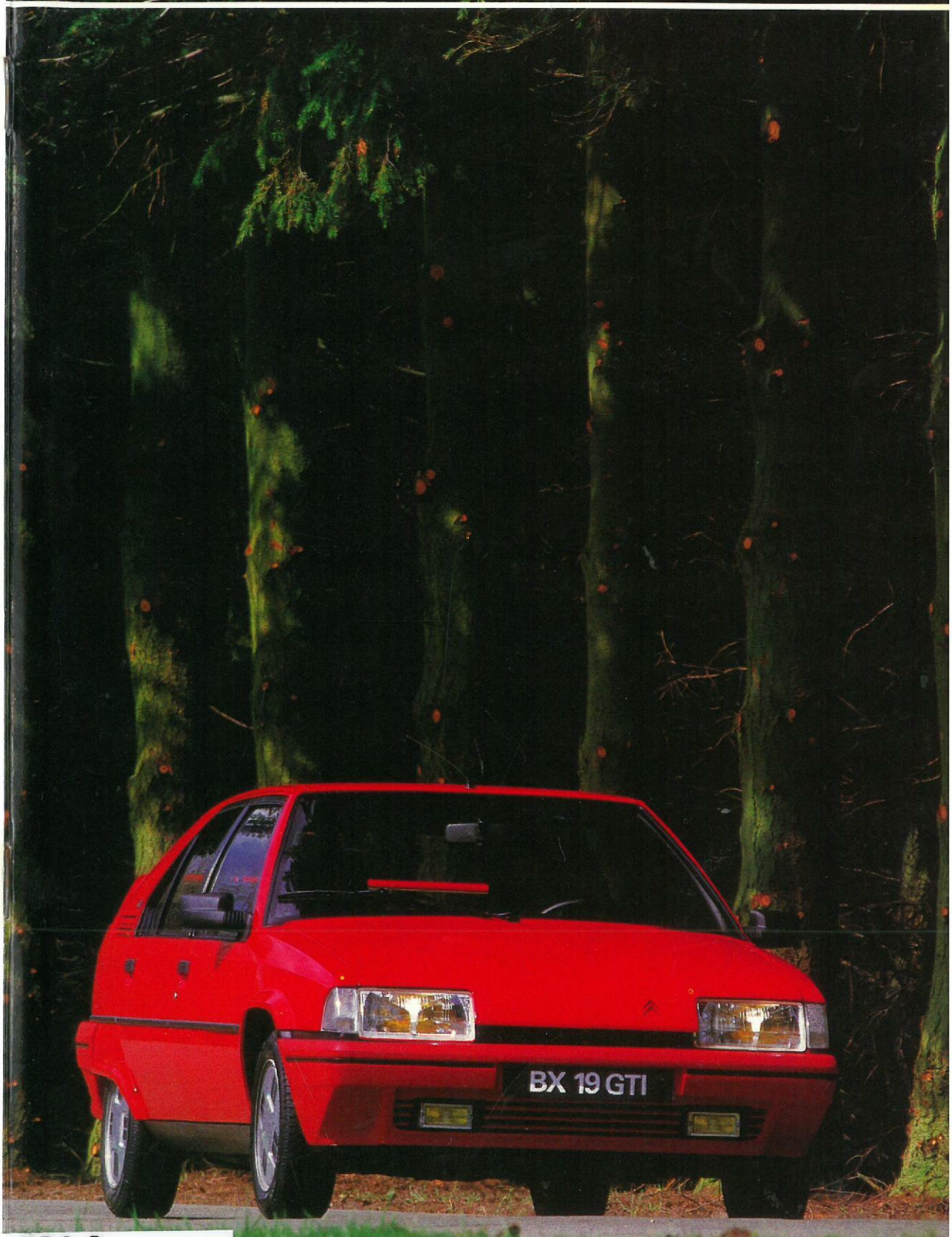
THE

BX



DANSK VETERANBIL KLUB

CONTENTS

Of all the Citroën models, the BX is without doubt the one which was most carefully designed according to seemingly contradictory requirements: a continuation of Citroën's spectacularly avant-garde tradition, yet at the same time a marketing exercise aimed at appealing to a new and very large audience. The new Citroën model had to be placed in perfect balance at the point where these two outlooks converged into a reconcilable point of view: to express the personality and originality of the marque yet to prove attractive to the world at large. It called for precise judgement to avoid going too far, to keep faith with the Citroën traditionalists while appealing to those who were not. There was a second requirement: a need to maintain a balance between the use of PSA group resources (including the use of common components) while retaining the Citroën identity. The creative innovation with which these objectives were pursued extended not only to those traditional areas of endeavour, such as research into external and internal design, but also into the use of new plastic materials and the adoption of new methods of design and construction (robots). These efforts were made against the background of a master plan for total production quality, and of completely new attitudes, training and organisation. It quickly became clear that the result was a success, that the shot had been accurate and the target struck. It became necessary to build on that success by further declining the range: *rosa, rosam, rosae...* Before long there was a BX for every need and every taste, or at least, almost every one. Nor is the story finished for the BX is even now changing its style. It is evolving, both inside and out. That is one of the secrets of its youthfulness and its dynamic equilibrium: to follow—or perhaps to anticipate—but to remain close to the customer.

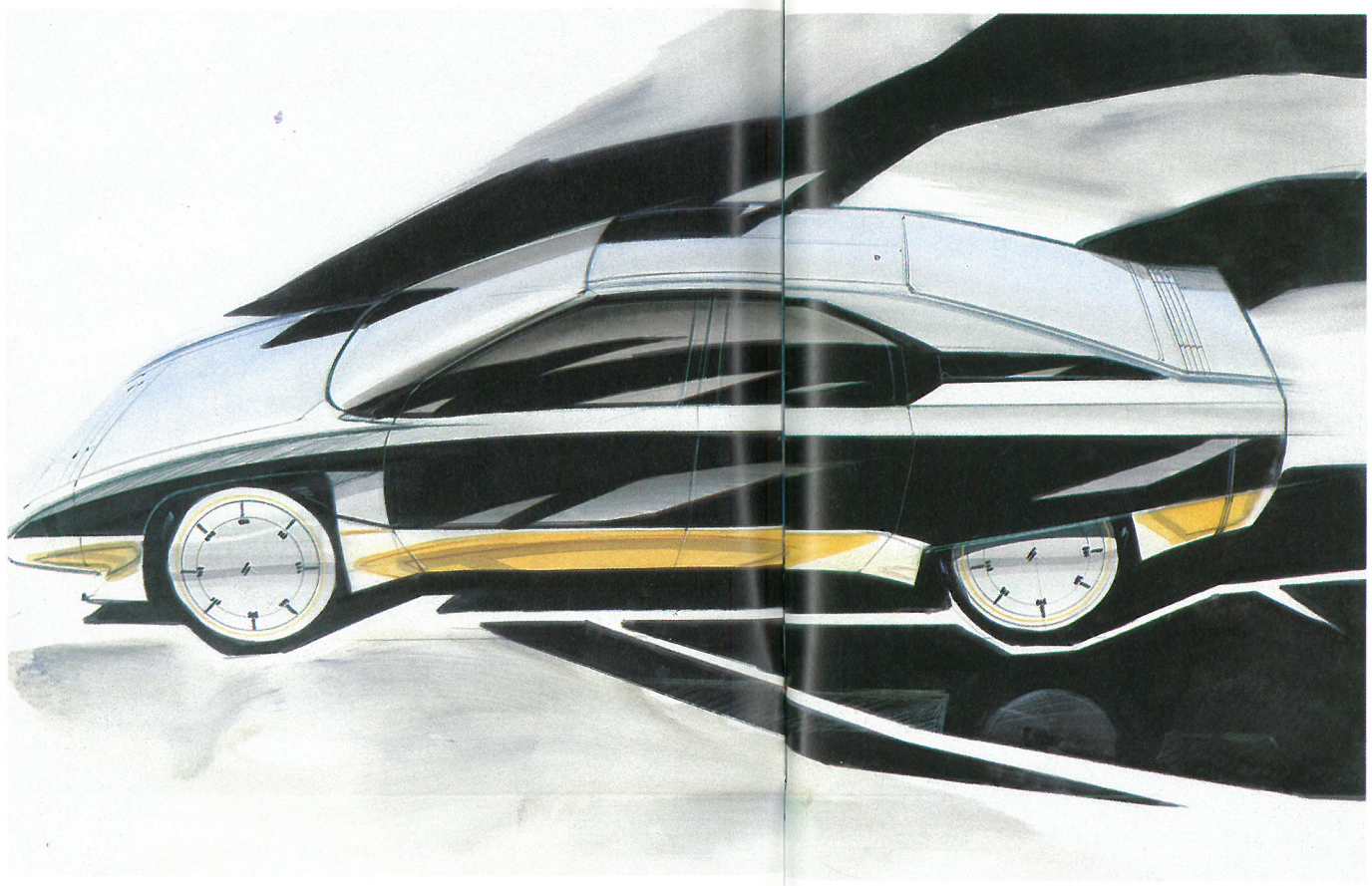
PRODUCT

The BX was originally designed—following intensive market research—with an eye to steady and continuous development. By 1986 the range comprised twenty-two versions without taking account the limited-production sporting BX4TC, or the various "special editions". It included two types of body, seven engine variants from 60 to 125bhp, and five levels of trim and equipment. All the 1987 models have been fitted with a completely redesigned exterior. The interior styling is also new.

MARKETING

In 1978, Citroën decided to attack a market which had previously been little concerned with its model range: the "upper medium" sector which comprised 24.5% of the European passenger car market and which had steadily grown.

In support of this objective the Citroën marketing department carried out detailed studies, both quantitative and qualitative, from the outset of the project and throughout its development. The first studies had to bear in mind the need to create not just one car but a whole new range, a family whose several and varied characters would between them satisfy the many different needs of mid-



range buyers. It was far from easy to draw up a specification which took account of every customer requirement, of the constraints of modern car production methods in a major industrial group, of the need to retain a special Citroën character while achieving a measure of commonality with other group products. The first recommendations could be summed up in one word: *balance*. Balance in styling, where the BX must find a middle way between "art for art's sake" and the boringly conventional, but also a balance between the use of PSA Group techniques and components (engines, gearboxes, floorpans) and Citroën's desire to retain a specific identity and an image of radical improvement.

The marketing management team thus guided the design department towards a BX family which must have a positive personality but not too much of it, and originality but not eccentricity. There were some design aspects essential to the character of any Citroën: a certain type of "two-box" shape, aerodynamics, front-wheel drive, hydropneumatic suspension: all fundamental to the roadholding, active safety and comfort for which the marque was renowned. Yet while the BX had to be seen as a genuine Citroën, it could not be excessively so. If it was to become a "conquest seller" it must also adapt itself to the outlook of today's customers. It must rejuvenate the Citroën image through its shape, its rational character and its dynamic qualities: modern engines combining high performance with good economy, strength, ease of servicing, spacious interior, to convince and win over new kinds of customer.

To achieve the targets defined by marketing, Citroën mobilised all the talents of its design department but also asked several independent designers to submit ideas for the body styling. These were shown in consumer- clinic trials which resulted in Bertone's design being adopted as the one best reflecting the marketing specification for the car.

If the work of the stylist is to bear fruit, it must be based on definite starting points: technical, dimensional and spatial constraints imposed by marketing studies, national and international regulations and technical considerations.

The style proposed by Bertone and accepted by the styling department was therefore reworked to emphasise its special Citroën character as well as to satisfy the requirements of large-scale production.

In December 1981 the Citroën marketing department undertook a final study before the car's commercial launch. Its results showed that the BX met their highest hopes: a new generation for Citroën, a car able to revitalise its marque image, modern, dynamic, attractive both to existing Citroën owners and to other potential customers, a genuine conquest-seller.

Once the car had received its very favourable initial public reception, it was necessary to develop it to suit various aspects of its market.

The BX family quickly became larger. Even at the time of its announcement it offered a range of engines but these were soon followed by two diesel versions and estate versions. The petrol-engined versions, and later the diesels, also received the option of automatic transmissions.

In July 1986 the BX exterior style was modified and an anti-lock braking system proposed as an option.

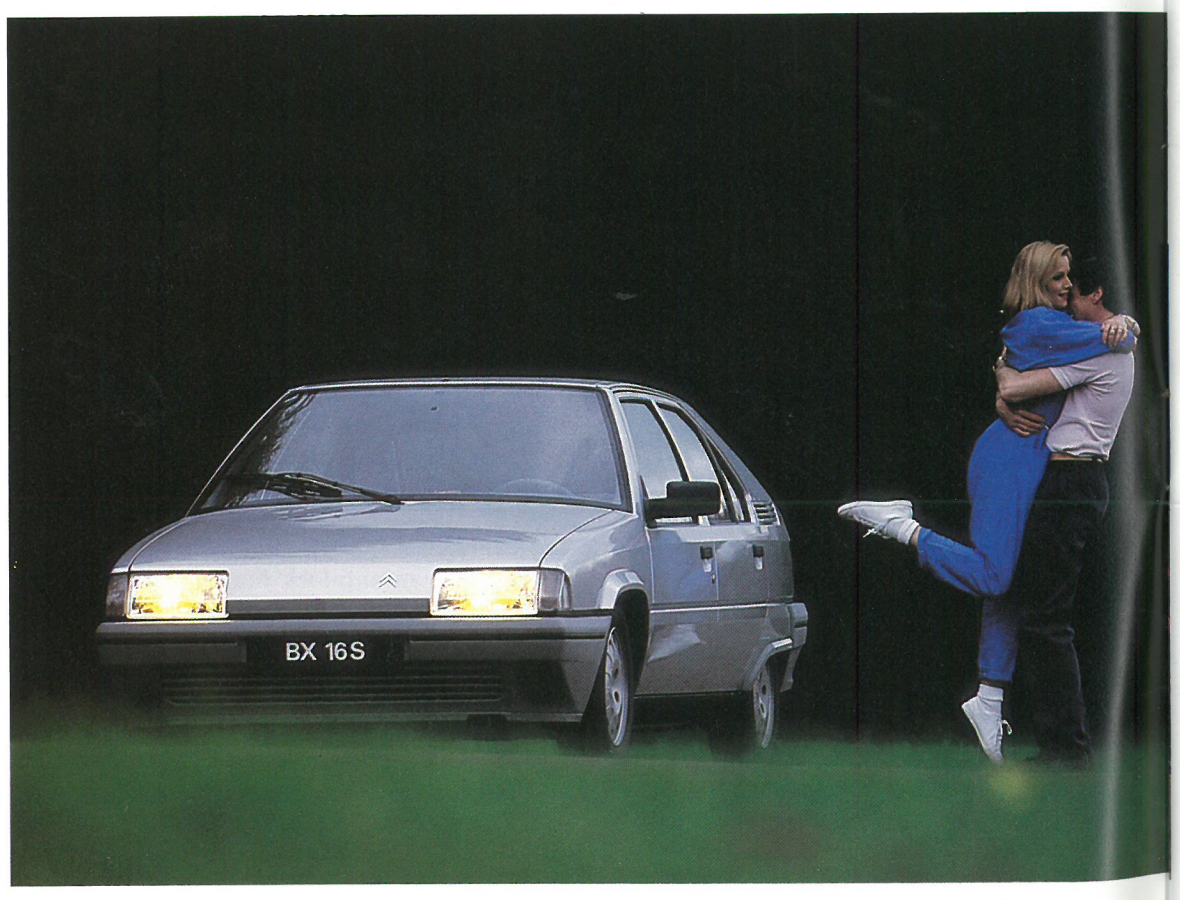
There also appeared several "special editions": the BX Leader, Sport and Digit, versions whose aim was to attract attention to the range and to satisfy as completely as possible a particular kind of customer.

Thanks to this bold marketing strategy, the BX has more than held its own. In 1985 it achieved 53% conquest rate and retained 69% of its existing owners.

PRODUCT

DEVELOPMENT

October 1982: The BX is launched in five versions. BX: 6CV, 1,360cc capacity, 62bhp at 5,500rpm, 80 lb-ft of torque at 2,500rpm, four-speed gearbox.
BX 14 E, BX 14 RE: 7CV, 1,360cc capacity, 72bhp at 5,750rpm, 80lb-ft of torque at 3,000rpm, five-speed gearbox.
BX 16 RS, BX 16 TRS: 7CV, 1,580cc capacity, 90bhp at 6,000rpm, 94lb-ft of torque at 3,000rpm, five-speed gearbox.
All were made at Rennes-la Janais.
April 1983: BX production for the Spanish market begins at Vigo (Spain).
July 1983: Power and torque output of the BX16 is improved: 92.5bhp at 6,000rpm, 97 lb-ft at 3,500rpm.
An electric sunroof is offered as an option on the BX14RE, BX16RS, and BX16TRS.
September 1983: The BX 19 diesel is announced in two versions, the BX19RD and BX19TRD: 6CV, 1,905cc capacity, 65bhp at 4,600rpm, 88 lb-ft of torque at 2,070rpm, five-speed gearbox.
March 1984: Three BX entreprise light commercial versions are announced: BX14E entreprise, BX16RS entreprise, BX19D entreprise.
July 1984: The BX 19 GT is launched: 9CV, 1,905cc capacity, 105bhp at 5,600rpm, 119 lb-ft of torque at 3,000rpm, five-speed gearbox.
ZF four-speed automatic transmission optionally available on BX16 models.
Power and torque output of the BX16 is improved: 94bhp at 6,000rpm, 101 lb-ft at 3,250rpm.
New dashboard with two-tone finish.
July 1985: The BX sport, introduced as a special edition, is added to the permanent range.
The BX estate appears, in three versions. BX16RS estate: 7CV, 1,580cc petrol engine, 94bhp. BX19TRS estate: 9cv, 1,905cc petrol engine, 105bhp. BX19RD estate: 7CV, 1,905cc diesel engine, 65bhp.
December 1985: The ZF four-speed automatic transmission becomes optional on the BX19TRD.



February 1986: Five new versions are announced, two estate cars, three entreprise light commercial estates. The BX14E estate: 7CV, 1,360cc petrol engine, 72bhp. BX19D estate: 7CV, 1,905cc diesel engine, 65bhp. BX14E entreprise estate: 8CV, 1,360cc petrol engine, 72bhp. BX16S entreprise estate: 9CV, 1,580cc petrol engine, 94bhp. BX19D entreprise estate: 8CV, 1,905cc diesel engine, 65bhp.
July 1986: The BX range is subject to modifications, the exterior look and the interior style are modified.
Creation of two new versions:
The BX 19 GTI: 10CV, 1,905cc capacity, petrol engine, 125bhp at 5,500rpm, 129lb-ft of torque at 4,800rpm. The BXD: 6CV, 1,769cc capacity, diesel engine, 60bhp at 4,600tr/m, 82lb-ft of torque at 2,000rpm.

THE SPECIAL EDITIONS

January 1985: Announcement of a special edition of 2,500 examples, the *BX Leader.*
March 1985: Announcement of a special limited-series version, the *BX Sport:* 9CV, 1,905cc capacity, 126bhp at 5,800rpm, 124 lb-ft of torque at 4,200rpm.
September 1985: A special edition of 4,000 examples, the *BX Digit.*
A second series of the *BX Leader,* of 5,000 examples.
April 1986: Four new special editions: the *BX Leader* (1,360cc engine, 62bhp) with 2,300 examples: the *BX Leader S* (1,580cc engine, 94bhp) with 1,400 examples, the *BX Leader D* (1,905cc engine, 65bhp) with 1,400 examples and the *BX Leader S estate* (1,580cc engine, 94bhp) with 500 examples.

THE BX AND ITS PRIZES

September 1983: The BX 16 TRS is awarded the Gold Medal of the Leipzig Fair for its technical quality.
December 1983: The BX 16 TRS is named Towcar of 1983 by the Caravan Club of Great Britain.
January 1984: The British Guild of Motoring Writers names the BX "Top Car" 1984.
The Spanish motoring press elects the BX19 diesel its "1984 Car of the Year" with the BX16 placed second.
June 1984: The Guild of Danish Motoring Writers awards the BX16TRS its prix d'honneur for "the originality of its styling and the quality of its technical innovation".
November 1984: JIDPO, the Japan Industrial Design Promotion Organisation, an associate body of the Japanese Ministry of International Trade and Industry, awards the BX16TRS its quality label, the "G Mark". The BX16TRS gains its award under the heading "transport equipment" and is the first passenger car to achieve this distinction.
The Caravan Club of Great Britain awards the BX19RD its prize as the best diesel towcar.
October 1985: The Italian magazine "Caravaning" awards the BX14RE its 1985 prize as the best towcar in the 1,300cc class.
May 1986: The magazine "Le Cavaranier" awards the BX19GT its prize as the best towcar.

PRODUCT

1987 MODEL RANGE

All the 1987 model year BXs have a more modern external appearance with wider front and rear wings, new front indicator lamps, and larger bulk-coloured front and rear bumpers with increased wrap-around.
The interior styling is also new and includes more stowage spaces and a new dashboard with the main controls immediately forward of the steering wheel (replacing the satellites).

The BX 19 GTI is equipped with a 1,905 cc engine with electronic fuel injection, developing 125 bhp at 5,500 rpm and 129 lb-ft of torque at 4,800 rpm.

The creation of this new high-performance model, with the option of anti-lock brakes, represents a further upward extension of the BX range and a major step forward compared with the BX 19 GT.

