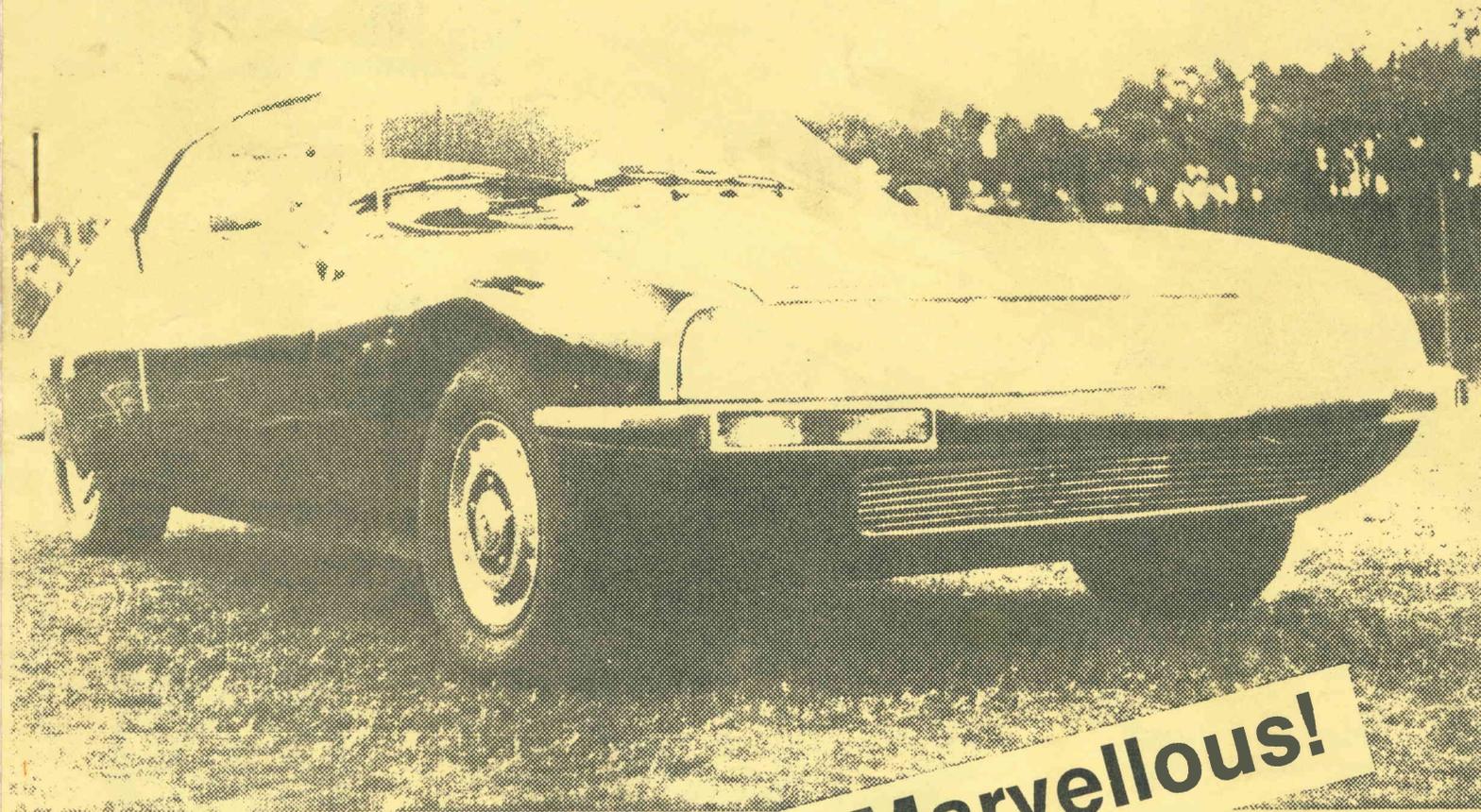


SM-

Superb Machinery?



Simply Marvellous!

Whilst every effort is made to ensure the accuracy of information and advice in this magazine and in replies to readers queries neither the Citroën Classic Owners Club of Australia nor the officers and members thereof nor the authors accept any liability

Windcheater & Tshirt designs



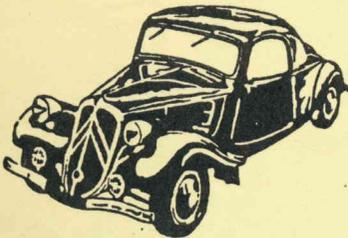
ROADSTER



AVAILABLE ONLY TO
2 CYLINDER OWNERS
& ONLY GREEN ON
YELLOW COLOURS.



CLUB BADGE
3 SIZES:
SMALL (BREAST POCKET)
MEDIUM, LARGE

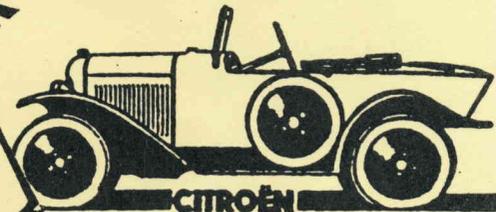


COUPE



CITROËN

LIGHT 15



5CV
BREAST POCKET
SIZE ONLY

URGENT!

Your chance to serve (to serve your club that is!).
The club's Annual General Meeting (AGM) is on Thursday 19 March. This is your chance to come forward & nominate for one of the offices of the club for 1987. We all know you have the energy and the ideas to help keep the club going and to make it even better! Be there or be square!

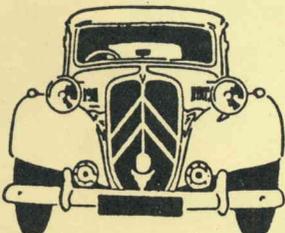
Don't forget the Annual Photo Comp is on later in the year. Get cracking on your photos now so that we can all share your enthusiasm for l'Automobile Citroën!!



ANNIVERSARY

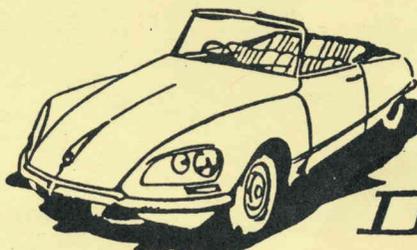


SCROLL
BREAST POCKET
SIZE ONLY



CITROËN

BIG 6



DS

DS



CHEVRON BADGE

Dates of issue for magazine: Mid-January, March, May, July, September, November.

Closing dates for copy: Mid-February, April, June, August, October, December.



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Meetings are held as follows: Thursday January 22, 1987, then the third Thursday of each month following. The meeting location is the Willis Room at the Nunawading Civic Centre, Maroondah Highway, east of Springvale Road, at 8 pm.

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EDITORIAL

CCOCA POSTAL ADDRESS:

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Victoria.

Well, what have we in this issue of Front Drive?

Chris and Bev Bennet's magnificent SM, a very touching tribute to the late Dan Jones by his long-standing friend Bob Cook, technicalities, and a Citroen update on developments here and overseas. And some interesting ads.

Do make an effort to come to the club events - remember the quality of the club depends on you, and your fellow members do enjoy your company and want to keep in touch with you and what you are up to, personally and in your car-related activities. And besides, you are bound to enjoy yourself!! See you there.

Bill Graham, Peter Simmenauer and Peter Hore.

COMING RALLIES

March 15, Sunday	Annual Presentation BBQ, Simmenauers (lunch).
March 19, Thursday	Open Night, Nunawading (N.B. - AGM).
March 29, Sunday	AOMC European Car Show, Flemington Race Course.
April 16, Thursday	Open Night, Nunawading.
April 17, Easter	Cit-in, Canberra.
May 21, Thursday	General Meeting, Nunawading.
June 5-8, Friday-Monday	Austraction, Beechworth.
June 18, Thursday	Open Night, Nunawading.
July 11, Saturday	Arabian Nights Mystery Dinner.
July 16, Thursday	General Meeting/Photo Contest, Nunawading.
August 2, Sunday	Workshop, details to be announced.



MEMBERS' CARS

1973 SM - Chris and Bev Bennet.

Chris and Bev are South Australian members of CCOCA. Their impressive stable of Citroens includes a 1973 SM, the subject of this tale of distinguished motoring. This anecdote was written during the car's visit to Austraction '86 at Kyneton (Vic.).

Their SM is in dark blue with tan leather seats (an option). At the time of writing (6/86), the odometer showed 34 873 miles. The car is still left-hand-drive in which form it can be driven on South Australian Temporary Permits (\$4 for 3 days) to club rallies and the like. The cost of converting it to right-hand-drive would be high (perhaps in excess of \$10 000) and for the present, the Temporary Permit system suffices. The car's dark and shiny paintwork is the result of a re-spray by Chris himself, and is the idea back-drop to show off the discreet brightwork trim.

The multiplicity of lights at the front are protected by Chris's own system of moulded perspex covers. Other features are radio, factory-fitted air-conditioning, tinted glass, and fuel injection. SMs were made in two engine sizes (2670 and 2965 cc). The Bennet car is the 2670 cc size.

Chris had long wanted an SM and was planning a seven-week trip to England with Bev. He followed up a car which was advertised in Citroenian, but found it was sold. He eventually bought one which belonged to the advertiser's father! The car was collected from deepest Cornwall near Land's End in August 1981. It was an English export model with lights dipping to the left, English speedo etc, and can be legally driven in LHD form without limitation in UK.

The Bennets are the car's fourth owners, the first owner having suffered the engine blow-up for which SMs have a reputation. The motor was rebuilt by Maserati themselves (probably in Italy) at an all-up cost of about £5000. The factory considered their work so good that they wound the odometer back to zero as a matter of course! However the bill was too much for the owner and he had to sell the car to raise the "readies". When the Bennets collected the car, it showed 15 000 miles and hence the motor should have been pretty good.

They drove the car for three weeks in Europe, notching up about 4000 more miles. However, a few idiosyncracies caused concern. The car would die in traffic and they eventually traced this to some faulty electrical connections in the fuel injection system. While in France, a rattling of some sort developed in the motor (worrying!), and they thought it might be the upper timing chain tension. Chris set himself up with some tools at a Youth Hostel in a country town, and attacked and solved the problem, much to his own satisfaction and the relief of all concerned.

