



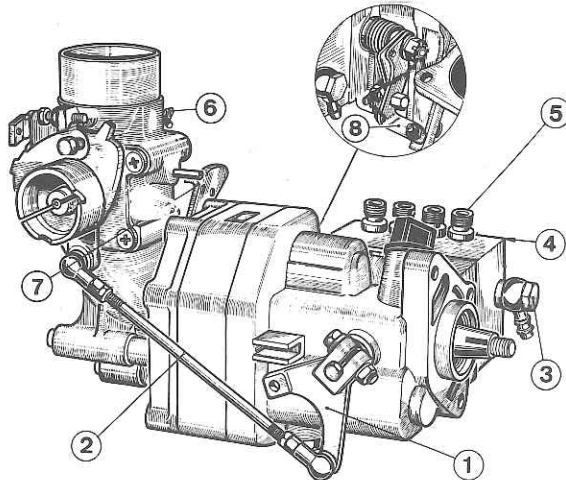
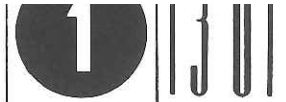
13 01

Pages

INJECTION PUMP

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XC.KF - KF 1 - KF 2
INJECTION PUMP

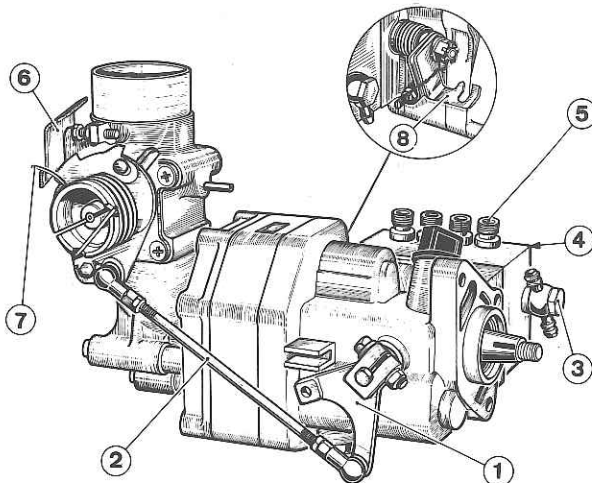


XC.KF - KF 1

Make : KUGELFISCHER
Type : PL 004.104.01

Description :

- 1 - Control lever
- 2 - Connecting link, lever to air throttle
- 3 - Intake union and filter
- 4 - Hydraulic head
- 5 - Injection valve
- 6 - Accelerated idle running lever
- 7 - Air, throttle minimum opening lever
- 8 - Richness lever



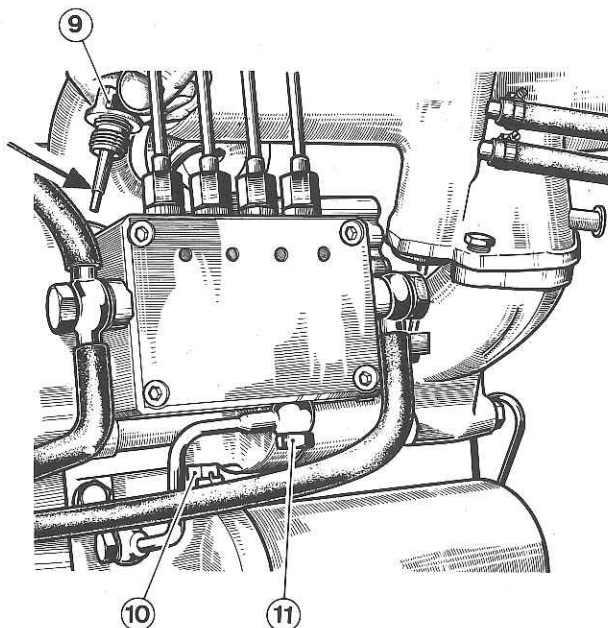
XC.KF 2

As from serial numbers : 4 570 001
4 594 001

Make : KUGELFISCHER
Type : PL 004.104.02

Description

- 1 - Control lever
- 2 - Connecting link- lever to air throttle
- 3 - Intake union and filter
- 4 - Hydraulic head
- 5 - Injection valve
- 6 - Sheath arresting lug
- 7 - Accelerator lever
- 8 - Richness lever



MAINTENANCE

Cam-case oil capacity
- 0.400 litres, ESSO OLEOFLUID 40 EP or UNIVIS 40

Every 5,000 km (3,000 miles)

- Check oil level (mark on dipping plug). Reading of the level should be made after having screwed in dipping plug 9.

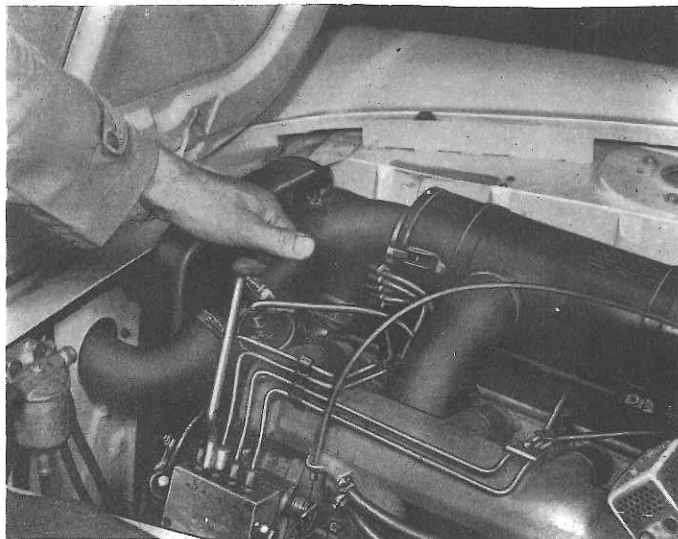
Every 15,000 km (9,000 miles)

- Check output pistons lubrication passage by slackening screw 11. Engine should be at idle running.

Every 50,000 km (30,000 miles) or every 18 months

- Drain pump through drain plug 10.

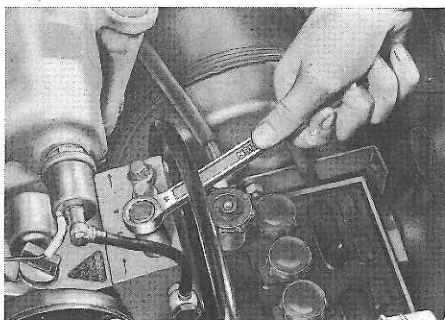
Every month : Check fuel lines for leaks. In case of leaks, change copper or aluminium gaskets, rather than overtightening unions.

**Checking injection output**

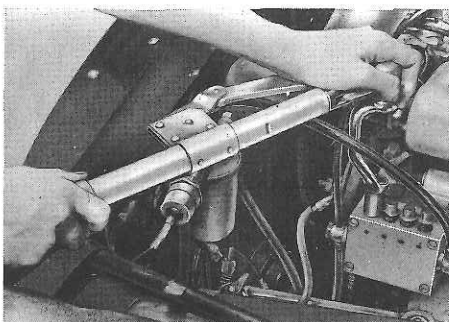
Symptoms : irregular idle running

Checking procedure :

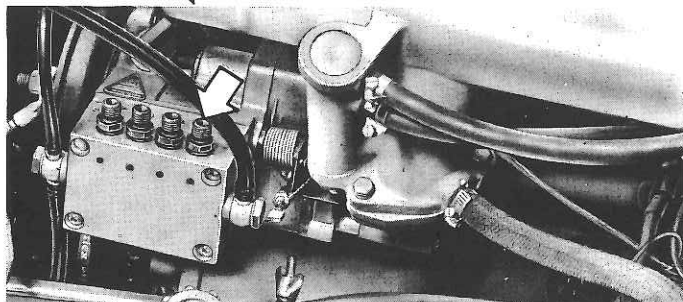
- Slacken, one after the other, the injector unions, in order to ascertain which cylinder is concerned.
- Change injector with that on next cylinder.
- If trouble is then noticed on next cylinder, replace faulty injector.
- If injectors are all in good condition, slacken pipe at pump outlet.
- If drop in engine speed is less noticeable by slackening pipe at pump end than by doing so at injector end, replace pipe.
- Otherwise, bleed injecting valve on pump.

**Bleeding an injecting valve on pump**

- Remove injection pipes
- Unlock nut on piston injecting valve concerned using wrench and socket 8.0112 G.



