

TECHNICAL
INFORMATION

CITROËN

CITROËN CARS CORPORATION

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SERVICE BULLETIN # A-196

MODELS : DS 21 (DX-DJ) - DS 19 Ma (DL) -
SW 21 (DJF) - SW 19 a (DLF) -
ID 19 b (DV)

SUBJECT : Exhaust Emission Control System.

All 1968 U.S. Models are equipped with an Exhaust Emission Control System as required by the "Clean Air Act", 42 U.S.C. 1857 et seq and 31 FR 5170, 45 CFR Pt 85.00. Each model has been homologated and duly certified by the Department of Health, Education and Welfare.

PURPOSE :

In order to suppress most of the carbon monoxide and unburnt hydrocarbons, which are a main cause of air pollution, air is injected at the exhaust valve ports (where the temperature is very high) to oxidize these gases in the exhaust manifold.

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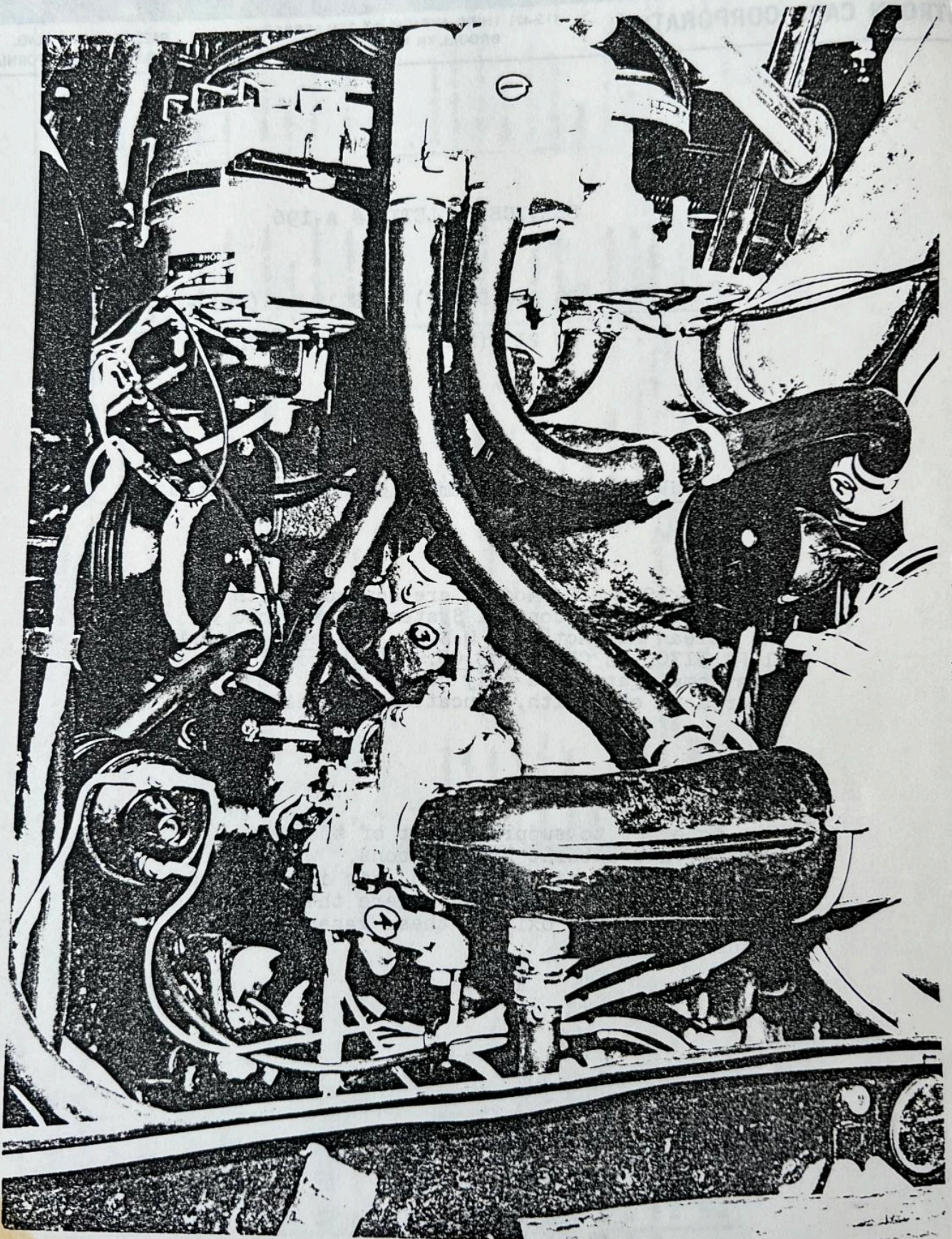


