#### ELECIRICAL EQUIPMENT

#### SUMMARY

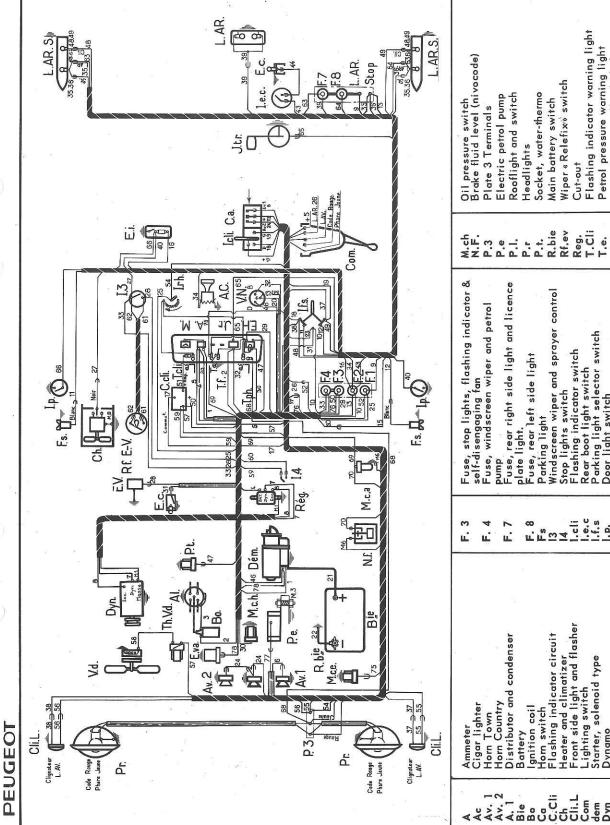


	Pages
WIRING DIAGRAM	
- Saloon with dynamo	01 01(1)
- Convertible with dynamo	01 02 <sup>(1)</sup>
- Saloon with alternator (before the 1966 Motor Car Show)	01 03(1)
- Convertible with alternator (before the 1966 Motor Car Show)	01 04(1)
- Saloon with alternator (after the 1966 Motor Car Show)	01 05
- Convertible with alternator (after the 1966 Motor Car Show)	01 06
	е п
IGNITION SYSTEM	
- Distributor (XC.KF & XC.KF 1)	02 01 <sup>(6)</sup>
- Distributor (XC.KF 2)	02 02 (5)
- Spark plugs (XC.KF - KF 1 - KF 2)	02 03 (3)
- Radio interference suppression wiring harness	02 04 <sup>(3)</sup>
- Condenser	02 04 A
CHARGING SYSTEM WITH DYNAMO	
CHARGING 3131EM WITH DINAMO	
- With dynamo (XC.KF - KF 1 - KF 2)	02 05 <sup>(1)</sup> to 02 07 <sup>(1)</sup>
- With alternator (XC.KF 2)	02 08 <sup>(1)</sup> to 02 10 <sup>(1)</sup>
- Checking the charging circuit (with alternator)	02 11 to 02 13
- Thermal voltmeter	02 14
- Battery	02 15 to 02 17
ALTERNATOR	
- SEV : Removal - reinstallation - check	02 18 to 02 25
- Paris - Rhône : Removal - reinstallation - check	02 26 to 02 34

### 404 FUEL INJECTION ENGINE

#### SALOON WIRING DIAGRAM (DYNAMO





Neiman anti-theft lock, starter motor Petrol pressure warning light Brake warning tell-tale light Magnetic fan thermo switch Headlight warning light Thermal voltmeter Magnetic fan switch.

> Th.v.d. tear light (licence plate lighting) tear light, stop light, flashing lights ascia board lighting bulb Assisted brakes pressure switch Petrol pressure switch ascia board lighting rheostat quantity transmittor uel quantity indicator

Door light switch

o o

Fuse, roof light, parking lights, rear boot and horns lectro-valve use, front and rear side lights and ascia-board.

indscreen wiper

E E C. H.