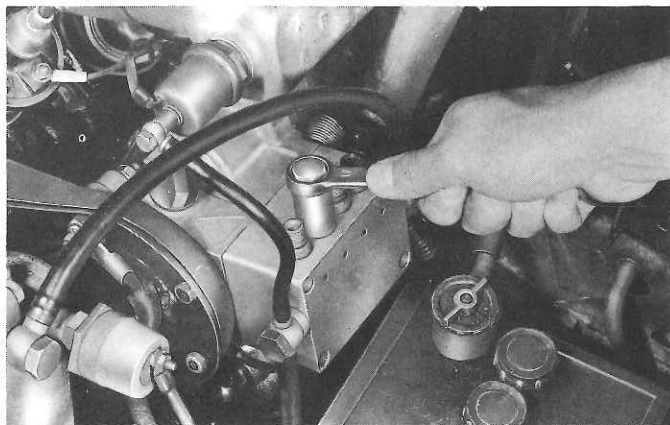
- Turn contact on and allow a little petrol to flow
- Retighten nut using a torque wrench set at : 5 m.kg (36 ft/lbs.)
- Refit injection pipes
- Check circuit to injectors for leaks

**Checking valves for leaks**

- Turn contact on, to start feed pump
- With injection pipes removed valve recesses should not get full in less than 30 seconds.
- Otherwise : replace the or injecting valves.

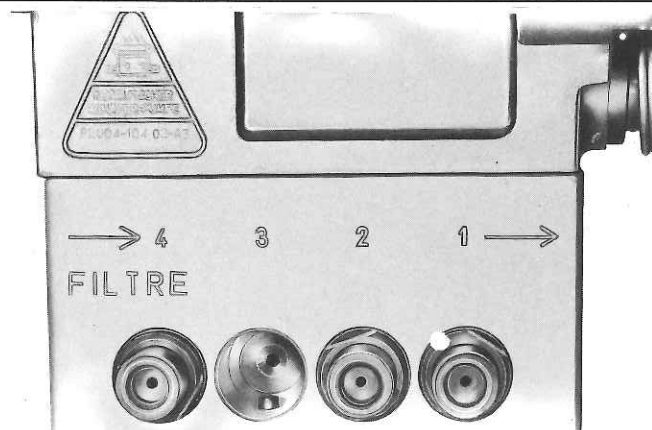
404 PETROL INJECTION ENGINE
XC.KF - KF 1 - KF 2
INJECTION PUMP

1 13 02 A

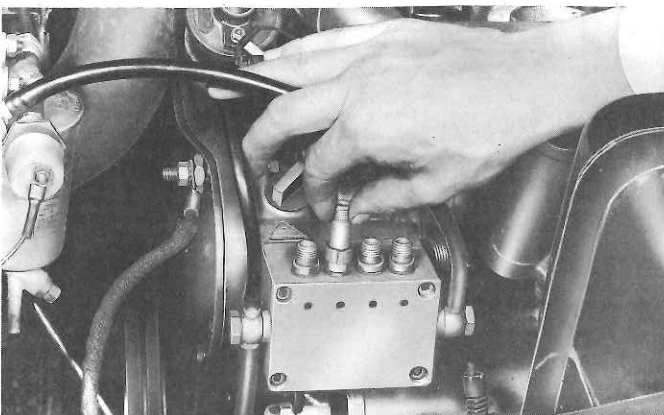


Replacement of an injecting valve on pump

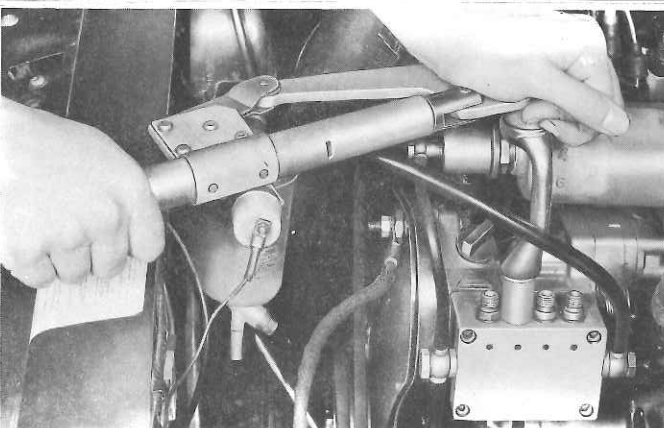
- Carefully clean top of hydraulic head in order to avoid any dust ingress in pump.
- Unlock nut on piston valve concerned using wrench and socket 8.0112 G and remove valve.



- Slightly blow some air within the interior of valve bore and pour some oil over the bore before installing the new piston valve.



- Slide piston valve down equipped with its compensating ring, positioning same in order to insert hydraulic head pin into piston valve groove.

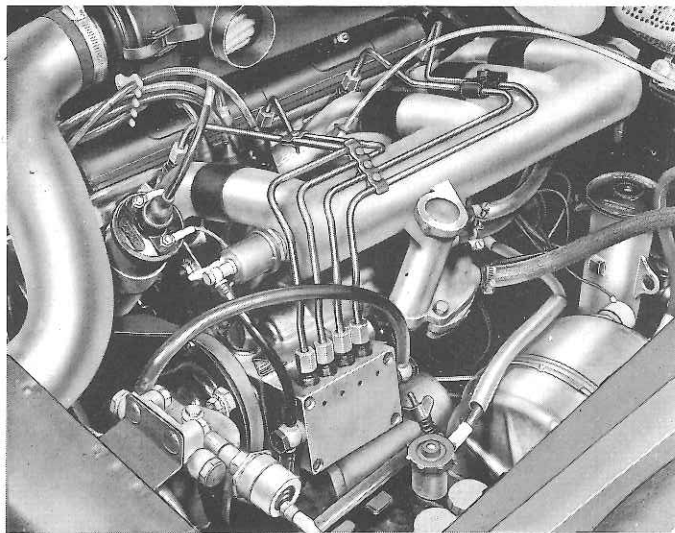


- Lock nut using a torque wrench set at 5 m.kg. (36 ft/lbs).
- Reinstall injector pipes.
- Check injector lines for leaks.

PEUGEOT

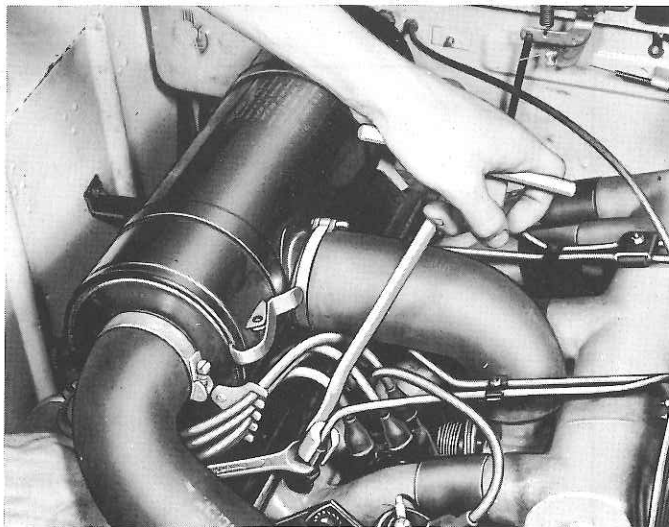
XC.KF - KF 1 - KF 2
INJECTION PUMP

1 | **1303**

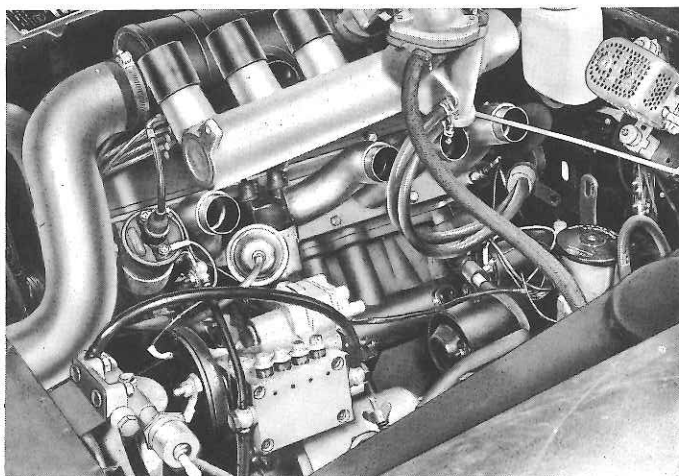


INJECTION PUMP REMOVAL

- Install wing covers
- Disconnect battery earth connection from timing gear cover
- After marking holes, remove hood (convertible only)
- Disconnect :
 - richness lever control cable
 - vacuum pipe from distributor
 - all fuel lines



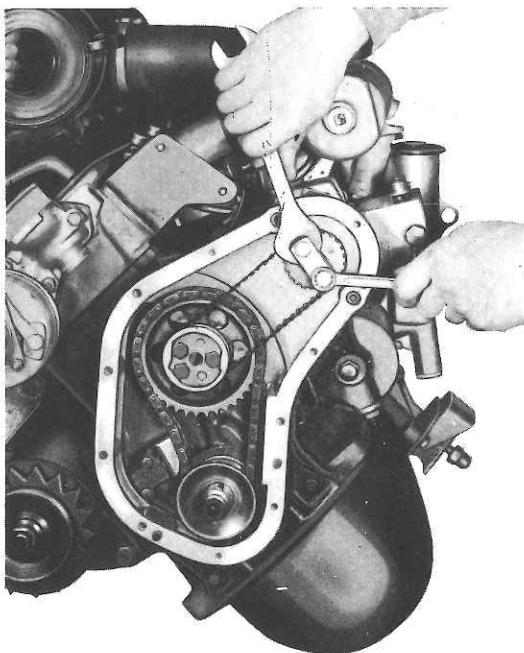
- Remove both hoses from air cleaner
- On manifold, remove injection pipes flanges
- Use wrench, 8.0112 H, to remove all injection pipes with linking flanges
- Fit caps over pump and injector union