Figure 1

PRINCIPLE OF OPERATION :

An air pump (1, fig. 1) sucks air from the flexible moulded tube between the air filter and the carburetor. The pump drives the air to an air distributor plate (2, fig. 2) located between the exhaust manifold and the cylinder head. By means of injectors (3, fig. 2), the air is sent into the exhaust ports of the cylinder head, underneath the exhaust valves. A check valve (2, fig. 1) is mounted in the air delivery circuit between the pump and the air distributor.

A "gulp" valve (3, fig. 1) is tapped into the air circuit feeding the air injectors. This valve, controlled by the variations of depression existing in the intake manifold, permits, at certain moments injecting air into the intake manifold.

The gulp valve contains a pierced diaphragm which forms a dash-pot. One side of the diaphragm is subject to the depression existing in the intake manifold. The other side encloses a chamber containing a spring and a slide valve which opens or closes an air passage. When the carburetor throttle valve closes (deceleration), the vacuum increases in the intake manifold. This draws the diaphragm, thus moving the slide valve opening the air passage to the intake manifold. When the pressure equalizes itself on both sides of the diaphragm (through the pierced hole), the spring moves the valve back, closing the air passage to the intake manifold.

The carburetor carries a dash pot (4, fig. 1) used to avoid too rapid a closing of the throttle valve which would cause a slight backfiring from the exhaust.

On the DJ, DJF, DL and DLF models, the carburetor carries, in addition, an accelerated idling device similar to those mounted on the DX.