At the other end of the range there is a new diesel version, the BX D powered by the XUD 7 engine of 1,769 cc and 60 bhp.

This revitalisation of the BX range with its aesthetic improvements, new interior and new versions for the top of the petrol-engined and the bottom of the diesel engined lines, together with the familiar advantages of all the models (reliability, comfort, spaciousness, ease of driving, economy, road-holding) and the pleasure which they offer their owners, must result in the BX taking an even larger share of its market sector: one well merited by its undoubted qualities.

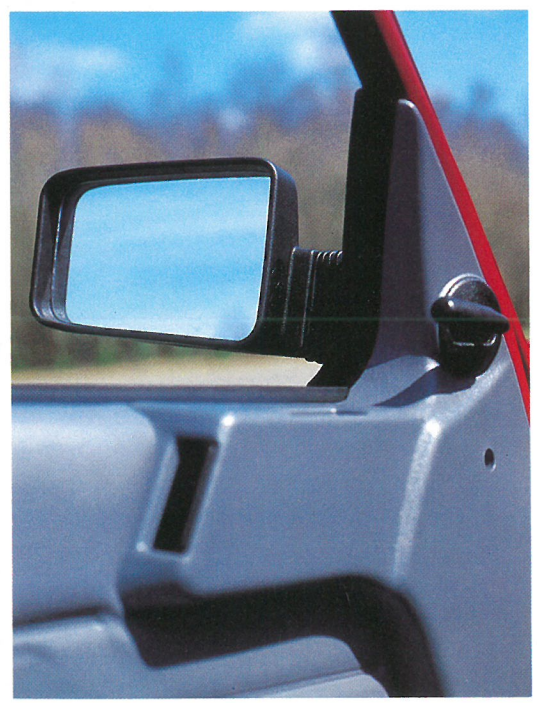
SALOONS

Fuel		Petrol					Diesel	
French fiscal rating CV		6	7	7	9	9	6	6
Capacity cc		1360	1360	1580	1905	1905	1769	1905
Performance hp		62	72	94	105	125	60	65
Five equipment and finish levels	I	BX						
	II		BX 14 E BX 14 E ①	BX 16 S			BX D	BX 19 D ①
	III		BX 14 RE	BX 16 RS ② BX 16 RS ①				BX 19 RD
	IV			BX 16 TRS ②	BX 19 TRS ②			BX 19 TRD ②
	V					BX 19 GTI		

ESTATES

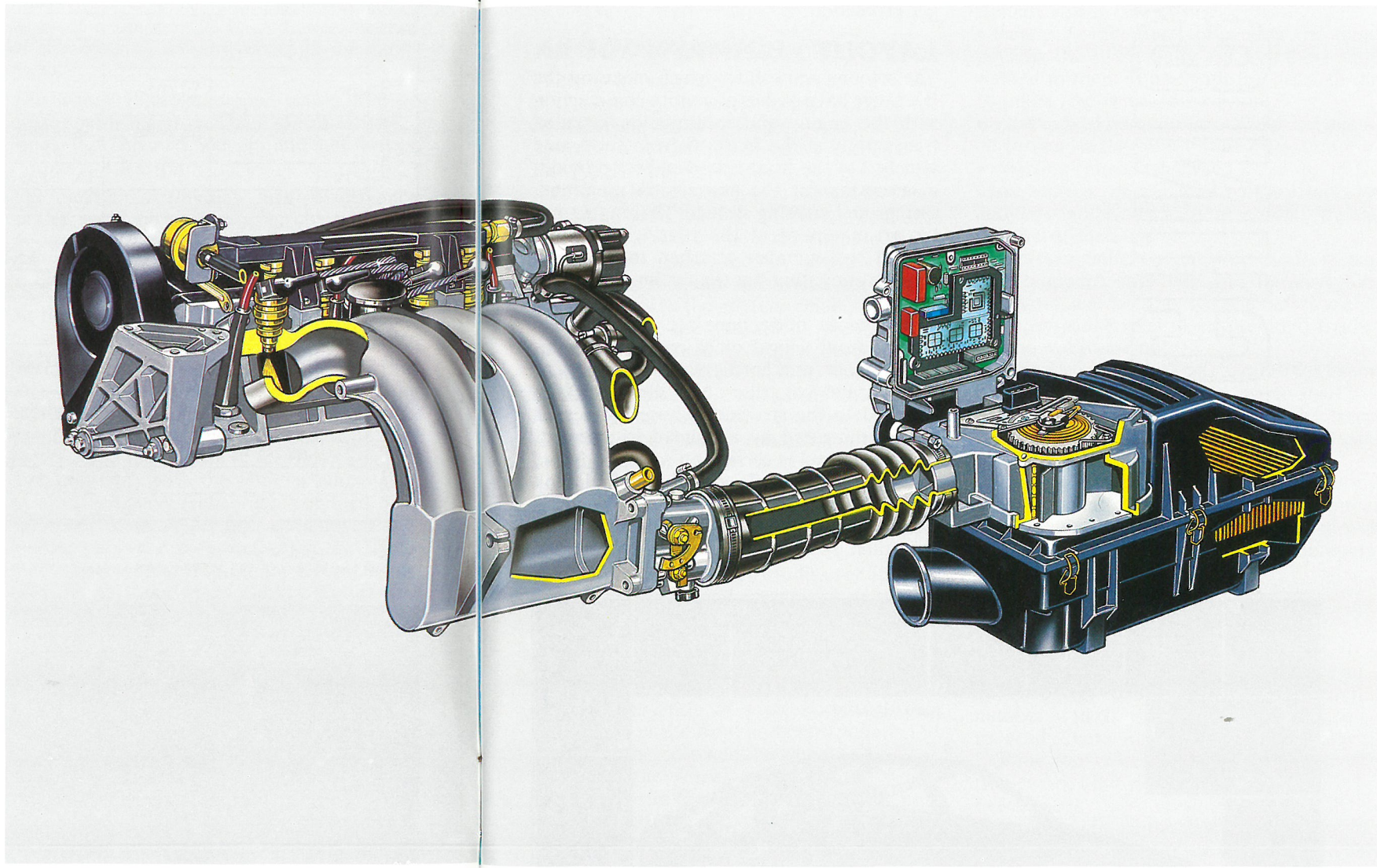
Fuel		Petrol			Diesel
French fiscal rating CV		7	7	9	6
Capacity cc		1360	1580	1905	1905
Performance hp		72	94	105	65
Three equipment and finish levels	II	BX 14 E BX 14 E ①	BX 16 S ①		BX 19 D BX 19 D ①
	III		BX 16 RS		BX 19 RD
	IV			BX 19 TRS ②	

① Entreprise.
② 4-speed automatic gearbox optional.
French fiscal rating: 7 CV (BX 16 TRS and BX diesel), 8 CV (BX 19 TRS)



TECHNICAL

The technical concept behind the BX grew out of the double constraint within which the modern Citroën must work: to take advantage of the



synergy of the motor group of which the company is part (through the use of common engines, gearboxes and floorpans in several models) but still to preserve the personality of the marque and affirm its individuality, notably by retaining those technical features such as the hydropneumatic suspension which have become Citroën hallmarks.

TECHNICAL

BODYWORK

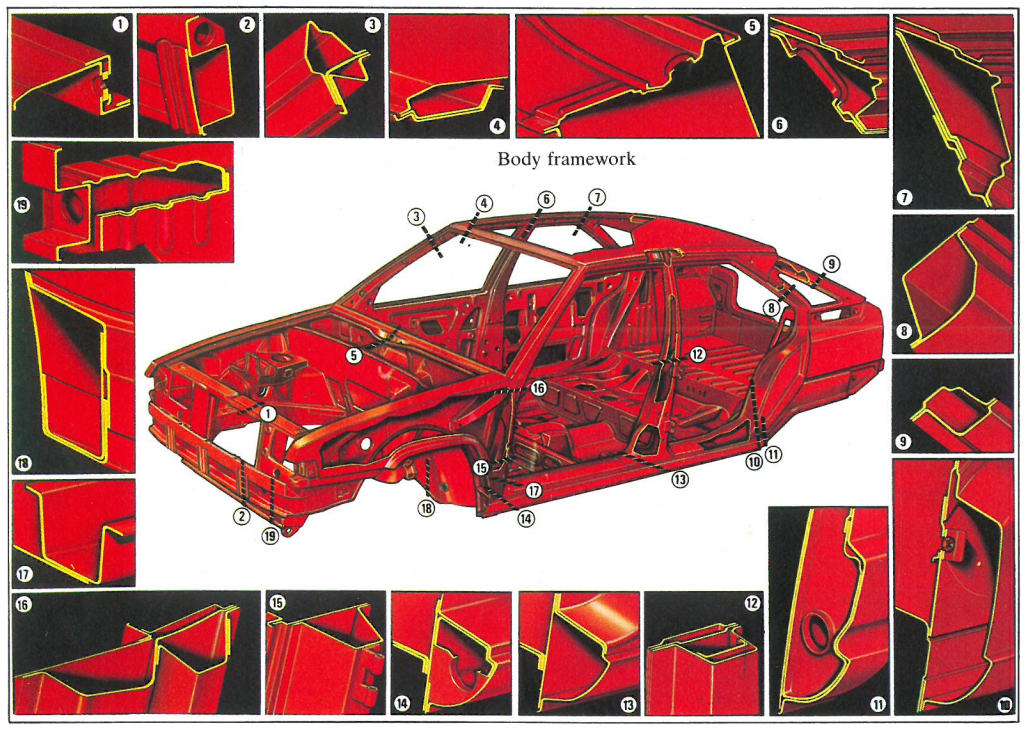
The BX is a modern car designed with the help of scientific techniques and embodying several innovations. Its structure and its assembled bodywork is strong and yet light, helping to improve its performance as well as its economy, while ensuring efficient passenger protection.

LAYOUT

The saloons and estates which make up the BX range have bodies of unitary construction with the engine and transmission installed transversely at the front. A front sub-frame attached to the front side-members provides a mounting for the suspension members, springs and steering system. There is a similar arrangement at the rear where a U-shaped crossmember attached to the body forms a mounting for the trailing arms and springs.

Removeable body panels either of steel (doors, front wings) or of composite materials (bonnet, rear hatch, rear quarter panels, air entry and exit grilles, fuel filler cover) are attached to the structure whose stiffness is further increased by a bonded windscreen. The rear wheel is carried on a hinged frame beneath the boot floor and the fuel tank under the back seat.

The saloon body, compact yet aerodynamic (less than 14 feet long overall) is equipped with a fifth door to give extra useful space and a load volume which can be increased to 51.4 cubic feet. This capacity goes up to 63.7 cubic feet in the estate car which is also a remarkable compromise between aerodynamic efficiency and interior space.



Body framework

AERODYNAMICS

Faithful to its traditions, Citroën gave the BX range superb aerodynamic qualities for all circumstances.

Thanks to its hydropneumatic suspension, the BX is one of the few mass-production cars not to suffer any change in its CdA value according to its loading. In CdA, whose size affects the economy of a car running at relatively high speed, the "A" represents the frontal area is square feet which opposes its passage through the air. The smaller the product Cd × A, the less will be the fuel consumption. The loading of a car, especially a comfortable one with soft suspension, can increase the value of A as the car sinks at the back, thus increasing fuel consumption.

The BX is certainly a comfortable car with soft suspension, but its hydropneumatic suspension system causes it to return automatically to the correct height and a level attitude whatever the load, so that its "A" value remains virtually unchanged.

The aerodynamic design studies for the BX concentrated especially on:

- the overall shape, the choice of a two-box layout, the front and rear bumpers, the rake of the windscreen and rear window and the slope of the roof;
- the optimisation of some bodywork elements such as the front and rear spoilers, the sealing of the nose and the wheel arches, the design of the wheel trims and the wheel arches, of trim elements and rear-view mirrors, the windscreen attachment (with adhesive) and the elimination of bonnet-bounted screenwash jets.

BODY FRAME

The BX has a frame which is both strong and light, an advantage where performance as well as economy is concerned. It was drawn up with the help of computer-aided design (CAD) techniques and stressed by finite element analysis. The combination of these techniques with advanced materials (special high-tensile steels and reinforced synthetics), good weight distribution and construction methods tending towards larger but fewer components has resulted in a specific weight of 6.6 lbs/sq ft of projected ground area, compared with an average industry value of around 8.2 lbs/sq ft.

The completed bodywork is built on an extremely strong framework consisting of:

- front side-members connecting the bumpers to the main body sill members, and welded to them in line with the bases of the B-pillars (the centre door posts);
- extremely rigid body sides which are pressed from a single sheet in one operation;
- two ring-frames which maintain the transverse section, one formed by the dash area and bonded windscreen, the other by the rear hatch surround.

The crossmembers supporting the front and rear bumpers, together with the rear roof and front seat support crossmembers are all of heavy-gauge steel to ensure good rigidity for the body assembly.

The choice of material was careful: for example, the B-pillars use heavy gauge steel low down on the outside to support the hinge loads, and high up on the inside to take safety belt loads.

High-tensile steels are used where loads are very high: at the suspension attachment points and in structures intended to absorb impact energy or supporting the bumpers, for instance.

BODY DESIGN

As with the body framework, the use of advanced design techniques has enabled the number of parts used to make the body to be reduced. There are 334 in all (compared with 532 for the GSA) of which 210 form the framework (288 in the GSA).

Fewer parts

This reduction in the number of parts has been achieved by making them larger. This reduces the number of overlaps involved in assembly, which results in a weight saving and a reduction in the number of spot-welds needed (2,676 in the BX compared with 5,024 for the GSA and 4,520 for the CX). Assembly is therefore much easier and the opportunity to use robots is also increased.

Thus each door consists of just two main parts, an exterior panel and an interior panel which carries the window frame. This method gives far superior corrosion resistance through the reduction in the number of joints which can be badly affected by ageing.

TECHNICAL

Research methods

Highly sophisticated research methods were used to support the calculation, design, testing and choice of the best solution for each bodywork problem. These included computer-aided design, photoelastimetry (in which the steel is painted with a special coating and examined under polarised light), vibration analysis on a sound simulation test bed (each zone is driven at critical frequencies and weaknesses in the framework are visualised on a cathode-ray display). Again there is the finite-element technique for the detailed analysis of a structural network even before any prototype has been built, to evaluate stiffness and to correct any wekness thus discovered. Four thousand points were taken from the bodywork plan of half a BX body framework, together with the steel sheet thickness of the elements being studied, and fed into the computer. Starting with this information the computer generates the surfaces that they form, and shows the body framework on a screen as a network composed of 8,000 points or intersections, a graphical representation of what it must calculate. Loads are then fed into this structure at the suspension attachments, the cross-members under the seats and so on. These are translated into point displacements and thus into deformations shown on the screen in enlarged sections. The calculations take less than an hour and involve the solution of 20,000 equations since the process takes place at the level of each small surface or element.

The windscreen of laminated glass is stuck into place and contributes to the body rigidity, and thus to passenger safety in a collision: it adds 25% to the torsional stiffness and 12% to beam-stiffness, by comparison with a screen slotted into a rubber surround, itself slotted into the windscreen arch. Its design was the subject of a joint study between the development and service departments to ensure that repairs would be easy.

SYNTHETIC MATERIALS

The BX uses high-performance synthetic materials which are lighter than sheet metal when used for the quarter-panels, roof trims, the front grille, and multi-function components like the bonnet and rear hatch.

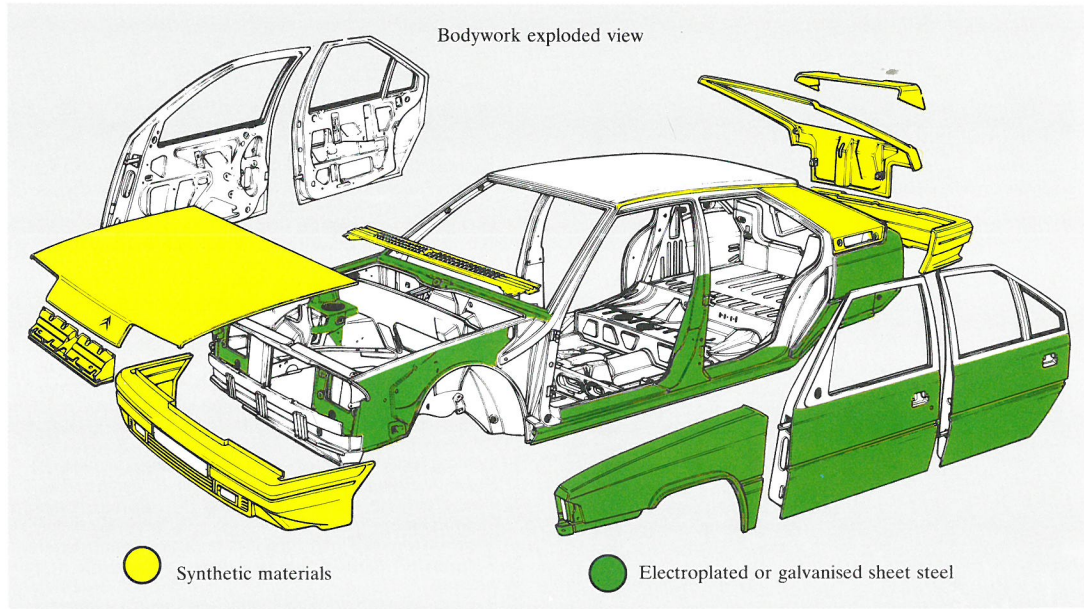
These materials consist of polyester resin and long glass fibres and are formed either by compression (for the bonnet) or injection (for the rear hatch). They have the advantage of low weight, good mechanical strength, freedom from ageing and corrosion, good resistance to minor impact and ease of service and repair. The bare body weight of the BX is 531lbs compared with 608lbs for the GSA and 721lbs for the CX. The effect of this saving on the weight of the complete vehicle is significant: a BX weighs 1,951lbs in running order compared with 2,028lbs for a GSA and 2,722lbs for a CX20RE.

CORROSION PROTECTION

The latest techniques adopted early in 1986 for the protection of the BX body shell have made it one of the best-protected vehicles against corrosion in its market.

The battle against corrosion was joined from the moment the original BX specificication was drawn up. The need was taken into account at each stage in the design: through the choice of materials, the design of body panels and their attachments, the choice of assembly methods and the choice of corrosion protection. Thus the use of large amounts of synthetic material, of galvanised steel sheet in areas of the structure and body subject to gravel bombardment from the wheels, the fitting of prolypropylene inner wheel arch shields, the smaller number of larger parts in the body and the assembly of components by combined welding and adhesive all added to the scale of protection.

Where the protection of steel is concerned the BX has benefited from sophisticated techniques ever since it was launched. They include most notably the application of the first primer coat by the cataphoretic process, and the injection of wax-oil mixture into box-sections. Since the beginning of 1986 the entire body shell of the BX, except for the less vulnerable roof, has been made of "Monogal" steel sheet, hot-galvanised on both faces, the outer face then being scrubbed to remove the zinc layer which could affect the appearance after painting.



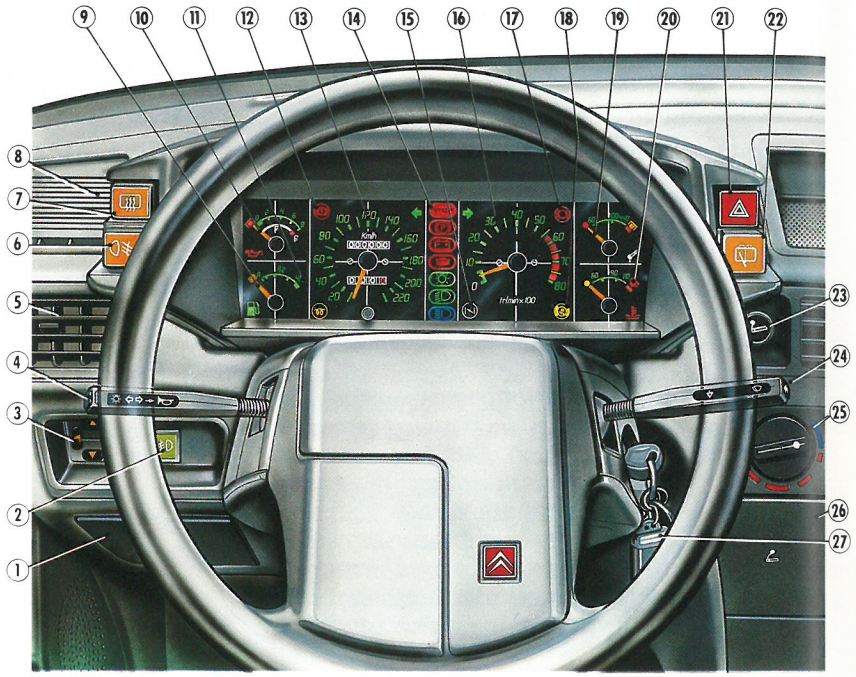
FINISH

EXTERIOR

The changes made to the BX range for the 1987 model year include changes in its exterior style to make it look larger and more powerful. The front and rear spoilers are of new design, the front edges of the front wings are re-angled to give a continuous line with the angle of the bonnet which incorporates the headlamps, the front wheel arch flares are widened, the indicator lamps are restyled and there are new rear-view mirrors.