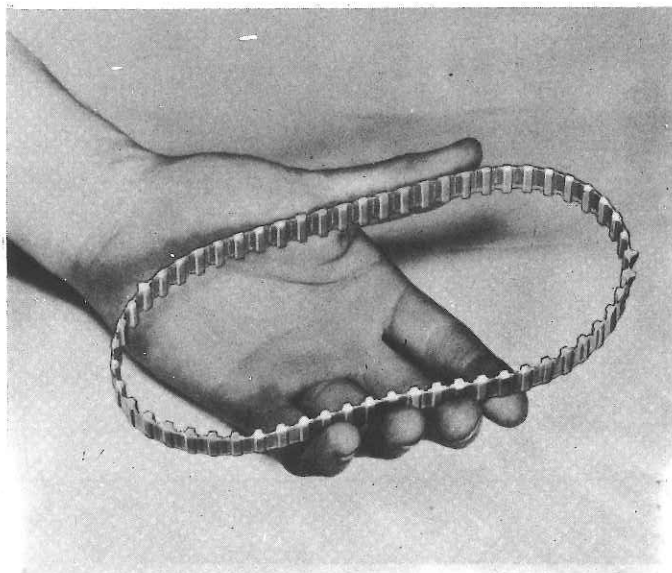
- Remove pump to air throttle link
- Disconnect oil line from oil filter to pump
- Remove manifold and air throttle assy, and put it
- Upside down on air cleaner

SUPERSEDES SHEET, GROUP 1, PAGES 13 03 AND 13 04

PEUGEOT

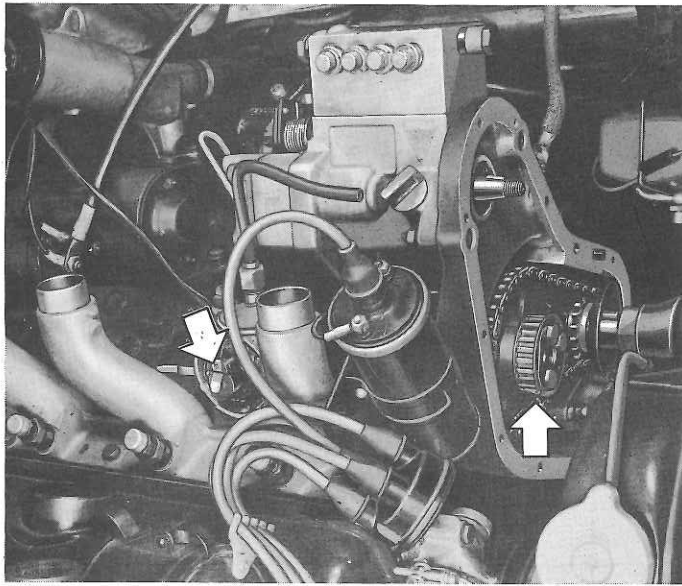


- Remove fan belt
- Unlock cranking nut and remove
- Remove crankshaft pulley
- Remove timing gear cover
- Unlock pump sprocket nut and remove
- Remove pump sprocket with SEDIS belt (use puller 8.0112 K.
- Remove injection pump



IMPORTANT

Never squeeze or bend the SEDIS belt to a radius shorter than 20 mm.



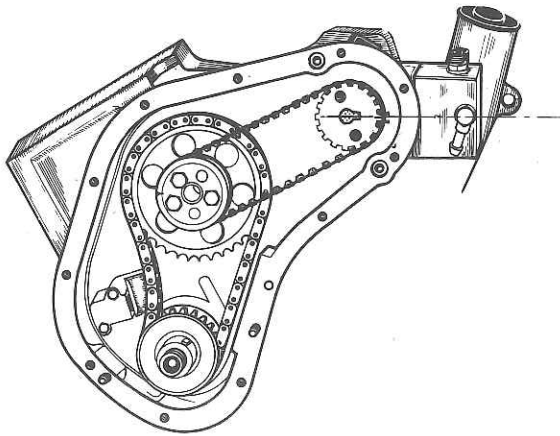
INJECTION PUMP REINSTALLATION

When the removal procedure has been completed, reinstallation operations should be carried out in the following order :

- Fit pump to timing gear casing (torque 2 Allen screws to 3 m.kg) (22 ft/lbs).
- Check oil level in pump. If necessary, top up with

ESSO OLEOFLUID 40 EP

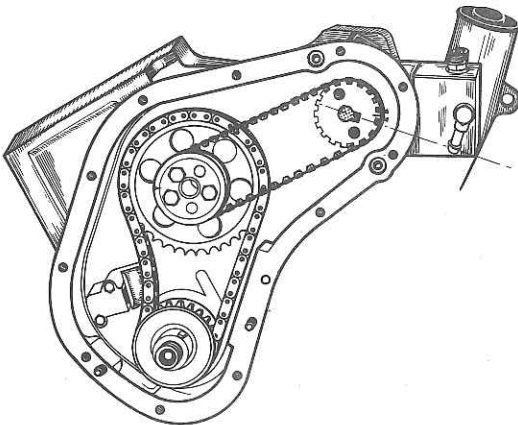
- Install cranknut temporarily
- Remove distributor cap and turn rotor finger to the outside, between distributing plots 1 & 3. Reference mark on driving sprocket cover plate (camshaft) is apparent.



1st Installation

Reference mark on pump sprocket faces keyslot.

The pump shaft key should be towards the intake union and aligned with the axis of the union.



2nd Installation

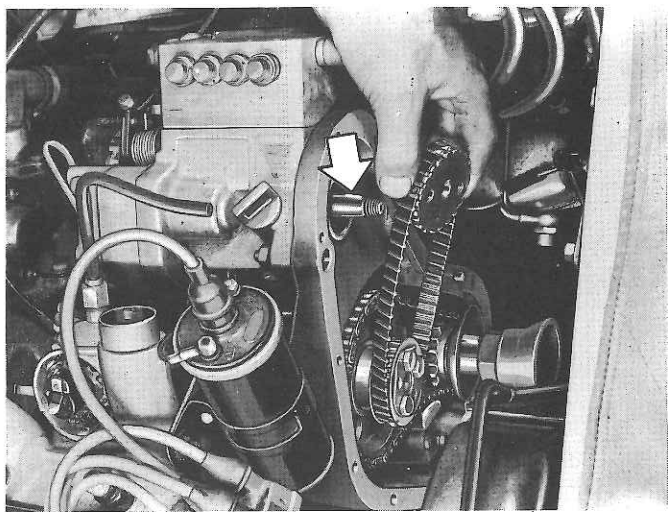
As from serial numbers :

4 570 001

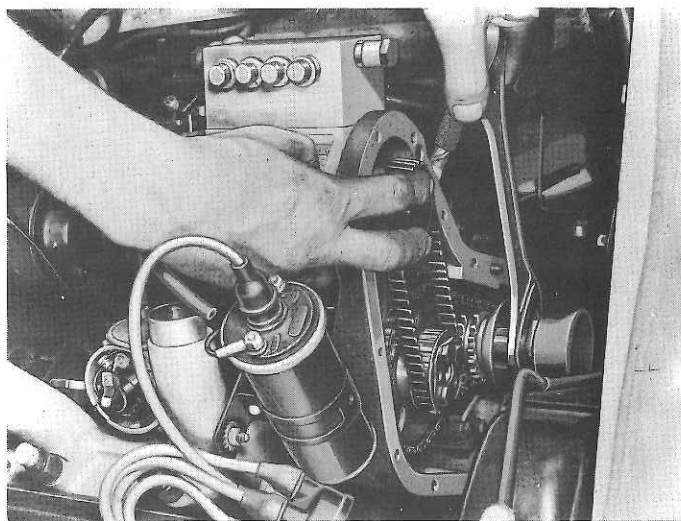
4 594 001

Mark on injection pump sprocket no longer faces the key. Position of pump shaft has changed.

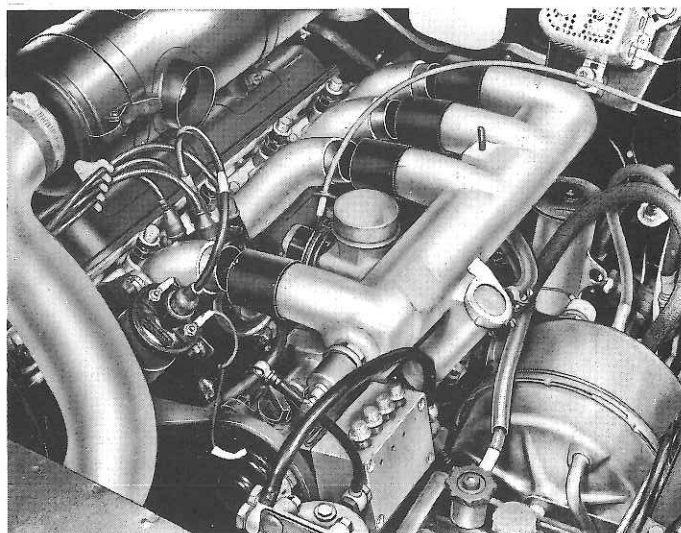
Turn key towards bottom angle of hydraulic head.