They drove up through Belgium and shipped the car from Holland to Australia. They were told it had to be off-loaded in Melbourne instead



in Australia have been mainly ignition (rotor, distributor cap). The fuel injection has been reliable here.

"Like stopping an artillery shell"

Bob Koster and Gaynor Harris travelled with the Bennets to Kyneton, the drive shaft on their GS having failed a few days earlier. Bob tells of the encounter with the law at Stawell in western Victoria.

"I was in the front RH seat, helping Chris with traffic info during overtaking manouvres. About 15-20 km from Stawell, we were doing about 172 kph and saw an officer on the other side of the road, but thought we would be OK. We passed a couple of Ford Falcons, though one did hang on behind until we left him at about 120 mph. We pulled in at Stawell for fuel and a blue light appeared behind us, together with the faster of the two Falcons.

"The constable had been driving a new VK V8 Commodore. He dealt with the Falcon first and then came over to us. He questioned me in the RH front seat and was shocked to find that I wasn't driving! The PC threatened Chris with charges of driving without a licence (left at home) and illegal use of a motor car. However, he eventually let us go with a summons to appear in court to answer speeding charges, since we were so far over the limit.

"The SM goes so smoothly, 80 mph feels like 60. So smoothly that Gaynor slept through a lot of the action and excitement, curled up in the back seat!".

RHD conversion costs

Chris provided the following information on the possible cost of having the SM converted to RHD.

"I have no current info on the price of converting an SM but there was a company in Melbourne that converted some a few years back (Chapel Engineering) and the last price charged by them was \$5000. The word is that the conversion was so difficult that they wouldn't do any more, even at twice that figure (\$10 000).

"Chevron Motors in Sydney are doing some conversion work for SMs now, such as steering rack work, but not the complete conversion as far as I know, and I don't know the prices".

Footnote: We understand that Chris has survived his brush with the law, and while we do want to protect the innocent, and certainly not heap too many coals onto the heads of the guilty, let us leave it that Chris's legal freedom to motor to the east of his home state was impeded for some time afterwards, and that his personal coffers were to be somewhat depleted by the experience. Such, one might conclude, is one of the risks one takes when straying into the vicinity, even falling under the spell of that beguiling piece of mechanical witchery, the famous, even infamous, Citroen SM!

of Adelaide. Chris rode his trail bike over to Melbourne in December '81 to clear the car through customs. But he found the car wouldn't start - perhaps it was damaged while being unloaded with the suspension down?

Local CCOCA stalwarts David Gries and Mark Navin came to the rescue and identified a poor connection on the fuel injection relays. Chris set off for home, collecting a speeding ticket on the way, and thereby setting a pattern which he has followed virtually every time he has taken the car inter-state.

The SM has been to all the Easter Citroen rallies since it reached Australia, all of course in LHD form. These have included Camden (NSW), Toowoomba (Qld), Ballarat (Vic), Harrietville (Vic), Adelaide (SA) twice, and Kyneton (Vic).

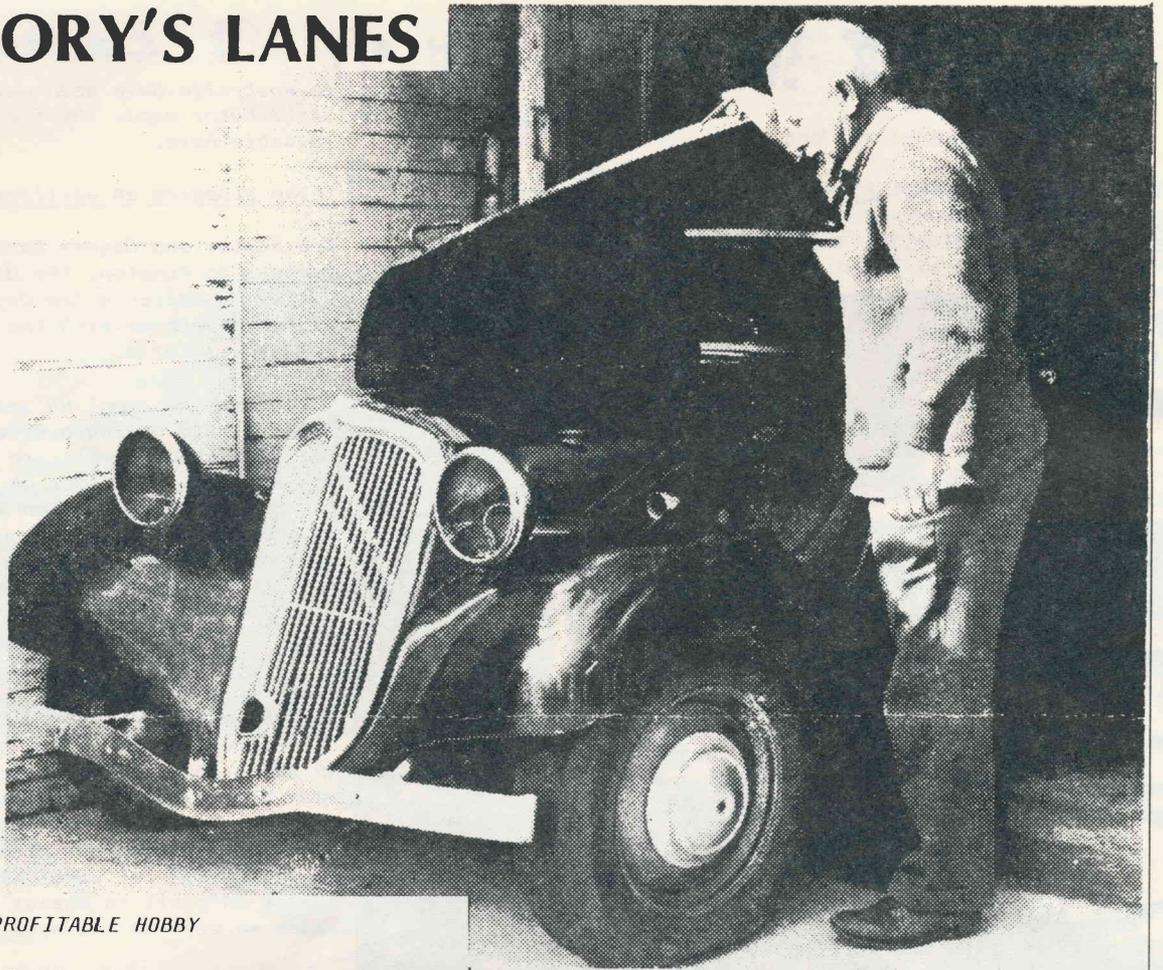
The SM is is virtually used for rallies only and is remarkably reliable - it may sit for 3 or 4 months without attention, then for the next rally, check the tyres and fluids, hit the starter, and go!

The stated top speed is about 140 mph - Chris has had 138 showing on the speedo. The car "doesn't feel happy going slow" i.e. less than 75 mph.

The best fuel consumption obtained was 24.4 mpg at a steady 90 mph on the French motorways. In Australia, the consumption has been almost constant at 20 mph in both city and country - surprisingly good for the size of the vehicle and the speeds often involved. Any problems found

W.G.

MEMORY'S LANES



DAN JONES: A PROFITABLE HOBBY

"Try Dan Jones", the phrase most frequently used by Citroën enthusiasts hunting for superceded parts, will pass into history with the disposal of the vast collection amassed by the late Dan Jones over forty years of spare-time wrecking and rebuilding Citroëns in his Thornbury back yard.

Dan bought his first Citroën, a 1928 rear-drive tourer, in 1946 - and always regretted that he didn't hang onto it ("Be worth a fortune today!" he'd often muse). On one occasion, he was returning from Phillip Island in this car when it blew a big-end bearing. He stripped down the engine, removed the piston, and drove the car home on three!

He specialised in Light 15s, and was always a ready buyer for "someone else's troubles", or of vehicles that had been involved in accidents or written-off by insurance companies. Indeed, he became well known in both crash repair and insurance circles. Insurance adjusters knew they could off-load a wrecked Citroën to him, and repairers came to him for hard-to-get parts. He would either dismantle the cars and store all the usable parts, or replace the damaged or worn components and sell the car.

With the advent of the Big 6s and D series, Dan acquainted himself with the intricacies of the new hydraulic systems to the point of being able to assemble and correctly adjust all of the components from scratch. One of his most challenging jobs, he said, was making one complete car from two IDs, one wrecked in the front end, and the other in the rear. He cut both cars in half and joined up the two good halves.

Dan acquired what is believed to be the only

HY camper conversion in Australia, and, without previous knowledge, set out to convert it to right-hand-drive. All went well, but just as he was congratulating himself on his achievement, he discovered that the van turned to the left when he turned the steering wheel to the right! This vehicle, beautifully restored and equipped with many luxury extras, is now owned by Phil Ward, president of the Club Citroën of South Australia.

Dan once drove his ID Safari from Melbourne to Birdsville without refuelling. He had two spare ID fuel tanks strapped to the roof rack!

In later years, Dan's energies slowed down considerably. He never did start on the CX or GS series, and whilst often vowing to retire from his hobby-business, such was his love of the cars that he was never able to do so. Even after the cancer from which he died started to take its toll on his body, he acquired two late Ds with the intention of building one good car from them.

Dan's word of encouragement to Citroën owners, especially those with a love for the car but not too much mechanical ability, was always "Have a go at it yourself". He would give them unlimited advice, as often as needed, and supply needed parts. But he never saw himself as running a workshop to repair other people's cars.

I have been a personal friend of Dan and his (long-suffering) wife Carrie for twenty-five years, and were it not for Dan's patience with my frequent problems, I would never have reached the stage of being able to overhaul and maintain my own ID 19s. I and many like me owe him a debt of gratitude. Thanks, Dan. May you rest in peace. You deserve it.