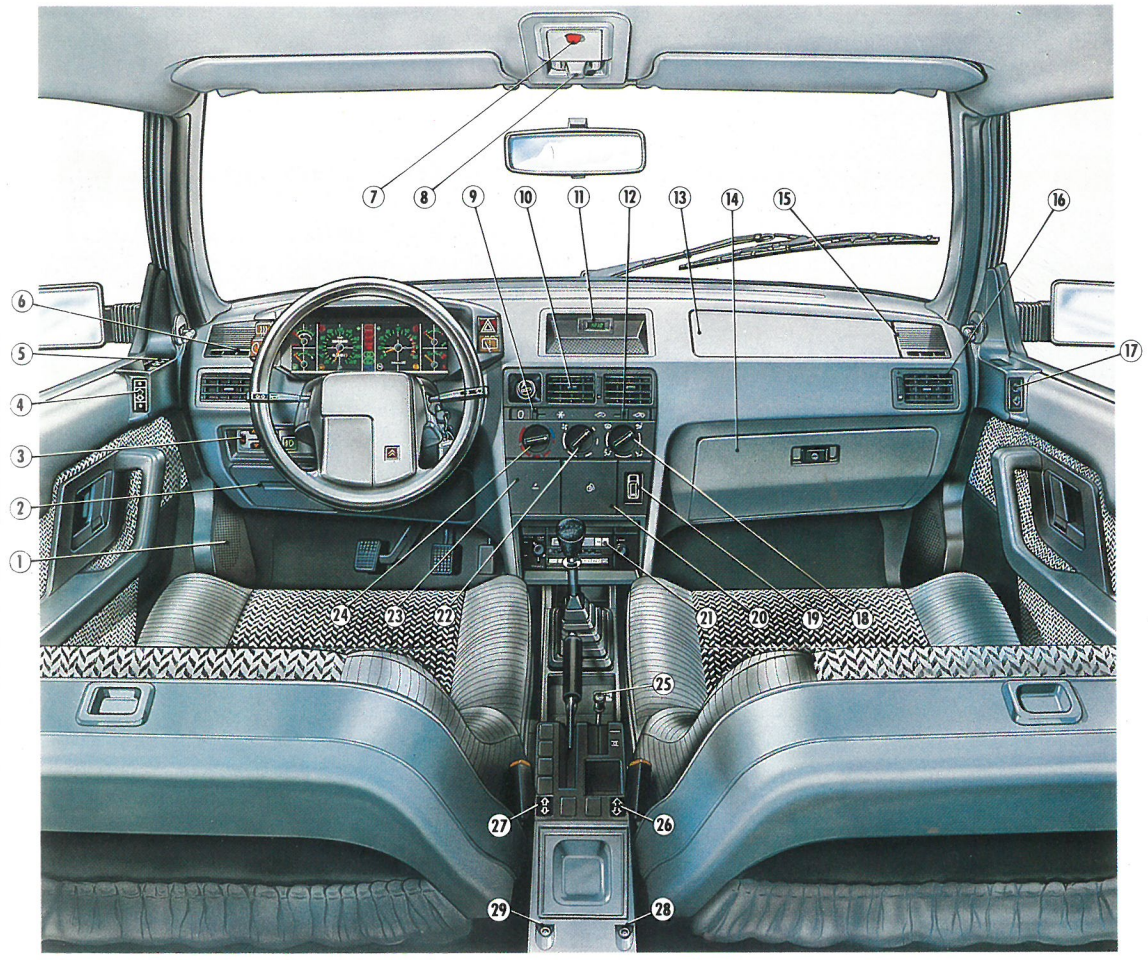
INTERIOR

There is a restyled and highly functional instrument panel whose notable features include round instrument dials, a radio housing hidden by a folding flap in its centre, and two large stowage pockets for the passenger.



Instrument Panel (differs according to version)

1 Cassette stowage
2 Front foglamps
3 Passenger door mirror adjustment switch
4 Indicator switch, headlamp flash and horn control
5 Fresh air inlet
6 Rearguard foglamp switch and warning light
7 Heated rear window switch and warning light
8 Air inlet (side window demisting)
9 Fuel gauge with warning light (5 litres approx)
10 Oil contents and pressure indicators with warning light
11 Glowplug indicator light (diesel)
12 Hydraulic pressure warning light
13 Speedometer and distance recorders
14 Warning lights for: stop: - handbrake on - battery charging - coolant level - parking lights - dipped headlights
15 Choke warning light
16 Electronic rev counter
17 Front brake pad wear warning light
18 ABS system fault warning light
19 Oil temperature indicator and warning
20 Coolant temperature indicator and warning
21 Hazard warning switch
22 Rear wipe/wash switch and warning
23 Cigar lighter
24 Wipe/wash control and computer sequence switch
25 Temperature control
26 Ashtray
27 Remote-control receiver for centralised door locking



Dashboard (differs according to version)

1 Radio equipment: left loudspeaker
2 Cassette stowage
3 Passenger door mirror adjustment switch
4 Driver's window switch, auto or progressive
5 Passenger window switch
6 Left side window demist/defrost
7 Remote-control receiver for centralised door locking
8 Reading lamp
9 Heater controls
10 Central air inlets
11 Digital clock
12 Fresh air/recycling changeover switch
13 Glovebox
14 Glovebox
15 Right side window demist/defrost
16 Right air inlet
17 Passenger window switch
18 Air distribution selector: upper, lower, mixed, defrost
19 Warning lights for doors, bonnet, rear hatch not secure
20 Coin tray or trip computer housing (according to version)
21 Radio installation slot, hidden by flap
22 Airflow volume control
23 Ashtray
24 Temperature control
25 Manual vehicle height selector
26 Right rear window switch
27 Left rear window switch
28
29 Earphone jack-plugs

TECHNICAL □

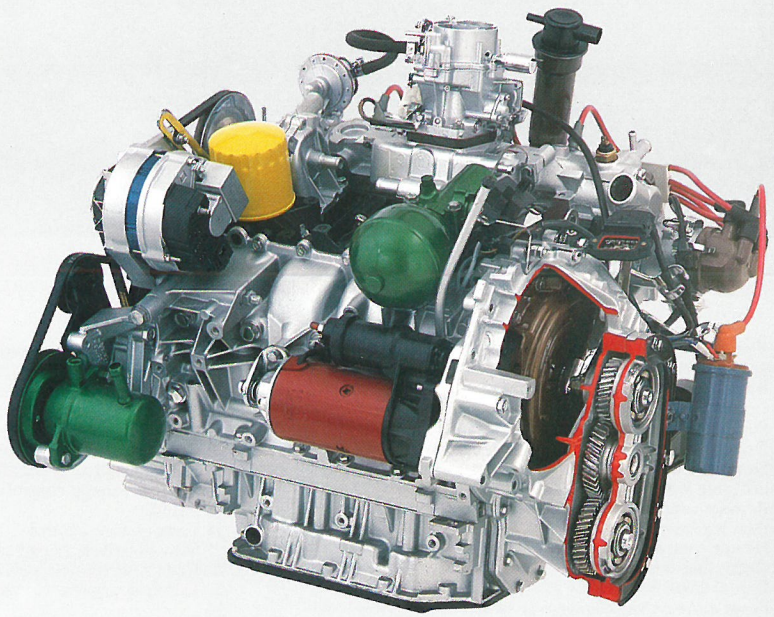
ENGINES

The BX range uses four engine sizes (1,360, 1,580, 1,769 and 1,905cc) and offers seven different power outputs. If one excepts the difference between petrol and diesel, there are two families of BX engine which differ in their layout: the XY family of petrol engines (62 and 72bhp DIN) and the XU family of petrol and diesel engines (60, 65, 94, 105 and 125bhp DIN). All are installed transversely, are liquid-cooled and use a single overhead camshaft.

1,360cc TYPE XY PETROL ENGINES

These engines, made at Douvrin by the Société Française de Mécanique, are unusual in having the gearbox housed in their lower part. The lubricating oil is thus shared by engine and gearbox.
The different power outputs are obtained though differences in the air inlet and fuel feed systems. The 62bhp engine was tuned mainly for flexibility and economy while the more highly-tuned 72bhp unit gives better performance while retaining good fuel consumption.
Layout: Transversely installed, inclined 72deg rearwards, light alloy cylinder head with single chain-driven overhead camshaft operating the valves via rockers, light alloy cylinder block with removeable wet cylinder liners. Cast iron crankshaft with five main bearings.
Fuel supply by twin-choke carburettor, manual choke.
Gear-type oil pump driven by crankshaft.
Liquid-cooled, six-bladed electric fan.
Transistorised ignition with magnetic triggering, distributor mounted horizontally at end of camshaft.
Weight 159lbs (without gearbox, clutch, sump, oil or coolant).

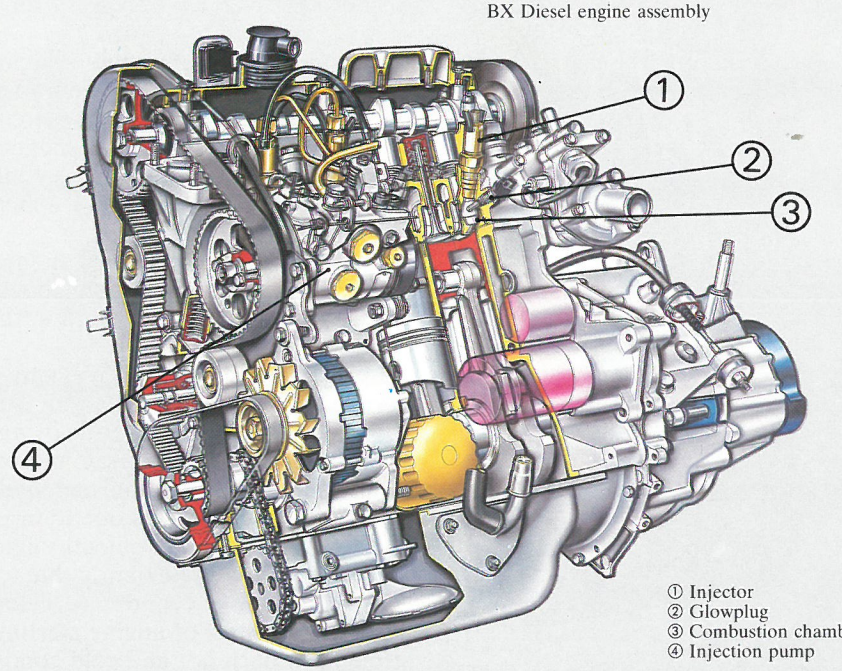
Type XY petrol engine



TYPE XU PETROL AND DIESEL ENGINES: 1,580, 1,769 AND 1,905cc

These are made in the Tremery factory using the best and latest technical methods: robots and automated equipment are used on a large scale for manufacture and component handling, and diesel assembly is entirely computer-controlled. These methods ensure a consistent quality of engine performance and longer life.
The BX range uses five different type XU engines. They differ in cylinder capacity (1,580, 1,769 and 1,905cc), in their maximum power (60, 65, 94, 105 and 125bhp DIN), and in their fuel supply (carburettor, petrol or diesel injection).
Though generally similar in construction they differ in the detail of their equipment and, so far as the difference between petrol and diesel is concerned, in their layout.
Common characteristics: transverse installation inclined 30deg rearwards, light alloy cylinder head, single overhead camshaft driven by toothed belt, valves directly operated by tappets, cast-iron crankshaft with five main bearings, forged steel connecting rods.
Layout differences: thin-walled light alloy cylinder block with removeable wet cylinder liners for petrol, thin-walled cast iron block with integral cylinders for diesel; the diesel cylinder head is equipped with Ricardo Comet V type combustion prechambers, and a torsion damper is mounted on the diesel crankshaft.
Air supply: dry air filter with interchangeable element. Diesel with integral resonator. Fuel supply: 52 litre (11.4 gallon) tank. Petrol feed by mechanical pump and twin-choke carburettor, or by Bosch LE-3electronic fuel injection. Diesel fuel feed by RotoDiesel type DPC or Bosch ET/VE rotary distributor pump with hydraulic injection timing adjustment, load-sensitive advance and electric fuel valve, CAV-RotoDiesel or Bosch injectors inclined at 25deg.

BX Diesel engine assembly



① Injector
② Glowplug
③ Combustion chamber
④ Injection pump

Pressure lubrication by gear-type pump, chain-driven from crankshaft.
Liquid cooling (7 litres/12 pints) with aluminium-core radiator of 1.7 sq ft (1,580cc) or 2.4 sq ft (1,905cc petrol, and diesel). Two-speed electric fan.
Transistorised ignition with magnetic triggering, distributor mounted horizontally at end of camshaft.
Weights, 1,580, 1,905cc petrol: 254lbs approximately with air filter, starter, alternator but without oil, coolant or clutch. Diesel: 342lbs approximately with injection pump, alternator, air and fuel filters, oil, coolant and cooling system (radiator, electric fan) but without starter or clutch.

FUEL INJECTION

The 1,905cc, 125bhp (DIN) engine of the BX19 GTI is equipped with Bosch LE-3 Jetronic electronic fuel injection.

General

Good carburation depends on the rigorous control of the fuel-air mixture. To obtain complete combustion, one part of fuel by weight is needed for 15 parts of air—the theoretically perfect ratio (15:1).
However, a ratio of 12.5:1 is needed to achieve maximum power, while a lean mixture of about 18:1 is necessary for best economy.
Injection is the fuel supply system offering the best answer to the problem of supplying the optimum mixture for each circumstance, for ensuring the mixture is homogeneous and equally divided among the cylinders, for rapid cold starting and good response at high speed.
For each individual cylinder, an injector atomises the fuel in the manifold above the inlet valve, at the correct time and in the correct quantity.
Injection allows: an improvement in engine performance due to better air supply (no choking by carburettor venturi), a reduction in specific fuel consumption and of the carbon monoxide and unburned hydrocarbon content of exhaust gases due to more precise control of fuel supply, quieter engine operation and improved flexibility due to uniform combustion from cylinder to cylinder, and automatic control of engine starting mixture strength in both hot and cold conditions.

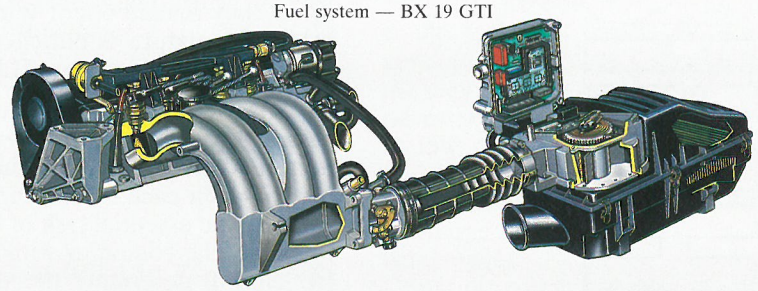
Operation

In this type of injection (the LE-3 Jetronic) the quantity of incoming air forms an extremely precise reference for calculating the quantity of fuel needed to achieve optimum combustion. An electronic computer receives instant and precise measurements of the temperature of the incoming air, the engine speed and load, the temperature of the coolant and the beginning of injection. It uses this information to determine precisely the amount of fuel strictly necessary for the engine at that moment and controls the opening time of the injectors appropriately.

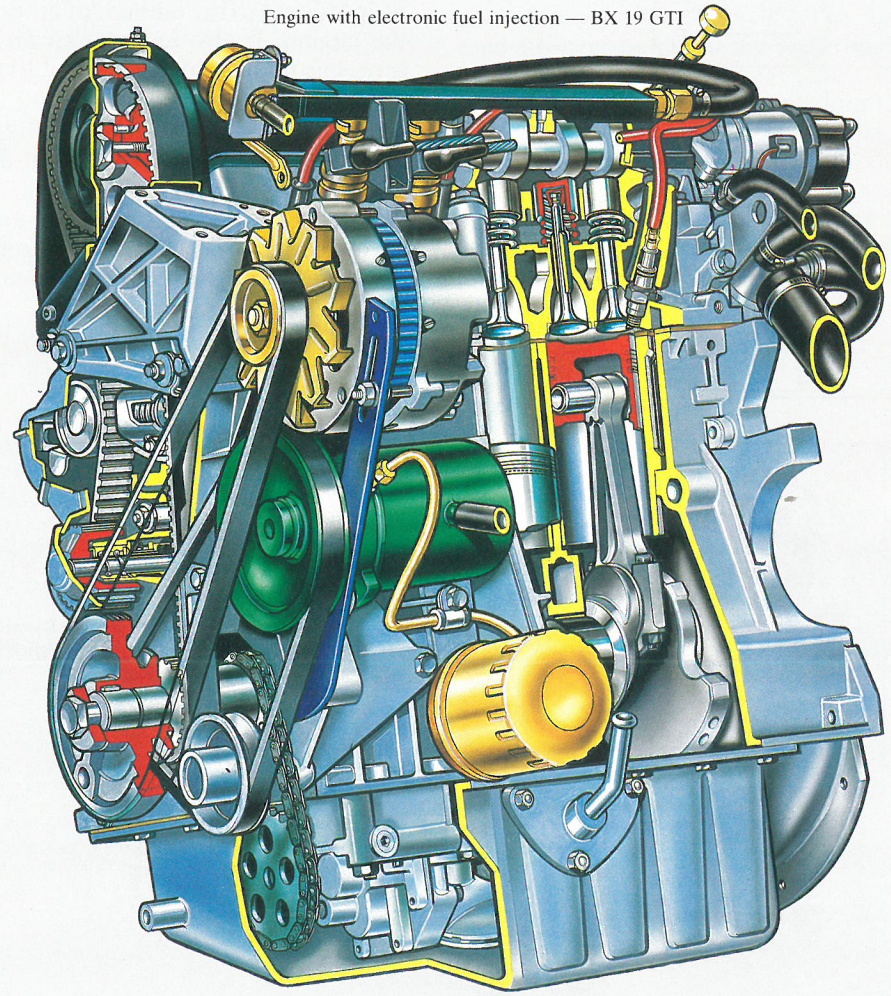
Description

The electronic fuel injection system compris-

Fuel system — BX 19 GTI



Engine with electronic fuel injection — BX 19 GTI



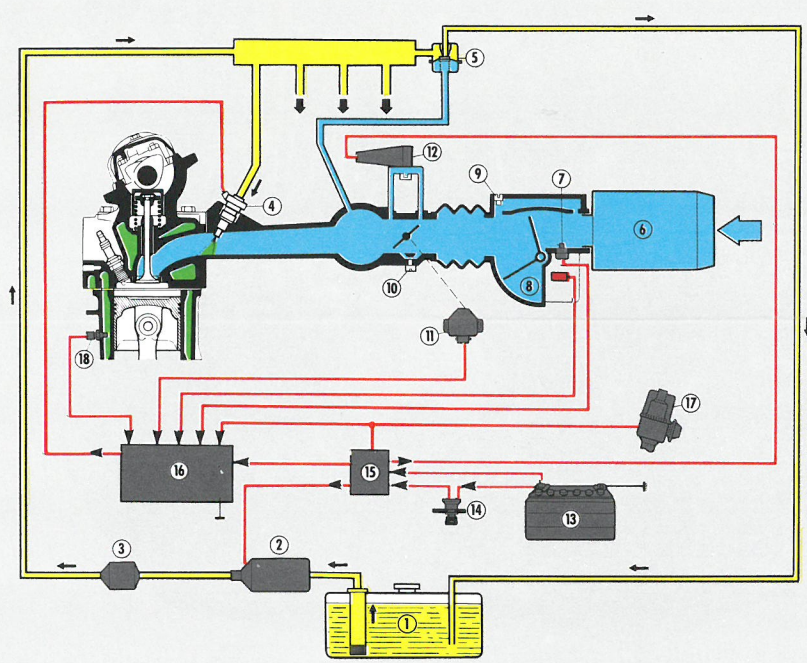
TECHNICAL

es three distinct circuits: fuel, air, and electronic.

Fuel circuit: Fuel is drawn from the tank into the injector gallery by an electric pump. A pressure regulator holds the fuel pressure within this gallery effectively constant. The injectors, controlled by the computer, atomise the fuel above the inlet valves. The flow through them depends only on the time for which they remain open. When the engine is cold, the mixture is enriched by increasing the injector opening time (LE-3 Jetronic).

Air circuit: Air drawn in through the filter passes through the flowmeter and then the butterfly valve to arrive at the plenum chamber to which each cylinder inlet tract is connected. The essential task of the flowmeter is to supply the computer with a signal voltage (which will determine the opening time of the injectors, and thus of the quantity of fuel) proportional to the amount of air drawn in by the engine. It also includes an air temperature sensor and a by-pass circuit to adjust the mixture strength at idle. It ensures the operation of the fuel pump. An additional air supply control provides extra air during the engine's warm-up phase.

Electronic circuit: The computer receives information concerning the amount of air drawn in by the engine, the coolant temperature, the position of the intake butterfly valve, the operation of the starter, the engine speed and the beginning of injection. It processes this information and sends appropriate signals to the injector solenoids.
In the LE-3 Jetronic system the computer which in other types is housed in the warmth of the cabin, is instead integrated with the flowmeter casing in the engine compartment. It is thus cooled by the flow of fresh air passing through the flowmeter.



Operating principe of electronic fuel injection system.