- Fit SEDIS belt over injection pump sprocket, with double mark over mark on sprocket, on the same side.
- Place belt over camshaft sprocket, with single mark facing reference mark on guide plate.



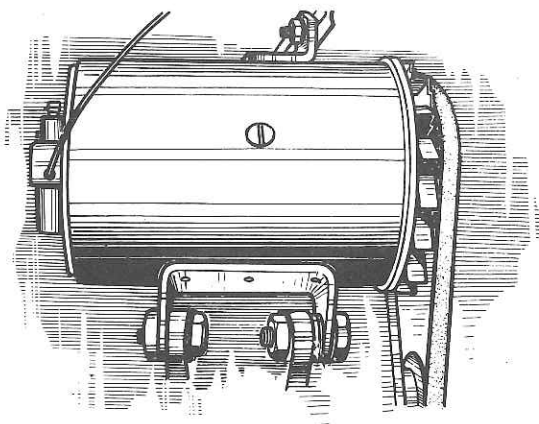
- Fit sprocket on pump shaft, backed by key.
- Use a 35 mm a/c flat wrench to rotate engine slowly until keying notch on sprocket comes and faces key.
- Engage sprocket on pump shaft.
- Turn crankshaft rearwards a full turn and check timing, rotating in the normal direction again.
- Torque pump nut to 3.5 m.kg (25 ft/lbs) and lock.
- Fit distributor cap.



- Remove cranknut
- Install : timing gear cover ; use bushing 0.0128 or 0.0104 to position cover (see class 15, page 01 12).
- crankshaft pulley
- cranknut with tablock (torque to 20 m.kg or 144 ft/lbs) ; use socket 0.0129 (see class 15 page 01 13).
- Make sure that the Mecanindus positioning slotted lock pins are in place on the throttle body.
- Install manifold and air throttle assy on intake hoses (rubber bushes) and pump.
- Rear support on manifold to be at the rear of attachment eyelet and nut of control rod from thermo-plug under richness lever.
- Install the whole assembly.

404 PETROL INJECTION ENGINE
XC.KF - KF 1 - KF 2
INJECTION PUMP

1 1306A

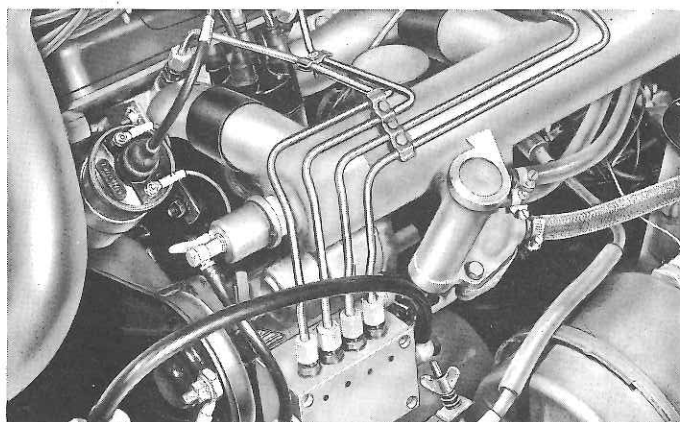


Connect :

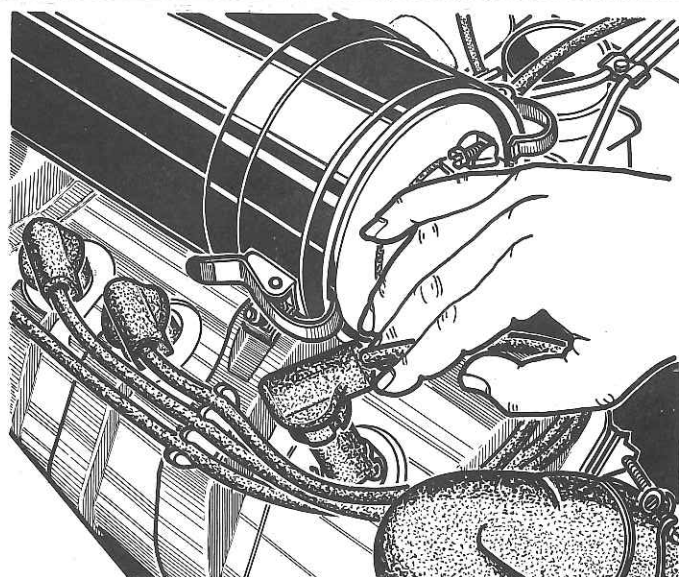
- lubricating line
- intake and return fuel pipes
- vacuum pipe from distributor
- spray valve feed pipe

Install :

- injection pipes with flanges
- air cleaner intake hose
- fan belt -(with dynamo, 3% tension ; with alternator, see page 15 02).
- alternator belt (1.5% tension).



- Proceed with adjustments 1, 2 & 3
- Connect battery, set electric clock
Turn contact on, feeding pump operates, warning light on dashboard goes out after a few seconds, low pressure system is bled automatically.
- Start engine
- Check the low pressure and injector circuits for leaks.
- Drain the lubricating line as prescribed every 15.000 km (9,000 miles) (page 13 01).
- When temperature reaches 80°C (175°F), carry out adjustment No 4 & 5.

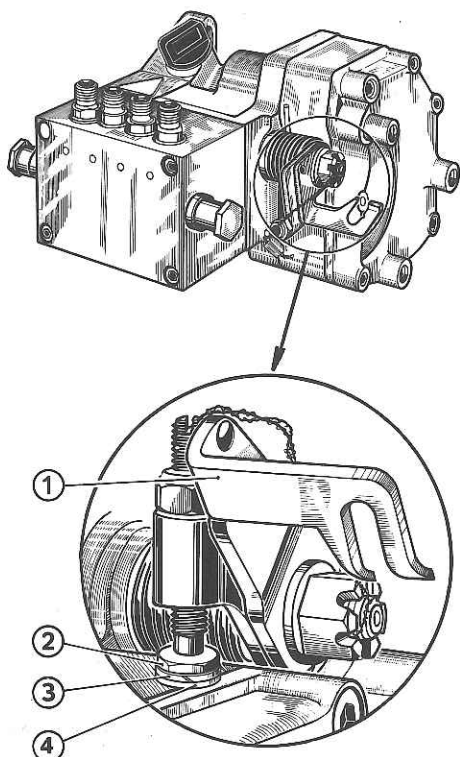


In case bleeding difficulties are experienced with one cylinder.

- Spot faulty cylinder (disconnect spark plugs one after the other).
- Stop engine
- Bleed corresponding valve
(class 1 - page 13 02⁽¹⁾)

PEUGEOT

XC KF - KF 1 - KF 2
INJECTION PUMP - ACCELERATOR CABLE



REMOVING THE .5 mm THICK WASHER

Petrol injection pumps are equipped with a .5 mm thick plain washer 4 installed under stop screw 2 for richness lever 1. This washer is used to give extra richness to the mixture during the first miles.

MAINTENANCE CHECK AFTER 1,000 km (600 miles)

Remove screw 2 and set aside washers 3 and 4.

Discard .5 mm thick plain washer 4.

Install only lockwasher 3 (Onduflex or Grower) on screw 2.

Install screw 2 with washer 3 on the injection pump.

- Adjust thermo-plug as indicated on page :
13 11 for XC KF & KF 1 engines
13 15 for XC KF 2 engines

NOTE -

All new or rebuilt pumps are equipped with a .5 mm thick plain washer; this washer must be removed if the pump is to be installed on a car that has been used for more than 1,000 km (600 miles).

ACCELERATOR CABLE

As from April, 1966, the 1.1 mm dia. cable is replaced by a 1.5 mm dia. cable.

CABLE : 1,100 × 1.5 mm N° P/N 1630.24
SHEATH : 558 mm long N° P/N 1644.24

- This cable is interchangeable with the former models.

ACCELERATOR PEDAL ADJUSTMENT

Throttle against min. opening stop

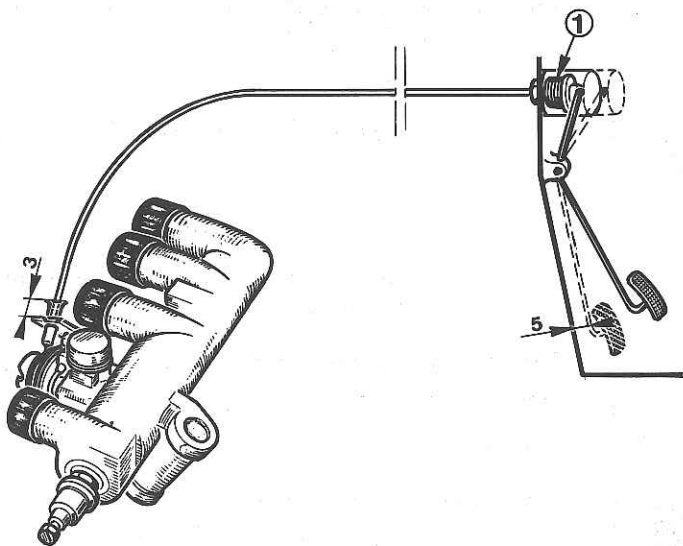
An end play of 2-3 mm should be obtained for the sheath to obtain the corresponding free travel before the throttle begins opening; if necessary adjust the cable as required to obtain the above result.