AUTO ELECTRICALS

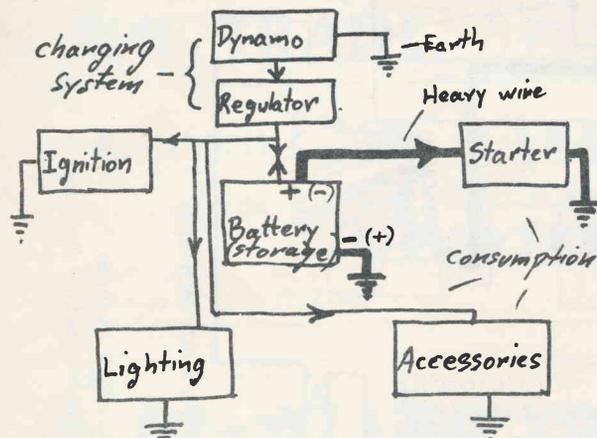
CONTINUED FROM FD 10 (5)

THE CIRCUIT DIAGRAM AND WIRING HARNESS

The modern auto electrical system consists essentially of perhaps a handful of kinds of bits and pieces:

- a source of electrical energy (the generator or alternator or dynamo)
- a device for controlling the output of the generator/alternator to suit the needs of the energy-using and -storing devices (the regulator).
- an energy storage device to balance up supply and demands (the battery).
- energy consuming devices (starter, lights, radio, ignition etc, etc).
- conductors (insulated wires) to carry the electrical energy from the generator and battery to the starter, lights etc.
- switches and relays which open and close conductors so that electricity only flows to the places where we want it to go.

Fig. 18: Basic auto electrical system



Note: Switches omitted.

Figure 18 shows a simple way of looking at this kind of set-up. The "return circuit" usually takes place through the metal body of the car in the form of an "earth return". Remembering the water plumbing analogy to electrical flow, Figure 19 shows how a similar hydraulic system might work. In this case, water is pumped into the overhead storage or cistern ("the battery") by a pump ("dynamo"). This stored energy can then be run down a pipe ("conductor") through a tap ("switch") and a turbine ("starter motor") for instance or some other energy using device. If the pump to the cistern was to be driven by an electric motor which in turn was controlled by a float-operated switch located in the cistern, then the pressure in the cistern would be kept essentially constant. The float switch could then be thought of as a "regulator". The sump from which the water is drawn and which receives the discharge from the turbine etc could be thought of as the "earth return".

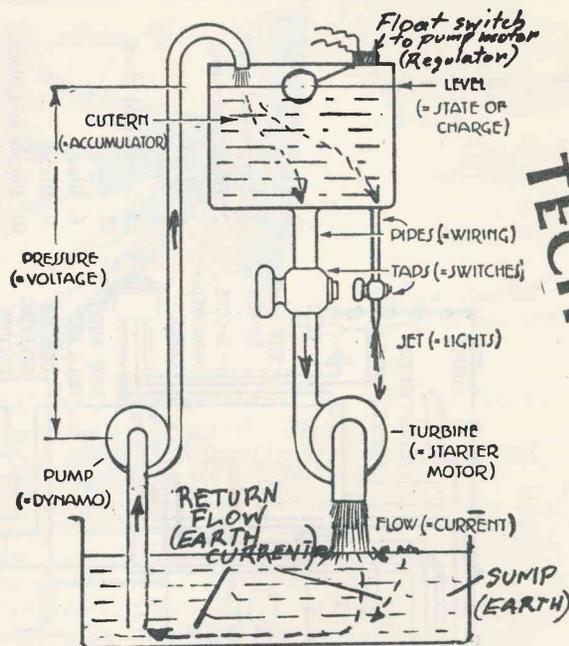


Fig. 19: Hydraulic equivalent of auto electrical circuit.

In electrical systems, the conductors may have to follow rather involved pathways. This is particularly so because often the device being used (e.g. headlight) is in one part of the car, the energy source for it (dynamo or battery) is in another part of the car, and the control for that circuit (the light switch) is in yet another. To keep track of all this electrical coming-and-going, one soon has to make use of a "circuit diagram", and to stop the multitudinous wires degenerating into a hopeless and time-wasting mess (often called a "rat's nest"), it is the usual practice to "colour code" individual wires serving given functions, and to bind the wires in neat groupings of appropriate lengths and current-carrying capacities in what is called a "wiring loom" or "harness".

Figure 20 shows a circuit diagram for the wiring of Light 15 of 1950s together with the colour-coding of the wires used. Note how the conductors are actually bound up in "subsidiary harnesses" (wires enclosed in dashed lines). This is often a more convenient way of doing the job than having a single large harness.

The original wiring of Tractions was multi-strand wire, sheathed in rubber, over-bound with cotton thread of suitable colour(s) (the "colour code"), and then these wires grouped and over-bound again (usually in black cotton) to form the harness sections.

There is no fundamental reason why you can't completely replace old and rotted wiring yourself, either entirely or in sections, and this you may choose to do, especially if only a few wires have fractured or lost their insulation due to weathering of the cotton and/or rubber. However, where a lot of the wiring looks dodgy and especially if originality of appearance is important to you, you may choose to buy a "reproduction harness" already made up for your car, complete with proper colour coding, cotton binding, labelling of where each wire end goes and so on. This is what I did.

TECH TOPICS

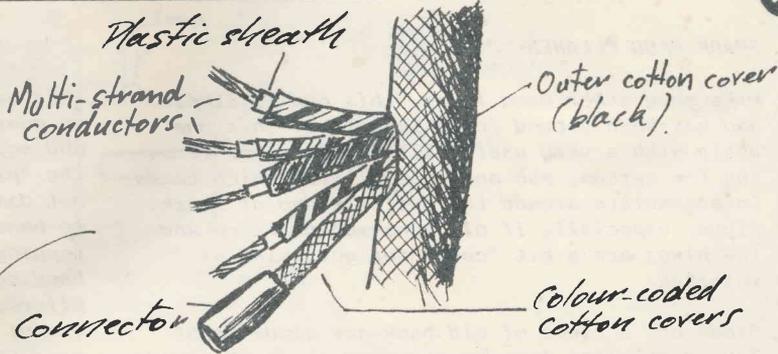
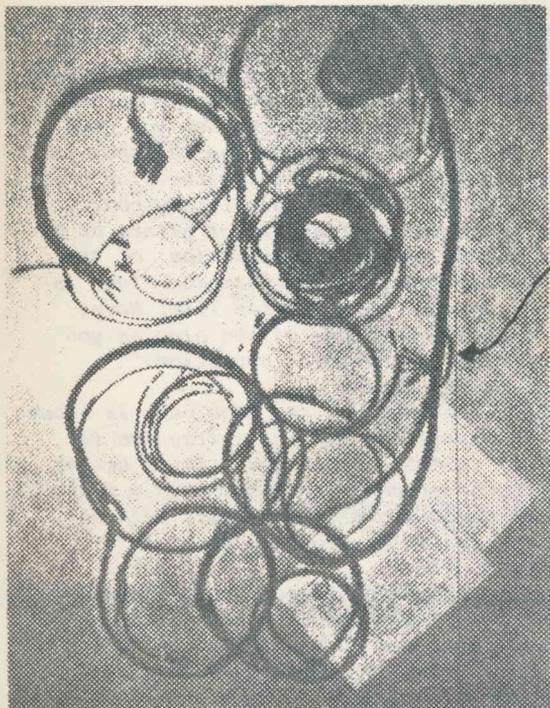


Fig. 21: Wiring kit for Big 15 *ms* received from Electra-Loom.

I bought the replacement loom for my 1953 Big 15 from Electro-Loom Pty Ltd (Alan and Heather Taylor) in Sydney. It really is a beautiful and authentic looking job. It came with end connectors, instruction sheet, circuit diagram, and even (I was most impressed) metal-armoured wire for protection against abrasion by goods carried in the boot! Electro-Loom used wire which is plastic sheathed (not rubber) under the cotton, so it should last much better than the original, especially if the cotton is further protected by ultra-violet resistant clear lacquer - see note in *FD 10* (5). A photo of the harness as received from Electro-loom appears as *Figure 21*. The cost was \$150 (may be slightly more now).

(to be continued)

IN THE TRADE

Bill Graham.

ELECTRA-LOOM
PTY. LTD.
INC. IN N.S.W. T/A.

14 Watkins Road,
Baulkham Hills, N.S.W. 2153.



VINTAGE
WIRING HARNESS

Telephone: (02) 639 7335
Alan and Heather Taylor

TECH TIPS

RE-SILVER YOUR HEADLAMPS

In the method described the bowl of the reflector is made the cathode by connecting to the negative terminal of a six-volt battery. The anode is in the form of a cotton-wool swab soaked in the electrolyte and held by a wire con-

nected to the positive terminal of the battery. The swab is used like a paint brush and by dipping in electrolyte a film of pure silver can be painted on the reflector.

SILVER PLATING

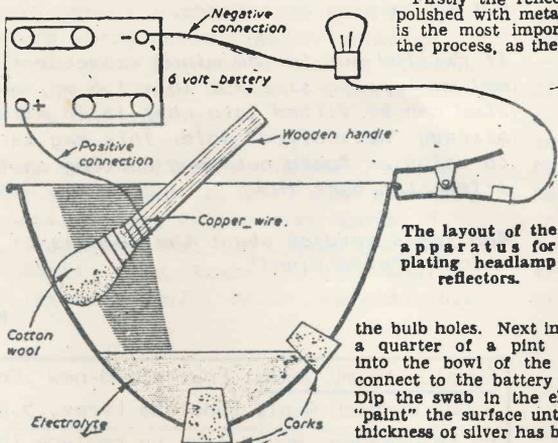
Firstly the reflector should be polished with metal polish. This is the most important stage of the process, as the initial degree of polish determines the final result. Obtain a mirror finish and remove any traces of lacquer from the surface. Wash the reflector free from metal polish and cork

Do not allow the wire connection of the swab to touch the reflector. Wash the reflector and polish with metal polish until a desired finish has been obtained. Finally finish with a coat of transparent lacquer which has been thinned to about a third of the usual consistency.

THE ELECTROLYTE

For silver plating the electrolyte is made as follows. Obtain from the chemist a quarter of an ounce each of silver nitrate and sodium cyanide. Sodium cyanide is, of course, poisonous, and utmost care should be exercised in disposing of spent solutions. The materials should be kept under lock and key and preferably disposed of after the reflectors have been plated. Dissolve each of the chemicals in a half pint of water and mix. This quantity is sufficient for about four average reflectors.

By using different electrolytes this method is also successful for cadmium and nickel plating. The procedure is similar and almost any shape of object can be electroplated using a small volume of solution. In all cases, however, the importance of obtaining a clean and highly polished surface at the beginning must be emphasised. On this point the success of all electroplating depends.