ater thermo and oil pressure warning

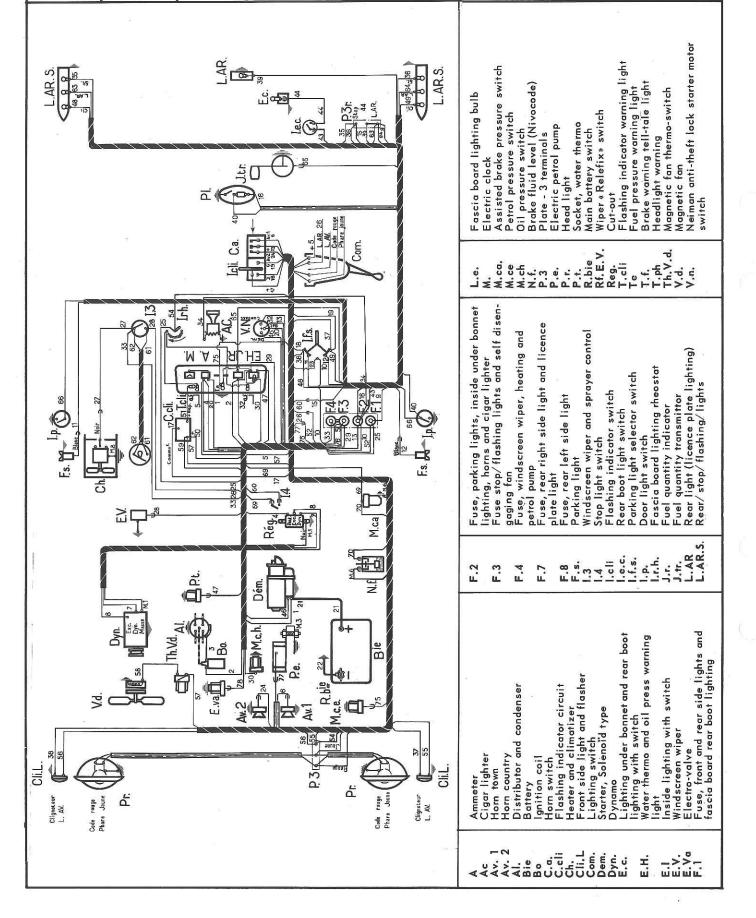
Rear boot lighting and switch

ynamo

SUPERSEEDES SHEET, GROUP 12, PAGES 0101 - 0102



# 404 FUEL INJECTION ENGINE CONVERTIBLE WIRING DIAGRAM (DYNAMO)

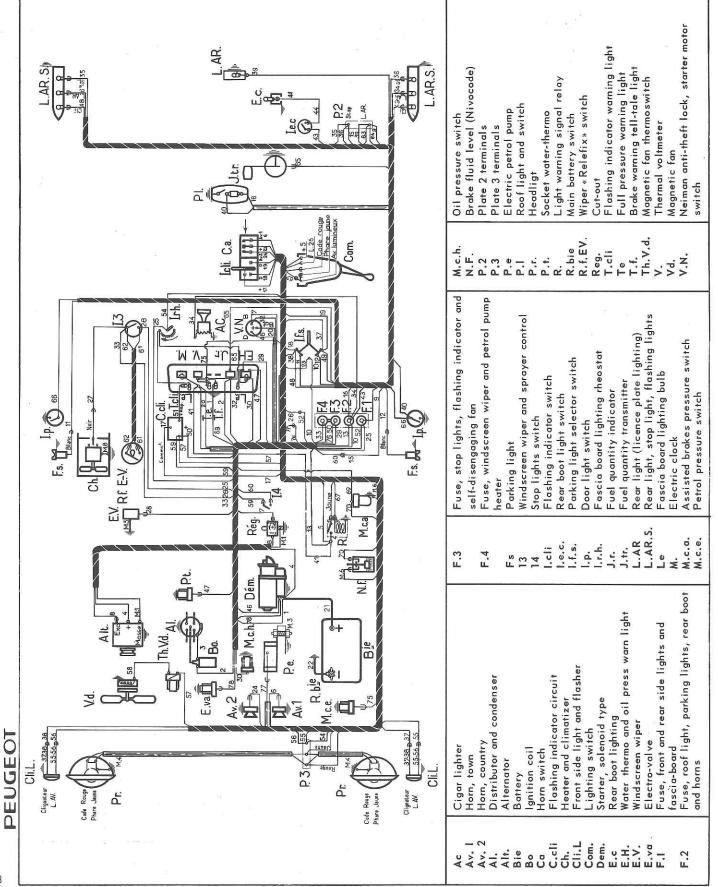


### VOVE 1

#### XC.KF 2

#### SALOON WIRING DIAGRAM ALTERNATOR (BEFORE 66 MOTOR CAR SHOW)

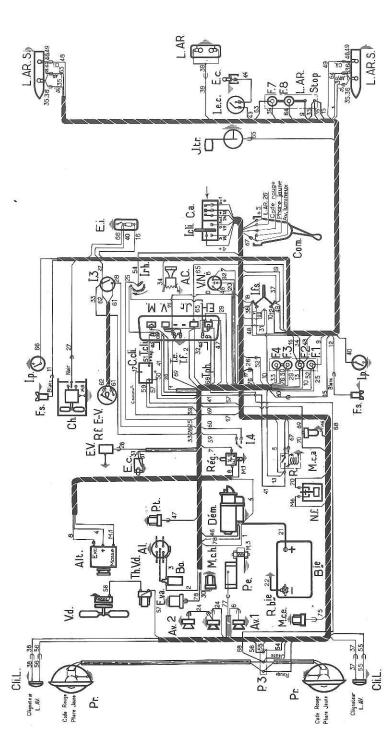








## CONVERTIBLE WIRING DIAGRAM ALTERNATOR (BEFORE 66 MOTOR ÇAR SHOW)

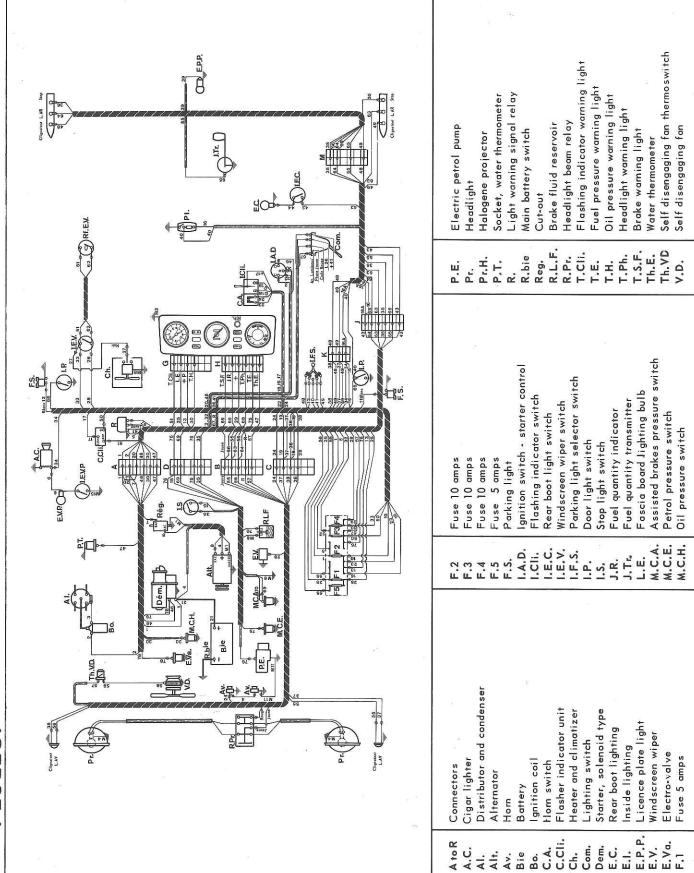


Electric clock	Assisted brake pressure switch	Petrol pressure switch	Oil pressure switch	Brake fluid level (Nivocode)	Plate - 3 Terminals	Electric petrol pump	Headlight	Socket, water thermo	Light warning signal relay	Main battery switch	Cut-out	Wiper «Relefix» switch	Flashing indicator warning light	Petrol pressure warning light	Brake warning tell-tale light	Magnetic fan thermo switch	Headlight warning light	Thermal voltmeter	Magnetic fan	Neiman anti-theft lock, starter motor	switch
W.	M.ca	M.ce	M.ch	¥.	P.3	о. 6	P.r.	<b>₽</b> :	Α.	R.bie	Reg.	R.f.EV.	T.cli	ь Б	<b>↓</b> :	Th.V.d.	T.ph.	>	. P \	×.×	
Fuse, parking lights, inside/under	bonnet lighting, horns and cigar lighter.	Fuse stop/ flashing lights and self-	disengaging fan.	Fuse, windscreen wiper, heating and	petrol pump	Fuse, rear right side light and licence	plate light	Fuse, rear left side light	Parking light	Windscreen wiper and sprayer control	Stop light switch	Flashing indicator switch	Rear boot light switch	Parking light selector switch	Door light switch	Fascia board lighting rheostat	Fuel quantity indicator	Fuel quantity transmitter	Rear light (licence plate lighting)	Rear stop/flashing/lights	Fascia board lighting bulb
F.2	85	F.3		F.4	22	F.7		œ.	s. L	1.3	1.4	l.cli	J.ec	l.fs	l.p.	<u>.</u> ∓.		1.11	L.AR	L.AR.S	Ľ.e.
Cigar lighter	Distributor and condenser	Alternator	Horn, Town	Horn, Country	Battery	Ignition Coil	Horn switch	Flashing indicator circuit	Heater and climatizer	Front side light and flasher	Lighting switch	Starter, Solenoid type	Lighting under bonnet and rear boot	lighting with switch	Water Thermo and oil pressure warning	light	Inside lighting with switch	Windscreen wiper	Electro-valve	Fuse, front and rear side lights and	fascia board, rear boot lighting

### XC.KF 2

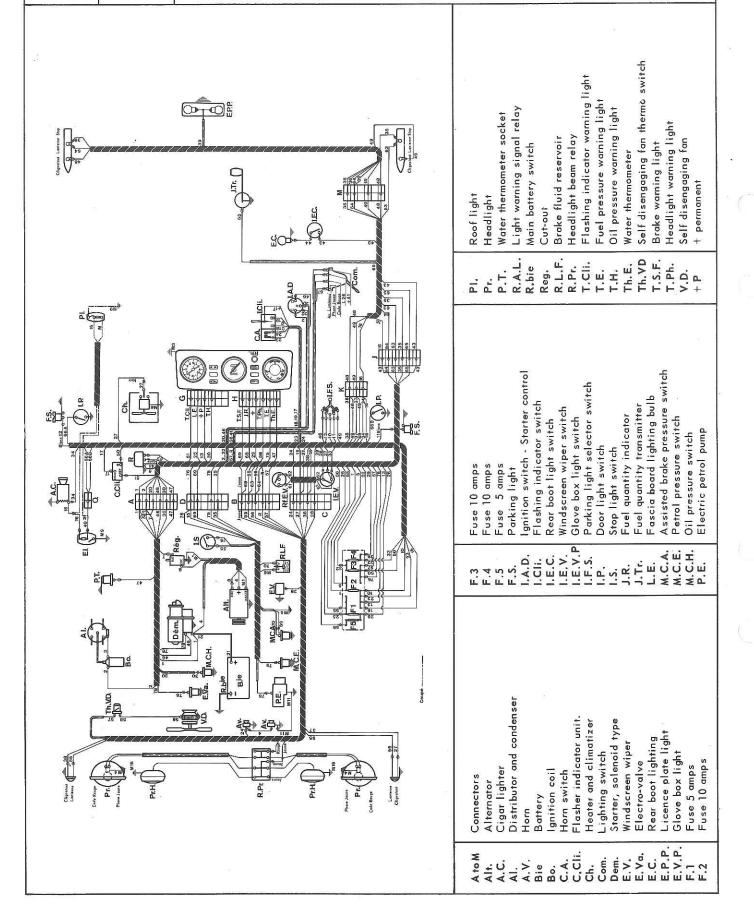






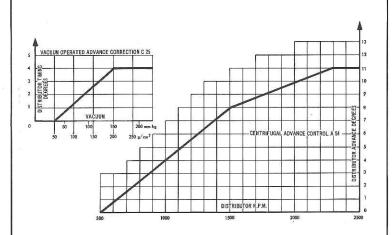
#### XC.KF 2

### CONVERTIBLE WIRING DIAGRAM-ALTERNATOR (AFTER 66 MOTOR CAR SHOW)



# XC.KF - KF 1 MODELS IGNITION SYSTEM





#### Earlier Installation

#### **DISTRIBUTOR**

Make: S.E.V. or Ducellier

Type : M 36

Centrifugal advance curve : A 54

Vacuum-operated advance correction curve: C 25

#### Adjustment

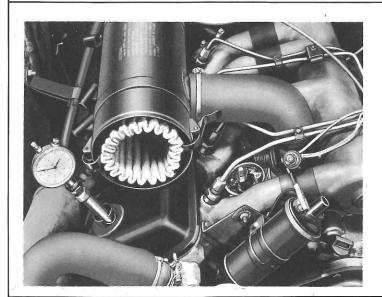
Contact-breaker point gap : .40 mm (.016")

Cam, or closing, angle :  $57 \pm 2^{\circ}$ 

Firing order: 1 - 3 - 4 - 2.

#### IGNITION COIL

Make: DUCELLIER, type ESR 30



#### DISTRIBUTOR SETTING

Initial advance setting: 11° on flywheel, corresponding to a .85 mm (.0334") stroke of a gauge inserted into a spark plug hole and resting on the piston head.

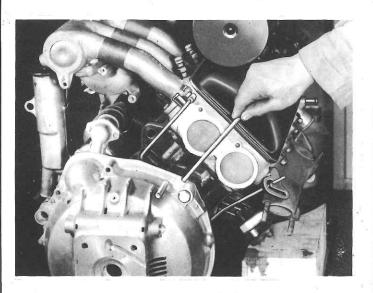
Up to serial numbers :

04 KF - 4.554.087

404 Cabriolet KF - 4.591.412

404 Coupé KF - 4.591.422

use exclusively gauge 0.0133 resting on the piston head to set the initial advance to .85 mm, since the timing notch in the flywheel indicates only  $8^{\circ}$ .



#### As from serial numbers

104 KF - 4.554.088

404 Cabriolet KF - 4.591.413

404 Coupé KF - 4.591.423

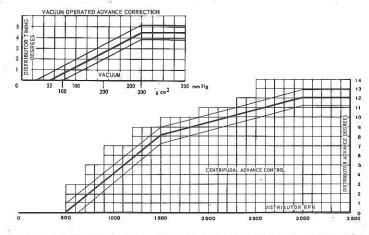
the timing notch in the flywheel indicates 11°, making it possible to use a timing gauge resting on the piston head, or a 8 mm dia. pin engaged into the hole at the top of the clutch housing, on the R.H. side.

**NOTE** - The vacuum connection should be located between the throttle body and intake pipe No. 4 when re-installing the distributor.

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### XC.KF 2 MODEL **IGNITION SYSTEM**



#### **IGNITION COIL**

Make: Ducellier

Type: ESR 30 - 12 Volts

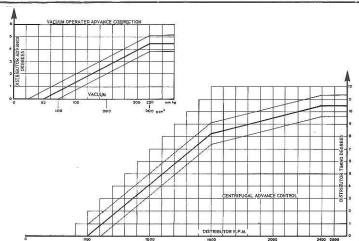
#### DISTRIBUTOR

As from serial numbers :

404 KF 2 - 4.570.001 404 C.KF 2 - 4.594.001

Make: DUCELLIER

Type: M 42



#### As from serial numbers :

404 KF 2 - 8.217.803 404 C.KF 2 - 4.598.554

Make: DUCELLIER

Type: M 50

#### Adjustment

Cam, or closing, angle: 57±2°

Contact-breaker point gap : .40 mm (0.16") Firing order : 1 - 3 - 4 - 2

#### DISTRIBUTOR SETTING

Initial advance setting

11°, corresponding to a .85 mm piston

stroke before T.D.C.

#### Operating mode

- Connect a test lamp between distributor terminal and ground.

- Insert a 8 mm dia. pin into the hole at the top of the clutch housing, on the R.H. side.

- Turn on the ignition switch.

- Rotate the crankshaft slowly in the normal direction of rotation.

The test lamp should illuminate exactly when the adjusting pin engages the timing notch in the flywheel.

If this is not the case, rotate the distributor as follows :

- to the right, to decrease spark advance;

- to the left, to increase spark advance.

A second test must always be made after the distributor has been locked, to make sure the advance setting has not been disturbed.

#### NOTE:

M 42 and M 50 distributors can both be used on all types of KF2 engines; however, the M 50 distributor should preferably be installed.