1 - Petrol tank
2 - Electric pump
3 - Filter
4 - Injector
5 - Pressure regulator
6 - Air filter
7 - Air temperature sensor
8 - Airflow meter
9 - Airflow meter by-pass to regulate mixture
10 - Screw to regulate idle
11 - Throttle spindle switch
12 - Supplementary air control
13 - Battery
14 - Ignition-starting switch
15 - Relay
16 - Electronic computer
17 - Distributor
18 - Water temperature sensor

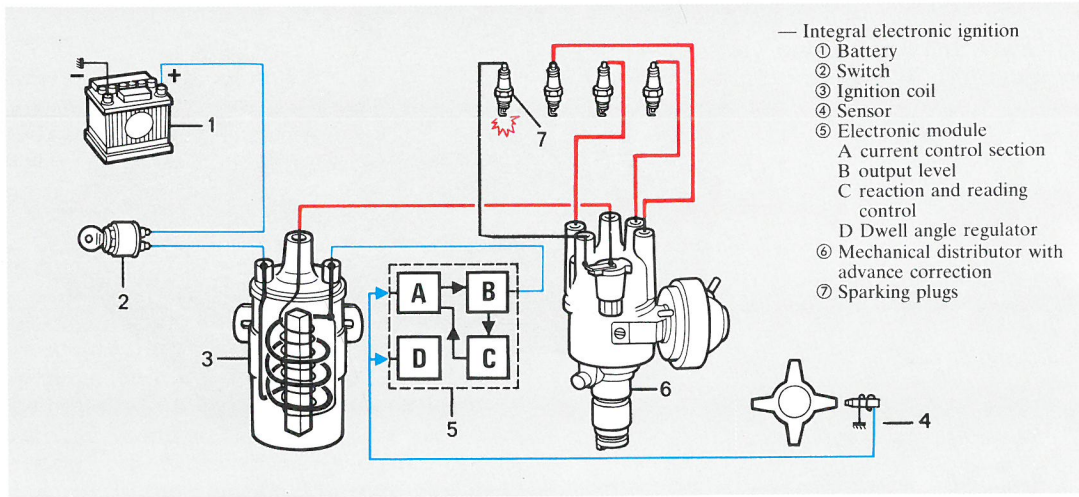
TRANSISTORISED IGNITION

Transistorised ignition with magnetic signalling (breakerless) as fitted to all BX petrol engines, replaces to considerable advantage the conventional distributor which works entirely mechanically.

General principle
The mechanical contact breaker is replaced by a magnetic sensor. This sends electrical impulses to an electronic module which controls the charging of the coil according to the frequency of the impulses. The distribution of the current to the sparking plugs, and advance correction remain conventional.

Operation
The rotation of a 4-branch (one for each cylinder) wheel within the field of a permanent magnet (the sensor) causes a variation of flux and thus a current to flow in the coil of the sensor, connected to the module.
The module contains several transistors whose task is to ensure the breaking of the control current. Other components limit the primary current in the coil, measure the charging time of the coil in order to achieve constant energy and the highest possible primary current, and ensure the minimum necessary current is available for starting and at low speed while limiting the current at high speeds. They also limit the primary current to an optimum level whatever the state of charge of the battery.

Advantages
Constant energy (voltage) whatever the speed: no wear, maladjustment or deterioration of the contact breaker. The ability to send stronger inputs to the coil, thus achieving higher output voltage: 30,000 volts against 19,000 volts for a conventional system. This results in easier cold starting, better ignition of weak mixtures (important in the context of any economy/exhaust pollution compromise), and longer sparking plug life (since they are able to work properly at greater spark gaps).



— Integral electronic ignition
① Battery
② Switch
③ Ignition coil
④ Sensor
⑤ Electronic module
A current control section
B output level
C reaction and reading control
D Dwell angle regulator
⑥ Mechanical distributor with advance correction
⑦ Sparking plugs

TECHNICAL □

TRANSMISSION

The BX, like every Citroën model since 1934, uses front-wheel drive, an arrangement whose advantages in safety, roadholding and interior space are well known. The engine/transmission assembly is housed transversely at the front. The drive shafts connecting the gearbox to the wheels are equipped with constant-velocity joints, of the tripod type inboard and the Rzeppa type outboard.

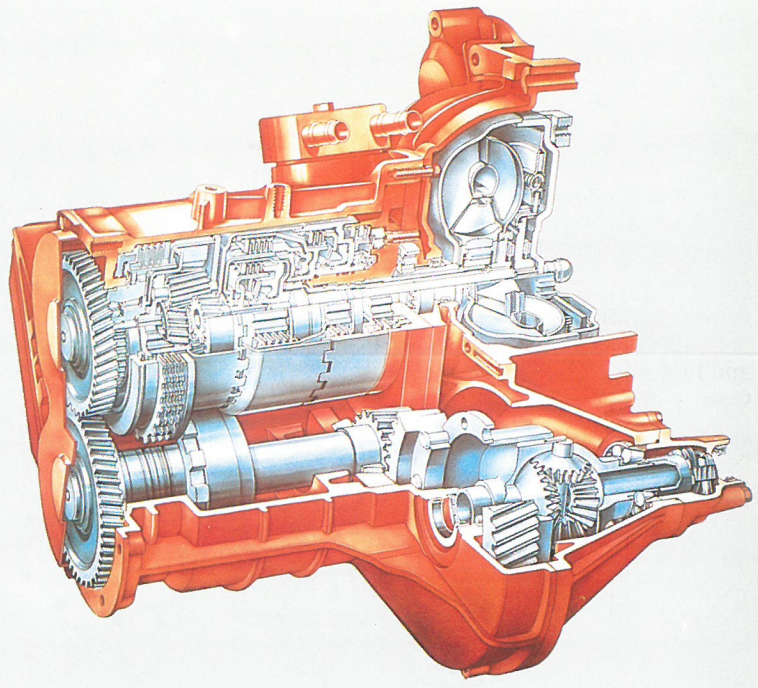
CLUTCH

In all cases this is a single dry-disc with damper hub, diaphragm-spring mechanism and mechanical operation.
The disc dimensions differ according to the amount of torque it must transmit.

GEARBOXES

The BX range is fitted with four or five-speed manual gearboxes with floor lever, or an advanced four-speed automatic transmission which optionally equips one petrol-engined model and, for the first time in France, a mid-range diesel model.

Automatic gearbox



MANUAL GEARBOXES

With 1,360 cc petrol engine
The gearbox is integral with the lower part of the engine. It is driven via a train of three reduction gears with an overall ratio of 27:34. The casing, and the lubricant, are common to engine and gearbox.

With the 1,580, 1,769 and 1,905 cc petrol and diesel engines.
The gearbox is mounted on the end of the engine. It is a modern unit notable for its small size, achieved by reducing the distance between the input and output shafts as far as possible, and by reducing the clearance between the gearwheels and the casing. The gearshift pattern is of the "chandelier" pattern with reverse gear opposite first. This also allows the box to be made more compact by reducing the travel of the selector fork shared by these ratios.

AUTOMATIC TRANSMISSION

The BX was the first medium-sized car to be equipped with as sophisticated and efficient transmission as the 4HP 14 built by ZF.

Operating principle
The unit consists of a gearbox with four forward speeds, and a torque converter. Power transmission from the engine in 1st and 2nd gears is entirely hydraulic and the torque multiplication ratio of the converter is a maximum of 2.13:1 when starting from rest. Together with the progressive way the converter takes up the drive, this leads to great ease of driving when starting from rest an accelerating.

The transmission of power in 3rd gear works on the split-path principle: 40% of the power is transmitted hydraulically, and 60% mechanically.

Power transmission in 4th gear is entirely mechanical. All converter slip is thus avoided and fuel consumption is reduced. This advantageis also apparent to some extent in 3rd gear. Another advantage of the arrangement is much better engine braking.

Operation
A hydraulic "brain" takes account of the drivers's selected operating mode, the car's speed and the accelerator pedal position and operates the transmission so as to respond in the best possible way to the driver's needs. It exercises control via brakes, clutches and free-wheels which, according to their operation, alter the relation between the gear wheels of a 2-stage epicyclic train. The relation determines the gear ratio and the multiplication of torque.

Use
- "P" (Parking): The parking brake position, in which the transmission is mechanically locked. This supplements the normal handbrake.
- "R" (Reverse): Reverse gear should only be engaged when the car is at rest and the accelerator pedal released.
- "N" (Neutral): The neutral position, in which no drive takes place.
- "A" (Automatic): The position normally used for driving, in which the transmission shifts automatically between all four gears according to the car's speed and the position of the accelerator pedal.

No other selector movement is needed to increase the speed from 0 to 105 mph (the maximum of the BX 16 petrol) or 96 mph (BX 19 diesel). At speeds below 81 mph (petrol) or 69 mph (diesel) the transmission can be made to shift down by pressing the accelerator pedal hard to the floor (kickdown). This allows the best possible performance to be achieved during overtaking.
- "3": This locks out fourth gear, but changes between the three lower gears still take place automatically. It may be used on difficult roads or when towing.
- "2": In this position, the transmission will engage neither 3rd nor 4th gear. It is useful in heavy town traffic or on mountain roads.
- "1": First gear is engaged at all times. Used for climbing or descending very steep slopes, in mountains or garages.

The selector lever may only be moved from N to R, R to P or P to R after clearing a detent by pressing a button under the lever handle.
The engine may only be started when the selector is in the position "P" (Parking) or "N" (Neutral).

TECHNICAL □

RUNNING GEAR

The BX continues the reputation of Citroën models for offering a high degree of safety and great comfort in all circumstances. Its front-wheel drive, all-independent hydropneumatic suspension with constant ride height, high-pressure hydraulic braking system and precise steering are all features which contribute to the car's stability and to keeping its wheels in contact with the ground at all times: roadholding.

SUSPENSION

The BX suspension units function separately from one another. The front and rear anti-roll bars form the only links between their respective suspension arms.

FRONT SUSPENSION

This is of the MacPherson type, in which the strut locates the steering swivel as well as forming the spring and damper. The lower wishbones are attached to a sub-frame bolted to the body. The geometry includes a small degree of negative offset and the wishbones are angled towards the front to give an anti-dive, anti-squat effect to give the BX good roadholding and braking stability.

REAR SUSPENSION

The rear suspension arms and units are carried on a U-shaped crossmember, open towards the rear and bolted to the body. The trailing arms are attached to the suspension struts which are installed horizontally. This layout avoids any intrusion into the load space or load platform area beyond that of the wheel arches themselves.

HYDROPNEUMATIC SUSPENSION

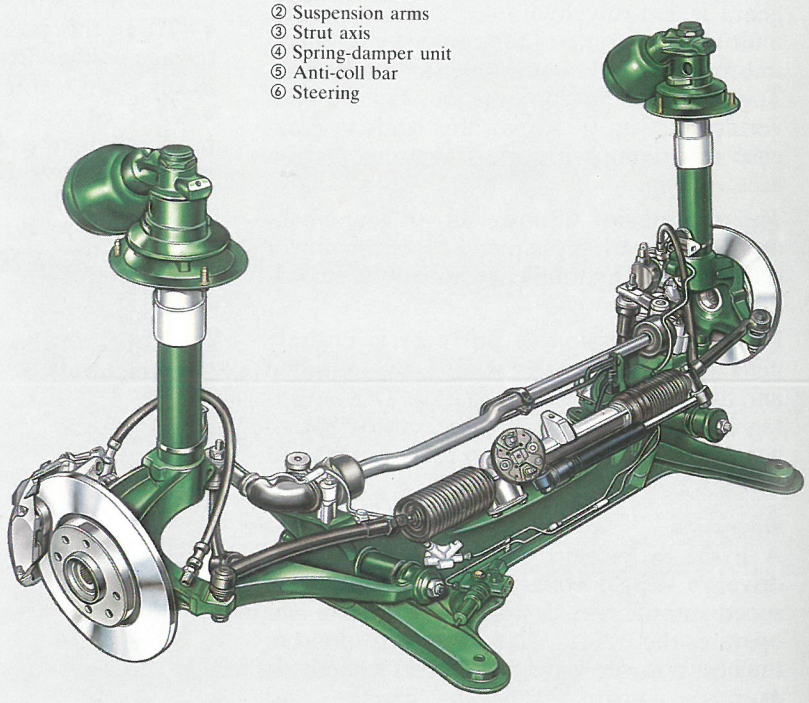
The BX, which entered the range between the GSA and the CX, was naturally equipped with one of Citroën's most famous features: the hydropneumatic suspension which has contributed so much to the marque's reputation when it comes to comfort and roadholding.

ADVANTAGES

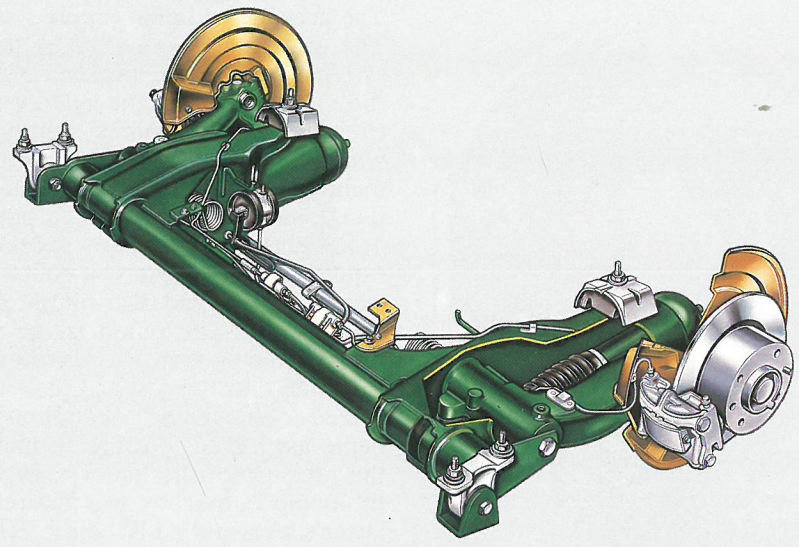
Hydropneumatics, the robot suspension medium, adapts itself to all situations. It reduces reactions transmitted from the wheels to the body (comfort) while at the same time it keeps the force of the wheels on the ground constant and immediately damps any tendency for the wheels to bounce (roadholding). Hydropneumatics thus permits:

- a highly flexible suspension,
- constant ride height and attitude (together with a low centre of gravity which remains in the same position in all circumstances) whatever the load state of the car (something which maintains other qualities such as roadholding and aerodynamics),
- excellent suspension when lightly laden (since its stiffness varies with load),
- light and compact dampers of proven reliability, integral with the suspension members,
- suspension arms always working from the optimum datum with respect to the bump and rebound stops,
- virtually maintenance-free spring and damper units (in the rare case where work is needed, the replacement of parts such as the spheres is very easy),
- automatic correction of braking effort to the rear wheels as a function of load (through the provision of a link between the suspension and rear brake circuits),

Front suspension
① Front sub-frame
② Suspension arms
③ Strut axis
④ Spring-damper unit
⑤ Anti-coll bar
⑥ Steering



Rear suspension
① Rear crossmember
② Suspension arms
③ Wheel hub
④ Suspension cylinder
⑤ Rear anti-coll bar
⑥ Attachments



• the ability to vary the ride height of the car under the control of a manual lever when driving along very rough tracks; this same provision also enables the suspension to take over the jacking effort when changing a wheel.

OPERATION

The hydropneumatic suspension system depends on the interaction of two fluids: a liquid (incompressible) and a gas (compressible).

The conventional mechanical coil spring is replaced by a quantity of gas (nitrogen) within a steel sphere.

A hydraulic mineral oil (LHM), separated from the gas by a flexible membrane, occupies the remainder of the sphere. It forms the link between the gas and the suspension arm.

The body and all it contains therefore rests upon four pneumatic springs which are acted upon by the movements of the four independent wheels.

The volume of the liquid can also be changed automatically to compensate for variations in the car's ride height (while it is being loaded, for instance).

DESCRIPTION

Strictly speaking, the suspension system consists of: a pressurised liquid supply system, which feeds it with high-pressure LHM, 4 spheres, 4 dampers, 4 cylinders with pistons and connecting rods, and 2 height correctors.

The pressurised liquid supply system

The three functions served by the hydraulic system (suspension, brakes, and optionally the steering) draw the energy needed for their operation from a supply system in which the LHM hydraulic mineral oil is maintained within certain pressures. The system comprises a reservoir, a pump, a main accumulator, a pressure regulator, and a safety valve. The reservoir contains the basic store of LHM and also filters, purifies and stabilises it. The pump is the mechanical heart of the system. It is driven by the camshaft and thus turns at half the engine speed. It feeds constantly whether or not pressure is being used. The pressure regulator governs the pressure of the liquid reserve, directing the pump output towards the reserve if the latter's pressure falls below 2,130psi—the **charging** phase. In the same way it exhausts the pump output back to the reservoir if the reserve pressure reaches 2,570psi—the **discharge** phase.

A main accumulator stores a certain volume of hydraulic fluid (incompressible) under pressure and supply it to the operating systems smoothly and progressively. Its main purpose is to supply liquid quickly at times of high demand. It consists of a steel sphere whose interior is divided into two chambers A and B by a flexible membrane. The chamber A contains a certain mass of gas (nitrogen) at a pressure known at the calibration pressure. During the charging phase, the LHM liquid enters the chamber B and depresses the membrane until it reaches the discharge pressure of 2,570psi at which point the membrane no longer moves. The pressurised liquid is then fed back into the system by the pressure of the gas behind the membrane when a demand arises.

Since the pressure reserve is shared between three systems (suspension, brakes, steering) a safety valve allocates pressure on a priority basis to the most safety-critical systems: front brakes and steering. It isolates the front brakes and steering from the front and rear suspension (in the case of a fault in the suspension) or vice versa, in which case braking on the rear wheels is retained.

The spheres

There is one sphere per wheel, the gas it contains forming the spring element of the suspension.

The dampers

These limit the amplitude of oscillations, the tendency of the wheels to bounce or of the body to float. Each sphere neck contains a damper in the form of a steel disc pierced by calibrated holes.

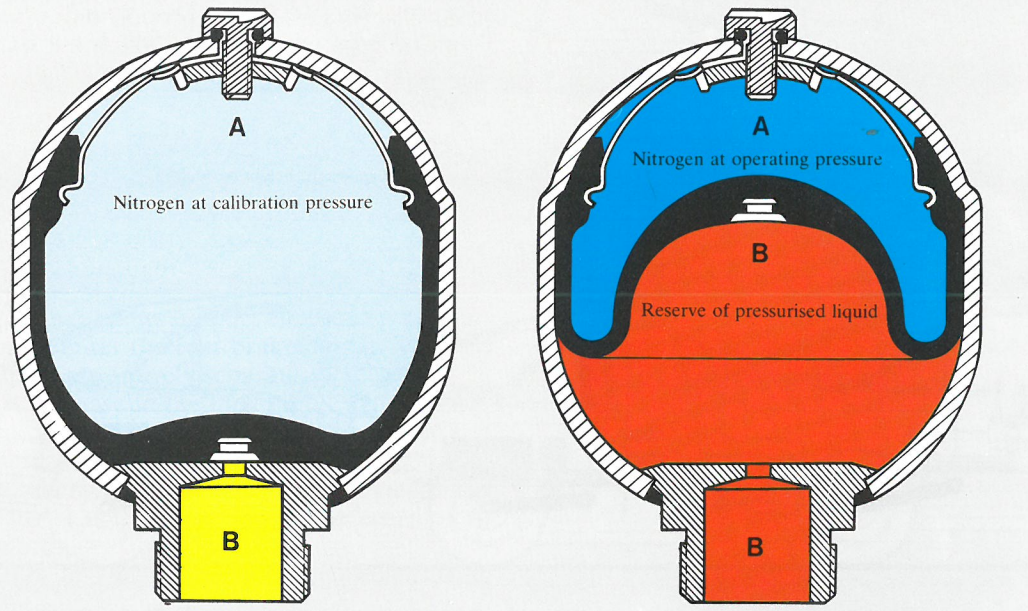
At its centre, a rivet also pierced by a hole locates the assembly. Damping is achieved by the shearing of the liquid as it passes through the holes, which are partially closed by precision-calibrated valves.

The suspension cylinders

These are connected directly to the body. Each cylinder carries a sphere and encloses LHM liquid and a piston. The piston is attached to the suspension arm by a connecting rod and thus follows its movements and transmits them to the mass of gas via the LHM and the flexible membrane.

Whenever the wheel crosses an obstacle, the piston moves accordingly. When a bump is encountered, the piston forces the liquid from the cylinder into the sphere. The gas is

Hydraulic sphere



compressed just as a mechanical spring would be. When crossing a pothole, the liquid flows from the sphere to the cylinder under the pressure of the gas which expands. The movement of the LHM is throttled by the damper. The compression and expansion of the gas absorbs the energy created by the shocks, protecting the body and its occupants.

Height correction

This allows the body to be maintained at a constant ride height regardless of the static loading of the car or the state of the road surface. It works by varying the amount of LHM contained between each piston and membrane.

A manual control allows the height to be varied on demand for running over obstacles or for changing a wheel. Operation depends on two height correctors, one operating on the front suspension and the other on the rear. They work as "taps" allowing LHM to enter from the pressure reserve, or to evacuate to the reservoir.

BRAKES

Braking is a function whose importance in active safety goes without saying: it allows the driver to avoid an accident.

Citroën has equipped the BX with a particularly effective braking system which includes two independent circuits each with its own reserve of high-pressure liquid, working on four disc brakes via a proportioning valve with integral compensator which allows the pressure to the rear brakes to be optimised for all load conditions.

