It is necessary that the gaps on both contact sets be equal.  
                  - It is necessary to recheck the gap of the contacts on each of the two cassettes (after retightening the screw (1)).

7. **Adjustment of the synchronization of the two breaker point sets:**

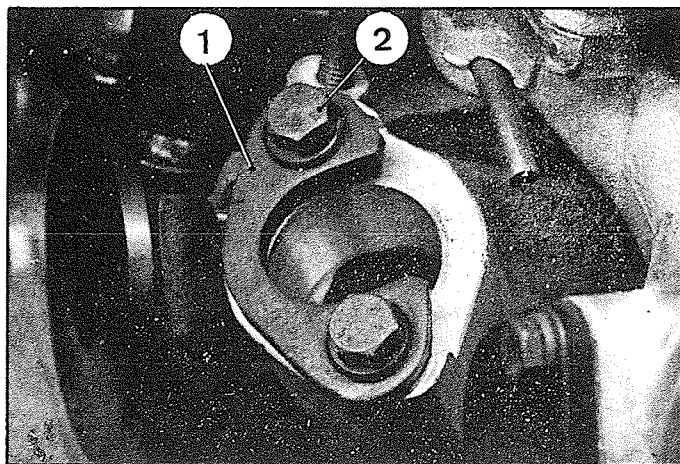
This adjustment is delicate and can only be done on a distributor test bench. (See paragraph 13).

8. **Pre-adjustment of the distributor** (in case it has been removed):

- a) Set the cylinder No.1 at TDC. To do this:
  - Raise the left front wheel (left side of the car supported) and shift into 5th speed.
  - Remove the spark plug of cylinder No.1. Plug the spark plug hole with the thumb. Make the left front wheel turn and stop when the thumb is repulsed by the compression of the cylinder. Gently turn the wheel so as to bring the TDC reference mark on the motor flywheel in line with the fixed timing mark "c".
- b) The distributor cap being removed, engage the pinion of the distributor drive so that the two fingers (3) and (4) of the rotor occupy approximately the position indicated in the adjacent photo.  
At this point, the support (5) of the condensers is found approximately in line with the axis of the motor.



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c) Turn the ignition on but do not start the motor.

Connect a continuity test lamp to ground and the "RUP" post of the right side ignition coil. Turn the distributor (3) just to the point when the lamp lights.

Set the distributor clamp (1) in place and slightly tighten the screw (2) (flat washer under the head).

**9. Adjust the distributor with a stroboscopic (timing light):**

Connect the high tension wire of the strobe light A to the post of the distributor cap corresponding to the wire of cylinder No.1. Flash the motor flywheel (5) through the timing hole "b".

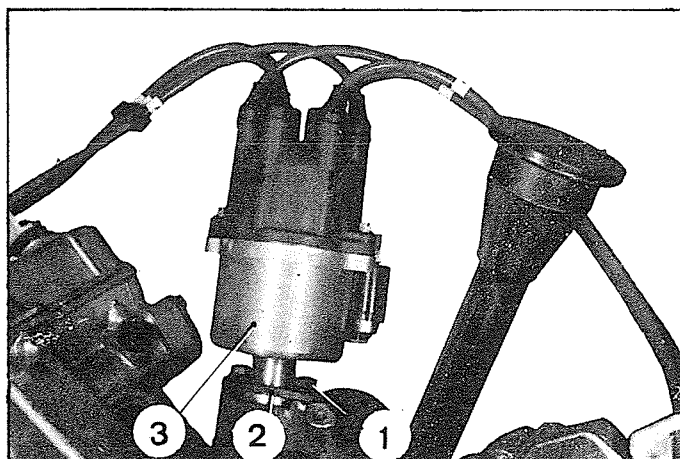
The motor running at: . . . . . 2000 R.P.M.

- ◆ The advance should be: . . . . . 27° BTDC (read the advance on the graduations of the motor flywheel (5), in line with the fixed timing mark "a").

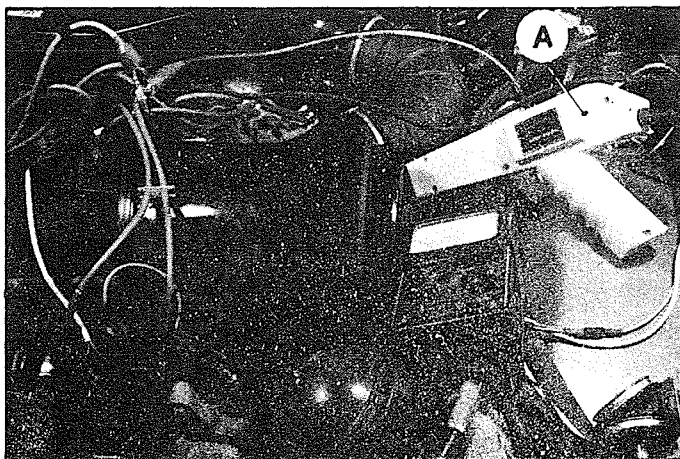
NOTE: The advance increases by turning the distributor clockwise.

Tighten the screws (2) to 25 ft. lbs.

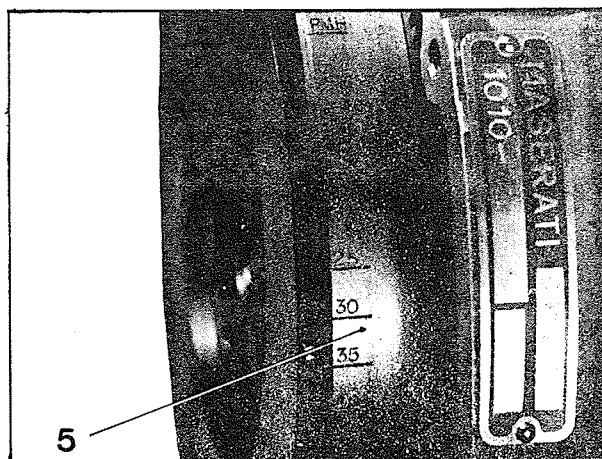
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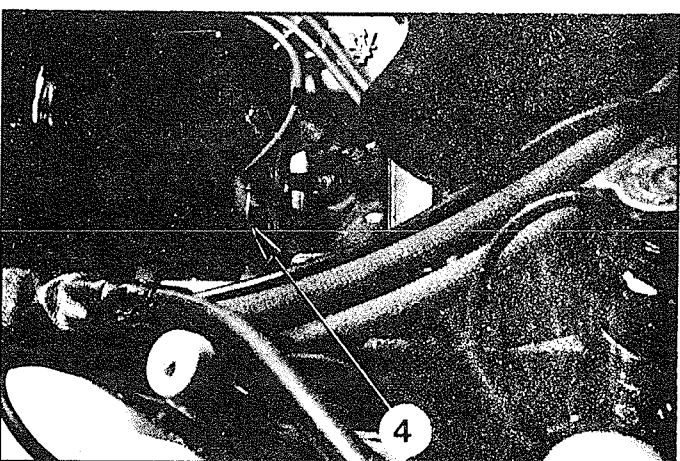
8445



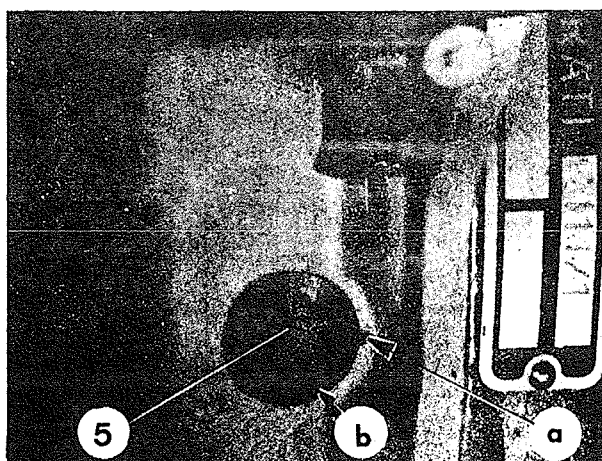
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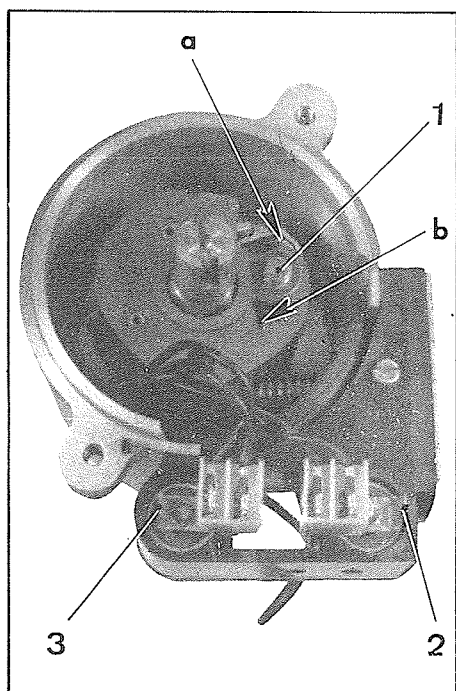


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### III. ADJUSTMENT OF THE DISTRIBUTOR ON A TEST BENCH

10. Place the distributor on the test bench.

Remove: - the distributor cap  
- the rotor

11. *Inspect the condition of the breaker contacts.*

If they are defective, replace the assembly of the two cassettes.

12. *Adjust the gap of the breaker points:*

The distributor turning at a stable speed (direction of rotation: counter-clockwise), slightly loosen the screw (1).

a) Attach a "live" lead (2) to the lower cassette (it is advisable to start with the lower cassette). Work on the lug "a" with a screw driver to obtain a cam opening angle equal to  $32^\circ \pm 4^\circ$ .

b) In the same manner, adjust the upper cassette by attaching the feed wire at (3) and by working on the lug "b".

IMPORTANT: It is necessary that the cam opening angle of both breaker sets be *equal*.

It is necessary to check the cam opening angle on each of the cassettes (after tightening the screw (1).)

13. *Adjust the synchronization of both breaker sets:*

The distributor turning at a steady speed (direction of rotation: counter-clockwise).

a) Firstly, attach a feed wire at (2) on the lower cassette. Move the graduated ring of the distributorscope so that "O" coincides with the beginning of the opening of the contacts. Lock the ring.

b) Then, attach the feed wire at (3) on the upper cassette. *The beginning of the opening of the upper contacts must occur  $45^\circ \pm 1^\circ$  after that of the lower contacts.*

If not, work on the upper lug "b" just to the point where this condition is reached.

NOTE: It is necessary to check the adjustment of the synchronization after tightening the screw (1).

14. *Check the arrangement of the flashes (flash pattern):*

*The angular spacing must not exceed  $1^\circ$  at any speed (maximum speed of the distributor: 3700 R.P.M.)*

Make this check on each set of breaker points.

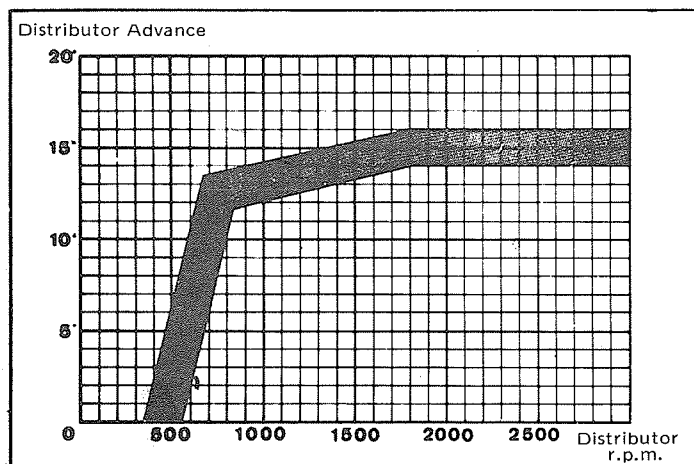
(There are three flashes spaced at  $120^\circ$  per revolution and per breaker set). If this condition is not obtained replace the cam section of the distributor shaft.

15. *Check the adjustment of the automatic advance curve:*

a) Make a spot check of the advance curve (see schematic) for the increasing speeds from 0 to 3000 R.P.M., and the decreasing speeds from 3000 to 0 R.P.M. with no oscillating motion of the distributor. These spot checks should fall within the "mini" and "maxi" of the curve at any particular point.

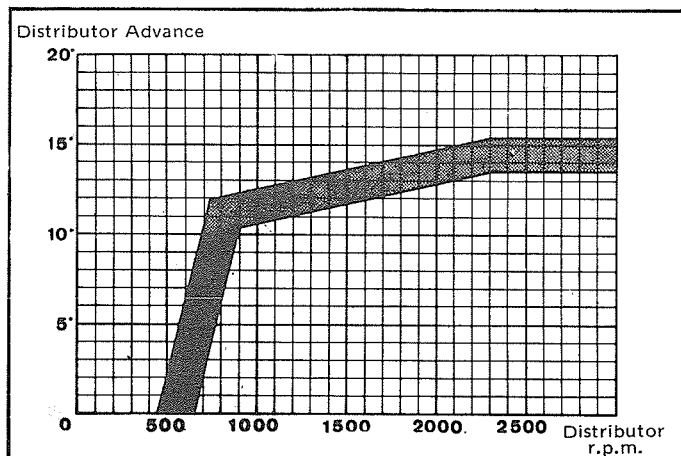
Cars produced until 12/1970

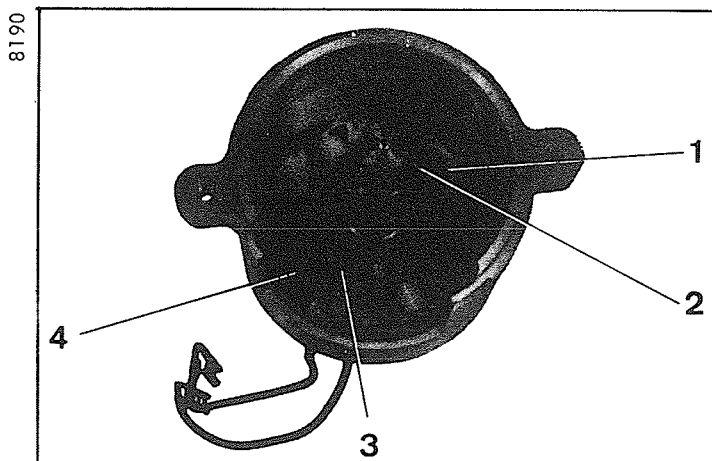
S. 21-1 a



Cars produced after 12/1970

♦ S. 21-3 a





- b) To a certain extent, it is possible to rectify the advance curve.

To do this, modify the tension of the springs by bending the spring hooks (1) and (4), or replacing the springs (2) and (3).

REMARK: If flashes are produced apart from the three normal positions at speeds lower than 3500 R.P.M., it is necessary to replace the cassette carrier assembly.

#### IV - INSPECTION OF AN IGNITION COIL

##### 1. References:

DUCELLIER .....	2777 B
S.E.V. - MARCHAL .....	E. 44 910 312 (B 12 volts)

##### ◆ 2. Inspection of the primary circuit:

- a) Check the insulation of the circuit by using an ohmmeter connected between the post marked "BAT" and the case of the coil:

*The resistance should be infinite*

- b) Check the resistance of the circuit by using an ohmmeter connected between the post marked "BAT" and the post marked "RUP":

*The resistance should be:*

- DUCELLIER COIL	=	1.3 $\Omega$ @ 68° F.
- S. E. V. - MARCHAL COIL	=	1.5 $\Omega$ @ 68° F.

- c) Check the value of the "BALCO" resistor mounted in series with the primary circuit.

*The resistance should be:*

- DUCELLIER COIL	=	0.9 $\Omega$ @ 68° F.
- S. E. V. - MARCHAL COIL	=	1.1 to 1.2 $\Omega$ @ 68° F.

##### ◆ 3. Inspection of the secondary circuit:

Check the resistance of the secondary circuit by connecting an ohmmeter between the post marked "RUP" and the center tower of the coil.

*The resistance should be:*

- DUCELLIER COIL	=	5900 $\Omega \pm 10\%$ @ 68° F.
- S. E. V. - MARCHAL COIL	=	6050 $\Omega \pm 10\%$ @ 68° F.

##### 4. Check the coil on a test bench:

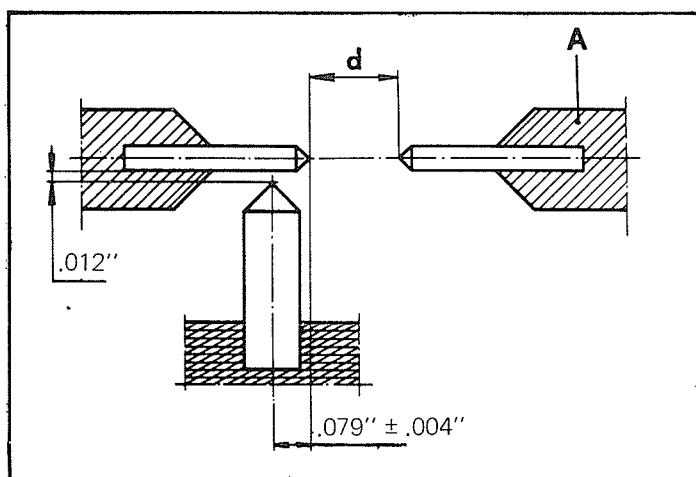
Place the coil, fitted with its "BALCO" resistor, on a test bench equipped with a shunted spark gap (50 K $\Omega$ ) adjusted as indicated in the schematic.

- a) Turn the distributor at 500 R.P.M. The gap being spaced at least 15 mm (.590"), slowly bring the movable finger A toward the stationary finger and stop when the first flash appears. At this moment measure the space "d" of the spark gap. Repeat this test at least three times and determine the average of the spaces "d" measured.

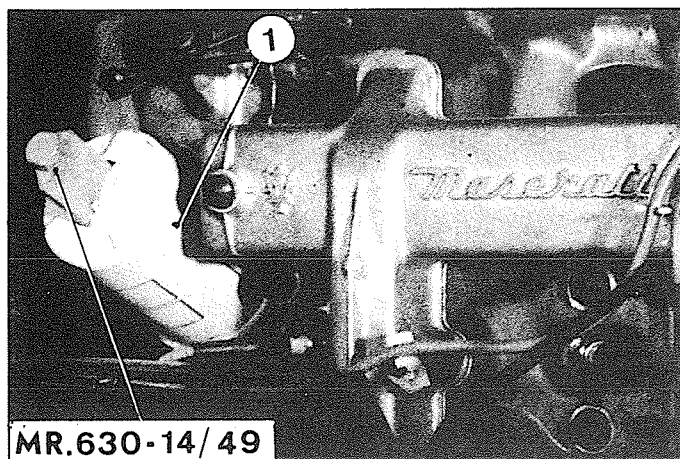
*This average should be a minimum of 9 mm (.354").*

- b) Turn the distributor at 3000 R.P.M. Redo the test as indicated above.

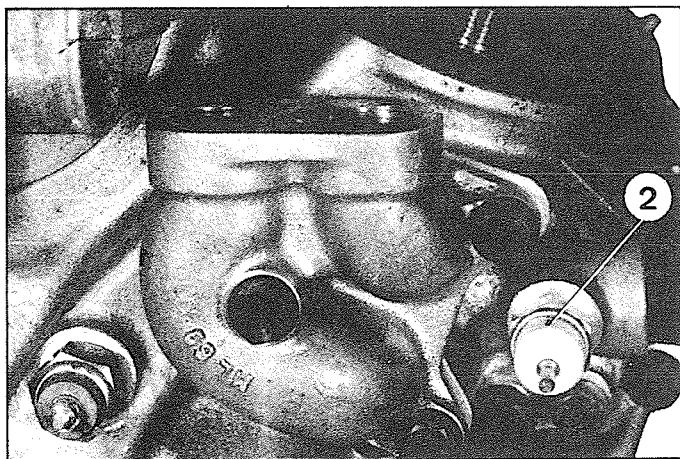
*The average gap should be a minimum of 5 mm (.197").*



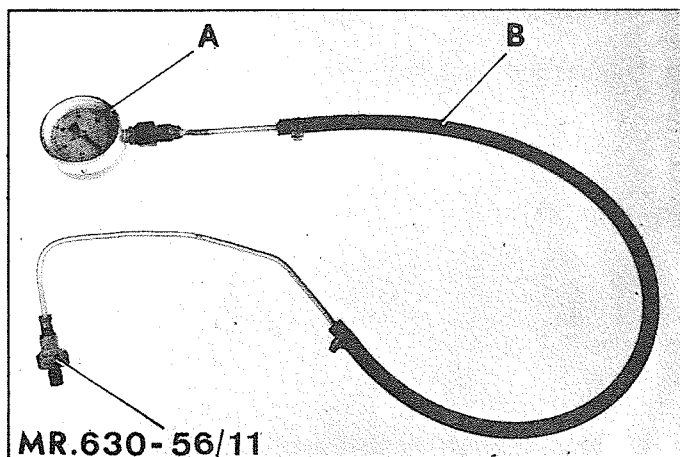
8822



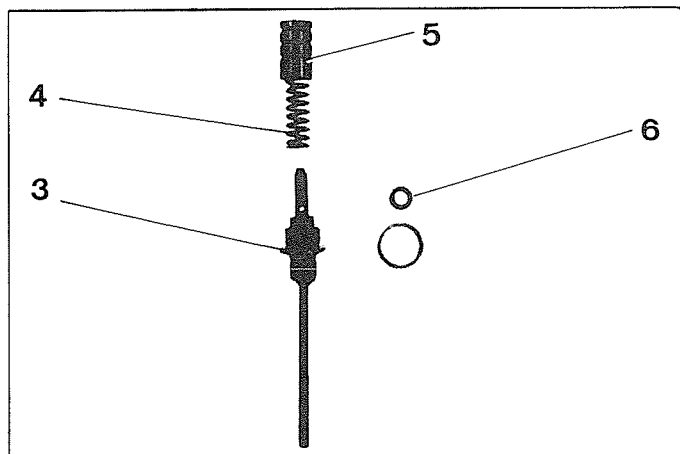
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8823



8092



## I. PREPARATION

1. Remove the cartridge (1) of the oil filter with the help of the tool MR. 630-14/49.
2. Disconnect the wire from the pressure switch (2) and remove the switch.
3. Equip the union MR. 630-56/11 with a flexible hose B (length = 20'' approx.) for connection to an oil pressure gauge graduated from 0 to 10 bars (0 to 145 p.s.i.).
4. Set the union in the position of the pressure switch (2).

Replace the filter cartridge (1).

NOTE: For pressure specifications see Operation No. S. 100-00.