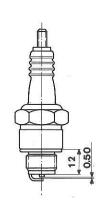


### XC.KF - KF 1 - KF 2

#### 1 - 121 1 - 121

#### IGNITION





#### SPARK PLUGS

Using the wrong type of plugs may seriously damage the engine.

#### 1st Installation

Short reach spark plugs.

Up to serial Nos:

404 KF - 4.554.832 404 Convertible KF - 4.591.574 404 Coupe KF - 4.591.591 Use MARCHAL 34 \$ (exclusively)

USE MARCHAL 34 3 (EX



#### 2nd Installation

Long reach spark plugs.

As from serial Nos:

404 KF 404 Convertible KF 404 Coupe KF - 4.591.575 - 4.591.592

The cylinder head is marked «CL» showing that long reach plugs are needed.

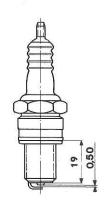
As a result and starting from the above serial Nos, fuel injection engines should be equipped with the spark plugs :



especially designed for high revs engines and which are suitable for all conditions of use.

**NOTE**: This type of spark plugs are fitted on fuel injection engines at the factory as from serial Nos:

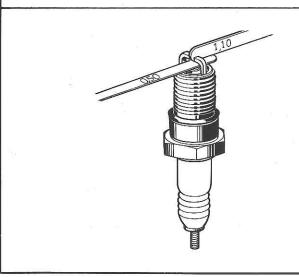
**404** KF 2 - 8.204.236 **404** C.KF 2 - 4.597.483



### ADJUSTMENT

Check gap every 5,000 km (3,000 miles)

0.5 to 0.55 mm (1st and 2nd installation)



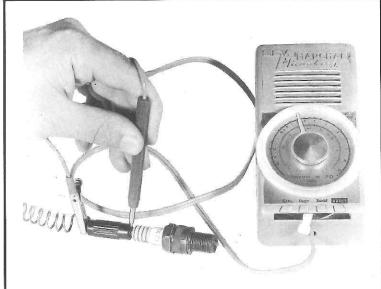
6-67

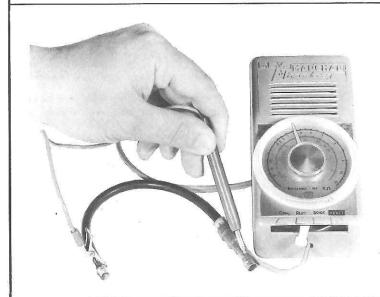
PEUGEOT



# XC.KF - KF 1 - KF 2

IGNITION







## RADIO INTERFERENCE SUPPRESSION WIRING HARNESS

Make: FLOQUET or ARELCO

Leads characteristics:

ate	re	sistance		Length in n	nm
		64~+	6800∧	ر 370	
No	1	270 2		770	15
N٥	2	200 م		590 } +	0
N٥	3	170 2		510	U
N٥	4	100 љ		320 J	
	N° N°		64 - + N° 1 270 - N° 2 200 - N° 3 170 -	64 \( \tau + 6800 \) \( \text{N}^\circ \) 1 270 \( \text{A} \) \( \text{N}^\circ \) 2 200 \( \text{A} \) \( \text{N}^\circ \) 3 170 \( \text{A} \)	64 \( \tau + 6800 \( \tau \) 770 N° 1 270 \( \tau \) 770 N° 2 200 \( \tau \) 590 N° 3 170 \( \tau \) 510

An additional resistor of about 6,800 ohms is installed at each cylinder between contact spring and spark plug.

#### INFLUENCE OF THE RESISTANCE VALUE

Radio interference occurs if the resistance value is too low. Misfires and starting troubles are experienced if the resistance value is too high.

#### CHECKING RADIO INTERFERENCE SUPPRES-SION RESISTORS

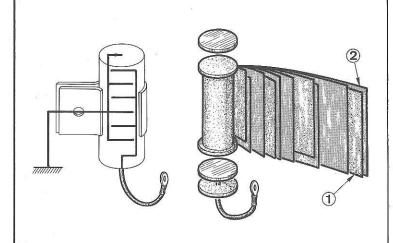
Resistance values may vary between wide limits from one car to another, but it is important to obtain approximately the same resistance values for all cylinders of any given engine.

Using a «MICROBAN» tester or a standard ohmmeter, proceed as follows :

- Connect both ends of the resistor to the «MICROBAN» tester.
- Rotate the transparent knob on the dial until the tone is no longer heard and read the resistance value as indicated by the pointer.
- Repeat the above step for each cylinder lead and for the ignition coil lead.

# XC KF - KF 1 - KF 2 CONDENSER





#### IGNITION CONDENSER

#### Purpose:

The ignition condenser is used to protect the contact breaker points against the destructive effect of the extra-current induced when the breaker opens.

#### Description:

The condenser is composed of two conductive armatures 1 separated by an insulating material 2 called dielectric.

The ratio between the quantity of current stored and the tension of the direct source gives the capacity of the condenser.

 $Capacity = \frac{Quantity of stored current}{Charge tension}$ 

For condensers used on cars, the capacity is given in microfarads  $\,\mu F\,$  or picofarads  $\,pF.\,$  This capacity is :

- directly proportional to the area of the armatures.
- inversely proportional to the distance between the armatures.
- directly proportional to the nature of the dielectric.



The circuit is not correctly broken if the capacity is too low (sparking at the contact points).

Conversely, the performances of the ignition coil are reduced at high engine speeds if the capacity is too large.

The capacity of the condenser must therefore remain between the limits given by the car manufacturer to avoid ignition difficulties.



#### CHECKING CONDENSERS

The capacity of the condensers used on 404 cars must be between .20 and .30  $\mu F_{\star}$ 

A «MICROBAN» tester or a standard capacitance measurement bridge should be used.

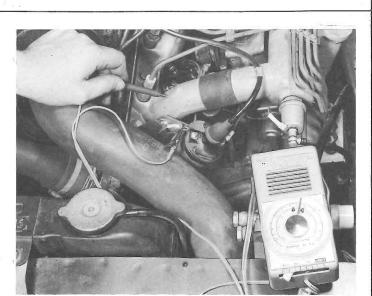
Set tester switch to «Capa»:

- Disconnect wire 3 at ignition coil,
- Open breaker points,
- Connect alligator plug to wire 3
- Connect tester jack to ground.

Rotate the transparent knob until the tone can no longer be heard.

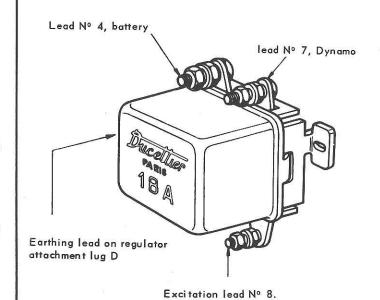
Read the capacity on the dial.

If the measured value is not as indicated above, the condenser must be replaced, the insulation of the breaker arm is defective, or the wire is opened.



PEUGEOT

# XC.KF - KF 1 - KF 2 CHARGING SYSTEM WITH DYNAMO



- 1st fitting

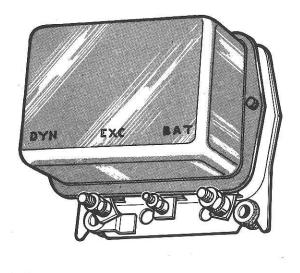
Dynamo: Make DUCELLIER
Type: 7210 G - F2
or Make: PARIS-RHONE

Type : G 11 R 110 Power : 280/300 Watts

Regulator : Make DUCELLIER

Type: D3 - 8198 B

18 A Regulator, 2 stages



- 2nd fitting

As from serial Nos:

404 KF - 4.558.141 404 Convertible KF - 4.592.235 404 Coupe KF - 4.592.243

Dynamo: Make: PARIS-RHONE

Type : G 10 C 27 Power : 300/350 Watts

Regulator: Make: PARIS-RHONE

Type: YT 215

or DUCELLIER Type: 8332 B

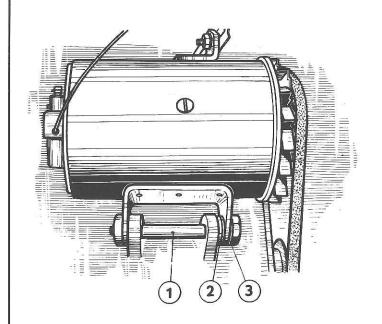
24-26 A regulator, 3 stages.

SUPERSEDES SHEET GROUP 12, PAGES 0205

PEUGEOT



# XC. KF - KF 1 - KF 2 CHARGING SYSTEM WITH DYNAMO



#### DYNAMO

#### 1st fitting

Up to serial Nos:

404 KF 2 - 4.575.663 404 C.KF 2 - 4.595.181

Dynamo fixing to cylinder block is ensured by a  $12 \times 99$  bolt.

Washer 3 ensures internal teeth locking of the axle tighten to a torque of 5 m.kg.

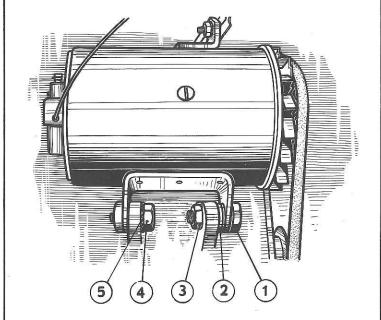
1 - Axis 12 × 99

Nº P.N. 5703.08

2 - Adjusting washers

3 - Internal teeth washer

Nº P.N. 6955.32



#### 2nd fitting

As from serial numbers :

404 KF 2 - 4.575.664 404 C.KF 2 - 4.595.182

Dynamo is maintained:

to the frontside, by a bolt 1 with a nylstop nut 3

to the rearside by a screw 4 locked through an internal teeth washer 5.

NOTE: This fitting should be carried out on cylinder blocks of which the front lug is rectified on both flanges or after having carefully straightened the inner facing to allow the nylstop nut 3 to rest correctly against cylinder-block.