Operating principle

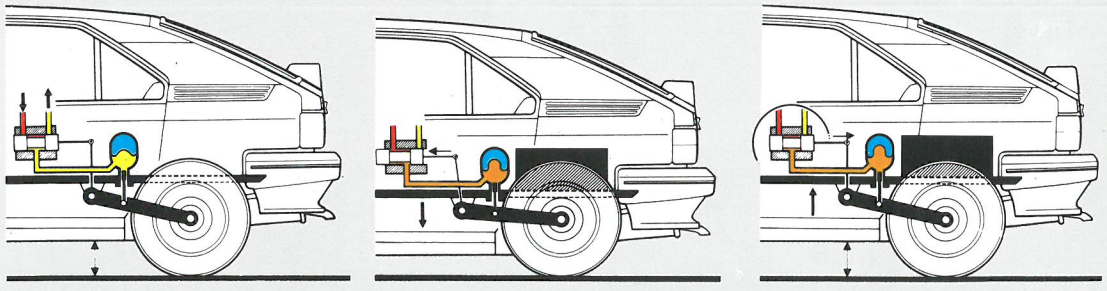
Braking is achieved by pressure on the brake pedal which acts directly on the proportioning-compensating valve. This causes two slide valves to move within the unit, one of which allows liquid from the main accumulator to enter the front brake circuit. The other allows liquid from the rear suspension to enter the rear brake circuit. The two circuits are entirely separate.

Any increase in the load on the rear suspension causes the pressure within the suspension circuit to rise, and thus also the pressure fed to the rear brakes. The maximum braking effort at the rear therefore increases according to the load.

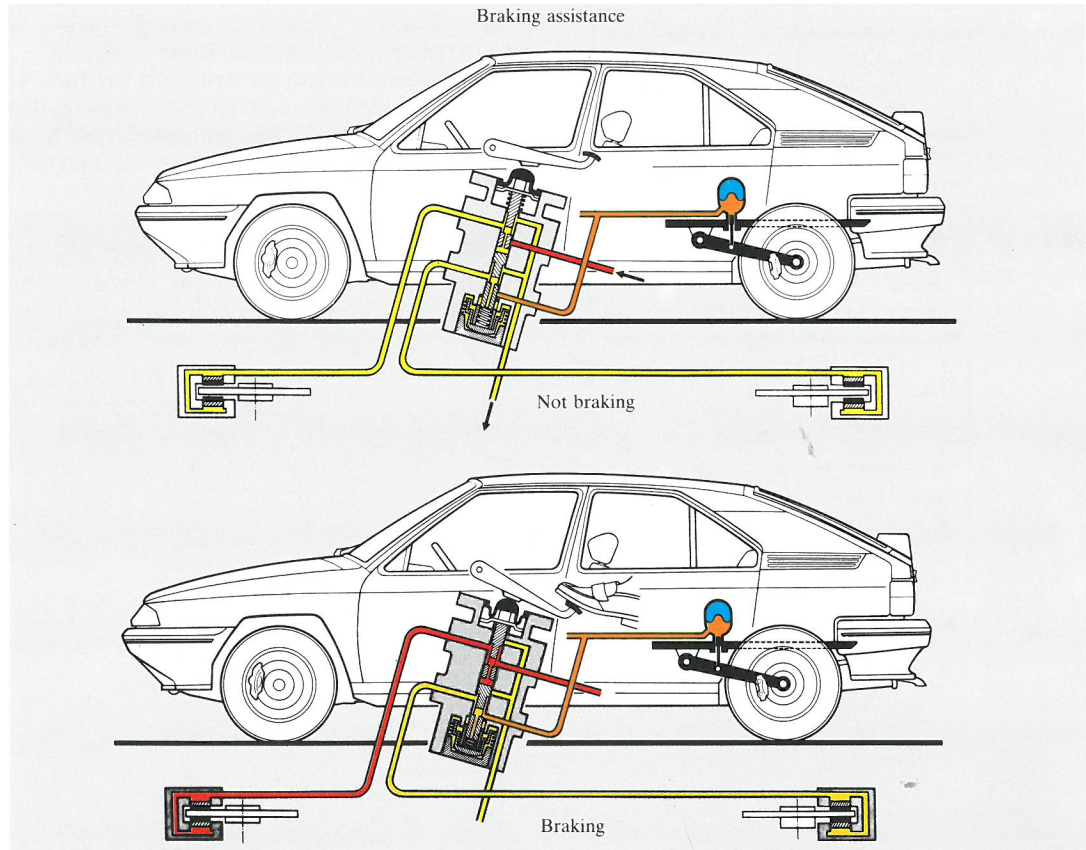
Effect of the proportioning/compensating valve

Proportioning: the amount by which either of the slide valves is moved governs the amount of pressure supplied to the brakes. In effect these valves, as they slide in their housings, uncover to a greater or lesser extent (depending on their movement) channels which connect the pressure sources to the brake circuits. The pressure in the brake lines depends on how far these channels are opened. In principle, it is the same effect as turning a tap on or off.

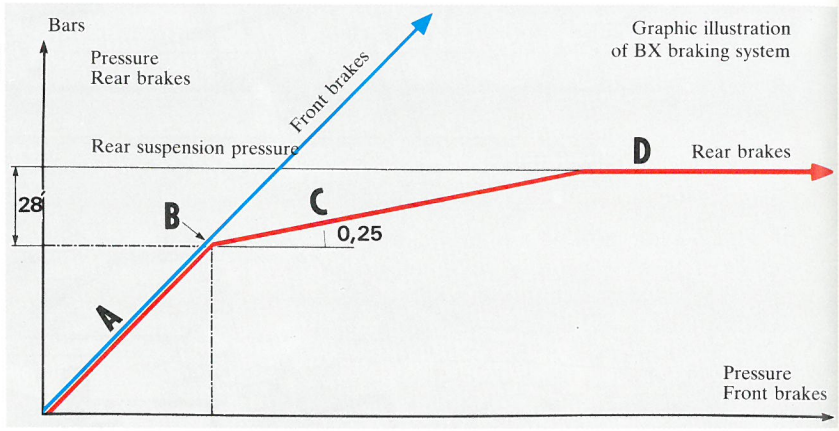
Hydraulic suspension, height correction



Braking assistance



Compensating: This adjusts the pressure in the rear brake line as a function of the load on the rear wheels, and operates in two phases. The first phase (A-B) consists of limiting and modifying the proportioning output to the value of the rear suspension pressure as long as this is less than 412 psi. This is known as the "cut-off point". The second phase (compensation) includes a first stage (B-C) during which the pressure in the rear brake lines continues to rise but at a slower rate (at an angle of 25%). Once D is reached, the pressure in the rear brakes is the same as that in the rear suspension and can rise no further. It remains constant even if the brake pedal effort is increased. The value of this final pressure is governed by the load.



Graphic illustration of BX braking system

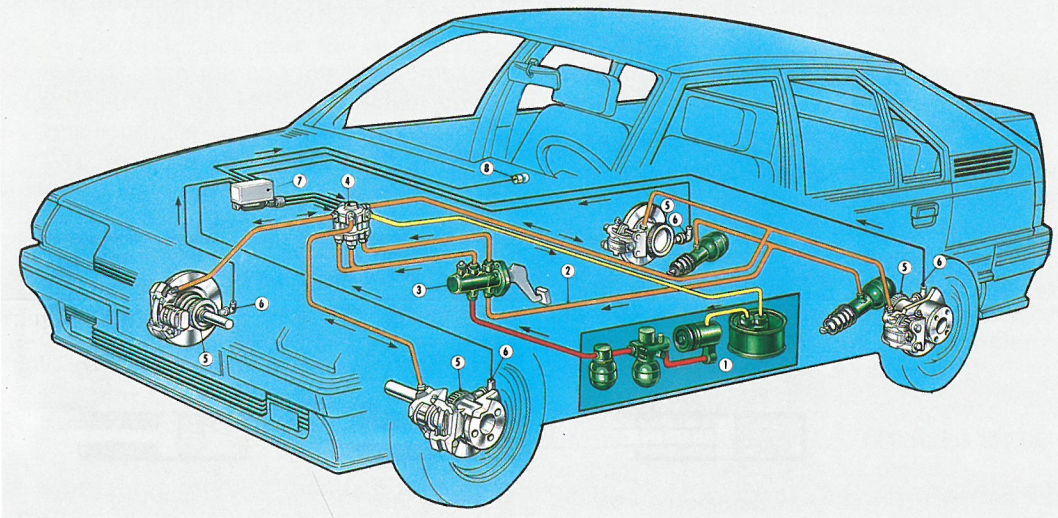
ANTI-LOCK BRAKING SYSTEM

The ATE Antiskid system made by the Teves company is offered as optional equipment on certain BX models. By avoiding the locking of the wheels, this system allows the BX to remain stable and steerable, and ensures minimum stopping distances even on slippery surfaces (wet or icy).

Operating principle

Four toothed wheels turn at the same speed as the car wheels, each signalling to a computer, via an intermediate sensor, the speed of the corresponding wheel (the speeds may differ according to the surface friction).
During braking, the computer calculates the degree of slipping of each wheel. Hard braking causes a reduction in wheel speed greater than the reduction in vehicle speed, giving rise to slipping: a freely turning wheel = 0% slipping while a fully locked wheel = 100% slipping.
Anticipating wheel locking, the computer controls the operation of six electromagnetic valves working in pairs, two for each front wheel and two for the rear wheels together. The purpose of each pair of valves is to increase, decrease or hold constant the pressure in the brakes.
When the brakes are applied, pressurised liquid passes through the valves to operate the brakes. If the pressure is too high, there is the risk of locking the wheels. To avoid this, the computer operates the valves so as to reduce the pressure in any given brake: the wheel regains its speed and remains clear of the locking zone. Once its speed has increased, the computer again operates its valves to continue braking so as not to upset the braking balance. This cycle can be repeated up to ten times a second. The computer works on either front wheel but on both rear wheels together, in this case taking its reference from the rear wheel showing the greater degree of slipping.

— Operating principe of the anti-lock braking system
① Pressure reserve: feeding front brakes, suspension, steering
② Rear suspension circuit: feeding rear brakes
③ Proportioning/compensating valve
④ Hydraulic block with six valves
⑤ Toothed wheels
⑥ Electromagnetic sensors
⑦ Electronic computer
⑧ Warning light showing ABS unserviceable



STEERING

The BX 19 TRS and 19 GTI are equipped with hydraulically powered steering as standard. Other models are equipped with unpowered steering but most may be fitted with the power system as an option.

UNPOWERED STEERING

This is a rack and pinion system. Its steering ratio is either 20:1 for the petrol saloons or 23:1 for the diesel saloons and all estate versions, depending to the load on the front wheels, which varies according to the engine fitted (petrol or diesel).

POWER STEERING

The combination of a conventional power-assisted rotary valve steering system (D.B.A. Midget type valve) with the BX high-pressure hydraulic system is a completely new approach.

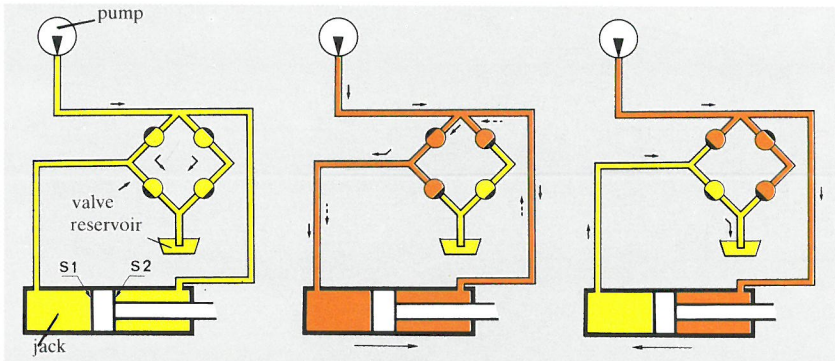
This type of steering calls for a constant-flow oil supply and in the BX it uses the output of the 5-piston pump which also supplies the brake and suspension circuits at constant pressure.

Because of the special characteristics of the Citroën hydraulic components, the steering is unusual in operating at higher pressure (2,060 psi maximum) but a lower flow rate (2 litres/min) which by comparison with the conventional system in which maximum pressure is 1,200 psi and the flow rate 5 to 7 litres/min, allows the components to be made smaller and a saving in energy.

Description

The system comprises:

- a reserve of LHM liquid stored at high pressure and shared with the suspension and braking systems,
- a flow divider which ensures: the division of flow between the main circuit (suspension/brakes) and the steering circuit, the limitation of pressure and flow in the steering circuit, the operation of the valve which feeds the pressurised liquid to one or other side of the jack, or allows it to exhaust to the reservoir, and the operation of the steering jack which has a differential-section piston



Operating principe of the steering valve

pushed in one direction or the other by the action of the pressurised liquid, thus moving the steering rack.

Valve operation: When running straight ahead, the pump feeds the circuit which is not pressurised but open to the reservoir (open centre). When turning left, the pump feeds equal pressures into both chambers of the jack (the section S1 of the piston being that of S2, it is displaced to the right while liquid flows from the smaller chamber into the bigger one). When turning right, the pump feeds pressure to the smaller chamber only. The larger chamber remains open to the reservoir, and the piston thus moves to the left.

SERVICING

From the earliest days of the BX project, there has existed an organisation which allows exchanges to be made between the designers (who choose materials, shapes and techniques) and those responsible for after-sales service, in order to study the problems of servicing and repairability. This close collaboration from the beginning has gained for the BX a reputation for being economical to maintain. Where service operations are concerned, the design includes the following features:

BODYWORK

The use of synthetic materials for various parts of the body shell gave the best protection against corrosion and minor bumps (no damage). At another level, the weight saved as a result of this choice had the effect of reducing wear in the mechanical components.

Moreover, the use of smaller numbers of larger components resulted in assemblies with fewer potential starting points for corrosion. The elimination of gutters as well as the treatment of sheet steel by hot galvanising, extended to all parts of the body shell from the beginning of 1986, is a further indication of good corrosion resistance.

From a mechanical point of view, the assembly of the front wings to the main frame by snap-fasteners greatly eases their repair or replacement.

ENGINES

- Type XY (1,360 cc): Easy removal and re-installation, good access to all accessories.
- Type XU (1,580, 1769, 1,905 cc): Very good accessibility and ease of removal and re-installation, good accessibility to the sparking plugs, carburettor, distributor (petrol) and pump and injectors (diesel). No valve clearance adjustment needed since valve arrangement in which the cams operate directly on the tappets needs no adjustment other than its initial factory setting.
- All types: The transistorised breakerless ignition eliminates all moving parts and the need for adjustment.

CLUTCH

Can be changed without the need to remove the engine. No clearance adjustment: constant-thrust bearing.

GEARBOX

Type BE1 used with XU 1,580, 1,769, 1,905 cc engines: may be quickly removed without removing the engine.

Quick and easy replacement with no adjustments.

SUSPENSION

Very good accessibility to all components. Drive shafts and hydropneumatic units easily removed. No adjustment of suspension geometry. No special tools needed for suspension work.

BRAKES

Exceptional accessibility to the brake pads which may be easily and quickly changed. Front and rear brake disks may be removed without disturbing wheel bearings.

STEERING

Good accessibility and ease of removal and re-installation.

ELECTRICAL SYSTEM

Easy removal of accessories. Wiring harnesses for major options installed in production, avoiding the need for drilling. Dashboard built up of modular components, clipped together. Fuse and relay box inside the car, behind the passenger dashboard; connectors are also housed in this box. The number of circuits per fuse has been reduced.

MAINTENANCE

Engine oil change: every 6,000 miles for petrol engines, 5,000 miles for diesel.

Suction oil removal (already existing for 1,360 cc engines) via a special orifice on the 1,580 and 1,905 cc engines. The owner can therefore carry out his own oil changes at a service station with suction equipment. The good accessibility and short job times notably reduce the cost of replacing worn items.

PRODUCTION

The introduction of the BX and its development took place against a background of a complete rethinking of production methods and working

organisation, with major new effort devoted to quality improvement and personnel training. New manufacturing methods were adopted, such as—in the Rennes-la Janais factory—the use of robots for body shell assembly, or injection moulding of reinforced synthetic materials, and —in the Tremery factory—the use of advanced technology production facilities for engine manufacture.

FACTORIES

Between 1982 and the beginning of 1986, over 700,000 BXs were produced. In 1985 alone production totalled 254,000 cars or 42.5% of all Citroën car output, at a rate of 1,150 cars per day. The major part of BX production comes from the Rennes-la Janais factory.

The factory was opened in 1961, an example of modern design as much for its good working conditions as for the technical methods it employs.

An integral part of the Citroën organisation, the factory employs 11,150 people. It is a final assembly plant which takes sub-assemblies from other production plants and delivers finished vehicles to the sales department. The mechanical components of the BX come from different factories in the group: engines from Tremery (SMAE) and Douvrin, gearboxes from Metz (SMAE) and Sochaux, drive shafts from Caen and la Rochelle, hydraulic components from Asnières and Caen, suspension units from Caen. Everything converges on Rennes where production takes place in four stages: pressing, body assembly, painting and final assembly.

The press shop specialises in the manufacture of large panels: wings, bonnets, doors, floorpans, wheels arches (the largest panels of all are the body sides and floorpans).

ROBOTICS

In the body assembly area, the pressed panels for the BX are electrically welded together (2,787 spot-welds). The welding shop was entirely robotised for the launch of the BX with the installation on its assembly lines (nose structure, floor structure, body shell) of 36 robots of which 14 were the Barnabé type made by Citroën's Meudon factory. These gave it the ability to operate flexibly. The accuracy of welding is constantly checked by computer, ensuring a very high level of quality and doing away with the need for costly destructive testing.

The BX was the first mass-produced car in the world to use synthetic materials for large panels previously made of steel such as the bonnet, rear hatch, quarter panels and front grille. The object was to make the car lighter and more corrosion-resistant. Some of these parts are made at Rennes, necessitating the building of a new workshop and the adoption of new manufacturing techniques (such as the injection moulding of the rear hatch).

Once the bodies have been assembled under computer control, they are taken by conveyor to the paint shop for treatment in batches of one colour. The process consists of phosphating, cataphoresis, sealing, stone chip protection and soundproofing (at this stage of painting, the synthetic material components join the steel body so as to ensure uniform colouring of the finished article), primer application, rub-down and application of colour coats.

The bodies, each of which carries an identifying reference number and description from the outset, are distributed by overhead conveyor to the two lines. A sophisticated control system ensures that every component arrives in the right place at the right time. The bodies are trimmed, the mechanical assemblies are prepared, equipment is installed. The mechanical finishing line includes a section where the bodies are rotated trough 90 deg to allow the workers to carry out their tasks as easily as possible. The process ends with testing and quality control, with special care taken to confirm perfect cabin sealing and to check the suspension alignment, mechanical and electrical systems. The fuel system in also set to conform with anti-pollution requirements.

After these checks, the car is allocated to a customer. At this stage a final check is carried out on every interior and exterior aspect of the car and its conformity with specification. The inspectors also run a programme of sample analysis, taking 10% of each day's production and subjecting it to more stringent tests and statistical checks, mainly on the test track within the factory grounds but also on the road.

QUALITY

The manufacture of the BX has been accompanied by a quality improvement drive. This Rennes "quality" programme aims to achieve "zero defects" and works in two ways. One is *a priori* inspection (a feedback system based on any emerging fault pattern); the other is the motivation of the entire

workforce to "get it right first time". Each worker can measure his own achievement and becomes his own inspector. The most highly motivated workers can form quality circles which discuss ways of further improving the quality level.
In 1986, 220 quality circles were at work in Rennes involving 1,500 workers, plus 220 foremen and 56 circle advisers. Over 2,000 problems were studied during 1985.

NEW ORGANISATION

However, "total quality" implies not only quality of product, but also of the industrial and social organisation of the company. A new approach to production was adopted to make delivery times quicker and more reliable and to develop a wider product range.
This new production approach, the Mercury Plan, was based on preventive maintenance of machinery and the control of production rate (a wider product range and higher rate). This approach calls for the ability to run production in smaller batches, which implies a need for quicker tool-changing. At Rennes, the time needed to change tools on the multi-range body assembly lines has been cut from 30 minutes in 1980 to 5-8 minutes in 1986. This reduction has for instance allowed Rennes to shift from production runs of 5,000 rear wheel arches (5 days' production requirement) to runs of 250 (2 hours' requirement) in 1986.

In order to improve production rate even further, an information system called kanban enables suppliers to know exactly, in time and quantity, the needs of the factory.

The achievement of these various objectives has allowed stock holdings in Rennes to be reduced from 15 days's worth in 1979 to 4.8 days' worth in 1986. The steel stockholding of 22,000 tons in 1980 has been reduced by nearly three-quarters to stand at 6,000 tons in 1986.

Even then, total quality and a new approach to production can only be achieved with the aid of a trained and motivated workforce. This factor resulted in the drawing up of a new social organisation based on job satisfaction, training and improved career prospects.
Thus in 1986 the Rennes-la Janais training school devoted 310,000 man-hours to training in areas as diverse as quality, general studies, social studies, robotics, electronics, specialist professional subjects and so on.