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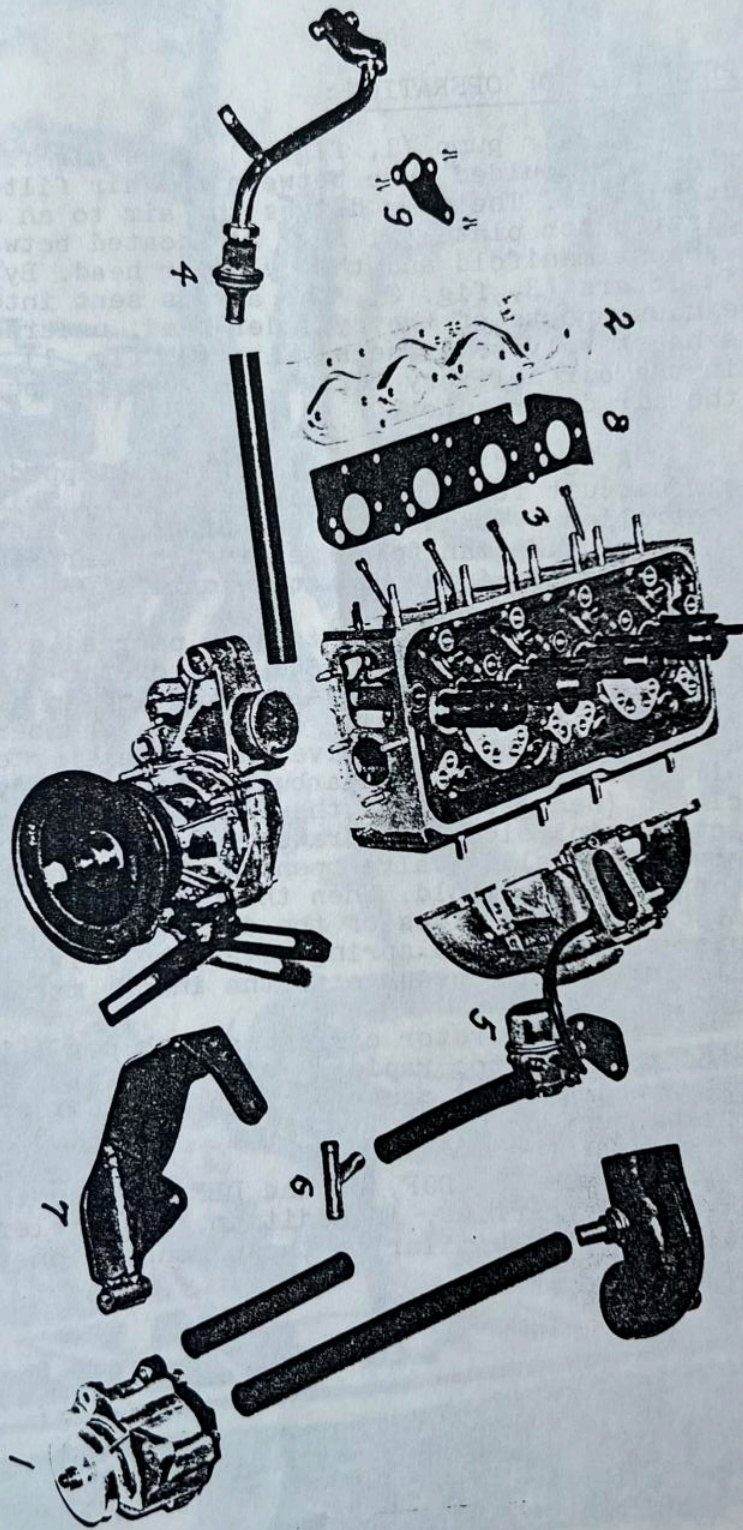


Figure 2

NEW PARTS (Fig. 2)

- Air Pump (1)
- Air distributor plate (2) located between the exhaust manifold and the cylinder head.
- Air injectors (3) mounted in the cylinder head. (Inject air beneath the heads of the exhaust valves).
- Check valve (4) on the air delivery tube of the air distributor plate.
- Gulp valve (5) permitting injection of air into the intake manifold at the moment of deceleration.
- The "T" connection (6), connecting the gulp valve to the air delivery circuit.
- The air pump support bracket (7).
- A gasket (8) located between the air distributor plate and the cylinder head.
- A gasket (9) located between the flange of the delivery tube and the air distributor plate.
- Various flexible connection hoses.

SERVICE -

It is not possible to mount the exhaust emission control system on older models.

I - Adjustment of the Idling Speeds and the Clutch Engagement Speed.

Important : The specifications given below must imperatively be respected in order to assure correct functioning of the system.

Normal Idling : DX - DJ - DJF - DL - DLF - DV
750 ± 25 R.P.M.

Note : For the DL - DLF and DV models see the procedure below.

.../...

Accelerated Idling : DX - DJ - DJF - DL - DLF

1025 ± 25 R.P.M.

Clutch Engagement Speed : DX

925 ± 25 R.P.M.

PROCEDURE -

a) Normal Idling:

1. Warm up the motor.

2. Adjustment of the normal idling:

2.1 On all models except the DV, turn the accelerated idling screw to the bottom without forcing it.

Note: The DV model is not equipped with an accelerated idling device.

2.2 For the DX - DJ - DJF: Adjust the normal idling to its specified speed of 750 R.P.M. by working always toward an increase to the speed. For example:

2.2.1 Adjust the idling to 600 R.P.M. without any particular precautions.

2.2.2 Turn the throttle screw to obtain approximately 650 R.P.M.

2.2.3 Turn the idle mixture screw to the value giving the best speed.

2.2.4 Re-adjust the throttle screw to obtain approximately 700 R.P.M.

2.2.5 Turn out the idle mixture screw in order to have the best speed.

2.2.6 Turn the throttle screw to raise the speed to 725 R.P.M. Turn out the idle mixture screw to be at the best speed.

2.2.7 During the course of the adjustment, if the idling speed exceeds the tolerance, freely turn the screws back and repeat the adjustment in such a way as to finish by an increase of speed corresponding to an opening of the throttle and an opening of the idle mixture screw.