1 - 4 - Axis 12 × 34

P.N. 5703.11

2 - Adjusting washers

3 - Nut

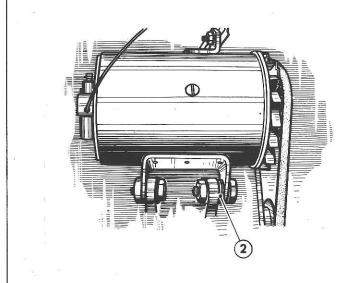
6939.26

5 - Internal teeth waher

6955,32

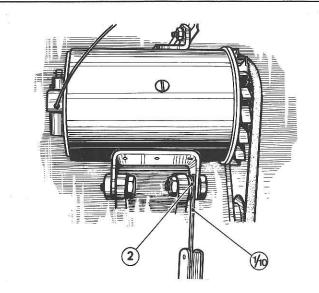
# XC.KF - KF 1 - KF 2 CHARGING SYSTEM WITH DYNAMO





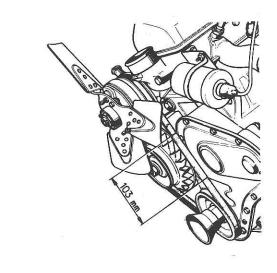
#### DYNAMO REMOVAL

- Disconnect wires
- Disconnect upper sliding lug, also used as a support to exhaust expansion box (KF-KF 1)
- Remove the or rocking spindles and dynamo but do not forget to recover adjusting washers
   2.



#### DYNAMO REINSTALLATION

- Adjust dynamo lateral play to cylinder block by means of adjusting washers 2 in order that the play between front dynamo lug and cylinder block ear does not exceed 0.1 mm this in order to prevent the dynamo or the cylinder block from breaking down.
- Refit one or the rocking Spindles of the dynamo
- Re-install belt and adjust tension to 3 %
- Re-install accessories.
- Screw up 1st installation rocking spindles to a tightening torque of 5 m.kg. (36 ft/lbs).



#### DYNAMO BELT

Make: KLEBER-COLOMBES

Nº : 9004

Dimensions:  $10 \times 8$ 

Elongation not to be exceeded: 3 %

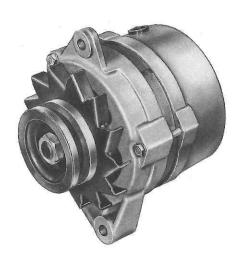
Before installation, mark 2 points at a distance of 100 mm and straighten up to 103 mm between these two reference marks.



#### 404 FEIRUL INJECTION ENGINE XC.KF 2

#### CHARGING SYSTEM WITH ALTERNATOR





#### **ALTERNATOR**

As from serial Nos:

404 KF2 - 4 589 001 404 C.KF2 - 4 597 001

Make: SEV Motorola Type: A 14/30 Voltage: 12 Volts Power: 400 Watts

Output: 30 A under 13.5 V at 2,500 r.p.m.

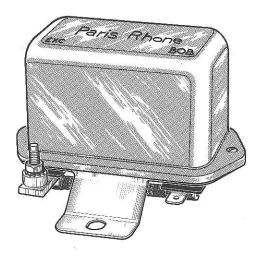
Weight: 4 kg

Make: PARIS-RHONE Type: A 13 R 15 Voltage: 12 Volts Power: 400 Watts

Output: 30 A under 13.5 at 2,500 r.p.m.

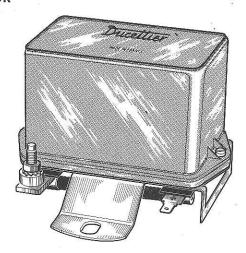
Weight: 4.620 kg

#### REGULATOR



Make: PARIS-RHONE Type: AYA 21

Voltage: 12 volts



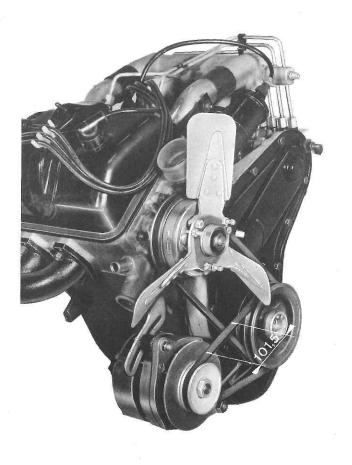
Make: DUCELLIER

Type: 8 349

Voltage: 12 volts

#### CHARGING SYSTEM WITH ALTERNATOR





#### 1st Installation

#### Alternator removal

- Disconnect battery
- Disconnect connections on alternator
- Remove : Tensioner bolt

  Lower rocking axis and alternator

#### Alternator re-installation

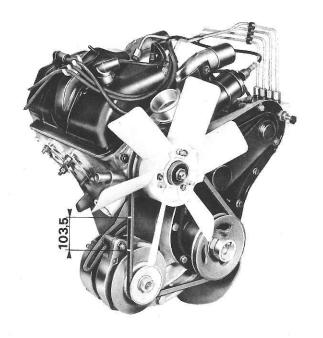
#### Reversal procedure of removal.

- Adjust belt tension

Belt cold: mark on belt back two strokes at a distance of 100 mm or use existing strokes and tighten to obtain 101.5 mm between these two reference marks.

- Screw up rocking axis; tightening torque 4.5 m.kg (32.6 ft/lbs).

Note: For water pump belt characteristics and fitting, see class 1 pages 1501 and 1502



#### 2nd Installation

Alternator removal and reinstallation, same procedure as for the 1st installation.

- Adjust belt tension

Belt cold: mark on belt back two strokes at a distance of 100 mm or use existing strokes and tighten to obtain 103.5 mm between these two reference marks.

Note: Alternator belt characteristics (see class 1 page 15 03)

EUGEOT

## XC.KF 2

#### **ALTERNATOR**

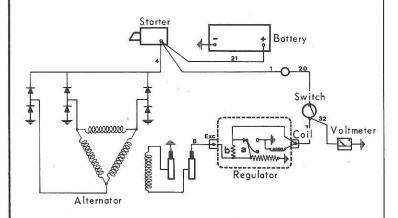
## SPECIAL PRECAUTIONS TO BE IMPERATIVELY OBSERVED WHEN WORKING ON A CAR EQUIPPED WITH AN ALTERNATOR

#### The following must be avoided:

- Charging the battery on the car without having previously disconnected the two  $\pm$  and cables connecting the battery to the electrical circuit of the car.
- Reversing the connections (polarity) of the battery, regulator, and alternator.
- Disconnecting the battery while the alternator is running.
- Starting the car without connecting the battery.
- Operating the regulator without connecting it to the alternator ground.
- Grounding the «Excitation» (Field) terminal on the alternator or regulator.
- Soldering or unsoldering diodes without using a heat shield.
- Applying overvoltages to the diodes.
- Connecting a radio set to the electrical circuit controlled by the Neiman anti-theft lock (the set must be connected to fuse N° 2)

Omitting any one of the above precautions would irremediably damage the regulator or the alternator, and especially the diodes.



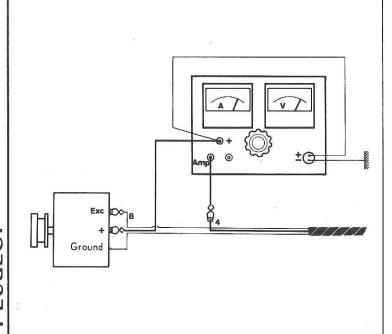


#### CHARGING CIRCUIT

Improper operation of the charging circuit is not always caused by a faulty alternator or regulator.

The following should always be checked before disassembling the components:

- a Belt, for condition and proper tension.
- b Connections and grounds at the alternator, regulator, starter motor, battery and thermal voltmeter.



#### CONNECTING THE METERS

A SOURIAU type 1190 - 1290 Volt-Ammeter should preferably be used; a standard voltmeter and ammeter (60 Amp.) can also be used.

- Slacken the ground wing nut by a few turns.
- Disconnect wire No. 4 at the + terminal of the alternator.

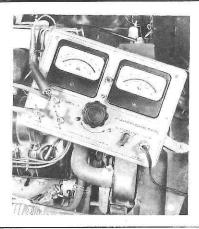
Using the cables provided in the chest, connect the following :

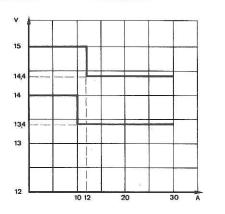
- Alternator + terminal to ammeter + terminal.
- Wire No. 4 to ammeter «AMP» terminal.
- Connect the test voltmeter.
- Tighten the grounding wing nut.
- Set the clock.

PEUGEOT

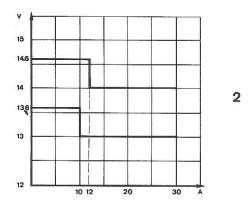


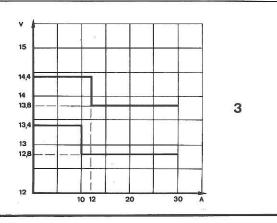
# XC.KF 2 ALTERNATOR





1





#### CHECKING THE CHARGING CIRCUIT

The voltmeter should indicate circuit voltage.

- actuate the starter motor.

The voltage should not drop below 9 Volts; if it does, battery charge is low, terminals are coated with sulphate, or starter motor requires checking.

- accelerate engine to 2,500 r.p.m. approx.
- Immediately note down maximum output current and corresponding voltage.

Current should be 30 - 35 Amperes if voltage is less than 13 Volts. If the battery is fully charged, it may be necessary to switch on the headlights and all other significant electrical loads to reach 30 - 35 Amperes.

The regulator should begin operating when the voltage exceeds 13 Volts; alternator voltage should then be between the limits indicated on the charts given opposite.