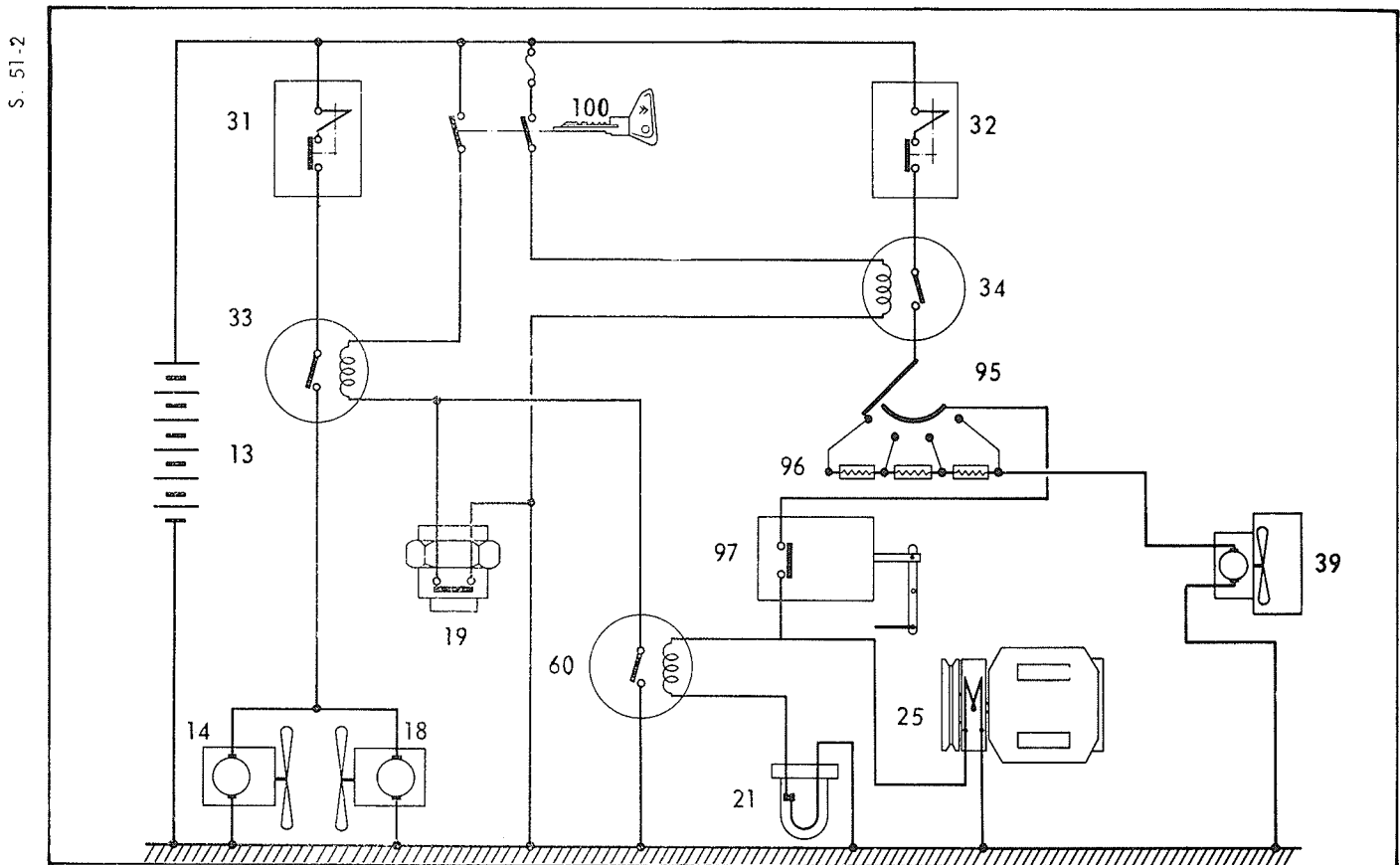
## II. ADJUSTMENT OF THE OIL PRESSURE

5. Drain the motor.
6. Remove the lower oil pan.
7. With the help of the tool MR. 630-12/33, remove the cap (3) of the discharge valve, the adjusting shims (6), the spring (4), and the piston (5).
8. Modify the thickness of the adjusting shims (6) to obtain the correct oil pressure.
9. Replace the piston (5), the spring (4), the adjusting shims (6) and the cap (3) of the discharge valve.
10. Replace the drain plug.
11. Refill the motor with oil, 6 liters = 6-3/8 qts. - 20 W 50 SAE).



## VENTILATION

*Principle of the electrical control of the cooling system fans.*



*Legend:*

NOTE: The reference numbers of the units are identical to those used in the wiring diagram.

<b>13</b>	Battery	<b>34</b>	Control relay for the air conditioning system
<b>14 and 18</b>	Cooling system fans	<b>39</b>	Climatization air blower
<b>19</b>	Thermo-contact of the water radiator	<b>60</b>	Relay of the mano-contact (21) (attached to the group on the left front fender)
<b>21</b>	Mano-contact of the steering oil pressure	<b>95</b>	Control switch for the air conditioning system and rheostat for the air blower (39) (on the dash console).
<b>25</b>	Electro magnetic clutch of the air conditioner compressor	<b>96</b>	Resistors controlling the speeds of the blower (39)
<b>31</b>	Circuit breaker for the fans	<b>97</b>	Ambiance thermostat (on the evaporator)
<b>32</b>	Circuit breaker for the air conditioner and the power window lifters	<b>100</b>	Ignition switch
<b>33</b>	Control relay for the fans		

*Principle of operation:*

The two fans (14) and (18) of the cooling system have the purpose:

- 1) Of cooling the water in the radiator of the motor cooling system.
- 2) Of cooling the air conditioner condenser, when the compressor recirculates the refrigerant under pressure.

**Current flow to the fans (14) and (18):** This is done through the circuit breaker (31) and the contacts of the relay (33). The passage of current through the exciting coil of the relay (33) conditions thusly, the running of the fans (14) and (18).

*Circuit of the exciting coil of the relay (33):* The coil of the relay (33) is fed when:

- the ignition switch (100) is turned on,
- one of the contacts of either the thermo-contact (19) or the relay (60) is closed.

(The thermo-contact (19) is controlled by the temperature of the water in the radiator).

(The mano-contact (21) is controlled by the pressure of oil of the steering (centrifugal regulator), which itself is subjected to the speed of the car).

*Circuit of the exciting coil of the relay (60):* The coil of the relay (60) is fed when:

- the ignition switch (100) is turned on (control of the relay (34).)
- the contact (95) is established (control lever of the air blower in first position).
- the contact of the ambience thermostat (97) is closed. (Sufficient temperature inside the car).
- the contact of the mano-contact (21) is closed (oil pressure of the steering less than  $1600 \pm 73$  p.s.i.).

The current flows through the circuit breaker (32).

NOTE: The current to the clutch (25) of the air conditioner compressor is conditioned by the ambience thermostat (97).

The current of the blower (39) is affected by the resistors (96) of the rheostat (95).

This rheostat regulates the speed of the blower (four positions), consequently the volume of air blown.

### INSPECTION OF A THERMOSTAT

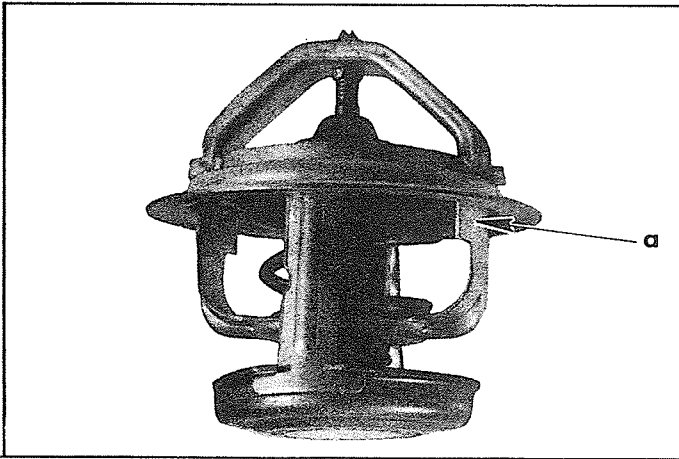
NOTE: Reference: 75 (marked at "a")

1. Submerge the thermostat in water and heat it gradually.

When the water reaches a temperature between 165° – 175° F the valve should begin to open.

The thermostat, submerged and agitated in the water at 185° F should be completely open, having travelled a distance of 7,5 mm (.295") min.

If the thermostat does not meet these conditions, it is necessary to replace it.



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### WATER TEMPERATURE SENSOR OF THE MOTOR COOLING SYSTEM

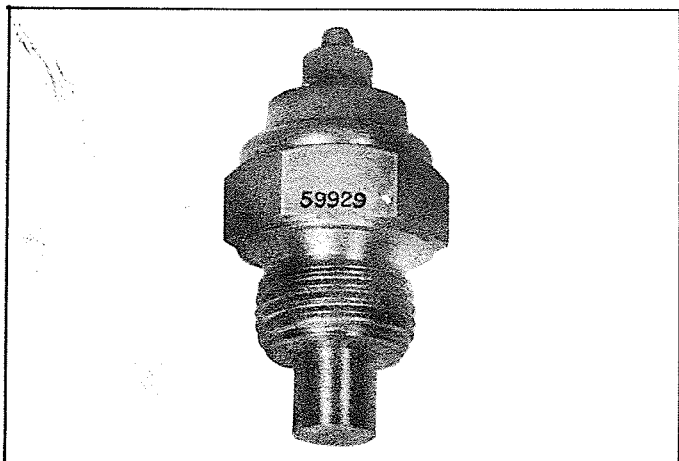
NOTE: This unit is located on the thermostat housing.

2. Measure the resistance of the sensor between the wire terminal and the body.

At a temperature of 176° F, the resistance of the sensor should be:  $255 \pm 26 \Omega$

At a temperature of 212° F the resistance of the sensor should be:  $135 \pm 11 \Omega$

If the unit does not satisfy these conditions, it is necessary to replace it.



9430

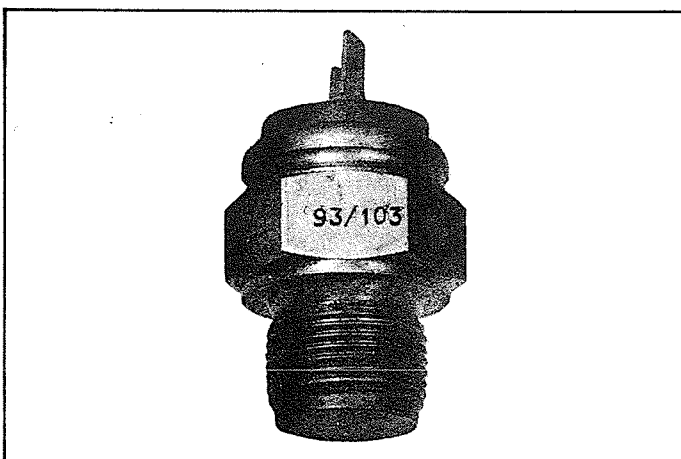
### INSPECTION OF A THERMO-CONTACT INDICATING THE CRITICAL TEMPERATURE OF THE WATER OF THE MOTOR COOLING SYSTEM

NOTE: This unit is located on the cover of the thermostat housing. (reference number: 93/103).

3. Connect the terminal of the thermo-contact to the positive (+) post of the battery and the body to the negative (–) post by interposing a continuity test lamp. Then proceed as indicated in paragraph 4.

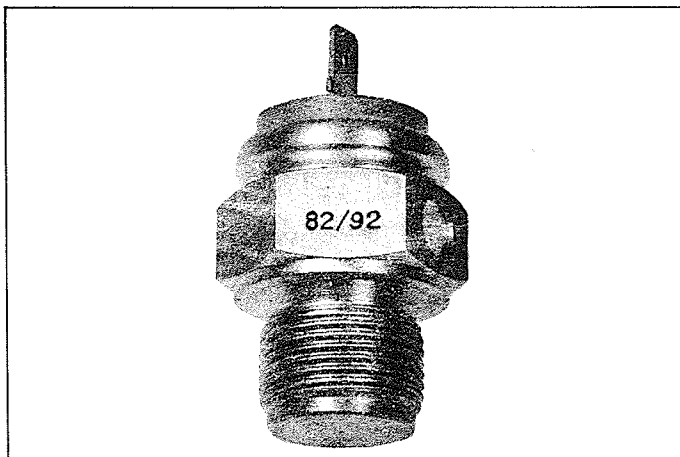
The lamp should light for a temperature between 215° F and 220° F. It should extinguish for a temperature between 204° F and 198° F.

If the unit does not satisfy these conditions, replace it.



9432

9427

**INSPECTION OF A THERMO-CONTACT CONTROLLING THE FANS OF THE MOTOR COOLING SYSTEM**

NOTE: This unit is located on the left side of the radiator above the water hose. (reference mark: 82/92)

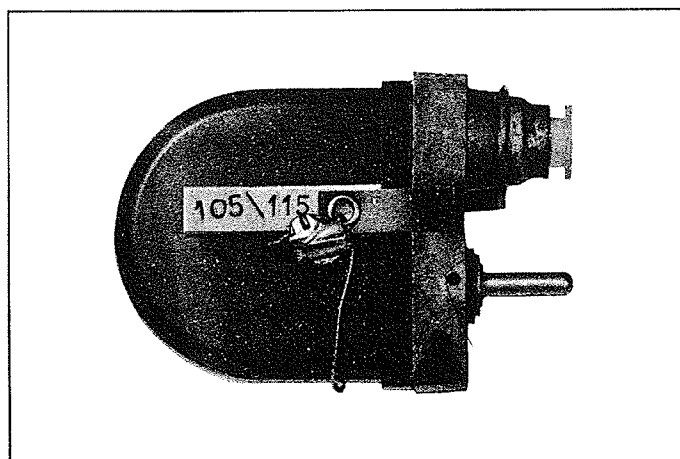
4. Connect the terminals of the thermo-contact to the posts of a battery interposing a continuity test lamp. Respect the polarities. Submerge the thermo-contact in new motor oil and heat it gradually.

When the oil reaches a temperature between 195° and 200° F, the lamp should light.

Let the oil cool by itself. The lamp should extinguish at a temperature between 185° and 175° F.

If the unit does not satisfy these conditions, it is necessary to replace it.

9426

**INSPECTION OF A MANO-CONTACT CONTROLLING THE FANS OF THE MOTOR COOLING SYSTEM  
(Cars with optional air conditioner)**

NOTE: This unit is located against the left chassis beam, at the height of the front cross-bar supporting the gear box (reference mark: 105/115).

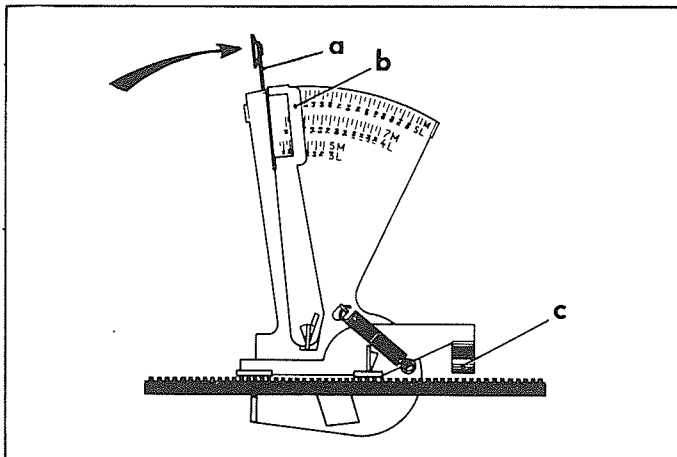
Connect one of the orifices of the pump from the hydraulic test bench 3654-T (green paint) to the mano-contact, the other orifice of the pump being connected to a manometer graduated from 0 to 200 bars (0 to 3000 p.s.i.).

Connect the terminal of the mano-contact to the positive (+) post of a battery and the body (metallic) to the negative (—) post, by interposing a continuity test lamp.

The lamp should light for a pressure between 105 and 115 bars (1525 and 1670 p.s.i.). If not, it is necessary to replace the unit.



S. 23-1 a



### INSPECTION AND ADJUSTMENT OF THE TENSION OF THE BELTS

REMARKS: To do this operation, it is absolutely indispensable to use the tensiometer GATES 150, sold under the part number 1688-T.

#### 1. Check the tension of the belt driving the alternator:

- a) Place the tool on the belt as indicated in the adjacent figure; the index "b" against the lever "a".

Without touching the body of the tool, press on the end of the lever "a" in the direction of the arrow, just to the precise point where the finger "c" comes in contact with the belt.

- b) At this moment relax the pressure exercised on the lever "a" and read the tension of the belt on the corresponding scale. The scale 7M-4L must be used for the belt of the alternator.

- c) If the belt is new, the tension should be between 85 and 90 lbs.

- d) If the belt is not new, the tension should be between 55 and 65 lbs.

- e) If the tension does not correspond to the values given, loosen the mounting screws of the alternator and its tie-rod and tension the belt.

- f) Retighten the screws and recheck the tension.

#### 2. Check the tension of the belt driving the compressor: (cars equipped with an air conditioner)

- a) Set up the tool 1688-T as indicated in paragraph 1 above.

- b) Read the tension of the belt on the scale 11M-5L corresponding to the belt.

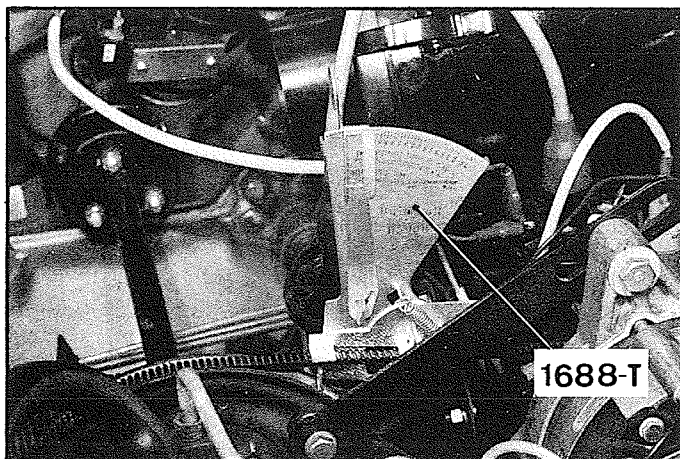
- c) If the belt is new, the tension should be between 60 and 65 lbs.

- d) If the belt is not new, the tension should be between 40 and 50 lbs.

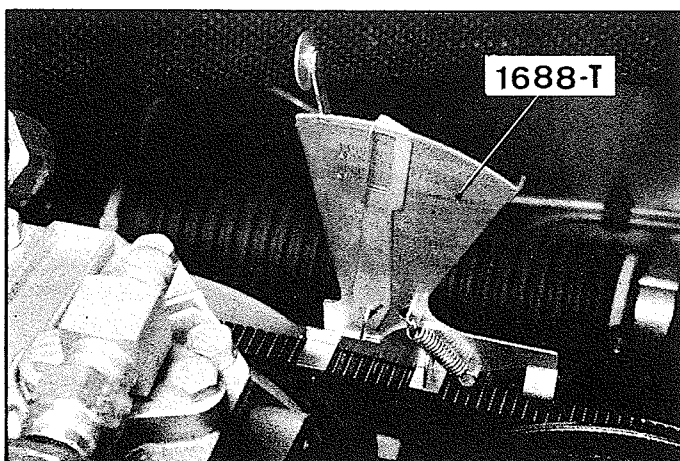
- e) If the tension does not correspond to the values given, loosen the mounting screws of the right-angled bracket of the compressor and tension the belt.

- f) Retighten the screws and recheck the tension of the belt.

8689



8482



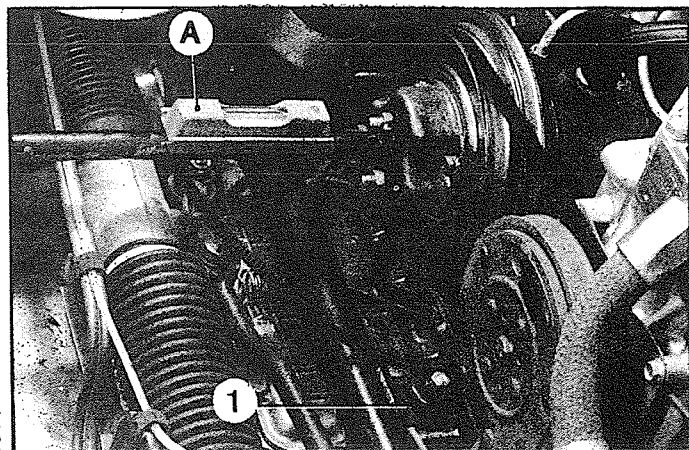
**INSPECTION AND ADJUSTMENT OF THE ALIGNMENT OF THE PULLEYS****3. Check the alignment of the height of the high pressure pump pulley:**

The vehicle being sensibly horizontal, place a bubble level A (lengthwise and horizontal) on the drive shaft of the high pressure pump.

The bubble should be at  $0 \pm 1^\circ$ . If not, place adjusting shims under the legs of the cross bar supporting the various units.

REMARK: To do this operation correctly it is indispensable to use the tool 3085-T.

The adjustments start with the pulley of the high pressure pump.



8691

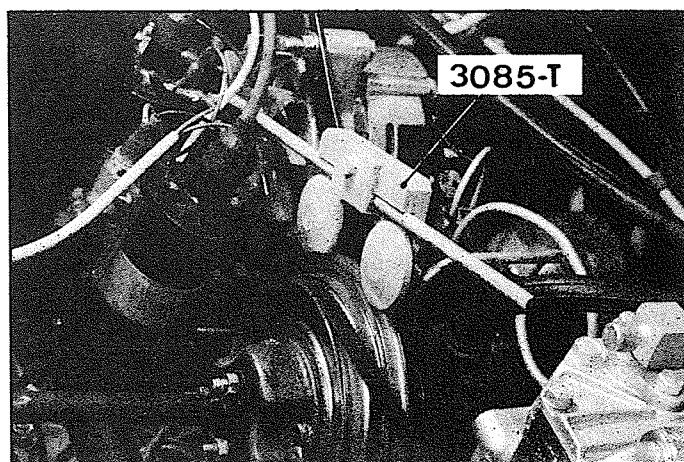
**4. Check the alignment of the alternator pulley:**

- a) Loosen the mounting screws of the alternator and the tie-rod. Disengage the belt.
- b) Place the tool 3085-T in the groove of the high pressure pump pulley. The pin of the tool should center in the corresponding groove of the alternator pulley.
- c) If not, decrease or increase the thickness of the adjusting washers located behind the alternator pulley.
- d) Tension the belt (see paragraph 1 of this operation).

**5. Check the alignment of the compressor pulley: (cars equipped with an air conditioner)**

- a) Loosen the mounting screws of the right-angled bracket of the compressor on the cross bar and disengage the belt.
- b) Place the tool 3085-T in the groove of the high pressure pump pulley. The pin should center in the corresponding groove of the compressor pulley.
- c) If not, loosen the screws fastening the right-angled bracket onto the compressor and move it toward the front or rear.
- d) Tension the belt (see paragraph 2 of this operation).

REMARK: If the adjustment of the alignment of the pulleys is impossible to accomplish, in accordance with the instructions above, insert an adjustment washer between one of the legs of the shelf supporting the high pressure pump and its support.