The layout of the apparatus for plating headlamp reflectors.

the bulb holes. Next introduce about a quarter of a pint of electrolyte into the bowl of the reflector and connect to the battery as illustrated. Dip the swab in the electrolyte and "paint" the surface until a sufficient thickness of silver has been deposited.

TECH TIPS

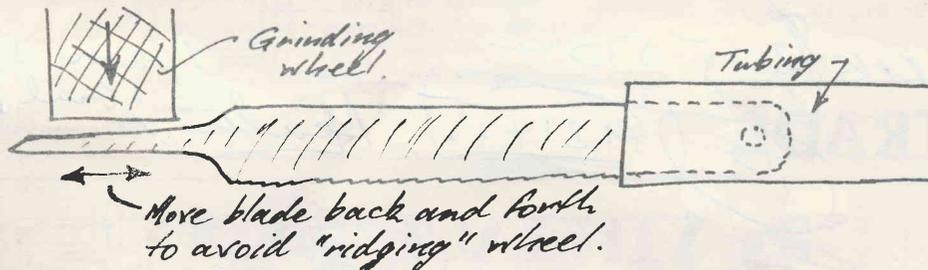
SPARK PLUG CLEANER

Like many other good ideas, this one is simple and has been around for a long time. This one deals with a very useful little gizmo for removing the carbon, ash and general grot which tends to accumulate around the business end of spark plugs, especially if oil consumption is up and the plugs are a bit "cool" for your kind of motoring.

Break off a piece of old hack-saw blade about 120 mm (5 ins) long by gripping it in the hands and simply bending between both thumbs.

Ram a piece of 10 mm (7/16 ins) I.D. plastic tubing or hose over the rounded end of the blade to form a comfortable and protective grip, and the grind the other end down as shown on a grinding wheel. It is perhaps best to grip the piece of blade firmly with pliers when doing this and of course use protective eyewear.

The narrow section of blade is about 35 mm (1½") long, and tapering from 6 mm (¼") to about 2.5 mm (1/10") near the tip. The very end can be brought to a point as shown. Leave the teeth on further back.



This handy little tool can live with your tune-up gear, and will enable you to remove carbon and scale from around the electrodes and down the "pit" around the insulator, quickly and without damage. Remember when setting the plug gap to bend the outside electrode only, by gentle tapping with the back of a pair of pliers or by bending outwards with the narrow tips of the pliers. The little tool from Champion Plugs is useful but seems to have limited life. Never bend the central electrode of the plug as you risk fracturing the ceramic insulation.

The correct electrode gap for many cars is about 25 thou. The specified gap for a Traction is 0.6 - 0.7 mm (0.025 - 0.028 ins). It is better to use gauge of graded wire loops than a flat gauge which can give false readings. Work on the basis of "go at 25 thou, no go at 28".

It is well worth making these little cleaning tools in pairs. Some one is bound to take one on extended loan, and it is nice to be able to give one as a "present" to an up-and-coming member.

W.G.

REPLACING A SHEARED EXHAUST-FLANGE STUD

Fellow Tractionist, Ted Cross, was faced with a sheared-off exhaust-flange stud when he set out to get his Big 6 on the road. These are the studs which attach the exhaust pipe to the exhaust manifold. There are three such studs on four-cylinder Tractions and six on the six-cylinder cars (twin-pipe setup).

Ted approached Jack Weaver for assistance. Jack's elegant solution is described below.

The remnant of the original stud (threaded 10 x 1.5 mm ISO metric coarse) was accurately centre-punched and drilled out so that the resulting hole (ca. 10 mm) could be tapped to take a slightly over-sized thread (11 x 1.5 mm ISO metric coarse). A shallow 12.7 mm diameter counter bore was also made* to accept a 1 mm recessed shoulder with a 60° tapered under-surface.

*in the flange

The new stud was machined out of half-inch (12.7 mm) heat-resistant stock as illustrated, with its outer end threaded at 10 x 1.5 mm ISO metric coarse (as standard) and the inner end threaded to go into the new tapping in the manifold flange. A 2 mm pilot hole was centre-drilled into the inner end of the stud, extending to just beyond the shoulder, so that in the event of the stud being broken again, the broken remains are already pilot-drilled for any subsequent drilling out and tapping operations.

If drilled out to the minor diameter (ca. 8.8 mm) or tapping size for 10 x 1.5 mm, a standard stud can be fitted into what is in effect an already "helicoiled" hole. This way is preferred to using an "easy out" and putting another modified stud back in.

And Ted's verdict about the success of the operation? "Perfection!".

W.G.

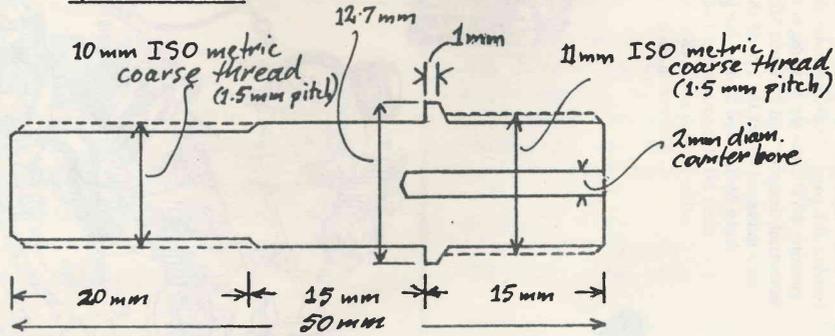
Supplies of Michelin 165x400s for Tractions.

There have been rumours of the production of these tyres being stopped. Melbourne suppliers, Continental Tyres, say they haven't heard this and can supply @ \$100 ea plus tubes. Ask for any discount as a club member. Might be prudent to buy yours now, just in case.

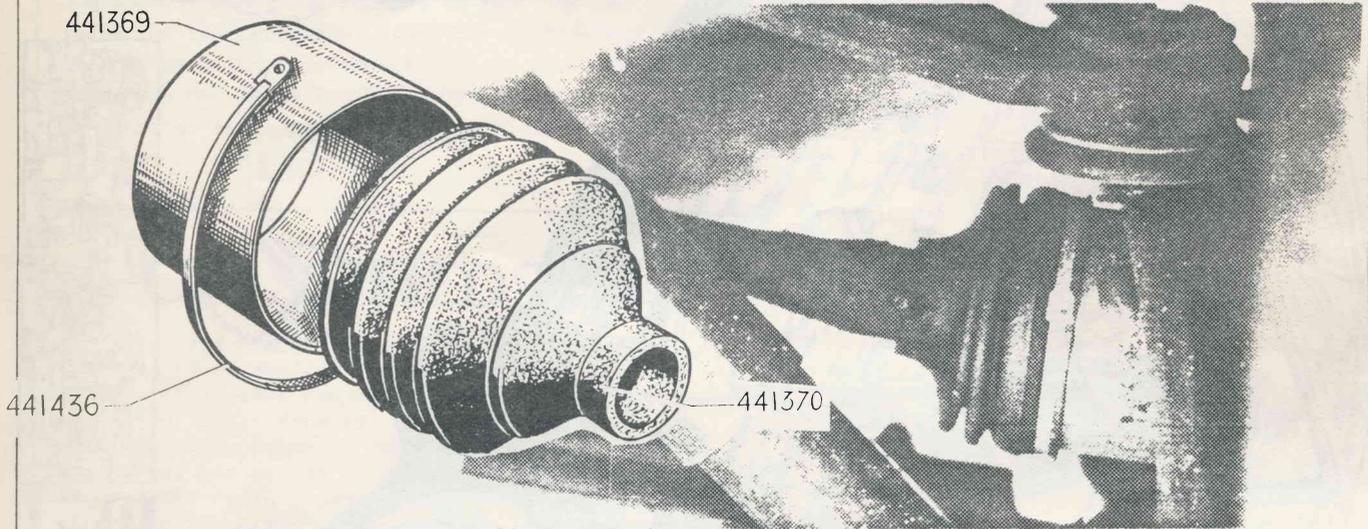
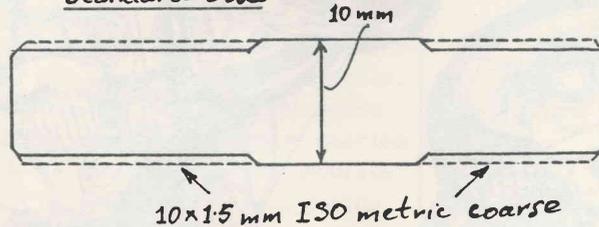
Surplus to my needs: Four brand-new Goodyear Super Cushion 4-ply tubeless tyres, 5.60x15 as on Volkswagen. Would like to replace them with four (or five) Michelin X, 135x380s. Situation negotiable.

Bill Graham (03) 232 0361.

Modified Stud



Standard Stud



RUBBER BOOTS FOR DRIVE-SHAFT JOINTS

One of the smart things you can do to protect and extend the life of your Traction drive-shafts is to fit rubber boots to keep out dirt and slush, which are their major enemies. After all, look how well the well-protected but technically very similar D-series joints last.

The illustration shows one of the boots fitted to Brian Wade's pre-war Traction. Technically, the boots only became available in July 1955, but that should worry nobody. Brian obtained his set of boots from Chevron Motors in Sydney. No doubt, our Spare Parts Officer could order some if you ask him nicely.

Alternatively, with all the front-wheel drive cars and 4WDs now around, it should be possible to pick up satisfactory alternative boots. A quick glance suggests that the bigger BMC/Leyland boots (Austin 1800, Kimberley etc) would work alright as an example. Brian was also able

to buy the "genuine" metal sleeve which is a friction-fit over the outside of the joint, and he has used what appears to be a modern tensioning band to hold the boot onto the sleeve. The boot is prevented from escaping inwards by the outermost grease nipple. Again, if you have difficulty obtaining the proper metal sleeve, it should be quite easy to make up a substitute from galvanised sheet steel, and doing a folded, rivetted or soldered joint. The sleeve dimensions are 87 mm long and 92 mm diameter.