In all cases, the voltage should never exceed:

15 V Up to serial numbers 8 206 000 and 4 597 550 (1)

14.6 V As from the above serial numbers, and for regulators marked J5 (2)

14.4 V As from serial numbers 8 219 000 and 4 598 600, and for regulators marked C6 (3)

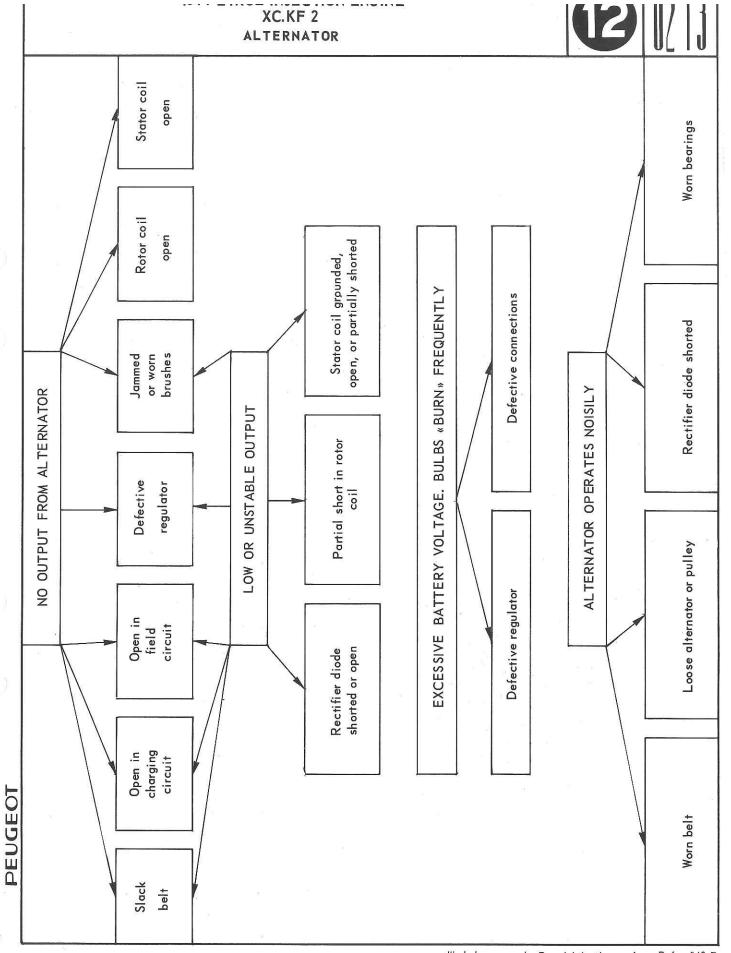
If this is not the case, the regulator must be replaced.

If battery charge is low and maximum alternator output is significantly lower than 30 Amp. at 2500 r.p.m., the regulator must be replaced; if this is not the case, one or more diodes are open or shorted, and the alternator should be overhauled.

#### NOTE -

An open diode causes a drop of about 5 Amperes in the charging current.

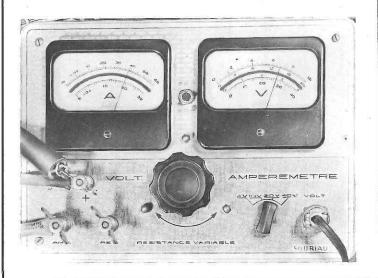
A shorted diode limits charging current to 7 or 8 Amperes, and causes the alternator to growl during operation.





### XC.KF 2 THERMAL VOLTMETER





#### CHARACTERISTICS

Make

: JAEGER or E.D.

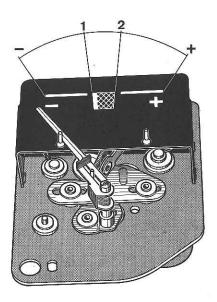
Operating current : .15 Amp.

Operating delay : 40 - 60 seconds

#### CHECKING THE THERMAL VOLTMETER

The thermal voltmeter indicates only circuit voltage, and not alternator output voltage.

Check that the test voltmeter indicates about the same value as the thermal voltmeter; the approximate values to be obtained are listed below:



Indicated voltages at 20° C (68° F)

- ≠ 9 V

1 ≠ 12 V

 $2 \neq 13 \text{ V}$ 

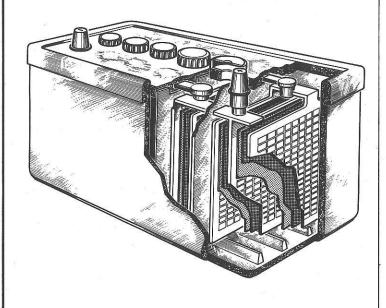
+ ≠15 V

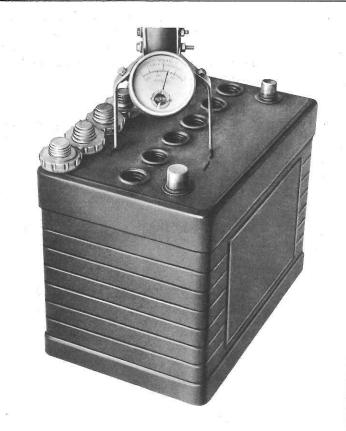
If not:

- The two voltmeters are incorrectly connected,
- Or the thermal voltmeter requires replacement.

# XC.KF - KF1 - KF2 BATTERY







#### BATTERY

404 cars are equipped with batteries comprising six separate, series-connected, 2-Volt cells.

Each cell consists of two sets of negative and positive plates electrically insulated from each other.

The active ingredient used for positive plates is lead peroxide  $Pb\, O_2$ 

The active ingredient of negative plates is spongy lead Pb.

- the electrolyte is a solution of sulphuric acid in distilled water.
- sulphuric acid combines with the lead peroxide in the positive plates and with the spongy lead in the negative plates to form lead sulphate during discharge.

Electrolyte density decreases as the battery discharges.

Lead sulphate is changed into lead peroxide at the positive plates, and into spongy lead at the negative plates during charge; this reaction frees sulphuric acid.

Electrolyte density increases as the battery charges.

#### CHECK

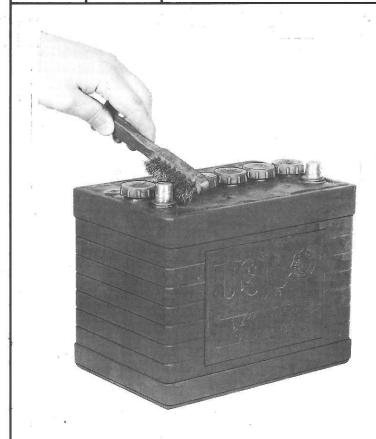
The level of the electrolyte must be about 10 mm (1/2 inch) above the top of the plates. Connect a battery tester across each set of plates successively.

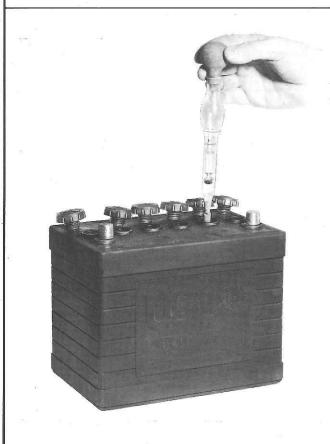
- 1° Tester pointer must reach the «Normal» sector on the tester dial; if not, the battery requires charging.
- 2° The voltage drop evidenced by the tester after it has been connected across each cell for at least 15 seconds must not differ appreciably for any two cells.

If a much faster voltage drop is experienced for one or two cells in the battery, this indicates a short or an open circuit in the corresponding cells, and the battery must be replaced.



# 404 FEIRUL INJECTION ENGINE XC.KF - KF1 - KF2 BATTERY





#### MAINTENANCE

#### a - Cleaning and protecting battery terminals

The exterior surfaces of the battery must be kept clean and dry. Wash the exterior surfaces with household detergent and water if acid has been spilled.

Wash the terminals with warm water, and use a wire brush to polish the contact surfaces of the battery terminal posts and battery cable terminal clamps.

The cups of the «ARELCO» connectors must be filled with grease.

#### b - Electrolyte level

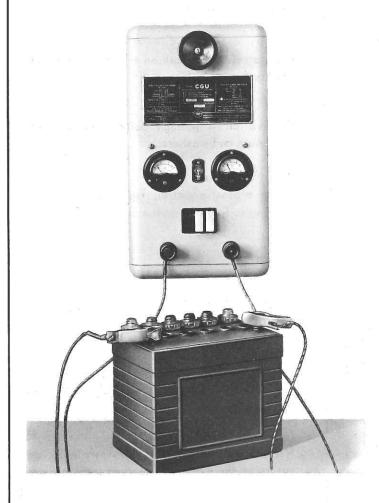
Add distilled water as required to bring back the level of the electrolyte to 10~mm (1/2~inch) approx. above the plates; never add acid (except if the electrolyte was spilled accidentally).

#### Electrolyte specific weight at 15° C (59° F)

Sulphuric acid density: 1.84

Specific Weight, kg/dm <sup>3</sup>	De	grees Baumé
1.01		1°.
1.04	(e)	5.5°
1.20		24°
1.24		28 °
1.25		29°
1.26		30 °
1.31		34°





#### c - Charging the battery

The battery should be charged if the density of the electrolyte is below 27° Baumé.

The battery is fully charged if the density is 31-32° Baumé at 15° C(59° F) (and remains unchanged for 2 hours).

Always charge the battery slowly; the charging current must be 1/10th or 1/20th of battery capacity.

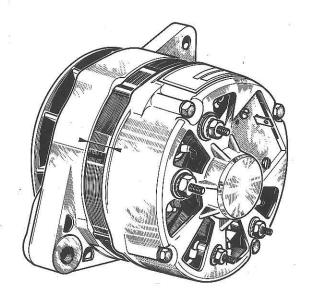
High current charges of short duration can be used if electrolyte density is less than 26 or 27° Baumé.

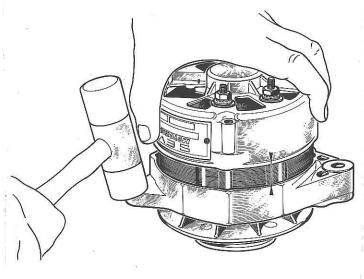
It should be pointed out, however, that high current charges are detrimental to the battery as soon as density reaches 28° Baumé; this is due to the following factors:

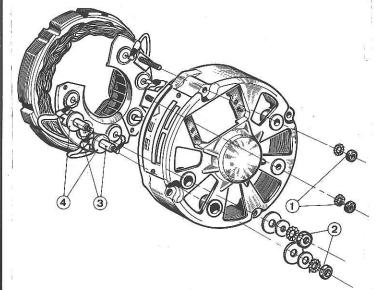
- 1º Charging efficiency decreases when voltage increases.
- 2º A large quantity of water is lost through electrolysis.
- 3° Large amounts of gases are released within the active ingredients of the plates, leading to disintegration of these ingredients.