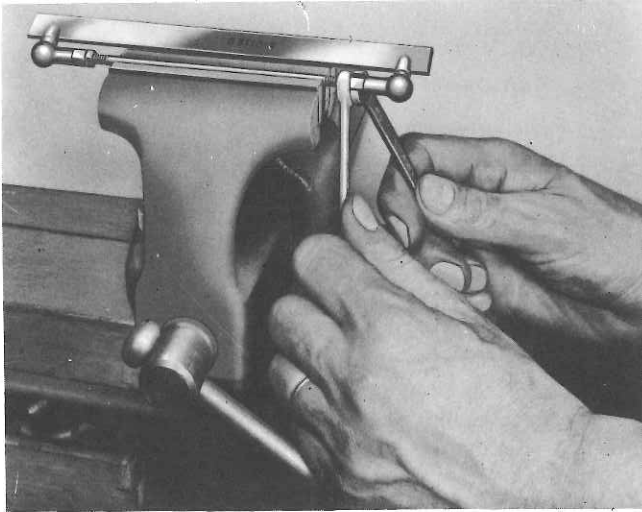
Throttle against max. opening stop

The accelerator pedal should not be more than 5 mm from its limit stop or floor mat; if this is not the case, the pedal should be straightened as required.

Excessive play results in abnormally high compression of compensating spring 1 and leads to breakage of the cable.

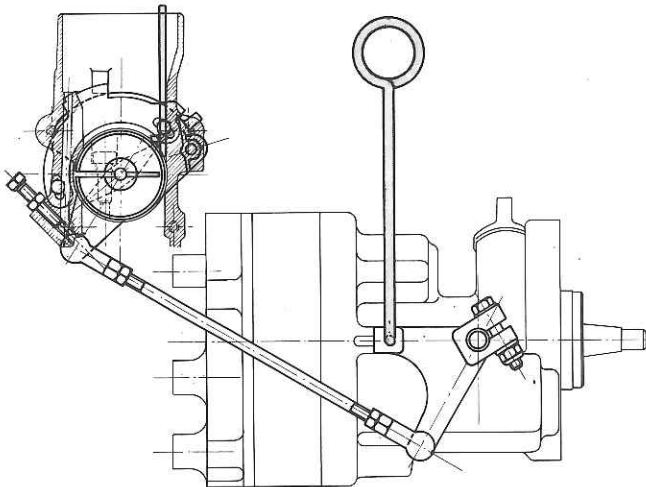
- The free end of the cable should be cut off after the installation procedure is completed.



**Adjustment 1**

Linkage between pump and air valve

- Check length ($175.5 \pm 0,1 \text{ mm}$) ($6.909'' \pm .004''$) of connecting link between pump and air valve (use tool 8.0112 D).
- Adjust length, if necessary, by means of reverse thread, after unlocking nuts.
- Tighten locknuts.

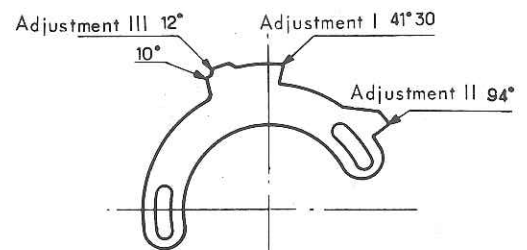
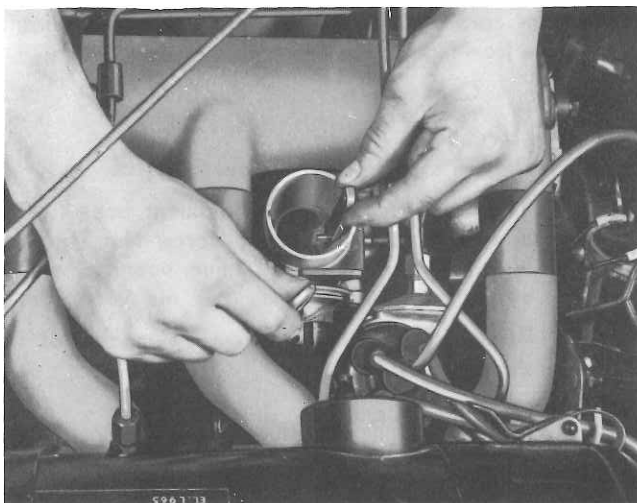


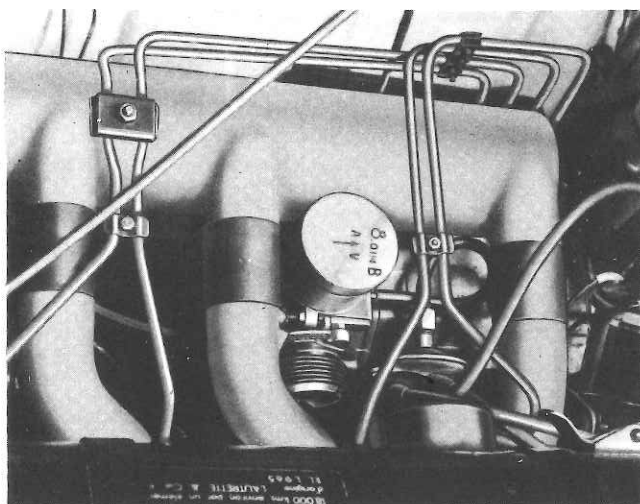
- Fit peg 8.0112 E into pump lever and in the corresponding notch on the injection pump housing.
- Connect the link
- Remove the accelerator spring
- Unscrew the recessed screw which holds the control drum on air valve
- Introduce shim 8.0112 A into front notch, inside air valve body, and hold butterfly valve backed, under the stud of the shim.

- Check side clearance between drum and air valve body.

$$1 \text{ mm} \begin{matrix} - 0 \\ - 0,25 \end{matrix} \begin{matrix} .039'' \\ .010 \end{matrix}$$

- Bring the middle mark on adjustment quadrant to face the front face of the boss on the air valve body. Tighten up the screws for fixation of the adjustment quadrant.
- Remove shim 8.0112 A and peg 8.0112 E.
- Refit the accelerator spring.



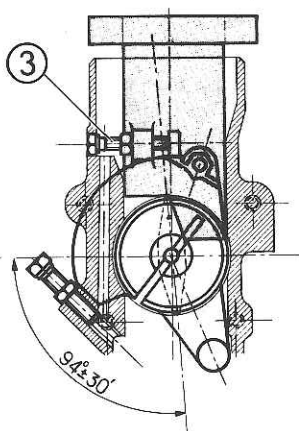
**Adjustment II**

Air valve maximum opening

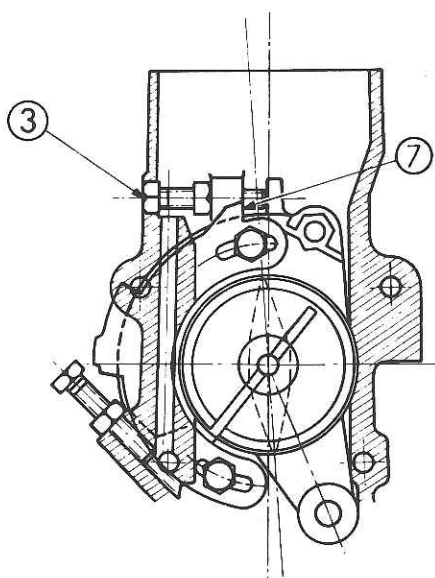
On cars prior to Nos :

Convertible	4.590.321
Saloon	4.550.052

- Engine stopped, accelerator fully depressed.
- Insert block 8.0114 B, for adjustment of maximum opening of the air valve, into air valve body (the arrow which is engraved on top of the block must point to the front end of the car).



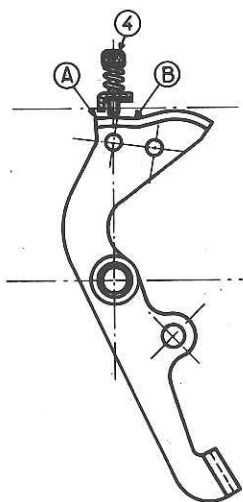
- Release accelerator, so that the butterfly valve returns and is stopped by the block.
- Unlock locknut and bring screw n° 3 to touch thrust boss on control drum.
- Lock the locknut.
- Remove block 8.0114 B.