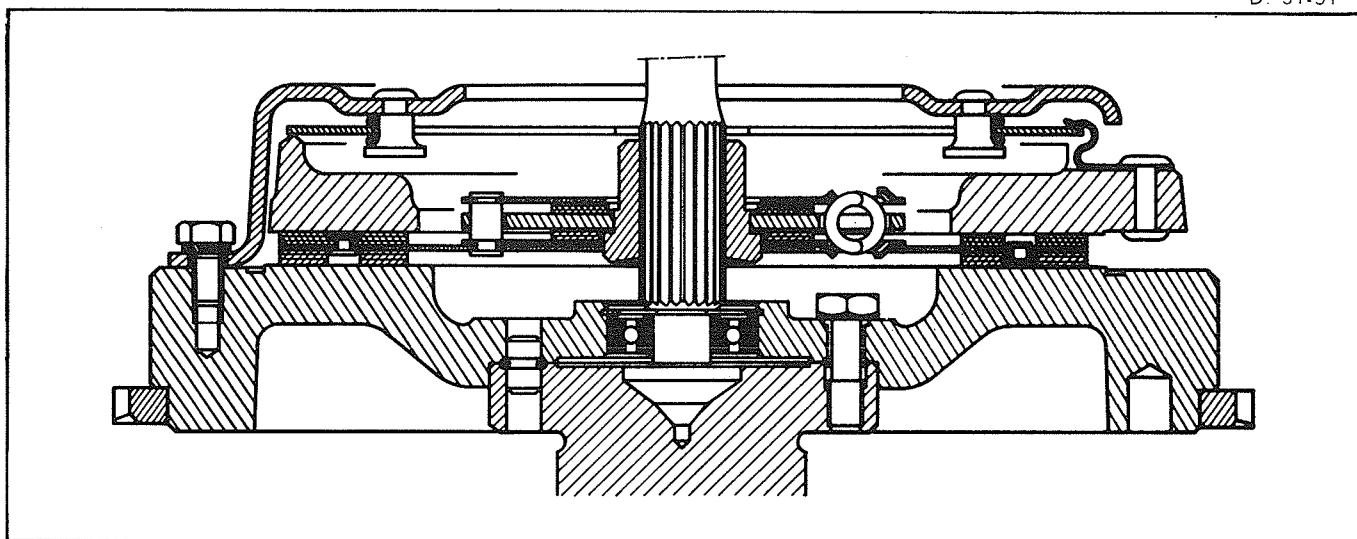
8690

## CHARACTERISTICS

Diaphragm type pressure plate FERODO type 230, DIB. 530

The pressure plate cannot be repaired.

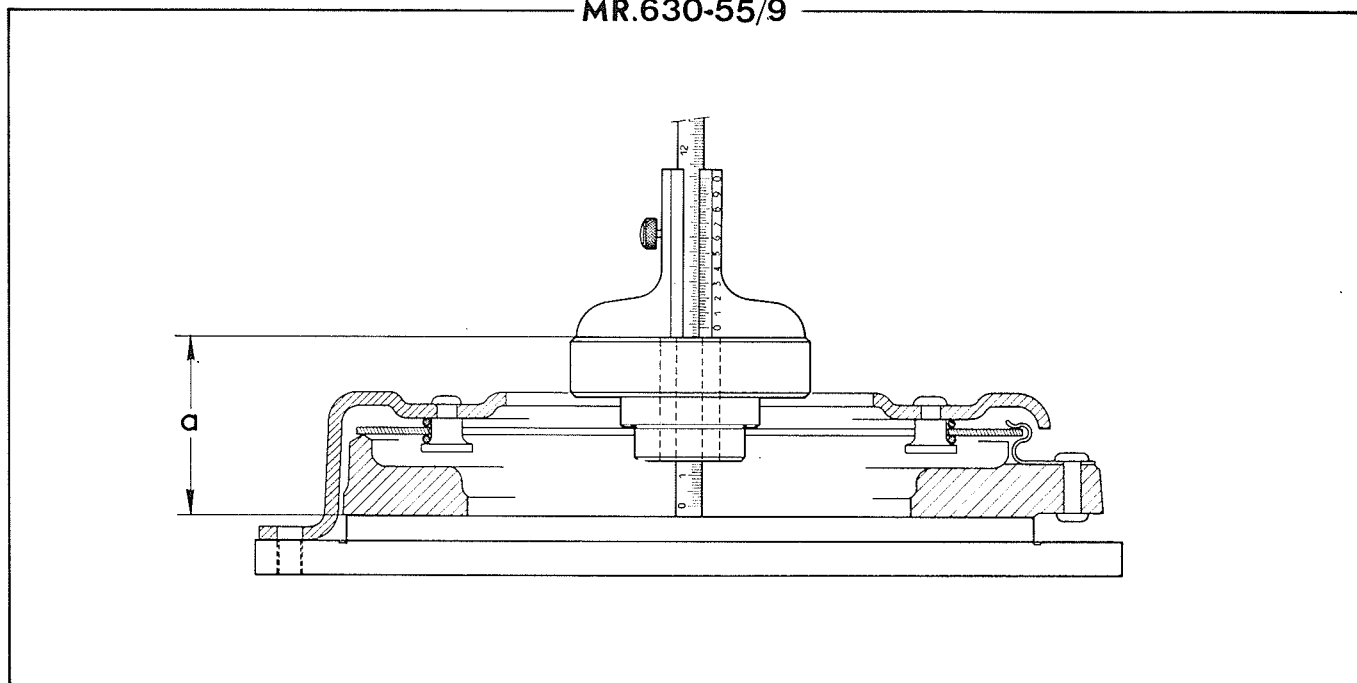
D. 31-51



## PARTICULARS

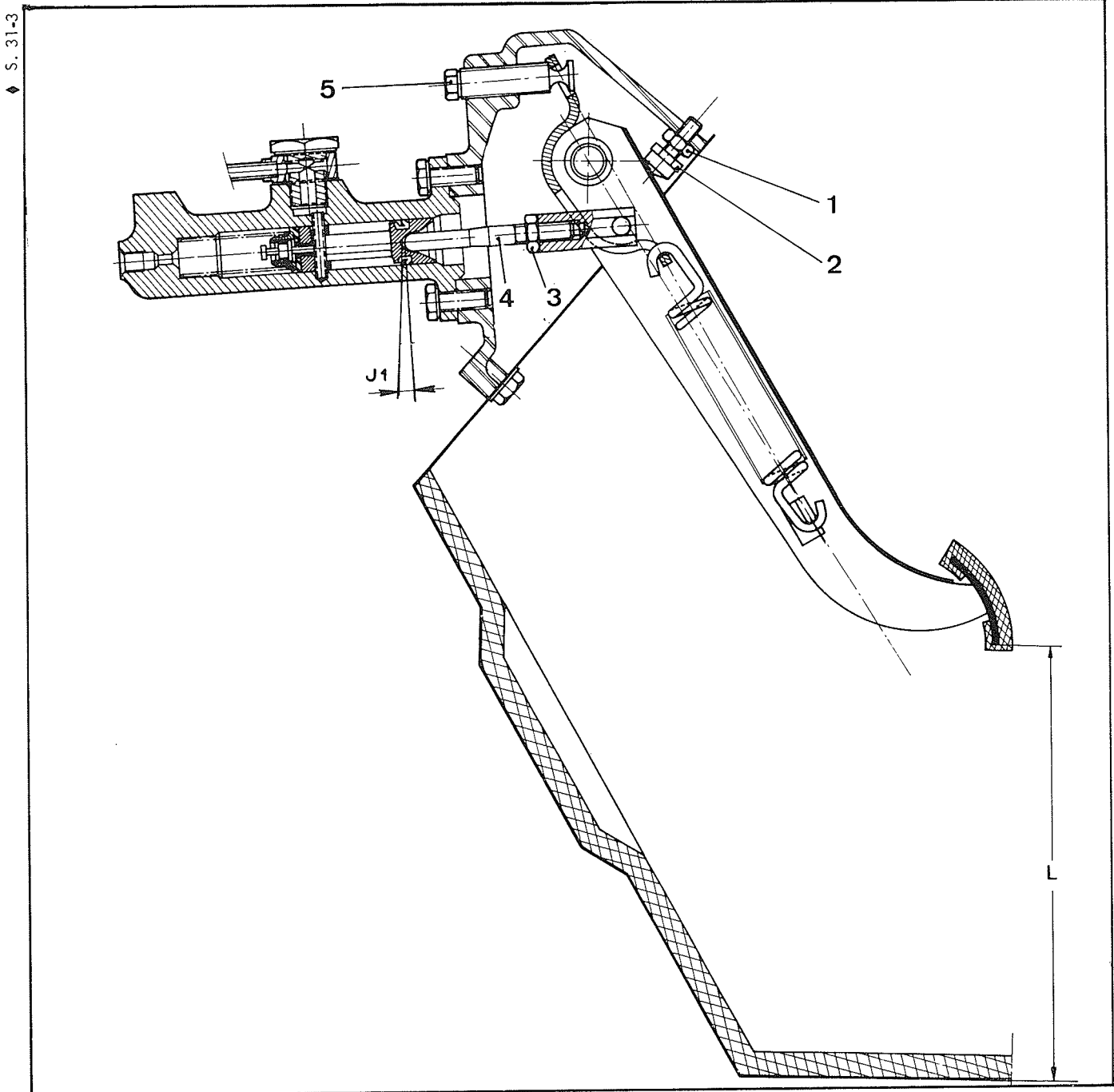
- Tightening torque of the screws mounting  
the pressure plate on the flywheel (star washers) ..... 26 - 30 ft. lbs.
- After rectifying the flywheel, the distance between the pressure surface of the flywheel  
and the face of the pressure plate should be .....  $.014 \text{ } ^0_{.006} \text{''}$
- The checking of the pressure plate can only be done on a special assembly  
(assembly MR. 630-55/9) as indicated below.
- The dimension "a" should fall between 2.256" and 2.366".  
If not, the pressure plate must be replaced.

### MR.630-55/9





## ADJUSTMENTS OF THE CLUTCHING CONTROL

**1. ADJUSTMENT OF THE HEIGHT OF THE PEDAL:**

Work the screw (2) to obtain a dimension  $L = 180^{+5}_{0} \text{ mm}$  ( $L = 7.087''$  to  $7.285''$ ) from the lower edge of the pedal plate (rubber pad removed) to the bare metal of the floorboard, or a dimension  $L = 160$  to  $165 \text{ mm}$  ( $L = 6.3''$  to  $6.5''$ ) from the lower edge of the pedal plate (rubber pad removed) to the upper side of the carpet. Tighten the lock-nut (1).

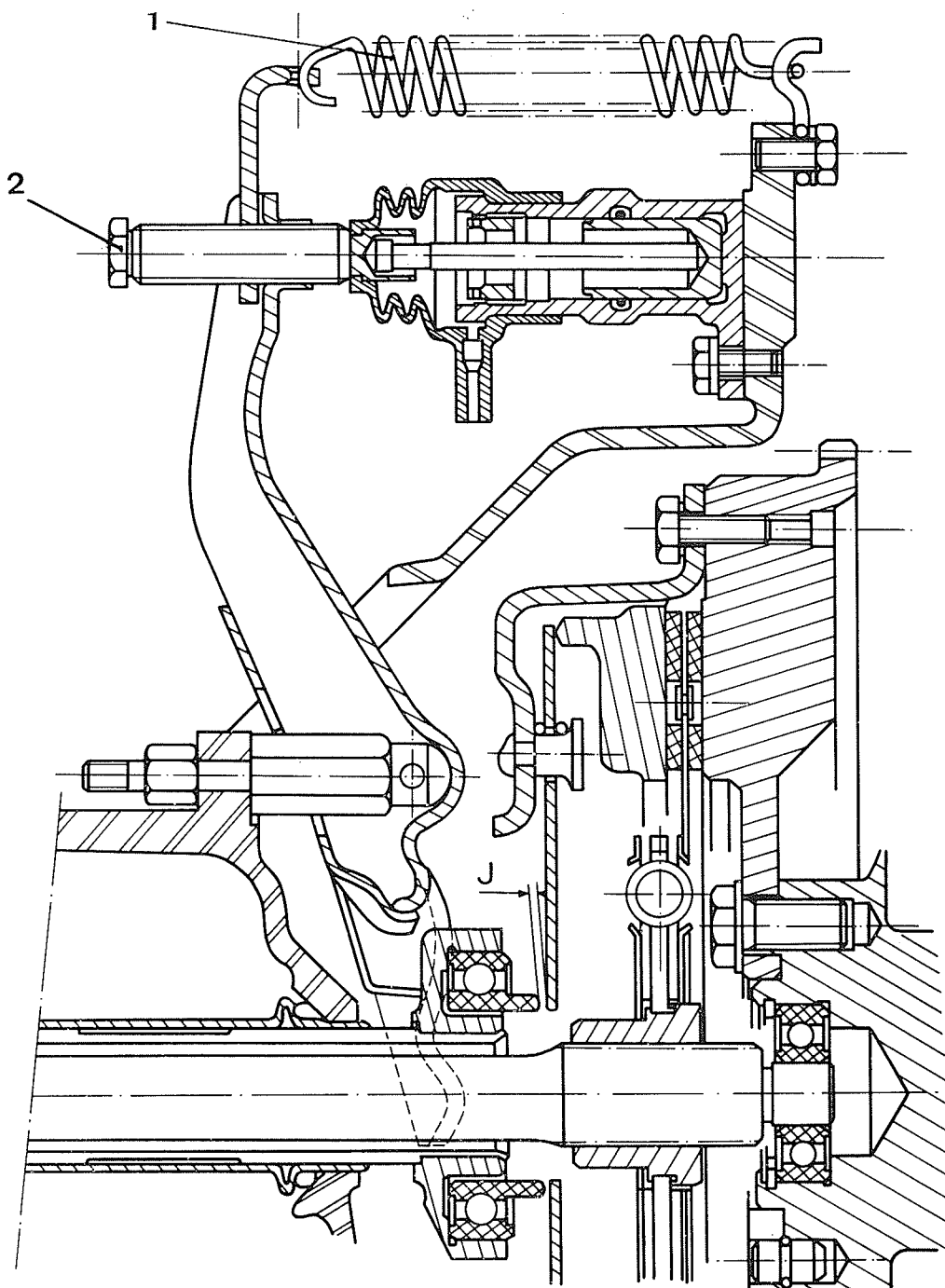
**2. ADJUSTMENT OF THE PEDAL ASSISTANCE SPRING:**

Loosen the lock-nut (3) and turn the rod (4) to obtain zero clearance,  $J1 = 0$ .

Unscrew the adjustment screw of the clutch fork to obtain zero clearance at the release bearing, then turn the screw in  $3\frac{1}{2}$  turns and work the screw (5) in order to return the pedal to its stop on the screw (2).

**3. ADJUSTMENT OF THE PLAY AT THE PEDAL:**

Work on the rod (4) so as to obtain at  $J1$  a clearance of 0 to  $.020''$  ( $\frac{1}{2}$  turn of the rod (4) max.). Tighten the counter-nut (3). Be sure of the return of liquid to the reservoir after one declutching stroke of the pedal.



◆ 4. **BLEEDING THE DECLUTCHING CIRCUIT:**

Remove the cap of the bleed screw of the declutching cylinder. Replace it with a transparent tube, the end of which will be submerged in a container partially filled with "LHM" fluid.

Loosen the bleed screw approximately  $\frac{1}{2}$  turn and work the clutch pedal slowly just until a bubble of air appears in the bleed tube.

At this moment, the pedal being held all the way down and the bleed tube kept submerged in the liquid, tighten the bleed screw.

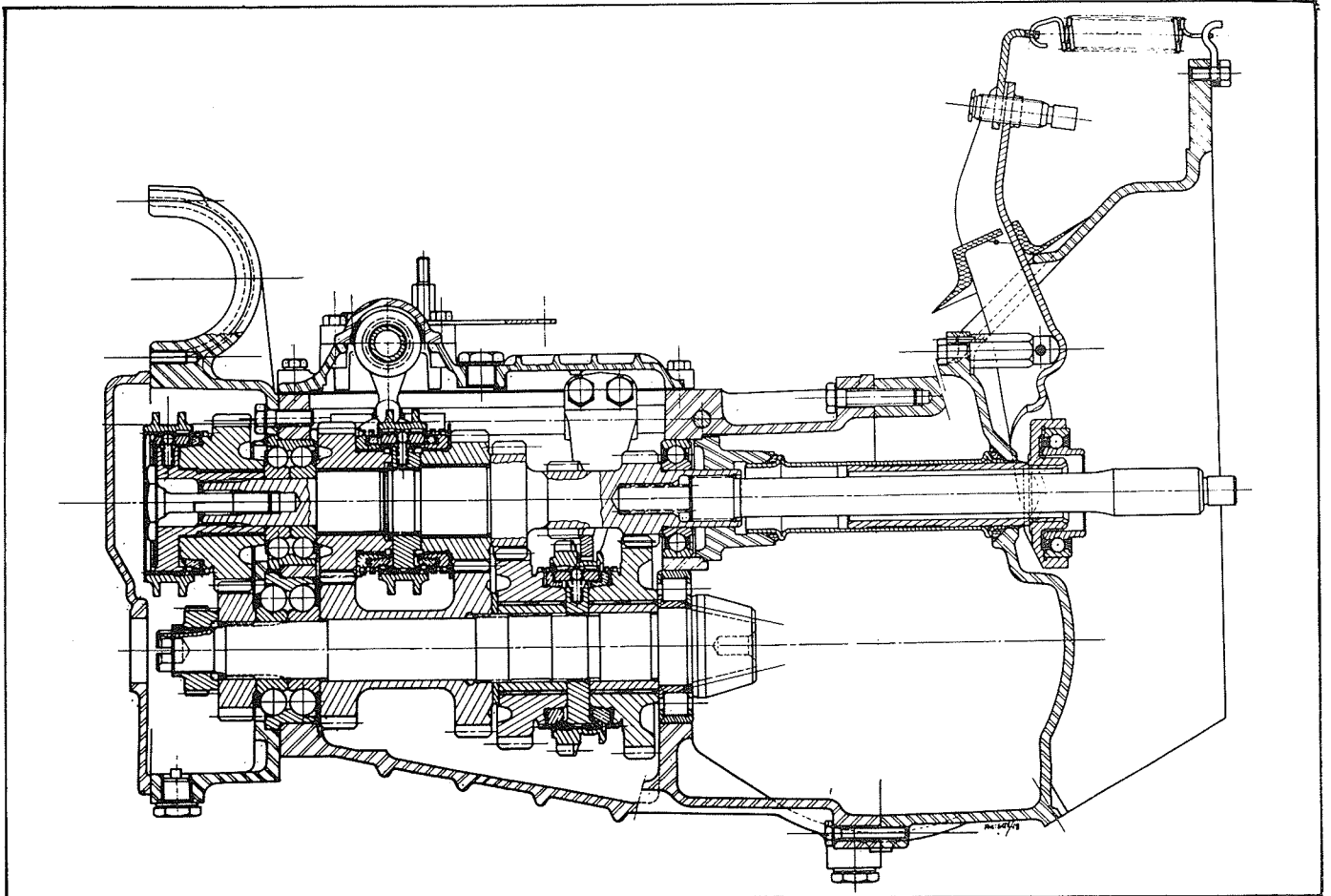
Check the circuit for leakage.

◆ 5. **ADJUST THE CLEARANCE OF THE RELEASE BEARING:**

- Remove the return spring (1).
- Screw in the fork adjustment screw (2) just until the release bearing comes in contact with the diaphragm (J=0).
- Unscrew the adjustment screw (2)  $1\frac{1}{2}$  turns to obtain a clearance of .040" to .060".
- Replace the spring (1).

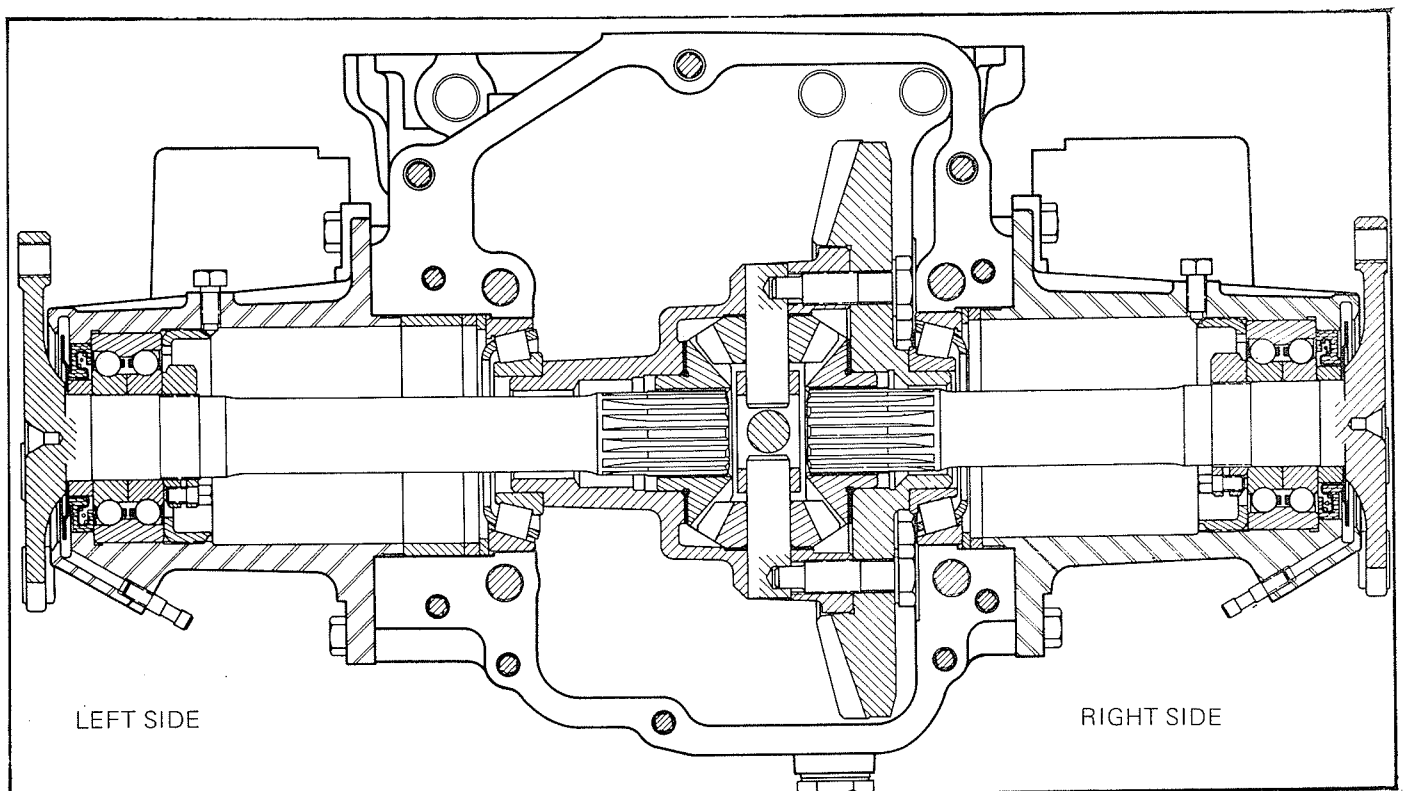
## LONGITUDINAL SECTION OF THE GEAR BOX

S. 33-3



## CROSS SECTION OF THE DIFFERENTIAL

D. 34-1



**I CHARACTERISTICS****1. Ratio of the speeds:**

NOTE: The speeds are given for cars equipped with 195/70 VR 15 X tires developing 7,925 ft. under load.