### XC.KF 2 S.E.V. ALTERNATOR





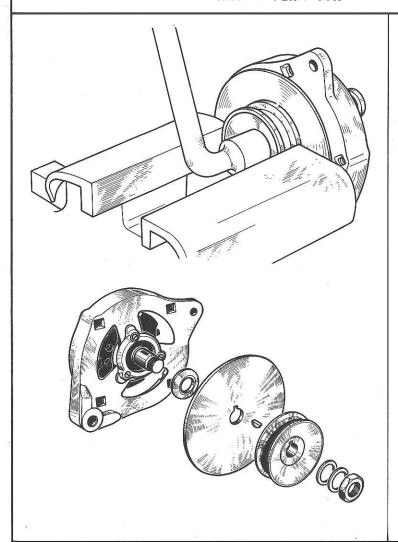


#### **ALTERNATOR DISASSEMBLY**

- Remove brush-holder.
- Draw a reference mark on the stator and both front and rear housings.
- Remove all 4 through bolts, together with their nuts and washers.
- Using a plastic mallet, tap gently the front housing to free it from the stator.

## REMOVING THE STATOR FROM THE REAR HOUSING

- Remove both nuts 2 from the + terminals and set aside the externally-toothed, plain, and insulating washers.
- Remove both nuts 1 from the terminals and set aside the externally-toothed lockwashers.
- Remove the stator from the rear housing.
- Set aside both insulating washers 4 and insulating tubes 3 used with the  $\pm$  terminals.



#### FRONT HOUSING DISASSEMBLY

Disassembly is required only if the front bearing must be replaced.

- Slacken pulley nut after clamping pulley in a vice equipped with lead jaws.
- Remove pulley, fan, and spacer.
- Remove three screws from the front bearing cover.
- Remove rotor and bearing assembly from front flange by tapping gently the shaft end.

#### **IMPORTANT**

The rotor is pressed onto the shaft with a tight fit and should never be separated from the inner bearing cage, as the polar pieces would then separate from the coil and damage it irremediably.

#### **ROTOR BEARINGS REMOVAL**

Pull out the front bearing, using a standard puller «Facom U 35» or similar. Set aside bearing cover.



To remove rear bearing : a 8-mm dia.  $\times$  20 mm long section of steel rod should be inserted between puller and rotor axle end face.



EUGEOT



#### XC.KF 2 S.E.V. ALTERNATOR

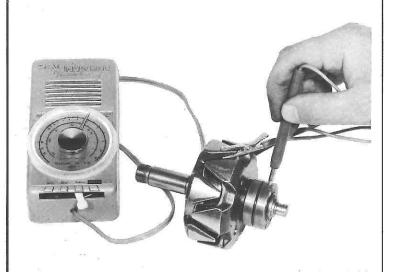


#### CLEANING

All disassembled parts should be cleaned in trichlorethylene and dried with compressed air.

#### CHECKING AND TESTING

A «MICROBAN» SEV MARCHAL should preferably be used; this equipment can be replaced by a standard ohmmeter. Never use a test lamp connected to the a.c. mains; the operating voltage must never exceed 12 Volts.

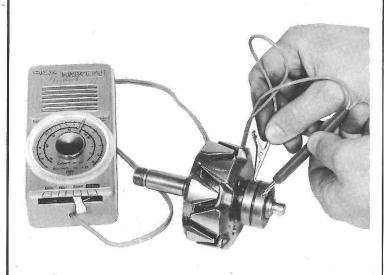


#### 1 - Rotor

Resistance at 25° C (77° F) :  $4.5 \pm .3$  ohms.

- Set the «MICROBAN» tester to «Sonde» (probe).
- Connect the alligator clip to the rotor prongs.
- Place the red probe in contact with one of the collector rings.

No tone should be heard, or the tone should be barely audible.

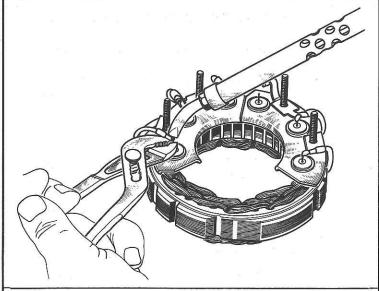


Now place the alligator clip with the other collector ring.

A tone of maximum loudness should be heard, as when both probes of the «MICROBAN» are shorted.

- Switch off the «MICROBAN»

Scratched collector rings should be polished with fine-grain abrasive paper; the rotor must be rotated during the polishing operation to avoid forming flats which would cause vertical oscillations of the brushes.



## DISCONNECTING THE DIODES FROM THE STATOR

- Locate all wires connecting the diodes to the stator, and find out the location of the diode-holders.
- -Use a high power (more than 150 watts) and very hot soldering iron to unsolder the wires, having care to clamp the pigtail of the diodes with a pair of pliers to act as a heat shield and protect the diodes from damage caused by heat.



#### CHECKING THE DISASSEMBLED STATOR

A few turns may be shorted inside the stator coil; this fault causes overheating and can be easily detected by visual checking.

#### a - Insulation

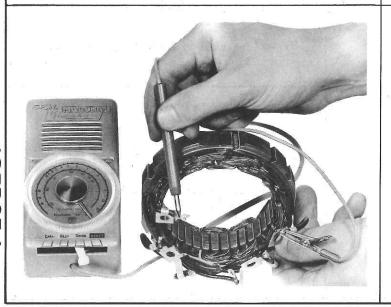
Set MICROBAN tester to «Sonde» (probe).

- Connect one probe to one of the coil output leads.
- Contact the iron core with the other probe.

No audible tone: the coil is not grounded.

Audible tone : the coil is grounded.

- Check all three phases as indicated above.



#### b - Continuity

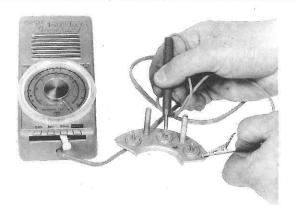
- Connect a probe to one of the coil output leads.
- Contact all the other output leads successively with the other probe.

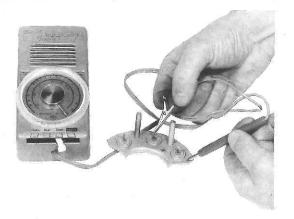
The tone should be heard without any interruption, even when the leads are moved.

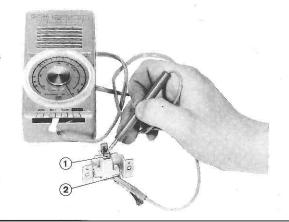


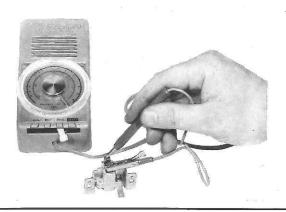
### XC.KF 2

### S.E.V. ALTERNATOR









#### CHECKING THE DISCONNECTED DIODES

Set «MICROBAN» tester to «Sonde» (probe).

- Connect one probe to the pigtail of a diode, and the other probe to the diode holder.
- Now reverse the connection.

A tone should be heard for one direction of connection only.

- Tone heard for both directions : shorted diode.
- No tone : open diode.

Check all diodes in succession as indicated above.

#### NOTE -

The complete diode holder assembly must be replaced even if one diode only is defective.

#### CHECKING THE BRUSH HOLDER

Set «MICROBAN» tester to «Resistance» and turn pointer to zero.

#### a - Continuity

Connect ohmmeter between insulated brush 1 and terminal strip 2.

No tone or crackling noise should be heard, even when the brush and shunt are moved.

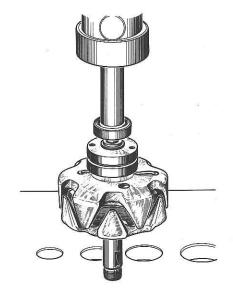
- Repeat the above check for the negative brush.

#### b - Insulation

Set «MICROBAN» tester to «Sonde» (probe).

- Connect tester between insulated brush and negative brush.

No tone should be heard.

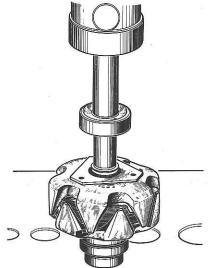


#### ALTERNATOR RE-ASSEMBLY

Re-assemble the alternator in the order given below after all parts have been checked and cleaned.

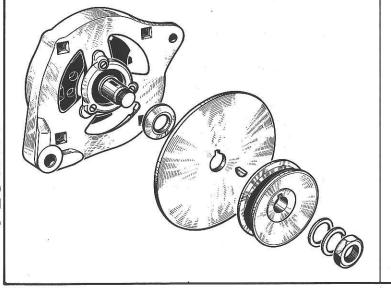
#### Rear bearing re-installation

Install a new rear bearing with an arbor press, using a length of tubing resting only on the inner race of the bearing ( $10 \times 50$  mm tubing).



#### FRONT BEARING RE-INSTALLATION

- Install bearing cover with bosses facing rotor.
- Install a new front bearing with an arbor press, using a length of tubing resting only on the inner race of the bearing ( $18 \times 50$  mm tubing).

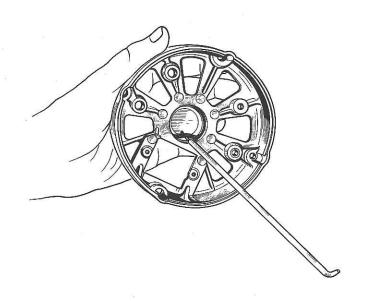


#### FRONT HOUSING RE-ASSEMBLY

- Place rotor into front housing.
- Install three bearing cover attachment screws, tighten, and lock.
- Engage spacer on shaft with small O.D. facing pulley.
- Install :
  - key,
  - fan,
  - pulley,
  - flat washer,
  - «Grower» lockwasher,
  - nut.
- Torque to 4 m.kg (29 ft.lbs).



# XC.KF 2 S.E.V. ALTERNATOR

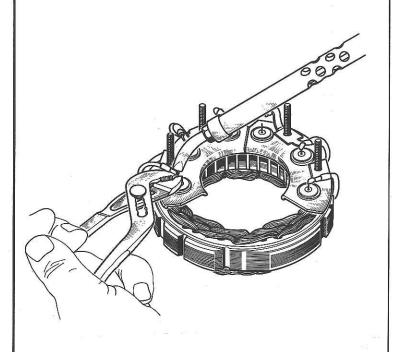


#### REAR HOUSING O-RING SEAL REPLACEMENT

- Remove O-ring.
- Clean groove carefully.
- Clean up vent hole.
- Lubricate bore and groove.
- Install new O-ring after smearing it with oil.

#### NOTE:

As from alternator serial number 121.953, a 2.8 mm thick seal is used to replace the former 3.2 mm seal.