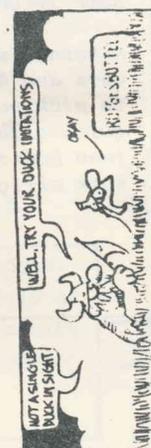
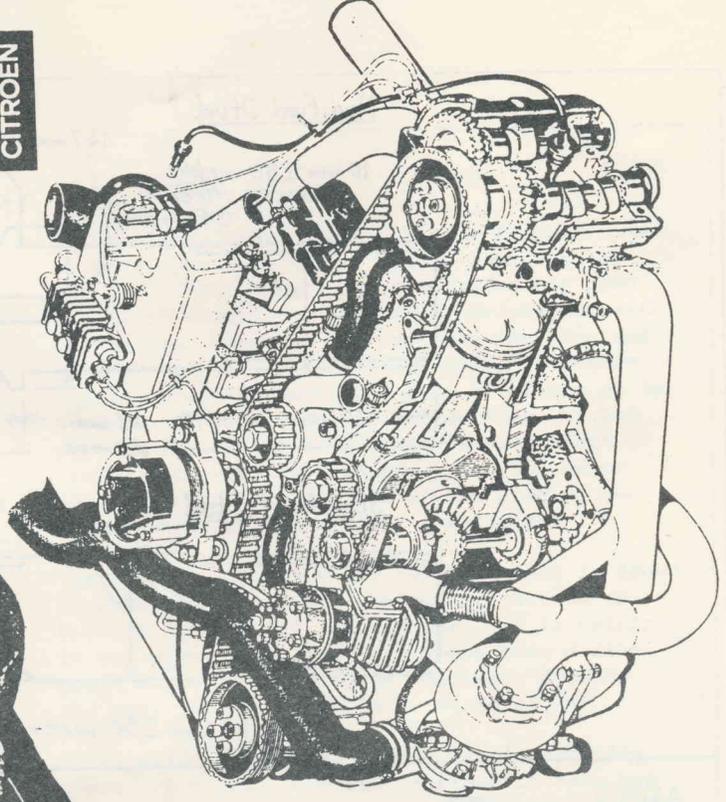
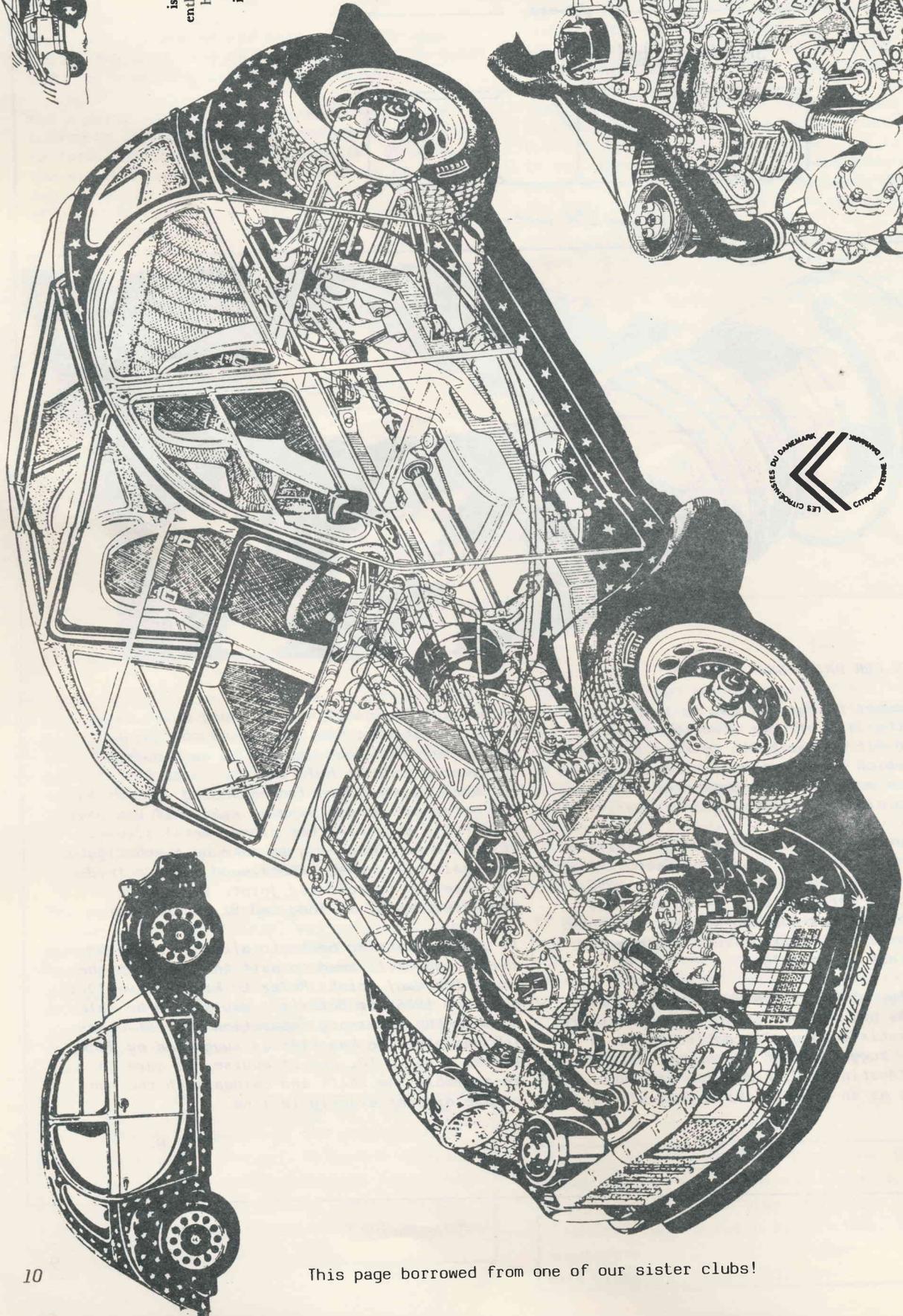
If you are fitting boots to already-installed shafts, you will need to part the shaft at the inner (cardan) joint. Refer to Front Drive 10(1) May/June 1986 for details - you should be able to make the necessary separation by just undoing the steering knuckles as suggested by Jack Weaver - see p 10. And of course, be sure to re-assemble the shaft and cardan with the two grease nipples exactly in line.

W.G.

CLUB NEWS



These illustrations were found in a recent issue of the Dansk Citroën Club, a Danish 2CV enthusiasts' organization. The Team Citroën logo heads a full page of rally calendar events! The amazing 4WD cutaway drawing is the opus of industrial designer and 2CV nut Michael Stirm who managed to get the eye of the magazine Auto Motor und Sport who printed it in their 30 November 1983 issue. Several other Danish clubs cater to the other Citroën models and vintages.



Twin Pot Topics

As you gasp in awe at the plans for a twin OHC turbocharged 4WD version of the 2CV, and wonder how long the little beasts will continue in production, you must appreciate what a significant following they have within the club.

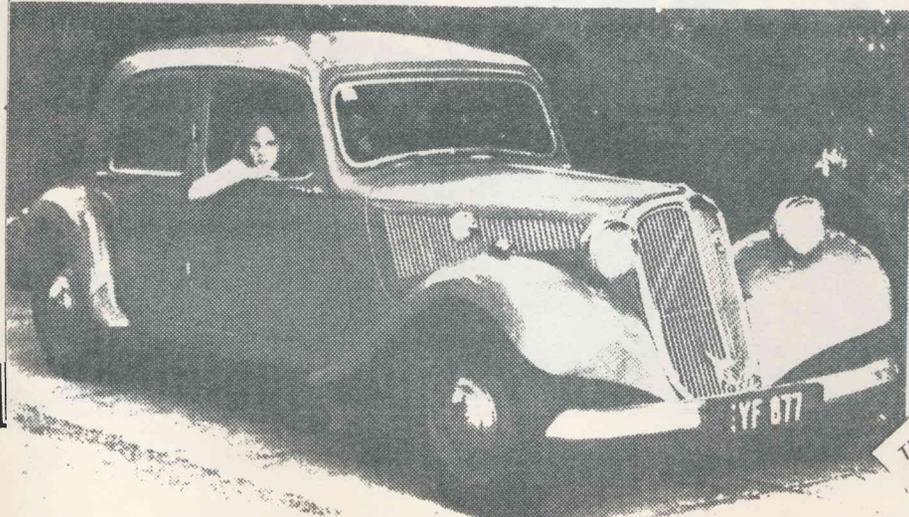
While the magazine can cater to this group to some extent via re-prints of previously published material, there seems to be a shortage of the interesting originals which we know your fellow members like to read e.g. the tale of Citroenella, the 375 cc 2CV which the old lady drove to Ayers Rock. If you love 2CVs, you must have some stories about them, personal or anecdotal, & your favourite technical tips (remember Peter Fitzgerald dosing his suspension with castor oil?). How about jotting something now and sending it in so we can raise the 2CV profile of Front Drive. Remember, if you can write a letter or fill in your tax-form, you can write for Front Drive, although we'd prefer facts rather than the fiction of your tax return!

Ed.

CLASSIFIEDS

For sale: Ill health forces me to sell my 1951 Light 15 (i.e. small boot). Light green in colour, it is 100% complete and in original condition, apart from the mechanical maintenance and repairs as below: I bought it off the original owner and it has original plates (YF 877). Driveshafts fully reconditioned (but one needs attention to spigot pin), engine fully rebuilt, gearbox and clutch good, brakes fully redone, 4 new Michelin Xs, all wheel bearings replaced, headlamps resilvered, cradle perfect. Body needs slight attention (dent in one rear guard), essentially in road worthy condition, with several months registration still to run. Treat it well - I may want to buy it back! \$3500 ONO.

Frank Arnstein
3 Gillard Street
East Brighton 3187.
(03) 592 4211.



For sale: Many Light 15 parts, including parking lamps, headlamps, timber dash and door trims, instruments, all in VGC, carburettor, fuel pumps, oil pumps, interior winders and door handles, mudguards and doors, grills, windscreen, seats, bonnet, fuel tank, etc. All in good condition.

Chris Shields
(03) 489 7251 (H)
(03) 669 1988 (W).

Wanted: For 1951 Traction Avant (11BL).
1 RH rear mudguard
1 gearbox (Yes, I'm serious!).

Bill Petheram
5/50-52 Albany Street
Crows Nest, NSW, 2065.
(02) 436 4939.