Never finish the adjustment by decreasing the speed or "leaning" the mixture.

2.3 For the DL-DLF-DV models :

Bring the idle speed to 775 ± 25 R.P.M. by means of the throttle screw. With each movement of the throttle screw, manipulate the idle mixture screw to obtain the best possible speed. Eventually, bring the idling speed to 775 ± 25 R.P.M.

Then reduce the speed 25 R.P.M. by slightly opening the idle mixture screw.

b) Accelerated Idling: DX-DJ-DJF-DL-DLF

Adjust as usual at 1025 ± 25 R.P.M.

II - Adjustment of the Dash Pot on the Carburetor.

Tools necessary : Tachometer
Stop Watch.

This operation should be done after the idling adjustments :

- Connect a tachometer to the motor.
- Stabilize the motor speeds at a fixed point of 3000 R.P.M., then suddenly release the accelerator and apply the brakes.
- The time taken by the motor to pass from 2500 R.P.M. to 1000 R.P.M. should be between 3 and 5 seconds.

- If necessary, in order to obtain this condition, adjust the position of the dash pot and the tension of the accelerator springs.

Note: If it is necessary to install a new dash-pot:

- Screw the dash-pot into its support bracket.
- Bring it into contact with the movable lever of the carburetor throttle arm and continue to move it in the same direction just to the point where the idling speed tends to increase.

Lock the dash-pot at this point and perform the above mentioned adjustment.

MODIFIED PARTS.

- Cylinder head: supplementary bosses used for mounting the air injectors.
- Exhaust Manifolds: DX - DJ - DJF:
These carry a metal shield to assure protection to the chassis units on the right side.
- Carburetor: On the DJ - DJF - DL and DLF Models:
Mounting of an accelerated idling unit similar to that used on the DX.

On the DV:

Replacement of the idling jet by a jet with a "damper".

On all models, a dash-pot slowly returns the accelerator linkage to the idling position.

An air intake permits control of the gulp valve.

- Intake Manifold:

This has a supplementary port for the injection of air at the moment of deceleration.

- Water Pump and Alternator Belts:

One of the two belts is longer than the other and serves to drive the air pump.

- Motor Fly Wheel:

The ignition timing mark is located at 0°.

- Ignition:

The advance curve is modified (see the graphs attached).

- Flexible Tube between the Air Filter and the Carburetor:

Carries a connection in order to feed the air pump.

- Right Half Axle:

Upper rear mounting screw replaced by a hexagon socket (Allen) screw.

IMPORTANT ADVICE:

The exhaust Emission Control System is installed on the vehicle in order to reduce the pollution in the atmosphere.

Part of the "Clean Air Act, Title II" specifies that it is prohibited "for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title ...".

Consequently we recommend that you follow exactly the above practice and do observe the prescription of the law.