SPEED	REDUCTION	G.B. RATIO	DIFFERENTIAL	TOTAL REDUCTION	SPEED IN M.P.H. (1000 MOTOR R.P.M.)
1st	$\frac{13}{38}$	0.3421	8/35 = 0.2285	0.0781	5.841
2nd	$\frac{17}{33}$	0.5151		0.1177	8.796
3rd	$\frac{28}{37}$	0.7567		0.1729	12.922
4th	$\frac{33}{32}$	1.0312		0.2356	17.609
5th	$\frac{37}{28}$	1.3214		0.3019	22.574
R	$\frac{13}{41}$	0.3170		0.0724	5.414

**2. Reduction ratio of the speedometer:**

Differential: 8/35: ..... 0,2941 - 5/17

**3. Capacity and quality of oil:**

- Capacity: ..... 2,25 liters (2-3/8 qts.)  
 - Oil : ..... SAE 80 EP

**II PARTICULARS**

1. *Side clearance of the 3rd and 4th speed synchronizer:* ..... J = .004" max.

**2. Tightening torques:**

- Locking screws of the forks or shift fingers: ..... 29 ft. lbs.  
 - Plug for draining or refilling: ..... 25 - 33 ft. lbs.

**3. Adjustments on the bevelled pinion and differential:**

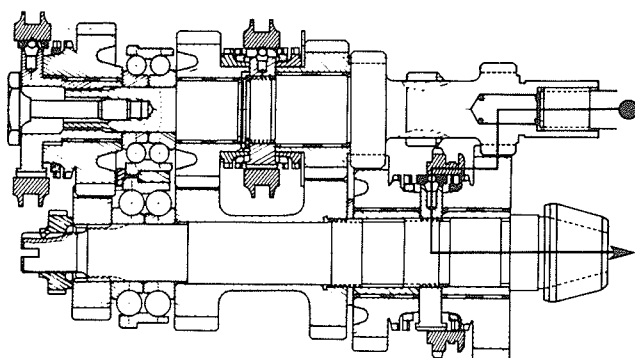
- Bevelled pinion:  
 Depth: Etched on the upper face of the drive pinion.  
 Mating Number: Etched on the upper face of the drive pinion.  
 Clearance between the teeth (at the outside diameter of the ring gear): ..... .006" to .009"  
 - Differential:  
 Lateral planetary clearance at the point of minimum play: ..... .004"  
 Lateral clearance of the satellites: ..... .012"

**4. Tightening torques (bevelled pinion and ring gear):**

- Differential shaft:  
 Ring nut (outer cage of the bearing) ..... 72 ft. lbs.  
 Nut (inner cage of the bearing) ..... 108 ft. lbs.  
 - Lock screw of the nut (inner cage of the bearing) ..... 7 ft. lbs.  
 - Mounting screws of the ring gear and differential housing ..... 83 - 94 ft. lbs.  
 - Mounting screws of the extension shaft housings: ..... 15 - 22 ft. lbs.

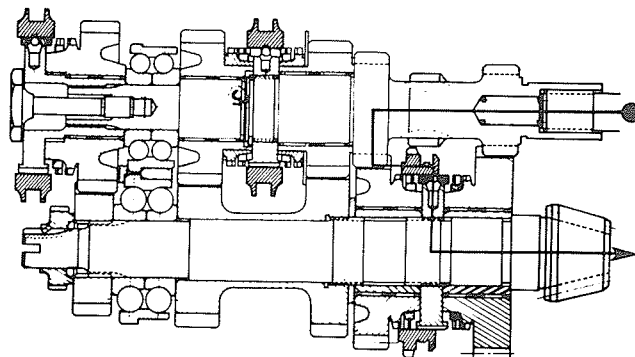
## POWER FLOW OF THE SPEEDS

FIRST SPEED

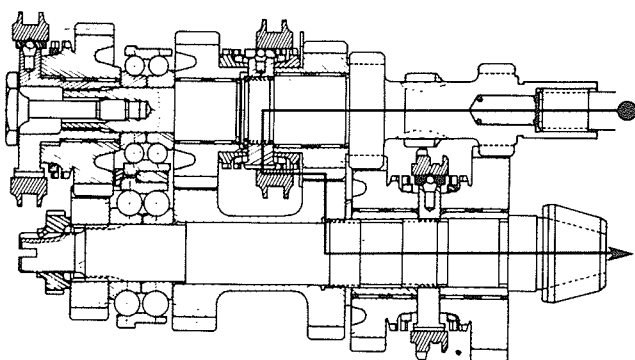


SECOND SPEED

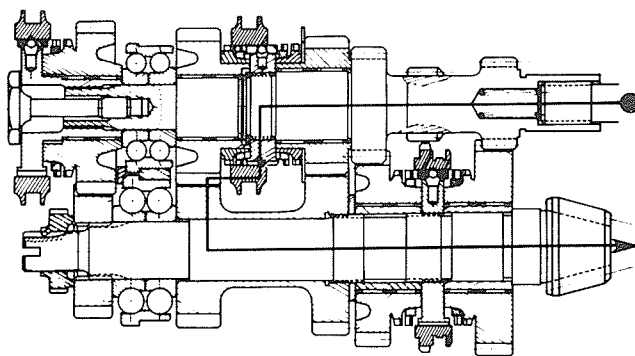
S. 33-2 o



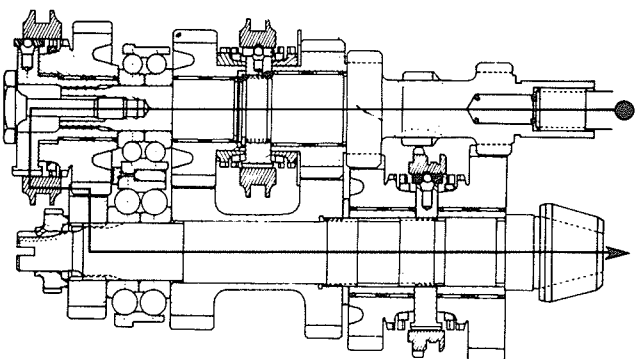
THIRD SPEED



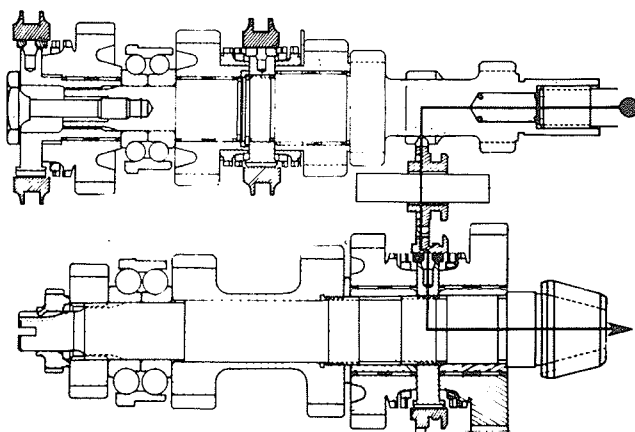
FOURTH SPEED



FIFTH SPEED

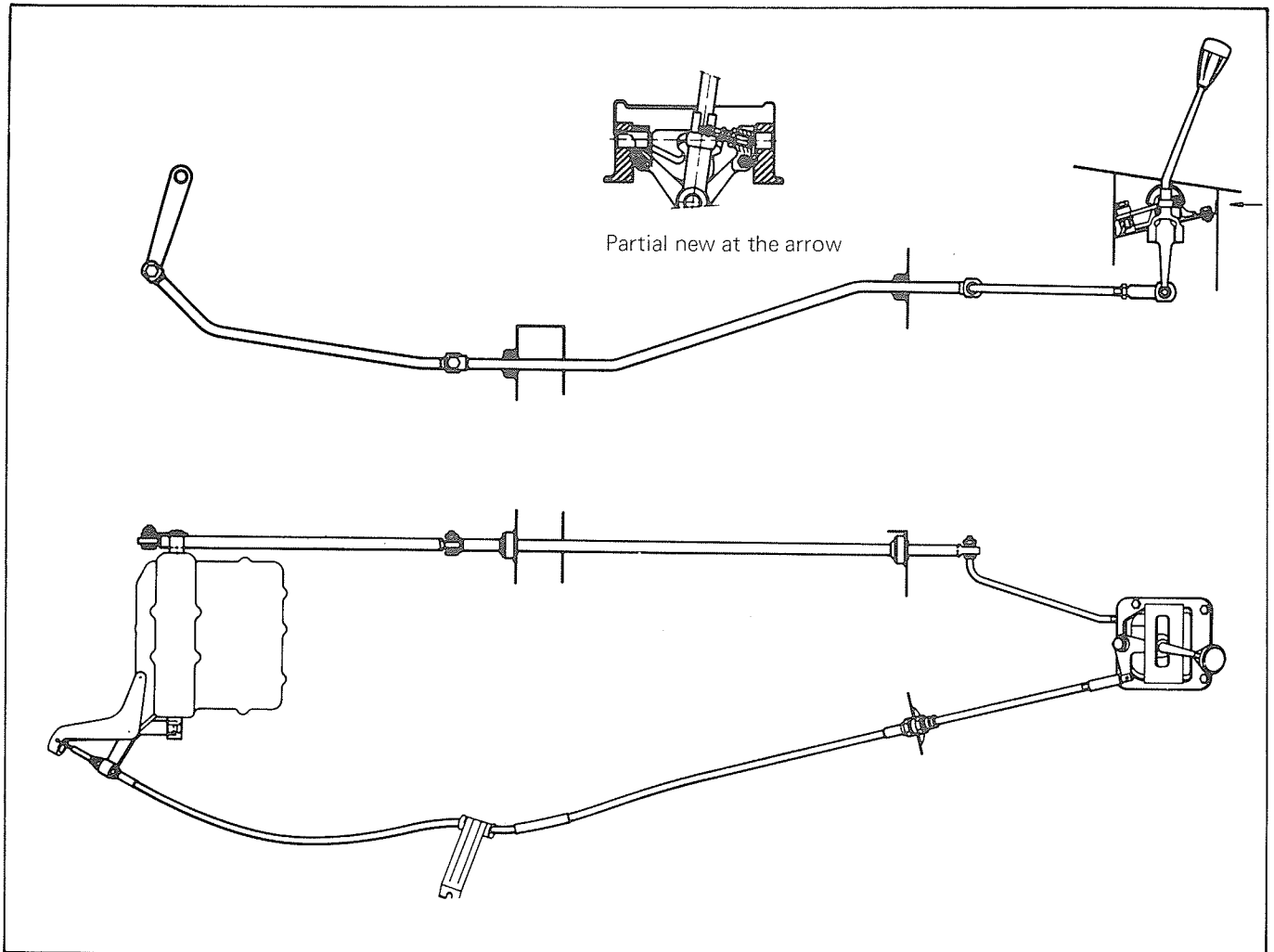


REVERSE



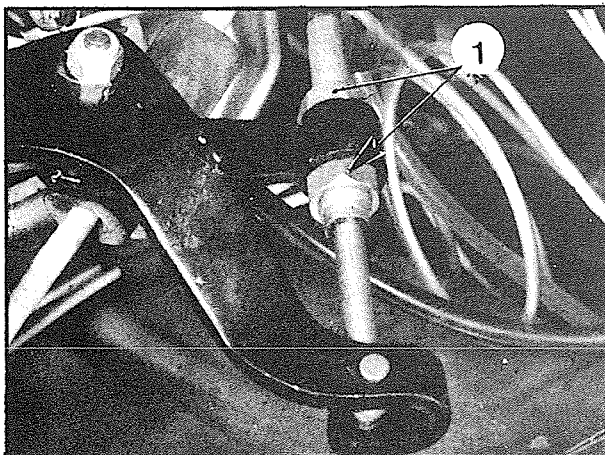
## ADJUSTMENTS OF THE SHIFT CONTROLS

S. 33-4



NOTE: *Aim of the operation:* Adjust the position of the shift lever so that the shifting gate does not strain the passage or the selection of speeds.

1951



# I. ADJUSTMENT OF THE CONTROL FOR SELECTION OF THE SPEEDS (SELECTOR RELAY LEVER)

## 1. Adjustment of the length of the housing for the speed selector cable:

Vary the length of the housing by working on the two lock-nuts. (1).

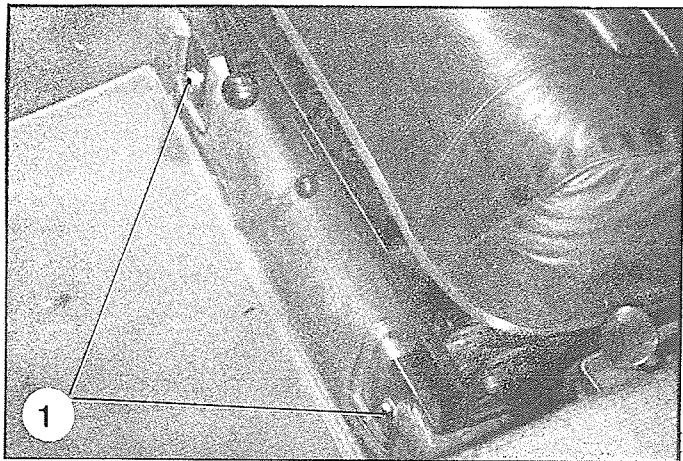
Verify that the speeds shift correctly.

Tighten the lock-nuts (1).

If this adjustment does not give results, it is necessary to adjust the length of the selector cable.



8556

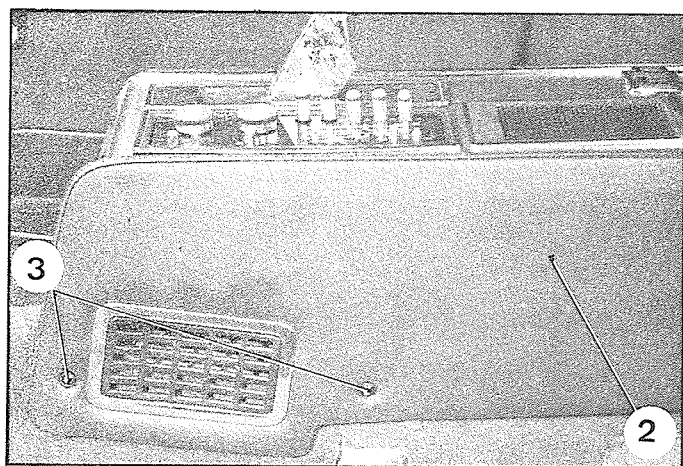


## 2. Strip the center console:

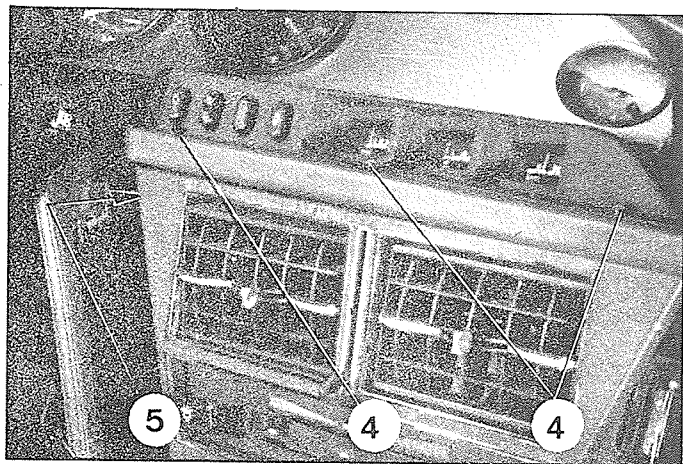
Disconnect the battery, and remove:

- the four screws (1) and the front seats,
- the two screws (3) and the right side trim panel (2),
- the three screws (4) and the temperature gauge panel,
- the lower mounting screws (3) and the upper screws (5) and remove the left trim;
- the screws (7) and the two side chrome trim strips (6).
- the four screws (9) (Phillips screwdriver) and the grille (8) of the shift positions,
- the knob, of the shift lever (12).
- the screws (10) and the selector trim (11).

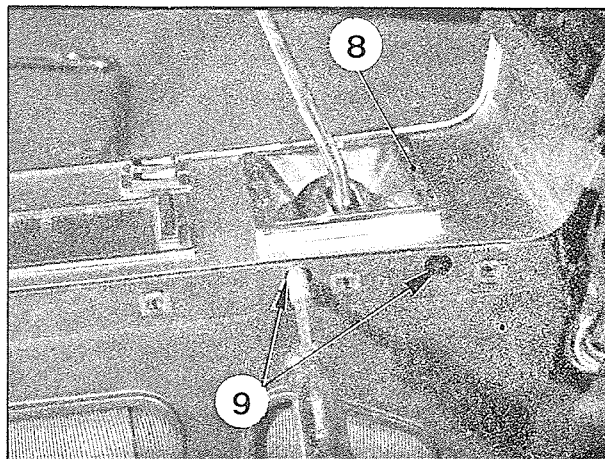
8669



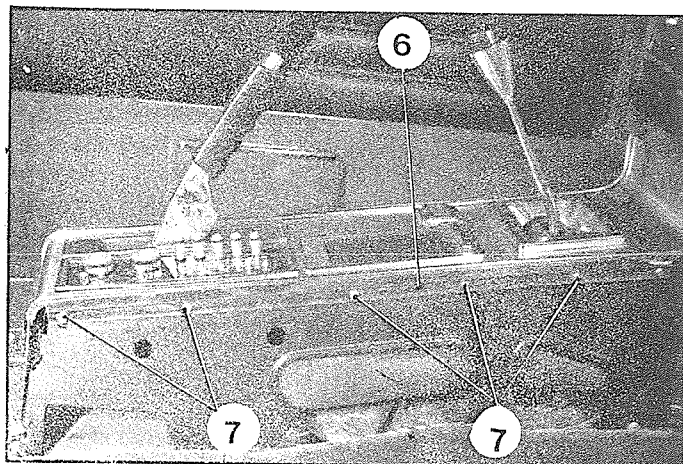
8672



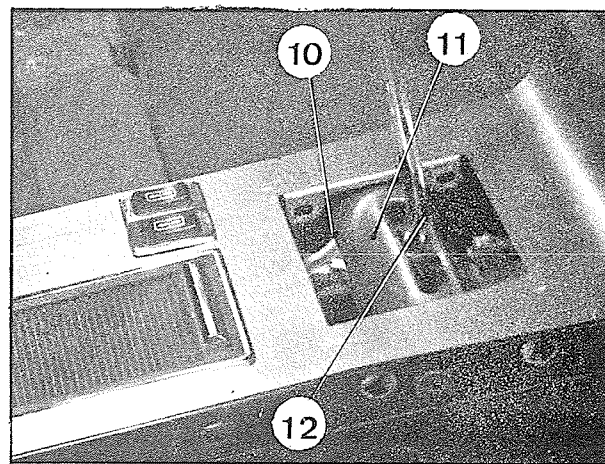
8671



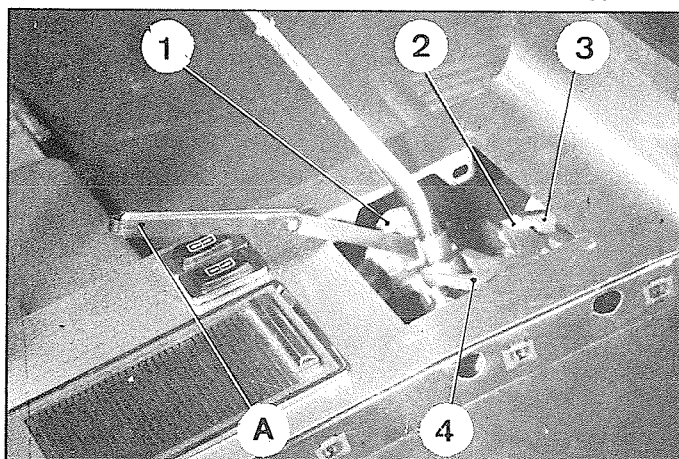
8670



8673



8674



### 3. *Adjustment of the length of the speed selector cable:*

Extract the cotter pin and remove the pin (2).

Work on the joint (3) to adjust the length of the selector cable, and obtain:

a clearance of approximately 1 mm (.040") (feeler gauges A) between the fork (4) and the support (1) when the shift lever is "bottomed" toward the left, between the first and second speeds.

## II *ADJUSTMENT OF THE CONTROL FOR PASSAGE OF THE SPEEDS (SHIFT RODS)*

4. Shift to 1st speed. In this position (see figure) there should be a distance of:  $a=90$  mm (3.543") (between the knob of the shift lever (5) and the grill of the climatization controls).

If not, it is necessary to adjust the position of the shift lever (5) by working on the length of the shift rod.

### 5. *Adjustment of the length of the shift rod:*

- a) Replace the shift pattern grille (7).

Shift to 3rd, then to 4th speeds. In each of these two positions the clearance between the shift lever (5) and the shift pattern grille (7) should be identical.

- b) If not:

- Remove the duct (10).
- Loosen the lock-nut of the adjustable end joint (8).
- Remove the pin (9).

- c) Adjust the position of the joint (8) so that the forward end of the joint will be plumb with the *forward surface of the central console*, when the shift lever (5) is at "neutral".

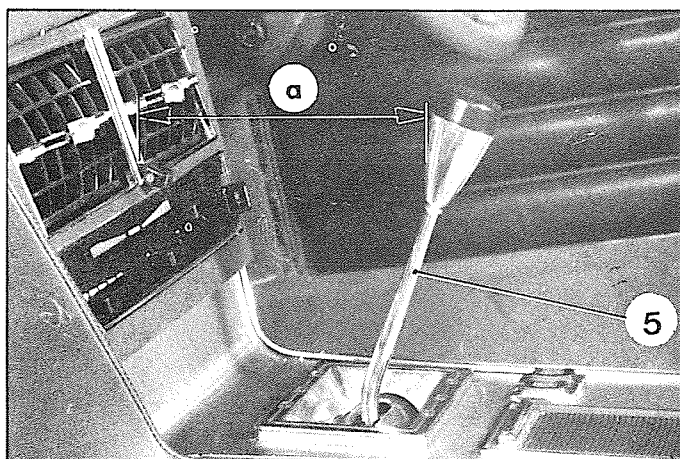
- d) Replace the pin (9). Shift to 3rd, then to 4th speed. Verify that in each of these two positions, the clearance between the lever and the grille is identical.

Tighten the lock-nut of the adjustment joint (8).

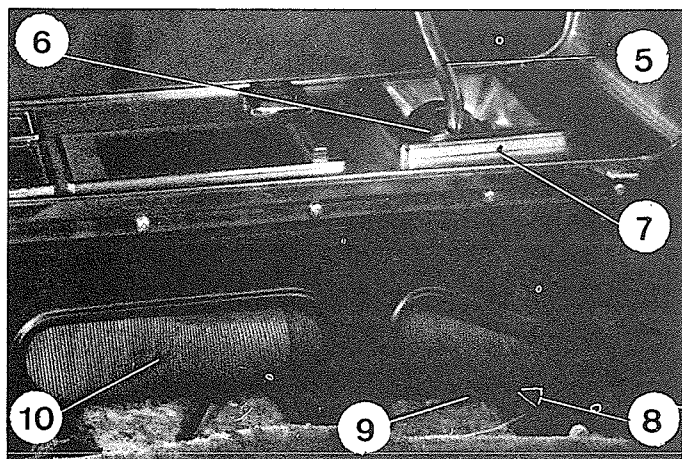
Replace the duct (10).