For sale: 1952 Light 15 small boot, sound condition, complete, in need of restoration.
John Taylor (03) 870 2897.

Wanted: Expressions of interest from people who would like the club to cater more actively for D series Citroens, especially early Ds (ie pre-1966, with the long-stroke motor and red LHS2 fluid). I am willing to consolidate expressions of interest for consideration by the club.

The Ds now are in the same position as Tractions were when the club was founded.

David Gries
274 Elgar Road
Box Hill 3128
(03) 890 3266.



PAST RALLIES

Remember the snug and thoroughly enjoyable evenings around the fire in the lounge at Kyneton during last year's June long weekend rally? And the line-up and the Observation Run and the chicken and champagne brunch, and the tall tales and the exchanges of recollections and experiences? Well, this year's **Austr-action** is at the beautiful old gold-mining town of Beechworth in Victoria's north-east, and it should be every bit as successful and enjoyable, particularly if you come and share it with us. Put the weekend of June 5-8 aside and advise the **Activities Officers** that you are coming.

OOPS!!

The odd error crept into last issue -
Page 3, line 23 should read:
"The sand was warm, the sea breezes cooling, ---"

SPECIAL INTEREST CITROENS

DS, CX, BX and now AX. Where does one go from there? Start at the other end of the alphabet perhaps - ZX? No, didn't former Citroen proprietors, Les Freres Michelin use it once? It gets a bit tricky, doesn't it.

Anyway, the long-awaited Citroen AX supermini was unveiled at the Paris Motor Show in September 1986 and is expected to reach the UK in mid-1987. All the indications are that it is a real little fire-cracker. We await with great interest the possibility of it appearing in Australia. It draws inspiration from the ECO 2000 ideas car of a couple of years ago and augments the Citroen range between the 2CV and the Visa. It does not replace the 2CV as expected. However ideas for up-dating the latter continue to surface. Shades of the relationship between Citroen LN and its counterpart Peugeot, the 104, there is talk of a Peugeot counterpart to the AX (perhaps called the 105) to be released in 1989 or later even, after the AX has established itself.

Further rationalization of Citroen/Peugeot development seems likely with news of the planning of replacements for the aging Citroen CX and the Peugeot 505 and 604. It seems likely that much of the componentry and floor pan could be shared between the two marques to help keep development and production costs down, to the benefit of both. Recent experience with the BX and now AX indicates that while Citroen aims to capture a bigger market through greater conventionality, it will retain enough of the Citroen technicality and flair to keep the interest of most of its long-standing fans.

Meanwhile, the BX soldiers on very impressively. The wagon version is well established, though wagons in general are not big sellers in its home country. The disgustingly economical diesels

are best sellers in France and account for 30% of BX sales there. At 98 mph max, they are no slouches either. The BX also spawned a 4WD version like just about everyone else, but its poor rally performance has caused it to be dropped - but not before the BX 4TC was used as base for Bertone (designer of the BX body) to make up the Zabrus which was displayed at Turin Motor Show in '86. An apparently impressive car on the road, the Zabrus features on-board mapping display and forward/upward hinging doors. Another striking BX development has been the BX Sport with modified breathing and twin dual-throat Solexes. The Sport has a top speed of 120 mph compared with 112 mph for the BX 19GT. However the new manifolding prevented the Sport appearing in RHD form as it would foul the steering gear.

The latest move has been the release of a "new" BX series for 1987, and the dropping of the BX Sport since the same performance can be obtained in the new range via the BX 19GTi. This uses Bosch Jetronic fuel injection on the same 1905 cc motor to produce 125 bhp, a top speed of 123 mph and 0-62 mph (100 kph) of 8.9 seconds. Other features are more "evolutionary than revolutionary" in gearing, suspension, interior and body features. Apart perhaps from the rear spoiler, the most notable changes are provision of cancelling turn indicators and stalk-controlled switches!

Going back to the AX for a moment, it appears that it was the LN (along with the GSA) which was dropped to "make way" for the AX, not the 2CV - maybe the little beast will go on for ever!

There are also rumours of a "BX with a boot" to help Citroen meet competition in this styling area.

BX 19GTi

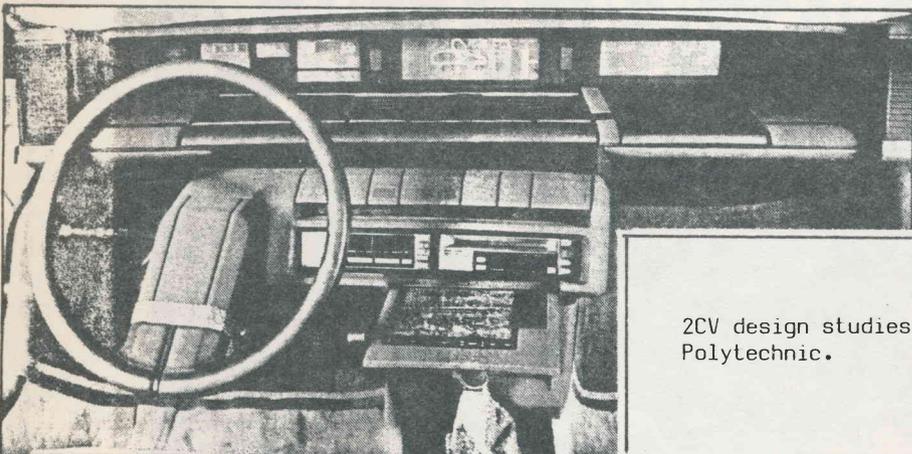
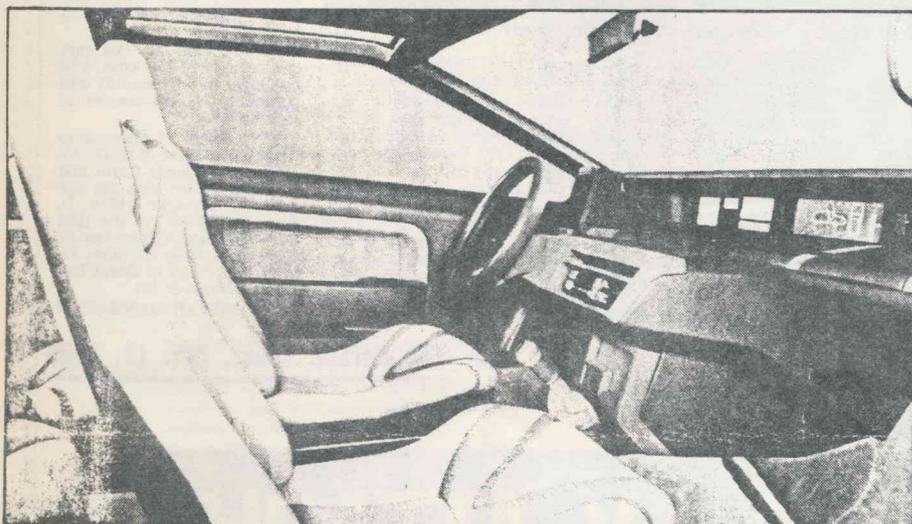
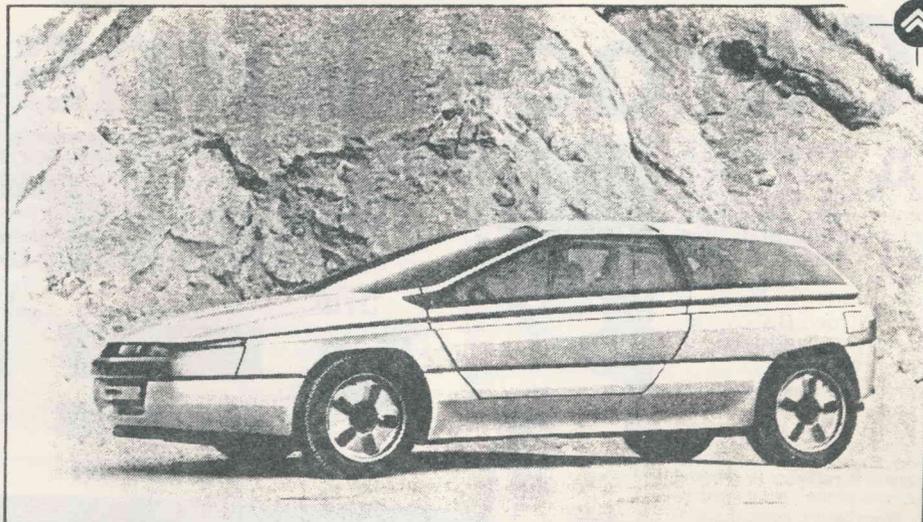
W.G.



Bertone Zabrus

One of the star attractions at the Turin Motor Show was Bertone's latest concept car, the Zabrus.

The Zabrus is based on running gear from Citroen's BX 4TC rally car. Under the sleek sheet metal is



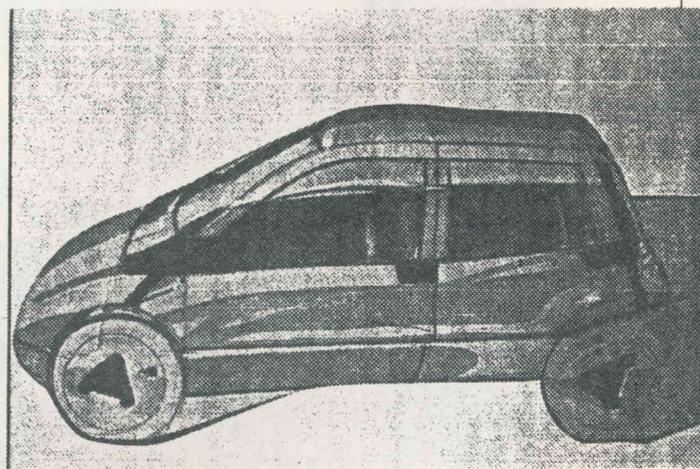
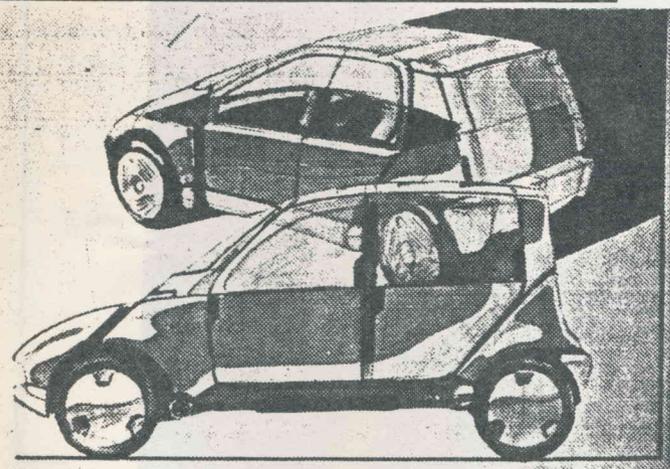
a 280 kW 2.2 litre turbomotor, four wheel drive and hydropneumatic suspension.