Timing advance
in degrees

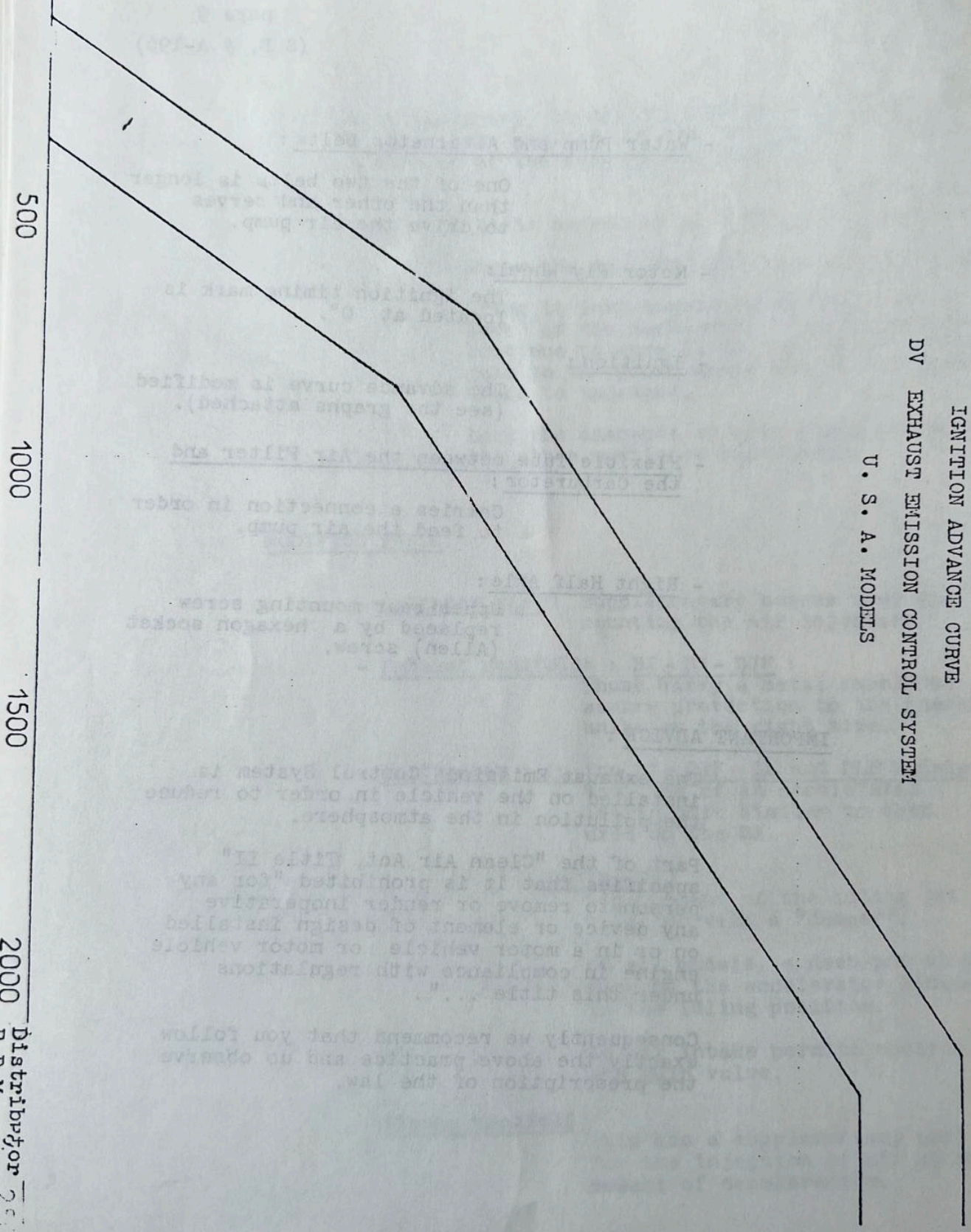
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IGNITION ADVANCE CURVE
DV EXHAUST EMISSION CONTROL SYSTEM
U. S. A. MODELS



Distributor for 2510
R.P.M.

Timing advance
in degrees

15

10

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IGNITION ADVANCE CURVE
DY EXHAUST EMISSION CONTROL SYSTEM
U. S. A. MODELS