On cars equipped with an adjustment quadrant, as from Nos :

Convertible	4.590.321
Saloon	4.550.052

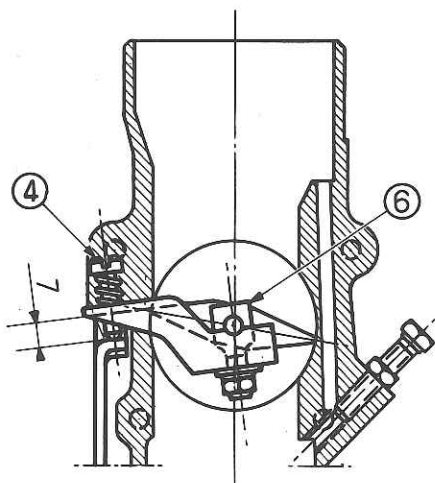
- Engine stopped, accelerate fully.
- The front part of the adjustment boss (which supports the adjustment screw No 3), must face the mark 7, for maximum opening, on the adjustment quadrant on the air valve drum.
- Bring it in that position by means of the thrust screw No 3.
- Lock the locknut.

**Adjustment III**

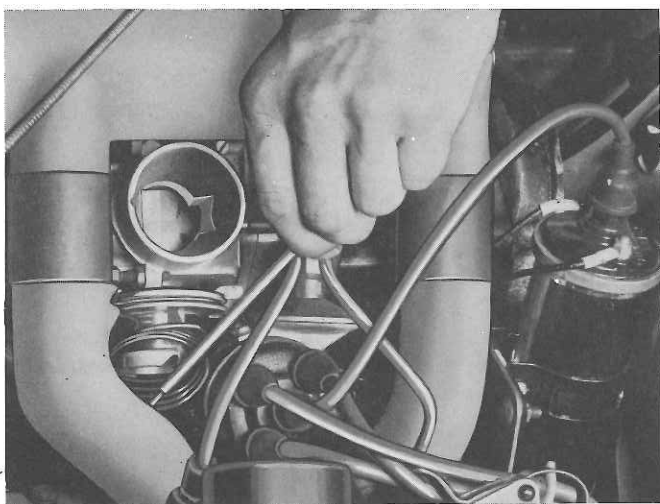
Air valve minimum opening.

Preliminary conditions :

1° - To carry out this check, the screw 4 must compulsorily bear on part AB of the accelerated idle running lever.



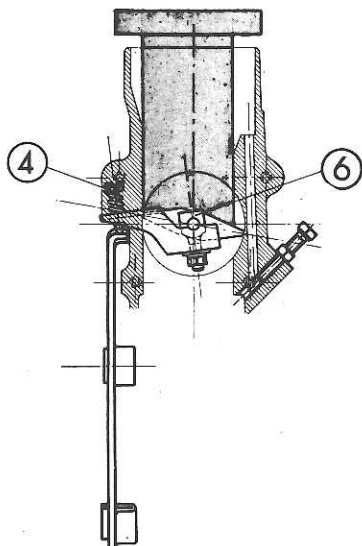
2° - Make sure that screw 4 protrudes enough to prevent the lever on which it is fixed from touching the accelerated idling speed lever, if needed unlock nut 6 and bring screw 8 to protrude by 7 mm. Tighten nut 6, while holding the valve in the minimum opening position and screw 4 against beam AB of the accelerated idling speed lever.



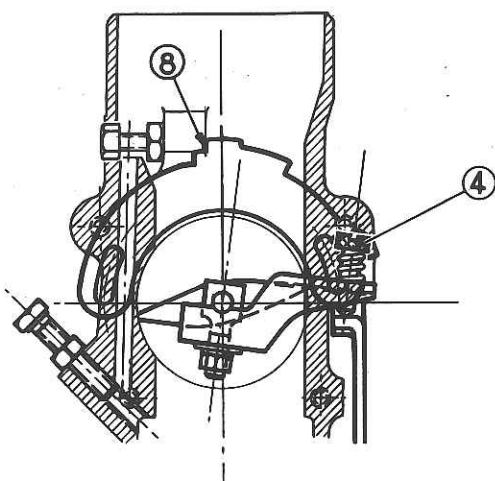
a - On cars prior to Nos :

Convertible	4.590.321
Saloon	4.550.052

- Engine stopped, accelerator held up.
- Remove accelerator spring.
- Insert block 8.0114 C, for adjustment of air valve minimum opening, into air valve body ; the arrow which is engraved on top of the block must point to the front end of the car.



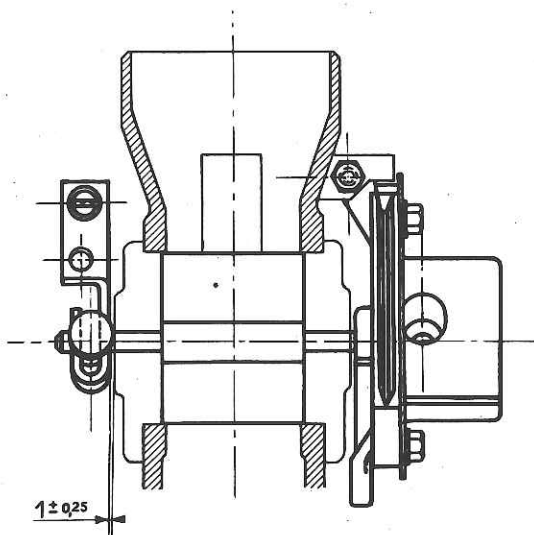
- To make sure that the block rests fully against the air valve, try to rotate it slightly back and forth, while pressing it slightly downwards.
- Bring screw 4 to thrust against beam AB of the accelerated idling speed lever, so that the block lies flat against the butterfly valve.
- Remove block 8.0114 C.
- Refit accelerator spring.
- The air butterfly valve is adjusted to 10°, tighten screw 4 by one turn for adjustment to 12°, before adjusting idling speed.



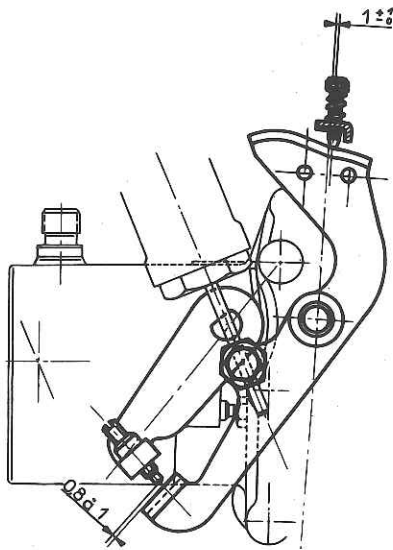
- b - On cars equipped with an adjustment quadrant, as from Nos :

Convertible	4.590.321
Saloon	4.550.052

- Actuate screw 4 on beam AB of the accelerated idling speed lever, to bring the front face of the boss to face mark 8 (minimum opening) on quadrant.

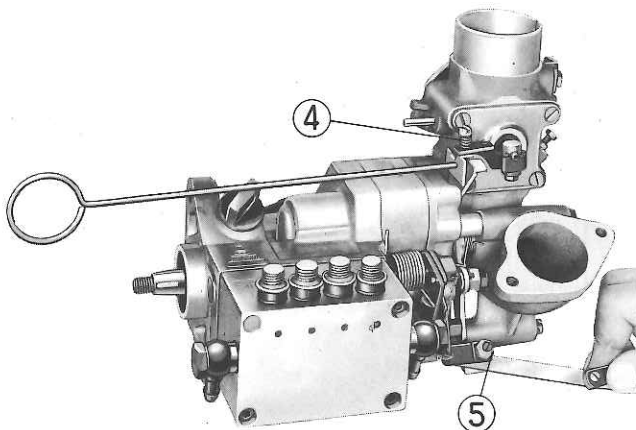


- Check side clearance between minimum opening lever and air valve :
 $1 \text{ mm} \pm 0,25 \text{ (.039" } \pm \text{ .010")}$
- Check the free play of the lever towards the manifold.

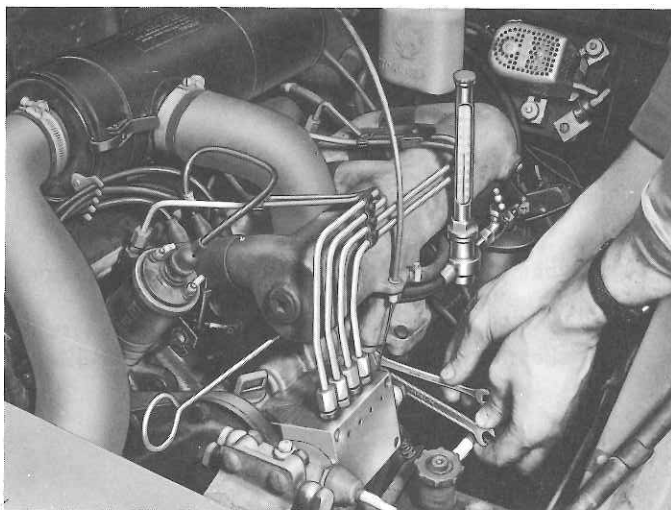
**Adjustment IV****Richness Control**

This adjustment must be carried out on engine warm - with magnetic fan switched on.