A further link with Citroen is that Bertone also designed the boxy BX sedan for the French company. The car has become a strong seller in Italy, where more than 24,000 were sold last year.

Designed as a GT coupe, the Zabrus has seating for four, with swivel front seats for ease of access to the rear. A system of infrared cells positions the driver's seat for each occupant, ensuring the driver's eyes are at the right level regardless of physical proportions.

A dashboard display includes the facility to call up an on-board mapping system from compact disc.

2CV design studies by Andrew McGeachy, Lanchester Polytechnic.



Citroen turns turbo

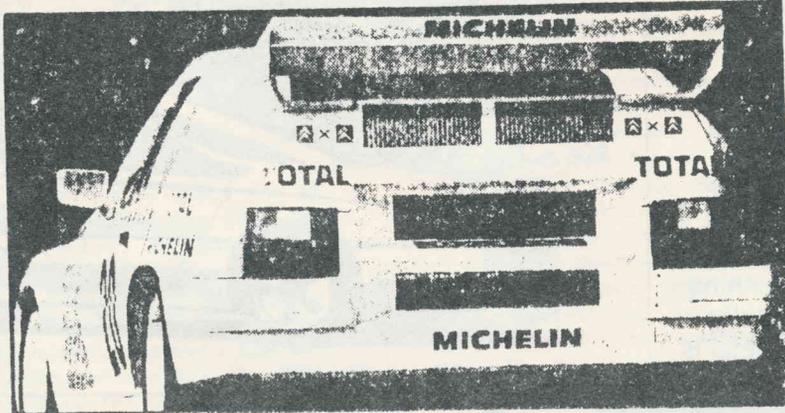
AUTOMOBILES Citroen is tackling this year's world rally championship for the first time with a two-car team of turbocharged, four-wheel-drive versions of the Citroen BX car, recently introduced in Australia.

The 380 horsepower rally rockets — code named BX4TC — with massive traction from a 50-50 split power drive system will contest the group B category in selected events of the championship.

Ross Moller, general manager for Franzcar Imports, the Australian Citroen concessionaire, says the world title bid sees Citroen as the sixth major car maker to use four-wheel-drive in this year's title.

"ALREADY the new Citroen BX4TC has proven its potential in the Swedish Rally in February, with sixth place outright," Mr Moller said.

The rally Citroens are prepared at Citroen's Trappes competition department under the management of endurance race champion Guy



THE Citroen BX rally car in full war paint and disposing of nearly 400 horsepower.

Verrier and are being driven in nine of the 12 title rounds by former European champion Jean-Claude Andruet, who took the car to sixth outright in the Swedish Rally, and Philippe Wambergue.

An electronically-controlled fan pre-compresses incoming air in the KKK Type 26 turbocharger in the Citroen's motor to eliminate turbo-lag and is pre-set to cut-out when boost reaches the 1.3 bar level.

"The electronic turbo management significantly improves the Citroen BX4TC's response in rally conditions, a facet of turbo performance which has, in the past, been a drawback in competition," Mr Moller said.

Powered by a 2.142-litre motor linked through the Citroen SM five-speed gearbox, the car has Citroen's hydropneumatic suspension, with special modifications for rallying to both improve its

ability in punishing rally conditions, and for servicing.

The hydropneumatic suspension sphere can be replaced within 75 seconds to allow fine tuning for individual rally stages.

While the advanced high output motors are only available to 20 specially built "evolution" cars, 200 BX4TCs have been built to comply with the FISA motor sport authority's group B homologation.

All models have identical suspension, steering and braking systems, while the evolution cars are clad in a Kevlar and glass-fibre body to reduce weight to within 20 kg of the 960 kg FISA limit for the class.

The hydraulically-assisted brakes and power steering are similar to Citroen's production road cars, with the exception of four-piston CX type disc brakes with a manually operated front-back bias control.

THE regular 200 Series group B car has Bosch K-Jetronic fuel injection, with Garrett turbocharger producing 200 horsepower and a composite body of steel with fibre resin front and back guards, hatch and bonnet.

Weighing 1280 kg, the cars are capable of 220 kmh, 0 to 100 kmh in 7.5 seconds and standstill to 400 metres in 14.3 seconds.

The world championship program for the BX4TC includes the Monte Carlo and Swedish rallies plus the upcoming Corsican (May 1), Acropolis (May 31), the 1000 Lakes-Finland (September 3), San Remo-Italy (October 12) and RAC Rally of Great Britain (November 16).

— BRYAN HANRAHAN

The Herald, Tues., Apr. 15, 1986

WHEELS



To break into the highly competitive European supermini market, Citroen has produced the AX, a car bristling with new ideas to make it roomier, lighter, faster and less thirsty. Story from Roger Bell

FOR HORS D'OEUVRE, digest a few statistics: power 41 kW; weight 645 kg; drag factor 0.31. Now for the main course: 0-97 km/h 12.5 seconds; top speed 160 km/h; fuel consumption at 120 km/h (56 mph) 24.5 km/l (68.9 mpg). Figures (and these are the manufacturer's claims), don't tell the whole story, but they highlight what's best about Citroen's remarkably fast and frugal new AX featherweight five-seater.

The data here is for the mid-range 1124 cm³ AX11 with optional five-speed gearbox, but Citroen asserts that all three models in the AX range comfortably out-pace and out-pocket every

European rival in sight. And what formidable opposition that is. Europe's supermini sector accounts for three million sales a year, two-thirds of them three-door hatchbacks. It's into this territory that the AX muscled with real authority, challenging the established stars dominated (in sales order) by the Fiat Uno, Peugeot 205, Renault 5, Ford Fiesta, GM Corsa/Nova and VW Polo.

By early next year, production will have risen to 1000 cars a day from the modernised Aulnay-sous-Bois assembly plant in Paris. Citroen has invested £450m (about \$A1080m) in the AX project, with £92m (\$A221m) going on engineering development.

The AX starts a line of Citroens that will run alongside, not displace, the evergreen 2CV. It's essentially a clean-sheet design inspired by Citroen's Eco 2000 research car.

Several design tricks were used to make the three-door body unusually roomy as well as aerodynamically efficient. The transversely mounted engine is upright and about face, exhaust leading, carburettor behind, in the deepest part of the bay to allow a plunging hood line. Steep raking of the windscreen gives a far-forward fascia besides contributing to good air penetration. The roofline is long, good for airflow as well as headroom, while space is further boosted by a lie-flat rear suspension. And the space is used well, with lots of storage and a versatile rear seat folding arrangement.

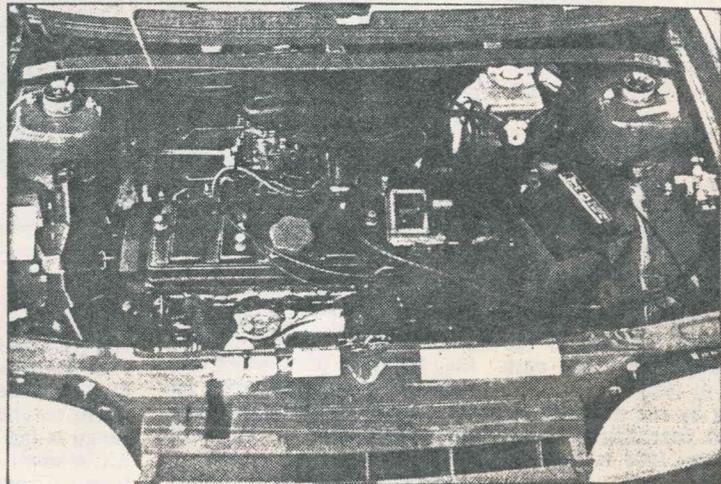
To shed weight, Citroen has done away with all noise-isolating subframes. Making a virtue of necessity (with unconvincing results), the front suspension and powertrain are mounted directly to the body, weighing only 131 kg as a bare shell. Citroen says this gives a car-of-the-future weight-to-surface area ratio. Extra thin metal is used where strength is not needed, thicker gauge sheet where it is, in place of hefty boxing. Side doors and guards are in galvanised steel for rust protection, much of the rest is electrocoated.

The AX's new range of overhead cam engines is clearly destined for use elsewhere in the PSA empire. Outputs are nothing special (34 to 49 kW), but power/weight ratios are. It's this, and the low drag, that gives the AXs their excellent performance and economy. High gearing, (31 to 34 km/h per 1000 rpm in top) also cuts consumption.

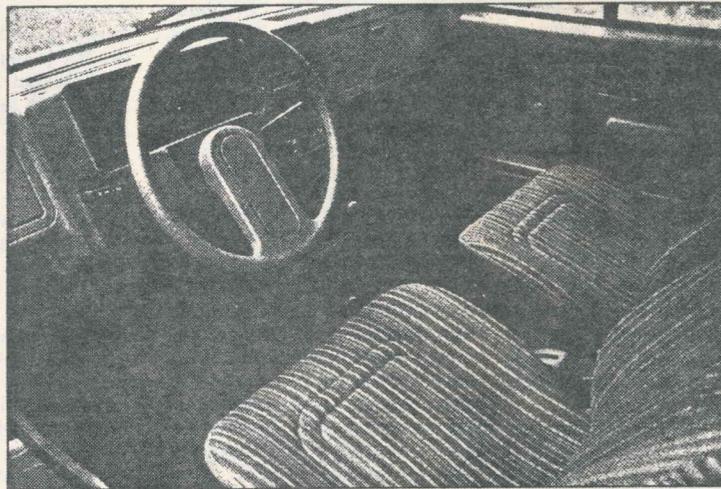
Suspension is Euro *ordinaire*, by MacPherson struts up front and trailing arms suspended to cross-tube torsion bars behind. At the back, horizontal dampers avoid any space-stealing intrusions in the boot.