RENNES-LA JANAIS

Production (Ami 6) began: 1961
Situated: 4 miles south of Rennes, on the road to Nantes.
Responsibility: body production and vehicle assembly (presswork, body assembly, composite materials, trim and upholstery, cable harnesses, final assembly) and manufacture of equipment (bodywork and moulding tools).
Site area: 598 acres (242 hectares)
Covered area: 4.75 million ft² (441,000m²)
BX Production capacity: 1,050/day
Production in two shifts.
Employees as at 31.12.85: 11,150 (9,553 workers, 1,516 supervisors, 81 managers).

TREMERY

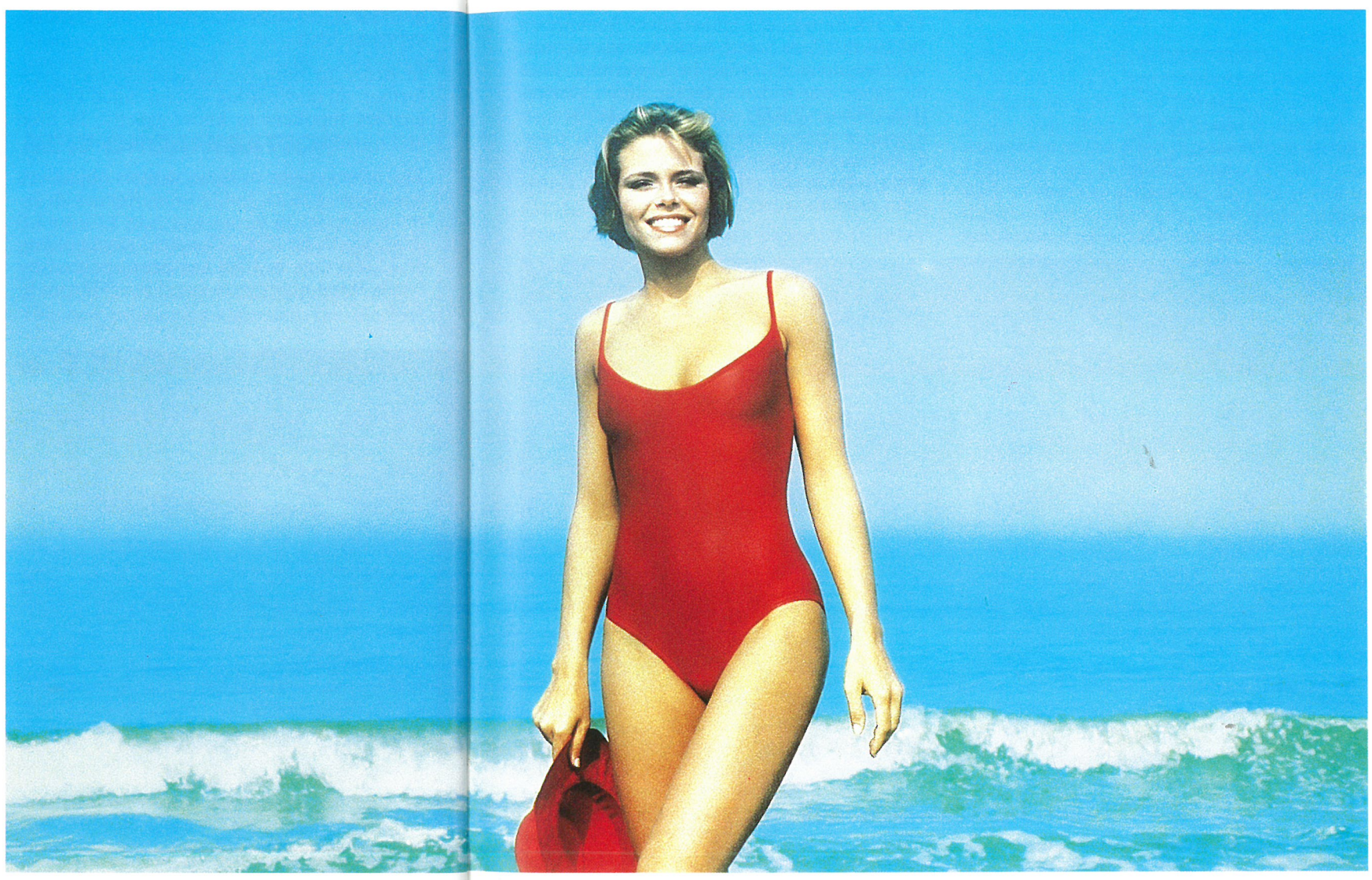
Production began: 1979
Situated: Ennery industrial centre, 9 miles north of Metz.
Responsibility: Petrol and diesel engine production.
Equipment: 667 machines of which 95 are transfer lines, 895 moving stations, 410 wire-guided trolleys.
Site area: 292 acres (118ha).
Covered area: 2.15 million ft² (200,000m²).
Production: 3,200 engines/day (1985).
Employees at 31.12.85: 2,870 of whom 2,222 workers, 603 supervisors, 45 managers.

BX PRODUCTION

Year	Petrol	Diesel	Total
1982	13,456	6	13,462
1983	154,244	27,405	181,649
1984	141,123	79,766	220,889
1985	165,254	89,166	254,420

SALES -

In addressing itself to so huge an audience of potential buyers, the BX had to satisfy a wide range of needs and tastes, some of them contradictory. That is why the range was so quickly diversified, because it was necessary to make it acceptable to the greatest number of people. The sales figures for France (50%) and for export (50%) show how successful it has been. For the thirteen main West European markets including France, sales in 1985 exceeded 230,000 cars.



SALES

In the commercial history of Citroën, the most interesting aspect of 1983 was the shifting of the centre of the range towards the upper-middle sector of the market, compared with the policy followed in earlier years.

The BX range was launched in September 1982 at the Paris Salon, in three versions with three equipment levels. In September 1983 the range was widened by the diesel version (BX19D or TRD) and during 1983 as a whole it showed very strong sales: over 91,000 cars sold in France alone, and 133,527 when sales in the other 12 main West European markets were added.

FRANCE

In 1984, despite a 12.8% decline in the market as a whole compared with 1983, French registrations of the BX increased by 18% thanks notably to the BX19GT and the BX16TRS automatic. The BX took 6.2% of the market to become the fourth most popular car in France, and the most popular diesel model of all.

Today, the range covers the market sector from the middle of the M1 class to the top of M2, having added more sporting versions together with the estate cars. The BX took 6.98% of the French market in 1985 to occupy third place in the "hit-parade", and achieved a 69% customer retention rate (a result close to the CX retention rate of 76%). In France, with registrations 15.1% higher than in 1984, 123,300BXs were sold in 1985 and it took a third of the M2 sector (37,3%) while occupying first place in the medium-car category as a whole. This success was due partly to the exceptional performance of the diesel of which 40,515 were sold in France to take 15.3% of that market. The diesels represent a third of all BX sales in France.

REGISTRATIONS IN FRANCE

Year	Petrol	Diesel	Total
1982	8,695	—	8,695
1983	80,097	10,972	91,069
1984	71,398	35,762	107,160
1985	82,770	40,515	123,285

EXPORTS

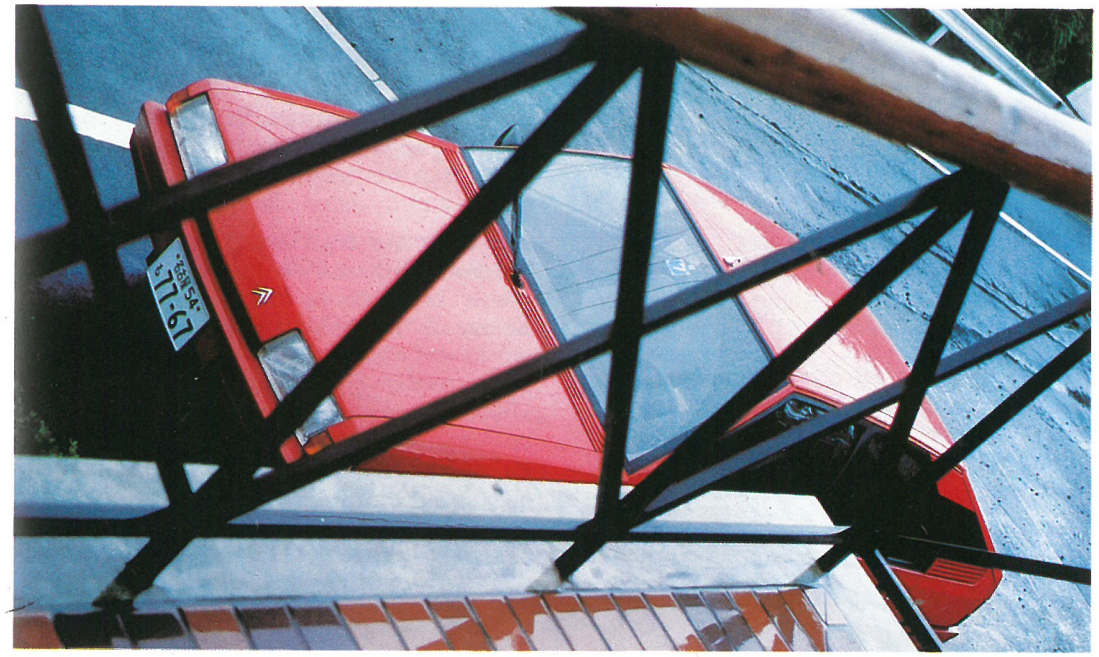
Some 308,639 BXs had been sold abroad by the end of June 1985, or 46% of all BX production since 1982.

Of these, 55,543 had been exported in CKD (completely knocked-down, or kit) form for local assembly in Spain, Thailand and Indonesia.

The BX enjoyed success during 1985 in such markets as Japan (500 sales), Finland (1,000), Israel (576), Thailand (1,584), Australia (347), Greece (364) and Saudi Arabia (315).

However, most BXs are exported to other European countries for sale by the 12 Citroën subsidiary companies there. Over 240,000 vehicles have been sold in these countries in three years, or 42% of all BX production.

In 1985, European sales of the BX reached 107,014 units for an 18% increase on 1984. Most notably, the BX was the best-selling vehicle in the Netherlands with 12,000 sales of which 18.2% were diesels. Other large markets include Italy (24,500) which takes more than Span (18,600) where the BX is assembled in the Vigo factory, Great Britain (14,700) and West Germany (12,100). In each of these countries the ratio of petrol to diesel engines is roughly equal while in Italy and Spain diesels take over 50% of sales.



EUROPEAN REGISTRATIONS

Countries	1983	1984	1985	Total
Austria	2,096	3,163	4,105	9,364
Belgium	4,225	7,409	8,478	20,119
Denmark	798	2,522	3,750	7,070
Great Britain	2,687	11,458	14,666	28,811
Italy	7,116	20,560	24,263	51,939
Netherlands	3,958	6,737	11,653	22,348
Norway	380	1,050	1,575	3,005
Portugal	—	1,340	1,828	3,168
Spain	11,883	19,038	18,554	49,475
Sweden	12	1,493	1,604	3,109
Switzerland	2,575	4,333	4,465	11,373
West Germany	6,728	11,618	12,073	30,419
TOTAL	42,458	90,721	107,014	240,200

SALES □

ADVERTISING

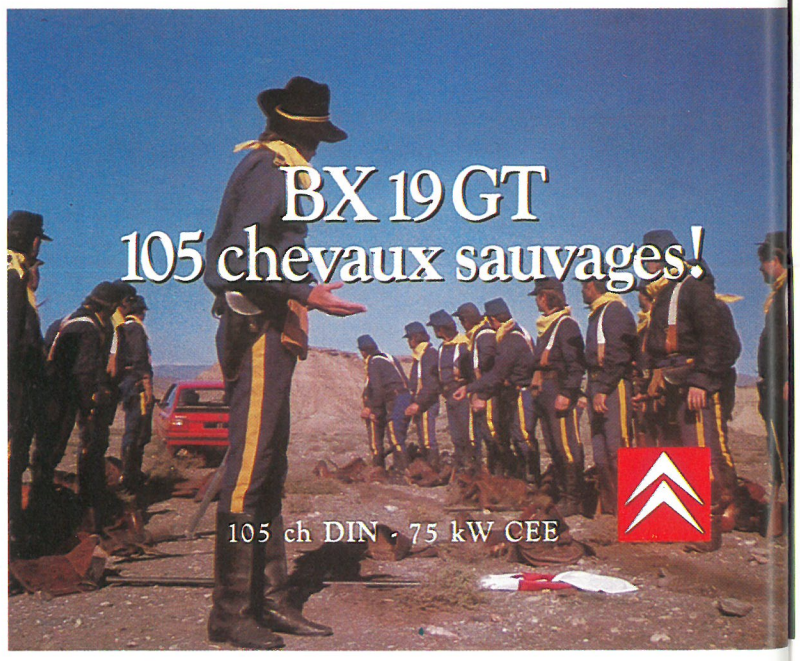
"STAR STRATEGY"

In 1982 the BX signalled a change in Citroën's publicity and the strategy of its advertising agency RSC&G. Its launch was to be a celebration, a shout of triumph aimed at a public which, according to market research, wanted nothing more than to be persuaded.

The studies carried out by the publicity team of Jacques Seguela suggested that the policy of "dissecting" a product, of spelling out its virtues one by one, should be abandoned in favour of a more global approach. The BX would be a star whose physique (sporting), lifestyle (intense), style (cinemascope), outlook (love, love!) and surroundings (Club Mediterranee) were the kind of things dreams were made of, which people wanted to experience.

These parameters were decided upon in line with a plan of campaign drawn up by the marketing department. Its theme: conquest. The development of the publicity had to parallel that of the product, so it had to be young and dynamic like its target audience.

The technique used during the first BX campaign was therefore to astonish a public whose expectations had been aroused by a deluge of "teaser" posters in which a dream-world was evoked (it was the end of the holiday season); they announced the product without showing it. Everyone was waiting for it. A week later the scene was completed by its star the BX which at the same time made its first appearance on the television screen.



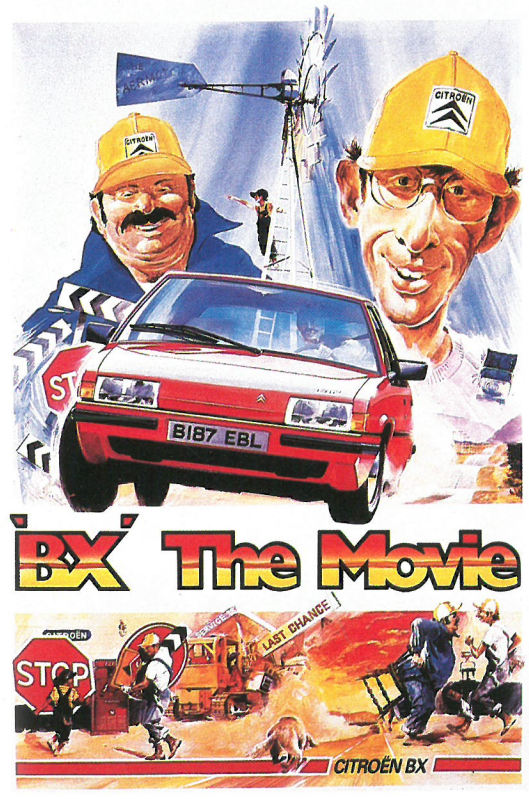
The BX was red, like love, conquest and life. The flavour of the campaign had been established: the car with personality seemed to have become a living thing. "She lives; she breathes; she is waiting." In the TV commercial a couple drive towards the sea to the blackground of Julien Clerc's song "J'aime, j'aime, j'aime" and the car concludes the shot by plunging joyfully into the water.

DATES

1983 - The accent of publicity shifts partly away from romanticism and towards humour. Margaret, the pretty driver in the red sweater, does her bit to emphasise the mischievous, youthful, dynamic image of the BX diesel, always red, which drives on a beach, races with and beats a slightly too "macho" Buggy.

1984 - Julien Clerc, whose own image corresponds exactly with that of the target audience, capers fondly with the sporting BX GT, yet again red.

1985 - The BX sport, red for pleasure, plucks up the courage to run in Formula 1 at the Daytona circuit.



1986 - The BX 19 GT—red, red, red—takes the essence of a troop of cavalry—105 superb thoroughbreds—and turns them into pure horsepower before driving away in a series of spectacular slides.

ABROAD

The BX personality has been expressed according to country and temperament. In Italy, publicity has taken account of the affection Italians feel for their cars: "Sono BX, facile da amare" (I am BX, easy to love), said the first advertisements. Later campaigns capitalised on the same technique.

In Spain, the BX became a "hymn of joy" Later Spanish publicity reflected the French dream-theme, the sea, the beach, linking the BX with wild horses to show its dynamism.

In German-speaking Switzerland, the BX was as tireless as the wolf, that endless runner expressing notions of strength, efficiency and endurance.

In Britain, posters and films showed in a humorous way the excellent fuel economy and easy servicing: "loves driving, hates garages" and "BX The Movie".

The Belgians showed its efficiency, safety, strength and fuel economy in comparative tests, going so far as to show the resistance of the composite materials to a blast from a shotgun.

The nordic countries often contented themselves with technical explanations or extracts from press road tests.

Austria lent point to its performance by entrusting the wheel to a pantomime horse...

In 1986 however, it was decided to harmonise the international image of the BX with the production of film campaigns common to several countries.

COMPETITION

In order to obtain homologation from the Federation Internationale de Sport Automobile in Group B for rally cars, Citroën put on sale in January 1986 a limited series of 200 examples of a competition BX, the BX4TC with four-wheel drive and a turbocharged engine developing 200 bhp. From this batch the Competitions Department took 20 cars to develop further into the BX4TC "Evolution" with 380 bhp, to prepare for the marque's contesting the World Rally Championship.

COMPETITION

BX 4 TC "LIMITED EDITION"

Before Citroën could begin building a car capable of taking part in the World Rally Championship, Guy Verrier, manager of the Competition Department, took two factors into consideration. One was that the company would have to build the 200 examples technically similar to the rally cars to obtain the necessary Group B homologation, but that these cars should be saleable "grand tourers" with genuine comfort and plenty of space for passengers and luggage; the other was that the cars should be built with existing and well-proven parts and machinery from the PSA group.
The transmission is taken to all four wheels and there are two differentials (front and rear). The torque is split 50:50 front to rear and the rear wheel drive can be disconnected with a simple manual operation.

ENGINE
The engine is an in-line four-cylinder with electronic fuel injection, a turbocharger and electric compressor with air-air intercooler.
Type N9TE, 4 cylinders in-line—cast-iron block with integral cylinders, light alloy head. Single chain-driven overhead camshaft. Fuel supply: Bosch L-Jetronic injection. Supercharging: Garrett T3 turbocharger with upstream electric compressor. Air-air intercooler. Lubricant: TOTAL. Capacity: 2,141cc. Bore/stroke: 91.4 × 81.6mm. Compression ratio: 7:1. Maximum speed: 6,000rpm, governed by fuel cut-off. Maximum power: 200bhp DIN at 5,750rpm. Maximum torque: 217 lb-ft at 2,750rpm.

GEARBOX - TRANSMISSION
Citroën SM type 5-speed gearbox installed in-line. Single dry-disc clutch. Propeller shaft with universal joints. Limited slip differentials (30%) front and rear. Disconnection of rear driveline by manual control.

BODYWORK
5-door, 5-seat saloon, painted white. Bonnet, rear hatch, front and rear wings in reinforced composite material. Special to type dashboard including: speedometer, rev counter, boost pressure gauge, coolant temperature gauge, oil temperature gauge, oil pressure. Grained leather steering wheel. Six headlamps, four of them long-range.

SUSPENSION
All-independent, hydropneumatic, constant ride height irrespective of load. The axes of the front and rear suspension arms can be adjusted vertically to modify the ride height.

STEERING
Power-assisted rack and pinion. Steering ratio 14.48:1. Turns lock to lock: 2.5. Steering wheel diameter: 15ins.

WHEELS AND TYRES
Light alloy wheels: 150 TR 380 FH
Michelin tyres: 210/55 VR 390 TRX

DIMENSIONS AND WEIGHTS
Length overall 177.6ins. Width overall 72.0ins. Weight 3,031 lbs. Fuel tank capacity 18.3 gallons (83 litres). Luggage volume 10.6ft³ to 46.3ft³ (with back seat folded).

PERFORMANCE
Maximum speed: 137mph approx. Standing 1/4-mile: 14.3sec; kilometre: 27.5sec. French fiscal rating: 10CV.

All inquiries regarding the purchase of one of these vehicles should be addressed to: Jean-Claude Mory, Service Commercial Automobiles Citroën, 62, boulevard Victor-Hugo, F-92200 Neuilly-sur-Seine, Telephone (1) 47.48.30.71.

BX 4 TC "EVOLUTION"

The BX 4 TC "Evolution" is a specialised version of the BX 4 TC, twenty examples of which have been prepared by the Citroën Competitions Department for use in top-level competition. This version has more power and performance: engine 380bhp DIN at 7,000rpm, maximum torque 333 lb-ft at 5,500rpm. The transmission, hydropneumatic suspension, steering and brakes are all modified by comparison with those of the BX4TC "limited Edition". Weight: 2,600 lbs.

Two BX 4 TC "Evolutions" driven by Jean-Claude Andruet and Philippe Wambergue took part in the Monte Carlo Rally and in the Swedish Rally, where Andruet finished 6th overall.