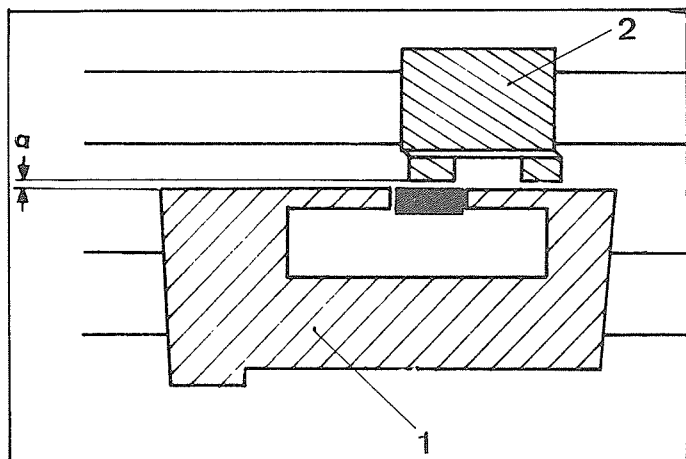
- e) Remove the shift pattern grille (7).

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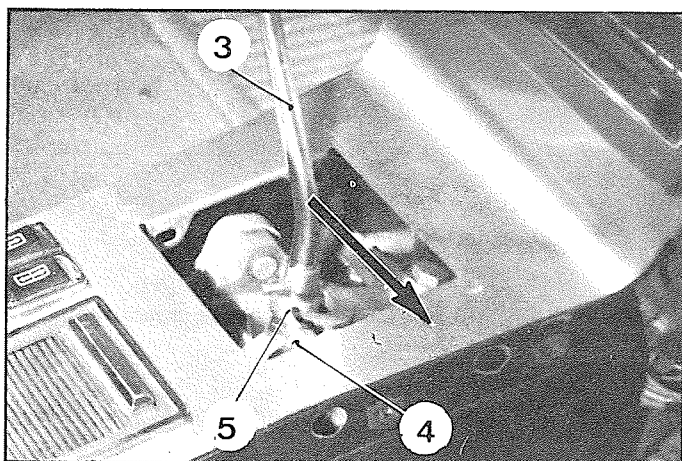


8670

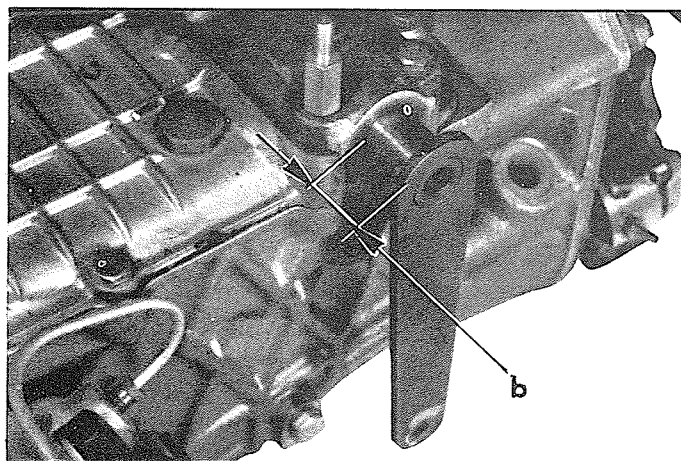




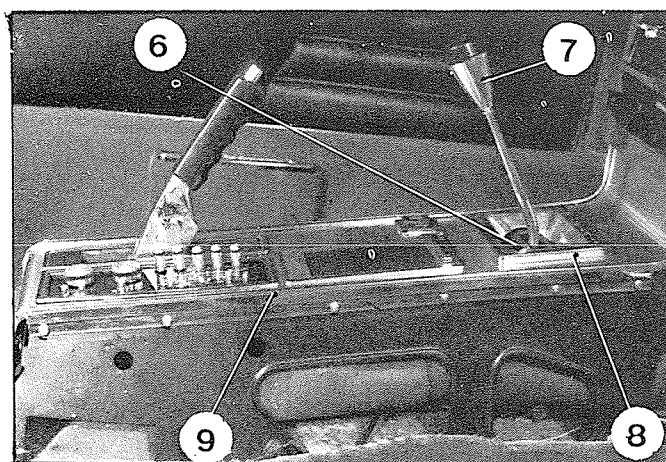
8676



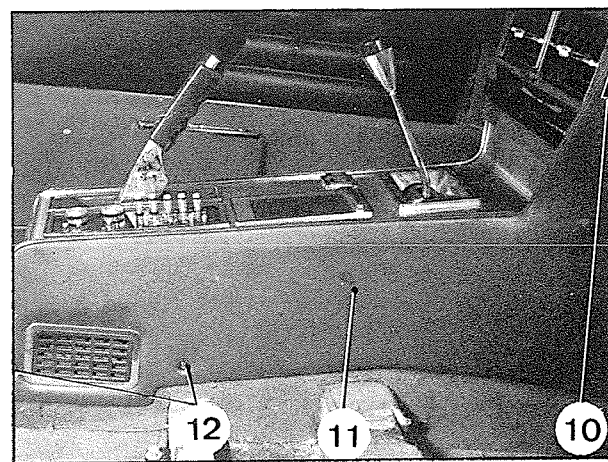
8712



8670



8669



#### 6. Adjustment of the stop of 5th speed:

REMARKS: The aim of this adjustment is to obtain (inside the gear box) a clearance

$$a = 0,2 \text{ to } 0,5 \text{ mm } (.008'' \text{ to } .020'')$$

between the control relay finger (1) of 5th speed and the reverse drive finger (2).

- This adjustment can be obtained only on condition that the controls for selection and shifting of the speeds are correctly adjusted.

a) Loosen the lock-nut (4) and remove the 5th speed stop screw (5).

b) Shift to 5th speed, and hold the shift lever (3) by pressure toward the right (in the direction of the arrow).

With an assistant, measure the movement "b" of the control lever spindle of the forks (on the cover of the gear box). Note this dimension.

c) Reset the shift lever (3) at "neutral".

Replace the 5th speed stop screw (5) and its lock-nut (4).

d) Repeat the operation indicated at line b). Work on the stop screw (5) to obtain a movement "b" greater by 0,5 mm (.020'') than that measured previously.

Tighten the lock-nut (4).

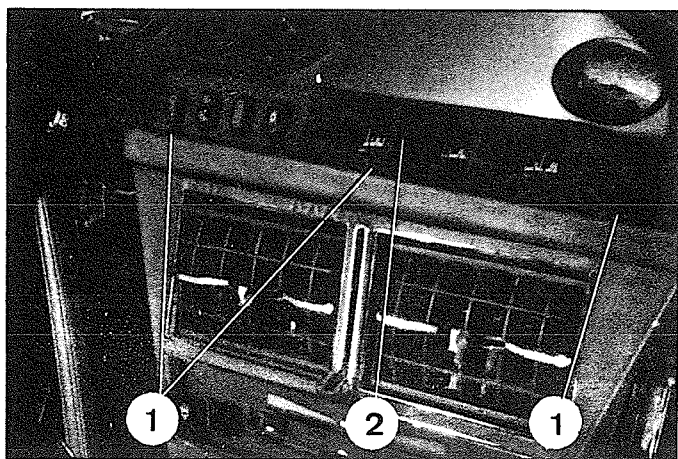
#### 7. Dress the central console:

Replace:

- the selector protection cover (6). Tighten the mounting screws.
- the shift pattern grille (8), (magnetized screw driver).
- the shift lever knob (7).
- the two lateral chrome strips (9).
- the right and left side trim panels (11), tighten the upper mounting screws (10) (left trim panel only) and the lower screws (12).



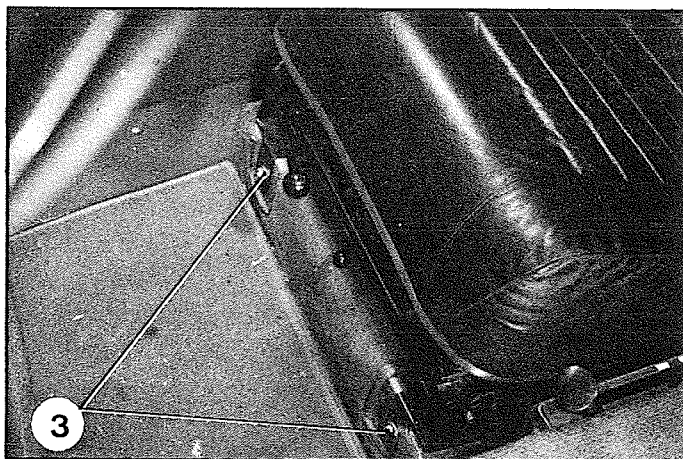
8672



Replace the temperature gauge panel (2).

Tighten the mounting screws (1).

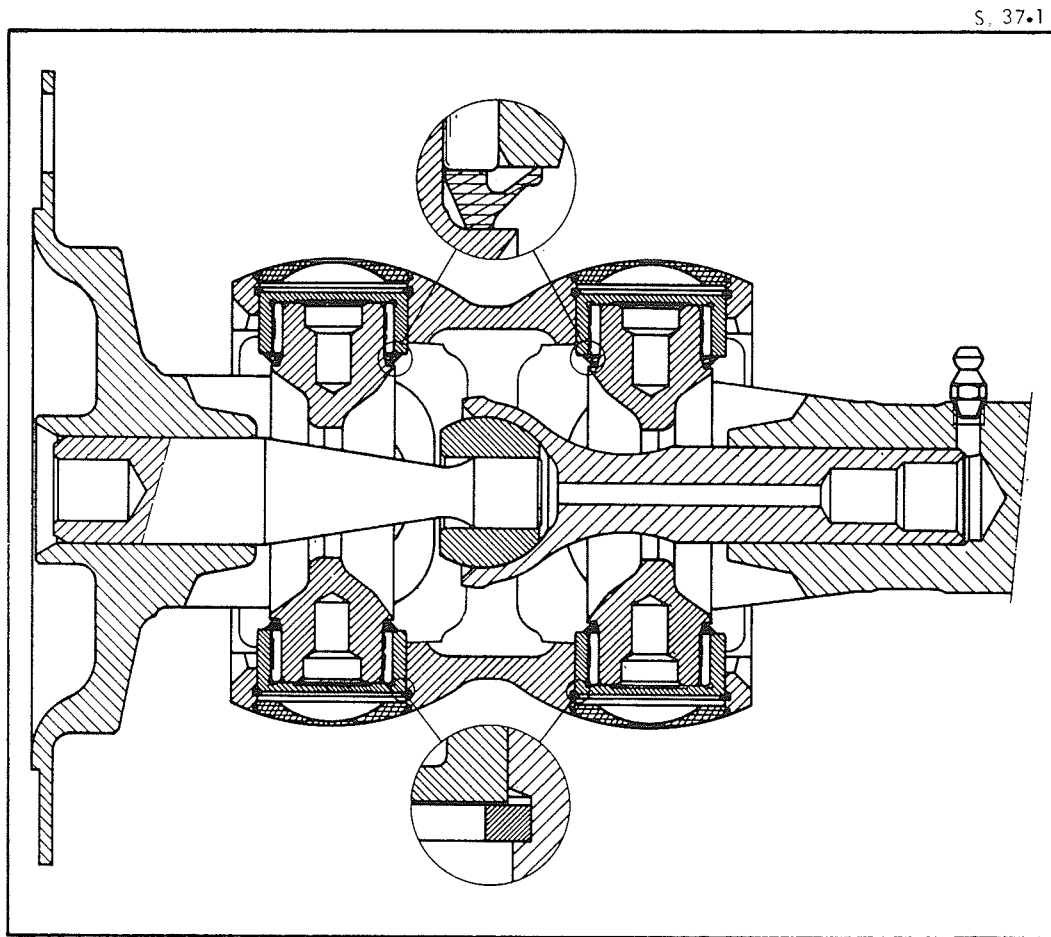
8556



Replace the two front seats.

Tighten the front and rear mounting screws (3).

Connect the battery.



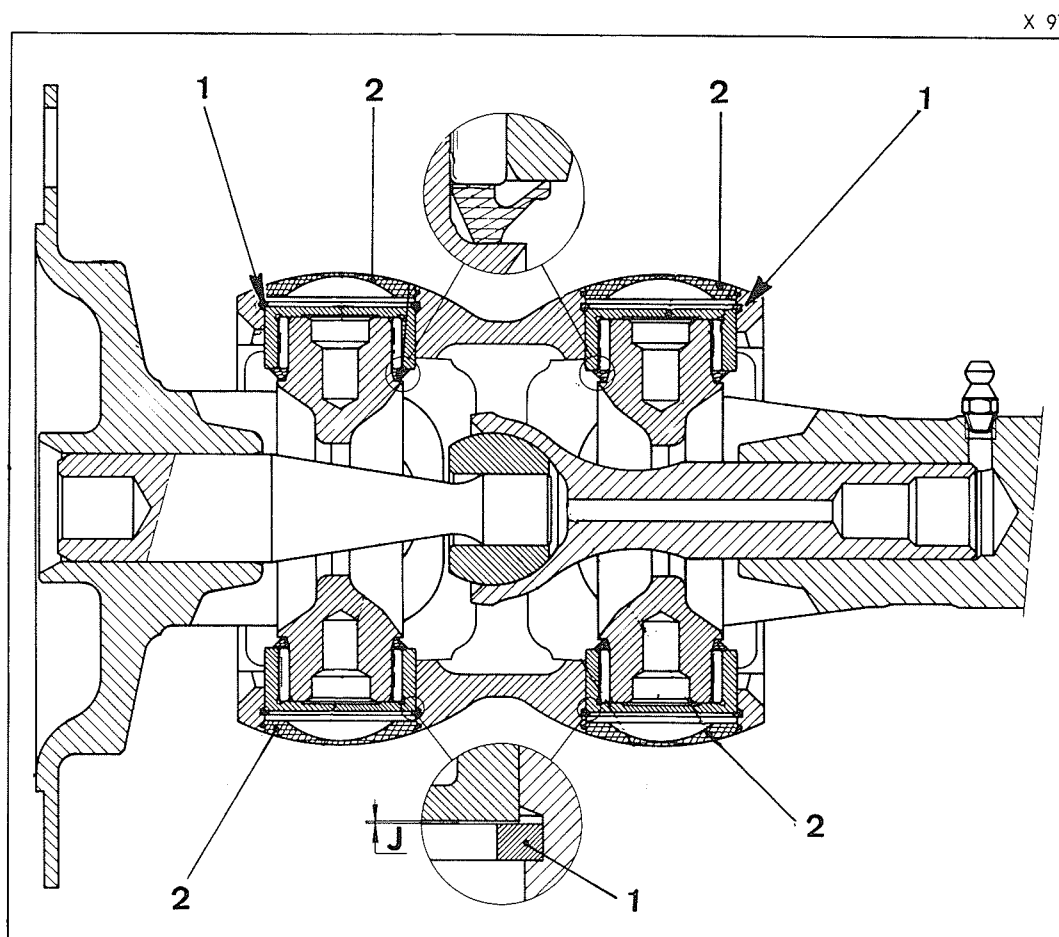
## PARTICULARS

### 1. Tripod joint:

Divide 4½ oz. of bearing grease in the drive housings, on the bearing balls and the tri-axle.

Tightening torques:

- Nuts for mounting the drive housings. ....	76 - 98 ft. lbs.
- Nut for the upper ball joint .....	43 ft. lbs.
- Nut for the lower ball joint .....	43 ft. lbs.



### ADJUSTMENT OF THE LATERAL CLEARANCE OF THE CROSSES

The adjustment of the lateral clearance of the drive shaft universal crosses is accomplished by the circlips (1) locking the needle bearings.

The Parts Department sells the circlips in seven different thicknesses referenced by lines etched on the tongs (total the number of lines).

No.	Thickness $+ 0$ $-.002''$	Number of Lines Etched
DX. 372-6f	.067''	6
DX. 372-6e	.065''	5
DX. 372-6d	.063''	4
DX. 372-6c	.061''	3
DX. 372-6b	.059''	2
DX. 372-6a	.057''	1
DX. 372-6	.055''	None

1. Remove the four bearing plugs (2) with a scriber or a pick.

REMARK: On one side of the double yoke of the drive shaft, the two circlips installed are always the circlips marked 3 (DX. 372-6c thickness = .061'').

*Do not remove these.*

2. Remove the other two circlips (1) mounted on the opposite side of the double yoke.

If necessary, replace them by thicker circlips, to obtain a lateral clearance of the cross  $J = .003''$  max.

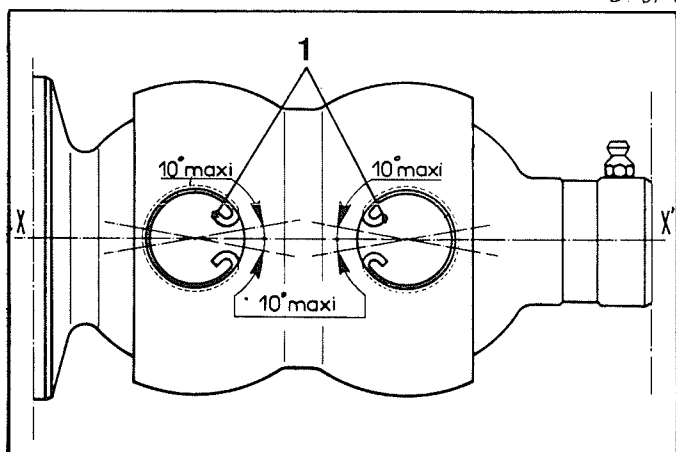
#### ATTENTION:

The symmetric axis of the circlips should be within  $10^\circ$  of the axis  $XX'$  of the drive shaft, the tongs of both circlips (1) being oriented as shown in the sketch.

3. Mount the four bearing plugs (2).

It is necessary to replace these at each repair.

D. 37-3





# SOURCE AND RESERVE OF PRESSURE

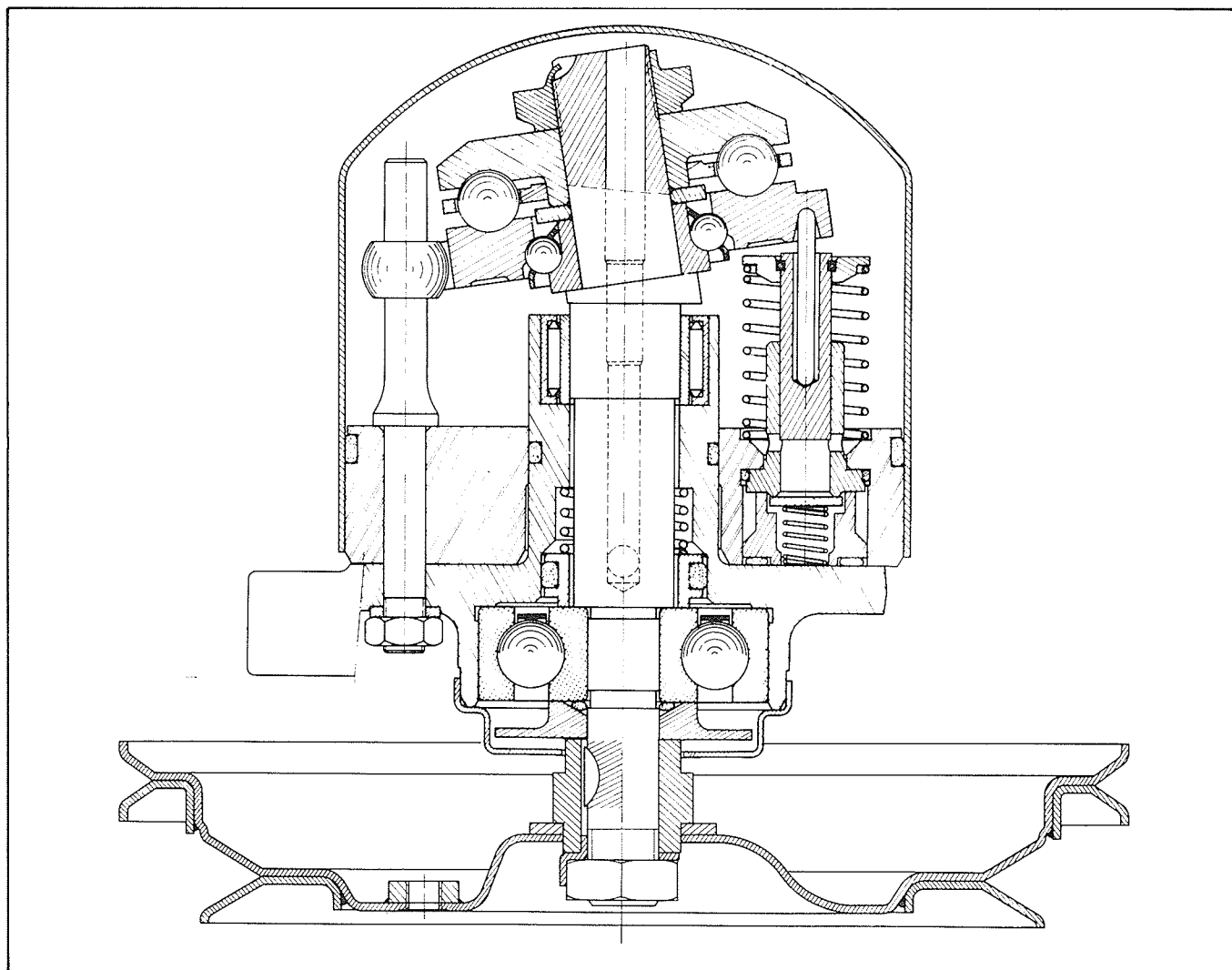
OPERATION No. S. 390-00: *Characteristics and particulars of the source and reserve of pressure. Hydraulic circuits.*

Op. S. 390-00

1

## I HIGH PRESSURE PUMP

S. 39-2



### CHARACTERISTICS

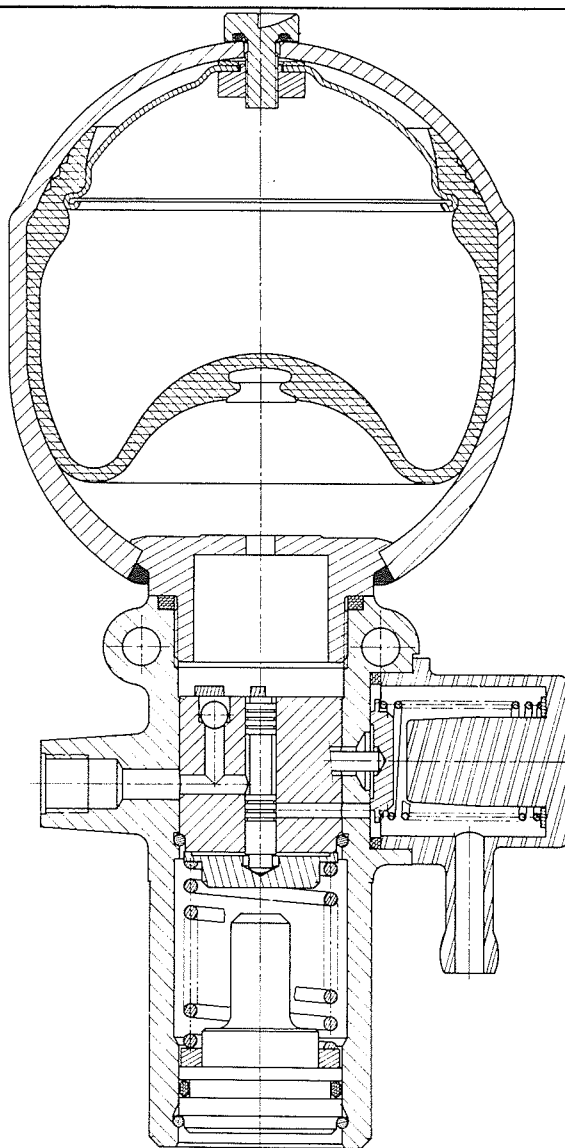
- The pump turns at half the speed of the motor:
- Output: For one turn of the pump =  $2,8 \text{ cm}^3$  (.1708 cu. in.); or for 600 motor r.p.m. . .  $840 \text{ cm}^3/\text{mn}$  (51.24 cu. in./minute).
- Leak tightness of the pump body . . . . . 150 bars (2176 p.s.i.)