500

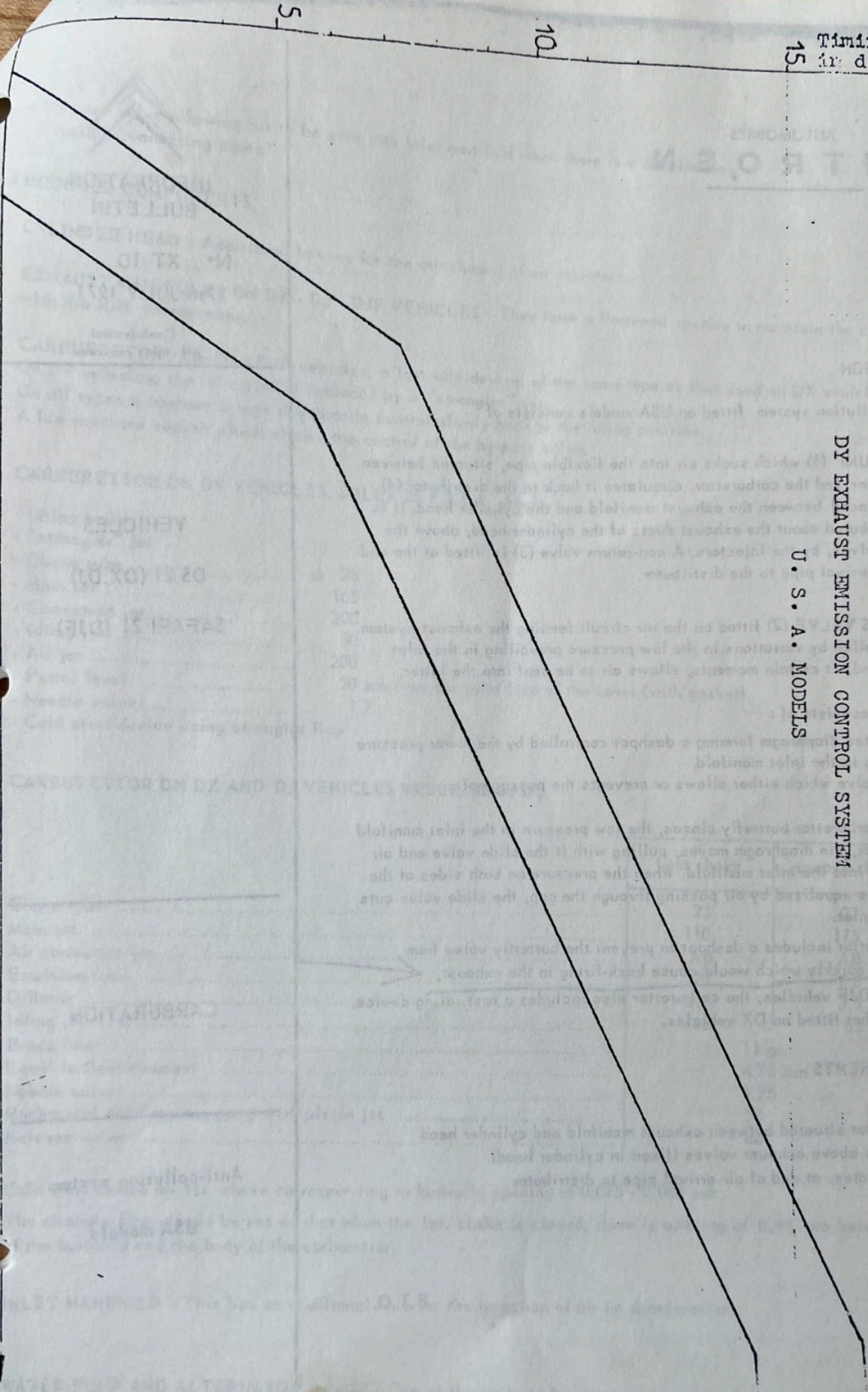
1000

1500

2000

2500

Distrib
R.P.M.
2500



AUTOMOBILES
CITROËN



INFORMATION
BULLETIN

N° XT 1D

27th JULY 1971

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I - DESCRIPTION

The anti-pollution system fitted on USA models consists of :

- AN AIR PUMP (1) which sucks air into the flexible pipe, situated between the air-filter and the carburettor, circulates it back to the distributor (4) which is placed between the exhaust manifold and the cylinder head. It is then distributed about the exhaust ducts of the cylinder head, above the exhaust valves, by the injectors. A non-return valve (3) is fitted at the end of the air arrival pipe to the distributor.
- A BY-PASS VALVE (2) fitted on the air circuit feeding the exhaust system. It is controlled by variations in the low pressure prevailing in the inlet manifold and, at certain moments, allows air to be sent into the latter.