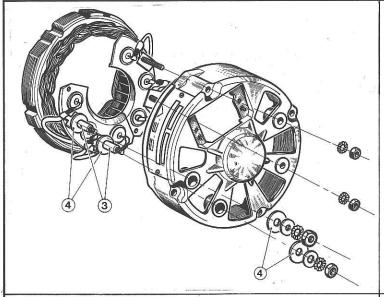
#### **DIODES-TO-STATOR CONNECTION**

Never reverse the diode-holders on the stator.

- Carefully clean up the diode and stator output wires.
- Position the three wires on each diode-holder, taking care to replace each wire in its original position.
- Solder each diode, taking care to clamp the pigtail of the diode with pliers to avoid heat damage; use a high power, very hot soldering iron, as prescribed for disassembly.
- Connect all the other diodes as indicated above.

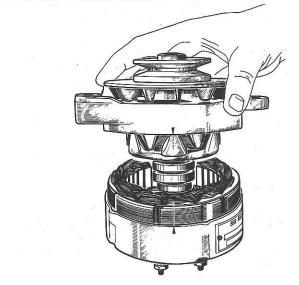
#### XC.KF 2 S.E.V. ALTERNATOR





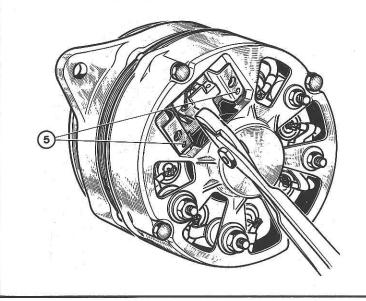
#### **REAR HOUSING RE-ASSEMBLY**

- Place two insulating washers 4 and two insulating tubes 3 on the positive diode-holder (red marks).
- Install the rear housing on the stator assembly.
- Place two insulating washers 4, two flat washers, two lockwashers, and two nuts on the positive diode-holder terminals; tighten the nuts.
- Install two lockwashers and nuts on the negative diode-holder (black marks).



### FRONT-TO-REAR HOUSING RE-ASSEMBLY

- Position rotor on rear housing and assemble.
- Align positioning marks drawn on the stator before disassembly.
- Install four assembling bolts through the front and rear housings, and tighten.
- Carefully engage brush-holder on both centering studs 5, taking care not to damage the brush holder.
- Install insulating plate and two screws.



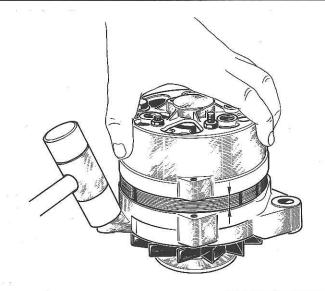
#### Alternator re-installation on car

(refer to page 0209).

TOH DINE

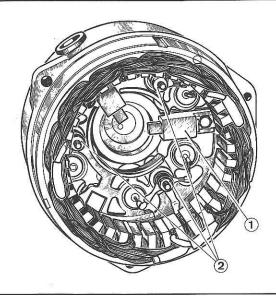


# XC.KF 2 PARIS-RHONE ALTERNATOR



#### ALTERNATOR DISASSEMBLY

- Draw a reference mark on the stator and both front and rear housings.
- Remove the three assembling screws for the housings.
- Using a plastic mallet, tap gently the front housing to free it from the stator.

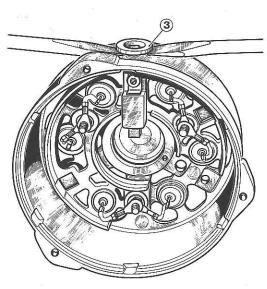


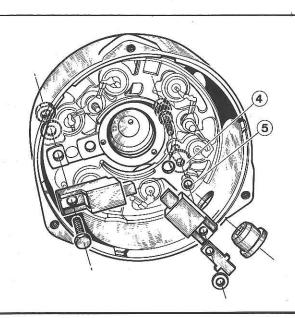
#### STATOR AND BRUSH-HOLDERS REMOVAL

- Remove three nuts and washers 2 attaching the stator to the relay terminals on the positive diode-holder.
- Remove : Stator
  - Negative brush 1
  - Positive brush terminal protector 3 and brush-holder.

#### NOTE:

Insulating tube 5 should be removed if it disengages easily from its housing. Set aside insulating tube 5 and insulating washer 4 located between positive diode-holder and rear housing.

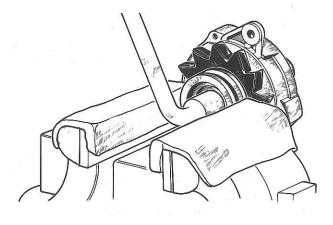


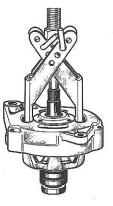


# 404 FEIRUL INJECTION ENGINE XC.KF 2

### PARIS-RHONE ALTERNATOR



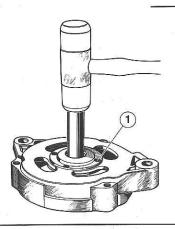




#### FRONT HOUSING DISASSEMBLY

Replacing one of the components requires disassembling the front housing.

- Remove nut, lockwasher, pulley, fan, key, and spacer.
- Use a «FACOM U 35» puller or similar to remove the rotor from the front housing.



#### ROTOR BEARINGS REMOVAL

- a Front bearing
- Remove four screws 1 from the front bearing cover.
- Remove bearing.



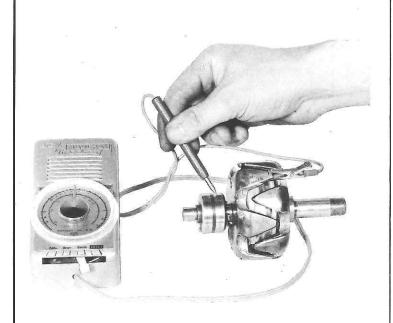
#### b - Rear bearing

Insert a 8 imes 20 mm long section steel rod between puller and rotor axle end and remove bearing with puller.

PEUGEOT



## XC.KF 2 PARIS-RHONE ALTERNATOR



#### CLEANING

All disassembled parts should be cleaned in trichlorethylene and dried with compressed air.

#### CHECKING AND TESTING

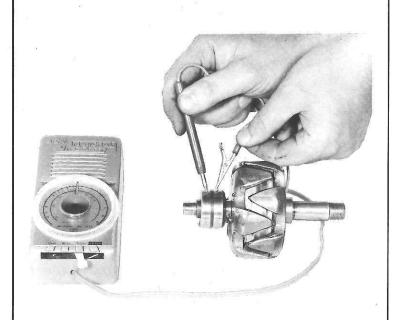
 A «MICROBAN» SEV MARCHAL tester should preferably be used, this equipment can be replaced by a standard ohmmeter. Never use a test lamp connected to the a.c. mains; the operating voltage must never exceed 12 Volts.

#### CHECKING THE ROTOR

Set the «MICROBAN» tester to «Sonde» (probe).

- Connect the alligator clip to the rotor prongs.
- Place the red probe in contact with one of the collector rings.

No tone should be heard, or the tone should be barely audible.



- Now place the alligator clip in contact with the other collector ring.

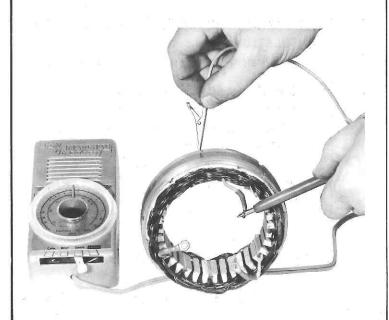
A tone of maximum loudness should be heard, as when both probes of the «MICROBAN» are shorted.

The «MICROBAN» tester should be turned off after each check to avoid discharging the dry batteries.

Scratched collector rings should be polished with fine-grain abrasive paper; the rotor should be rotated during the polishing operation to avoid forming flats which would cause vertical oscillations of the brushes, and therefore result in «brush noise».

# XC.KF 2 PARIS-RHONE ALTERNATOR





#### CHECKING THE STATOR

A few turns may be shorted inside the stator; this fault causes overheating and can be easily detected by visual checking.

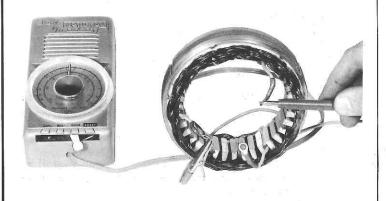
#### a - Insulation

Set «MICROBAN» tester to «Sonde» (probe).

- Put one of the probes on the stator iron core.
- Put the other probe in contact with each of the coil output leads, successively.

No audible tone: The stator is not grounded.

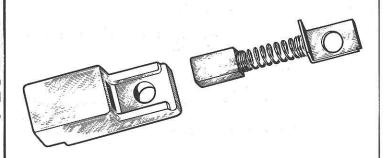
Audible tone: The stator must be replaced.



#### b - Continuity

- Connect one of the probes to one of the coil output leads.
- Put the other probe in contact with each output lead successively.

The tone should be heard without any interruption, even when the leads and connections are moved.



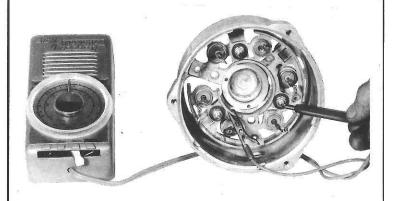
#### CHECKING THE BRUSHES

 Make sure the brushes slide freely in their brush-holders. Replace the brushes if their length is less than 10 mm.

PEUGEOT



# 404 PETRUL INJECTION ENGINE XC.KF 2 PARIS-RHONE ALTERNATOR

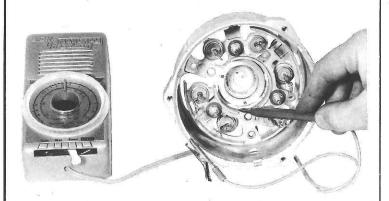


## CHECKING THE RELAY TERMINALS FOR INSULATION

Set «MICROBAN» tester to «Sonde» (probe).

- Connect one of the probes to the + diodeholder.
- Put the other probe in contact with each terminal, successively.

No tone should be heard; if this is not the case, the insulation of the terminal is defective.

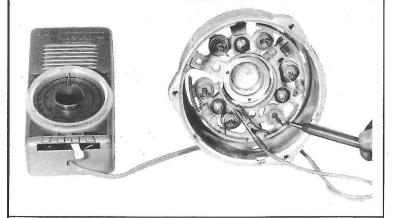


## CHECKING THE + DIODE-HOLDER FOR INSULATION.

Set «MICROBAN» tester to «Sonde» (probe).