### PARTICULARS

- Piston rods: length ( $0,1 \times 0,1 \text{ mm} = .004'' \times .004''$ ): . . . . . 28,8 to 30,5 mm (1.134'' to 1.201'')
- Clearance between the upper face of the piston (TDC) and the check valve: . . . . . 0,5 mm (.020'')
- Tightening of the drive pulley nut: . . . . . 4 m.kg. (29 ft. lbs.)
- Tightening of the nuts and screws mounting the bearing plate on the pump body: . . . . . 3,5 m.kg. (25 ft. lbs.)

## II PRESSURE REGULATOR – MAIN ACCUMULATOR

D. 39-15



### CHARACTERISTICS

#### 1. Pressure regulator:

Pressures - of cut-in: .....	140 to 150 bars (2031 - 2176 p.s.i.)
- of cut-out: .....	160 to 175 bars (2321 - 2539 p.s.i.)

#### 2. Main accumulator:

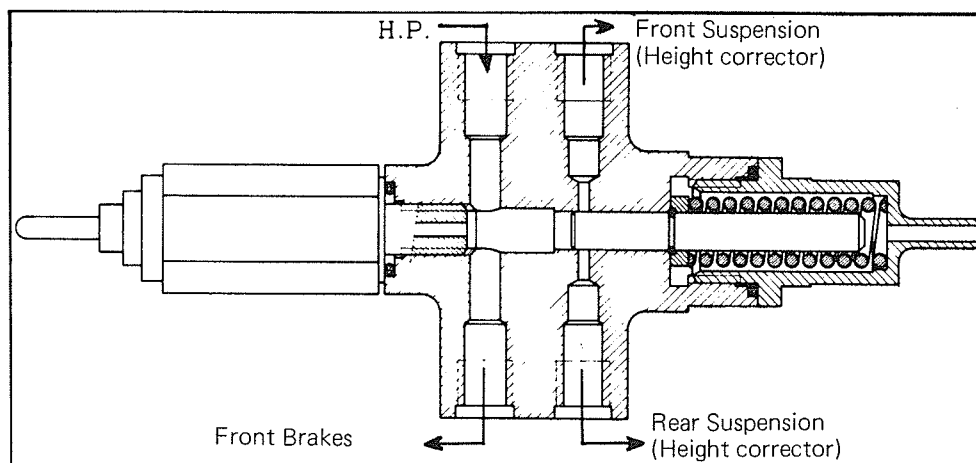
- Volume: .....	0,380 liter (.402 qts.)
- Calibrated pressures: .....	$65 \begin{smallmatrix} + 5 \\ - 15 \end{smallmatrix}$ bars ( $843 \begin{smallmatrix} + 72 \\ - 218 \end{smallmatrix}$ p.s.i.)

### PARTICULARS

- Adjusting shims, thickness (cut-out) .....	$0,95 \begin{smallmatrix} 0 \\ - 0,05 \end{smallmatrix}$ mm ( $0,0373 \begin{smallmatrix} + 0 \\ - .002 \end{smallmatrix}$ in.)
- Adjusting shims, thickness (cut-in) .....	$0,7 \begin{smallmatrix} 0 \\ - 0,05 \end{smallmatrix}$ mm ( $0,0276 \begin{smallmatrix} + 0 \\ - .002 \end{smallmatrix}$ in.)
- Cut-in chamber: 1 washer varies the pressure: .....	3 bars (44 p.s.i.)
- Cut-out chamber: 1 washer varies the pressure: .....	4 bars (58 p.s.i.)

### III PRIORITY VALVE

♦ D. 39.5



### CHARACTERISTICS

#### Priority Valve

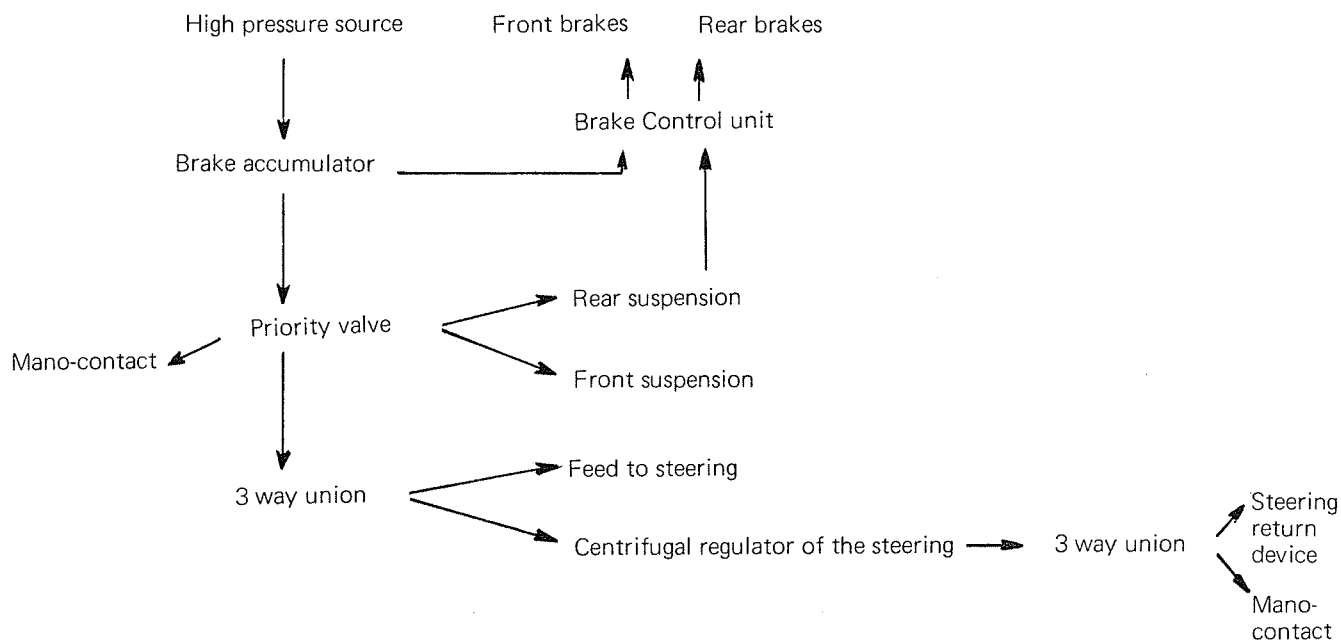
- Calibration of the slide valve return spring ..... 110 to 130 bars (1596 to 1886 p.s.i.)
- Leakage tightness of the valve ..... 175 bars (2539 p.s.i.)

### PARTICULARS

- Thickness of the adjusting shims ..... 0,9 mm (.0354")
- Tightening torque of the pressure switch: ..... 9 ft. lbs.
- Tightening torque of the cap plug. .... 12 to 16 ft. lbs.

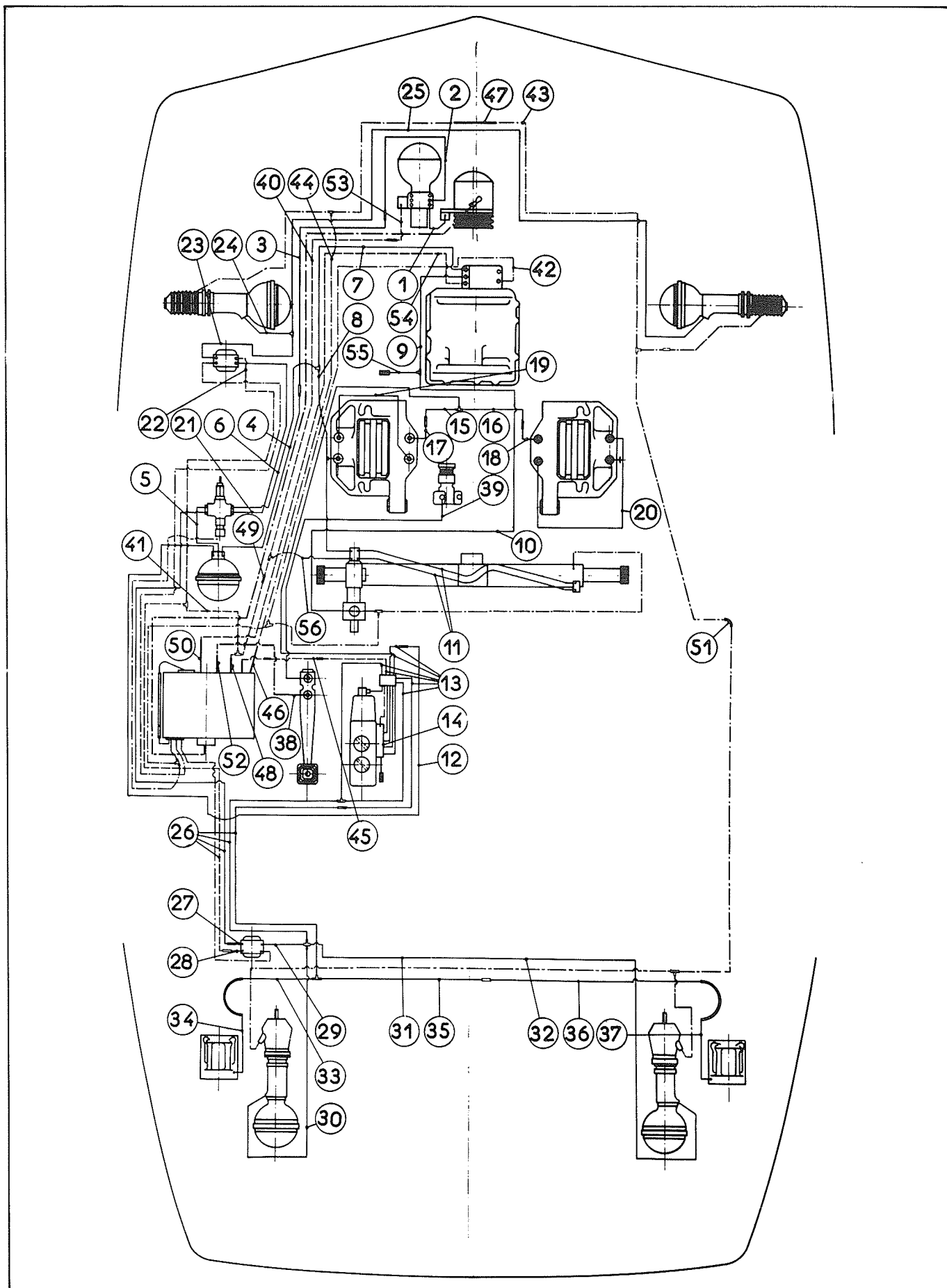
### IV. HYDRAULIC CIRCUIT

#### ♦ 1. Schematic of the principle



*2. Hydraulic lines — Schematic of the general assembly*

1. Connector — H.P. pump to pressure regulator.
2. Connector — Pressure regulator to two way union.
3. Connector — Two way union to two way union.
4. Connector — Two way union to brake accumulator.
5. Connector — Priority valve to brake accumulator.
6. Connector — Priority valve to three way union.
7. Three way feed — To the centrifugal regulator.
8. Feed — To the steering.
9. Connector — Centrifugal regulator to three way union.
10. Connector — Three way union to the steering.
11. Feed lines — Steering.
12. Connector — Brake accumulator to brake control unit.
13. Rear general lines (front part).
14. Lines of the brake control unit.
15. Feed to the left front brake.
16. Feed to the right front brake.
17. Connector — Two way union to the left front brake.
18. Connector — Two way union to the right front brake.
19. Connector — Left and right brake pistons on the left front brake.
20. Connector — Left and right brake pistons on the right front brake.
21. Feed to the front height corrector.
22. Return line of the front height corrector.
23. Feed to the front suspension.
24. Feed to the left front suspension cylinder.
25. Feed to the right front suspension cylinder.
26. General lines.
27. Feed to the rear height corrector.
28. Return line of the rear height corrector.
29. Feed to the rear suspension.
30. Feed to the left rear suspension cylinder.
31. Feed to the right rear suspension - left section.
32. Feed to the right rear suspension - right section.
33. Connector — Rear flexible hose to three way union.
34. Feed to the left rear brake.
35. Feed to the right rear brake - left section.
36. Feed to the right rear brake - right section.
37. Feed to the right rear brake.
38. Feed to the declutching master-cylinder.
39. Feed to the declutching cylinder.
40. Return collector line — Front section pressure regulator-steering.
41. Return collector line — Pressure regulator-steering-height correctors.
42. Return tube — Centrifugal regulator.
43. Return collector line — Right rear and right front suspension cylinders.
44. Return collector line — Rear and front suspension cylinders.
45. Return — Brakes to the reservoir.
46. Return from the suspension cylinders — Reservoir end.
47. Connector — Return collector lines for the suspension.
48. Return — Pressure regulator-steering-height correctors.
49. Connector — Front and rear collector lines- returns of the pressure regulator, steering, height correctors.
50. Return — Centrifugal regulator to reservoir.
51. Connector — Return collector line of the rear suspension to the front collector line.
52. Connector — Master cylinder to reservoir.
53. Connector — Pressure regulator to return collector line.
54. Connector — Centrifugal regulator to return collector line.
55. Connector — Three way union to mano-contact.
56. Return of the steering.



## I CHARACTERISTICS (On the cars)

### 1. Caster:

Caster angle: ..... 1° 42'

### 2. Camber:

Difference between the right side and the left side ..... 15' max.

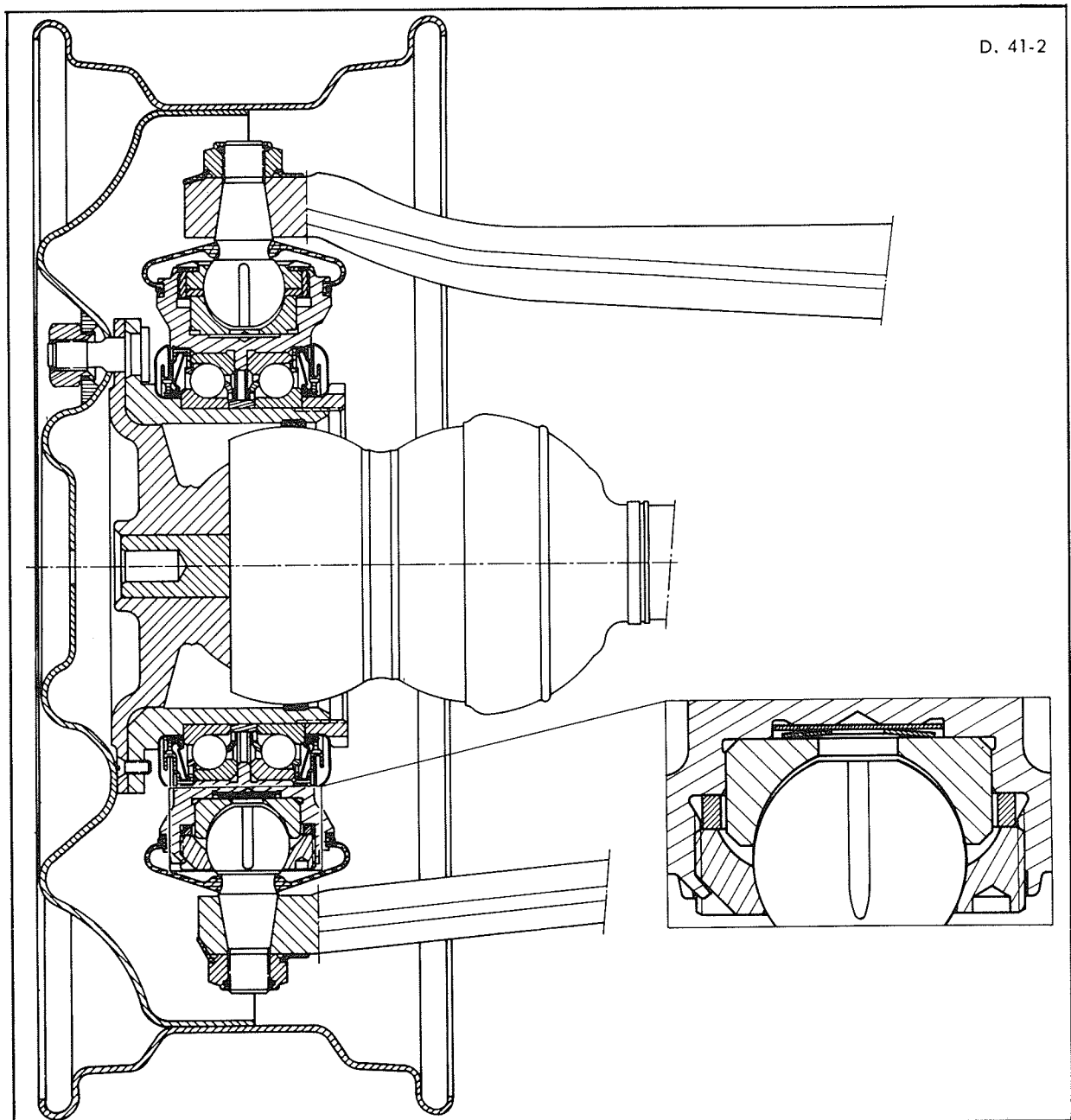
Distance between the ball joint of the anti-roll bar and the ball joint of the suspension control lever:

- Left side: ..... 199 mm (7.835")

- Right side: ..... 198 mm (7.795")

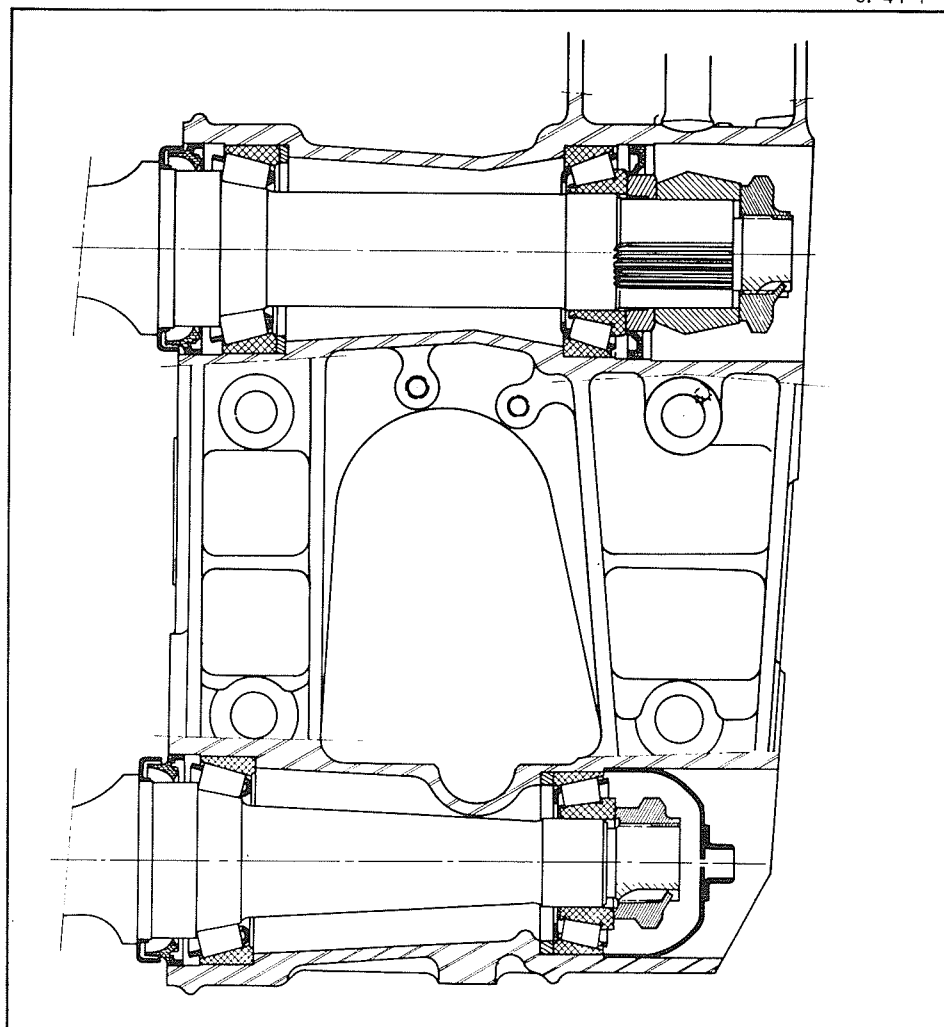
### 3. Toe:

Wheels parallel: .....  $0 \pm 1$  mm ( $0 \pm .040$ ")





S. 41-1



## II PARTICULARS

### PIVOT (Wheel Bearing)

Do not clean the pivot assembly by immersion.

The pivot bearings cannot be replaced without special tools.

Tightness of the upper ball joint nut on the arm .....	60 to 80 ft. lbs.
Tightness of the lower ball joint nut on the arm .....	72 ft. lbs.
Tightness of the nut locking the bearings on the pivot .....	700 to 1000 ft. lbs.
Tightness of the lower ball joint nut on the pivot .....	290 ft. lbs.

Because of these high torques, it is impossible to replace the ball joint on the car without damaging the pivot of the drive shaft.

Calibrate, with precision, the thickness of the adjustment shim of the lower ball joint.

The adjustment shim of the upper ball joint is sold matched with the assembly of the ball pin and cages.

Tightness of the upper ball joint nut on the pivot .....	1000 ft. lbs.
----------------------------------------------------------	---------------

To prevent destruction of the pivot, do not set the cup of the upper ball joint in its seat by hammering or by using an arbor press.

Tightness of the wheel lugs. ....	58 to 72 ft. lbs.
-----------------------------------	-------------------

## HALF-AXLE

### 1. Removal

The rod of the suspension piston cannot be disengaged unless the holes for passage of the connecting pin, in the rod and in the lever, are parallel. It is necessary, for this, to apply pressure on the arm.

### 2. Replacement

Tightness of the half-axle mounting bolts: . . . . . 50 - 65 ft. lbs.

Anti-roll bar:

Lateral positioning by displacement of the right stop clamp, obtaining a dimension of  $110 \pm 0,5$  mm ( $4.33 \pm .020''$ ), between the outer face of this stop clamp and the inner face of the forging for the ball joint, right side.

Tightness of the anti-roll bar bearing caps: . . . . . 9 ft. lbs.