The valve consists of :

- A perforated diaphragm forming a dashpot controlled by the lower pressure prevailing in the inlet manifold.
- A slide valve which either allows or prevents the passage of air.

When the carburettor butterfly closes, the low pressure in the inlet manifold drops further, the diaphragm moves, pulling with it the slide valve and air is admitted into the inlet manifold. When the pressure on both sides of the diaphragm is equalized by air passing through the gap, the slide valve cuts off the air inlet.

The carburettor includes a dashpot to prevent the butterfly valve from closing too quickly which would cause back-firing in the exhaust.

On DJ and DJF vehicles, the carburettor also includes a fast idling device, similar to that fitted on DX vehicles.

II - NEW COMPONENTS

- Air pump
- Air distributor situated between exhaust manifold and cylinder head
- Air injectors above exhaust valves (fixed in cylinder head)
- Non-return valve, at end of air arrival pipe to distributor

VEHICLES

DS 21 (DX,DJ)

SAFARI 21 (DJF)

CARBURATION

Anti-pollution system

USA models

P.T.O.

- By-pass valve allowing air to be sent into inlet manifold when there is a deceleration.
- Flexible connecting pipes.

III - MODIFIED COMPONENTS

CYLINDER HEAD : Additional bosses for the attachment of air injectors.

EXHAUST MANIFOLDS ON DX - DJ - DJF VEHICLES : They have a flattened section to maintain the clearance with the R.H. sidemember.

CARBURETTOR : On DJ - DJF vehicles, a fast idle device, of the same type as that used on DX vehicles, is fitted. On DV vehicles, the idling jet is replaced by a "strangler" jet. On all types a dashpot brings the throttle control slowly back to the idling position. A low pressure socket which allows the control of the by-pass valve.

CARBURETTOR ON DV VEHICLES. SOLEX 35 E.I.S.A. SA.2

- Idling brake
- "strangler" jet
- Choke tube ϕ 28
- Main jet 165
- Correction jet 200
- Idling jet 50
- Air jet 200
- Petrol level 20 mm from the joint face of the cover (with gasket)
- Needle valve 1.7
- Cold start device using strangler flap

CARBURETTOR ON DX AND DJ VEHICLES WEBER 28/36 DL

	first choke	second choke
Choke tube	23	27
Main jet	110	175
Air correction jet	AB	AB
Emulsion tube	20	F6
Diffusor	3.5	3.5
Idling jet	45	65
Brass float	11 gr.	
Level in float chamber	4.75 mm	
Needle valve	1.75	
Mechanical accelerating pump with piston jet	50	
Release valve	40	

Cold start device on 1st. choke corresponding to butterfly opening of 0.075 - 0.085 mm

The strangler flap should be set so that when the 1st. choke is closed, there is opening of 0.85 mm between the edge of the butterfly and the body of the carburettor.

INLET MANIFOLD : This has an additional hole for the injection of air on deceleration.

WATER-PUMP AND ALTERNATOR BELTS : One of the belts is longer. It drives the air pump.

Adjusting the carburettor dashpot : This operation should be carried out after the adjustment of the idling.

- connect a tachometer
- stabilize the engine speed at 3000 R.P.M., then release the accelerator suddenly (on DX - DJ - DJF vehicles, braking at the same time to cancel the fast idle)
- The time required to reduce the engine speed from 2500 R.P.M. to 1000 R.P.M. should be between 3-6 secs, to obtain this, adjust the position of the dashpot and the tension of the accelerator springs as far as necessary. Lessening the tension of the springs lessens the time necessary to return to idling.