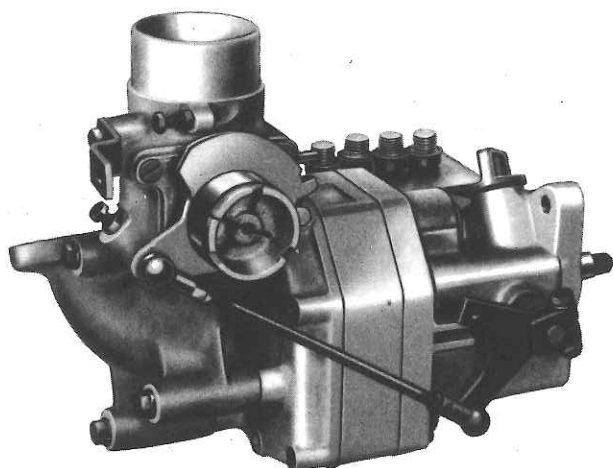
- a - The pulling rod of the thermo-plug must be engaged into the nut of the accelerated idling speed lever - but not tightened
- Install thermometer No 8.0112 C with the tap open, on the thermoplug warming upper line.



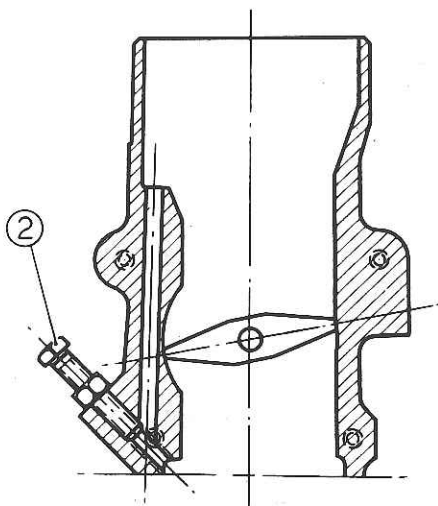
- b - Engage the plugs of fork-gauge 8.0112 B into the holes of the accelerated idling speed lever, with screw 4 between the teeth the fork.
- Between the lower sole of the accelerated idling speed lever and the richess lever, which is pulled out to thrust by its spring, adjust clearance to 0.8 to 1 mm, by means of screw 5. Lock the locknut.
- Adjust clearance (2 to 4 mm) (.079" to .157") between the cable clamp for handcontrol and the richess lever.



- c - Start the engine as soon as temperature drops below 60°.
- Slow the uprise and stabilize temperature to 65° by acting upon the thermometer tap.
- At 65°, check the position of screw 4 in the fork of gauge No 8.0112 B and tighten the pull rod on the accelerated idling speed, holding the hexagonal spacer while the nut is being tightened in order to avoid bending the rod.
- Remove gauge 8.0112 B.
- Stop the engine, open the pressure cap of the radiator, in order to avoid possible projection of hot water and remove thermometer.
- Refit and tighten the upper hose of the thermo-plug.

**Adjustment V****Idling Speed**

- To allow proper adjustment of the idling speed, the air-valve minimum opening (III) and thermo-plug (IV) must be adjusted correctly first and the engine must have reached the normal operation temperature.

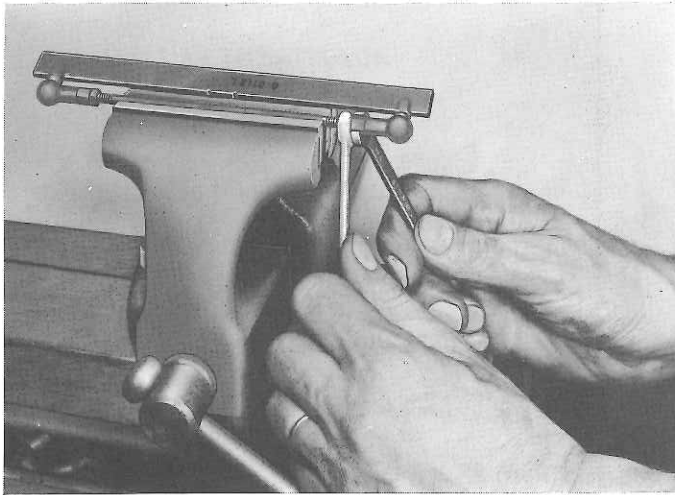


- Idle running is adjusted ONLY by acting on the by-pass screw 2 until the engine idles at 750 to 800 r.p.m.
- Tighten to slow.
- Unscrew to accelerate.
- Lock locknut

Should the idle running prove difficult to tune; adjust minimum opening to 11°.
If this does not help, see chapter «Trouble shooting», under heading ; «Irregular idling».

404 PETROL INJECTION ENGINE
XC.KF 2
INJECTION PUMP

1 13 13



- A All adjustments to be done, as precisely as possible and in the recommended sequence, for optimum output of the engine.

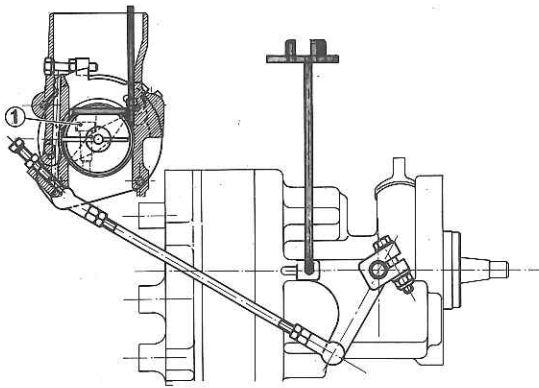
ADJUSTMENT No. 1

Pump to air throttle linkage

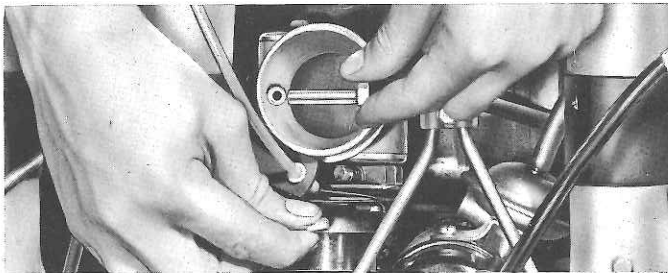
As from the following chassis Nos :

4.570.001
4.594.001

- Remove link rod
- Check rod for length ($177,02 \pm 0,1$) using black gauge 8.0112 L, marked with two notches. To adjust, slacken locknuts and screw in and out.
- Tighten locknuts

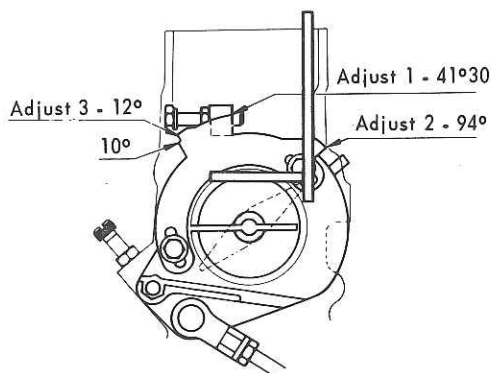


- Install connecting link
- Release accelerator spring
- Engage peg 8.0112 B/E in hole of pump lever and in corresponding notch on pump casing.
- Remove accelerator cable support lug.
- Release allen screw 1, throttle control drum fixation.



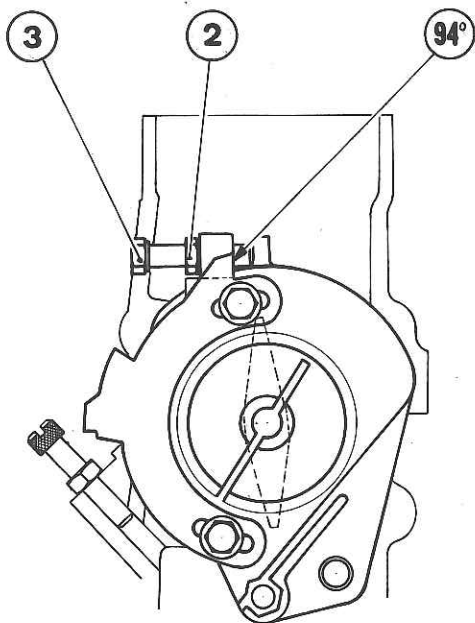
Engage adjustment gauge 8.0112 M, black with two notches into front notch inside air throttle body, with projection backed against throttle valve.