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English translation: Brenda Miller

TECHNICAL SPECIFICATIONS BX

	SALOONS			
	PETROL			
	BX	BX 14 E	BX 14 RE	BX 16 S
GENERAL				
Homologation No	XB - XA	XB - XD	XB - XD	XB - XB
Capacity cc	1360	1360	1360	1580
Max power bhp (DIN)	62	72	72	94
Fiscal rating (CV)	6	7	7	7
Seats	5	5	5	5
ENGINES				
Type (transverse)	150 A - XY 6 C	150 C - XY 6 D	150 C - XY 6 D	171 C - XU 5 S
Cylinders	4 in-line	4 in-line	4 in-line	4 in-line
Capacity (cc)	1360	1360	1360	1580
Bore - Stroke (mm)	75 - 77	75 - 77	75 - 77	83 - 73
Compression ratio	9.3/1	9.3/1	9.3/1	9.5/1
Max power, kW ISO/rpm	44.6 - 5500	51.6 - 5750	51.6 - 5750	66 - 6000
Max power, bhp DIN/rpm	62 - 5500	72 - 5750	72 - 5750	94 - 6000
Torque, mdaN ISO/rpm	10.5 - 2500	10.5 - 3000	10.5 - 3000	13.5 - 3250
Torque, mkg DIN/rpm	11 - 2500	11 - 3000	11 - 3000	14 - 3250
Specific power, kW/litre	32.80	37.90	37.90	41.80
Specific power, bhp/litre	45.60	52.90	52.90	59.50
Power-weight ratio, kg/kW	20.20	17.40	17.40	14.40
Power-weight ratio, kg/bhp	14.50	12.50	12.50	10.40
Fuel	Petrol	Petrol	Petrol	Petrol
Supply system	Carburettor	Carburettor	Carburettor	Carburettor
Idling speed (rpm)	750	825	825	650
Max governed speed - V : unladen — C : laden	6200 (v)	6200 (v)	6200 (v)	6200 (v)
Injectors				
Cylinder head	Light alloy	Light alloy	Light alloy	Light alloy
Valve diameter, inlet/exhaust (mm)	36.8 - 29.3	36.8 - 29.3	36.8 - 29.3	40 - 33
Camshaft	overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron
Valve timing (1) : Inlet opens BTDC°	− 4	0	0	3.50
Exhaust opens BBDC°	30	43	43	38.30
Inlet closes ABDC°	29	42	42	34.30
Exhaust closes ATDC°	− 5	− 1	− 1	− 0.50
Valve clearance: inlet (mm)	0.10	0.10	0.10	0.20
exhaust (mm)	0.25	0.25	0.25	0.40
Cylinder block	Light alloy	Light alloy	Light alloy	Light alloy
Crankshaft main bearings	5	5	5	5
Battery: volts-amps	12 - 175 A	12 - 175 A	12 - 175 A	12 - 225 A
Alternator (watts)	675	675	675	675
Ignition	Transistorised	Transistorised	Transistorised	Transistorised
Sparking plugs:				
Champion	S 281 YC	S 281 YC	S 281 YC	S 279 YC
Eyquem	C 62 LJS	C 62 LJS	C 62 LJS	C 72 LJS
Bosch	H 7 DC	H 7 DC	H 7 DC	H 6 DC
Glowplugs				
TRANSMISSION				
Clutch	Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc
External/internal dia. (mm)	181.5 - 127	181.5 - 127	181.5 - 127	200 - 133
Clamping force (kg)	335	335	335	410
Gearbox	Manual	Manual	Manual	Manual
Forward speeds	4	5	5	5
Gear ratios 1st	0.2575	0.2575	0.2575	0.3023
Gear ratios 2nd	0.4821	0.4354	0.4354	0.5312
Gear ratios 3rd	0.7260	0.6660	0.6660	0.7812
Gear ratios 4th	1.0588	0.8894	0.8894	1.0322
Gear ratios 5th		1.1060	1.1060	1.3214
Gear ratios Reverse	0.2802	0.2802	0.2802	0.3000
Final drive ratio	15 × 58	15 × 58	15 × 58	16 × 67
Road speed in gears at 1000 rpm 1st	7.18	7.19	7.19	7.78
Road speed in gears at 1000 rpm 2nd	13.45	12.15	12.15	13.69
Road speed in gears at 1000 rpm 3rd	20.27	18.60	18.60	20.14
Road speed in gears at 1000 rpm 4th	29.57	24.83	24.83	26.61
Road speed in gears at 1000 rpm 5th		30.88	30.88	34.07
Road speed in gears at 1000 rpm Reverse	7.81	7.82	7.82	7.78
TYRES				
Tyres front - rear	145 SR 14 MX	145 SR 14 MX	145 SR 14 MX	165/70 HR 14 MXL
Pressures front - rear (bars)	1.9 - 1.9	1.9 - 1.9	1.9 - 1.9	2.0 - 2.0
Rolling circumference (m)	1.80	1.80	1.80	1.80
SUSPENSION				
Front				
• Offset (mm)	− 7.9	− 7.9	− 7.9	− 7.9
• Castor angle °	2° + 35'	2° ± 35'	2° ± 35'	2° ± 35'
• Camber angle °	0° + 39'	0° ± 39'	0° ± 39'	0° + 39'
• Alignment (mm)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)
• Kingpin inclination °	12	12	12	12
Rear				
• Camber angle°	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'
• Alignment (mm)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)

(1) With theoretical valve play: 0.70 mm BX - BX 14 and BX 19 GTI
1.00 mm BX 16 - BX 19 TRS
0.80 mm BX Diesel

SALOONS YEAR MODEL 1987

SALOONS						
PETROL				DIESEL		
BX 16 RS	BX 16 TRS	BX 19 TRS	BX 19 GTI	BX D	BX 19 RD	BX 19 TRD
XB - XB / XB - XB/A	XB - XB / XB - XB/A	XB - XG / XB - XG/A	XB - EG	XB - XP	XB - XC / XB - XC/A	XB - XC / XB - XC/A
1905	1905	1905	1905	1769	1905	1905
94	94	105	125	60	65	65
7 | 7	7 | 7	9 | 8	9	6	6 | 7	6 | 7
5	5	5	5	5	5	5
171 C - XU 5 S	171 C - XU 5 S	D 2 A - XU9 2C	D6A - XU9 J2	161 A - XUD 7	162 - XUD 9	162 - XUD 9
4 in-line	4 in-line	4 in-line	4 in-line	4 in-line	4 in-line	4 in-line
1580	1580	1905	1905	1769	1905	1905
83 - 73	83 - 73	83 - 88	83 - 88	80 - 88	83 - 88	83 - 88
9.5/1	9.5/1	9.3/1	9.5/1	23/1	23.5/1	23.5/1
66 - 6000	66 - 6000	75 - 5600	90 - 5500	43.5 - 4600	47 - 4600	47 - 4600
94 - 6000	94 - 6000	10.5 - 5600	125 - 5500	60 - 4600	65 - 4600	65 - 4600
13.5 - 3250	13.5 - 3250	15.8 - 3000	17 - 4500	11 - 2000	11.8 - 2070	11.8 - 2070
14 - 3250	14 - 3250	16.5 - 3000	17.8 - 4500	11 - 2000	12.2 - 2070	12.2 - 2070
41.80	41.80	39.40	47.20	24.60	24.67	24.67
59.50	59.50	55.10	65.60	33.90	34.12	34.12
14.40	14.40	13.30	11.40	22.80	21.06	21.06
10.40	10.40	9.50	8.20	16.50	15.23	15.23
Petrol	Petrol	Petrol	Petrol	Diesel	Diesel	Diesel
Carburettor	Carburettor	Carburettor	Elect. Fuel Inj.	Inj. pump, RotoDiesel/Bosch	Inj. pump, RotoDiesel/Bosch	Inj. pump, RotoDiesel/Bosch
650	650	650	850	800	800	800
6200 (v)	6200 (v)	6200 (v)	6200 (v)	4600 (c)	4600 (c)	4600 (c)
			Bosch	RotoDiesel/Bosch	RotoDiesel/Bosch	RotoDiesel/Bosch
Light alloy	Light alloy	Light alloy	Light alloy	Light alloy	Light alloy	Light alloy
40 - 33	40 - 33	39.5 - 33	40.6 - 33	38 - 33	38 - 33	38 - 33
Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron
3.50	3.50	– 3	6.06	4.50	– 42	– 42
38.30	38.30	40.80	43.23	43	46	46
34.30	34.30	46	48	28.50	74	74
– 0.50	0.50	2.20	1.06	0	– 90	– 90
0.20	0.20	0.20	0.10	0.15	0.15	0.15
0.40	0.40	0.40	0.25	0.30	0.30	0.30
Light alloy	Light alloy	Light alloy	Light alloy	Cast iron	Cast iron	Cast iron
5	5	5	5	5	5	5
12 - 225 A	12 - 225 A	12 - 225 A	12 - 225 A	12 - 300 A	12 - 300 A	12 - 300 A
675	675	675	675	675	675	675
Transistorised	Transistorised	Transistorised	Transistorised			
S 279 YC	S 279 YC	S 279 YC				
C 72 LJS	C 72 LJS	C 72 LJS	FC 62 LS			
H 6 DC	H 6 DC	H 6 DC				
				Beru	Beru	Beru
Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc
200 - 133	200 - 133	200 - 133	200 - 133	200 - 133	200 - 133	200 - 133
410	410	450	450	450	450	450
Manual / Auto.	Manual / Auto.	Manual / Auto.	Manual	Manual	Manual / Auto.	Manual / Auto.
5 / 4	5 / 4	5 / 4	5	5	5 / 4	5 / 4
0.3023 / 0.3598	0.3023 / 0.3598	0.3023 / 0.3598	0.3023	0.3023	0.3023 / 0.3584	0.3023 / 0.3584
0.5312 / 0.6340	0.5312 / 0.6340	0.5312 / 0.6340	0.5312	0.5312	0.5312 / 0.6314	0.5312 / 0.6314
0.7812 / 0.8679	0.7812 / 0.8679	0.7352 / 0.8679	0.7352	0.7812	0.7812 / 0.8644	0.7812 / 0.8644
1.0322 / 1.1748	1.0322 / 1.1748	0.9354 / 1.1748	0.9354	1.0322	1.0322 / 1.1701	1.0322 / 1.1701
1.3214	1.3214	1.1562	1.1562	1.3214	1.3214	1.3214
0.3000 / 0.3069	0.3000 / 0.3069	0.3000 / 0.3069	0.3000	0.3000	0.3000 / 0.3057	0.3000 / 0.3057
16 × 67 / 18 × 66	16 × 67 / 18 × 66	16 × 59 / 20 × 63	17 × 61	16 × 67	16 × 63 / 16 × 59	16 × 63 / 16 × 59
7.78 / 10.89	7.78 / 10.89	8.84 / 12.33	8.89	7.78	8.26 / 10.49	8.26 / 10.49
13.69 / 19.19	13.69 / 19.19	15.55 / 21.73	15.90	13.69	14.52 / 18.48	14.52 / 18.48
20.14 / 26.27	20.14 / 26.27	21.52 / 29.75	21.62	20.14	21.36 / 25.30	21.36 / 25.30
26.61 / 35.56	26.61 / 35.56	27.38 / 40.27	27.51	26.61	28.22 / 34.25	28.22 / 34.25
34.07	34.07	33.85	34.01	34.07	36.13	36.13
7.78 / 7.78	7.78 / 7.78	8.78 / 10.52	8.82	8.20	8.20 / 8.95	8.20 / 8.95
165/70 HR 14 MXL	165/70 HR 14 MXL	165/70 HR 14 MXV	185/60 HR 14 MXV	165/70 TR 14 MXL	165/70 TR 14 MXL	165/70 TR 14 MXL
2.0 - 2.0	2.0 - 2.0	2.0 - 2.2	2.2 - 2.2	2.1 - 2.1	2.1 - 2.1	2.1 - 2.1
1.80	1.80	1.80	1.76	1.80	1.80	1.80
– 7.9	– 7.9	– 7.9	– 7.9	– 7.9	7.9	7.9
2° ± 35'	2° ± 35'	2° + 35'	2° + 35'	2° + 35'	2° ± 35'	2° ± 35'
0° ± 39'	0° ± 39'	0° ± 39'	0° ± 39'	0° ± 39'	0° ± 39'	0° ± 39'
0 a 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)
12	12	12	12	12	12	12
– 9' ± 20'	9' + 20'	– 9' ± 20'	– 1°	– 9' ± 20'	– 9' + 20'	– 9' + 20'
0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)

TECHNICAL SPECIFICATIONS BX

		SALOONS			
		PETROL			
		BX	BX 14 E	BX 14 RE	BX 16 S

SPRING/DAMPER UNITS

Front		Hydraulic, high-flexibility, constant-height			
• sphere calibration pressure (bars)		55	55	55	55
• Anti-roll bar diameter (mm)		22.50	22.50	22.50	22.50
• flexibility at wheel (mm/100 kg)	empty	164	164	164	147
	laden	118	118	118	106
• frequency (Hertz)	empty	0.65	0.65	0.65	0.67
	laden	0.71	0.71	0.71	0.74
Rear		Hydraulic, high-flexibility, constant-height			
• sphere calibration pressure (bars)		40	40	40	40
• anti-roll bar diameter (mm)		17	17	17	17
• flexibility at wheel (mm/100 kg)	empty	290	290	290	281
	laden	101	101	101	99
• frequency (Hertz)	empty	0.61	0.61	0.61	0.61
	laden	0.80	0.80	0.80	0.81

BRAKES

Type	Hydraulic power braking - Dual circuit - Discs at the front and at the rear			
ABS (Option possible)	no	no	no	no
Disc diameter Front-Rear (mm)	266 - 224	266 - 224	266 - 224	266 - 224
Disc thickness Front-Rear (mm)	10 - 7	10 - 7	10 - 7	10 - 7
Pad area Front-Rear (cm^2)	140 - 68	140 - 68	140 - 68	140 - 68
Slave cylinder dia. Front-Rear (mm)	50 - 30	50 - 30	50 - 30	50 - 30

STEERING

Type	Manual	Manual	Manual	Manual
Steering wheel diameter (mm)	380	380	380	380
Steering ratio	1/20	1/20	1/20	1/20
Turns lock-to-lock	3.76	3.76	3.76	3.76
Turning circle, kerbs-walls (m)	10.17 - 10.90	10.17 - 10.90	10.17 - 10.90	10.18 - 10.90

AERODYNAMICS

Cd	0.33	0.33	0.33	0.34
A (m^2)	1.86	1.86	1.86	1.88
Cd.A (m^2)	0.63	0.63	0.63	0.64

DIMENSIONS

Length overall (m)	4.24	4.24	4.24	4.24
Width overall (m)	1.68	1.68	1.68	1.68
Height (m)	1.36	1.36	1.36	1.36
Wheelbase (m)	2.655	2.655	2.655	2.655
Track Front-Rear (m)	1.41 - 1.35	1.41 - 1.35	1.41 - 1.35	1.42 - 1.36
Ground clearance laden (m)	0.16	0.16	0.16	0.16
Elbow width Front-Rear (m)	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36
Shoulder width Front-Rear (m)	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35
Boot length, seat upright - folded (m)	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43
Load platform width, min-max (m)	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35
Load space height, min-max ①② (m)	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79
Sill height for loading (m)	0.47	0.47	0.47	0.47
Luggage volume, ③④⑤ (cm^3)	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455
Rear hatch opening: height-width, max-min (m)	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27
Total glass area (m^2)	2.98	2.98	2.98	2.98

CAPACITIES (litres)

Fuel tank		44	44	44	52
Engine oil	from dry	Common to the engine and gearbox			5.0
	Oil change	4.5	4.5	4.5	4.75
Gearbox oil					1.8
Hydraulic system fluid		3.9	3.9	3.9	3.9
Cooling system		6.5	6.5	6.5	6.5

WEIGHTS (kg)

Kerb, running order	900	900	900	950
Maximum laden	1380	1380	1380	1450
Distribution, Front-Rear	543 - 357	543 - 357	543 - 357	577 - 373
Max trailer, unbraked-braked	450 - 1000	450 - 1000	450 - 1000	475 - 1100
Max towhitch load	60	60	60	70
Max roofrack load	75	75	75	75
Payload (with options)	480	480	480	500

PERFORMANCE

0 - 400 m (sec)	19.50	19.50	19.50	17.70
0 - 1000 m (sec)	37.20	36.70	36.70	32.90
0 - 62 mph (sec)	15.80	15.50	15.50	11.30
Max speed (km/h)	155	163	163	176

FUEL CONSUMPTION (UTAC)

Steady 56 mph	5.6	5.5	5.5	5.5
Steady 75 mph	7.5	7.1	7.1	7.0
Urban cycle	7.7	8.5	8.5	8.9
Average	6.9	7.0	7.0	7.1

① Under rear shelf
② To ceiling
③ Back seat in use
④ Back seat folded
⑤ Back seat folded, to ceiling
⑥ Power assisted in option

SALOONS YEAR MODEL 1987

SALOONS						
PETROL				DIESEL		
BX 16 RS	BX 16 TRS	BX 19 TRS	BX 19 GTI	BX D	BX 19 RD	BX 19 TRD
Hydraulic, high-flexibility, constant-height						
55	55	55		55	55	55
22.50	22.50	23	23	22.50	22.50	22.50
147	147	159		125	125	125
106	106	114	112	94	94	94
0.67	0.67	0.77		0.81	0.81	0.81
0.74	0.74	0.83		0.86	0.86	0.86
Hydraulic, high-flexibility, constant-height						
40	40	40		40	40	40
17	17	18	19	17	17	17
281	281	286		275	275	275
99	99	102	98	98	98	98
0.61	0.61	0.72		0.60	0.60	0.60
0.81	0.81	0.89		0.80	0.80	0.80
Hydraulic power braking - Dual circuit - Discs at the front and at the rear						
no	no	no	yes	no	no	no
266 - 224	266 - 224	266 - 224	266 - 224	266 - 224	266 - 224	266 - 224
10 - 7	10 - 7	10 - 7	10 - 7	10 - 7	10 - 7	10 - 7
140 - 68	140 - 68	140 - 68	140 - 68	140 - 68	140 - 68	140 - 68
50 - 30	50 - 30	50 - 30	50 - 30	50 - 30	50 - 30	50 - 30
Manual Ⓐ	Manual Ⓐ	Power assisted	Power assisted	Manual	Manual	Manual
380	380	380	380	380	380	380
1/20	1/20	1/15.50	1/15.50	1/23	1/23	1/23
3.76	3.76	2.83	2.83	4.38	4.38	4.38
10.18 - 10.90	10.18 - 10.90	10.35 - 11.23	10.35 - 11.23	10.18 - 10.90	10.18 - 10.90	10.18 - 10.90
0.34	0.34	0.34	0.34	0.34	0.34	0.34
1.89	1.89	1.89	1.93	1.88	1.88	1.89
0.64	0.64	0.64	0.66	0.64	0.64	0.64
4.24	4.24	4.24	4.24	4.24	4.24	4.24
1.68	1.68	1.68	1.68	1.68	1.68	1.68
1.36	1.36	1.36	1.35	1.36	1.36	1.36
2.655	2.655	2.655	2.655	2.655	2.655	2.655
1.42 - 1.36	1.42 - 1.36	1.42 - 1.36	1.43 - 1.38	1.42 - 1.36	1.42 - 1.36	1.42 - 1.36
0.16	0.16	0.16	0.16	0.16	0.16	0.16
1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36
1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35
0.89 - 1.43	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43	0.89 - 1.43
1.12 - 1.35	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35	1.12 - 1.35
0.44 - 0.79	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79	0.44 - 0.79
0.47	0.47	0.47	0.47	0.47	0.47	0.47
444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455	444 - 907 - 1455
0.86 - 1.27	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27	0.86 - 1.27
2.98	3.04	3.04	2.98	2.98	2.98	3.04
52	52	66	66	52	52	52
5.0	5.0	5.0	5.0	5.0	4.6	4.6
4.75	4.75	4.75	4.75	4.5	4.2	4.2
1.8 5.9	1.8 5.9	1.8 5.9	1.8	1.8	1.8	1.8
3.9	3.9	3.9	3.9	3.9	3.9	3.9
6.5	6.5	6.5	6.5	6.5	6.5	6.5
950	950	995	1025	990	990	990
1450	1450	1460	1480	1500	1500	1500
577 - 373	577 - 373	600 - 395	615 - 410	618 - 372	618 - 372	618 - 372
475 - 1100	475 - 1100	495 - 1100	510 - 1100	495 - 1100	495 - 1100	495 - 1100
70	70	70	70	70	70	70
75	75	75	75	75	75	75
500	500	465	455	510	510	510

Manual	Auto.	Manual	Auto.	Manual	Auto.			Manual	Auto.	Manual	Auto.
17.70	19.30	17.70	19.30	17.0	18.1	16.4	20.2	19.60	20.10	19.60	20.10
32.90	35.60	32.90	35.60	31.7	33.4	30.5	37.9	36.90	37.50	36.90	37.50
11.30	13.80	11.30	13.80	9.7	11.8	8.9	17.2	15.50	16.20	15.50	16.20
176	170	176	170	185	180	198	155	157	156	157	156
5.5	5.8	5.5	5.8	6.0	6.1	6.1	4.6	4.7	5.0	4.7	5.0
7.0	7.6	7.0	7.6	7.6	7.6	8.2	6.4	6.2	6.7	6.2	6.7
8.9	8.7	8.9	8.7	9.5	9.5	10.4	6.4	6.5	6.5	6.5	6.5
7.1	7.4	7.1	7.4	7.7	7.7	8.2	5.8	5.8	6.1	5.8	6.1