On a pre-launch test drive in France, the top-of-the-range, 1360 cm³ five-speed AX14 immediately impressed for its smart and roomy cabin and lively performance. The engine is gutsy and eager. Reasonably smooth and quiet, too, up to around 4500 rpm when a disturbing boom assails your ears. So much for eliminating subframes...

There are two sides to chassis refinement, as well. On smooth surfaces, little road-induced noise penetrates the cabin. On coarse and bumpy ones, though, there's a lot of rumbling and thudding, especially when cornering hard. But



Transverse overhead-cam engines have good power for their low weight and are set well back to allow a slippery bonnet line. Interior is smart, not excessively Citroen, and provides plenty of room and storage



the AX14 can set a cracking pace and not buzz its occupants senseless.

Steering is nicely weighted but lacking in precision. It's too soft and elastic to give the sort of pin-sharp accuracy you get from some more stiffly sprung rivals. Flick the wheel and you're as much aware of body roll as a change in direction. Even though there are no Gallic eccentricities in the control department, there's never much doubt you're at the wheel of a Citroen.

Not that the AX14 is deficient in cornering power or stability. It's just that big sweeps of the wheel are needed when pressing on to counter tardy turn-in response. Holding a tight and accurate line is no problem. Nor is travers-

ing unmade roads, which the AX's soft, long-travel suspension takes in its stride. On all but the smoothest metalled surfaces, the ride is certainly smooth-edged but also a bit mobile and agitated. Despite Citroen's assertion that ride quality is superior to that of most rivals, I was disappointed with it. Even so, comfort gets a high rating, though the front seats could do with a lot more side support.

The AX is a competent newcomer, notable most for its good looks, liveliness and a great deal of well used space. The car will only earn its chevrons, though, when Citroen's performance and economy claims have been verified by independent tests. □

Motor Market and Leisure Vehicles

Citroen aims to double sales

By CHRISTOPHER de FRAGA

THE idiosyncratic French-made Citroen has followed Maserati in announcing a strong return to the Australian market.

Both makes cater to a small band of dedicated enthusiasts, and have sold slowly for some years.

Amid generally gloomy portents for this year's car market, the pair show unexpected but encouraging optimism.

Most industry forecasters estimate the 1987 market will not be much better than last year's dismal affair.

Citroen importers are seeking a modest doubling of the almost insignificant 200 cars they sold in 1986.

Judging by the 45 cars left unsold last year, Citroen over-estimated its 1986 market by 20 per cent.

However, last year Citroen's Australian dealer network had not been fully established.

"We plan to increase dealer numbers from 12 to 35," said New Zealander Ross Moller, who runs the Citroen importing company, Franzcar. His company was concerned that dealers still were too widely spread.

"We plan to sell 400 to 500 BX TRi Citroens in Australia this year," said Mr Moller, whose company also sells Citroens in New Zealand.

The 1986 BX TRi has been changed cosmetically and mechanically. It has a more conventional interior and wheel flares.

Part of Franzcar's plan this year includes selling cars in France to Australians for use on European holidays.

Under a Citroen and Franzcar scheme, Australians visiting Europe fly with Japan Air Lines via Tokyo to Paris where they can pick up their new Citroen.

The scheme offers car buyers what Mr Moller calls the "ultimate test drive".

The cars are sold to the visitor without duty or sales tax,



The stylish Citroen BX TRi hatchback.

under a French Government scheme to increase tourism. Buyers get a Citroen-guaranteed buy-back price when they pick up their car, the price being related to the model and the period of use — 21 to 180 days.

Owning, rather than leasing the car saves hundreds of dollars and some insurance, and avoids tax problems.

Citroen buys the cars back and, because they are used, sells them to its major retailers.

All the Australian user has to do is have the car serviced according to the book, at 1000 kilometre and then 10,000 kilometre intervals.

Renault had a similar system in the 1970s, using a French airline.

Citroen has given its 1986 BX a conventional dashboard with round dials, new and conventional heating controls, better interior storage space and self-cancelling turn signals — changes designed, like the car itself, to attract buyers not previously Citroen owners.

More than a million BX models have been sold in four years, suggesting this first of a series of Citroens in a more conventional mould is proving successful.

Citroen built 626,000 cars last year, exports rose by a third and the company, a subsidiary of Peugeot, returned to profit for the first time in six years.

The program also has been successful here, with half the 200 BXs sold in Australia last year going to previously non-Citroen owners.

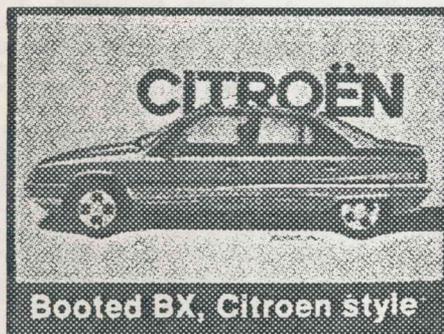
The second model in the new range is the highly acclaimed AX, a small car with many attractive, practical and neat features.

Franzcar is examining the car now to see what it might need before it can be brought here. All that had to be done to the BX to make it meet Australian Design Rules was to add Australian seat belts and some labels.

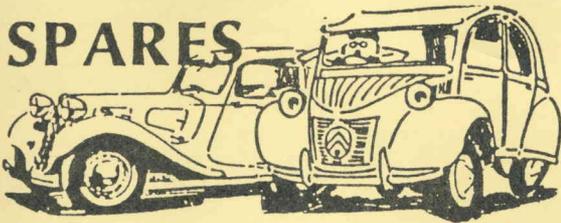
Changes to the new unleaded-fuel BX for 1986 include the addition of LU2 Bosch fuel injection, which is also used on the Swiss and Swedish versions. The unleaded model loses only 0.74 of a kilowatt.

With the exception of the roof, the panels in the BX body are now galvanised. The BX was among the first cars to have a plastic bonnet and rear hatch; the windows in the rear roof pillars are made from polycarbonate.

★ ★ ★



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35 Newman St
Thornbury 3071.
Phone: (03) 480 3560.

HOURS:

10am - 5.30pm
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PLEASE NOTE THE NEW HOURS FOLKS. Please, oh, please try to restrict your calls to these hours. Remember, the name's not Arkwright and we're not open all hours.

NOTE: ORDER FORMS TAKE PRECEDENCE OVER PHONE CALLS.

PARTS LIST (TRACTIONS) as at 1/9/86.

Big boot top rubber	\$12.80
Big boot bottom rubber	11
Rubber door seal	25.60
Scuttle vent rubber	25
Pedal rubber	5.50
Rubber grommet petrol filler (2 sizes)	7.50
Rear bumper grommet	12.50
Rubber V-blocks for doors (8)	34.50
Bonnet rubbers	0.30
Big boot paint protectors (under handles & lights)	25
As above (small boot)	25
Windscreen rubber - alum frame	15.50
Steering rack boots (pair)	26
Gearbox gasket set	8
Complete gasket set motor L15/11B4	76.44
Sump set "/"	10.20
VRS set "/"	50
Complete gasket set motor Big 6	70
Exhaust muffler incl. tail pipe L15	95
" B15	105
" B6	140
Rubber exhaust hanger	2
Gearbox output shaft seal	8.50
Front hub outer seal	6
" inner "	6
Rear hub seal	6
Door lock set French big boot	22
" Small "	22
Radiator hose upper/lower	13
Fan belt	12.25
Door lock springs	3
Piston & liner set	360
Liner seal	7.50
Exhaust valve	15
Inlet valve	15
Outer cross (driveshaft)	43.80
Water pump shaft & bush	18

Water distributor tube (head)	20
Tie rod ball joint kit	65
Upper/lower ball joint boot (leather)	12
Wheel cylinder rear 4-cyl (1" diam)	40.70
Brake hose front/rear Slough	28
" rear French	22
Brake master cyl kit	9.50
Shocker mount rubber	1
Throttle shaft 32 PBIC 0.5 mm O/S	20
Hub & bearing puller	105
Lower ball joint puller	65
Bonnet strip clamp (internal)	1.50

DYANE

Brake hose	22
Seat rubber	1
Wiper blades pair	10

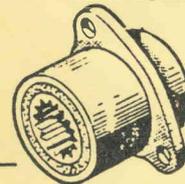
Early 2CV parts, all new unless indicated, LIMITED STOCKS, NEVER TO BE REPEATED OFFER!!

Clutch linings	\$15
Exhaust valves	\$9
Rear engine mount	\$9
Tie rod covers (metal)	\$3
Suspension arm seals	\$8.50
Engine push rods	\$2.50
Suspension bumper rubbers	\$4
Starter motor (reco)	\$40
Crown wheel & pinion	\$200
Front brake drum	\$15
Rear brake drum	\$15
Starter Bendix unit	\$10
Windscreen wiper speedo worm & drive	\$8
Front over-riders	\$5
Head gaskets 375 cc	\$2
Lock & key set - 2 barrels, 2 keys	\$15
Oil pump bodies, bronze, no gears	\$10
Valve rocker arm & shaft	\$15
Valve springs	\$1
Steering pinion & bearings	\$15
Brake bleed nipples & caps	\$1.50
Dip stick & holder rubber	\$1.50
Door catch, righthand front	\$6
Ditto LHF	\$6
Accelerator pedals	\$1

STOP PRESS

Wanted, wanted: Your old silentblocs for re-conditioning. The Spares Department needs any amount, be it one or 10, we will be pleased to purchase them off you, or if you'd like to donate them, we'll have no hesitation in accepting your offer!

Peter Boyle
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Thornbury 3071
(03) 480 3560.



By the way, I just can't justify the time to chase up second-hand parts, so if you need them, please advertise in the classifieds in the magazine.

Don't forget the firm's motto:

Never fear!
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When your motor needs new gear!

P. Boyle

Special, never-to-be-repeated offer: One set only, Light 15 driveshafts, fully reconditioned in France. At cost, last chance: \$820. Contact Peter Boyle.

Super special: New fabricated replacement ends for rear of Traction front mudguards. L11/B15/B6. LHS & RHS. \$55 each.