- Adjust side play between drum and body to
 - 1 mm - 0
 - 0,25
- Tighten Allen Screw



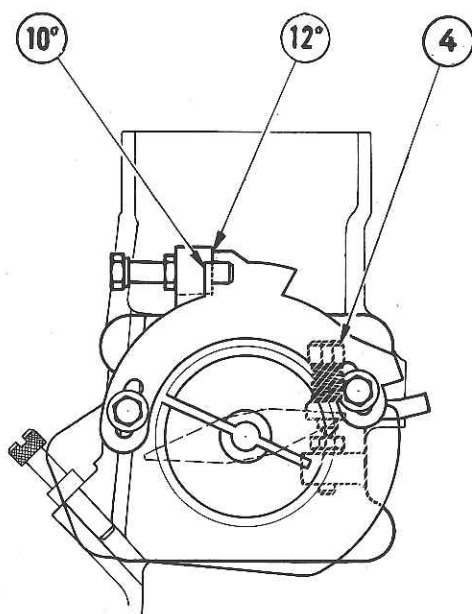
- Release fixation screws of toothed arc
- Bring centre tooth ($41^{\circ}30'$) of arc to correspond to front face of boss on air throttle body (see diagram next).
- Remove gauge 8.0112 M and peg 8.0112 B/E.

PEUGEOT

**ADJUSTMENT No 2***Air throttle maximum opening*

Engine stopped, turn accelerator fully down

- Unlock locknut 2
- Act on screw 3 to bring tooth (94°) to correspond to front face of boss
- Lock locknut
- Refit sheath support
- Centre cable, with respect to drum groove
- Install accelerate cable
- Check maximum opening by accelerating fully.

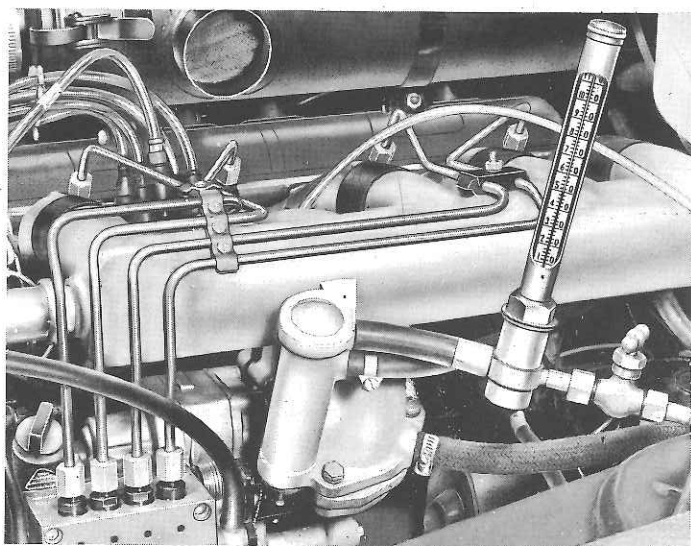
**ADJUSTMENT No 3***Air throttle minimum opening*

Release accelerator

- Act on screw 4 to bring tooth (12°) to correspond to front face of boss.

NOTE : Should one experience exhaust back firing after driving some mileage, minimum opening may be reduced to 10°, or any angle between 10° & 12°.

404 PETROL INJECTION ENGINE
X C. K F 2
INJECTION PUMP

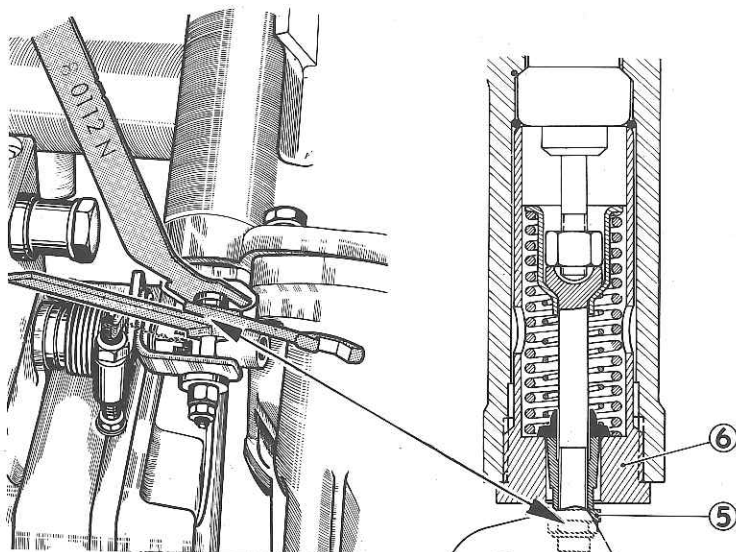


ADJUSTMENT No. 4

Richness control

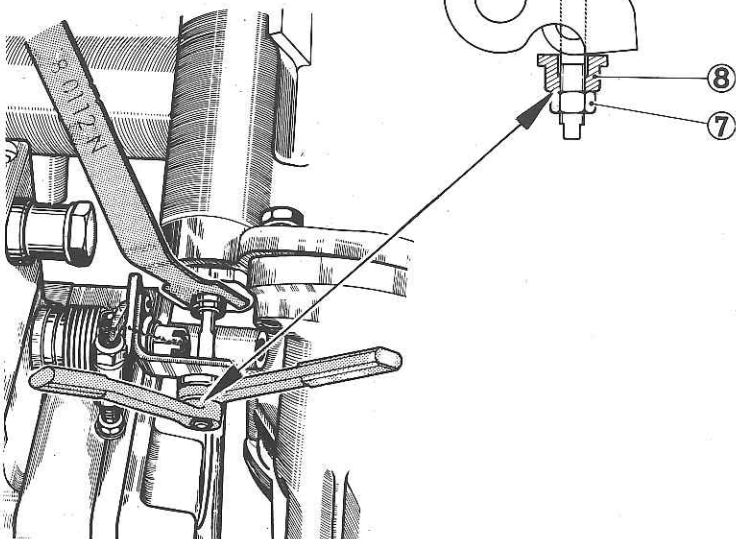
- Install thermometer 8.0112 C, with tap open, on thermo-plug water return line (pipe from plug to water pump).
- Start engine and slacken idle running by-pass screw until engine speed is above 1,000 r.p.m.
- Adjust tap as required to slow down temperature rise by decreasing water flow around the thermo-plug until temperature is stabilized at 50° C (122° F).
- Adjust air valve immediately and make sure that temperature remains at a steady value of 50° C (122° F).

NOTE - Never close tap completely, since the thermo-plug would then cool down and the adjustment would be inaccurate.



AIR VALVE ADJUSTMENT

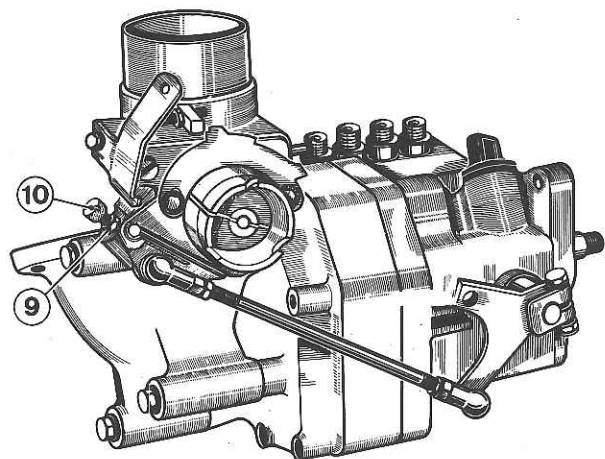
- Use wrench 8.0112 P to hold pulling rod.
- Unscrew nut 5 (use a new 10 mm a/c flats wrench) so that gauge 8.0112 N can be engaged between nut 5 and plug 6.
- Tighten the nut to obtain the $1 \pm .1$ mm end play as determined by gauge thickness.
- Leave gauge 8.0112 N in place.
- Remove wrench 8.0112 P.
- Stop engine.
- Close thermometer tap.



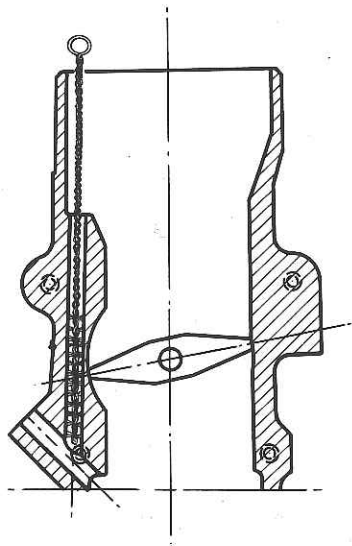
RICHNESS ADJUSTMENT

- Unlock locknut 7 (8 mm wrench)
- Slacken nut 8 (10mm wrench) to disengage completely richness lever. This lever comes and touches its thrust on injection pump.
- Screw nut 8 until it touches richness lever
- Tighten locknut 7
- Remove gauge 8.0112 N
- Remove thermometer
- Set time-clock
- Start engine

NOTE - A 8×10 mm double-end socket wrench, sawn in two and ground, should be used to carry out the above operations.

**ADJUSTMENT No. 5***Idle running adjustment*

- Slacken locknut 9.
- Act only on by-pass screw 10, to adjust engine speed to 750/800 r.p.m.
- Tighten to reduce idle running
- Release to increase
- Lock locknut



Should difficulties be experienced in adjusting idle running :

- Remove idle screw
- Clean by-pass chimney with a wire brush
- Clean hose, around throttle valve (inside) with a cloth impregnated with petrol