The bar should be able to turn under an effort of: . . . . . 4 to 6 kg. (9 to 13 lbs.)

Lateral clearance of the bar: . . . . . 0,2 to 1 mm (.008'' to .040'')

To couple the anti-roll bar to the suspension levers, operate in a manner to obtain a difference between centers, between the ball joint of the lever and the ball joint of the bar, of 198 mm (7.795'') for the right side and 199 mm (7.834'') for the left side.

### 3. Assembly

The outer face of the rear seal of the upper arm should be  $1,5 \pm 0,25$  mm ( $.059'' \pm .010''$ ) from the outer face of the inner bearing cup.

The outer face of the front seal of the upper arm should be  $5 \pm 0,25$  mm ( $.197'' \pm .010''$ ) from the outer face of the support.

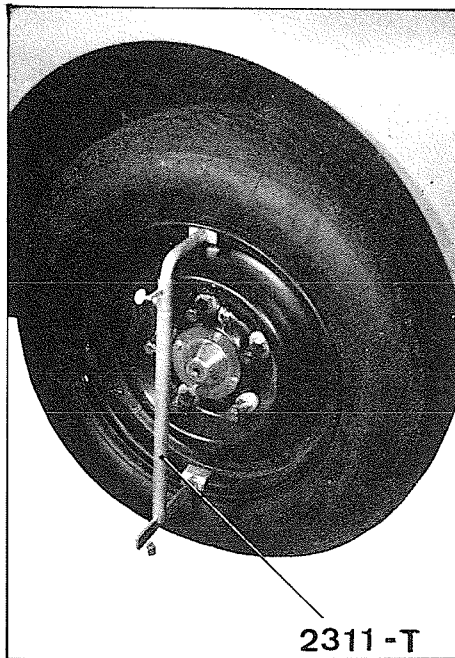
Tightness of the mounting nuts of the upper and lower arms: . . . . . 65 ft. lbs.

Then loosen 1/12 turn.

Adjust the caster *of the removed half-axle* with the tool 2321-T.

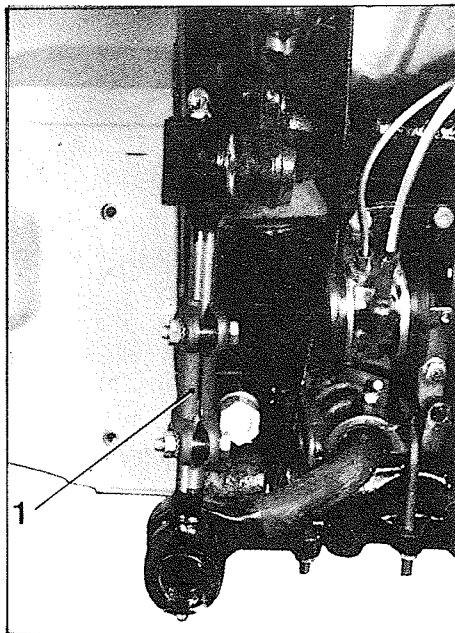
The dimension read on the tool should be . . . . . 29,50 to 30 mm (1.161'' to 1.181'')

8452



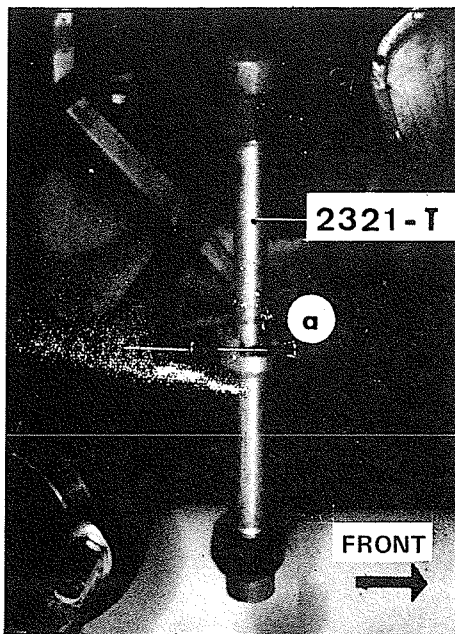
2311-T

8100



1

8829



2321-T

a

FRONT

## I ADJUSTMENT OF THE CAMBER

### 1. Check the heights:

Verify the tire pressures:

At the front: 32 p.s.i. at the rear: 29 p.s.i.

Check the heights:

At the front:  $196 \pm 5$  mm ( $7.717 \pm .197''$ )

At the rear:  $355 \pm 5$  mm ( $13.976 \pm .197''$ )

Adjust, if necessary.

### 2. Check the camber:

**IMPORTANT:** This operation must be executed on a flat and horizontal surface.

*The difference of camber between the left side and the right side should not exceed  $0^\circ 15'$ .*

#### a) Use the tool: 2311-T:

Set the tool in position on one of the front wheels.

Read the indication given by the wire of the plumb on the scale of the tool.

Do the same on the other wheel.

**NOTE:** The scale of the tool is graduated in degrees.

#### b) Use of commercial apparatus:

Follow the instructions of the manufacturer.

### 3. If the camber is incorrect (bad division):

#### a) Remove the side metal protection pans.

#### b) Work on the sleeves (1) to divide the camber equally on the two wheels.

## II INSPECTION OF THE CASTER

**IMPORTANT:** This operation must be executed on a flat and horizontal surface.

Only a light beam projection apparatus (or a level) permits inspecting the caster of the car. The mounting plane of the axle on the chassis, being inclined toward the rear, the tool 2321-T allows checking the position of the axle arms only.

**NOTE:** The adjustment of the caster necessitates the dismounting of the upper arm of the half axle.

The camber of the car should be:  $1^\circ 42' \pm 0^\circ 4'$ .

The dimension "a" measured with the tool 2321-T should be between: 29,50 and 30 mm ( $1.161''$  and  $1.181''$ ).

## 1. CHARACTERISTICS

### 1. *Camber (non-adjustable)*

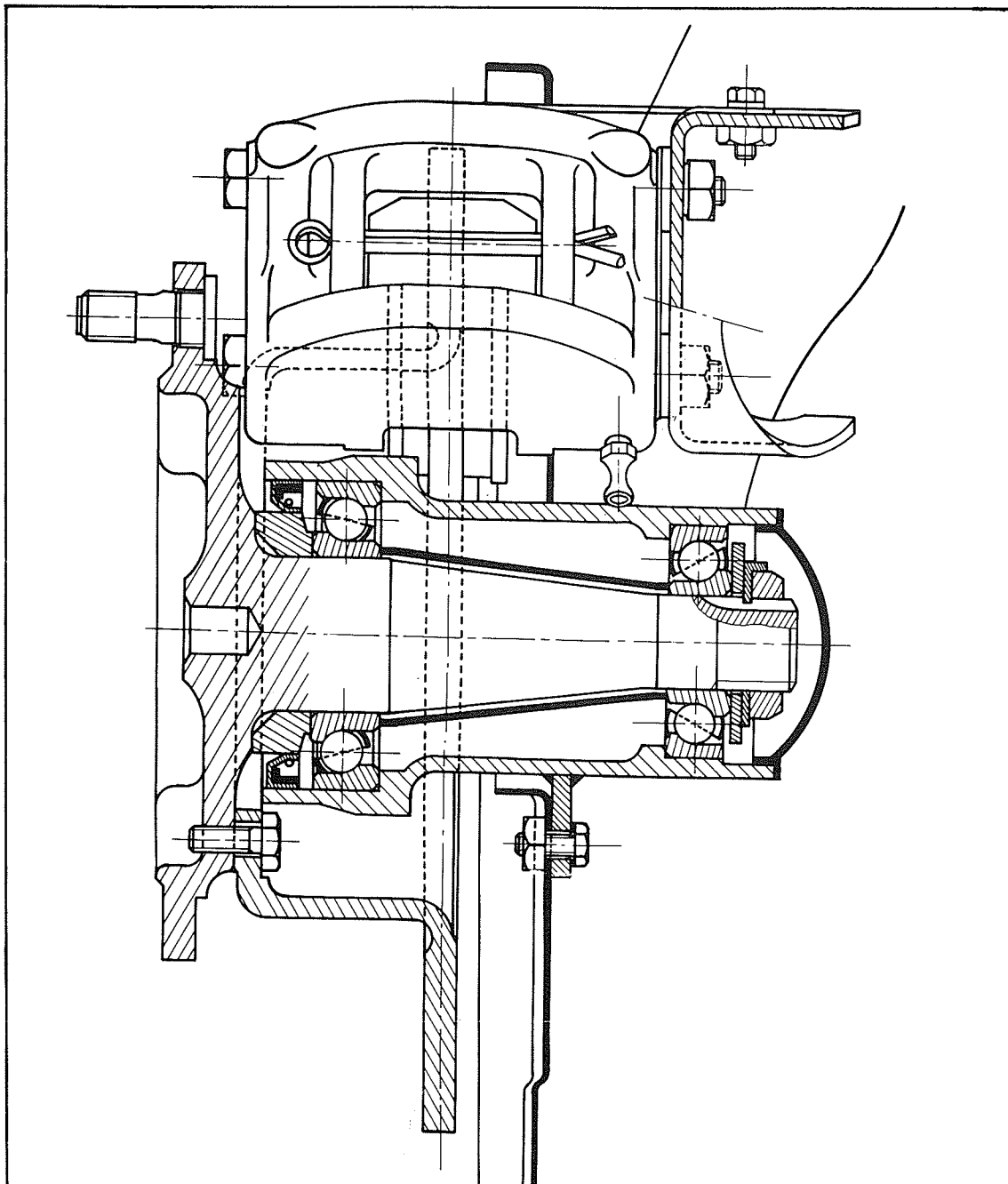
- Difference between right side and left side ..... 0° 15'

### 2. *Toe*

- Toed in toward the front (non-adjustable): ..... 0 to 2 mm (0 to .080")

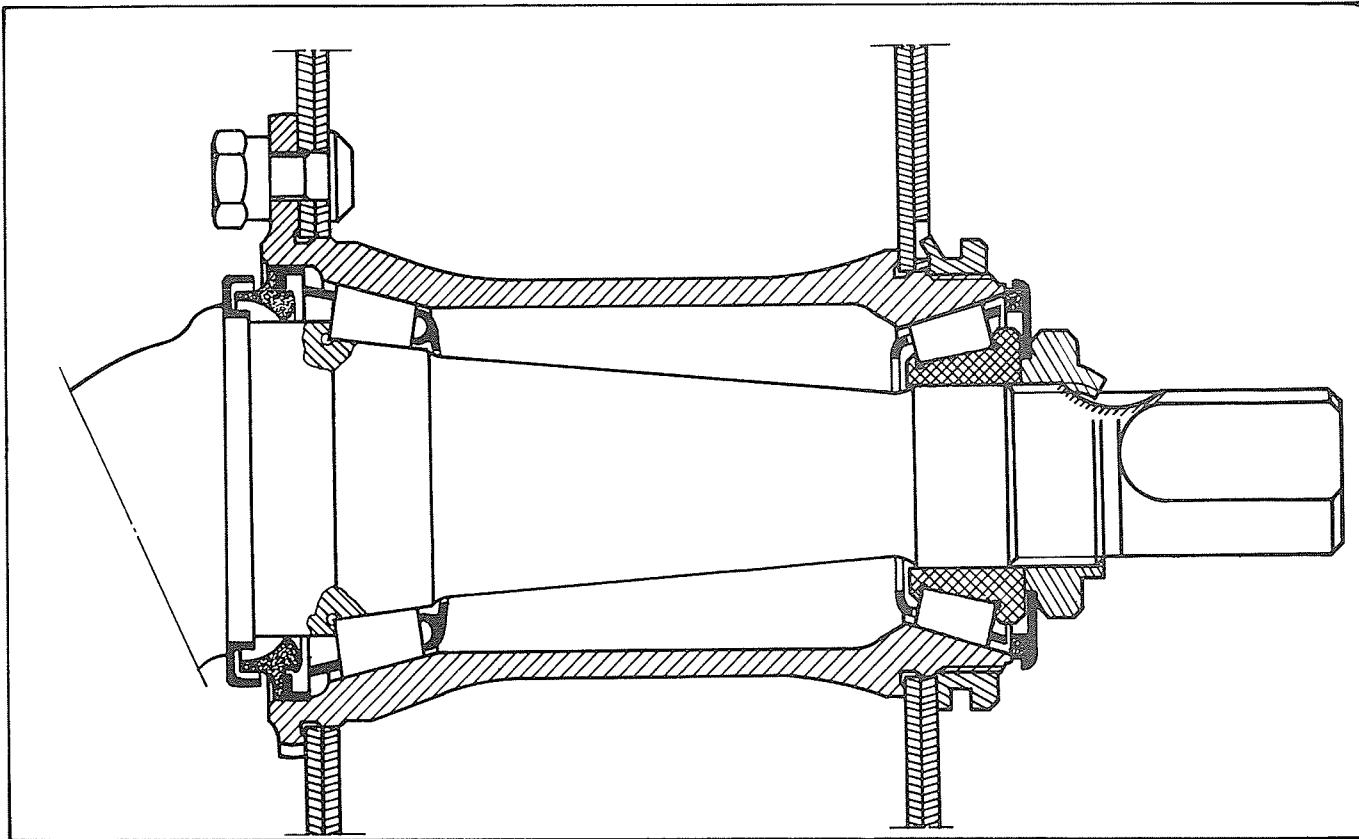
### 3. *Hub*

S 42-1



4. *Housing of the articulation bearings:*

D. 42-1

II *PARTICULARS*1. *Hub:*

- Length of the tapered spacer of the stub axle bearings: .....  $72,78 \pm 0,02$  mm ( $2.8653 \pm .0008$ " )
- Adjusting washers of the stub axle bearings ( $25,1 \times 31,8$  mm =  $.988" \times 1.253"$ ),  
thicknesses progressing by 0,04 mm (.0016"): ..... (.078" to .1457")
- Depth of the outer face of the bearing seal in its bore ..... 0 to .020"
- Special grease for the bearings in the housing ..... 2 oz. approx.

2. *Arms:*

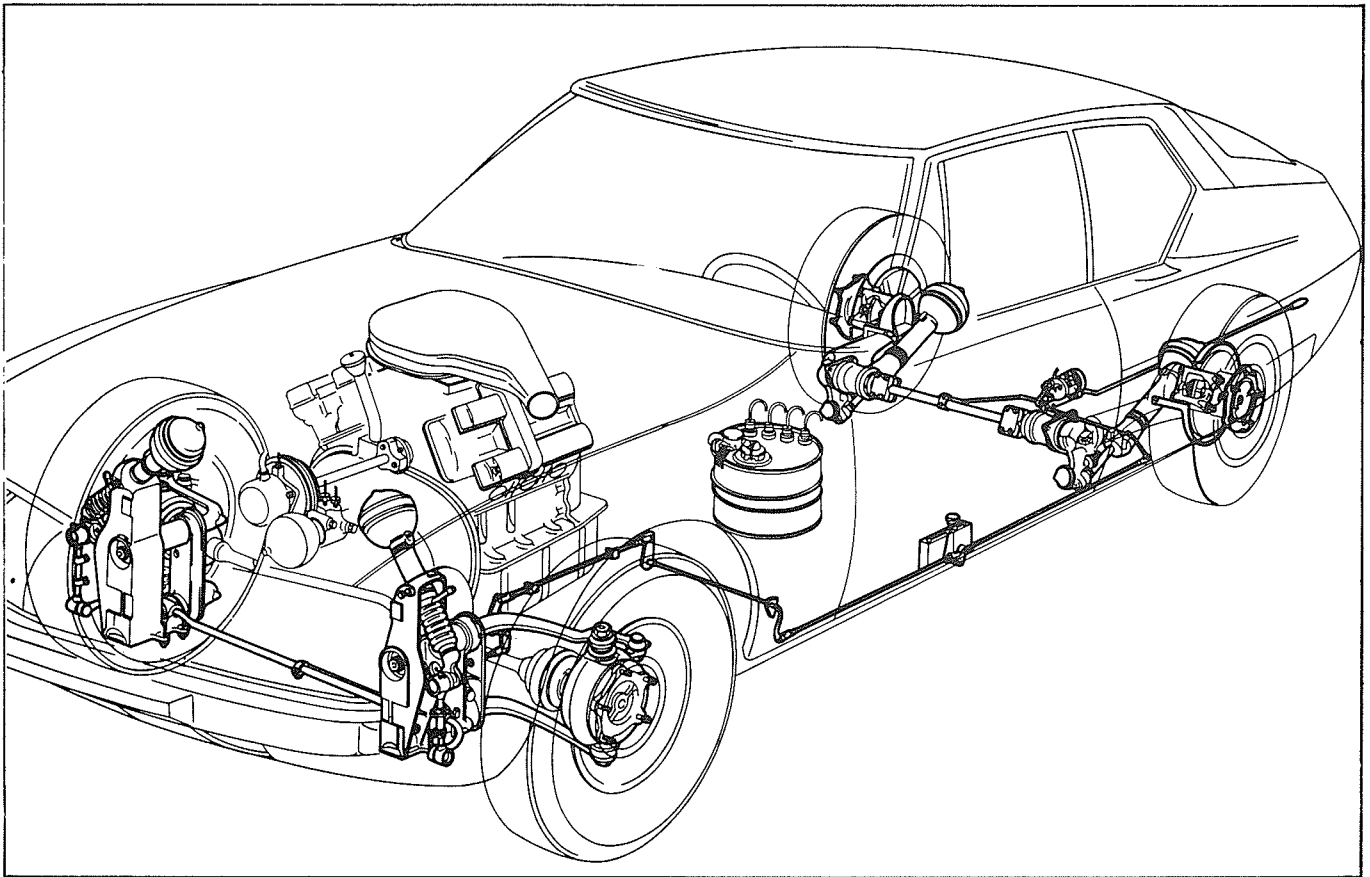
- Minimum clearance between the arms and the metal stop on the chassis: ..... 0,5 mm (.020")

3. *Tightening torques:*

- Nut for locking the stub axle: ..... 10 m. kg. (72 ft. lbs.)
- Nut of the articulation axle of the arm: ..... 8 to 9 m. kg. (58 to 60 ft. lbs.)  
then loosen 1/6 turn.
- Tightness of the screws mounting the brake disc: ..... 2 to 2,5 m. kg. (14 to 18 ft. lbs.)
- Lugs for tightening the wheels: ..... 8 to 10 m. kg. (58 to 72 ft. lbs.)

## CHARACTERISTICS

198 23



### 1. Adjustment of the heights:

NOTE: The tires must be correctly inflated (at the front: 32 p.s.i. at the rear: 29 p.s.i.)

At the front: Height between the underside of the anti-roll bar and the supporting surface of the wheels: . . . . .  $242 \pm 5 \text{ mm (9.528} \pm .197\text{'')}$

At the rear: Height between the underside of the anti-roll bar and the supporting surface of the wheels: . . . . .  $355 \pm 5 \text{ mm (13.976} \pm .197\text{'')}$

After adjustment, the difference in camber of the front wheels should not be more than. . . .  $0^\circ 15'$

### 2. Suspension spheres:

Inflation pressures — Front: . . . . .  $40 \begin{smallmatrix} +2 \\ -10 \end{smallmatrix} \text{ bars (580} \begin{smallmatrix} +30 \\ -145 \end{smallmatrix} \text{ p.s.i.)}$

— Rear: . . . . .  $26 \begin{smallmatrix} +2 \\ -10 \end{smallmatrix} \text{ bars (377} \begin{smallmatrix} +30 \\ -145 \end{smallmatrix} \text{ p.s.i.)}$

## PARTICULARS

### 1. Pre-adjustment of the heights (car on supports, axles suspended):

At the front: the corrector being at full intake (all the way toward the rear), exert a slight tension on the control rod toward the front and tighten the clamp.

At the rear: position the suspension arms so as to have a distance of 35 mm (1.378'') between the upper edge of the cup retaining the rubber bumper and the metal stop plate on the chassis.

### 2. Adjustment of the anti-roll bars:

Distance between the stop clamp and the inside face of the forging encasing the ball joint, right side: . . . . .  $110 \pm 0,5 \text{ mm (4.33} \pm .020\text{'')}$

Clearance between the left stop clamp and the lower bushing, the right stop clamp being held against its bushing: . . . . . 0,5 to 1 mm (.020'' to .040'')

Tightness of the nuts of the bushing cap "U" bolts . . . . . 11 ft. lbs.

Rotation torque of the anti-roll bars (applied at the end of the bar): . . . . . 9 - 13 lbs.

### 3. Spheres and suspension cylinders:

Tightness of the nuts mounting the shock absorbers: . . . . . 29 ft. lbs.

Tightness of the pivot screws holding the front suspension cylinders: . . . . . Hand tight

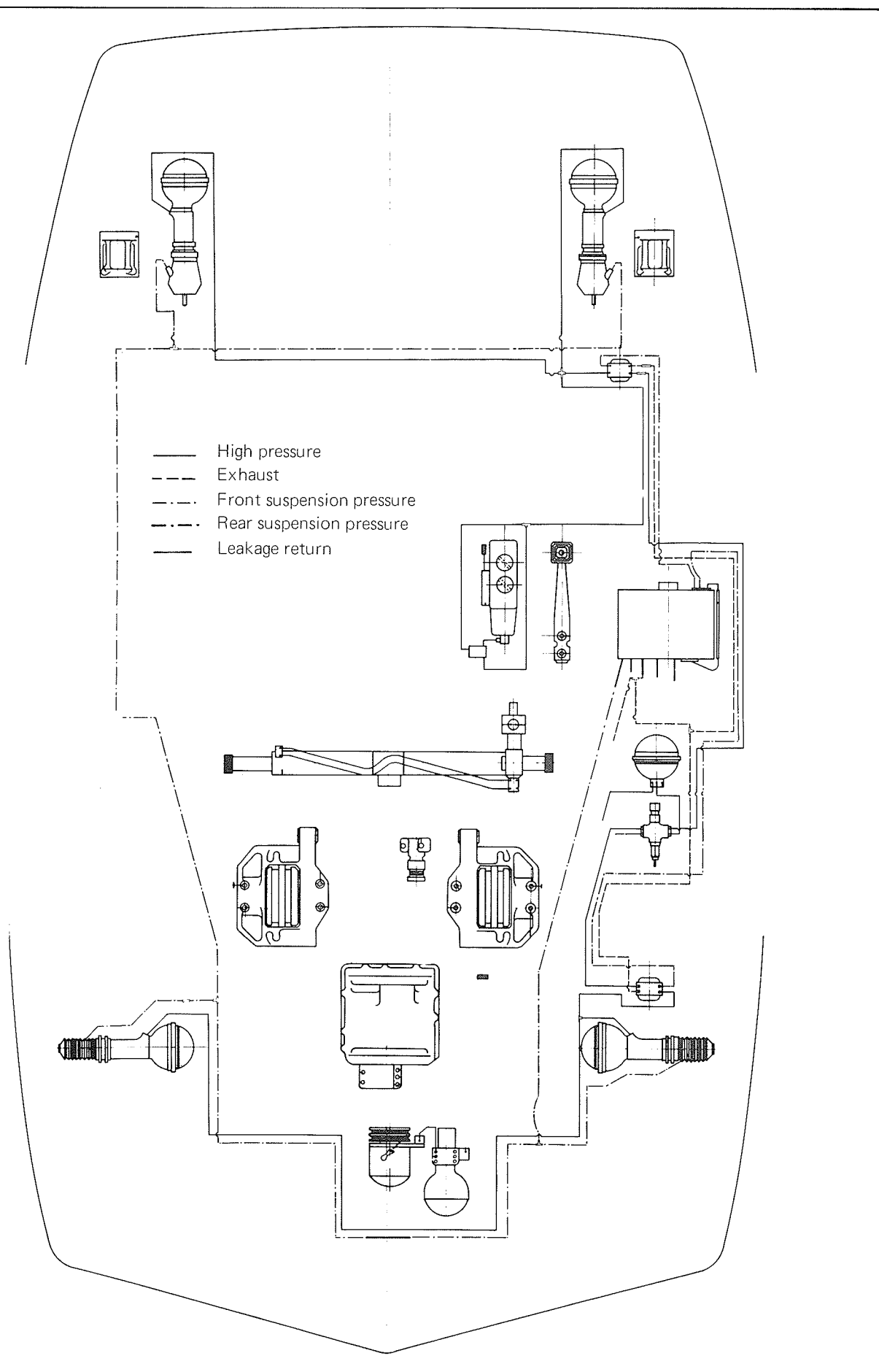
Tightness of the corresponding lock-nuts: . . . . . 14 ft. lbs.