- Distributor :

- Advance curve of distributor DX-DJ N° DX 211235 A see figure below
- Advance curve of distributor DV N° DV 211017 A see figure below

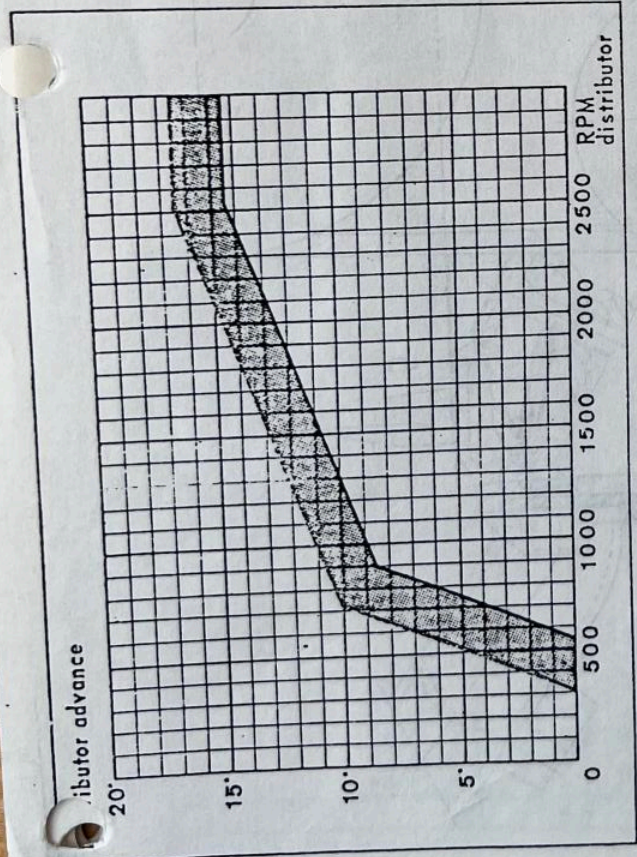
Preset the distributor to 0° (timing pin hole)
 Set the timing using a strobe lamp
 DX - DJ.TT = 20° crankshaft at 2000 RPM of engine
 DV = 24° crankshaft at 2000 RPM of engine

- Sparking plugs :

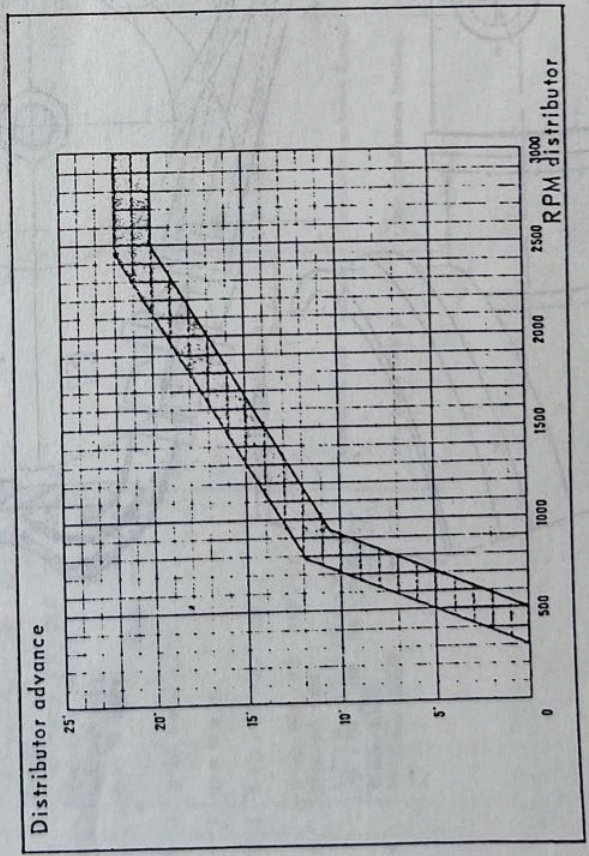
Vehicles for export to USA are equipped with CHAMPION LY 92 plugs
 Export vehicles not going to USA are equipped with MARCHAL 35 B plugs.

D.21-71

D.21-70



Advance curve DX-DJ



Advance curve DV

D.13-1