CITROËN
INFORMATION AND
PUBLIC RELATIONS
JUNE 1986

TECHNICAL SPECIFICATIONS BX

	ESTATES			
	PETROL			DIESEL
	BX 14 E	BX 16 RS	BX 19 TRS	BX 19 D

GENERAL

Homologation No	XB - XY	XB - XE	XB - XH	XB - XH/A	XB - XF
Capacity cc	1360	1580	1905		1905
Max power bhp (DIN)	72	94	105		65
Fiscal rating (CV)	7	7	9	8	7
Seats	5	5	5		5

ENGINES

Type (transverse)	150 C - XY 6 D	171 C - XU 5 S	D 2 A - XU9 2C	162 - XUD 9
Cylinders	4 in-line	4 in-line	4 in-line	4 in-line
Capacity (cc)	1360	1580	1905	1905
Bore-Stroke (mm)	75 - 77	83 - 73	83 - 88	83 - 88
Compression ratio	9.3/1	9.5/1	9.3/1	23.5/1
Max power, kW ISO/rpm	51.6 - 5750	66 - 6000	75 - 5600	47 - 4600
Max power, bhp DIN/rpm	72 - 5750	94 - 6000	105 - 5600	65 - 4600
Torque, mdaN ISO/rpm	10.5 - 3000	13.5 - 3250	15.8 - 3000	11.8 - 2000
Torque, mkg DIN/rpm	11 - 3000	14 - 3250	16.5 - 3000	12.2 - 2000
Specific power, kW/litre	37.90	41.80	39.40	24.70
Specific power, bhp/litre	52.90	59.50	55.10	34.10
Power-weight ratio, kg/kW	18.20	15.10	13.80	22
Power-weight ratio, kg/bhp	13.10	10.60	9.80	15

Fuel	Petrol	Petrol	Petrol	Diesel
Supply system	Carburettor	Carburettor	Carburettor	Inj. pump. RotoDiesel/Bosch
Idling speed (rpm)	825	850	850	800
Max governed speed - V : unladen — C : laden	6200 (v)	6200 (v)	6200 (v)	4600 (c)
Injectors				RotoDiesel/Bosch

Cylinder head	Light alloy	Light alloy	Light alloy	Light alloy
Valve diameter, inlet/exhaust (mm)	36.8 - 29.3	40 - 33	39.5 - 33	38 - 33
Camshaft	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron
Valve timing (1): Inlet opens BTDC°	0	3.50	− 3	42
Exhaust opens BBDC°	43	38.30	40.80	46
Inlet closes ABDC°	42	34.30	46	74
Exhaust closes ATDC°	− 1	0.50	2.20	− 90
Valve clearance: inlet (mm)	0.10	0.20	0.20	0.15
exhaust (mm)	0.25	0.40	0.40	0.30
Cylinder block	Light alloy	Light alloy	Light alloy	Cast iron
Crankshaft main bearings	5	5	5	5

Battery: volts-amps	12 - 175 A	12 - 225 A	12 - 225 A	12 - 300 A
Alternator (watts)	675	675	675	675
Ignition	Transistorised	Transistorised	Transistorised	
Sparking plugs:				
Champion	S 281 YC	S 279 YC	S 279 YC	
Eyquem	C 62 LJS	C 72 LJS	C 62 LJS	
Bosch	H 7 DC	H 6 DC	N 7 DC	
Glow plugs				Beru

TRANSMISSION

Clutch	Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc
External/internal dia. (mm)	181.5 - 127	200 - 133	200 - 133	200 - 133
Clamping force (kg)	335	410	450	450

Gearbox		Manual	Manual	Manual	Auto.	Manual
Forward speeds		5	5	5	4	5
Gear ratios	1st	0.2575	0.3023	0.3023	0.3598	0.3023
	2nd	0.4354	0.5312	0.5312	0.6340	0.5312
	3rd	0.6660	0.7812	0.7812	0.8679	0.7812
	4th	0.8894	1.0322	1.0322	1.1748	1.0322
	5th	1.1060	1.3214	1.3214		1.3214
	Reverse	0.2802	0.3000	0.3000	0.3069	0.3000
Final drive ratio		15 × 58	16 × 67	16 × 65	20 × 63	16 × 65
Road speed in gears at 1000 rpm	1st	7.19	7.78	8.03	12.33	8.03
	2nd	12.15	13.69	14.11	21.73	14.11
	3rd	18.60	20.14	20.75	29.75	20.75
	4th	24.83	26.61	27.43	40.27	27.43
	5th	30.88	34.07	35.12		35.12
	Reverse	7.82	7.78	7.97	10.52	7.97

TYRES

Tyres front-rear	145 SR 14 MX	165/70 HR 14 MXL	165/70 HR 14 MXV	165/70 TR 14 MXL
Pressures front-rear (bars)	2.2 - 2.3	2.3 - 2.5	2.3 - 2.5	2.3 - 2.5
Rolling circumference (m)	1.80	1.80	1.80	1.80

SUSPENSION

Front				
• Offset (mm)	− 7.9	− 7.9	− 7.9	− 7.9
• Castor angle °	2° ± 35'	2° + 35'	2° ± 35'	2° ± 35'
• Camber angle °	0° ± 30'	0° ± 30'	0° − 30'	0° ± 30'
• Alignment (mm)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)
• Kingpin inclination °	12	12	12	12
Rear				
• Camber angle °	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'
• Alignment (mm)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)

(1) With theorical valve play: 0.70 mm BX 14
1.00 mm BX 16 et 19 Petrol
0.80 mm BX Diesel

ESTATES and "ENTREPRISE" YEAR MODEL 1987

ESTATES	SALOONS ENTREPRISE			ESTATES ENTREPRISE		
DIESEL	PETROL		DIESEL	PETROL		DIESEL
BX 19 RD	BX 14 E	BX 16 RS	BX 19 D	BX 14 E	BX 16 S	BX 19 D
XB - XF	XB - XD/E	XB - XB/E	XB - XC/E	XB - XY/E	XB - XE/E	XB - XF/E
1905	1360	1580	1905	1360	1580	1905
65	72	94	65	72	94	65
7	8	9	8	8	9	8
5	2	2	2	2	2	2
162 - XUD 9	150 C - XY 6 C	171 C - XU 5 S	162 - XUD 9	150 C - XY 5 D	171 C - XU5 S	162 - XUD 9
4 in-line	4 in-line	4 in-line	4 in-line	4 in-line	4 in-line	4 in-line
1905	1360	1580	1905	1360	1580	1905
83 - 88	75 - 77	83 - 73	83 - 88	75 - 77	83 - 73	83 - 88
23.5/1	9.3/1	9.5/1	23.5/1	9.3/1	9.5/1	23.5/1
47 - 4600	51.6 - 5750	66 - 6000	47 - 4600	51.6 - 5750	66 - 6000	47 - 4600
65 - 4600	72 - 5750	94 - 6000	65 - 4600	72 - 5750	94 - 6000	65 - 4600
11.8 - 2000	10.5 - 3000	13.5 - 3250	11.8 - 2000	10.5 - 3000	13.5 - 3250	11.8 - 2070
12.2 - 2000	11 - 3000	14 - 3250	12.2 - 2000	11 - 3000	14 - 3250	12.2 - 2070
24.70	37.90	41.80	24.70	32.50	41.8	24.70
34.10	52.90	58.50	34.10	45.60	58.5	34.10
22	17.20	14.20	20.90	18.30	15	22
15	12.40	9.90	15.10	13.10	10.50	15
Diesel	Petrol	Petrol	Diesel	Petrol	Petrol	Diesel
Inj. pump, RotoDiesel/Bosch	Carburettor	Carburettor	Inj. pump, RotoDiesel/Bosch	Carburettor	Carburettor	Inj. pump, RotoDiesel/Bosch
800	825	650	800	825	650	800
4600 (c)	6200 (v)	6200 (v)	4600 (c)	6200 (v)	6200 (v)	4600 (c)
RotoDiesel/Bosch			RotoDiesel/Bosch			RotoDiesel/Bosch
Light alloy	Light alloy	Light alloy	Light alloy	Light alloy	Light alloy	Light alloy
38 - 33	36.8 - 29.3	40 - 33	38 - 33	36.8 - 29.3	40 - 33	38 - 33
Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron	Overhead, cast iron
− 42	0	3.50	− 42	0	3.50	− 42
46	43	38.30	46	43	38.30	46
74	42	34.30	74	42	34.30	74
90	− 1	− 0.50	− 90	− 1	− 0.50	− 90
0,15	0.10	0.20	0.15	0.10	0.20	0.15
0,30	0.25	0.40	0.30	0.25	0.40	0.30
Cast iron	Light alloy	Light alloy	Cast iron	Light alloy	Light alloy	Cast iron
5	5	5	5	5	5	5
12 - 300 A	12 - 175 A	12 - 225 A	12 - 300 A	12 - 175 A	12 - 225 A	12 - 300 A
675	675	675	675	675	675	675
	Transistorised	Transistorised		Transistorised	Transistorised	
	S 281 YC	S 279 YC		S 281 YC	S 279 YC	
	C 62 LJS	C 72 LJS		C 62 LJS	C 72 LJS	
	H 7 DC	H 6 DC		H 7 DC	H 6 DC	
Beru			Beru			Beru
Single dry-disc	Single dry-disc	Single dry-disc	Single dry-disc	Single disc-dry	Single dry-disc	Single dry-disc
200 - 133	181.5 - 127	200 - 133	200 - 133	181.5 - 127	200 - 133	200 - 133
450	335	410	450	335	410	450
Manual	Manual	Manual	Manual	Manual	Manual	Manual
5	5	5	5	5	5	5
0.3023	0.2575	0.3023	0.3023	0.2575	0.3023	0.3023
0.5312	0.4354	0.5312	0.5312	0.4354	0.5312	0.5312
0.7812	0.6660	0.7812	0.7812	0.6660	0.7812	0.7812
1.0322	0.8894	1.0322	1.0322	0.8894	1.0322	1.0322
1.3214	1.1060	1.3214	1.3214	1.1060	1.3214	1.3214
0.3000	0.2802	0.3000	0.3000	0.2802	0.3000	0.3000
16 × 65	15 × 58	16 × 67	16 × 63	15 × 58	16 × 67	16 × 65
8.03	7.19	7.78	8.26	7.19	7.78	8.03
14.11	12.15	13.69	14.52	12.15	13.69	14.11
20.75	18.60	20.14	21.36	18.60	20.14	20.75
27.43	24.83	26.61	28.22	24.83	26.61	27.43
35.12	30.88	34.07	36.13	30.88	34.07	35.12
7.97	7.82	7.73	8.20	7.82	7.73	7.97
165/70 TR 14 MXL	145 SR 14 MX	165/70 HR 14 MXL	165/70 TR 14 MXL	145 SR 14 MX	165/70 HR 14 MXL	165/70 TR 14 MXL
2.3 - 2.5	1.9 - 1.9	2.0 - 2.0	2.1 - 2.1	2.2 - 2.3	2.3 - 2.5	2.3 - 2.5
1.80	1.80	1.80	1.80	1.80	1.80	1.80
− 7.9	− 7.9	− 7.9	− 7.9	− 7.9	− 7.9	− 7.9
2° ± 35'	2° ± 35'	2° ± 35'	2° ± 35'	2° ± 35'	2° ± 35'	2° ± 35'
0° ± 30'	0° ± 30'	0° ± 30'	0° ± 30'	0° ± 30'	0° ± 30'	0° ± 30'
0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)	0 at 3 (Toe-out)
12	12	12	12	12	12	12
− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'	− 9' ± 20'
0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)	0 at 4 (Toe-in)

TECHNICAL SPECIFICATIONS BX

	ESTATES			
	PETROL			DIESEL
	BX 14 E	BX 16 RS	BX 19 TRS	BX 19 D

SPRING/DAMPER UNITS

Front		Hydraulic, high-flexibility, constant-height			
• sphere calibration pressure (bars)		55	55	55	55
• Anti-roll bar diameter (mm)		22.50	23	23	23
• flexibility at	empty		147	147	140
wheel (mm/100 kg)	laden	118	116	116	110
• frequency	empty		0.80	0.80	0.80
(Hertz)	laden		0.83	0.83	0.83
Rear		Hydraulic, high-flexibility, constant-height			
• sphere calibration pressure (bars)		40	40	40	40
• anti-roll bar diameter (mm)		18	18	18	18
• flexibility at	empty		282	282	294
wheel (mm/100 kg)	laden	101	82	82	83
• frequency	empty		0.69	0.69	0.68
(Hertz)	laden		0.90	0.90	0.89

BRAKES

Type	Hydraulic power braking - Dual circuit - Discs at the front and at the rear			
ABS (Option possible)	no	no	no	no
Disc diameter Front-Rear (mm)	266 - 224	266 - 224	266 - 224	266 - 224
Disc thickness Front-Rear (mm)	10 - 7	10 - 7	10 - 7	10 - 7
Pad area Front-Rear (cm^2)	140 - 68	140 - 68	140 - 68	140 - 68
Slave cylinder dia. Front-Rear (mm)	50 - 30	50 - 30	50 - 30	50 - 30

STEERING

Type	Manual	Manual ⑤	Power assisted	Manual ⑤
Steering wheel diameter (mm)	380	380	380	380
Steering ratio	1/23	1/23	1/15.5	1/23
Turns lock-to-lock	4.38	4.38	2.83	4.38
Turning circle, kerbs-walls (m)	10.17 - 10.90	10.18 - 10.90	10.35 - 11.23	10.18 - 10.90

AERODYNAMICS

Cd		0.36	0.36	0.36
A (m^2)		1.95	1.95	1.95
Cd.A (m^2)	0.65	0.71	0.71	0.71

DIMENSIONS

Length overall (m)	4.40	4.40	4.40	4.40
Width overall (m)	1.68	1.68	1.68	1.68
Height (m)	1.42	1.42	1.42	1.42
Wheelbase (m)	2.655	2.655	2.655	2.655
Track Front-Rear (m)	1.41 - 1.35	1.42 - 1.36	1.42 - 1.36	1.42 - 1.36
Ground clearance laden (m)	0.16	0.16	0.16	0.16
Elbow width Front-Rear (m)	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36	1.40 - 1.36
Shoulder width Front-Rear (m)	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35	1.38 - 1.35
Boot length, seat upright - folded (m)	1.09 - 1.70	1.09 - 1.70	1.09 - 1.70	1.09 - 1.70
Load platform width, min-max (m)	1.14 - 1.36	1.14 - 1.36	1.14 - 1.36	1.14 - 1.36
Load space height, min-max ①② (m)	0.44 - 0.90	0.44 - 0.90	0.44 - 0.90	0.44 - 0.90
Sill height for loading (m)	0.50	0.50	0.50	0.50
Luggage volume, ③④ (dm^3)	860 - 1803	860 - 1803	860 - 1803	860 - 1803
Rear hatch opening: height-width, max-min (m)	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270
Total glass area (m^2)	2.97	2.97	2.97	2.97

CAPACITIES (litres)

Fuel tank		52	52	52		52
Engine oil	from dry		5.0	5.0		5.0
	Oil change	Common oil	4.75	4.75		4.5
Gearbox oil		5.0	1.8	1.8	5.9	1.8
Hydraulic system fluid		3.9	3.9	3.9		3.9
Cooling system		6.5	6.5	6.5		6.5

WEIGHTS (kg)

Kerb, running order	942	996	1045		1037
Maximum laden	1455	1540	1600		1580
Distribution, Front-Rear	544 - 398	584 - 412	615 - 430		624 - 413
Max trailer, unbraked-braked	470 - 1000	495 - 1100	520 - 1100		520 - 1100
Max towhitch load	70	70	70		70
Max roofrack load	100	100	100		100
Payload (with options)	613	544	555		543

PERFORMANCE

			Manual	Auto.	
0 - 400 m (sec)	19.90	17.90	17.2		19.90
0 - 1000 m (sec)	37.60	33.40	32.3		37.60
0 - 62 mph (sec)	17.50	11.70	10.4		16.30
Max speed (km/h)	157	170	182	177	155

FUEL CONSUMPTION (UTAC)

Steady 56 mph	5.8	5.8	5.9	6.1	4.8
Steady 75 mph	7.8	7.5	7.8	7.8	6.6
Urban cycle	8.5	8.9	9.4	9.5	6.5
Average	7.4	7.4	7.7	7.8	6.0

① Under rear shelf
② To ceiling
③ Back seat in use
④ Back seat folded
⑤ Power assisted in option
⑥ Front

ESTATES and "ENTREPRISE" YEAR MODEL 1987

ESTATES	SALOONS ENTREPRISE			ESTATES ENTREPRISE		
DIESEL	PETROL		DIESEL	PETROL		DIESEL
BX 19 RD	BX 14 E	BX 16 RS	BX 19 D	BX 14 E	BX 16 S	BX 19 D
Hydraulic, high-flexibility, constant-height						
55	55	55	55	55	55	55
23	22.50	22.50	22.50	22.50	23	23
140	164	147	125			
110	118	106	94	118	116	110
0.80	0.65	0.67	0.81			
0.83	0.71	0.74	0.86			
Hydraulic, high-flexibility, constant-height						
40	40	40	40	40	40	40
18	17	17	17	18	18	18
294	290	281	275			
83	101	99	98	101	82	83
0.68	0.61	0.61	0.60			
0.89	0.80	0.81	0.80			
Hydraulic power braking - Dual circuit - Discs at the front and at the rear						
no	no	no	no	no	no	no
266 - 224	266 - 224	266 - 224	266 - 224	266 - 224	266 - 224	266 - 224
10 - 7	10 - 7	10 - 7	10 - 7	10 - 7	10 - 7	10 - 7
140 - 68	140 - 68	140 - 68	140 - 68	140 - 68	140 - 68	140 - 68
50 - 30	50 - 30	50 - 30	50 - 30	50 - 30	50 - 30	50 - 30
Manual ⑤	Manual	Manual ⑤	Manual ⑤	Manual	Manual ⑤	Manual ⑤
380	380	380	380	380	380	380
1/23	1/20	1/20	1/23	1/23	1/23	1/23
4.38	3.76	3.76	4.38	4.38	4.38	4.38
10.18 - 10.90	10.17 - 10.90	10.18 - 10.90	10.18 - 10.90	10.17 - 10.90	10.18 - 10.90	10.18 - 10.90
0.36	0.33	0.34	0.34		0.36	0.36
1.95	1.86	1.88	1.88		1.95	1.95
0.71	0.63	0.64	0.64	0.65	0.71	0.71
4.40	4.24	4.24	4.24	4.40	4.40	4.40
1.68	1.68	1.68	1.68	1.68	1.68	1.68
1.42	1.36	1.36	1.36	1.42	1.42	1.42
2.655	2.655	2.655	2.655	2.655	2.555	2.655
1.42 - 1.36	1.41 - 1.35	1.42 - 1.36	1.42 - 1.36	1.41 - 1.35	1.42 - 1.36	1.42 - 1.36
0.16	0.16	0.16	0.16	0.16	0.16	0.16
1.40 - 1.36	1.40 ⑥	1.40 ⑥	1.40 ⑥	1.40 ⑥	1.40 ⑥	1.40 ⑥
1.38 - 1.35	1.38 ⑥	1.38 ⑥	1.38 ⑥	1.38 ⑥	1.38 ⑥	1.38 ⑥
1.09 - 1.70	1.58	1.58	1.58	1.80	1.80	1.80
1.14 - 1.36	1.12 - 1.30	1.12 - 1.30	1.12 - 1.30	1.14 - 1.36	1.14 - 1.36	1.14 - 1.36
0.44 - 0.90	0.90	0.90	0.90	0.90	0.90	0.90
0.50	0.47	0.47	0.47	0.50	0.50	0.50
860 - 1803	1600	1600	1600	1803	1803	1803
0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270	0.85 - 1100/1270
2.97	2.98	2.98	2.98	2.97	2.97	2.97
52	44	52	52	52	52	52
5.0		5.0	5.0		5.0	5.0
4.5	Common oil	4.75	4.5	Common oil	4.75	4.5
1.8	5.0	1.8	1.8	5.0	1.8	1.8
3.9	3.9	3.9	3.9	3.9	3.9	3.9
6.5	6.5	6.5	6.5	6.5	6.5	6.5
1037	890	935	980	945	973	1014
1580	1305	1350	1395	1445	1510	1550
624 - 413	535 - 355	567 - 368	613 - 367	555 - 390	583 - 390	623 - 391
520 - 1100	450 - 1000	465 - 1100	490 - 1100	470 - 1000	485 - 1100	505 - 1100
70	60	70	70	70	70	70
100	75	75	75	100	100	100
543	415	415	415	500	537	536
19.90	19.50	17.70	19.60	19.90	17.90	19.90
37.60	36.70	32.90	36.90	37.60	33.40	37.60
16.30	15.50	11.30	15.50	17.50	11.70	16.30
155	163	176	157	157	170	155
4.8	5.5	5.5	4.7	5.8	5.8	4.8
6.6	7.1	7.0	6.2	7.8	7.5	6.6
6.5	8.5	8.9	6.5	8.5	8.9	6.5
6.0	7.0	7.1	5.8	7.4	7.4	6.0

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