- Connect the alligator clip to the rear housing.
- Put the probe in contact with the + diode holder.

No tone should be heard; if this is not the case, find out the reason why insulation is defective.



#### CHECKING THE DIODES

- Disconnect the diodes at the three relay terminals.

Set «MICROBAN» tester to «Sonde» (probe).

- Put one probe in contact with the pigtail of a diode, and the other probe in contact with the diode holder.
- Now reverse the connections.

A tone should be heard for one mode of connection only.

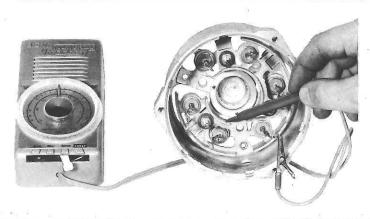
Tone heard in both cases: shorted diode

No tone: open diode.

 All six diodes should be checked successively as indicated above.

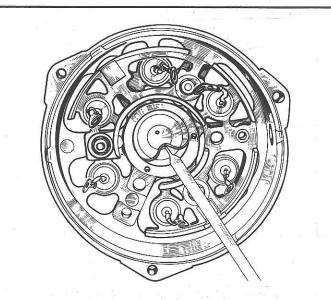
### NOTE :

If one of the diodes is defective, the complete diode-holder assembly must be replaced for a positive diode, or the rear housing assembly for a negative diode (page 02 31).



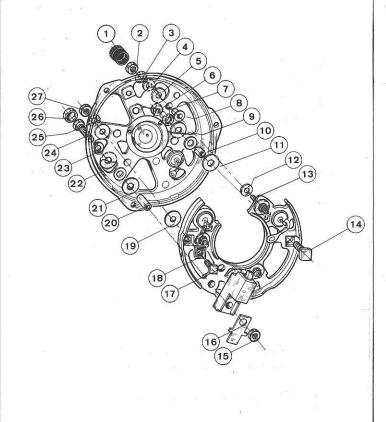
# XC.KF 2 PARIS-RHONE ALTERNATOR





#### REAR HOUSING SEAL REPLACEMENT

- Remove seal.
- Clean groove carefully.
- Clean up vent hole.
- Lubricate bore and groove.
- Install new seal after smearing it with oil.



#### POSITIVE DIODE-HOLDER REMOVAL

Required only when:

- One of the + or diode is defective;
- Insulation is defective for one of the relay terminals or for the positive diode-holder.
- Remove nut 6, flat washer, and insulating washer from + terminal.
- Remove screw 14 and save insulating washer 11 installed between diode-holder and insulating tube 10.
- Remove nut 27 with lockwasher, remove screw, square insulator 18, and set aside insulating washer 19 installed between housing and diode-holder.
- If the + diode-holder incorporates a third attachment point, remove nut 2 with lockwasher, flat washer, insulating washer 5 and set aside insulating pilot 8 together with flat spacer 12.



# 404 PETRUL INJECTION ENGINE XC.KF 2

### PARIS-RHONE ALTERNATOR

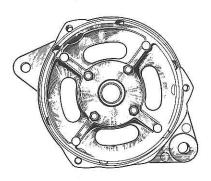


### ALTERNATOR RE-ASSEMBLY

Re-assemble the alternator in the order given below after all parts have been cleaned and checked.

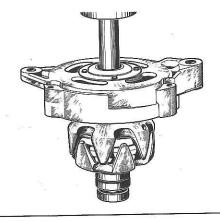
#### REAR BEARING RE-INSTALLATION

 Install a new rear bearing with an arbor press, using a 12-mm I.D. tubing resting only on the inner race of the bearing.



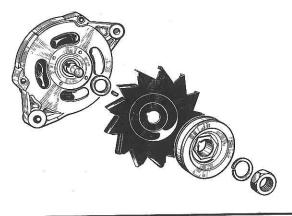
### FRONT BEARING RE-INSTALLATION

- Engage the new bearing in the front housing.
- Install the bearing cover and four attachment screws.



#### FRONT HOUSING RE-ASSEMBLY

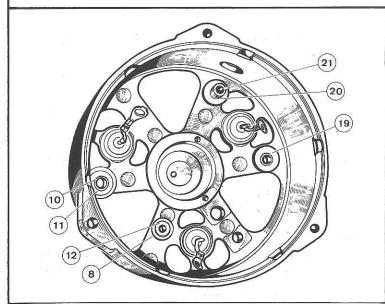
Install the front housing on the stator with an arbor press, using a length of 17-mm I.D. tubing resting on the inner race of the bearing.

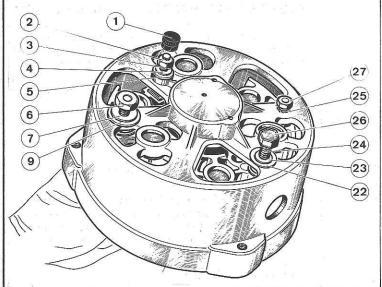


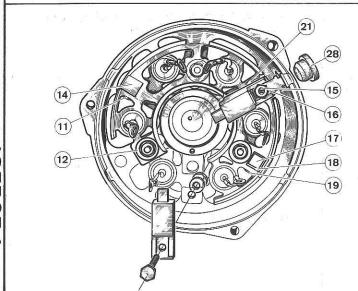
- Engage the spacer, key, fan, pulley, lockwasher and nut on the shaft.
- Torque to 4 m.kg (29 ft.lbs).

# XC.KF 2 PARIS-RHONE ALTERNATOR









#### POSITIVE DIODE-HOLDER RE-ASSEMBLY

#### - Install :

- Short insulating tube 10 and one 8-mm dia. insulating washer 11.
- Insulating tube 20 and one 7-mm dia. insulating washer 21.
- One 7-mm dia. insulating washer 19.
- Insulating pilot 8 and flat steel spacer 12.
- Positive diode-holder.

#### - Engage :

- Screw 14 on + terminal.
- Screw 17 with square nylon insulator 18.
- Swing rear housing backwards while maintaining in position the positive diode holder by the screws previously installed.

#### - Place :

- 8-mm dia. insulating washer 9, flat washer 7 and nut 6 on + terminal 14.
- Lockwasher 25 and nut 27 on screw 17.
- Insulating washer 5, flat washer 4, lock-washer 3 and nut 2.
- Flat washer 23, insulating washer 22 on screw 24; engage screw in insulating tube 20.
- Install + brush-holder, field connector strip 16 and nut 15.
- Check that the following parts have been installed before tightening nuts:
- Insulating washer 11 between + diode-holder and housing,
- Insulating washer 21 between + diode-holder and housing,
- Insulating washer 19 between + diode-holder and housing,
- Steel spacer 12 between insulating pilot 8 and + diode-holder.
- Tighten all nuts, making sure that insulating washers are centered.
- Install cap 1 and 26 as well as excitation terminal strip protector 28.

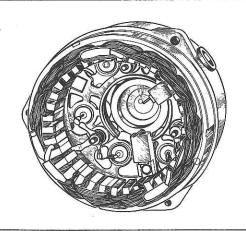
#### NOTE -

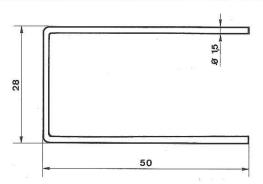
The positive diode holder, + terminals and relay terminals should always be checked for proper insulation after re-assembly is completed (page 02 30).

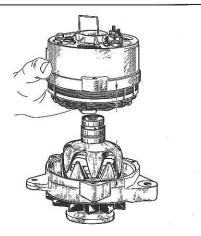


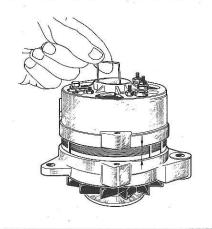
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# XC.KF 2 PARIS-RHONE ALTERNATOR









#### REAR HOUSING & STATOR RE-ASSEMBLY

- Position the negative brush on the rear housing.
- Connect each diode to the nearest relay terminal.
- Mate the reference marks on the stator and rear housing.
- Connect the three stator output leads to the three relay terminals.
- Install the lockwashers and nuts.
- Tighten the nuts, taking care to position the leads towards the periphery of the housing.

#### FRONT & REAR HOUSING RE-ASSEMBLY

Use a length of 1.5 mm dia. steel wire to fabricate tool No. 0.1201 as per drawing opposite; this tool is used to install the brushes.

- Insert the tool in the two openings in the rear housing.
- Push back each brush successively to allow for placement of tool 0.1201.
- Position the front housing vertically.
- Push down the rear housing onto the rear bearing, after mating the reference marks on the stator and front housing, and make sure the brushes do not jam on the collector.
- Remove tool 0.1201.
- Install and tighten three assembling screws together with their lockwashers.

## RE-INSTALLATION OF ALTERNATOR ON CAR

(refer page 02.09).

### XC KF - KF1 - KF2 LUBRICATION - MAINTENANCE



#### REGULAR INSPECTIONS

Maintenance Intervals after 600 miles (1 000 km)	Operation	Unit
600 miles (1 000 km)	Level	Engine sump
-	Drain	Engine Sump Oil filter housing Oil filter cartridge (wire gauze)
	Clean	Air Cleaner Radiator fins
3 000 miles (5 000 km)	Replace	Purflux or Easy-change cartridge (servicing intervals up to 6000 miles (10000 km)
and conductor constitutions of the action of	Lubricate Level Bleed	Distributor and dynamo Injection pump, radiator Water trap filter
	Check	Tightness of supply system Self disengaging fan Sparking plugs
	Adjust	Fan belt tension
6000 miles (10000 km)	Replace Tighten Adjust	Purflux or Easy-change cartridge Cylinder head \ Servicing intervals up to Rockers \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	n e	Idling speed
9000 miles (15000 km)	Check Replace	Injection pump piston lubrication Fuel pump inlet filter Sparking plugs
12000 miles (20000 km)	Replace Tighten Adjust	Water trap filter cartridge   Air cleaner cartridge   Cylinder head   Rockers
18 000 miles (30 000 km)	Replace	Fuel pump brushes (PLF 5)
30 000 miles (50 000 km) (or every 18 months)	Drain	Injection pump

Oils to be used in all seasons

ENGINE

: ESSO EXTRA MOTOR OIL 20 W/30/40

INJECTION PUMP : ESSO OLEOFLUID 40.E.P. or UNIVIS 40.