Tightness of the spheres on the suspension cylinders: . . . . . Hand tight

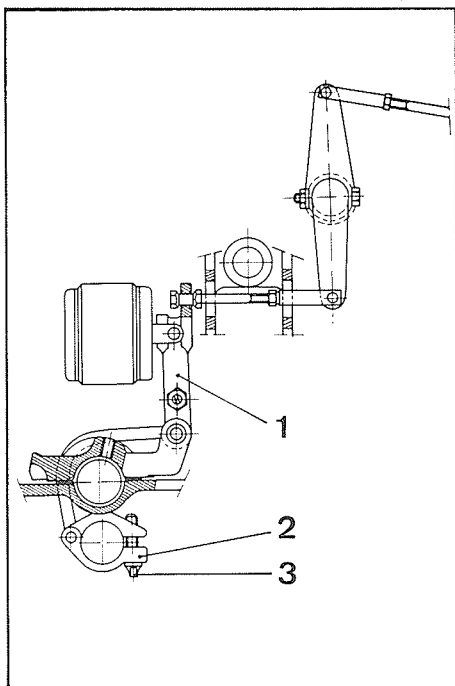


## SCHEMATIC OF THE SUSPENSION CIRCUIT

S. 39-5



S. 43-1/1

**PRE-ADJUSTMENT OF THE FRONT HEIGHTS**

1. Set the front of the car on jack supports, the wheels suspended.
2. Place the manual height control lever in *high position*.

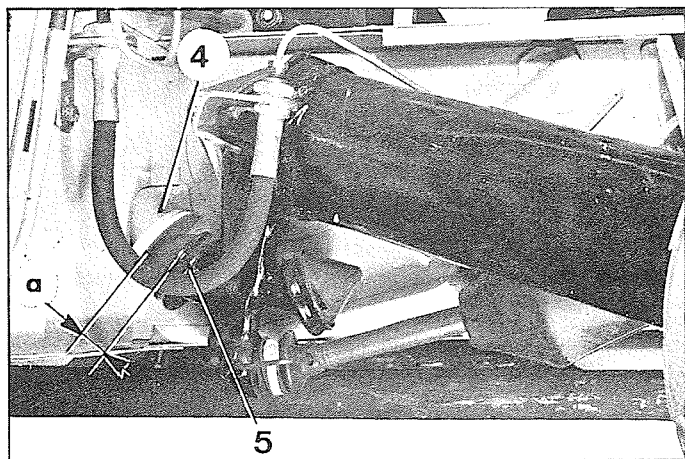
Be sure that the slide valve of the height corrector is at full intake position. Check this by trying to move the valve toward the rear, using a screw driver bearing against the support of the suspension arm.

REMARK: Do not allow the screw driver to take leverage on the height corrector. This will cause cutting of the rubber cup.

3. Loosen the screw (3) of the clamp (2) locking the control rod on the anti-roll bar (wrench 1677-T).
4. Exert a slight torsion (toward the front) on the clamp, always holding the end of the control rod in full intake position, and tighten the screw of the clamp.

Be sure there exists a *clearance of approximately 1 mm (.040")* between the ball of the corrector and the bottom of the stirrup of the control lever (1).

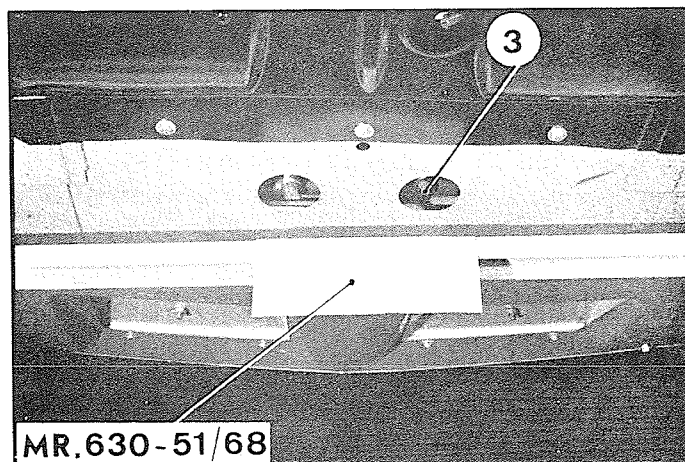
9778

**PRE-ADJUSTMENT OF THE REAR HEIGHTS**

5. Set the rear of the car on jack supports.
6. Position the two rear arms in such a manner as to obtain a distance  $a = 35 \text{ mm } (1.378")$  between the upper rim of the front cup (5) and the pressure face for the rubber bumper, on the metal stop-plate (4).
7. Place the corrector in full intake position (toward the front) and tighten the clamp of the control rod.

Be sure there exists a *clearance of approximately .040"* between the ball of the corrector and the bottom of the stirrup of the control lever.

8624

**ADJUSTMENT OF THE HEIGHTS**

To do this operation, the car must be ready to drive.

8. Check the tire pressures:

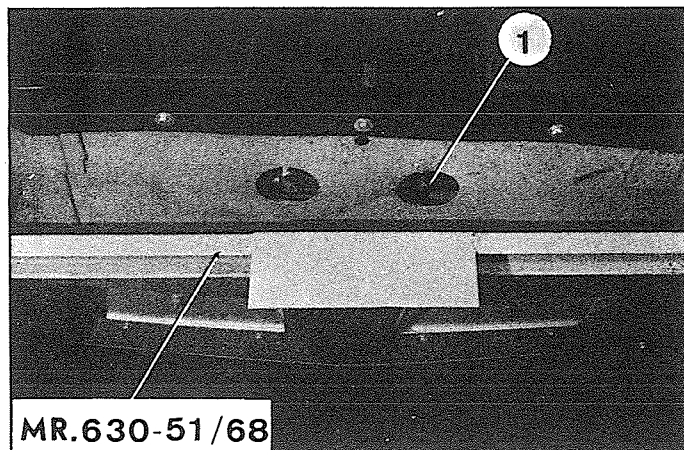
Front: 32 p.s.i. Rear: 29 p.s.i.

9. Place the car on a lift or over a pit. Place the manual height control lever at the "normal drive" position. Let the motor run at idle speed.

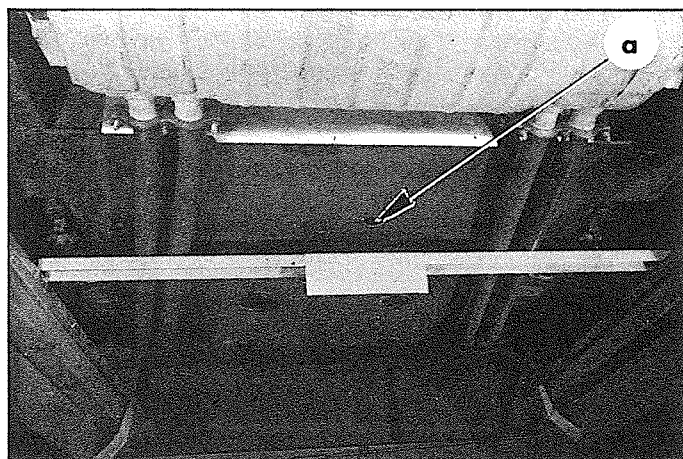
Release the hand brake. Do not chock the wheels.

REMARK: If this operation is done on a lift, use the gauge MR 630-51/68 in order to read the measurements.

8624



8622

**10. Check the front heights:**

- a) Support the gauge (MR 630-51/68) on the guide rails of the lift or the pit, plumb with and parallel to the anti-roll bar. The lower face of the gauge should be exactly in line with the plane of the surface supporting the wheels.

- b) Raise the car by hand at the front bumper. Release the car when the weight becomes too great.

The car descends, then rises again and stabilizes. At this moment, read the dimension between the underside of the anti-roll bar, at both ends, and the plane of the surface supporting the wheels. These two dimensions should not have a deviation of more than 3 mm (.118"). If not, work on the threaded sleeve of the anti-roll bar coupling turnbuckle. Find the average of the two dimensions read, for example: 198 mm (7.795").

- c) Lower the car by pressing on the front bumper.

Release the car when you sense a strong resistance. The car rises, then descends and stabilizes.

Read the dimensions between the underside of the anti-roll bar, at both ends, and the plane of the surface supporting the wheels. Find the average of both dimensions read, for example: 202 mm (7.953").

Find the average of the numbers arrived at in paragraphs b and c; or in the example chosen:

$$\frac{198 \text{ mm (7.795")} + 202 \text{ mm (7.953")}}{2} = 200 \text{ mm (7.874")}$$

*This average should be between 237 and 247 mm (9.33" and 9.72").* If not, adjust the front heights (see paragraph 12).

**11. Check the rear heights:**

- a) Support the gauge MR 630-51/68 on the guide rails of the lift or a pit, plumb with and parallel to the anti-roll bar.

- b) Disengage the rubber caps from the floor-board.

- c) Raise the car by hand, at the rear bumper. Release the car when its weight becomes too great.

The car descends, then rises and stabilizes.

At this moment, read the dimension between the underside of the anti-roll bar and the plane of the surface supporting the wheels (introduce the measuring tape through the hole "a" of the floor-board, the end of the tape resting on the anti-roll bar, for example: 357 mm (14.055").

- d) Lower the car by pressing down on the rear bumper.

Release the car when you sense a strong resistance.

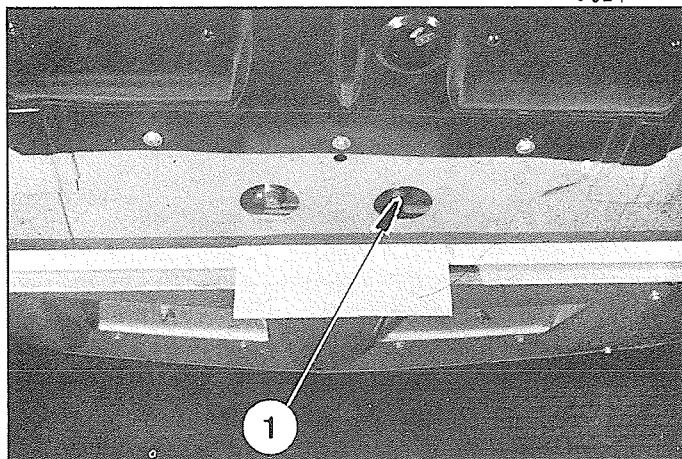
The car rises, then descends and stabilizes.

Read the dimension between the underside of the anti-roll bar and the plane of the surface supporting the wheels, for example: 352 mm (13.858"). Find the average of the dimension, for example:

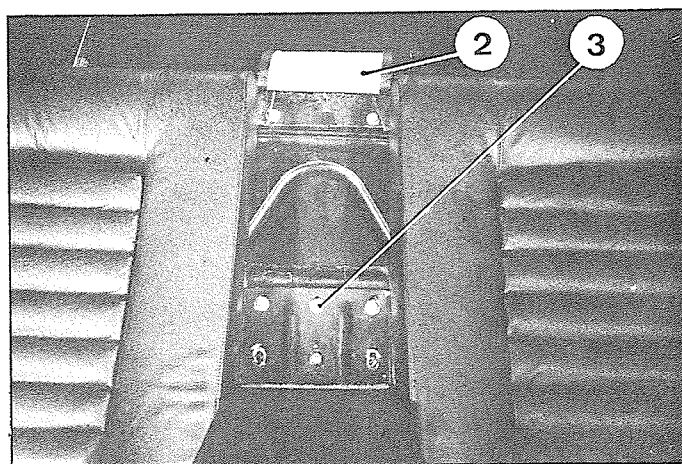
$$\frac{357 \text{ mm (14.055")} + 352 \text{ mm (13.858")}}{2} = 354,5 \text{ mm (13.957")}$$

*This dimension should be between 350 and 360 mm (13.80" and 14.17"),* if not, adjust the rear heights (see paragraph 13).

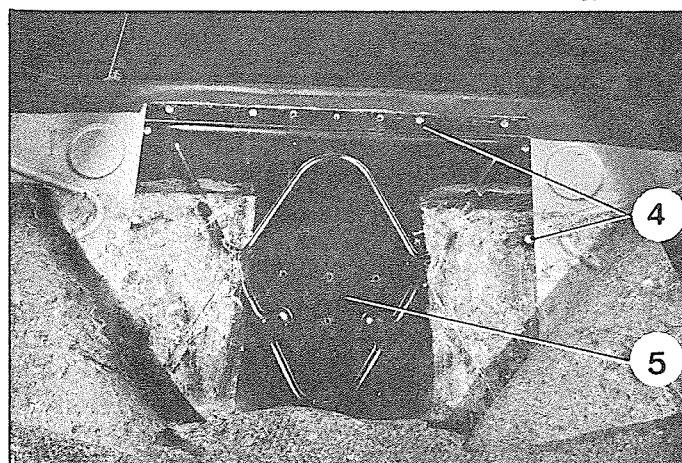
8624



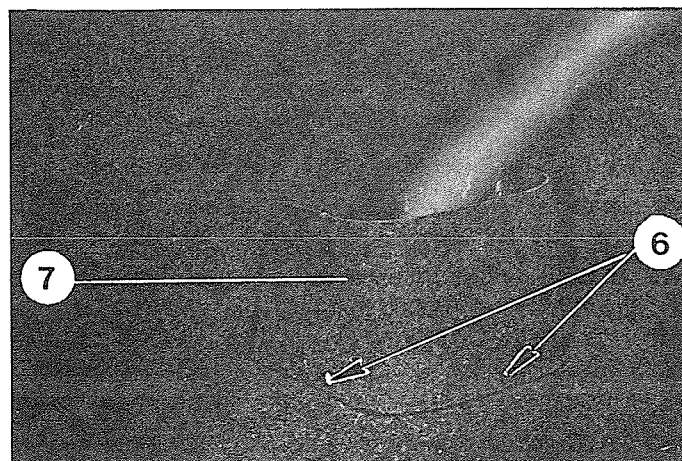
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8730

**12. Adjust the front heights:**

Slightly loosen the screw (1) of the positioning clamp for the control rod of the height corrector. Turn the clamp in the direction most convenient so as to obtain an average height of  $242 \pm 5$  mm ( $9.53 \pm .197''$ ) from the underside of the anti-roll bar and the plane of the surface supporting the wheels. Proceed by fractions of a turn. (By turning the clamp toward the front, you increase the height of the car, and you decrease the height by turning the clamp to the rear).

Retighten the screw (1) of the clamp (wrench 1677-T).

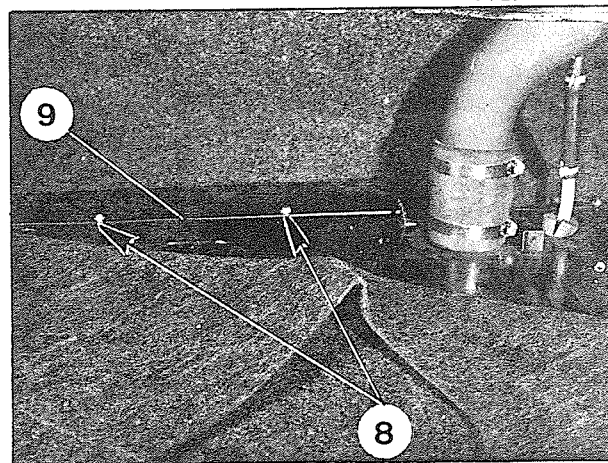
**13. Adjust the rear heights:**

- Unglue the upholstery (2) and remove the mounting screw (3) of the rear seat. Disengage the seat. Remove the screws (4) and disengage the closure plate (5).
- Remove the two screws (6) and disengage the protection shield (7) of the fuel refilling tube. Unglue the lining from the back of the trunk, remove the screws (8) and disengage the metal closure plate (9) from the rear cross bar.
- Operate according to the instructions outlined for the adjustment of the front heights (see paragraph 12), by working on the clamp (5).

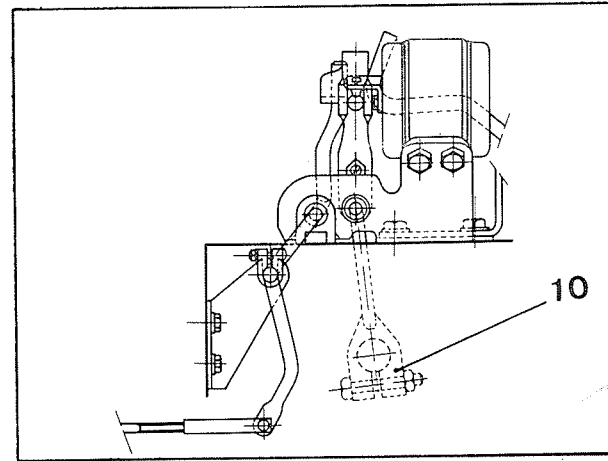
*The height to obtain is  $355 \pm 5$  mm ( $13.98 \pm .197''$ ) from the underside of the anti-roll bar to the ground.*

Reglue the upholstery with a suitable adhesive.

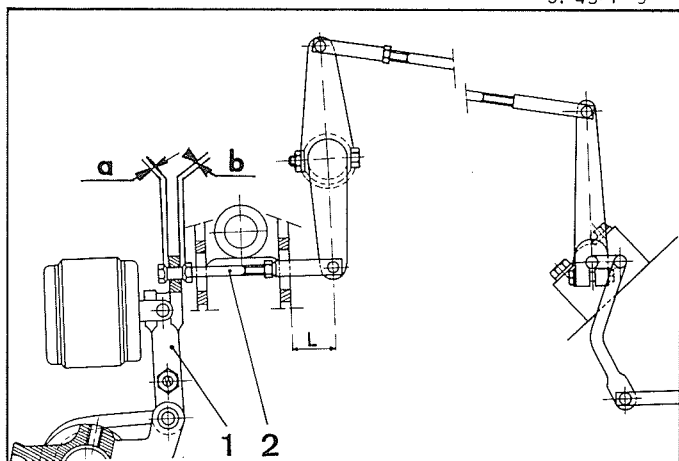
8729



S. 43-1/2



S. 43-1 3



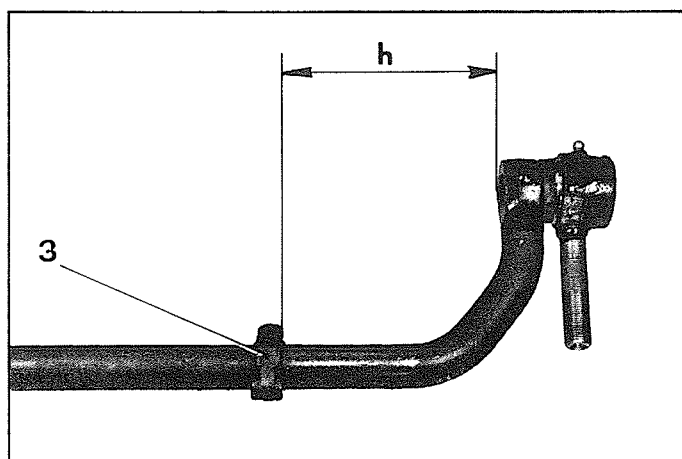
#### 14. Adjust the connecting rods of the manual height control:

Set the control at the *normal drive* position.

- At the front:** Be sure of the existence of the clearance "a", the corrector being at the end of its intake travel (lever (1) pushed toward the rear), and the clearance "b", the corrector being at the end of its exhaust travel (lever (1) pushed toward the front), (clearance measured between the lever (1) and the nut). If necessary, work on the rod (2).
- At the rear:** Check the control in the same manner and conditions. Adjust, if necessary.
- Check the functioning of the manual height control. Especially, be sure that the control levers do not tend to bind against the body. If so, adjust the positions of the control rod bushings.

REMARK: In case it will be impossible to adjust the heights by working on the control rods, proceed with the pre-adjustment of the heights (see paragraphs 1 to 4 of this operation for the front, and paragraphs 5 to 7 of this operation for the rear).

1686



#### ADJUSTMENTS ON THE FRONT ANTI-ROLL BAR

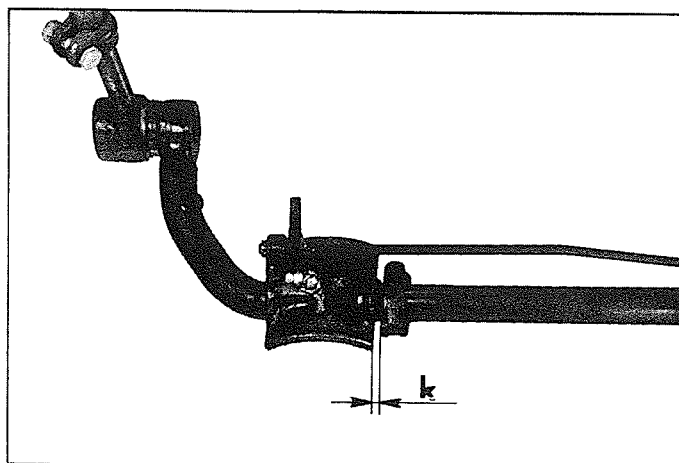
##### 15. Adjust the lateral position of the anti-roll bar.

- Remove the side and bottom protection pans.
- Measure the distance "h" between the stop clamp (3) and the inside face of the forging encasing the right ball joint.

This measurement is facilitated by placing a rule against the forging, holding this rule by hand and measuring the distance "h" with a tape measure (between the clamp and the outer face of the rule).

If necessary, move the collar in the convenient direction in order that *the distance "h" will be equal to  $110 \pm 0,5 \text{ mm}$  ( $4.33 \pm .020$ )*. Tighten the screw of the clamp.

1687



##### 16. Adjust the lateral clearance of the anti-roll bar:

Push the bar in order to set the right stop clamp against the bushings of the right bearing.

Move the left stop clamp in a convenient direction so as to obtain a *clearance "k" of 0,5 to 1 mm (.020" to .040")* between the clamp and the lower bushing of the left bearing.

To do this, remove the front corrector.